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CAPITAL PUNISHMENT IN CONNECTICUT, 1973-2007:

A COMPREHENSIVE EVALUATION FROM 4686 MURDERS TO ONE EXECUTION

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October 15, 2011

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CAPITAL PUNISHMENT IN CONNECTICUT, 1973-2007:

A COMPREHENSIVE EVALUATION FROM 4686 MURDERS TO ONE EXECUTION

Professor John J. Donohue III

October 15, 2011

I. EXECUTIVE SUMMARY

A. THE THREE MAIN COMPONENTS OF THE REPORT

This study explores and evaluates the application of the death penalty in Connecticut from 1973 until 2007, a period during which 4686 murders were committed in the state.[1] The objective is to assess whether the system operates lawfully and reasonably or is marred by arbitrariness, caprice, or discrimination. My empirical approach has three components. First, I provide background information on the overall numbers of murders, death sentences, and executions in Connecticut. The extreme infrequency with which the death penalty is administered in Connecticut raises a serious question as to whether the state's death penalty regime is serving *any* legitimate social purpose.

Specifically, of the 4686 murders committed during the sample period, 205 are death-eligible cases that resulted in a homicide conviction, and 138 of these were charged with a capital felony. Of the 138, 46 were allowed to plead guilty to a non-capital offense. Of the remaining 92, 66 were convicted of a capital felony and 26 were acquitted of a capital felony. Of the 66, 29 then went to a death penalty sentencing hearing, resulting in 9 sustained death sentences, and one execution (in 2005). A comprehensive assessment of this process of

[1] Table 1 in Section VII of the report notes that there were 4578 criminal, non-negligent homicides in Connecticut between 1973 and 2006, and "Crime in Connecticut 2007" lists an additional 108 such homicides for that year, bringing the total for the period from 1973-2007 to 4686. For ease of reference, the FBI Uniform Crime Reports refer to such crimes as "murders," and I follow that practice unless further refinement is needed.

winnowing reveals a troubling picture. Overall, the state's record of handling death-eligible cases represents a chaotic and unsound criminal justice policy that serves neither deterrence nor retribution.[2]

Second, mindful of the Supreme Court's mandate that "[c]apital punishment must be limited to those offenders who commit 'a narrow category of the most serious crimes' and whose extreme culpability makes them 'the most deserving of execution,'"[3] I evaluate whether the crimes that result in sustained death sentences are the most egregious relative to other death-eligible murders. Any claim to properly punishing such a narrow and specific category of the most serious offenses can definitively be put to rest. The Connecticut death penalty regime does not select from the class of death-eligible defendants those most deserving of execution. At best, the Connecticut system haphazardly singles out a handful for execution from a substantial array of horrible murders.

Third, I conduct a multiple regression to test more formally for the presence of arbitrariness or discrimination in implementing the death penalty. Specifically, I examine the impact on capital charging and sentencing decisions of legitimate factors that bear on the deathworthiness of 205 death-eligible cases, as well as legally suspect variables—such as race and gender of the defendant, race of victim, or judicial district in which the murder occurred.

---

[2] The lack of any deterrence effect of the death penalty in Connecticut is widely acknowledged by knowledgeable researchers. Donohue and Wolfers, "Estimating the Impact of the Death Penalty on Murder," 11 American Law and Economics Review 249 (Fall 2009); . Donohue and Wolfers, "Uses and Abuses of Empirical Evidence in the Death Penalty Debate," 58 Stanford Law Review 791 (2005); Kovandzic, T. V., Vieraitis, L. M. and Boots, D. P. (2009), Does the death penalty save lives? Criminology & Public Policy, 8: 803–843.

Even the famously pro-death penalty (former) Waterbury State's Attorney John Connelly conceded that the death penalty in Connecticut is not a deterrent to murder. *The Death of Capital Punishment?* on *Morning Edition: Where We Live* (WNPR Connecticut radio broadcast, March 10, 2008).

[3] *Roper v. Simmons*, 543 U.S. 551, 568 (2005) (quoting *Atkins v. Virginia*, 536 U.S. 304, 319 (2002)).

The Connecticut death penalty system decidedly fails this inquiry; arbitrariness and discrimination are defining features of the state's capital punishment regime.[4]

B. THE SEVEN MAIN FINDINGS OF THE REPORT

This section briefly summarizes the seven specific findings I present in this report. First, Connecticut's death penalty regime today is assailable for producing results similar to the Georgia regime indicted by the Supreme Court's 1972 decision, *Furman v. Georgia*.[5] There the Supreme Court denounced an arbitrary and capricious capital punishment system that led to wantonly freakish and rare applications of the death penalty. As the U.S. Supreme Court highlighted in *Furman*, the sheer infrequency of death sentences and executions, given the number of murders, creates a strong suspicion that the determination of who is to die is highly arbitrary. The system could only be saved if it could be shown that those few death sentences and even fewer executions are reserved for the defendants who, because of the nature of their crimes, are most deserving of death.

Connecticut has executed one criminal defendant over a period during which there were 4686 murders. Efforts at sharpening the definition of death-eligible cases have not changed the Connecticut system's essential flaw: once the system has operated through the enormous discretionary decisions of prosecutors and juries, there is no meaningful basis for distinguishing

[4] This report supersedes the earlier version of my report and underscores how robust the initial findings have proven to be. Specifically, the core findings of arbitrariness and discrimination along racial and geographic lines have remained strong even as I have refined the sample of death-eligible cases, doubled the number of coders (from 9 to 18) used to assess the egregiousness of 205 cases (University of Connecticut coders have been added to supplement the initial group of Yale coders), and altered the specification of the regressions in various robustness checks. In addition, I have been able to respond to the various criticisms raised by the professional expert witness Stephan Michelson hired by the State in his seven reports reports (each roughly of 500 pages) and his various other memoranda and submissions. These reports are filled both with much irrelevant and hyperbolic commentary and criticisms that are often misleading, incorrect, or inconsequential. I highlight some of the most arresting errors in Michelson's reports, although largely ignore the uniformly inaccurate and unprofessional ad hominem attacks that populate his reports.

[5] 408 U.S. 238 (1972).

the very few who receive sentences of death from the many capital-eligible murderers who do not.

As Justice Brennan observed, "Evidence that a penalty is imposed only infrequently suggests not only that jurisdictions are reluctant to apply it but also that, when it is applied, its imposition is arbitrary and therefore unconstitutional. *Furman v. Georgia*, 408 U.S. 238, 92 S.Ct. 2726 (1972)."[6] 15 percent of death-eligible murder trial convictions resulted in a death sentence in pre-*Furman* Georgia, a level that was deemed to be freakishly rare and therefore arbitrary and unconstitutional in the *Furman* case itself.[7] But this study reveals that Connecticut imposes sustained death sentences at a rate of 4.4 percent (9 of 205) that is among the lowest in the nation and more than two-thirds lower than the 15 percent pre-*Furman* Georgia rate that gave rise to the finding of a freakishly rare imposition of a penalty.[8] This evidence provides a factual basis for the claim that the Connecticut death penalty regime is unconstitutional because it fails to comply with the Eighth Amendment's "narrowing" requirements recognized by the United States Supreme Court in *Furman*.

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[6] Justice Brennan, dissenting in *Tison v. Arizona***,** 481 U.S. 137, 107 S.Ct. 1676 (1987).

[7] David C. Baldus, George G. Woodward & Charles A. Pulaski Jr., Equal Justice and the Death Penalty: A Legal and Empirical Analysis at 80 (1990): "In *Furman v. Georgia*, the infrequency with which juries actually imposed death sentences in death-eligible cases concerned each of the concurring justices. The *Furman* opinions suggest that the justices estimated that the national death-sentencing rate among convicted murderers was less than 0.20. Our pre-*Furman* data from Georgia indicated an unadjusted death-sentencing rate of 0.15 (44/294) in cases that resulted in murder convictions after trial, all of whose defendants were death eligible under Georgia law. This figure is quite consistent with the Court's estimate of the national rate."

[8] In an affidavit recently submitted in another case, David Baldus stated that "the post-Furman California death sentencing rate of 4.6% among all death-eligible cases is among the lowest in the nation and over two-thirds lower than the death sentencing rate in pre-Furman Georgia" (p.36). Connecticut's rate is smaller still than California's. The considerably higher rates of death sentencing that were still condemned in *Furman* and the low rates in California are identified in a recent empirical study of the California system conducted by George Woodworth, Michael Laurence, Robin Glenn, Richard Newell, and David Baldus that is based on a 1,900 case sample drawn from a universe of 27,453 California homicide convictions with offense dates between 1978 and 2002. Decl. of David C. Baldus on November 18th, 2010 (Exhibit 219), *Ashmus v. Wong* No. 3:93-cv-00594-TEH, U.S. District Court, ND Calif, page 4, and Table 5 on page 29.

Second, there is no meaningful difference between capital-eligible murders in which prosecutors pursue capital charges and those in which prosecutors do not. To assess whether the death penalty is being applied to the worst cases, I evaluated the egregiousness of 205 capital-eligible murders using two different egregiousness measures. I found that cases prosecutors charge as capital are virtually indistinguishable in these measures of deathworthiness from cases where prosecutors choose not to bring capital charges. This finding is difficult to square with the U.S. Supreme Court's Court's command that "[c]apital punishment must be limited to those offenders who commit 'a narrow category of the most serious crimes' and whose extreme culpability makes them 'the most deserving of execution.'"[9]

Third, this command that within the class of death-eligible murders, the death penalty must be limited to the worst of the worst is also violated by the highly arbitrary sentences that capital-eligible defendants receive. For any given sentence, I found wide variations in the degree of egregiousness of the murders that can lead to that sentence. Similarly, at every level of egregiousness, I observed a wide range of sentences. In other words, Connecticut has not limited its use of the death penalty to the "worst of the worst," since many equally egregious or more egregious cases result in non-death sentences. Eight of Connecticut's nine affirmed death sentences were *not* among the 15 most egregious cases. For some cases resulting in a death sentence, literally 60 to well over one hundred cases in the sample of 205 are more egregious yet did not get the death penalty (see Table 9 in Section VII below). For the 8 defendants in our sample that are currently on death row in Connecticut, the median number of equally or more egregious death-eligible cases receiving non-death sentences is forty-six under the Composite egregiousness measure and thirty-five under the Overall egregiousness score. While this is what

[9] *Roper v. Simmons*, 543 U.S. 551, 568 (2005) (quoting *Atkins,* 536 U.S. at 319).

one would expect from an arbitrary and capricious process,[10] it is not consistent with the idea of a fair and consistent criminal justice system that limits the death penalty to the worst of the worst within the class of death-eligible cases.

Fourth, while the data analyzed in this report comes from 205 death-eligible cases that end with a conviction, the focus on this limited sample *understates* the degree of arbitrariness in the system. If one widens the lens to focus on *all* death-eligible murders, the system is even less predictable than the above results indicate. Just prior to the adoption of the state's new death penalty statute in 1973, only 7 percent of murder cases were not cleared by arrest or extraordinary means. Since that time, there has been a steady erosion in the fraction of murders that are cleared. Today, roughly 40 percent of all Connecticut murderers go unsolved. If this current rate of clearances and death sentencing were to persist, then for every murderer who receives a sustained death sentence, at least fifteen death-eligible murderers would not be punished at all![11] Thus the wide sentencing disparities I describe above substantially <u>understate</u> the huge disparities in outcomes that are found within the larger class of death-eligible murders. Any retributive justification for the death penalty is severely compromised in a system that would execute nine while 137 comparable killers were able literally to get away with murder.

---

[10] An enormous degree of unreviewable (or not effectively reviewable) discretion at many junctures in the criminal justice system—a hallmark of the Connecticut death penalty system—is the breeding ground for the operation of prejudice. *See* IAN AYRES, PERVASIVE PREJUDICE? UNCONVENTIONAL EVIDENCE OF RACE AND GENDER DISCRIMINATION (2001). Discriminatory patterns have been identified even in systems that take far greater care to avoid racially discriminatory decisions than are made in the operation of the Connecticut death penalty regime. *See, e.g.*, Joseph Price & Justin Wolfers, *Racial Discrimination Among NBA Referees* (Nat'l Bureau of Econ. Research, Working Paper No. 13206, 2007) (noting substantial evidence of racial discrimination among NBA referees despite the claim that they are among the mostly highly reviewed of employees in the world).

[11] If nine of 205 is the rate of death sentencing among capital-eligible murders, then we would expect a similar number of sustained death sentences in the next 205 death-eligible murders that make it into the criminal justice system. Yet at the current clearance rate of 60%, catching 205 murderers means that 342 death-eligible crimes would have been committed and 137 murderers would never be caught. 137 is more than fifteen times the nine we assume will be ultimately sentenced to death. Moreover, not all cases that are cleared lead to a conviction (recall the arrest of OJ Simpson cleared the double-murder he was charged with but did not lead to a conviction). The above numbers do not capture this other avenue in which death-eligible murderers go free.

Fifth, the Connecticut death penalty system results in disparate racial outcomes in the imposition of sustained death sentences that cannot be explained by the type of murder or the egregiousness and other aggravating factors of the crimes involved. Looking at the raw statistics (in Table 20 of Section IX, which is also reproduced in this Executive Summary), one sees that minority defendants who commit capital-eligible murders of white victims are six times as likely to receive a death sentence as minority defendants who commit capital-eligible murders of minority victims (12 percent versus 2 percent).[12] Minority defendants who murder white victims are three times as likely to receive a death sentence as white defendants who murder white victims (12 percent versus 4 percent).

If we control for the factors of the crime through regression analysis, these disparities become even larger outside the Waterbury judicial district, as shown in Tables 24-26 of Section IX. For example, for the most common type of capital felony -- multiple victims cases, which comprise 38 percent of the 205 death-eligible cases -- a minority killing a white victim outside Waterbury is 11 to 13 times as likely to be sentenced to death as a minority killing a minority or a white killing a white. Of course, it is a clear violation of Equal Protection when "members of [one] race [are] being singled out for more severe punishment than others charged with the same offense." Furman v. Georgia, 408 U.S. at 449 (Powell, J. dissenting).

Sixth, the regression analysis of capital felony charging decisions provides further evidence of the arbitrariness and racial bias in Connecticut's capital punishment regime. Specifically, controlling for the type of murder as well as the egregiousness and the number of special aggravating factors in a case, minority killers of whites are treated most harshly, experiencing a charging rate that is roughly 20-22 percentage points higher than those who kill minority victims (see Table 22).

[12] "Minority" refers to Hispanics and non-whites. "White" therefore refers to non-Hispanic whites.

These findings for the Connecticut death penalty system parallel those of recent studies of the application of the death penalty in other states: defendants who murder white victims are more likely to receive death sentences and are more likely to be executed subsequent to a death sentence than are defendants who murder non-white victims, particularly if the defendants are members of a racial or ethnic minority.[13]

Seventh, regression analysis also confirms that there are dramatically different standards of death sentencing across Connecticut. Capital-eligible defendants in Waterbury are sentenced to death at enormously higher rates than are capital-eligible defendants elsewhere in the state (see Tables 22 and 24-26). The arbitrariness of geography in determining criminal justice outcomes is a dominant factor in the Connecticut death penalty regime, despite the fact that, as a small state with no judicial election of judges or prosecutors, there is no articulated rationale for tolerating such immense geographic variation in capital sentencing. Moreover, race of both defendant and victim is strongly and statistically significantly related to whether or not the state pursues and obtains a death sentence – an indication that the death penalty system in Connecticut is not only arbitrary but is also impermissibly discriminatory.

An essential message from the regression analysis across an array of murder categories is that the likelihood that a death-eligible murder will result in a death sentence is at least an order of magnitude higher for minority on white murders (Tables 24-26). Minority on white murders will also have an order of magnitude higher probability of receiving the death sentence in Waterbury versus elsewhere in the state, and all other murders will have roughly two orders of

[13] *See, e.g.*, David C. Baldus & George Woodworth, *Race Discrimination and the Legitimacy of Capital Punishment: Reflections on the Interaction of Fact and Perception*, 53 DePaul L. Rev. 1411, 1425 (2004) (reviewing race of victim data within states and concluding that "[t]hese data strongly suggest that defendants with white victims are at a significantly higher risk of being sentenced to death and executed than are defendants whose victims are black, Asian, or Hispanic"); David C. Baldus & George Woodworth, *Race Discrimination in the Administration of the Death Penalty: An Overview of the Empirical Evidence with Special Emphasis on the Post-1990 Research*, 41 No. 2 CRIM. L. BULL. 6 (2005) ("on the issue of race-of-victim discrimination, there is a consistent pattern of white-victim disparities across the systems for which we have data").

magnitude higher rates of death sentencing in Waterbury versus elsewhere. These are prodigious race and geographic effects on who is sentenced to die in Connecticut.

Table 20: Capital Charging and Death Sentencing Rates in Connecticut for 205 Death-Eligible Cases by Race of Defendant/Victim					
	1. Total - 205	**2. Minority/White – 34**	**3. Minority/ Minority - 92**	**4. White/White - 74**	**5. White/ Minority - 5**
Means for 4-12 and 1-5 Egregiousness & Special Aggr. Fac	(8.4, 3.6, 3.7)	(8.2, 3.6, 3.9)	(8.2, 3.4, 3.5)	(8.6, 3.8, 4.0)	(9.0, 3.8 , 2.8)
1. Rate of Capital Felony Charging (% and ratio)	67.3 (=138/205)	79.4 (=27/34)	60.9 (=56/92)	70.3 (=52/74)	60.0 (=3/5)
	(8.4, 3.6, 4.0) (8.3, 3.5, 3.3)	(8.2, 3.6, 4.1) (8.3, 3.7, 3.3)	(8.2, 3.4, 3.7) (8.2, 3.4, 3.1)	(8.7, 3.9, 4.3) (8.3, 3.6, 3.4)	(8.7, 3.8, 1.3) (9.4, 3.9, 5.0)
a. Male Defendants	68.1 (=130/191)	78.8 (=26/33)	59.8 (=52/87)	73.1 (=49/67)	75.0 (=3/4)
	(8.4, 3.6, 4.0) (8.2, 3.5, 3.4)	(8.2, 3.6, 4.1) (8.3 3.7, 3.3)	(8.1, 3.3, 3.9) (8.2, 3.4, 3.2)	(8.8, 3.9, 4.3) (8.3, 3.6, 3.6)	(8.7, 3.8, 1.3) (8.0, 3.8 6.0)
b. Female Defendants	57.1 (=8/14)	100 (=1/1)	80.0 (=4/5)	42.9 (=3/7)	0 (=0/1)
	(8.3, 3.8, 2.8) (8.8, 3.7, 2.2)	(7.1, 3.5, 4.0) (no cases)	(9.0, 4.0 , 1.8) (8.6, 3.8, 0)	(7.9, 3.5, 3.7) (8.4, 3.5, 2.3)	(no cases) (10.7, 4.1, 4.0)
c. Waterbury	75.0 (=9/12)	100 (=2/2)	60.0 (=3/5)	75.0 (=3/4)	100 (=1/1)
	(8.9, 4.0, 3.2) (10.3, 4.3, 2.7)	(8.4, 4.3 , 4.0) (no cases)	(8.5, 3.8, 2.0) (11.0, 4.4, 3.5)	(9.2, 4.0, 4.3) (9, 3.9, 1)	(9.7 , 4.2, 2.0) (no cases)
d. Non-Waterbury	66.8 (=129/193)	78.1 (=25/32)	60.9 (=53/87)	70.0 (=49/70)	50.0 (=2/4)
	(8.4, 3.6, 4.0) (8.2, 3.5, 3.3)	(8.1, 3.6, 4.1) (8.3, 3.7, 3.3)	(8.2, 3.4, 3.8) (8.0, 3.4, 3.1)	(8.7, 3.9, 4.3) (8.3, 3.6, 3.5)	(8.2, 3.5, 1.0) (9.4, 3.9, 5.0)
2. Rate of Death Sentencing (Sustained) (% and ratio)	4.4 (=9/205)	11.8 (=4/34)	2.2 (=2/92)	4.1 (=3/74)	0 (=0/5)
	(9.0, 4.2, 4.9) (8.3, 3.6, 3.7)	(8.2, 4.1, 3.8) (8.2, 3.6, 4.0)	(9.1, 4.2, 5.0) (8.2, 3.4, 3.5)	(10.1, 4.3, 6.3) (8.5, 3.8, 3.9)	(no cases) (9.0, 3.8 , 2.8)
a. Male Defendants	4.7 (=9/191)	12.1 (=4/33)	2.3 (=2/87)	4.5 (=3/67)	0 (=0/4)
	(9.0, 4.2, 4.9) (8.3, 3.5, 3.8)	(8.2, 4.1, 3.8) (8.2, 3.6, 4.0)	(9.1, 4.2, 5.0) (8.1, 3.4, 3.6)	(10.1, 4.3, 6.3) (8.6, 3.8, 4.0)	(no cases) (8.5, 3.8, 2.5)
b. Female Defendants	0 (=0/14)	0 (=0/1)	0 (=0/5)	0 (=0/7)	0 (=0/1)
	(no cases) (8.6, 3.7, 2.5)	(no cases) (7.0, 3.5, 4.0)	(no cases) (8.9, 4.0, 1.4)	(no cases) (8.2, 3.5, 2.9)	(no cases) (10.7, 4.1, 4.0)
c. Waterbury	33.3 (=4/12)	100 (=2/2)	0 (=0/5)	50.0 (=2/4)	0 (=0/1)
	(9.0, 4.2, 5.0) (9.3, 4.0, 2.1)	(8.4, 4.3 , 4.0) (no cases)	(no cases) (9.5, 4.0, 2.6)	(9.5 , 4.1, 6.0) (8.8, 3.9, 1)	(no cases) (9.7, 4.2 , 2.0)
d. Non-Waterbury	2.6 (=5/193)	6.3(=2/32)	2.3(=2/87)	1.4 (=1/70)	0 (=0/4)
	(9.1, 4.2, 4.8) (8.3, 3.5, 3.8)	(8.0, 3.9, 3.5) (8.2, 3.6, 4.0)	(9.1, 4.2, 5.0) (8.1, 3.3, 3.5)	(11.2, 4.8, 7.0) (8.5, 3.7, 4.0)	(no cases) (8.8 , 3.7, 3.0)
Column Totals for Most "Egregious/Aggravated"	**0**	**6**	**6**	**27**	**22**

The darkened boxes identify the highest rate of charging or sentencing for any given row. In every case, the harshest treatment is accorded to the minority on white murders. The shaded individual numbers show the highest levels in each row for my two measures of egregiousness and for special aggravating factors. Note that minority defendant cases tend not to be the most egregious or aggravated (as seen in the last row of the table).

These regression findings—that race and geography are powerful determinants of capital sentencing decisions in Connecticut—are extremely robust to changes in the sample and in specifying the regression models. Within the class of capital-eligible crimes, these impermissible factors are far more consistent and stronger predictors of capital-charging and sentencing outcomes than are legitimate factors—such as the egregiousness of the crime or the presence of special aggravating factors, which of necessity means that Connecticut's death penalty regime fails to single out "the worst of the worst" for execution.

The findings documenting the harsher treatment that the Connecticut death penalty system inflicts on cases with minority defendants and white victims, and the vastly higher pattern of death sentencing in Waterbury virtually leapt out of the raw aggregated data, as highlighted visually in Table 20. The more sophisticated regression results overwhelmingly confirm what we saw in the simple tables and figures: race and geography substantially influence capital outcomes in Connecticut. These results emerge from regression models that control for the types of murders involved, the number of victims, the egregiousness of the crime (measured in two primary distinct ways based on the evaluation of 18 coders, as well as with many variations in specification and disaggregation into component elements), various aggravating factors that might attend the crime, the gender of the defendant, whether the crime is a stranger murder, the record of prior prison sentences of the defendant, or whether we drop out cases that Michelson argues should be omitted. These findings are statistically significant and robust.

Moreover, the arbitrariness and caprice of who is punished for capital-eligible murders is even more drastic than the data on those who are convicted show because a large and growing proportion of the murders in Connecticut remain unsolved. A system designed to promote deterrence and retribution would not waste enormous amounts of resources seeking capital

punishment -- given the widely accepted lack of deterrence conferred by the Connecticut death penalty -- when those resources could be used to help catch the growing number of Connecticut murderers that go scot free.

C. FIVE CONCLUSIONS FROM THE STATE'S EXPERT

One might assume from the prodigious length and strident tone of the (seven!) highly argumentative and unprofessional reports submitted on behalf of the state by Dr. Stephan Michelson that the state's expert disagrees with my conclusions on the most central findings of my report. In fact, if one can get past the rhetoric and unfounded speculations of the Michelson report, five main conclusions can be distilled from Michelson's analysis and his deposition testimony about the capital charging and sentencing process in Connecticut:

1. There are enormous and unexplained geographic disparities.
2. Death sentences are not confined to the worst murders.
3. There is gender bias in death sentencing.
4. There is racial bias in capital outcomes.
5. There is arbitrariness in the key charging and sentencing decisions of the Connecticut death penalty system.

Michelson's deposition testimony substantially corroborates the substance of all five of these indictments of the Connecticut death penalty system. First, on the issue of geographic disparities, Michelson concedes, as he must, that "there are certain crimes that will be prosecuted to the death penalty in Waterbury that won't be in New Haven."[14] Indeed, the evidence is unmistakable and irrefutable that capital sentencing is not uniform across Connecticut, but rather far more prone to death sentencing in Waterbury than in the rest of the state, even though there is no principled basis for the harsher treatment of cases in Waterbury.

[14] Michelson Dep. Sep. 17 2010 960:4 – 960:6.

Michelson recognized this geographic dependence at several points in his depositions and in his latest October 15, 2010 report.[15] For example, he conceded, as the evidence clearly mandated, that there is a statistically significant disparity in the administration of the death penalty based on geography:

> Q ...you would agree that there is a statistically significant disparity in the State of Connecticut's administration of the death penalty based on geography, correct? That's what you said yesterday, correct?
> A Yes, based on the geography that has been defined by judicial districts.[16]

He further acknowledged some of the factors that generated these large geographic disparities:

> Q But you do know that different state's attorneys in the state follow different courses with respect to charging decisions in capital cases because you refer to that in your report, do you not?
> A Well, yes, I believe that to be true.
> Q And you know, for example, because you refer to it in your report, that Prosecutor Connelly in Waterbury prosecutes more aggressively than other prosecutors in the state, correct?
> A Correct.[17]

And just to be clear that Michelson acknowledges that there is "no question" that capital cases will be treated differently across the state's judicial district, consider this exchange:

> Q. And isn't it true that based on your compilation of the data, as the state's retained expert, you have concluded that offenders, similar offenders committing similar capital offenses in different parts of the state are prosecuted differently and receive the death penalty differently for the same offense?
> A. … I say they get the death penalty differently. …
> There is no question that Waterbury is different from New Haven.
> Q. And New Britain. Waterbury is different than New Britain?
> A. Yes, that's right, New Britain would be similar to New Haven.
> Q. So you concluded, as the state's expert, that in the state of Connecticut, the death penalty is administered differently to similar offenders committing similar offenses depending upon where in the state the crime occurs?
> A. I did....

Indeed, in Michelson's regression designed to explain who gets the death sentence, he concludes that being in Waterbury is the most potent predictor -- more powerful than any of my egregiousness measures or even Michelson's own egregiousness measure (**awful**). He writes:

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[15] Michelson Dep. Sep. 17 2010 937:8 – 937:20; Michelson Dep. Sep. 17 2010 956:5 – 956:14; Michelson Dep. Sep. 17 2010 956:20 – 957:3; Michelson Dep. Sep. 17 2010 958:10 – 958:21; Michelson Report, October 15, 2010 at 309 (Michelson describes his regression findings as follows: "That trial in Waterbury leads to the death sentence more than in other districts is no surprise.")
[16] Michelson Dep. Sep. 17 2010 958:10 – 958:21.
[17] Michelson Dep. Sep. 17 2010 956:5 – 956:14.

> The single best explainer (accounting for 40 percent of the variation explained in Figure B23), is that the sentencing occurs in Waterbury. It is undeniable that the prosecutor in Waterbury is more willing to pursue the death penalty at a sentencing hearing, when it is available, than prosecutors in other jurisdictions. Whether there are constitutional implications for the finding is not my concern.[18]

Second, Michelson acknowledges that capital punishment is not reserved for the worst possible criminals. When asked how one Waterbury's District Attorney decides to pursue a capital sentence, Michelson responded: "he says that if it's death eligible, he will ask for the death penalty."[19] Since crimes committed in Waterbury are treated more harshly than *identical* crimes committed elsewhere in the state, as Michelson acknowledged, this necessarily implies that the Connecticut death penalty regimes does not limit the death penalty to the worst possible offenders. Needless to say, nothing about a murder in Waterbury makes it more egregious than a similar crime committed elsewhere in Connecticut.

Indeed, Michelson attempted to test whether capital punishment in Connecticut is limited to the worst of the worst crimes and he found that it was not. In particular, the **awful** variable that he coded to indicate his intuitive ratings of the awfulness of a crime did not relate to whether a crime was charged as a capital offense, as he explains in his deposition:

> Q. To the extent that you tested whether the worst of the worst crimes are charged with the death penalty, you found that there was no statistical correlation that was significant between the awfulness of the crime and the charging decision, correct?
>
> A. I could only say the awfulness of the crime as I see it.
>
> Q. Yes.
>
> A. Then I agree. I developed that measure, and it didn't relate very strongly, strong enough to be in the equation, but not strong enough to convince you.
>
> Q. So you developed a measure of egregiousness, and you found that the measure of egregiousness that you developed and put into your study did not have a statistically significant relationship to the charging decision, as that phrase is used by the majority of econometricians and courts in this country?

[18] Michelson Report, Part B, p. 146 (August 20, 2010).
[19] Michelson Dep. Sep. 17 2010 956:23 – 956:24.

A. Right.[20]

Third, Michelson was emphatic about the impact of sex on the administration of the death penalty, saying it's "certainly true" that gender impacts who gets sentenced to death in Connecticut:

> Q. So that the death penalty in Connecticut is, both in terms of charging and in terms of actually having it imposed, there's a stat -- if you were applying the majority test, there's a statistically significant impact of gender on who gets the death penalty in Connecticut, correct?
>
> A. Well, I don't remember if that's true about charging, but after charging it's certainly true.[21]

And Michelson even indicated that he thought females were virtually immune from the death penalty on the basis of past cases.

> Q. And it's also correct in terms of your evaluation as an expert econometrician, your evaluation of the death penalty in Connecticut is that there is a bias based on gender in who gets the death penalty, correct?
>
> A. I don't think I use the word bias, but I don't know that that's inapplicable. Females do not get the death penalty.[22]

Fourth, although Michelson stumbled badly on the issue of the impact of race on capital outcomes in Connecticut, he conceded several times that his own regressions generated statistically significant findings that race influences outcomes under the Connecticut death penalty.[23] For example in Figure B17 on page 121 of his August 2010 report, Michelson presented a regression analysis of the factors that influence Connecticut capital felony murder charging decisions. The table included a number of variables, including one to measure whether

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[20] Michelson Dep. Sep. 16 2010 804:9 - 805:1. The truth is a bit worse than Michelson reports in his deposition. In fact, his measure of the worst cases, which he claims on page 309 of the August 20, 2010 report to have built on even more complete details of the facts of the crimes than was available in my data set was not only *not* statistically significant, but it was also too weak to be included in his equation (under Michelson's inclusion standards), as he clearly states in his report: "My assessment of the awfulness of the crime was not informative enough to be included as an explainer of the capital charge." Michelson Report, Part B, p. 123 (August 20, 2010). Nor was it included in Michelson's assessment of who gets the death penalty versus life sentences: "my variable **awful** is not related to the death sentence, in this analysis, even enough to be displayed." Id. at 148.

[21] Michelson Dep. Sep. 16 2010 716:21 - 717:3

[22] Michelson Dep. Sep. 16 2010 717:13 - 717:20.

[23] Michelson Dep. Sep. 16 2010 687:13 - 687:25; Michelson Dep. Sep. 16 2010 692:25 - 693:7; Michelson Dep. Sep. 16 2010 700:12 – 700:18; Michelson Dep. Sep. 17 2010 927:17 – 927:23; Michelson Dep. Sep. 17 2010 935:4 – 935:10; Michelson Dep. Sep. 17 2010 973:5 – 973:10.

the murder victim was white (regardless of the race of the defendant). Michelson's regression shows that there is a statistically significant *higher* capital charging rate at the .05 level when the victim is white:

> Q. Okay. Now, in your August 20th, 2010, the right-hand side, is the victim being white a significant – is the victim being white significant for the capital charging decision?
>
> A. I think most people would say yes, even though the T statistic is 1.97.[24]

As I did, Michelson also tested in his Figure B17 whether a black defendant who killed a white victim would be charged more harshly. As Michelson admitted at his deposition, this variable was highly significant in his own regression, with a notably high t-statistic of 3.07:

> Q. Well, what does this table with the 3.07 [t-statistic] show about whether a black defendant and a white victim has an effect on the capital charging decision in Connecticut?
>
> A. Well, I believe it shows very little.
>
> Q. You do?
>
> A. Yes.
>
> Q. If you were one of the experts in the field who used the phrase statistically significant, what would someone say about the 3.07?
>
> A. They would say it's significant at whatever level you want, practically.[25]

Describing the findings of this capital charging equation, Michelson notes in his report that "petitioner's [sic] will be pleased with these results ... [since] it does appear that black defendants with white victims are charged with capital felonies more easily than anyone else."[26] While I certainly don't speak for petitioners, I, for one, was not particularly pleased to learn of

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[24] Michelson Dep. Sep. 16 2010 705:7 – 705:12. Michelson's answer is somewhat confused. *Everyone* would say that this evidence is statistically significant *because* the t-statistic is 1.97, which exceeds the threshold level of 1.96 defining statistical significance at the .05 level.

Michelson acknowledged the race of victim impact on capital charging even more explicitly later in the same deposition with respect to a prior version of Figure B17 on page 111 of his September 2009 report. He indicated that this table was the same, except that the regressions had been run with two data points that he deleted in his August 2010 report (Michelson Dep. Sep. 16 2010 702:11 – 702:25):

> Q. And whether you use the phrase statistically significant or not, you agree that the data in B-17 in September 1, 2009, that you generated, from the database as you were given, shows that the race of the victim has an impact that is significant on the capital charging decision in Connecticut, correct?
>
> A. Correct. (Michelson Dep. Sep. 16 2010 700:12 – 700:18.)

[25] Michelson Dep. Sep. 16 2010 687:13 - 687:25.

[26] Michelson August 20, 2010 Report at 124.

the racial bias in capital charging in Connecticut, but that is what both my report and Michelson's regression results clearly establish.

Astonishingly, Michelson tries to explain away his (and my) finding by arguing that minority on white murders are treated worst because (apart from race) they are more egregious according to my egregiousness measures.[27] Michelson commits two gross errors in making this last claim. First, the evidence shows that minority on white murders are clearly *not* more egregious (see Table 20), so he gets his factual predicate wrong.[28] Table 20, above, clearly shows that on average white on white murders are more egregious under all three measures than black on white cases. Second, even if these murders were on average more egregious (though they are not), it would not matter since his (and my) regressions *control* for these egregiousness measures and yet we both still find that black on white crimes are treated more harshly. This is exactly what regression is for: to see whether the harsher treatment of minority defendants who murder whites exists *even controlling for the egregiousness of the crimes.* Michelson's own regression confirms that these defendants are treated most harshly, and his effort to refute his own regression is nonsensical. Indeed, as noted above, Michelson's regression controls for egregiousness not only using my measures but his own measure as well (his **awful** variable). Nonetheless, the race effect does not go away.

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[27] Michelson Report, August 20, 2010, app. at B 44.

[28] How did Michelson wrongly come to the conclusion that minority on white murders are more egregious? This is yet another gross error on his part, as I describe in detail in Section X.F of this report. Essentially, Michelson takes my two egregiousness measures and regresses my Overall measure on my Composite measure, while including a control for minority on white murders, which he finds to be statistically significant. He thinks this means minority on white murders are more egregious, which it certainly does not. One can see this by flipping the regressions (to regress the Composite measure on the Overall measure) in which case minority on white murders would come out as *less* egregious.

Michelson's error can be revealed by the following analogy: assume you had two sets of estimates (A and B) of the heights of individuals and you put in a control for Pygmies when you regressed the values of estimate A on the value of estimate B. If the Pygmie coefficient is positive, it means that height estimate A tends to be higher than height estimate B for Pygmies (and hence that height estimate B is lower than height estimate A for Pygmies). It does *not* mean that Pygmies are taller than everyone else, which is the analogous erroneous conclusion to the one that Michelson draws in assessing my two estimates of egregiousness.

The bottom line, then, is that if Michelson had done his analysis correctly, he would presumably have fully accepted the conclusion that minority on white murders are treated more harshly in the Connecticut death penalty system, and that there is no legitimate explanation for this treatment since the race effect remains strong even with a set of controls for the egregiousness of each case.

In fact, Michelson did articulate one mechanism by which black defendants would end up with harsher treatment in capital cases, noting that "among those charged with a capital felony, blacks are particularly unlikely to plead guilty—other than by Alford—even to a reduced charge."[29] Of course, since prosecutors govern the reduction of charges pursuant to a plea, the fact that black defendants would be "particularly unlikely" to secure these reduced charges is highly problematic in light of the findings that minority murders are *not* more egregious or deathworthy than murders committed by whites. Michelson, however, tries to blame the lower rate of pleas observed among this class of defendants on their own poor choices, claiming that "The defendant [in a capital case] can plead to whatever he wants, whenever he wants."[30] Any knowledgeable observer of the criminal justice system knows that claim to be entirely false.

Fifth, Michelson's (both explicit and inadvertent) concessions that the Connecticut death penalty system is marred by race, sex, and geographic disparities that cannot be explained by the

[29] Michelson, August, 20, 2010 report. at 164.

[30]This sentence appears on page 165 of Michelson's July 1, 2009 report and then again on page 150 of his September 1, 2009 report. When David Golub asked Michelson about this statement at Michelson's August 27, 2009 deposition, the following exchange occurred (at the bottom of pg 0390, beginning at line 119):

Q It's a nonsense statement; isn't it, sir?

A No.

But Michelson clearly realized it was nonsense and later changed the statement. By Michelson's November 30, 2009 version, this language became (page 177): "The defendant can initiate a plea to whatever he wants, essentially whenever he wants. The court may not be interested in a plea to anything but this current charge, but the defendant and prosecutor surely discuss such matters, which is why the DCI asks about such discussions." This is still nonsense.

nature of the crimes, and that the system does not limit its harshness to the worst of the worst offenders effectively establish that the system operates in a substantially arbitrary fashion.

Moreover, Michelson acknowledged multiple times that – according to his own findings - the number of victims did not correlate in a sensible way with capital punishment.[31]

> Q: You found that the more people that are killed, the lower the probability of the death sentence in Connecticut?
>
> A: As a characteristic of Connecticut's history, that is true.
>
> Q: That's bizarre, isn't it, sir?
>
> A: Absolutely.[32]

Indeed, Michelson's deposition testimony provides a rather concise description of some of the most obvious constitutional infirmities with the Connecticut death penalty system:

> Q: So what we now know about Connecticut that we agree on is that there's statistically significant disparity by gender, there's a statistically significant disparity by geography, there is an inverse relationship that is surprising between the number of victims and the likelihood of the death penalty in that it's less the more people you kill, and that there is data that shows in [your report] there is a statistically significant disparity ... based upon the defendant being black, the victim being white, and who gets charged with the death penalty, those are all –
>
> A: No, who gets charged with a capital felony.
>
> Q: Okay. You agree with everything I've just said, correct?
>
> A: Yes.[33]

This is the testimony of the *state's* expert witness: the Connecticut death penalty system is marred by statistically significant racial, gender, and geographic disparities, and renders arbitrary decisions that do not limit the application of the death penalty to the worst of the worst offenders. Such a capital punishment regime that selects a small handful of cases from a vast number of murders in such a capricious way cannot advance any legitimate goal of deterrence or retribution. As the Supreme Court stated in *Atkins v. Virginia*, 536 U.S. 304, 318-19 (2002):

[31] Michelson Dep. Sep. 16 2010 865:8 – 865:22; Michelson Dep. Sep. 16 2010 867:1 - 867:16; Michelson Dep. Sep. 16 2010 866:20 – 866:25.
[32] Michelson Dep. Sep. 16 2010 865:10 – 865:16.
[33] Michelson Dep. Sep. 16 2010 867:1 - 867:16.

> Unless the imposition of the death penalty "measurably contributes to one or both of these goals, it 'is nothing more than the purposeless and needless imposition of pain and suffering,' and hence an unconstitutional punishment."

D. THE PROBLEMATIC STREAM OF MICHELSON'S ERROR-FILLED REPORTS

Somewhat paradoxically, the State of Connecticut hired as an expert in this litigation someone with no experience in any matter relating to the criminal justice system in general or the death penalty in particular. Michelson's lack of knowledge in this realm was evidenced by his inability to understand the difference between homicide and murder; his insistence—even after being coached by the prosecutors over multiple breaks and bringing his own hand-written notes into the deposition to aid him in correcting his early mis-statements—that murder was the broader of the two categories; his failure to understand that murder was a crime in the state of Connecticut, and his afore-mentioned claim that "The defendant can plead to whatever he wants, whenever he wants."

Michelson's ignorance of the substance of this litigation is compounded by his eccentric and wrong-headed attitudes on an array of fundamental issues of econometrics (which he also noted was a subject about which he was not an expert). He starts off his report endlessly assailing aspects of the creation of my final data set in a way that might lead the reader into believing that I presented some erroneous data because I could not line up data fields or owing to some other perceived shortcoming. This is completely untrue. In contrast with Michelson, who produced report after report of error-filled tables—every regression I ran did exactly what I said it did, as he himself conceded during his deposition:

> Q: Okay. Now, you had an opportunity because you were given Professor Donohue's tables and figures, you were given his DO files, you were given his equations. Did any of the figures and tables in his report, were any of those not supported by the equations? Do you understand my question, sir?
>
> A: I do. His tables – I replicated them. I said so in B.

Q: So every table and figure in Professor Donohue's report was supported by the underlying DO file and equation, correct?

A: Correct.[34]

Yet, on the third day of a scheduled four-day deposition, Michelson admitted that **he** messed up all of his data, rendering all of his tables worthless:

Q. So it's useless right now to try to question you on the accuracy of the data in your tables; isn't that right?
A. That's your decision.
Q. Well, we can question you about whether you performed -- you did what you said you did, but you are not standing behind any of the data in your tables right now; are you?
A. That's correct.[35]

Q. You agree that the data in your tables, all of your tables, the data is invalid; correct?
A. Is invalid? No.
Q. Yes. Incorrect? How about that, incorrect?
A. I would take, there are data elements that are incorrect and they need to be corrected.
Q. And you have no idea what element in the table is correct and what element in the table is incorrect; correct?
A. Well, that's because these tables are not data.[36]

…
Q. …You have no idea as you sit here today whether any of the conclusions you drew from information in your tables will still be the same conclusion after you fix the tables?
A. That's correct.[37]

Q. Okay, I'll rephrase the question.
A. Every one of these numbers will change.
Q. …You have no idea as you sit here today whether any of the conclusions you drew from information in your tables will still be the same conclusion after you fix the tables?
A. That's correct.[38]

Those statements were made back in September of 2009, and two years later, the endless stream of erroneous tables keeps pouring forth. He has already turned over *seven* different

[34] Michelson Dep., Sep. 17 2010 901:5 - 901:16.
[35] Michelson, Stephan - Deposition transcript. Vol. III 9-30-09 P. 531: 2 - 10.
[36] Michelson, Stephan - Deposition transcript. Vol. III 9-30-09 P. 531: 11-21.
[37] Michelson, Stephan - Deposition transcript. Vol. III 9-30-09 P. 532: 1-5.
[38] Michelson, Stephan - Deposition transcript. Vol. III 9-30-09 P. 531: 22 – P. 532: 5.

reports trying to correct past errors with the last appearing in August of 2010. Since then he has issued revisions in October and November of 2010, and he is still churning out tables that completely contradict the relevant tables he presented in his earlier reports. Apparently, Michelson would now like to clean up the latest mess by submitting report eight, which he claims to be working on.

Michelson follows up his inaccurate and misleading attack on my data set, with a misguided denunciation of my report for using an entirely appropriate measurement scale to capture the egregiousness of death penalty cases in my regression analysis. While any aspect of a regression analysis is fair game for investigation, the hyperbolic charges of my alleged "incompetence" coupled with Michelson's complete ignorance of the published literature on this issue are troubling. I show in this report that my egregiousness measures are the type of measurement scales that are frequently and profitably used throughout the social sciences and medicine, using examples from work by Nobel economist Daniel Kahneman, top psychologist Robyn Dawes, and eminent statistician and long-time and first Chair of the Harvard Statistics Department Fred Mosteller, as well as numerous other authors including those cited by Michelson approvingly ("one of the most impressive academic books I have ever read") and even by those who Michelson sought to cite *against* me.

The Court will have to decide whether to believe Michelson who says that I have made the type of error that is not worthy of a high school student or to believe the collected product of some of the most eminent and highly regarded academics working over the last fifty years. I should add that Michelson's very position on measurement scales was mocked by the towering statistician John Tukey who termed it a "dangerous view" and added that "if generally adopted it would not only lead to inefficient analysis of data, but it would also lead to failure to give any

answer at all to questions whose answers are perfectly good, though slightly approximate. All this loss for essentially no gain."[39]

At the same time, Michelson embarks on a string of serious statistical errors, including his complete violation of standard econometric protocol by engaging in the type of flawed data mining exercise that the eminent MIT econometrician Frank Fisher appropriately called "a recipe for spurious results," his common practice of running nonsensical or flawed regressions or wildly misinterpreting the regressions he does run, his flagrant violation of standard statistical protocols while assailing me for my unwillingness to engage in similar violations, all coupled with his admitted and demonstrated ignorance of the peer-reviewed literature on the very issues about which he so vociferously and wrongly expounds, and his lack of knowledge of modern empirical research or best empirical methodology.

While Michelson purports to show in his Figure D03 that race does not influence capital charging, my Table 53 in Section X.H.1 reveals a highly significant higher charging rate for black on white murders, mimicking Michelson's list of explanatory variables and using his exact sample of 214 death-eligible cases. Table 53 simply re-defines the racial categories in Michelson's regressions to reflect what his own Table suggests it is doing (but doesn't do).

Similarly, while Michelson purports to show in his Figure D12 that race does not influence capital sentencing, my Table 56 in Section X.H.2 reveals a highly significant higher capital sentencing rate for minority on white murders, again mimicking Michelson's list of explanatory variables and using his exact sample of 126 death-eligible cases. The only difference between Michelson's Figure D12 and my Table 56 is that I again (as in Table 53) use more illuminating racial categories, I correct Michelson's errors in incorrectly indicating who

[39] JOHN W. TUKEY, *Data Analysis and Behavioral Science or Learning to Bear the Quantitative Man's Burden by Shunning Badmandments*, *in* 3 THE COLLECTED WORKS OF JOHN W. TUKEY 187, 243 (Lyle V. Jones ed., 1986).

received a death sentence, and I use the more appropriate logit estimation approach (rather than Michelson's sub-optimal OLS estimation).

These minor improvements to Michelson's capital charging and sentencing equations show that race does indeed infect capital outcomes in Connecticut in exactly the way that my report has emphasized. Moreover, none of Michelson's criticisms about my egregiousness measures, my lack of controls for guilty pleas or other factors, or problems with the data has any bearing on these findings in my Tables 53 and 56 for a simple reason. Those tables use Michelson's exact sample, use Michelson's list of explanatory variables except for the corrected racial identifiers, and use Michelson's measure of egregiousness. Michelson has essentially conceded every major finding from my report, except racial bias. Correcting his own regression models confirms the existence of this racial bias in both capital charging and sentencing.

II. INTRODUCTION

A. THE STUDY'S CHARGE

In the Fall of 2006, I was retained by Attorneys David Golub, Paula Montonye, Craig Raabe, Michael Sheehan, et al., to assist in a systemic evaluation of capital punishment in the State of Connecticut. I was asked to look at the operation of the State's death penalty regime to see if the system in its entirety or in particular aspects was operating in an arbitrary and capricious manner. Specifically, I was to examine whether there were racial or geographic disparities or arbitrariness in capital prosecution and sentencing.

Unfortunately, this is a daunting task given the failure of the State to maintain comprehensive records about the treatment of cases that could be prosecuted as capital felonies. Whereas some other states—New York, for example, during its restoration of the death penalty from 1995-2004—maintain comprehensive records on all felony arrests and the subsequent

disposition of death-eligible cases,[40] Connecticut has no central repository for the relevant data needed to undertake a study such as this one. The Report of the Connecticut Commission on the Death Penalty, submitted to the General Assembly on January 8, 2003, recognized the state's troubling inability to understand whether its death penalty system complied with state and federal constitutional requirements. That Report specifically recommended remedial action:

> All agencies involved in capital felony cases should collect and maintain comprehensive data concerning all cases qualifying for capital felony prosecution (regardless of whether the case is charged, prosecuted or disposed of as a capital felony case) to examine whether there is disparity. This should include information on the race, ethnicity, gender, religion, sexual orientation, age, and socioeconomic status of the defendants and the victims, and . . . geographic data. . . . This data should be maintained with respect to every stage of the criminal justice process, from arrest through imposition of the sentence.[41]

To address this deficiency, the lawyers who ultimately hired me launched a major data collection effort designed to understand the operation of the state's death penalty regime. This report relies on this data collection effort, as well as on other publicly available crime data for the state of Connecticut.

B. BACKGROUND OF THE PRINCIPAL INVESTIGATOR

At the time I began work on this report I was the Leighton Homer Surbeck Professor of Law at Yale Law School. In September of 2010, I returned to Stanford Law School as the C. Wendell and Edith M. Carlsmith Professor of Law. I am an economist and lawyer, a Research Associate of the National Bureau of Economic Research, and a member of the American

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[40] The State of New York Division of Criminal Justice Services maintains "individual-level data on all felony arrests in the state . . . including the approximately 500 first- and second-degree murder cases each year in the state. This data set includes information on each suspect's demographic characteristics, prior record, arrest charge, the final disposition of his case (acquittal, trial conviction, or plea), and the final disposition charge. The data set also includes a variable that identifies the county in which the case was tried. One of the key advantages of the data is that the universe is all suspects arrested, not all defendants indicted or convicted." Ilyana Kuziemko, *Does the Threat of the Death Penalty Affect Plea Bargaining in Murder Cases? Evidence from New York's 1995 Reinstatement of Capital Punishment*, 8 AM. L. & ECON. REV. 116, 121 (2006). Note that Connecticut's data collection efforts are inferior to New York's in all these respects.

[41] STATE OF CONN. COMM. ON THE DEATH PENALTY, STUDY PURSUANT TO PUBLIC ACT NO. 01-151 OF THE IMPOSITION OF THE DEATH PENALTY IN CONNECTICUT 6 (2003) [hereinafter COMMISSION REPORT].

Academy of Arts and Sciences. Prior to joining the Yale faculty, I was a chaired professor first at Northwestern Law School and then Stanford Law School (I was a professor at Stanford for nine years before heading to Yale), and a visiting professor at the law schools of Harvard, Yale, the University of Chicago, Cornell, and the University of Virginia. I have used large-scale statistical studies to estimate the impact of law and public policy in a wide range of areas from civil rights and employment discrimination law to school funding and crime control.

I am a Phi Beta Kappa graduate of Hamilton College and received a J.D. from Harvard and a Ph.D. in economics from Yale. I was first admitted to the Connecticut bar in the Fall of 1977. After serving as a law clerk to then Chief U.S. District Court Judge T. Emmet Clarie in Hartford in 1977-78, I practiced law at Covington and Burling in Washington, D.C. There I first became involved in capital punishment appellate work, leading to the publication of an article on the capital case *Godfrey v. Georgia.* During my Washington practice, which lasted for three years, I testified before the United States Senate on a proposed federal death penalty statute.

I was a Fellow at the Center for Advanced Studies in Behavioral Sciences in 2000-01 and edited *Foundations of Employment Discrimination Law*[42] and the two-volume *Economics of Labor and Employment*.[43] I recently published *Employment Discrimination: Law and Theory* (with George Rutherglen).[44] I was selected to deliver the 2006 Rosenthal Lectures at Northwestern Law School as well as the Keynote Address at the November 2007 Conference on Empirical Legal Studies held at NYU Law School and the Presidential address for the American Law and Economics Association held at Columbia Law School in May of 2011. All three lectures involved a discussion of my extensive work demonstrating the absence of any credible empirical support for the conjecture that the death penalty in the United States deters murder. At

[42] JOHN J. DONOHUE III, ED., FOUNDATION OF EMPLOYMENT DISCRIMINATION LAW (2d ed., 2003).
[43] JOHN J. DONOHUE III, ED., ECONOMICS OF LABOR AND EMPLOYMENT LAW (2007).
[44] GEORGE A. RUTHERGLEN & JOHN J. DONOHUE III, EMPLOYMENT DISCRIMINATION: LAW AND THEORY (2005).

present, I am writing a book on this and other empirical issues in law and policy. I am currently the co-editor (handling empirical articles) of the *American Law and Economics Review*, and am the current President of the American Law and Economics Association.

In spring 2007, I taught a course at Yale Law School focused on the deterrent effect (or lack thereof) of the death penalty. Later in 2007, I taught courses on empirical law and economics issues involving crime and criminal justice at Tel Aviv University Law School, the Gerzensee Study Center in Switzerland, and St. Gallen University School of Law in Switzerland. I have taught similar courses at Yale Law School in the spring semesters of 2008, 2009, and 2010. During the 2011-12 academic year at Stanford, I will be teaching a seminar on the death penalty and a course on law and statistics, which I have done consistently for almost two decades. (My c.v. is attached as Appendix G.)

Mark A.R. Kleiman, Professor of Public Policy at the Luskin School of Public Affairs at UCLA, recently described me as follows in his book "When Brute Force Fails" (Princeton University Pres, 2009) at p. 113:

> "John J. Donohue III, is an economist, criminologist , and professor at Yale Law School, and one of the leading scholars in the empirical study of the effects on crime levels of various public policies, from gun control to incarceration to abortion."

Franklin Zimring, the William G. Simon Professor of Law and Wolfen Distinguished Scholar at the University of California, Berkeley, states at p. 85 in his important book "The Great American Crime Decline" (Oxford University Press, 2006):

> "John Donohue and Steven Levitt are among the most prominent practicing scholars of law and economics in the United States and probably the two most eminent economic researchers with a special interest in crime and its control since Gary Becker."

C. OVERVIEW OF THE REPORT

This subsection provides a brief roadmap for the remainder of the report. Section III of the report discusses some of the core elements of the U.S. Supreme Court's insistence that the

Eighth Amendment prohibits wantonly and freakishly rare application of the death penalty. Section IV discusses several prior empirical studies, all of which have found that race is a significant factor in capital sentencing outcomes. Section V provides background on the modern Connecticut death penalty statute, which was adopted in 1973 and has been periodically amended since then. Section VI begins to discuss the methodology of this study, explaining the sources of data I used and how I determined which cases were death-eligible. The section then explains how I assigned egregiousness scores to the 205 death-eligible cases.

Section VII begins with a broad look at the dramatic disparity between the number of homicides in Connecticut versus the number of executions. In fact since 1960, there have been only two executions in the state of Connecticut, and only one has occurred under the post-*Furman* death penalty regime. The broad contours of the factors leading to the 12 death sentences handed down since 1973 are set forth, noting that three of these 12 death sentences have not been sustained. The section then documents the overall lack of any obvious relationship between the egregiousness of a crime and the harshness of the sanction. While the state continues to expend enormous resources on the highly questionable mission of operating a death penalty system, an increasing number of murderers are escaping all punishment. The section concludes by documenting the troubling decline in the rate of solving murders that has occurred since the time the 1973 statute was adopted when roughly 90% of Connecticut murders were solved. Today the number is in the neighborhood of 60%.

Section VIII begins with a discussion of arbitrariness and the key points when it could be introduced after the arrest of a homicide suspect on the path through charging and sentencing. The first part of the section uses the egregiousness scores to evaluate capital felony charging decisions made by Connecticut prosecutors, examining whether the crimes charged as capital

felonies are more egregious than death-eligible crimes not charged as capital felonies. This section analyzes charging decisions across a number of dimensions, including offense category, race of the defendant and the race of the victim, and judicial district.

The final part of Section VIII examines evidence of arbitrariness in the ultimate sentence imposed. This sub-section examines whether the defendants who have received death sentences in Connecticut are those who have committed the most egregious offenses, similar to the analysis done on whether charging decisions reflect the relative egregiousness of murders. The sub-section (Table 20) provides strong visual evidence that on average the death-eligible crimes of white defendants are *more* egregious or aggravated than the crimes of minority defendants but that the system still treats the category of minority on white crimes most harshly in terms of both capital charging and sentencing.

Section IX formalizes the previous analysis by using multiple regression to explore the factors that influence decisions at the crucial stage of capital-felony charging and in the ultimate determination of who receives a death sentence. This analysis probes whether legally suspect variables (such as defendant or victim race), as well as legitimate variables (such as the case's egregiousness), have any impact on the probability of a defendant being charged with a capital felony or ultimately receiving the death penalty. The evidence shows that illegitimate factors such as race and geography powerfully and consistently affect the death penalty process in Connecticut, dwarfing the impact of legitimate factors, such as the egregiousness of the crime and the number of special aggravating factors.

Section X responds to the seemingly endless rounds of error-filled reports submitted by the State's expert Stephan Michelson. The section begins by noting that Michelson's approach to regression analysis is based on a highly flawed, widely criticized approach (often denounced as

"data mining") that puts a cloud over his entire enterprise before one even looks at a single regression equation that he presents. He also loads his regression models with so many ill-considered and inappropriate explanatory variables—in violation of well-established recommendations—that the ability to identify true and statistically significant results is compromised.

Section X also refutes the entirely unsound criticisms that Michelson levels against the use of my egregiousness measures. These measures are shown to be highly reliable and validated measures of the egregiousness of the various murders, using a methodology that is commonly used in the top peer-reviewed journals throughout the medical and social sciences by an array of the most skilled and talented empirical researchers. In furtherance of his misguided critique, Michelson revealed his ignorance of the peer-reviewed literature and did not understand that his purported major criticism of my work has been denounced, and even ridiculed, by major figures in statistics. Importantly, though, it should be remembered that not only are Michelson's categorical assertions ill-advised and uninformed (and even contradicted by the only authority he tried to summon to support his views), but they are also irrelevant — addressing Michelson's concerns does not undermine the conclusion that race and geography play powerful roles in influencing capital outcomes in the Connecticut death penalty system.

Section X concludes with a showing that the most minor adjustments of Michelson's own capital charging and capital sentencing regressions reveals exactly the type of racial bias in cases of minority on white crimes that my report has documented. Essentially, Michelson succeeds in obscuring this finding by the use of his confusing and misleading racial identifiers, and, in the case of his capital sentencing regressions, his errors in recording who has received a death sentence and his inappropriate reliance on OLS estimates instead of the preferred logit estimates.

Section XI parries some of Michelson's criticisms by showing that there is a significant body of modern death penalty research that directly supports my methodological choices. Specifically, Michelson objects to running regressions predicting death sentences from the entire sample of death-eligible cases. This ill-informed criticism is undermined by the fact that 11 of the 12 modern death penalty studies run this exact regression for the simple reason that it provides one of the most illuminating insights into the overall operation of a death penalty system.

Section XII shows that Michelson's criticisms of my data creation are irrelevant and misguided. He specifically conceded in his deposition that my regression output was always correct and fully reflected what I had actually done—in sharp contrast to Michelson's own highly flawed, error-filled, and endlessly changing regression output. Michelson's criticisms that problems associated with my data creation had any impact on my analysis are shown to be nonsensical. Despite Michelson's suggestions to the contrary, none of the data that I have used has ever been challenged as incorrect.

Section XIII offers concluding observations. My finding of arbitrary and capricious capital decision-making is not surprising. One might expect this outcome in a system that confers so much unbridled discretion to actors that hold widely divergent views on the death penalty, particularly given the absence of any centralized or systematic effort to collect the data necessary to identify and correct an arbitrary and capricious system at work. Moreover, a near-universal finding from death penalty studies conducted by numerous scholars for death penalty systems throughout the country is that minority on white murders have been treated more harshly than otherwise identical crimes. It is therefore not surprising that this pattern was also uncovered in Connecticut, which has structured its death penalty system in a way that allows the conscious

and unconscious biases of prosecutors and juries to powerfully influence charging and sentencing outcomes.

III. THE LEGAL LANDSCAPE

The modern death penalty era began in 1972 with *Furman v. Georgia*.[45] There the Court was concerned that the unchanneled discretion of prosecutors, judges, and juries led to an arbitrary administration of the death penalty. In its per curiam decision, the Court held "that the imposition and carrying out of the death penalty in these cases constitute cruel and unusual punishment in violation of the Eighth and Fourteenth Amendments."[46] Many states, including Connecticut, responded to *Furman* by enacting more specific death penalty statutes. Four years later, in *Gregg v. Georgia*,[47] the Supreme Court held that "the punishment of death does not invariably violate the Constitution" and indicated that statutes such as the one enacted in Connecticut were facially constitutional.

When it reinstated capital punishment after a four-year moratorium, the Supreme Court recognized that "the penalty of death is different in kind from any other punishment imposed under our system of criminal justice."[48] Because of its uniqueness, the death penalty cannot be "imposed under sentencing procedures that create[] a substantial risk that it [is] inflicted in an arbitrary and capricious manner."[49] In *Furman*, Justice Brennan explained:

> [W]hen a severe punishment is inflicted in the great majority of cases in which it is legally available, there is little likelihood that the State is inflicting it arbitrarily. If, however, the infliction of a severe punishment is something different from that which is generally done in such cases, there is a substantial likelihood that the State . . . is inflicting the punishment arbitrarily.[50]

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[45] 408 U.S. 238 (1972).
[46] *Furman,* 408 U.S. at 239.
[47] 428 U.S. 153, 169 (1976).
[48] *Id.* at 188.
[49] *Id.*
[50] *Furman*, 408 U.S. at 276-77 (Brennan, J., concurring) (internal quotations and citations omitted).

Justice Brennan went on to state that "When the punishment of death is inflicted in a trivial number of the cases in which it is legally available, the conclusion is virtually inescapable that it is being inflicted arbitrarily." *Furman v. Georgia*, 408 US 238 at 293 (Brennan, J. concurring). Justice Stewart, in *Gregg*, explained the significance of *Furman*:

> Indeed, the death sentences examined by the Court in Furman were "cruel and unusual in the same way that being struck by lightning is cruel and unusual. For, of all the people convicted of [capital crimes], many just as reprehensible as these, the petitioners [in Furman were] among a capriciously selected random handful upon whom the sentence of death has in fact been imposed. . . . [T]he Eighth and Fourteenth Amendments cannot tolerate the infliction of a sentence of death under legal systems that permit this unique penalty to be so wantonly and so freakishly imposed."[51]

Finally, Justice White provided a different line of attack on the rare invocation of the death penalty: "But when imposition of the penalty reaches a **certain degree of infrequency**, it would be very doubtful that any existing general need for retribution would be measurably satisfied." *Id.* at 311 (White, J. concurring; emphasis supplied). While I have extensively documented the lack of any deterrent effect of the death penalty even in states where it used extensively, everyone concedes that there is no deterrent effect where it is used infrequently (as in Connecticut).[52] White's reasoning would imply that infrequent application undermines *both* the deterrent and retribution rationales for capital punishment.

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[51] *Gregg,* 428 U.S. at 188 (quoting *Furman*, 408 U.S. at 309-10 (Stewart, J., concurring)).

[52] The lack of any deterrence effect of the death penalty is widely acknowledged by knowledgeable researchers. Donohue and Wolfers, "Estimating the Impact of the Death Penalty on Murder," 11 American Law and Economics Review 249 (Fall 2009); . Donohue and Wolfers, "Uses and Abuses of Empirical Evidence in the Death Penalty Debate," 58 Stanford Law Review 791 (2005); Kovandzic, T. V., Vieraitis, L. M. and Boots, D. P. (2009), Does the death penalty save lives? Criminology & Public Policy, 8: 803–843. One of the strongest supporters of deterrence has written that the death penalty actually has a brutalizing effect that *increases* crime when used as infrequently as Connecticut does. Shepherd, J. M. (2005). Deterrence versus brutalization: Capital punishment's differing impacts among states. Michigan Law Review, 104, 203-255.

The procedural mechanism that emerged in the wake of the *Furman* decision was the bifurcation of capital cases into a guilt phase and a penalty phase, in accordance with guidelines then recommended by the American Law Institute's Model Penal Code. Georgia adopted this approach, and Connecticut modeled its death penalty statute along the same lines. The Court in Gregg endorsed this development, while cautioning: "We do not intend to suggest that . . . any sentencing system constructed along these general lines would inevitably satisfy the concerns of *Furman*, for each distinct system must be examined on an individual basis."[53]

The Supreme Court has held that a death penalty regime must provide a "meaningful basis for distinguishing the few cases in which [death] is imposed from the many cases in which it is not."[54] Capital punishment regimes must also ensure that the death penalty is limited to the most culpable offenders. In *Godfrey v. Georgia*, the Court vacated the petitioner's death sentence for a double murder, explaining: "There is no principled way to distinguish this case, in which the death penalty was imposed, from the many cases in which it was not."[55] As the Court remarked in 2002, *Godfrey* shows that "the culpability of the average murderer is insufficient to justify the most extreme sanction available to the State."[56] When examining Connecticut's death penalty apparatus, we are left with the Court's command that "[c]apital punishment must be limited to those offenders who commit 'a narrow category of the most serious crimes' and whose extreme culpability makes them 'the most deserving of execution.'"[57]

Over time, a substantial body of evidence has been amassed that challenges the notion that the procedural changes that were deemed facially constitutional in *Gregg* have adequately

[53] *Id.* at 195.
[54] *Furman*, 408 U.S. at 313 (White, J., concurring).
[55] *Godfrey*, 446 U.S. 420, 433 (1980).
[56] Atkins v. Virginia, 536 U.S. 304, 319 (2002).
[57] Roper v. Simmons, 543 U.S. 551, 568 (2005) (quoting *Atkins,* 536 U.S. at 319).

addressed the concerns of *Furman,* in practice. Indeed, in October 2009, the American Law Institute (ALI) voted overwhelmingly to withdraw its death penalty framework from its Model Penal Code because that framework had proved to be woefully inadequate in application.[58]

A variety of factors influenced the ALI's decision to withdraw the death penalty from the Model Penal Code. A core problem with the administration of capital punishment is the difficulty in trying to construct a system that, on the one hand, allows for consistent sentencing outcomes but that, at the same time, gives the factfinder sufficient leeway to consider the circumstances surrounding each crime.

The April 15, 2009 "Report of the Council to the Membership of The American Law Institute" expressed concerns over the inability to limit the application of the death penalty to the worst offenses and avoid the problems of arbitrary, discriminatory, or simply erroneous invocation of this irrevocable punishment, stating that these are "the major reasons why many thoughtful and knowledgeable individuals doubt whether the capital-punishment regimes in place in three-fourths of the states, or in any form likely to be implemented in the near future, meet or are likely ever to meet basic concerns of fairness in process and outcome."[59]

According to Harvard Law Professor Carol Steiker, one of the authors of the study requested by the ALI to examine the effectiveness of the code's death penalty provisions, the problems with the administration of the death penalty in the U.S. included "the limits of constitutional regulation of capital punishment, the politicization of the death penalty, racial discrimination in the administration of capital justice, juror confusion in capital cases, the

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[58] *See* Message from Director Lance Liebman, American Law Institute, ALI Withdraws Section 210.6 (Capital Punishment) of the Model Penal Code (Oct. 23, 2009), *available at* http://www.ali.org/_news/10232009.htm ("For reasons stated in Part V of the Council's report to the membership, the Institute withdraws Section 210.6 of the Model Penal Code in light of the current intractable institutional and structural obstacles to ensuring a minimally adequate system for administering capital punishment.").

[59] Report at page 5. http://www.ali.org/doc/Capital%20Punishment_web.pdf.

inadequacy of resources (especially defense counsel services), the erroneous conviction of the innocent, the inadequate enforcement of federal constitional rights and the death penalty's effect on the administration of noncapital criminal justice."[60]

The reality of the death penalty in America was well captured in a statement by Manhattan District Attorney Robert Morganthau, who spoke out eloquently about the "terrible price" inflicted by the presence of capital punishment in the hopes that his words might forestall New York's ill-fated and costly experiment with the death penalty that was launched in 1995:

> People concerned about the escalating fear of violence, as I am, may believe that capital punishment is a good way to combat that trend. Take it from someone who has spent a career in Federal and state law enforcement, enacting the death penalty in New York State would be a grave mistake.
>
> Prosecutors must reveal the dirty little secret they too often share only among themselves: The death penalty actually hinders the fight against crime.
>
> … It exacts a terrible price in dollars, lives and human decency. Rather than tamping down the flames of violence, it fuels them while draining millions of dollars from more promising efforts to restore safety to our lives.
>
> Some crimes are so depraved that execution might seem just. But even in the impossible event that a statute could be written and applied so wisely that it would reach only those cases, the price would still be too high.
>
> It has long been argued, with statistical support, that by their brutalizing and dehumanizing effect on society, executions cause more murders than they prevent. "After every instance in which the law violates the sanctity of human life, that life is held less sacred by the community among whom the outrage is perpetrated."[61]

Morganthau stayed true to his principles and steadfastly refused to seek the death penalty in the borough of Manhattan, as did his fellow District Attorney in the Bronx. Lest there be any concern that his claim that preventing the immensely costly death penalty apparatus from

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[60] "Taking Aim at the Death Penalty," Harvard Law Today 3 (March 2010).
[61] Morgenthau, Robert, 1995. "What Prosecutors Won't Tell You," The New York Times (Feb. 7, 1995). Available at http://query.nytimes.com/gst/fullpage.html?res=990CEFDA1130F934A35751C0A963958260&sec=&spon=&pagewanted=1

diverting funds from effective efforts to reduce crime was misguided, one should note the following facts: from 1995 when the New York death penalty law went into effect until 2004 when it was judicially abolished, the murder rate dropped in Manhattan by 64.4 percent (from 16.3 to 5.8 murders per 100,000), and in the Bronx by 63.9 percent (from 25.1 to 9.1 per 100,000).[62] Another New York City borough with the identical laws and police force, and with broadly similar economic, social, and demographic features as Manhattan and the Bronx – Brooklyn – had a top prosecutor who issued the largest number of notices of intention to seek the death penalty (albeit with no executions) (Kuziemko, 2006). Yet Brooklyn experienced only a 43.3 percent decline in murders over this period, from an initial figure (almost identical to Manhattan's) of 16.6 murders per 100,000 in 1995 down to only 9.4 in 2004.[63]

The mounting evidence undermining the view that the death penalty deters crime has begun to influence the judicial discussion of the constitutionality of the death penalty, as illustrated by the debate between Justices Stevens and Scalia in *Baze v. Rees*.[64] Justice Stevens agreed with the majority in that case that the cocktail of drugs used by Kentucky to execute prisoners did not violate the Eighth Amendment,[65] but Stevens then went on to criticize the existing justifications for the death penalty. On the issue of deterrence, he cited a *Stanford Law Review* article by Justin Wolfers and me,[66] to conclude: "Despite 30 years of empirical research in the area, there remains no reliable statistical evidence that capital punishment in fact deters potential offenders."[67]

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[62] In the rest of New York state (excluding Manhattan and the Bronx), the murder rate fell by only 36.5 percent (from 6.5 to 4.1 murders per 100,000).
[63] John J. Donohue and Justin Wolfers, "Estimating the Impact of the Death Penalty on Murder," 11 American Law and Economics Review. 249 (Fall 2009).
[64] 553 U.S. 35 (2008).
[65] *Id.* at 87 (Stevens, J., concurring).
[66] *Id.* at 79 n.13 (citing John J. Donohue & Justin Wolfers, *Uses and Abuses of Empirical Evidence in the Death Penalty Debate*, 58 STAN. L. REV. 791 (2005)).
[67] *Id.* at 79.

Justice Scalia responded sharply to Justice Stevens's concurrence. Referencing an article by Cass Sunstein and Adrian Vermeule, Scalia announced: "Justice Stevens' analysis barely acknowledges the 'significant body of recent evidence that capital punishment may well have a deterrent effect, possibly a quite powerful one.'"[68] Justice Stevens was right not to do so, as the so-called "significant body of evidence" was based on outdated or invalid econometric techniques and models, as knowledgeable econometricians and scholars now recognize.[69] Indeed, shortly after the decision was handed down, Cass Sunstein indicated that he no longer supported Scalia's position and had now moved into Justice Stevens' camp in the wake of the scholarly demolition of the existing pro-deterrence articles. Professor Sunstein concluded: "In short, the best reading of the accumulated data is that they do not establish a deterrent effect of the death penalty."[70]

Of course, the extreme infrequency of the application of the death penalty in Connecticut assures that this penalty is serving neither deterrent or retributive goals, which the U.S. Supreme Court has identified as the two constitutionally permissible goals of a capital punishment regime. In his customarily obtuse fashion, Michelson states that I was incorrect in stating that the two constitutionally permissible goals of the death penalty were deterrence and retribution:

> "Donohue explains, in deposition: '[T]he U.S. Supreme Court has identified two possible legitimate goals for a death penalty regime, one being deterrence, and one serving some notion of retribution….' This is a peculiar conclusion, not the least because it mis-states the Supreme Court's position." (p. B48, Michelson Report, August 20, 2010.)

Michelson then states in a footnote:

> "Perhaps Donohue got the impression that these are the only two justifications for the death penalty from *Gregg* (1976) at 183. However, this discussion by the court is a

[68] *Id.* at 89 (Scalia, J., concurring) (quoting Cass R. Sunstein & Adrian Vermeule, *Is Capital Punishment Morally Required? Acts, Omissions, and Life-Life Tradeoffs*, 58 STAN. L. REV. 703, 706 (2005)).
[69] See articles referenced in footnote 52, *supra*.
[70] Cass R. Sunstein & Justin Wolfers, Op-Ed., *A Death Penalty Puzzle*, WASH. POST, June 30, 2008.

report ("The death penalty is said to serve . . .") not a statement of law." Id. at 48, footnote 79.

Perhaps I can invite Michelson to review the 6-3 Supreme Court decision in *Atkins v. Virginia*, 536 U.S. 304, 318-19 (2002), which states:

> "**Gregg v. Georgia, 428 U. S. 153, 183 (1976), identified "retribution and deterrence of capital crimes by prospective offenders" as the social purposes served by the death penalty. Unless the imposition of the death penalty on a mentally retarded person "measurably contributes to one or both of these goals, it 'is nothing more than the purposeless and needless imposition of pain and suffering,' and hence an unconstitutional punishment.**" (emphasis supplied.)

Clearly, I "got the impression" that these are the only two justifications for the death penalty that comport with the demands of the Constitution because the Supreme Court explicitly stated that unless the death penalty contributes to one or both of the goals of retribution and deterrence, it is an unconstitutional punishment.

IV. THE PRIOR LITERATURE ON THE ROLE OF RACE IN CAPITAL SENTENCING

Furman v. Georgia catalyzed tremendous academic attention on the relationship between race and capital sentencing. There is now an expansive empirical literature—conducted in numerous states across the country—on how race influences prosecutors' and jurors' death penalty decisions, with nearly all recent studies finding that race does in fact influence capital sentencing outcomes.

Section A begins with a description of Professor David Baldus's landmark study of capital sentencing in Georgia—*Equal Justice and the Death Penalty*—which launched the serious empirical evaluation of the issue of the impact of race on the administration of the death penalty. This discussion highlights the basic research design and major findings of this pioneering study of the death penalty in Georgia.

Section B highlights the robust findings of similar studies that have been conducted in states, counties, and cities across the country. I provide brief summaries of the main findings of twelve other analyses of race and capital sentencing, including eight state-level studies, two county-level studies conducted in Louisiana[71] and Texas,[72] and two rigorous national-level econometric analyses, one for the period 1977-2000 and another looking at data from 1973-1995. The basic thrust of the current literature on the role of race in post-*Furman* capital sentencing was captured in a 1990 report of the U.S. General Accounting Office, which issued a clear assessment: "Our synthesis of the 28 studies shows a pattern of evidence indicating racial disparities in the charging, sentencing, and imposition of the death penalty after the *Furman* decision."[73]

Section C reviews some of the psychology-based studies that attempt to use controlled experiments to pinpoint precisely how race affects capital outcomes. These studies reveal powerful racial biases in settings involving the identical murder case in which the race of the defendant can be manipulated in an experimental setting. The results of these studies confirm

[71] The county (or "parish") studied in Louisiana, East Baton Rouge, provides important insight into capital sentencing in the state. Of the 84 people on death row in Louisiana at the end of 2009, 16 were convicted and sentenced in East Baton Rouge Parish—more than in any other parish in the state. Glenn L. Pierce & Michael L. Radelet, *Death Sentencing in East Baton Rouge Parish*, 71 LA. L. REV. 647, 650 (2011). Moreover, the composition of East Baton Rouge's contribution to death row is strikingly monochromatic: All 16 of the parish's death row inmates are black. I*d.* at 650. In total, 28 people were sentenced to death in East Baton Rouge between 1977 and 2009. I*d*. at 651.

[72] The Texas county examined in this study, Harris County, also provides considerable insight into the relationship between race and capital sentencing. Harris County has executed more people since 1976 than any U.S. state other than Texas. Scott Phillips, Legal Disparities in the Capital of Capital Punishment, 99 J. Crim. L. & Criminology 717, 720 (2009).

[73] These studies were conducted by 21 sets of researchers and based on 23 distinct datasets. GENERAL ACCOUNTING OFFICE, DEATH PENALTY SENTENCING: RESEARCH INDICATES PATTERN OF RACIAL DISPARITIES 3 (1990), available at http://*archive.gao.gov/t2pbat11/140845.pdf* [hereinafter "GAO"] at 5. Baldus's thorough review of the pre-1990 empirical literature similarly shows that race has inappropriately influenced capital sentencing both before and after *Furman*. *See* DAVID C. BALDUS, GEORGE G. WOODWORTH & CHARLES A. PULASKI JR., EQUAL JUSTICE AND THE DEATH PENALTY: A LEGAL AND EMPIRICAL ANALYSIS 229-79 (1990) (reviewing studies) [hereinafter "Equal Justice and the Death Penalty"].

what the econometric literature establishes: race inappropriately influences the administration of the death penalty even when controlling for legitimate case characteristics.

A. THE BALDUS STUDY ON CAPITAL SENTENCING IN GEORGIA

In this Section, I summarize the Georgia study[74] to illustrate the research design frequently adopted in studies on the relationship between race and capital sentencing. I then note the findings of this body of literature in the context of the findings of the Georgia study, focusing on two findings. First, defendants who murder white victims are more likely to be sentenced to death than defendants who murder black victims. Second, cases involving a black defendant and a white victim are more likely to result in a death sentence than cases involving other combinations of defendant and victim race.

1. Methodology of the Georgia Study

The Georgia study investigated the effect of race on decisions throughout the charging and sentencing process by analyzing a large stratified random sample of 1,066 defendants selected from the universe of cases of the 2,484 defendants who were charged with homicide and subsequently convicted of murder or voluntary manslaughter in Georgia between March 28, 1973 and December 31, 1979.[75] The researchers then weighted this sample, which included 127 defendants who had been sentenced to death,[76] to evaluate the effect of race on capital sentencing in the case universe as a whole.

The data for the Georgia study was drawn from the official files of the Georgia Board of Pardons and Paroles and the Georgia Supreme Court.[77] The researchers reviewed these files and

[74] Equal Justice and the Death Penalty.

[75] Equal Justice and the Death Penalty, 45 and 67 n.10.

[76] Equal Justice and the Death Penalty, 45.

[77] Equal Justice and the Death Penalty, 46.

collected data on the circumstances of the offense and a range of other factors.[78] Using both linear probability and logit models, the Baldus team conducted an extensive regression analysis investigating the main effect of race on capital sentencing in Georgia.[79] Eight models were presented, each of which indicated that victim race inappropriately influenced which defendants were sentenced to die and which were permitted to live. These regressions are all designed to explain capital sentencing using their death-eligible sample – the models differ in their method (logit vs. weighted least squares) and in their explanatory variables. Note that these are the exact type of models that I employ but that Michelson -- entirely incorrectly -- says are inappropriate because they look at sentencing on the entire death-eligible sample.

Moreover, while the Baldus base model includes 39 specific features of each crime as explanatory variables, it does *not* include intermediate outcomes as controls.[80] That is to say that the model controls only for features of the crime itself, rather than the system's treatment of the defendant following his/her arrest. Even Baldus's set of extended models, including as many 230 explanatory variables, do not include indicators for whether the defendant pled guilty or was counseled by a public defender, which Michelson -- again inappropriately -- introduces as explanatory variables in his sentencing estimates.[81]

This comprehensive analysis showed that defendants convicted of murdering a white victim were statistically significantly more likely than defendants convicted of murdering a black victim to be sentenced to death. A logistic regression model that included 39 legitimate variables became the core piece of evidence regarding race-of-victim discrimination in *McCleskey v.*

[78] See Equal Justice and the Death Penalty, 512-48 Appx. E, for the data collection instrument used to collect data on these factors.

[79] Equal Justice and the Death Penalty, 57-59

[80] Equal Justice and the Death Penalty, 319-320 t52.

[81] See Equal Justice and the Death Penalty, App. L, 612-615.

Kemp. It showed that defendants convicted of murdering a white victim were 4.3 times more likely than defendants convicted of murdering a black victim to be sentenced to death. This relationship was statistically significant at the .005 level.[82] Victim race exerted a greater influence on capital sentencing outcomes than numerous legitimate factors, such as whether the offense was coupled with kidnapping, whether the victim was frail, or whether the victim was an on-duty law enforcement officer.[83]

2. Interactions Between Defendant and Victim Race

In the previously described regressions, Baldus and his team included indicators for black-defendant and white-victim, but had no interaction terms for say black on white murders. They next used two different approaches to evaluate whether death sentencing decisions were also influenced by the interaction of the race of the defendant and the victim. First, they examined narrative summaries of cases that were death-eligible under the state's contemporaneous-felony statutory aggravating circumstance. This statutory aggravating factor served as rough proxy for death-eligibility because death penalties were imposed primarily in cases involving contemporaneous felonies.[84] The researchers classified the 438 cases involving a contemporaneous felony into various crime sub-categories, and then compared the death sentencing rates for similar types of cases involving different combinations of defendant and victim race. As shown in Table 1, controlling for the type of contemporaneous felony revealed that the race of the victim strongly influenced capital sentencing. The interaction between defendant and victim race was particularly pronounced for armed robbery cases: A black

[82] Equal Justice and the Death Penalty, 316-17; 319-20 tbl.52. For a list of the included variables, see Equal Justice and the Death Penalty, 630-31 sched. 4.

[83] Equal Justice and the Death Penalty, 319-20 tbl.52.

[84] Equal Justice and the Death Penalty, 315-316 (noting that a death sentence was imposed in 19.8% of cases involving a contemporaneous felony but only 1.4% of cases that did not).

defendant was over six times more likely to be sentenced to death if convicted of murdering a white victim than if convicted of murdering a black victim.[85]

Table 1: Race of Defendant/Victim and Death Sentencing in Georgia by Contemporaneous Felony

Contemporaneous Felony	% of Cases with a Black Defendant and a Black Victim that Result in a Death Sentence (A)	% of Cases with a Black Defendant and a White Victim that Result in a Death Sentence (B)	% of Cases with a White Defendant and Black Victim that Result in a Death Sentence (C)	% of Cases with a White Defendant and a White Victim that Result in a Death Sentence (D)	Ratio of Probability of a Death Sentence for a Black-on-White Murder to Probability of Death Sentence for a Black-on-Black Murder (*controlling for contemporaneous felony*) Ratio of (B) / (A)
All death-eligible cases involving a contemporaneous-felony statutory aggravating circumstance	14.4% (15/104)	37.5% (60/160)	21.4% (3/14)	32.5% (52/160)	2.60
Armed Robbery	5.3% (3/57)	34.1% (42/123)	27.3% (3/11)	27.4% (23/84)	6.49
Rape	44.4% (8/18)	50% (8/16)	0% (0/1)	58.8% (10/17)	1.13
Kidnapping	28.6% (2/7)	60% (3/5)	0% (0/1)	45.0% (9/20)	2.10
Burglary and/or Arson	0% (0/8)	62.5% (5/8)	---	38.5% (5/13)	Infinite
Another Murder	28.6% (2/7)	33.3% (2/6)	---	27.8% (5/18)	1.17
Aggravated Battery	0% (0/7)	0% (0/2)	0% (0/1)	0% (0/8)	undefined

Second, the researchers in the Georgia study employed regression techniques to examine how the race of the defendant and victim interacted to influence capital sentencing outcomes. The research team began by conducting a multiple-regression analysis that considered the (nonracial) circumstances of each case to produce an estimate of the probability that it would result in a death sentence. They then used the results of this regression analysis to construct an eight-point egregiousness scale based on the probability that a certain type of case would result in a death sentence. Finally, the research team placed the 472 most egregious cases (out of the

[85] Equal Justice and the Death Penalty, 324-25 tbl.54. The disparity in terms of overall death sentencing rates between (1) cases involving a black defendant and white victim and (2) cases involving a black defendant and a black victim is statistically significant at the .01 level. *Id.* Despite small group sizes, the disparity between these racial combinations is significant at the .05 level for kidnapping and the .01 level for armed robbery. *Id.*

total sample of 2484 cases) into the eight-level egregiousness scale and compared the racial characteristics of actual sentencing rates within each level.[86] The results of this regression-based analysis are provided in Table 2.

Table 2: Race of Defendant/Victim and Death Sentencing in Georgia by Egregiousness Categories

Predicted Chance of a Death Sentence, from 1 (low) to 8 (high)	% Sentenced to Death for Murders with a Black Offender and a Black Victim (A)	% Sentenced to Death for Murders with a Black Offender and White Victim (B)	% Sentenced to Death for Murders with a White Offender and Black Victim (C)	% Sentenced to Death for Murders with a White Offender and White Victim (D)	Ratio of (B) / (A)
1	0% (0/19)	0% (0/9)	---	0% (0/5)	undefined
2	0% (0/27)	0% (0/8)	0% (0/1)	0% (0/19)	undefined
3	11.1% (2/18)	30.0% (3/10)	0% (0/9)	2.6% (1/39)	2.70
4	0% (0/15)	23.1% (3/13)	---	3.4% (1/29)	Infinite
5	16.7% (2/12)	34.6% (9/26)	---	20% (4/20)	2.08
6	5.0% (1/20)	37.5% (3/8)	50.0% (2/4)	15.6% (5/32)	7.50
7	38.5% (5/13)	64.3% (9/14)	0% (0/5)	38.5% (15/39)	1.67
8	75% (6/8)	90.9% (20/22)	---	89.3% (25/28)	1.21

Source: Equal Justice and the Death Penalty, 322 tbl.53.

Table 2 shows that controlling for egregiousness, cases involving black defendants and white victims were substantially more likely to result in a death sentence than cases involving other racial combinations of defendant and victim race. Other than at the two lowest levels of the egregiousness scale where no death sentences were imposed, a black defendant convicted of murdering a white victim was substantially more likely at each egregiousness level to be sentenced to death than either a black defendant convicted of murdering a black victim or a white defendant murdering a white victim.

[86] Equal Justice and the Death Penalty, 321

B. SUBSEQUENT STUDIES OF RACE AND CAPITAL SENTENCING AT THE STATE, COUNTY, AND NATIONAL LEVEL

1. State and County Studies on Race of Victim Effect

The regression models of the Baldus team that were described above uniformly demonstrated that race infected the administration of capital punishment in Georgia during the period of study. Well-controlled studies using more recent data from jurisdictions across the country have similarly found that race influences who is sentenced to die. This finding is strikingly consistent across studies and permeates both the pre- and post-1990 literature. The United States General Accounting Office reached the following conclusion in its analysis of studies conducted before 1990:

> In 82 percent of the studies, race of victim was found to influence the likelihood of being charged with capital murder or receiving the death penalty, i.e., those who murdered whites were found to be more likely to be sentenced to death than those who murdered blacks. This finding was remarkably consistent across data sets, states, data collection methods, and analytic techniques. The finding held for high, medium, and low quality studies. . . . [Our] synthesis supports a strong race of victim influence.[87]

Findings that race influences the administration of capital punishment are similarly robust in the post-1990 literature. Table 3 presents the regression results of methodologically rigorous recent studies on the effect of victim race on capital sentencing outcomes. The relative probabilities in this Table were generated by regression analyses that controlled for variables that may affect decisions related to capital sentencing.

[87] GAO 5-6. The GAO also noted that "The race of victim influence was found at all stages of the criminal justice system process, although there were variations among studies as to whether there was a race of victim influence at specific stages." Id. at 5.

Table 3. Regression Analyses on the Race-of-Victim Effect and Capital Sentencing

Location	Period of Study	Cases Analyzed	Relative Probability of Being Sentenced to Death for Killing a White Victim Rather Than a Black Victim (Controlling for Other Relevant Variables)	Statistical Significance
Panel A: States				
California[88]	1990-1999	Reported homicides	2.46	< .001
Georgia[89]	1973-1979	Defendants charged with homicide and subsequently convicted of murder or voluntary manslaughter	4.3	< .005
Florida[9091]	1976-1987	Homicides	3.42	< .001
Illinois[92]	1988-1997	defendants convicted of first-degree murder	2.48	< .01
Maryland[93]	1978-1999	death-eligible first- or second-degree murder cases	3.7	
Missouri[94]	1977-1991	non-negligent homicides	2.61	< .10
North Carolina[95]	1980-2007	Homicides	2.96	< .001

[88]Michael L. Radelet & Glenn L. Pierce, The Impact of Legally Inappropriate Factors on Death Sentencing for California Homicides, 46 Santa Clara Law Review, 35 tbl.11, row six (2005).

[89] Equal Justice and the Death Penalty, 319-20 tbl.52.

[90] Isaac Unah. Choosing Those Who Will Die: The Effect of Race, Gender, and Law in Prosecutorial Decision to Seek the Death Penalty in Durham County, North Carolina, 28 tbl. (2009). Available at: http://works.bepress.com/isaac_unah/1.

[91] Michael L. Radelet & Glenn L. Pierce, Choosing Those Who Will Die: Race and the Death Penalty in Florida, 43 Florida Law Review, 28 tbl. 8, row 3 (1991).

[92] Glenn L. Pierce & Michael L. Radelet, Race, Region, and Death Sentencing in Illinois, 1988-1997, 81 Oregon Law Review 39, 95 tbl.27 (2002) Death Sentencing in Illinois, 95 tbl.31a.

[93] A regression analysis that controlled for a wide range of case characteristics revealed that black-on-white murders are significantly more likely to result in a death sentence than black-on-black and white-on-white murders. Raymond Paternoster et al, Justice by Geography and Race: the Administration of the Death Penalty in Maryland, 1978-1999, 4 U. Md. L.J. Race, Religion, Gender & Class, 83 tbl.8E and 91 tbl.9F (2004) .

[94] Jonathan R. Sorensen & Donald H. Wallace, Capital Punishment in Missouri: Examining the Issue of Racial Disparity, 13 Behavioral Sciences and Law, 70 tbl.2 (1995).

[95] Michael L. Radelet & Glenn L. Pierce, Race and Death Sentencing in North Carolina 1980-2007. 15, 30 tbl.11b (2010) Working Draft. "To conduct my analyses, we merged the death row offender data set with the FBI/SHR homicide suspect data set. Cases were matched based on the victim's race (White only and Black only victim homicides), year of offense categorized into two periods (1980 to 1989 and 1990 to 2007), "additional legally relevant factors" (no additional legally relevant factors, one additional legally relevant factor, or two additional legally relevant factors). We define "additional legally relevant factor" as either 1) multiple victim homicide, or 2) a homicide with accompanying felony circumstances. In other words, we use two characteristics of the homicide event to measure "additional legally relevant factors": whether the homicide event took the lives of two or more victims, and whether there was evidence of additional felonies (e.g., rape, robbery) that occurred at the same time as the homicide."

Ohio[96]	1981-1994	Homicide	1.66	< .01
Panel B: Counties				
East Baton Rouge, LA[97]	1990-2008	defendants convicted of homicide	37.04	< .005
Harris County, TX[98]	1992-1999	defendants indicted for capital murder	1.63	n/a

Table 3 shows that the high quality studies published since 1990 have found that defendants convicted of murdering a white victim are significantly more likely to be sentenced to death than similarly-situated defendants convicted of murdering a black victim.

2. State and County Studies on Interactions Between Defendant and Victim Race

Virtually every study that has looked at the interaction between defendant and victim race has found that black defendants are remarkably more likely to be sentenced to death if their victim is white rather than black. In Baldus's Georgia study, for example, black defendants were 17 times more likely to be sentenced to death if the victim was white rather than black. Table 4 provides these unadjusted racial disparities. The figures in this table are just overall percentages, not regression-adjusted estimates, but their uniformity is revealing.

[96] Marian R. Williams & Jefferson E. Holcomb, Racial Disparity and Death Sentences in Ohio, 29 Journal of Criminal Justice, 211, 215 tbl.3 (2001).
[97] Death Sentencing in East Baton Rouge Parish, 29 tbl.10.
[98] Capital of capital punishment, 835 tbl.7.

Table 4. Unadjusted Rates of Death Sentencing In Various States and Counties by Race of Defendant/Victim

Location	Period of Study	Type of Case	% of Cases with a Black Defendant and a Black Victim that Result in a Death Sentence (A)	% of Cases with a Black Defendant and a White Victim that Result in a Death Sentence (B)	% of Cases with a White Defendant and a Black Victim that Result in a Death Sentence (C)	% of Cases with a White Defendant and a White Victim that Result in a Death Sentence (D)	Ratio of (B)/(A)
Panel A: States							
California[99]	1990-1999	Reported homicides	.7% (36/5355)	3.5% (34/984)	0% (0/244)	1.9% (79/4206)	5.14
Florida[100]	1976-1987	Homicides	0.8% (36/4428)	12.6% (92/731)	3.4% (9/264)	4.9% (227/4645)	15.48
Georgia[101]	1973-1979	Defendants charged with homicide and subsequently convicted of murder or voluntary manslaughter	1.2% (18/1443)	21.5% (50/233)	3% (2/60)	7.8% (58/748)	17.20
Illinois[102]	1988-1997	defendants convicted of first-degree murder	1.1% (27/2526)	4.7% (17/363)	4.8% (3/59)	4.8% (23/458)	4.38
Maryland*[103]	1978-1999	death-eligible first- or second-degree murder cases	2.3%	13.8%	4.6%	8.9%	6.00
Missouri[104]	1977-1991	Non-negligent homicides	1.2% (24/2033)	7.1% (17/239)	3.3% (3/90)	3.9% (58/1488)	6.03
Nebraska[105]	1973-1999	Death-eligible homicides	8.7% (2/23)	18.2% (4/22)	20.0% (1/5)	21.0% (13/62)	2.09
Ohio[106]	1981-1994	Homicide	2.3% (77/3337)	10.8% (56/517)	4.3% (8/184)	5.5% (130/2385)	4.69

[99] The Impact of Legally Inappropriate Factors on Death Sentencing for California Homicides. 47-48 tbl.B-3
[100] Choosing Those Who Will Die, 21 tbl.1
[101] Equal Justice and the Death Penalty, 315 tbl.50
[102] Death Sentencing in Illinois, 94 tbl.30
[103] Justice By Geography and Race, 62 tbl.4A-65 tbl.4D
[104] Examining the Issue of Racial Disparity, 68 tbl.1
[105] The Impact of Legally Inappropriate Factors on Death Sentencing for California Homicides, 47 tbl.B-3; Nebraska Experience, 582 fig.13
[106] Racial Disparity and Death Sentences in Ohio, 211, 214 tbl.

Panel B: Counties							
East Baton Rouge, LA[107]	1990-2008	defendants convicted of homicide	8.3% (11/132)	30% (9/30)	0% (0/3)	12% (3/25)	3.60

* Raw numbers not available for Maryland

3. National Level Studies Examining Race and Capital Sentencing

a. Explaining the Racial Composition of Death Row

In a sophisticated national-level study, *Explaining Death Row's Population and Racial Composition*, researchers Blume, Eisenberg, and Wells analyzed data on murders and the composition of death row from 1977 through 1999 in the 31 states that admitted ten or more defendants to death row during this time period.[108] This comprehensive study included 5,953 of the 5,988 (99.4%) persons admitted to death row in the U.S. between 1977 and 1999.[109] The researchers obtained data on the characteristics of murders, the racial composition of death row, and several other legal and political dimensions. They then compared the overall population of murderers to the death row population along a number of dimensions to determine which factors are related to the likelihood of being convicted of capital murder and placed on death row.

The researchers found that variation in black representation on death rows in states across the country can be largely predicted with three variables: (1) The overall proportion of murders committed by blacks, (2) the proportion of all murders that involve a black offender and a white victim, and (3) whether the state is a former confederate state, where the large proportion of murders are black on black murders that are prosecuted less harshly than those with white victims.[110] The finding that black on white murders were treated more harshly than other types

[107] Death Sentencing in Est Baton Rouge Parish, 25 tbl.3.

[108] John Blume, Theodore Eisenberg & Martin T. Wells, *Explaining Death Row's Population and Racial Composition*, J. EMPIRICAL L. STUD., Mar. 2004, at 165, 169 [hereinafter "Explaining death row's population"].

[109] Explaining death row's population, 169.

[110] Explaining death row's population, 193-94.

of murders was statistically significant at the .01 level.[111] Variables such as whether a judge imposes the final sentence, the amount of political pressure on judges, and state Supreme Court Justices' political ideology were not related to the proportion of blacks on death row.[112]

Blume, Eisenberg, and Wells also calculated the rate at which murder cases involving different combinations of defendant and victim race resulted in death sentences for the eight states for which they had this complete data for the period from 1977-2000. Table 5 displays this data, and shows that cases involving a black offender and a white victim are far more likely to result in the offender being placed on death row than cases involving other combinations of offender and victim race. Note that the combination of a black offender and a white victim leads to a death sentence at a rate from roughly 3 - 23 times the rate as a black offender-black victim cases. The racial disparities in capital sentencing in the listed states are glaringly large and statistically significant at conventional levels.

Table 5. Capital Sentencing Rates by Race of Defendant and Victim in 8 States (1977-2000)

State	% Sentenced to Death for Murders with a Black Offender and a Black Victim (A)	% Sentenced to Death for Murders with a Black Offender and White Victim (B)	% Sentenced to Death for Murders with a White Offender and Black Victim (C)	% Sentenced to Death for Murders with a White Offender and White Victim (D)	Ratio of (B) / (A)
Georgia	0.5 (35/7091)	9.9 (72/726)	2.1 (4/187)	4.2 (114/2734)	20.1
Indiana	0.6 (12/2151)	4.2 (16/375)	0.0 (0/100)	2.2 (49/2272)	7.6
Maryland	0.2 (10/4174)	5.2 (25/479)	0.7 (1/137)	1.4 (20/1429)	21.8
Nevada	2.5 (11/442)	10.1 (18/178)	1.3 (1/80)	3.7 (46/1244)	4.1
Pennsylvania	1.8 (112/6310)	4.9 (46/947)	1.2 (4/335)	2.2 (90/4055)	2.7
South Carolina	0.3 (14/4784)	6.8 (50/738)	5.0 (9/179)	2.7 (72/2654)	23.2
Virginia	0.4 (18/4975)	6.5 (46/713)	2.3 (5/217)	1.8 (58/3167)	17.8
Arizona*	0.5 (13/2416)	4.8 (19/400)	2.8 (7/247)	5.9 (95/1613)	8.8

*Note: The data for Arizona combines Blacks and Hispanics into a single "minority" category. Thus, the numbers in the last row of the table for Arizona Black Offender and Black Victim also includes Hispanic offenders and victims.

[111] Explaining death row's population, 190-91.

[112] Explaining death row's population, 193.

b. A New Test of Racial Bias in Capital Sentencing

Harvard economics professor Alberto F. Alesina and his coauthor Eliana La Ferrara recently wrote an interesting paper entitled: "A Test of Racial Bias in Capital Sentencing."[113] The paper proposes a novel test of racial bias in capital sentencing based upon patterns of judicial errors in lower courts that vary according to the race of the defendant and victim. The authors model the behavior of the trial court as minimizing a weighted sum of the probability of sentencing an innocent defendant and that of letting a guilty defendant free (the inevitable tradeoff between Type I and Type II error). The authors suggest that racial bias exists when the relative weight of these two types of errors is a function of defendant and/or victim race. Thus, if decisionmakers throughout the criminal justice system consider minority on white crimes to be more serious, the relative weighting of the burdens of Type I and Type II error might shift in favor of a greater likelihood of conviction. On the other hand, for unbiased decisionmakers the ex post error rate should be independent of the combination of defendant and victim race.

The authors test this prediction by looking nationwide at all capital appeals that became final between 1973 and 1995 (including those in Connecticut), using a dataset that contains the race of the defendant and of the victim(s). They find robust evidence of bias in minority on white murders: in Direct Appeal and Habeas Corpus cases, the probability of error is 3 and 9 percentage points higher, respectively, than for minority on minority murders.

As we will see in this report, what Alesina and La Ferrara find for the entire nation, including Connecticut, for the period 1973-1995—harsher treatment of minority on white murders—I find for Connecticut for the period from 1973-2007.

[113] Alberto F. Alesina & Eliana La Ferrara, *A Test of Racial Bias in Capital Sentencing*, (Harvard Inst. of Econ. Research, Discussion Paper No. 2192).

C. CONTROLLED EXPERIMENTS AND SOCIAL SCIENCE EVIDENCE ON THE PATHWAYS OF RACIALLY BIASED DECISION MAKING IN CAPITAL SENTENCING

Some interesting social science research has tried to illuminate the motivations behind and the mechanisms leading to these racially biased capital sentencing decisions. For example, a recent study by Mona Lynch and Craig Haney who investigated how the process of juror deliberation can generate racially biased death penalty sentences.[114] In their study, Lynch and Haney recruited 539 mock jurors from urban California to participate in video-simulated death penalty trials. Each juror viewed the same case, which was "designed to capture common features of a 'typical' capital murder case that pre-testing had shown contained 'mid-range' case facts."[115] The videos were thus identical, varying only the race—through both appearance and voice—of the defendant and victim. Both before and after the simulated trial, Lynch and Haney administered questionnaires, composed of both multiple-choice and open-ended questions, to assess the impact of deliberation on juror perception of sentencing.

As part of their data collection, Lynch and Haney quantified "verdict certainty" by asking mock jurors to assess, both before and after deliberation, with what level of certainty they felt that the defendant deserved the death penalty for the particular homicide committed.[116] Lynch and Haney found that after collective deliberation, not only did all jurors favor the death penalty more frequently, but the tendency to sentence black defendants to death more often than white defendants was exacerbated among white jurors and among those jurors with poor instruction

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[114] Mona Lynch and Craig Haney, *Capital Jury Deliberation: Effects on Death Sentencing, Comprehension, and Discrimination*, 33 Law & Hum. Behav. 481, 487-488 (2009) (in controlled experiment with mock jurors, racial sentencing bias was found after juror deliberation, even when individual jurors demonstrated no racial bias in pretrial questionnaires).

[115] Lynch and Haney used the same "mid-range" case from their 2000 study, selected during a preliminary survey of 38 mock jurors. I*d.* at 483-84; *see also* Lynch & Haney (2000), *infra* note 127.

[116] *Id.* at 484.

comprehension. Additionally, white jurors felt more certain that the nature of the homicide merited death penalty treatment when the defendant was black rather than white.[117] Since the only element that varied in the facts of the capital murder was the race of the victim and the defendant, the finding of racial bias is particularly unassailable.

The 2009 Lynch and Haney study also shed important light on how capital jurors evaluate mitigating and aggravating factors. Lynch and Haney found that white male jurors were less likely to consider mitigating evidence for black defendants.[118] Similarly, they conclusively found that jurors gave less weight to two categories of mitigating factors—namely, psychiatric problems and substance abuse issues—when the victim was white than when the victim was black.[119]

Their findings in 2009 accord with those of a 2000 study by Lynch and Haney that investigated juror comprehension of the judge's instructions as a factor in sentencing bias.[120] Lynch and Haney first selected a "mid-range" robbery-murder case, and created a video-simulated trial that altered only the race of the victim and defendant.[121] They recruited 402 jury-eligible participants from a single California county, who viewed the videotaped trial and answered a series of questionnaires. Finally, each juror completed an instructional comprehension test on the judicial instructions guiding their sentencing decision.[122]

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[117] *Id.* at 487.

[118] *Supra* note 1156, at 489. Lynch and Haney found no comparable effect for women and non-white jurors when treated as a separate group, but noted that "white male dominance" during deliberation nonetheless led to biased sentencing outcomes.

[119] *Id.* at 488.

[120] Mona Lynch & Craig Haney, *Discrimination and Instructional Comprehension: Guided Discretion, Racial Bias, and the Death Penalty*, 24 Law & Hum. Behav. 337 (2000).

[121] *Id.* at 342-43.

[122] *Id.* at 345-46.

Lynch and Haney's results from 2000 revealed a bias against black defendants among those with low comprehension of sentencing instructions.[123] In particular, jurors who did not understand the role of mitigating and aggravating circumstances were more likely to treat mitigation as aggravating in black than white defendant cases. For example, when a defendant had psychiatric problems, a mitigating factor, jurors mistakenly used this as an aggravating factor for 18% of black defendants but only 9% of white defendants.[124] Further, even when mitigation was used properly, the evidence was regarded as "significantly less mitigating" for black than white defendants.[125]

Based on this finding, Lynch and Haney concluded that black defendants thus faced the most pronounced discrimination by those who least understood the judge's instructions, and this discrimination was manifested in a misapplication of circumstances that led to a harsher – or more "egregious" – view of the crime. Haney has elsewhere identified this as the inevitable result of an "empathetic divide" between white jurors and black defendants.[126] This divide can lead jurors to engage in what Haney refers to as "moral disengagement" to separate themselves from the defendants they sentence.[127]

The "Us versus Them" mentality that could stimulate such moral disengagement has been found to be an important part of human social interaction. This view is at the core of Social Identity Theory, first developed by prominent social psychologists Henri Tajfel and John Turner

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[123] *Id.* at 349.

[124] *Id.* at 349 tbl. 6, 352.

[125] *Id.* at 352.

[126] *See, e.g.,* Lynch & Haney (2009), *supra* note 115, at 1583 ("In capital cases, [the empathetic divide] interferes with jurors' ability to take structural mitigation into account as they assess the culpability of individual African-American defendants"). *See also, generally,* Craig Haney*, The Social Context of Capital Murder: Social Histories and the Logic of Mitigation,* 35 Santa Clara L.Rev. 547 (1995).

[127] *See* Craig Haney, *Violence and the Capital Jury: Mechanisms of Moral Disengagement and the Impulse to Condemn to Death*, 49 Stanford L.R. 1447, 1465 *et seq* (1997) ("[M]oral disengagement… stands at the core of the chronic racism that has plagued my criminal justice system… [T]he structure of capital trials facilitates and even encourages race-based otherness").

in the 1970s. In-group bias, an empirically validated and culturally relevant facet of Social Identity Theory, is the tendency for people to empathize and give preferential treatment to others when they are perceived to be in a similar group. This phenomenon has been identified in a number of experimental settings, where the groups are artificially created,[128] or are existing social[129] and racial groups.[130] These studies reveal strong in-group favoritism and out-group discrimination, as well as discriminatory preferences for reward and punishment: individuals are significantly less likely to punish an ingroup member for misbehavior compared to an outgroup member, and more likely to reward an ingroup member for good behavior, compared to an outgroup member. In light of these findings, it should not be surprising that a highly socially salient characteristic such as race could bias a jury's decision-making process with life-and-death repercussions.[131]

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[128] Tajfel, H. Billig, M.G., Bundy P., and Flament, C.L. 1971. "Social categorization and intergroup behaviour." *European Journal of Social Psychology*, 1(2): 149-78. Chen, Yan and Li, Sherry Xin. 2009. "Group Identity and Social Preferences." *American Economic Review*, 99(1): 431-57. The first study used all-male pupils aged 14-15 from a state school in Bristol, England and the second study used students from the University of Michigan with some faculty members. Common to both experiments, subjects were randomized into two groups and given tasks of allocating tokens (to be later redeemed in real money) to two groups in three situations: ingroup/ingroup, outgroup/outgroup, ingroup/outgroup.

[129] Bernhard, Helen, Ernst Fehr, and Urs Fischbacher. 2006. "Group Affiliation and Altruistic Norm Enforcement." *American Economic Review*, 96(2): 217–21 and Goette, Lorenz, David Huffman, and Stephan Meier. 2006. "The Impact of Group Membership on Cooperation and Norm Enforcement: Evidence Using Random Assignment to Real Social Groups."*American Economic Review*, 96(2): 212–16. These studies used a dictator-game experiment set-up with third-party punishment (wherein one player allocates a certain amount of points between herself and another player, and a third player can "punish" the allocating player by removing points). The first study used two distinct, native social groups in Papua New Guinea as subjects; the second study used separate platoons in the Swiss Army. Both studies found that third parties showed stronger altruism toward ingroup victims and give ingroup norm violators more lenient judgments.

[130] "In a study of empathy in children across race, Klein (1971) made slide sequences depicting Black or White girls in happy, sad, and fearful situations that were then relevant to White and African American cultures. The subjects, all girls, verbalized more empathy in response to slides depicting children of the same race." Quote from Hoffman, M. L. (2001). *Empathy and moral development: Implications for caring and justice*, Cambridge, UK: Cambridge University Press p. 207. Study refers to: E Rosalyn S. Klein, Some Factors Influencing Empathy in Six-Year Old and Seven-Year Old Children Varying in Ethnic Background, 31 *Dissertation Abstracts Int'l* 3960 (1971).

[131] Craig Haney, *Condemning the Other in Death Penalty Trials: Biographical Racism, Structural Mitigation, and the Empathic Divide*, 53 DePaul L. Rev. 1557, 1583 (2004) (calling the "tendency to attribute the causes of behavior of African Americans to their negative internal traits" both "persistent and pernicious").

Indeed, an important 2006 study showed how arbitrary this type of racial bias can be. Using a dataset collected by David Baldus in 1998, Jennifer Eberhardt analyzed over 600 death-eligible cases in Philadelphia, Pennsylvania between 1979 and 1999.[132] Forty-four of the cases involved a black defendant and white victim; another 308 had a black defendant and a black victim. Over 40 (mostly white) Stanford undergrads rated "the stereotypicality of each Black defendant's appearance," using whatever indication they felt appropriate.[133] The study found that "stereotypically black" defendants who had been convicted of murdering a white victim were more likely to receive a death sentence.[134]

This concise review of the post-1990 literature on the relationship between race and capital sentencing has underscored two points that will be relevant to my assessment of the Connecticut death penalty regime. First, there is an imposing amount of evidence from around the nation that race inappropriately influences capital sentencing outcomes, particularly in cases that involve minority defendants and white victims. Second, juror assessment of aggravating or mitigating factors is a critical factor driving capital sentencing decisions, and highly compelling research finds that these factors are likely to be the very vehicle through which discriminatory judgments are made.[135]

This important body of research illuminates aspects of the Connecticut death penalty that warrant particular scrutiny to see if race is playing an impermissible role. As we will see in

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[132] Jennifer L. Eberhardt et al, *Looking Deathworthy: Perceived Stereotypicality of Black Defendants Predicts Capital-Sentencing Outcomes*, 17 Psych. Sci. 383, 383-85 (2006).
[133] *Id.* at 384.
[134] *Id.*

[135] In *Turner v. Murray*, 476 U.S. 28, 35 (1986), Justice White wrote a majority opinion vacating a death sentence for a black defendant, expressing concern that juror discretion in considering mitigation evidence provides "a unique opportunity for racial prejudice to operate but remain undetected." 476 U.S. 28, 35 (1986).

section IX below, data from Connecticut also reveal a similar racially disparate impact in the administration of its capital punishment regime.[136]

V. THE STRUCTURE OF CONNECTICUT'S DEATH PENALTY

Before launching into the empirical analysis, it is useful to give a general overview of Connecticut's post-*Furman* death penalty statute—C.G.S.A. § 53a-54b – which was enacted in 1973 and has been amended a number of times over the years, as I describe in detail in Appendix A. The legislature has set out eight factors to distinguish a death-eligible (i.e., "capital") murder from other homicides.[137] Upon a conviction for capital murder, a separate penalty phase is held if the State wishes to seek the death penalty. There the State must prove one of eight aggravating factors, and the defense has the opportunity to present mitigating evidence.[138] After this separate penalty trial, the trier-of-fact determines whether the evidence supports a sentence of death or one of life in prison without parole.[139]

A. CRITERIA FOR CAPITAL MURDER, AGGRAVATING AND MITIGATING FACTORS

Connecticut General Statutes section 53a-54b sets out eight categories of murder that are death-eligible. The first five were included in the original 1973 statute and the last three were added later.

1. The murder of a police officer, judicial marshal, firefighter, corrections officer, or other law enforcement officer in the performance of his or her duties.

2. Murder committed for pecuniary gain, where either the defendant committed the murder or hired someone else to commit the murder.

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[136] The literature concluding that race impacts capital sentencing outcomes has been based on a diverse range of methodological approaches and in locations throughout the United States. Interestingly, according to David Baldus and his coauthors, studies that effectively control for a wide range of variables generally find an even *stronger* relationship between race and capital sentencing outcomes than less rigorous studies. David C. Baldus, et. al, *Racial Discrimination and the Death Penalty in the post*-Furman *Era: An Empirical and Legal Overview, with Recent Findings from Philadelphia*, 83 CORNELL L. REV. 1638, 1661-1662 (1998).

[137] *See* CONN. GEN. STAT. § 53a-54b.
[138] *See id*. § 53a-46a.
[139] *Id.*

3. Murder committed by a defendant with a prior conviction for either intentional murder or felony murder.

4. Murder committed by a defendant who was under a sentence of life imprisonment at the time of the murder.

5. Murder committed by a kidnapper of a kidnapped person during the course of the kidnapping.

6. Murder committed in the course of a sexual-assault (rape-murder) (added 1980).[140]

7. Murder of two or more persons at the same time or in the course of a single transaction (added 1980).[141]

8. Murder of a person under sixteen years of age (added 1995).[142]

The original 1973 statute contained a sixth category of capital felony providing that the seller of certain illegal drugs could be deemed to have committed a capital felony if the purchaser died from using the drug.[143] This factor was eliminated in 2001. Any individual convicted of a capital felony committed after July 1, 1981, faces life in prison without the possibility of release, unless s/he receives a death sentence.[144]

The statute also requires in § 53a-46a(i) that the State prove one of the following aggravating factors in order for the defendant to be sentenced to death: (1) murder during a felony by one previously convicted of the same felony; (2) murder after being convicted of two felonies inflicting serious bodily harm; (3) murder accompanied by knowingly creating a grave risk of death to others; (4) heinous, cruel, or depraved murder; (5-6) murder for hire or pecuniary gain; (7) murder using an assault weapon; or (8) murder of a public safety official.[145]

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[140] Public Act 80-335.
[141] *Id.*
[142] Public Act 95-16.
[143] Public Act 01-151, §3.
[144] CONN. GEN. STAT. §53a-35a.
[145] The complete language of this section defining statutory aggravating factors is as follows: "(1) The defendant committed the offense during the commission or attempted commission of, or during the immediate flight from the commission or attempted commission of, a felony and the defendant had previously been convicted of the same felony; or (2) the defendant committed the offense after having been convicted of two or more state offenses or two or more federal

The Connecticut death penalty regime also allows the defense to present mitigating evidence.[146] Initially, the finding of a statutory mitigating factor prevented the imposition of a death sentence. After 1995, a death sentence could be imposed as long as the aggravating factor or factors outweighed any mitigating factors.[147] In reaching this judgment, "the jury must be persuaded beyond a reasonable doubt that the aggravating factor or factors outweigh the mitigating factor or factors and that, therefore, it is persuaded beyond a reasonable doubt that death is the appropriate punishment in the case." *State v. Colon*, 272 Conn. 106, 277; 864 A.2d 666, 772 (2004).

Following the 1995 amendments, the statute continued to specify some statutory factors that barred imposition of the death penalty. Since 1995, however, the presence of non-statutory mitigating factors does not automatically outweigh the presence of one or more aggravating factors. The statutory mitigating factors include:

> [T]hat at the time of the offense (1) he was under the age of eighteen or (2) his mental capacity was significantly impaired or his ability to conform his conduct to the requirements of law was significantly impaired but not so impaired in either case as to constitute a defense to prosecution or (3) he was under unusual and substantial duress, although not such duress as to constitute a defense to prosecution or (4) he was criminally liable under sections 53a-8, 53a-9 and 53a-10 for the offense, which was committed by another, but his participation in such offense was relatively minor, although not so minor as to constitute a defense to prosecution or (5) he could not reasonably have foreseen that his conduct in the

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offenses or of one or more state offenses and one or more federal offenses for each of which a penalty of more than one year imprisonment may be imposed, which offenses were committed on different occasions and which involved the infliction of serious bodily injury upon another person; or (3) the defendant committed the offense and in such commission knowingly created a grave risk of death to another person in addition to the victim of the offense; or (4) the defendant committed the offense in an especially heinous, cruel or depraved manner; or (5) the defendant procured the commission of the offense by payment, or promise of payment, of anything of pecuniary value; or (6) the defendant committed the offense as consideration for the receipt, or in expectation of the receipt, of anything of pecuniary value; or (7) the defendant committed the offense with an assault weapon, as defined in section 53-202a; or (8) the defendant committed the offense set forth in subdivision (1) of section 53a-54b to avoid arrest for a criminal act or prevent detection of a criminal act or to hamper or prevent the victim from carrying out any act within the scope of the victim's official duties or to retaliate against the victim for the performance of the victim's official duties."

[146] C.G.S.A. § 53a-46a(h).

[147] P.A. 95-19, §1.

course of commission of the offense of which he was convicted would cause, or would create a grave risk of causing, death to another person.[148]

B. THE STATUTORY BASIS FOR REVIEW OF DEATH PENALTY SENTENCES IN CONNECTICUT

Section 53a-46b(b) governs the automatic appellate review of death sentences in Connecticut. The statute provides that "[t]he Supreme Court shall affirm the sentence of death unless it determines that: (1) The sentence was the product of passion, prejudice or any other arbitrary factor; or (2) the evidence fails to support the finding of an aggravating factor specified in subsection (i) of section 53a-46a."

Prior to 1995, Section 53a-46b(b) included a third test under which death sentences were reviewed. This language mandated that the Supreme Court affirm the sentence of death unless the defendant's "sentence is excessive or disproportionate to the penalty imposed in similar cases, considering both the circumstances of the crime and the character and record of the defendant."[149] Even though this provision was repealed fifteen years ago,[150] Section 53a-46b(b)(3) has continued to be an important vehicle through which death sentences have been challenged. In *State v. Cobb*, the Supreme Court of Connecticut held that the proportionality review required by that section "is still mandatory for all capital felony cases pending at the time that the repealing statute became effective."[151] Accordingly, § 53a-46b(b)(3), which has constitutional underpinnings, is still being applied and interpreted by Connecticut courts. Moreover, the analysis of "similar cases" and proportionality is closely related to the determination of whether a death sentence "was the product of passion, prejudice, or any other arbitrary factor" under § 53a-46b(b)(1).

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[148] C.G.S.A. § 53a-46(h).
[149] P.A. 95-16, § 3.
[150] See id. at §3(b).
[151] *State v. Cobb*, 234 Conn. 735, 747 n.10 (1995)

Connecticut's now-repealed statutory provision mandating proportionality review of death sentences incorporated the U.S. Supreme Court's jurisprudence on the review of death sentencing for capital felonies. Enacted in 1980, the proportionality language in § 53a-46(b) paralleled the language of the Georgia death penalty statute affirmed by the Supreme Court in *Gregg v. Georgia*.[152] The Georgia death penalty statute mandated that the Georgia Supreme Court review sentences of death to determine whether they are "excessive or disproportionate to the penalty imposed in similar cases, considering both the crime and the defendant."[153] In *Gregg*, the Supreme Court noted that the Georgia statute created a legal apparatus to address the problems of arbitrariness that the court described in *Furman*, where the Court invalidated death penalty statutes on the grounds that they were applied arbitrarily and capriciously.

In *State v. Webb*,[154] the Connecticut Supreme Court noted that the Connecticut "proportionality review statute was enacted against [the Supreme Court's] jurisprudential background" as developed in *Furman* and *Gregg*.[155] In an analysis of the U.S. Supreme Court's death penalty jurisprudence, the Connecticut Supreme Court concluded that the "appellate focus on the risk of wantonness, freakishness and aberrance" meant a focus on "whether the death penalty imposed was *disproportionate* to sentences imposed in other similar cases"—not on whether it was "by application of the statutory standards, *proportional* in some relative sense to other similar cases."[156] As this report illustrates, the application of the death penalty in Connecticut is almost always disproportionate in this sense. For each case where the ultimate penalty has been imposed, there are many similar cases that received a lesser punishment.

[152] 428 U.S. 153 (1976).
[153] Ga. Stat. § 27-2537 (c)(3) (Supp. 1975).
[154] 680 A.2d 147 (Conn. 1996).
[155] *Id.* at 179.
[156] *Id*.

VI. THE STUDY'S METHODOLOGY

A. THE SELECTION OF CASES FOR ANALYSIS

1. Defining the Universe of Cases for Inclusion

The issue currently before the court in this litigation is the lawfulness of the application of the death penalty system in Connecticut. Years before I became involved in this case, the decision was made to examine all cases in which a prosecuted defendant, ultimately convicted of an unlawful homicide, was eligible for the death penalty by virtue of the elements of the murder, whether or not the state actually chose to pursue the death penalty in the particular case.

Conceptually, it might be preferable to define a broader universe that included *every* death-eligible murder—without regard to arrest or conviction. This would allow a fuller picture of whether certain types of cases tend to be pursued more aggressively at the stage of police investigation, and would also illuminate whether decisions by triers of fact tend to treat certain types of cases more or less harshly when making determinations about criminal liability. The theoretical advantages of this approach would have to be outweighed by the considerable practical difficulties. On the one hand, the broader definition would enable the researcher to explore an important way in which the Connecticut criminal justice system acts: decisions are made as to how much time and effort will be spent in solving a particular crime. Given the large and growing percentage of murders that Connecticut does not solve, the set of unsolved cases is an increasingly important one.

On the other hand, it is difficult enough to find out information about cases that are processed through the system. Imagine the greater difficulties that exist in trying to document the details of crimes that were never solved. First, if the murder is never solved, there will be no information about the perpetrator and often less information about the nature of the crime than

will be the case if the murder has been solved and the perpetrator arrested and prosecuted.[157] Second, it is difficult to obtain information on those who are acquitted of all charges (whether or not they were in fact guilty) because Connecticut purges its data files for such defendants. For this reason, cases that were never solved or prosecuted, or for which a defendant was fully exonerated at trial, were not originally included in the data collection and are not included in my analysis.

Accordingly, the goal of my project was to analyze all cases where a prosecuted defendant convicted of a criminal homicide was eligible for the death penalty. A "case" includes all judicial proceedings related to the actions of a *single* defendant who is convicted of a criminal homicide. When a defendant is tried for killing multiple victims, that is one case. If two defendants jointly commit a death-eligible murder (of any number of victims), my protocol was to identify two separate cases to reflect the particular outcomes that each defendant received from the operation of the criminal justice system. However, if a defendant is convicted of murder, has the conviction reversed, and then is subsequently reconvicted, that results in one case because there is only one ultimate outcome. Similarly, if a defendant is convicted of murder, has his sentence vacated and is subsequently re-sentenced, that too is one outcome and so one case.

When analyzing a case, I use the *final* outcome of the case as a whole, not the outcome of the first trial (if the final outcome happens to differ from the initial trial outcome). I use this definition of a case because my goal is to analyze the operation of the death penalty system as a whole and not the operation of a single level of enforcement or adjudication. For example, consider the case of a sentence reversed after trial. If a defendant is initially sentenced to death

[157] Differences in investigative effort may create bias in which crimes are actually solved, but investigating the "missing" prosecutions is difficult for obvious reasons.

but that sentence is reversed in favor of life in prison without the possibility of parole (LWOP), the system as a whole, including the appeals process, has *not* concluded with a death sentence.

A crucial question in evaluating death penalty systems at least since the 1972 *Furman* decision has been: How does the system select the handful of cases for the death penalty out of the many offenses that could qualify for a capital sentence? To answer this question, the analysis *must* begin with all the cases where the defendant was plausibly eligible for death, as determined by the attributes of the crime, the defendant, and the victim. If my mandate were to study only the behavior of judges and juries in penalty-phase proceedings, then it would make sense to include only cases where the defendant has been convicted of a capital felony and that have proceeded to a penalty phase. However, to study the operation of the system as a whole, we must begin with the complete set of death-eligible cases.

The purpose of this report is to evaluate the Connecticut death penalty system—that is, to analyze the outcomes reached for capital-eligible defendants in a given legal matter. Therefore, for each legal matter, I focus on the final outcome and not on earlier outcomes that are reversed on appeal. For example, a defendant whose sentence is overturned and who goes through a second penalty phase will only appear in the data once based on the ultimate outcome in the case.

Michelson argues that this is the wrong approach and that I should instead follow his approach by keeping both observations for a defendant who goes through a retrial or a second sentencing phase.[158] The short answer to his complaints are that they are unimportant—they make no difference to the regression results since the findings of strong race and geographical effects on capital outcomes are not influenced by Michelson's concerns. Nonetheless, there are some compelling reasons why a researcher would consider the final outcome of a case as more

[158] *Id.* at 79 ("I will define each event that follows each incident as an observation. One defendant could have two trials for each of two incidents, and appear as four observations.").

important than intermediate outcomes, even though Michelson advocates treating each identically. Although for some issues Michelson's approach can make sense,[159] for the paramount issue of how the system ultimately resolves capital cases, Michelson's suggestion is misguided for three reasons. First, it violates the basic principle that we are testing the Connecticut death penalty *system*—a system that allows for appeals. Michelson's approach would treat a situation where one defendant was sentenced to death 9 times and then finally given a life sentence as essentially the same as 10 separate murders with 9 defendants receiving death sentences and one receiving a life sentence. Obviously, these are completely different situations. Michelson's approach would (incorrectly) treat the first situation as suggesting that 90 percent of defendants receive death sentences for their crimes while my approach would (correctly) indicate that one defendant ultimately received a life sentence after the defendant's case had been fully processed through the Connecticut death penalty system.

Of course, it could be useful to keep track of those defendants who were sentenced more than once for a single crime. Indeed, such information can illustrate arbitrariness in the Connecticut death penalty system by documenting cases of conflicting jury verdicts or a prosecutor bent on the death penalty who secures a death sentence and then suddenly reverses himself for no apparent reason after an appeal (such as the *Colon* case, discussed below in the text at footnote 189). But Michelson never attempts to use the data in this appropriate way.

Second, including multiple observations for a single defendant committing a single crime in a regression analysis also creates statistical problems because obviously these multiple observations are not independent. Michelson attempts to address this problem using a Stata

[159] If one is interested in exploring how juries behave in penalty phase hearings, a researcher might want to look at every penalty phase hearing and document the outcomes. If a case went through multiple penalty phases, the added cases would provide additional information on jury decisionmaking. If one instead wants to know what ultimately happens to defendants charged and convicted of death-eligible murders, the intermediate steps may be less informative -- complicating the analysis more than illuminating it.

cluster adjustment, but as I have written elsewhere this cluster adjustment only partially corrects for departures from independence in the data (often badly mis-stating the true level of statistical significance).[160] As David Weisburd and Joseph Naus wrote in their study of the death penalty in New Jersey, "it is clear that we cannot use the same murder case more than once in a single analysis."[161]

Three, Michelson's approach will tend to introduce noise in the data that can obscure important racial effects. To see this, consider the following simplified example: assume white defendants are sentenced to death at the same rate as minority defendants but the white defendants disproportionally tend to have their cases reversed on appeal. As a result, in this stylized example, whites ultimately have lower final rates of death sentencing than minority defendants. But if one retains in the analysis the death sentences that were ultimately overturned, the significant difference that exists in final outcomes can be obscured. This approach—which is the one employed by Michelson—would make sense if one were trying to obscure the true racially disparate treatment of capital defendants, but it is makes no sense if one wants to find out whether there is racial discrimination in the final outcomes produced by the Connecticut death penalty system—which is, of course, one of the central issues in this litigation.

2. An Illustration of Michelson's Problematic Approach to Case Selection -- The Carmen Lopez Murder

Michelson disagrees with some of my case selection protocols. Thus, he would treat a trial-retrial scenario as two cases, while I would take the final outcome as defining the outcome of the single case for a single defendant.

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[160] John Donohue, Abhay Aneja, and Alexandra Zhang, "The Impact of Right to Carry Laws and the NRC Report: Lessons for the Empirical Evaluation of Law and Policy," forthcoming in the American Law and Economics Review (2011).

[161] DAVID WEISBURD & JOSEPH NAUS, REPORT TO SPECIAL MASTER DAVID BAIME: APPLYING THE RACE MONITORING SYSTEM TO MAY, 2005 PROPORTIONALITY REVIEW DATA 5 (2005).

The 1988 murder case of Carmen Lopez can be used to illustrate some of the conceptual problems posed by Michelson's approach of failing to profit from the knowledge generated by ultimate prosecution outcomes. The 17-year-old Lopez, six months pregnant at the time, was strangled to death with a ligature, and her naked body, still tied to the back of a couch, was found two days after the murder. Connecticut actually convicted two unrelated defendants who were sequentially accused of committing this death-eligible crime: Miguel Roman and Pedro Miranda. Roman, arrested in 1988, was initially prosecuted and convicted of the Lopez murder and sentenced to 60 years in prison. After Roman served twenty years of this sentence, he was exonerated by DNA evidence that was tested at the urging of the Connecticut Innocence Project. Roman was released from prison in December 2008, and Connecticut then prosecuted Pedro Miranda for the murder of Lopez based on a DNA match of the evidence that exculpated Roman. Miranda was convicted of a capital felony in this case on April 26, 2011.

Michelson's approach would lead to treating the Lopez murder as two separate death-eligible murder cases, while I would treat it as one murder. Therefore, I would not include the Roman case in my sample but would include the Miranda case if it had concluded in time (of course, the recent conviction of Miranda came much too late to be included in my sample). In my view, it is odd to include Roman as a death-eligible case resulting in conviction once we know that Roman was completely innocent. The summaries that are used to code egregiousness are intended to capture elements of the actual murder. It seems inappropriate to me to have coders view summaries that simply reflect the erroneous beliefs articulated by Connecticut prosecutors that they managed to convince a jury to accept, even though those beliefs are now understood to have been entirely incorrect. In my view, it is better to keep the summaries tethered to the reality of what actually happened with the crime as best we can tell from the

fullest information that we have, rather than to allow the summaries to be based on the mistakes of prosecutors and the juries they managed to mislead, however innocently.

3. The DCIs and the Case Summaries

Before I became involved in this case, the Office of the Public Defender and researchers connected with this project launched a laborious research project to identify the cases that should be included in this study. The goal was to gather information on all cases that were death eligible after the adoption of Connecticut's 1973 death penalty law and in which a conviction was obtained by June 30, 2006. Pursuant to this goal, the researchers generated Data Collection Instrument ("DCI") forms, each with detailed information about potentially death-eligible homicide cases. The researchers also prepared a brief prose description of the relevant highlights of each crime (although in a few cases these "unscrubbed summaries" were not at first prepared). From these summaries, my team also created a "scrubbed summary" containing the salient facts, but with certain identifying information (such as the race of the defendant and victim, and case outcomes) removed.

To obtain information on murders and capital-eligible cases in Connecticut, I analyzed several state and national data sources. These sources included the Supplementary Homicide Reports (SHR) and the Uniform Crime Reports from the FBI, the Connecticut Court Operations Division, and Data Collection Instruments (DCIs) containing detailed information on death-eligible homicides that resulted in a conviction. The data used in the study included both 231 coded machine-readable information from the DCIs and detailed case summaries. Section B of this part explains in detail how I arrived at a set of 205 capital-eligible murders from the original 231 DCIs.

Michelson attempts to make a great deal of the fact that the initial version of the Donohue Report included only 207 cases, not 231, going so far in his fantastical Appendix A as to say

"petitioners had hidden 24 observations."[162] However, Michelson already knew—or should have known—the reason for this difference. In fact, although there were 231 DCIs completed, I did not have eighteen summaries (necessary to code them for egregiousness) in time for the initial report. Additionally, I dropped one case (Roger Meehan) because the crime was not a capital felony on the date of the offense. I dropped two more (one each for Robert Breton and Ivo Colon) because there were two DCIs for each case (original trial and resentencing). Finally, the five Michael Ross murders were consolidated into two (one each in Windham and New London). This explains the difference between 231 and the 207 cases used in the original report.[163] Of course, all of this information was fully disclosed long before Michelson wrote his report, and there is nothing manipulative or deceptive about these exclusions.[164]

The DCIs— in both paper and machine-readable data formats—included information on every death-eligible murder that resulted in a conviction (whether or not it was prosecuted as a capital offense).[165] These data were divided into two parts. The first—which included all death-eligible murders committed after October 1, 1973 with a sentence imposed prior to December 31, 1998—was collected by researchers associated with the Office of the Chief Public Defender

[162] MICHELSON REPORT, AUGUST 20, 2010, app. at A4.

[163] In discussing this issue of the 231 versus the 207, he writes (at page 10 of his Appendix A in footnote 23): "Donohue has never offered a clear explanation. I think he lost access to at least one 'egregiousness' coder, which meant that he could not produce consistent codes for the remaining cases. If so, that explanation should be added to the evidence of poor project management, in Part C." This absurd and utterly unfounded speculation is absolutely false. All of my coders coded every case summary that was used in this project. It was a mammoth management project to ensure that that happened, as I had to track some individuals down on different continents, but the explanation for the 231 versus 207 cases (provided in the text) clearly shows that this discrepancy had nothing to do with the conduct or management of the egregiousness coders. Most of what Michelson writes in his report is either incorrect, misleading, or irrelevant -- and not uncommonly all three.

[164] As discussed above, the summaries were prepared by the research team involved in the initial data collection effort (again, initiated long before I became involved in this case). This team was working at full capacity to code the data for analysis and prepare the needed summaries. While they completed the DCI's in the fall of 2007, they had not completed all of the summaries at the time that the team of egregiousness coders that I had assembled needed to make their coding decisions if I was to be able to submit the report at the initial November 30, 2007 deadline. If I had received the needed summaries at the time I had to launch the egregiousness coding exercise, I would have included any and all relevant cases. I should note that all of the case summaries have now been evaluated by the egregiousness coders, so the entire issue -- as with so much of the Michelson report -- is simply irrelevant.

[165] The earliest murder to appear in my data set occurred on March 9, 1974.

between 1998 and 2002.[166] The second, which included all death-eligible cases where the sentence was imposed between January 1, 1999 and a conviction was secured by July 31, 2006, was collected by researchers connected with this study.

The Office of the Chief Public Defender created its data set by examining every arrest for capital murder, intentional murder, felony murder, and manslaughter in the first degree that has occurred in Connecticut since 1973. From these arrests, the Office's researchers identified 2,500 cases where homicide was charged, and each of these cases was reviewed for "the presence of strong, undisputed evidence that the defendant committed an act that fit into one of the nine categories of capital felony, which, because of this, could have resulted in a charge of capital felony under Conn. Gen. Stat. §53a-54b."[167] The final data set that emerged from this selection process consisted of ninety-six cases.

For each case, the Office examined the trial court opinion, any appellate court opinions, the presentence investigation report, mental health evaluations, notices of aggravating circumstances, bail reports, affidavits of probable cause or police reports, complaints, guilt trial or guilty plea transcripts, penalty trial transcripts, Department of Corrections records, autopsy or medical examiner's reports, jail or prison intake records, attorney interviews, briefs, and media accounts.[168] From these sources, the researchers coded into the DCI over six hundred variables relating to characteristics of the defendant, victim, crime, and proceedings.[169] Two lawyers independently coded each DCI, following the *Connecticut DCI Coding Instructions*, a document prepared by the Project Manager. A group of researchers associated with this study coded the

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[166] For ease of exposition, these cases will be referred to as the pre-1998 cases, but that should be taken to mean cases in which the sentence was imposed prior to the *end* of 1998.
[167] Neil Alan Weiner, Paul D. Allison & Gretchen Livingston, THE CONNECTICUT STUDY OF CAPITAL CASE CHARGING, ADVANCEMENT, AND SENTENCING: THE ROLE OF RACE, ETHNICITY, GENDER, AGE, SOCIOECONOMIC STATUS AND JUDICIAL DISTRICT (1973-1978), 5 (2003).
[168] *Id.* at 10.
[169] *Id.*

second set of DCIs in a similar fashion: in this phase, only death-eligible cases where the sentence was imposed after January 1, 1999 and a conviction was secured by July 31, 2006 were included.

I then created a unified data set from these two sets of DCIs. The key dependent variables in this study are the binary variables for whether the defendant was initially charged with a capital felony and whether the defendant ultimately received a sustained death sentence.[170] My explanatory variables of interest include the statutory enabling factor that qualifies the case as a capital felony, victim and defendant race, judicial district, comprehensive measures of the "egregiousness" of each crime, and a tally of "special aggravating factors" of the offense.[171] I used these variables to estimate the effect of both legally relevant and legally suspect factors on case outcomes.

The researchers who created the DCIs also wrote corresponding descriptive case summaries. Each of the summaries provides a brief narrative describing the crime, the cause of death, the race of the defendant and victims, the age of victims if they were under 16, charges filed by the state, judicial district, and outcome (whether or not the defendant was convicted; what, if anything, the defendant pled guilty to; the sentence; and any action on appeal that affected the sentence). In addition, if the case had a death penalty trial, information is provided about the sentencing phase, including the aggravating or mitigating factors that were presented and found to exist.

My research team created scrubbed versions of each case summary by eliminating information about defendant and victim race as well as charging and sentencing information. I

[170] For example, a binary variable for charging would equal one if a defendant was charged with a capital felony and zero otherwise.

[171] This list of special aggravators included, among others, mutilation, multiple gunshot wounds, attempt to dispose of/conceal body after death, and victim killed in the presence of family members or friends. This is different from the list of statutory aggravating factors charged by the prosecution.

used these scrubbed summaries to code for the degree of egregiousness in these cases, and to analyze how case egregiousness influenced different sentencing outcomes in my universe of death-eligible cases. Appendix B shows examples of complete case summaries and their corresponding scrubbed summaries.

4. Review of Case Inclusion and Exclusion

As already mentioned, the initial version of this report analyzed 207 cases, which has now been refined to 205 cases. The differences in the case numbers resulted from two factors. Receiving additional case summaries increased the number of cases, but at the same time I conducted an extensive review process to determine as conclusively as possible that only cases that met the study's criteria were being included.

In the elaborate review that generated my final dataset, all of the original DCI's were re-examined to make sure that the data set truly contained only death-eligible murders and did not contain duplicate cases arising from multiple guilt or penalty phases. To ensure consistency of the presented facts, multiple sources were cross-checked (which for many cases included judicial opinions and newspaper coverage). Those variables coded in the DCIs (described in Section A above) that are used in the analysis were verified in the course of this research. Specifically, the cases were checked to ensure accuracy in the capital felony categories as well as statutory aggravators and mitigators. Cases are properly included in this study if (and only if) the law gave prosecutors the authority to seek the death penalty given the facts and circumstances as they were understood at the time of charging. A case blocked by an unambiguous statutory mitigator—for example, one where the defendant was under 18—should be excluded.[172] Any

[172] These conclusions were checked against computer-extracted data from the DCIs to ensure for example that no errors were made in assessing the age of defendants, which could be relevant to the presence of a blocking mitigating factor.

case where the prosecution had legal authority to seek the death penalty, however, should be included.

This extensive review process ended up positively justifying the inclusion of 205 cases, in contrast with the 207 cases included in the initial version of this report. The difference between these two numbers emerged as follows: I first augmented the original 207 cases when I received the case summaries necessary to analyze another fifteen cases. I also eliminated four cases from the original report to ensure consistent treatment of cases that resulted in multiple guilt phase or penalty phase trials, yielding 218 cases.[173] Of these, I excluded another thirteen cases that involved juvenile defendants,[174] a clear lack of Constitutionally required intent to kill (for drug-sales cases, where the defendants clearly do not want their customers to die), or in one case, an evident desire to minimize the pain and suffering of the victim (thereby preventing the finding of a statutory aggravating factor).[175] This resulted in the 205 cases that I use in the current report (see Appendix E).

Inevitably, the process of case selection involved a small number of cases that demanded either close legal or factual judgment calls. Needless to say, Michelson's hyperbolic rhetoric might be taken to suggest that something turns on these close cases. This is assuredly not the case. To ensure that my findings were not in the least sensitive to these judgment calls, I ran my regression models while dropping all of the cases that Michelson argued should be dropped (specifically, I dropped 9 cases from the capital charging equation and thirteen more from the

[173] In Phase 1 of the data collection process, which was undertaken years before I became involved in this case, a new DCI was created for a retrial or resentencing; in Phase 2, a single DCI was created for multiple trials or penalty phases--except in the case of Ivo Colon, for whom two DCIs were created. In my initial report, although I dropped observations for Breton and Colon, I should also have dropped the superfluous observations for Burge, Castonguay, Jones, and Valentine, which are the four now removed from the current data set.

[174] Six defendants were under 18 at the time of the crime and were thus dropped: case numbers 114, 139, 147, 160, 203, 207.

[175] Defendant Deborah Thompson, V1 #223. Defendant was never married and her 18-month old daughter was her first and only child. She explained in her suicide notes that she was killing her daughter in order to spare her from the pain of being with her father and his family.

death sentencing equation). In Appendix E, I discuss Michelson's reasons for advocating dropping them, and why I chose to retain each of these 22 cases. But the important point is that the findings of racial and geographic bias in capital outcomes in Connecticut were thoroughly robust to excluding these cases, as I detail in my discussion of Tables 24 and 25, below.

B. MICHELSON'S MISGUIDED CRITIQUE

Michelson is not a lawyer, nor has he studied or written about any aspect of the criminal justice system or the death penalty, as he conceded in his deposition:

> Q So that's forty-one years from today. In the last forty years, have you taken any courses involving the criminal justice system?
> A No.
> Q Have you attended any academic conferences concerning the criminal justice system?
> A No.
> Q Have you -- and I think we established yesterday you haven't written anything on the criminal justice system?
> A Correct. Outside of this report.
> Q Yes. Your report in this case?
> A Yes.
> Q And that my questions would also be true with respect to the death penalty; you haven't attended any conferences involving the death penalty, you haven't taken any courses involving the death penalty and you haven't written anything involving the death penalty, except in this case?
> A Correct.[176]

In considering Michelson's challenges to my choices in case selection, one must reflect on the astonishing ignorance of even the most basic elements of the criminal justice system that he revealed in his deposition:

> Q Okay. Are you able to define what the global universe consists of in a proper study in the administration of capital punishment in Connecticut?
> …
> A I would look at the way cases are coded, and I would look for either all murders or all homicides.
> Q All right. Now, I'm asking you would you look for all murders, or would you look for all homicides to include in your global universe; which one?

[176] Michelson, Stephan - Vol. II 8-27-09 dep P. 236: 23 – 237:12.

A I don't know. The more global one would be murders.[177]

…

Q So you're saying in the initial universe, it could be all homicides or all murders; you don't know?
A I would start with the larger universe.[178]
…
Well, murder is a more inclusive term, so then I'm willing to look at murders. Murders should include homicides; they should not be separate, but --
Q I'm sorry, I don't understand what you mean by that.
A There should not be a category of homicide that is not also a murder….[179]

Given Michelson's attacks on my definition of the universe of cases for analysis, I thought it was rather shabby that Michelson didn't even know that homicide is a more encompassing concept than murder. But things soon got much worse in his deposition:

Q All right. … Have you looked at the criminal penal statutes in Connecticut?
A Yes.
Q Okay. Is there a crime called murder in Connecticut?
A I don't recall that as a crime.
Q So when you've been using the word "murder," you haven't been using it as a section of the penal code?
A No. I've been using it as a police description.[180]

After the lunch break, Michelson wants to *correct* some errors… Here is his "correction" (based on written notes that Michelson brings into the deposition) of the earlier confusion about whether homicides or murder is the broader concept:

Q Okay. Next?
A … And the last one is a -- I flipped from today… -- I flipped murder and homicide. I said one was a subset of the other, but I was wrong.
Q Which is the subset of the other?
A Homicide is the subset of murder.[181]

[177] Michelson, Stephan - Vol. II 8-27-09 dep P. 246: 12 - 24.
[178] Michelson, Stephan - Vol. II 8-27-09 dep P. 249: 15 - 17.
[179] Michelson, Stephan - Vol. II 8-27-09 dep P. 261: 5 - 11
[180] Michelson, Stephan - Vol. II 8-27-09 dep P 261: 18- - 262: 2
[181] Michelson, Stephan - Vol. II 8-27-09 dep P. 319: 14 - 22

Even with the State's Attorney at his side coaching Michelson, he still couldn't understand the definitions of murder and homicides. Thankfully, the State's Attorney was also able to inform the State's Expert that murder *is* a crime in Connecticut:

> Q Do you think that anybody who deals with the criminal justice system, and considers himself an expert, doesn't know that murder is a crime?
> A I think you have a very peculiar view of what murder is.
> Q … Do you think that it's fair to require someone who holds himself out as an expert in the study of capital punishment, do you think it's fair to require that that person know that murder is a crime in the State of Connecticut?
> A Sitting here in the conference room, it's something that you know, or you might know.
> Q I take it that during lunch Mr. O'Hare told you that murder is a crime in the State of Connecticut?
> A That's not true.
> Q Ms. Serafini, did she tell you?
> A No.
> Q It just came to you like a light bulb over your head during the break?
> A No.
> Q How did you figure out that murder was a crime in the State of Connecticut?
> A Mr. O'Hare did remind me, but it wasn't during lunch. You phrase questions in such a way of --
> Q When did he remind you?
> …
> A In an earlier break.
>
> Q I see. ... Was he a little perturbed that you didn't know that murder was a crime in the State of Connecticut?
> A I think he thinks it's as silly as I do.
> Q Oh, you think so?
> A Yes.
> Q That's why he had you fix your testimony on it?
> A No. I fixed my testimony on Gorham also. He's just trying to get things straight.
> Q Well, let's stick with murder being a crime here.
> A By all means.
> Q It wasn't a question of Mr. O'Hare reminding you, he informed you; isn't that right?
> A No.[182]
>
> Q Do you think there's any state in the union that doesn't have the crime of murder on its books?
> A No, I don't think there's any such state.

[182]Michelson, Stephan - Vol. II 8-27-09 dep P. 320: 20 – P. 322: 11.

Q But when you testified earlier this morning, you didn't think Connecticut had that crime?
A It's simply a matter of knowing.
Q What's the knowledge you didn't understand?
A There's a word murder and there's a word homicide, and I had them confused.
Q Okay. But now you understand that homicide is a subset of murder?
A Homicide is written as a subset of murder; that's my recollection.
Q Just so we understand what you're saying, when you say that homicide is a subset of murder, there can be murders that are homicides, but there can't be homicides that aren't murders?
A So -- well, there's the problem. They can be homicides.
Q So what you just said is preposterous?
A It's not correct.
Q It's not correct to say, as you said in your correction a few moments ago, that homicide is a subset of murder; isn't that right?
A I think that's right.
Q You made a mistake in your correction; correct?
A Sure.
Q And that's because you didn't understand that murder -- well, withdrawn. Anything else you want to correct?
A No.
Q And if there are other things you want to correct, please be sure to tell us. And this is in your handwriting?
A It is.
(Exhibit 103, Note, marked for identification.)
Q (By Attorney Golub) Errors -- you tell me if I'm getting it wrong. (As read) Errors, murder, squiggly sign, homicide. Homicide subset of murder … Is that right?
A Correct. [183]

So Michelson in his *written* correction after being informed by the State's Attorney what a homicide and a murder was, still could not get it right. Yet we are to credit his thoughts on what cases should be included or excluded from a death penalty study?

Moreover, not knowing anything about criminal homicide or the crime of murder captures only a small fraction of the baffling array of incorrect assertions that Michelson routinely commits. This demonstrable lack of legal knowledge also shows that Michelson cannot meet the standards for expert witnesses that he himself advocated in a short 1983 essay entitled, "When Experts Disagree." In this short piece, Michelson argued that when experts have

[183] Michelson, Stephan - Vol. II 8-27-09 dep P. 323: 14 – P. 325: 8.

methodological disagreements, the judge should favor the expert whose approach is more consistent with applicable legal theories: "the judge should ask for clear explanations of the legal theories justifying each approach…. The judge need not make a technical distinction between methods."[184] I should note that the econometric and statistical approaches that Michelson adopts in his report are as misguided as his understanding of the relevant legal issues. On either grounds, he has given the Court ample reason to doubt the validity of his work in this case.

Despite Michelson's uninformed objections, there are some challenges in trying to identify all the cases that were "plausibly eligible" for the death penalty. First, in about one-third of all death-eligible crimes, the prosecution elected not to charge the defendant with a capital felony, but the facts nonetheless would have supported such a charge and in addition would have permitted the State to seek the death penalty.[185] The only plausible way to identify such cases is by reading case files to determine death penalty eligibility from the facts of the case. However, even this is not a perfect solution, as the system can be mistaken about the perpetrator or facts of a particular homicide, thus necessitating further fact checking and follow-up beyond the original case file to see if more information has come to light in a particular case. Trying to piece through conflicting accounts of a criminal event is not always easy.

Second, even cases in which the state prosecuted the murder as a capital felony are not necessarily death-eligible: in some subset of such cases, the defendant was never plausibly eligible for the death penalty, either because of a blocking mitigating factor (e.g., defendant under eighteen at time of offense), or because the prosecutor filed a capital charge that could not

[184] Michelson "When Experts Disagree: The expert and the law." P.3, National Forensic Center (April 29, 1983).
[185] That is, there was a capital felony enabler (kidnapping, sexual assault, multiple victims, etc.); there was a statutory aggravating factor (grave risk to others, heinous-cruel-depraved murder, etc.); and there was no blocking mitigating factor (under eighteen at time of offense, victim's death not foreseeable, etc.).

plausibly have stood up in court. Hence, not every case initiated with a capital felony charge is or ever was a death-eligible crime. Moreover, the official view of a case, even if sanctioned by a jury finding and an appellate affirmance, may be incorrect.

1. Michelson's Critique of Selected Cases I Included

Michelson incorrectly argues that I have included cases that were categorically ineligible for the death penalty. For instance, he claims that "Beth Carpenter is an example of a defendant who could not have been prosecuted with the possibility of a death sentence," because she was extradited from Ireland, which, as a member of the European Union is barred from the use of the death penalty for any crime and insists on this bar in granting extradition requests.[186] However, Michelson is incorrect, and his categorical assertion demonstrates that he does not understand the principal question of this case. Beth Carpenter's crime was death-eligible the instant she completed it, and had she been arrested at any point in the 18 months that elapsed after the murder before she fled to Europe, she would obviously have been eligible for a capital felony prosecution. Those facts could not be retroactively reversed when she fled to another jurisdiction.

The present litigation is clearly focused in part on whether certain types of death-eligible defendants are more likely to escape the death penalty, all other things being equal. Beth Carpenter was a white middle class attorney, who was able to travel to Ireland. That is why she was ultimately protected from the death sentence. Not all defendants have the knowledge and opportunity to flee the country to a sovereign state that opposes the death penalty. While unusual, Carpenter's case is another example of how different defendants reach different outcomes in the judicial system despite the similarity of their crimes; her case should be included for this reason. Including the case is also consistent with my approach of selecting cases solely

[186] *Id.* at 236.

based on the facts of the crime rather than based on the subsequent actions of a particular defendant and/or the criminal justice system.

Two other cases reveal how Michelson misperceives the difficulty of inclusion judgments in certain close cases, and misconstrues the enterprise of considering the treatment of all death-eligible cases. First, Michelson questions my inclusion of the Colter case on the grounds that, "it would have been very difficult for the State to establish an aggravating factor."[187] Colter was charged with killing his ten-month-old stepdaughter, who died of blunt traumatic head injury and skull fracture, in 1996. While this obviously involves a judgment call, I might have been inclined to exclude that case had there not been such a strong precedent for treating such a case as death eligible on the grounds that the murder of an infant child was committed in a way that established the "heinous, cruel, or depraved" aggravating factor.

In 1998, Ivo Colon beat his girlfriend's two-year-old daughter to death and was himself sentenced to death, despite evidence that when he realized that he had severely injured the girl, he stopped his assault and made efforts to revive her.[188] Although the death sentence was vacated by the Supreme Court on other grounds, the Court clearly stated that the evidence did support the jury's finding of the "heinous, cruel, or depraved" aggravating factor.[189] The death sentence means that the jury must have concluded Colon intended to kill her, even though the facts of the case would seem to refute that view (unless one were to conclude that Colon did intend to kill the child, but that as soon as he realized the child was badly hurt, he changed his mind and decided to try to prevent her death). One ordinarily assumes that someone trying to kill a victim would not stop to revive them when they became unresponsive. In other words, if

[187] MICHELSON REPORT, AUGUST 20, 2010, at 98.
[188] According to the Connecticut Supreme Court decision in *Colon*, when the defendant realized "that the victim was unresponsive, [he tried] to resuscitate her by pushing on her chest and blowing air into her mouth." *State v. Colon*, 272 Conn. 106, 271 (2004).
[189] *State v. Colon*, 272 Conn. 106, 338 (2004). The sentence was vacated because of an erroneous jury instruction.

causing death by viciously beating a two-year old met the standard for death-eligibility even when there was reason to think that Colon did not intend to kill, it is hard to see how fracturing the skull of ten-month old through blunt head trauma likely caused by slamming the child's head on a hard surface could not meet the standard as Michelson apparently believes in the Colter case.

The problem with Michelson's approach is revealed by the fact that the prosecutor in the Colon case ultimately decided that Colon should not get the death penalty. Had the prosecutor reached that conclusion initially, perhaps even seeking a manslaughter charge as many prosecutors would have done with such a case, Michelson would have concluded that the case was not death-eligible.[190] But death-eligibility is determined by the facts of the case, not by what a prosecutor or fact-finder ultimately did or did not do.

2. Michelson's Critique of My Decision to Exclude the Harrell Case

Michelson also takes issue with my decision *not* to include the Harrell case in my analysis, essentially making the same broad conceptual error he committed in commenting on the Colter case. Darryl Lee Harrell was charged with a capital felony for committing an act of arson in which two people died. The prosecutors hoped to treat unintentional arson murder as an adequate basis for a capital felony charge if more than two people died. The trial court rejected this attempt, however, on the grounds that only an intentional murder can be a predicate murder under the state's capital felony statute, § 53a–54b. This dismissal was affirmed by the Connecticut Supreme Court.[191] Hence, Harrell was not included in my data set because the facts of his crime did not make him eligible for the death penalty, under the law as clearly set forth by

[190] In not one of the 22 other "caretaker" or parent-beating cases that appeared in the initial set of cases was the defendant convicted of a capital felony or even intentional murder. Sec. 53a-55 (a) of the Connecticut General Statutes provides (in part) "A person is guilty of manslaughter in the first degree when: (1) With intent to cause serious physical injury to another person, he causes the death of such person or of a third person...."
[191] *State v. Harrell*, 238 Conn. 828 (1996).

the trial court and by the Connecticut Supreme Court. The law was clear in this case, and the inapplicability of the capital felony statute to an unintentional arson murder was therefore clear from the facts of the case alone.

Michelson argues that Harrell should have been included: "Harrell was in fact charged with a death eligible crime. His case *should have been in the data* testing the charging behavior of state's attorneys."[192] Again, unfortunately, Michelson commits the error of selecting cases on the facts of the criminal justice process (here, the charging decision of the prosecutor) rather than the facts of the crime. Harrell's crime was never eligible for the death penalty because the requisite intent required under the capital felony statute was lacking. A prosecutor's decision to charge Harrell with a capital felony does not change the facts of the crime or the governing law, which alone determine what constitutes a death-eligible murder.

3. Assessing the Facts of the Case -- the Lopez Murder

In some cases, the facts are clear and death eligibility can be assessed straightforwardly, as we just saw in the Harrell case. Although Michelson was misled by the legal mistake of the Connecticut prosecutors in that case, the Office of the Public Defender researchers who initially selected the death-eligible cases for this study were not fooled. Things become more difficult, though, when the prosecutor gets the facts of the case wrong, especially if the prosecutor can get the jury to go along with the incorrect set of facts. To see how the factual errors launched by prosecutors can create particular difficulties for those who are trying to amass all death-eligible cases, consider again the murder of Carmen Lopez in Hartford in 1988. This case was *not* in the data base compiled by the Office of the Public Defender researchers who searched the files of homicide convictions to identify all potentially death-eligible cases for inclusion in my sample.

[192] MICHELSON REPORT, AUGUST 20, 2010, at 39 (emphasis in original).

While Michelson imprudently believes that the decisions emerging from the criminal justice system should be taken as gospel, the facts of the Lopez murder reveal how naive this belief is.

How would one determine whether the Lopez murder should be deemed to be death-eligible? First, one would have to establish that a capital felony occurred, and, second, one would need to establish the presence of a statutory aggravating circumstance (and the absence of any barring mitigator, such as the defendant was under age 18 at the time of the offense).[193] The assessment of the first issue requires the exercise of judgment since the Connecticut prosecutor, John Massameno—who hired Michelson as the expert witness in this case—chose *not* to file the case as a capital felony against the initial defendant Miguel Roman (who, as seen above, turned out to be innocent even though he was convicted of murder and spent 20 years in prison until his DNA exoneration in 2008). Apparently, the Office of the Public Defender researchers who made the decision not to include the Lopez murder as a death-eligible case during the Phase 1 period of data collection did so because they made the mistake that Michelson would enshrine as a governing principle: focus on the decisions of the criminal justice system rather than on the law and the facts of the crime.

The brutal murder of Lopez coupled with the naked body of the bound victim made it appear to be a clear rape-murder crime, which of course would establish a capital felony. The trouble with this view, however, was that, over Massameno's protests, an FBI witness testified that the DNA evidence ruled out Roman as the person who had had sex with Lopez just before her death -- hence no rape.

One might have thought that this exculpatory evidence on the rape would have also rendered a murder conviction of Roman unlikely. With no DNA match, the rape-murder story

[193] One can ignore the blocking mitigator issue, since it was not relevant for either defendant charged with murdering Lopez.

would have undermined the prosecution of Roman. As a result, after both the prosecution and defense had rested, Massameno convinced the trial court to re-open the case to bring in a jail inmate to tell the jury that the (innocent, we now know) Roman had confessed to the inmate that Roman had killed Lopez after seeing a black man come out of her apartment, with whom she presumably had just had sex.[194] Roman was then convicted, and his conviction was affirmed on appeal.

Massameno's decision not to seek a capital felony prosecution coupled with his theory that Lopez was murdered but not raped by Roman (ostensibly supported by the jury verdict and judicial affirmance) apparently persuaded the Office of the Public Defender researchers to conclude that the Roman "murder" did not qualify as a capital felony and thus was not death eligible. Interestingly, even though the Massameno theory that Roman was guilty of killing Lopez precluded a finding of rape as an enabling factor for a capital felony, we now know that Roman *could* have been charged with a capital felony on the basis of *kidnapping* as the enabling factor.

How do we know this? Recall that after Roman served 20 years in prison, the Connecticut Innocence Project was able to exonerate Roman on the basis of DNA evidence implicating Pedro Miranda, whose DNA was in the state data base after his 1998 conviction for kidnapping and raping a West Hartford woman.[195] Connecticut prosecutors then charged Miranda with two counts of capital felony, one based on raping Lopez and one based on

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[194] The presence of so-called jail house snitches is now widely regarded as a common feature in cases of wrongful convictions. For example, in his 2011 book "Convicting the Innocent," Brandon Garrett refers to the tactic of relying on jail house informants as "Trial by Liar."

[195] Hilda Munoz, "Justice at Last: Miranda Guilty of Murder in Wrongful Conviction Case," Hartford Courant (April 27, 2011) at A1. At that point, it came out that prior to the Roman conviction, Miranda had been questioned not only for the murder of Lopez (who he knew as the cousin of his girlfriend), but also of two other girls (Rosa Valentine, 16, killed in 1986, and Mayra Cruz, 13, killed in 1987). Miranda now awaits trial in these other two murder cases. Alaine Griffin, "Roman Sues Hartford, Police: Wrongfully Jailed, He Seeks Damages, Lopez Slaying," Hartford Courant (April 28, 2011).

kidnapping her. Connecticut law has a very broad definition of kidnapping, so as long as the restraint of Lopez was not deemed to be "incidental" to another crime, the prosecution could argue—and indeed did argue successfully in securing a conviction of Miranda for capital felony—that Miranda had committed a capital felony by kidnapping Lopez.[196]

It is never clear why Connecticut prosecutors choose not to pursue certain criminal charges that are available to them, so we do not know why Massameno declined to file capital felony charges or seek the death penalty against Roman. It is worth noting that since the Lopez murder was a minority on minority murder, the failure to charge with a capital felony or seek the death penalty is consistent with the evidence in this report that such crimes tend not to be treated as harshly as minority on white or white on white murders.[197] Because the kidnapping charge that led to a capital felony conviction for Miranda could have been filed against Roman, we know that Roman was a potential capital felony case.

But could Massameno have sought the death penalty against Roman? In other words, was that case death eligible in light of the facts argued to the jury and accepted by them in their guilty verdict? It would seem that the heinous, cruel, and depraved statutory aggravating factor would apply to the Lopez murder. In this regard, consider the language employed by a three-judge panel reviewing Roman's sentence back in 1990:

> "At sentencing, the court indicated that this was a 'particularly vicious murder' in which 'painful wounds ... were inflicted about the time that death occurred.' Because of the severity of the crime and the particular brutality employed by the petitioner in its execution, it cannot be found that the sentence imposed is inappropriate or

[196] Restraint and movement within one's own house is enough to satisfy Connecticut's definition of kidnapping, at least when the actions are not entirely incident to another felony such as robbery. *State v. Lee*, 177 Conn. 335, 344 (Conn. 1979).

[197] In other words, if we accepted Michelson's protocol and included the Roman case in the sample (despite his ultimate exoneration), it would *strengthen* the basic findings of this report. It is not entirely straightforward to add the case to the sample at this point, though, since this would require preparing a DCI and a summary of the case (a task done only by the now-dispersed DCI coders for my sample of 205 cases) and tracking down 18 egregiousness coders to code the egregiousness of the case (or coming up with some other mechanism for comparably coding both egregiousness and the special aggravating circumstances that were documented in the DCI's).

disproportionate. The sentence is affirmed." *State v. Roman*, 1990 WL 265264 (1990). This description of a "particularly" vicious and brutal murder that inflicted painful wounds to a 17-year-old girl who was six months pregnant leaves little doubt that a zealous prosecutor could have pushed for the death penalty in the Roman case based on the "heinous, cruel, and depraved" statutory aggravated circumstance.

One might wonder how the state managed to prosecute and convict an innocent man in the Lopez case. It would appear that a decisive misstep occurred when the last-minute evidence was admitted from the jail inmate. The possibility that Roman actually made these inculpatory statements seems quite remote. Why would the Hispanic Roman confide in his limited English anything that could hurt him -- particularly since it wasn't true -- to someone he didn't know in jail who was an illegal immigrant from Greece, who also was not particularly fluent at English? The linguistic and cultural barriers make the scenario highly implausible, even if Roman had been guilty. The fact that he was innocent renders the story almost impossible to believe. Would Roman ever confess something that was completely untrue to such a stranger?

A Hartford Courant article discussing the Roman trial raises troubling questions about Massameno's resort to the jail house testimony and his allegations of the motives of Roman:

> "Roman was convicted after a controversial trial in which DNA evidence was used for only the second time in the state's history, both times by the defendant. After the defense presented the DNA evidence, which had been paid for by the state, prosecutor John Massameno asked for permission to call to the stand an inmate who was on the same cell block as Roman.
>
> Judge Joseph Purtill allowed the inmate, Iaonnis Merkouris, to testify that Roman told him that he saw a black man leaving Lopez's apartment, confronted her about it and killed her. Massameno explained the DNA evidence to the jury by saying it could have been the mystery man's.
>
> Massameno also argued that Roman killed Lopez because he didn't want her to have their baby and didn't want his common-law wife to find out about the pregnancy.

> The recent DNA testing, however, shows that the fetus inside Lopez when she was killed had no relation to Roman."[198]

Note the convenience of the entirely mythical mystery black man that was supposed to enrage Roman to commit murder, as well as the false story about Roman being the father of the fetus inside Lopez. The missteps that somehow enmeshed Roman while allowing Miranda to continue a crime spree of rape and murder whose full extent remains unknown are captured in the following article excerpt about Roman's current lawsuit against the state of Connecticut:

> Roman's lawsuit, filed last month in U.S. District Court, charges that Hartford police "never deviated from" considering Roman "the only suspect, despite being faced with physical evidence that pointed elsewhere." The complaint accuses the officers of interrogating Roman "mostly in English, knowing full well that he spoke English poorly and that his language was Spanish."
>
> Miranda was arrested in 1998 on charges that he kidnapped another woman, sexually assaulted her in his car, and choked her. The woman, who was 24, escaped from Miranda, and West Hartford police subsequently arrested him. He was convicted on the charges and sentenced to 57 months in prison and 10 years of probation, and was ordered to provide a DNA sample. That sample in the state database matched DNA recovered from Lopez's body.
>
> When he was arrested in 2008 in Lopez's death, Miranda was also charged in the deaths of two other women. He awaits trial on charges that he killed Rosa Valentin, who was 16 when she was slain in 1986, and Mayra Cruz, who was 13 when she was killed in 1987. Valentin's body was never found.
>
> Hartford police detectives said they interviewed Miranda about all three cases in the 1980s but never developed enough evidence to bring charges.
>
> Roman's lawsuit accuses Hartford police of failing to take a blood sample from Miranda to determine whether DNA taken from the semen found on Lopez matched Miranda.[199]

While this sad story of a wrongful conviction may suggest another reason why the death penalty is a potentially dangerous tool in the hands of Connecticut prosecutors, it also reveals the difficult task that researchers have in trying to identify death-eligible cases. At the end of the

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[198] David Altimari, "DNA: Righting Another Wrong?" Hartford Courant (December 17, 2008), http://articles.courant.com/2008-12-17/news/roman1213.art_1_new-dna-court-appearance-superior-court.

[199] Alaine Griffin, "Roman Sues Hartford, Police: Wrongfully Jailed, He Seeks Damages, Lopez Slaying," Hartford Courant (April 28, 2011).

day, if Roman had never been exonerated, his case should have been included as death-eligible based on the kidnapping and murder of Lopez in a heinous, cruel, and depraved manner. Since Roman was exonerated, the case is better left out of my sample (note that its inclusion would only serve to *strengthen* the evidence of racial and geographic bias in capital charging and sentencing). Of course, if at the time of my case selection Pedro Miranda had been convicted of the crime in accordance with the prosecution's current theory, his case would have been included in my study.

Note that the Lopez murder also raises questions about how Michelson would determine the "facts" of the case. For example, would Michelson conclude from the jury's failure to convict Miranda for rape of Lopez that no rape had actually occurred? His report is full of cases where he points to a decision of a criminal justice actor to support a particular factual determination, but who would Michelson follow when the criminal justice actors are in conflict? (Remember in Harrell, Michelson supported the prosecutor over the trial judge and Connecticut Supreme Court.) The following article suggests that the prosecutor believed, perhaps on the basis of evidence of Miranda's propensities that the jury was not allowed to hear, that Miranda had in fact raped Lopez before killing her:

> Miranda, 53, formerly of New Britain, was convicted on four of five counts in the killing of Carmen Lopez, 17, on Jan. 3, 1988. Miranda is also charged with killing two other Hartford girls in the 1980s, but will be tried later in those cases.
>
> The jury convicted Miranda of murder, felony murder, first-degree kidnapping and capital felony committed during the course of a kidnapping.
>
> Miranda was also accused of raping Lopez before killing her. But jurors found him not guilty of one count of capital felony committed during the course of first-degree sexual assault.
>
> Before reaching a verdict, jurors had asked to rehear the testimony of the medical examiner who performed Lopez's autopsy. Dr. Malka Shah had testified that she found no trauma consistent with sexual assault.

> The DNA recovered from the crime scene matched Miranda's, which was in a state database as a result of his conviction in 1996 for kidnapping and raping a woman in West Hartford. A new investigation found additional evidence against Miranda. Jurors were not told of Miranda's conviction or the other crimes for which he is charged.
>
> In closing arguments last week, prosecutor David Zagaja told jurors that Miranda's DNA was found on Lopez's underwear, her body, a ligature wrapped around her neck and a cigarette butt found beneath the clothing.
>
> Lopez let Miranda into her Nelton Court apartment because he was the boyfriend of her cousin, Zagaja told jurors. Miranda, he said, went to the apartment intent on raping and killing Lopez.[200]

4. Another Innocent Man Spends 20 Years in Prison for a Wrongful Murder Conviction

Unfortunately, the Lopez case is not the only recent case to come to light where the state of Connecticut managed to wrongfully secure a murder conviction in a case that was deemed not to be a death-eligible crime, even though the true killer did commit a death-eligible crime. Kenneth Ireland was charged with and convicted of the rape-murder of Barbara Pelkey in 1986. Because Ireland was under eighteen at the time of the offense, his case was not eligible for the death penalty and therefore does not appear in my data base. In 2009, however, the intervention of the Connecticut Innocence Project led to Ireland being cleared by DNA evidence, after he had spent over 23 years in prison.

Four months later the state arrested Kevin Benefield for the murder, based on a DNA match.[201] "Pelkey, 30, and a mother of four, was raped and beaten to death on Sept. 3, 1986, while she worked overnight in the office of a plastic molding company."[202] Sadly, the original investigators had spoken to Benefield at the time of the Pelkey murder since he was known to be

[200] Hilda Munoz, "Justice at Last: Miranda Guilty of Murder in Wrongful Conviction Case," Hartford Courant (April 27, 2011) at A1.
[201] Bill Leukhardt & David Owens, Owns, *DNA Finds New Suspect in '86 Slaying*, HARTFORD COURANT, Dec. 30, 2009, at A1.
[202] Id.

one of the last individuals to see her alive, and he was even asked to give a saliva sample for DNA matching purposes at the time of the original investigation.[203]

Because Benefield was over eighteen at the time of the offense, it now appears that the crime—described in the press as "the horrific 1986 rape and murder of a Connecticut mother of four"—did qualify as a capital felony.[204] As in the Roman case, no one knew this because the police arrested the wrong person.

Two points should be made in light of the discussion of the wrongful convictions of Miguel Roman and Kenneth Ireland, both of whom served decades in Connecticut prison for crimes they did not commit while the real killers remained at large. First, and above all, the clear lesson is that the Connecticut criminal justice system makes appalling errors in dealing with even its most heinous crimes, with two shocking revelations of wrongful conviction coming to light in only the last couple of years. This should be a cautionary tale concerning the death penalty. Mistakes are an inevitable part of the criminal justice system process. The Roman and Ireland disasters would never have been recognized or corrected without the benefits of DNA matches to other criminals, which involves two elements of luck because DNA evidence is usually not available at all in a criminal case and there is no guarantee that one will find a match with a criminal whose DNA is already in the system. It was known back in 1988 that there was no DNA match between Roman and the semen in Lopez, but it took twenty years for the DNA match to Miranda to be uncovered. Having a death penalty statute ensures that at some point, an innocent man will be killed by the state. This is an intolerable thought, especially given the

[203] Luther Turmelle, "Suspect in 1986 slaying returning to state," New Haven Register, February 4, 2010 ("A saliva sample taken from Benefield in 1986 when he was interviewed about the Pelkey case is being used to implicate him in the crime.")
[204] Alex Ginsberg and Reuven Fenton, "DNA Bust in 1986 Rape-Slay," The New York Post, December 31, 2009, at page 23.

absence of either deterrent or retributive benefits from having a death penalty system in the first place.

Second, one sees from these two cases that prosecutorial error can make it difficult to identify death-eligible cases. As it turns out, the police had strong leads pointing in the direction of the true killers in both the Lopez and Pelkey murders, but they somehow went down the wrong path and wrongly prosecuted and convicted innocent men. The result of the wrongful convictions in the Lopez and Pelkey murders was that two death-eligible cases were kept out of my data set because the ultimate convictions of Miranda and Benefield simply come too late for inclusion. It should also be clear that Michelson's confident representations that he has figured out the nature of all these cases is simply a product of his naiveté or lack of understanding of the criminal justice system.

C. METHODOLOGY OF EGREGIOUSNESS SCORING

We have seen above that the Baldus report on capital sentencing in Georgia analyzed a far larger set of death-eligible cases than occurred in Connecticut over my study period and that Baldus was dealing with 127 death sentences when the relevant comparison number for Connecticut was more than an order of magnitude less. This created a potential problem because the first rule of regression analysis is that one must have enough data to estimate coefficients for all the variables included in one's model. With so many observations available in his study of Georgia, Baldus could control for a large number of factors—in some models, in excess of 230 explanatory variables—that might be thought to capture the egregiousness of a crime. With only 9 sustained death sentences and 205 death-eligible cases, it was necessary to develop a model for each of my two dependent variables -- capital charging and sentencing -- that captured a great deal of the salient information on the deathworthiness of the various death-eligible crimes in a

single or strictly limited number of variables, while still being transparent to the judges who would be asked to evaluate it.

The DCIs contained useful information on the details of each death-eligible murder, and, as discussed above, I tallied these factors into a variable called "special aggravating factors" that was a useful control in the models I used in this report to explain capital charging and sentencing decisions. But while the gory details of the crime were certainly relevant to aggravation, there is a limit to what can be gleaned from a series of factors that are specified in advance (as the special aggravating factors were in the DCIs). I decided, therefore, that it would be important to have a more encompassing assessment of the egregiousness of each death-eligible murder that would reflect judgments about the impact of some factors that might be hard to specify in advance, but that could still have a legitimate influence on capital charging and sentencing decisions.[205]

Having a clear, transparent, intuitively plausible, and comprehensive measure of egregiousness for each case in the data base is important since a showing of even large racial (or gender or geographical) disparities in the treatment of murderers is always susceptible to the

[205] Michelson argued that factor analysis should be used -- see, fn 532 at p. 310 of his August 20, 2010 report -- instead of my coding of egregiousness scores from race-blind information about our 205 cases. There are two problems with this approach. First, factor analysis could at best give you the factors that correlate with harsh treatment in the Connecticut death penalty system. Where the evidence of racial discrimination is strong, as it is here, a factor analysis might tell you the facts about minority on white murders that lead to higher rates of capital charging and death sentences, but it doesn't give the researcher a way to screen out the influence of race, which is what is needed. Conceivably, one might use a factor analysis to distill such information from the 3 of 74 white on white murders that received the death sentence, but with data at a premium, the thought of conducting an analysis on such a reduced sample is unappealing. Second, factor analysis operates opaquely and with little prior theoretical justification, so it does not well serve the goal of transparency to judicial decision makers. As a result, my own views on this tool are well captured in a recent article offering guidelines for use of statistical techniques in litigation: "Factor analysis is another common statistical tool that we strongly recommend be avoided in litigation. Although factor analysis is frequently encountered in personality research, some believe it is not well-suited for litigation because, unlike virtually every other test in statistics, factor analysis can generate dramatically different results depending on which formulas are used in the two steps of the process." Palmer Morrel-Samuels and Edward Goldman, "Who, What, and Where: Guidelines for the Statistical Analysis of Disparate Impact in EEO Litigation," 25 no. 3 ACC Docket 54, 60 (Association of Corporate Counsel, April 2007).

response that the cases receiving harsher treatment merited harsher treatment because their crimes were more egregious than the cases that received more lenient sentencing outcomes.

1. The Two Measures of Egregiousness that I Generated for Each Case

To address this problem, I developed two measures of egregiousness for each case in my sample. For the first measure of egregiousness, which I call the "Composite Egregiousness Score," I designed a scale based on the following four factors and asked coders to rate the egregiousness of each case for each of the factors on a scale from 1 to 3, with 3 being high.

1. **Victim Suffering**, considering 1) the intensity of suffering, as measured by the degree of physical pain and/or mental anguish, and 2) the duration of suffering.
2. **Victim Characteristics**, considering 1) whether the victim was a law enforcement officer and 2) the vulnerability of the victim relative to the defendant, signaled by factors such as the victim's age, any mental or physical disability from which the victim suffered, whether the victim was outnumbered by assailants, whether the defendant held a position of authority over the victim, and whether the victim was intoxicated or high.
3. **Defendant Intent/Culpability**, considering a range of factors including 1) the defendant's motive for committing the murder, 2) whether the death of the victim was planned, 3) whether the defendant acted rashly or in the heat of the moment, and 4) whether the defendant's judgment was compromised by, for example, psychiatric problems, drugs, or intoxication.
4. **Number of Victims.** I asked coders to indicate the number of deaths caused by the defendant, truncated at a maximum value of 3.

I then summed the scores for each of the four component factors, so that the Composite Egregiousness score for a given case could range from 4 to 12.

In addition, I asked coders to rate the overall egregiousness of each case on a scale from 1 to 5, with 5 being high. The purpose of this second scale was to capture more general reactions to each case and to compensate for any over- or under-inclusiveness of the 4–12 Composite Egregiousness Scale. For example, the murders of law enforcement officers may tend to receive lower scores on the Composite scale because each of these cases involved only one victim and

they rarely involved prolonged or brutal victim suffering. If there is a widespread belief that murders of police officers are particularly egregious, notwithstanding the low number of victims and relatively low degree of victim suffering, then the Overall Egregiousness scale might better capture the egregiousness of such crimes. Interestingly, when the scores were standardized according to each coder's mean, I found that the egregiousness scores on the Composite and Overall Scales were extremely similar—frequently within one-tenth of a point of each other—which suggests that the Composite Egregiousness measure adequately captured participants' sense of egregiousness about the 205 murders.

Critically, coders rated cases on the basis of fact summaries that were scrubbed of any reference to (1) the race of the victim and defendant and (2) how the defendant was charged and sentenced.[206] The goal was to include in the summaries sufficient information for coders to make judgments about the egregiousness of each case, but to exclude information that might bias their judgments. Each case summary included the basic facts of the case, as well as any relevant information about the defendant that might bear upon the defendant's intent or mental state, such as expert or court findings of mental illness. For illustrative purposes, Appendix B contains two complete summaries and the scrubbed versions that were used by the coders.

[206] The initial coders were nine Yale law students who coded the first set of summaries (covering the period from 1973 to 1998) during the spring semester of 2007. When the second batch of summaries arrived in Fall 2007, the same nine coders were used; by then, two of the seven had graduated and were working as attorneys. These same nine law students later coded some additional cases when additional summaries became available. Subsequently, I repeated the coding exercise with eleven University of Connecticut law students in early 2009, and dropped two of the nine Yale coders who had been involved in "scrubbing" the summaries, which was necessary for the coding exercise, but which raises a concern about whether their familiarity with the various cases, however fleeting it might have been, might improperly influence their coding decisions. As a result, all of the results presented in this report use egregiousness scores calculated by averaging or otherwise amalgamating scores from eighteen coders -- nine Yale law students and 11 University of Connecticut law students. Comfortingly, the results are virtually identical to those of earlier versions of this report that used only the original nine Yale students' egregiousness scores. Thus, while Michelson tries to make an issue of the two "tainted" coders, it is, like so many of Michelson claims, simply a non-issue. It has no bearing on the econometric results I found in this case, and these two coders are dropped from all of the numbers presented in this report.

One of the advantages of the egregiousness coding exercise was that I was able to average the egregiousness assessments for individual cases across 18 different coders. Averaging across such a large number of coders who have all coded all 205 cases guarantees a uniformity of evaluation that would not be present if only a subset of cases was scored by the various coders, as well as a high degree of precision in that the idiosyncratic views of individual coders would tend to cancel out. Of course, the meaningfulness of these results depends on how reliable these coding evaluations are in capturing the underlying egregiousness of the various crimes. It turns out that the egregiousness scores are highly reliable across the 18 coders (as they were with the original 9 Yale coders). Appendix C describes the high degree of inter-coder agreement in more detail.

It is important to note that the data from the egregiousness scales reflect each coder's views on the *relative* egregiousness of offenses. I did not ask coders what punishment they thought was appropriate for each offender. Thus, even a coder who believed that *no* offender should ever be sentenced to death, or that *all* murderers should be sentenced to death, would be able to rate the egregiousness of the cases *in relation to each other*. By having each coder score every case, I sought to determine whether the most egregious cases—the "worst of the worst"—were the ones in which the death penalty was imposed. Whether the coders' general preferences for harsh or lenient punishment varied from that of the general population in Connecticut is largely irrelevant to this study, because only the relative egregiousness of different cases matters—not the absolute egregiousness scores. And there is no reason why the relative scoring of cases should depend on coders' overall political or sentencing preferences. Both liberals and conservatives would agree, for example, that killing three is worse than killing one, or that

torture resulting in death is worse than a stray bullet fired in the course of a robbery that kills a bystander.

Not surprisingly, Michelson raised an ill-considered objection to the supposedly elite and unrepresentative status of Yale law student coders. This claim, once again, can be quickly dismissed. The Yale students coded the cases remarkably comparably to the University of Connecticut students (all of whom were Connecticut residents), as the excellent values on the measures of inter-coder reliability shown in Appendix C reveal. The econometric results that I obtain in this version of the report using all 18 coders are virtually identical to those obtained using the original nine Yale coders. Michelson also objects, quite wrongly, to the averaging of the coding scores across the 18 coders. Again, the objection is pointless. If I take median rather than mean scores to circumvent Michelson's objections, I obtain identical results as we will see in my regression analyses in Section IX. None of Michelson's criticisms about Yale coders in general, about the two "tainted" Yale coders, or about the averaging of the coder scores has even the slightest impact on the findings of this study.

2. Examples of Coding Egregiousness

A discussion of four kidnap-murder cases may be useful to illustrate how coders assessed the relative egregiousness of various cases. To facilitate this comparison, I have selected two cases with relatively lower egregiousness scores and two with relatively higher scores. The selected lower-egregiousness cases are those of Ibrahim (6.57, 2.86) and Ortiz (7.57, 2.86). The selected higher-egregiousness cases are those of Marra (9.43, 4.43) and Campmire (8.43, 4.29).

Ibrahim (6. 57, 2. 86)

Cause of death: Gun shot wounds

> D and coD abducted V outside a crackhouse in Springfield, MA, after V had participated in a drug-related robbery of co-D. V was driven down I-91 to Hartford area, where he was shot multiple times with a .9mm and .380. V's

remains were discovered two years later in the woods near the highway. (1 victim)

Defendant was charged for an incident involving the abduction and shooting death of Victim. Victim had participated in the knifepoint robbery of drugs and money from a co-defendant, who was selling drugs for Defendant in a crack house in Springfield, MA. Following the robbery, Defendant and his co-defendant compelled Victim to get into a car driven by Defendant, on the pretext of looking for the others who were involved in the robbery. Instead, they drove Victim down I-91 into CT, where he was shot multiple times after trying to jump from the moving car. The two defendants dumped the body in the woods. Victim's remains were not discovered for two years; he was identified through dental records.

A. Ortiz (7.57, 2.86)

Cause of death: Gun shot wounds

D and co-D kidnapped and shot VV(2) in a drug-related incident. (2 victims)

Defendant and his co-Defendant were charged for an incident in which victims V028A and V028B were forced into a van on a Hartford street and driven to a remote location, where they were shot and killed. The objective was to obtain drugs and money that V028A was believed to have in a lockbox at his home.

Marra (9.43, 4.43)

Cause of death: Beating w/ bat, drowning

D and coDs detained V in D's garage and beat him with baseball bat. V was then placed in a refrigerator and transported to a river, where refrigerator was placed in the water and sank. V still alive at time placed in water, according to coD/witnesses.

Victim was 15 years old. Defendant had the victim brought to his house by a co-defendant, where an argument ensued about Defendant's desire for Victim to go to Italy for a while (presumably so as not to testify against Defendant in another pending case) and Victim's refusal to leave the country. Defendant handed an aluminum baseball bat to a co-D, with instructions to keep Victim in the garage. When Victim tried to leave the garage, co-D hit him several times with the bat. Victim was then forced into a refrigerator, which was padlocked. The refrigerator was taken to a nearby river, and thrown into the river, where it sank. The co-D who hit the victim with the bat said that Victim was still "mumbling incoherently" when the refrigerator was put into the river. The victim's body was never found, but a sneaker and part of a foot, believed to be his, were discovered months later.

Campmire (8.43, 4.29)

> Cause of death: Slashed throat
>
> D killed a woman, V, he encountered on a remote road while she was walking her dog by slashing her throat.
>
> D, a 40-year-old male, was looking for someone to rob when he came upon the Victim (V), a woman walking her dog between 12:30 and 2:30 p.m. on a remote access road. D grabbed V and choked her with her dog's leash, then used it to restrain her. V pleaded for her life and promised to take him to get the money he wanted. D slit V's throat with a Buck knife and pushed her down the embankment, leaving her to die.

Given that the 205 death-eligible cases evaluated by the coders yielded only nine sustained death sentences—that is, less than 1 in 20 death-eligible defendants who were *convicted* of a criminal homicide ultimately received a death sentence—it is unsurprising that none of these four defendants received the death penalty.[207] Nonetheless, even this brief examination can give insight into factors influencing the egregiousness ratings. First, while all four of these cases involved kidnapping and murder and are thus immediately qualify as capital felonies, the two lower-egregiousness crimes involved murders of victims caught up in the illegal drug trade. Despite this similarity, Ibrahim and Ortiz differed in that Ibrahim murdered one individual and Ortiz killed two. The Composite rating methodology directed the coder to focus on this factor and resulted in an additional point on the egregiousness scale for Ortiz. Thus, one difference in the two egregiousness scoring schemes is that the Composite Score explicitly and

[207] For the less egregious crimes, Ibrahim received 50 years for felony murder and 25 years for kidnapping, to run concurrently, and Ortiz received a sentence of life without parole after going to a capital felony trial. Ortiz was tried with his co-defendant Diaz Marrero. At the capital sentencing hearing, the jury found that Marrero was guilty of committing the murders in an "especially heinous, cruel, or depraved manner," but was hung 11-1 in favor of finding a mitigating factor based on Marrero's deprived childhood. The trial judge declared a mistrial and then sentenced Marrero to life without parole. At that point, the state withdrew its request for the death penalty against Ortiz, who was then sentenced to life without parole.

For the more egregious crimes, Marra was not prosecuted capitally, and he received a life sentence (60 years), while Campmire pled guilty and was sentenced to life in prison, plus 65 years.

automatically provides additional points for multiple murder cases, while the Overall egregiousness measure does not.

Second, the two lower egregiousness cases involved relatively rapid deaths from gunfire, while the two higher egregiousness cases involved more prolonged deaths that were likely to lead to greater physical suffering (in Marra's case, from beating and drowning; in Campmire's case, from slashing and strangling).

Third, note that in three of these four cases, prosecutors did not seek the death penalty. Given the haphazard application of the death penalty in Connecticut, the State sought a death sentence in one of the less egregious cases—Ortiz's. Ortiz was tried together with his co-defendant, for whom the jury found the heinous, cruel, or depraved aggravating factor but divided on the presence of a mitigating factor. After the jury split on the co-defendant's sentence, the State withdrew its death penalty notice for Ortiz. He was subsequently given a life sentence without the possibility of parole. In the other three cases, two of which were higher on the egregiousness scale, the state did not seek the death penalty.

Fourth, one frequently hears claims that decisions not to bring capital charges, such as in the high-egregiousness Marra case, are driven by the relative weakness of the prosecutor's case. But that does not explain the treatment of defendant Marra. A Connecticut Superior Court Judge recently found that "overwhelming evidence" supported Marra's murder conviction.[208]

The egregiousness scores serve a number of functions in my analysis. First, they provide a mechanism for assessing which murders can be thought of as falling into the category of the "worst of the worst." This information can be used to explore whether the system is operating consistently with the constitutional mandate, or whether it is operating arbitrarily and

[208] *See* Daniel Tepfer, *Judge Denies Request for DNA Testing*, CONNECTICUT POST, Apr. 6, 2008 (reporting the statement of Superior Court Judge Richard Comerford).

capriciously. Second, while one can present evidence showing the extent of the racial and geographic disparities in the administration of the death penalty system—as I do in Table 20 below—such showings always invite the claim that the murderers treated most harshly merited that treatment because their crimes were more egregious. By controlling for the measures of egregiousness, the study enables more accurate conclusions about the intrusion of illegitimate factors into the operation of Connecticut's death penalty system.

Note that while the coders' task of assessing case summaries bears some similarities to the proportionality review of death sentences that was initially called for by the Connecticut Supreme Court, there are important differences. In reviewing the proportionality of a given sentence, the Court has not examined all cases that were death eligible under the Connecticut death penalty statute, nor has it looked at all defendants with capital charges or convictions. Instead, the Court has limited its analysis to cases that went to a penalty hearing.[209] While eliminating disparate outcomes within that narrow class of cases is a laudable goal, such cases represent only a small portion of the overall set of death-eligible cases. For example, as Figure 4 in Section VIII illustrates, among the 205 cases included in this study (all of which qualified as capital felonies under Connecticut law), only 29 went to a penalty trial.[210] This report must assess the overall operation of the Connecticut death penalty system as defendants experience that system, and not simply the final phase of adjudication by which time the vast majority of death-eligible cases have been winnowed out.

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[209] The Connecticut Supreme Court has limited its analysis of similar cases under the requirements of proportionality review to those cases in "which hearings on the imposition of the death penalty have taken place, whether or not the death penalty has been imposed." *State v. Reynolds*, 836 A.2d 224 (2003).

[210] All of these 205 cases both resulted in a conviction and met the definition of a capital felony. Since a very substantial portion of capital murders in Connecticut are never solved and not all of the solved cases lead to conviction, this set of 205 cases is still only a subset of the larger set of all death-eligible murders committed in Connecticut since 1973. Nonetheless, it is far more comprehensive than the set of 29 cases that went to a death penalty hearing.

A system could conceivably be beyond legal reproach in the operation of its death penalty hearings, yet still be marred by overall arbitrariness as well as impermissible racial and geographic disparities. For example, if all of the defendants in death penalty hearings were black or from Waterbury, a finding that similar cases received similar treatment at the penalty phase would not insulate such a system from constitutional attack. Accordingly, we must examine the entire apparatus of Connecticut's death penalty regime, not only one stage.

Moreover, under proportionality review the Court has only evaluated whether something was amiss with a single case. As a result, the Court held in *State v. Reynolds*, 836 A.2d 224 (2003), that it "will not vacate a death sentence as disproportionate under § 53a–46b(b)(3) unless that sentence is truly aberrational with respect to similar cases." For a single case to stand out as aberrational, it would have to be an extreme outlier. The value of the type of comprehensive empirical analysis used in this report, by contrast, is that proper statistical analysis can establish the presence of illegitimate or arbitrary patterns (such as racial or geographical disparities) that cannot be discerned by a focus on a single case. I now turn to that analysis.

VII. A BROAD STATISTICAL OVERVIEW OF THE CONNECTICUT DEATH PENALTY

This case raises the question of whether the death penalty is applied in Connecticut in a way that conforms to the constitutional requirements defined by the U.S. Supreme Court and imposed by the Connecticut constitution. In this report I show that the Connecticut death penalty system fails in two constitutionally significant respects. First, it is arbitrary in multiple ways: 1) there is only a very weak relationship between the deathworthiness of a given case and the likelihood that the defendant will be charged with a capital felony or given the death penalty; 2) factors that have no bearing on deathworthiness, such as race, gender, and geography, have a large—and at times, overwhelmingly strong—impact on capital outcomes; and 3) there is no

meaningful basis for distinguishing the few cases that are singled out for the death penalty from the many that are not, which implies that Connecticut does not limit the application of the death penalty to the worst of the worst. Second, the Connecticut death penalty apparatus is discriminatory in that the application of the death penalty varies enormously according to the race of the defendant and the victim. It is also likely that the Connecticut death penalty system is biased in favor of female defendants, as the State's expert has concluded.

In this section and Section VIII, I analyze both publicly available data and the data generated by this project to show the arbitrary and discriminatory nature of the death penalty system. In Section IX, I make the same findings with more precision by using regression analysis, which can pinpoint the effect of race and the non-effect of egregiousness on case outcomes.

A. FREQUENCY OF DEATH SENTENCES AND EXECUTIONS

I first approach the issue of arbitrariness by looking at the frequency with which death sentences have been imposed and executions have occurred in Connecticut over time, as shown in Table 6. Over the periods shown from 1933 through 1959, the execution rate ranged from 1.4 to 2.8 percent of the murder rate. In the 1960s, this rate plummeted to 0.2 percent, and in the three years prior to *Furman*, none of the 293 murders led to an execution. The simple statistical rarity of executions in the pre-*Furman* period—which can be observed nationwide as well—was one factor that led the Supreme Court to find the imposition of capital punishment to be arbitrary, capricious, and freakish.

Table 6: History of the Death Penalty in Connecticut

Years	Murders[1]	Clearance rate[2]	Executions	Execution Rate[3]	Upheld Death Sentences	Death Sentences Per Murder
1933-1939	172		3	0.0174		
1940-1949	357		10	0.0280		
1950-1959	356		5	0.0140		
1960-1969	536		1	0.0019		
1970-1972	293	0.93	0	0.0000		
1973-1979	750	0.88	0	0.0000	0	0.0000
1980-1989	1509	0.78	0	0.0000	0	0.0000
1990-1999	1615	0.72	0	0.0000	5	0.00311
2000-2006	704	0.62	1	0.0014	4	0.0057
Total: 1933-1972	1714		19	0.0111		
Total: 1973-2006	4578	0.76	1	0.0002	9	0.002020
Total: 1933-2006	**6292**		**20**	**0.0032**		

[1] I follow the Uniform Crime Reports approach of referring to these crimes as "murders" even though the precise definition is "murder and nonnegligent manslaughter," which is the willful (nonnegligent) killing of one human being by another.

[2] Clearance by arrest or exceptional means

[3] Ratio of executions to murders

Source for Murders before 1970: Summarized UCR Reports, FBI
Source for Murders, 1970-2006: Uniform Crime Reports (1970-2006)
Source for Executions: Connecticut State Library

As shown in Table 6, the post-*Furman* period presents an even stronger case for wanton and freakish implementation than the pre-*Furman* period. From 1973 through 2006, under the new death penalty regime in Connecticut, there were 4,578 murders yet only one execution, or an execution rate of 0.0002—one-tenth the rate of the pre-*Furman* 1960s, and one-fiftieth the rate of the entire 1933-1972 period. While I do not have data on death sentences prior to 1973, the death sentencing rate in the post-*Furman* period (0.0020) is only one-fifth the *execution* rate in the pre-*Furman* period (0.0166). Both death sentences and executions have become dramatically rarer since 1973, despite the larger population of the state and the larger number of murders committed. In other words, at first glance the Connecticut death penalty seems considerably

more arbitrary in terms of rarity of implementation today than when it was struck down by the Supreme Court in 1973.

B. CAPITAL FELONY CATEGORIES AND STATUTORY AGGRAVATORS IN ACTUAL DEATH SENTENCES

Looking more closely at the actual death sentences imposed in Connecticut in the post-*Furman* era, and how the defendants in these cases qualified for death, provides further evidence of arbitrariness. Table 7 lists the nine capital felony categories ever defined by Connecticut statute, and shows which ones applied to the twelve offenders (of the 205 cases) to have ever been on death row under the post-1973 Connecticut death penalty regime.[211] The table also depicts the three of these 12 sentenced defendants who have been removed from death now by the reduction in their sentence: Johnson, Colon, and Courchesne.

[211] The death row population has expanded following the creation of my 205 case data set: A thirteenth defendant, Lazale Ashby, was sentenced to death on March 28, 2008 for the December 2, 2002 murder of Elizabeth Garcia on the basis of murder and sexual assault. A fourteenth defendant, Steven Hayes, was sentenced to death on November 8, 2010 for the murders of Jennifer Hawke-Petit and her 2 daughters on July 23, 2007 on the basis of murder and sexual assault as well as a multiple victim homicide. These cases concluded too recently to be included in this study, which required a murder conviction before November 1, 2007. Accordingly, as of June 1, 2011, there are 10 men on death row in Connecticut (one defendant having been executed and three defendants having been removed from death row when their death sentence was reduced).

I do not count the federal death penalty prisoner -- Azibo Aquart -- who was sentenced to death in Connecticut in June 2011 for a brutal triple murder, but who was not prosecuted in the Connecticut state criminal justice system.

Table 7

Classification of The 12 Death Sentences in Connecticut From 1973-2007 (9 of which have been sustained.)

Defendant Name	Year of Sentencing	Murder of Law Enforcement Officer (1)	Murder For Hire (2)	Previous Conviction (3)	During Life Imprisonment (4)	Kidnapping (5)	Drugs* (6)	Rape (7)	2 or more Victims (8)	Victimless than 16 yrs (9)
Michael Ross	1987; Exec 2005					X		X	X	
Robert Breton	1989, 1998**								X	
Sedrick Cobb	1991					X		X		
Daniel Webb***	1991					X		X		
Terry Johnson	1993; Red. Sent. 2000	X								
Richard Reynolds	1995	X								
Todd Rizzo	1999									X
Robert Courchesne	2003; Red. Sent. 2010								X	X
Eduardo Santiago	2004		X							
Jessie Campbell III	2007								X	
Ivo Colon	2000; plea bargain 2006									X
Russell Peeler****	2007								X	X

* "Drugs" indicates that a case qualified as a capital felony through the "illegal sale of cocaine, heroin or methadone to a person who dies as a direct result of the use of those drugs.
** Robert Breton's 1989 death sentence was reversed, and he was sentenced again in 1998.
*** Daniel Webb was convicted of *attempted* sexual assault.
****Russell Peeler was sentenced to death on December 10, 2007, but is included in my sample of 205 death-eligible cases because his conviction on two counts of capital felony on June 8, 2000 pre-dated July 31, 2006.

Note: Of the 12 defendants included in Table 2, Ross was executed on May 13, 2005, and three defendants have had their death sentences reversed (on the indicated dates) and are no longer on death row: Johnson (May 2, 2000), Colon (April 3, 2006), and Courchesne (June 4, 2010).

In addition, before a defendant who is convicted of one of these capital felonies can receive a death sentence, the prosecution must establish the presence of a statutory aggravating factor. Table 8 lists the aggravating factors that were charged and found in the twelve cases that initially resulted in death sentences. Although the Connecticut death penalty statute specifies eight aggravating factors (set forth in footnote 145, *supra*), Table 8 reveals that only five factors have ever been found in any of the twelve cases that received a death sentence. Most importantly, the catchall aggravating circumstance, specified in § 53a-46a(i)(4)—that the murder was "heinous, cruel, or depraved"—has been the dominant aggravating factor. This factor was found in ten of the twelve cases resulting in a death sentence, seven times as the sole aggravating factor and three times in conjunction with one or more other aggravating factors. Clearly, the

claim that a murder is "heinous, cruel, or depraved"—a similar concept to egregiousness—is the primary gateway for a Connecticut prosecutor to secure a death sentence from a capital felony conviction. In other words, this report's central focus on egregiousness is mandated both by the constitutional requirement that the death penalty be restricted to the "worst of the worst" and by the dominant pattern of capital sentencing under Connecticut's death penalty regime.

These results demonstrate the problematic nature of the Connecticut death penalty statute. On the one hand, it specifies some precisely defined aggravating factors that limit the discretion of the fact-finder but are not closely related to any intuitive notion of deathworthiness. For example, the i(7) aggravating factor turns a capital felony committed with an assault weapon into a presumptive death penalty case even if the same crime when committed with a shotgun would not carry this presumption. The catchall aggravating circumstance ("heinous, cruel or depraved") is related to intuitive deathworthiness, but relies on imprecise and uncertain judgments of what is especially heinous, cruel, or depraved. Precisely defined aggravating factors reduce discretion while introducing the possibility of incoherent outcomes, while the catchall aggravating factor increases discretion but in so doing opens the door to arbitrary application.

Table 8

Statutory Aggravators Found in Connecticut Death Penalty Cases

i(4) is SINGLE Charged Aggravating Factor			
Defendant	**Aggravating Factors Charged**	**Aggravating Factors Found***	
Brenton	i(4)	i(4)	
Cobb	i(4)	i(4)	
Rizzo	i(4)	i(4)	
Ross	i(4)	i(4)	

i(4) is Single Aggravating Factor; Death Penalty is OVERTURNED			
Defendant	**Aggravating Factors Charge**	**Aggravating Factors Found***	**Notes**
Colon	i(4)	i(4)	Sentence reversed on appeal due to faulty jury instructions re: weighing aggravating and mitigating factors. Prosecutor then declined to seek death penalty.
Johnson	i(4)	i(4)	Finding of aggravating factor reversed on appeal.
Courchesne	i(4)	i(4)	Defendant was charged with murder of a mother and her unborn baby, but the conviction for the murder of the baby was overturned on appeal

i(4) is NOT Sole Aggravating Factor Charged			
Defendant	**Aggravating Factor Charge**	**Aggravating Factors Found***	**Notes**
Peeler	i(3); i(4); i(5)	i(3); i(4); i(5)	
Reynolds	i(1); i(3); i(4)	i(1); i(4)	Offense occurred during attempted drug transaction; defendant had previous felony drug conviction in New York. Finding of i(4) aggravating factor reversed on appeal.
Webb	i(1); i(4)	i(1); i(4)	Offense occurred during attempted sexual assault; defendant has previous sexual assault (1st) felony conviction.

i(4) is NOT Charged as an Aggravating Factor			
Defendant	**Aggravating Factor Charge**	**Aggravating Factors Found***	
Campbell	i(3)	i(3)	
Santiago	i(6)	i(6)	

* Aggravating factors are those provided in Conn. Gen. Stat. 53a-46a(i):

- i(1): The defendant committed the offense during the commission or attempted commission of, or during the immediate flight from, the commission or attempted commission of, a felony and the defendant had previously been convicted of the same felony
- i(3): The defendant committed the offense and in such commission knowingly created a grave risk of death to another person in addition to the victim of the offense
- i(4): The defendant committed the offense in an especially heinous, cruel or depraved manner
- i(5): The defendant procured the commission of the offense by payment, or promise of payment, of anything of pecuniary value
- i(6): The defendant committed the offense as consideration for the receipt, or in expectation of the receipt, or anything of pecuniary value.

An example of the inherent arbitrariness that can result from having sharply defined aggravating categories is provided by the case of Richard Reynolds, who was sentenced to death for killing a Waterbury police officer while Reynolds was selling drugs.[212] Under the statute in effect at the time, Reynolds was only subject to the death penalty because he had a previous drug conviction in New York.[213] In other words, if Reynolds' prior conviction had been for a sadistic rape instead of dealing drugs, the death penalty would not have applied. Which criminal history would make Reynolds a more culpable and deathworthy defendant—a prior conviction for selling drugs or a prior conviction for a horrible rape?

The catchall aggravating circumstance is problematic for the opposite reasons. Read broadly, it potentially captures every murder, since they are all arguably heinous or cruel in some sense. To avoid this problem, the Connecticut Supreme Court has limited the scope of the catchall aggravating circumstance by giving the statutory provision a narrower interpretation, as discussed above. Some Connecticut prosecutors have alleged that this narrowing now means that some of the worst murders are no longer death eligible, citing the case of the horrifying murder of five young men by Geoffrey Ferguson in 1995. The case represents a clear illustration of the arbitrary and capricious nature of the Connecticut death penalty system.

According to the Hartford Courant, "Prosecutors said Ferguson was angry that the men were late with their rent and had thwarted his attempts to evict them. . . . Each of the men was shot in the head; four of the bodies were burned beyond recognition when he set the house they were living in on fire. It remains the worst multiple murder in Connecticut in more than a

[212] *State v. Reynolds*, 836 A. 2d 224 (2003).
[213] The Court ruled that the jury finding of the catchall aggravating circumstance for the 1992 murder was unwarranted given the limited suffering inflicted on his victim. In 2001, the Connecticut legislature added an eighth aggravating factor that would apply for murders of police officers acting in the line of duty.

decade, police said."[214] The Connecticut Supreme Court decision affirming Ferguson's conviction sets forth the following chilling detail of the crime: "Neighbors found the fifth victim hanging from the spiral staircase in the glass atrium. He was pulled, still alive, from the burning building, although he later died at the hospital." *State v. Ferguson*, 260 Conn. 339, 345, 796 A.2d 1118 (2002).

One cannot take issue with the prosecutorial decision not to seek the death penalty in this case. Perhaps the prosecutors realized that in Connecticut the inconsistent, racially tinged, and arbitrary implementation of the death penalty would serve no legitimate social purpose and would indeed be a needless -- and expensive -- infliction of suffering. Certainly, the lack of deterrence was underscored when Ferguson subsequently revealed that life imprisonment was worse than death: Ferguson later killed himself at the Garner Correctional Center in Newtown, Connecticut.

But the bizarre feature about the Ferguson case was not the decision to forego the death penalty, but rather the contemporaneous statements by the prosecutors that they could not seek the death penalty under Connecticut law—after the same prosecutors had said all along that they would seek the death penalty. Two alternative possibilities exist, and they are both troubling for the Connecticut death penalty regime.

The first possibility is that the prosecutors were wrong the entire time but at the last minute realized the truth that they could not seek the death penalty. In this event, what police called one of the worst mass murder cases in Connecticut history, involving such horror and mayhem is not covered by the death penalty statute, which constitutes an arbitrary and capricious outcome.

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[214] Dwight Blint, *Murderer Commits Suicide in Prison*, HARTFORD COURANT, B1 (May 8, 2003).

The second possibility is that the case was indeed death eligible and for some unknown reason the prosecutors wanted to pretend that the death penalty was not available to them in the Ferguson case, or perhaps at the last minute they mistakenly thought that their previous intention to seek the death penalty was misguided. Of course, if the prosecutors simply made a mistake in this case, this would seem to be astonishingly arbitrary and capricious. The statute is clear that multiple murders can be charged as capital felonies, and shooting a young man in the head after a long period of premeditation and then lighting him on fire as he clings to the burning house would seem to meet the standard of heinous, cruel, and depraved endorsed by the Connecticut Supreme Court in 1994 (a year before the 5 murders occurred). To establish a murder is "heinous, cruel, and depraved," the prosecution need only show that the defendant "was callous or indifferent to the extreme physical or psychological pain or suffering that his intentional conduct inflicted on the victim:"

> In review of the sufficiency of the evidence to support the jury's finding of an aggravating factor under § 53a—46a(h)(4), we hold, therefore, that the focus must be on whether the state has proved, beyond a reasonable doubt, that the defendant engaged in intentional conduct that inflicted extreme physical or psychological pain or torture on each of his victims above and beyond that necessarily accompanying the underlying killing. Evidence of the defendant's callousness or indifference to his victims' suffering would substantiate such a finding, but it would not suffice without some showing of the infliction of extreme pain, suffering or torture on the victims.[215]

Of particular interest is the abrupt change the prosecutors assumed in this case. According to a new story in the Herald-Sun (Durham, NC) in 1997:

> "Prosecutors had said all along that they would seek the death penalty for Ferguson, who is accused of shooting the five men in the head, then burning down the house to cover up the crime. But late last week, prosecutors filed a notice in Danbury Superior Court saying they would no longer pursue the death penalty. The notice filed with the court gives no reason for withdrawing the death penalty request. Prosecutor Patricia Gilbert would not comment on the decision Thursday."

[215] *State v. Ross*, 230 Conn. 183, 262 (1994).

In other words, after years of commitment to seeking the death penalty for Ferguson, the prosecutors suddenly dropped their claim. Again, the news reports from the time suggest that the prosecutors told the victims' families that they made this choice in what the press described as "one of the most chilling mass slayings in Connecticut history"[216] because they couldn't prove the heinous, cruel, and depraved aggravating circumstance:

"The decision to drop the death penalty upset family members of the victims. I feel terrible about it. I wish we could get death," said Joanne Trusewicz, whose 21-year-old son, Jason, was one of the five men killed.

> "When they said, `We can't get the death penalty,' I said, `What do you mean? [He] killed five young men. How do you know they didn't suffer?' " Trusewicz told The (Danbury) News-Times."[217]

In light of the Connecticut Supreme Court language quoted above, the claim that the prosecutors couldn't establish the catchall aggravating circumstance seems quite wrong. But even if it were correct, what explains more than two years of seeking the death penalty followed by what the press calls the "stunning reversal" that the prosecutors would not seek the death penalty in this case?[218] This seems to be the height of arbitrariness, and I say this even without crediting a comment in the data collection instrument for this case, which suggested that the *real* reason for the sudden reversal was that the defense lawyers had uncovered some impropriety on the part of one of the prosecutors.[219]

Presumably, most would find a case where the killer drives all the way from North Carolina to kill five tenants with whom he had been feuding, shoots them all, and lights the

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[216] Reuters News Agency, "Killer begins sentence with song in his heart," The Globe and Mail (Canada), June 12, 1998, Pg. A13.
[217] Lavoie, supra at note 213.
[218] "Suspect in Mass-Murder Will Not Face Death," WTNH News Channel 8, http://video.wtnh.com/news/1997/100997.html.
[219] In his reports, Michelson frequently cites stray comments in the DCIs as unassailably true.

house on fire—and where one of the victims is found alive, clinging to a stairway in the burning house, only to die later—to be an unusually egregious crime. Yet the handling of the Ferguson case reveals that Connecticut's death penalty regime either undermines the link between deathworthiness and punishment that a rational system requires by rendering the Ferguson case non-death eligible or illustrates the prosecutors unlimited discretion to pursue the death penalty in a death-eligible case for years and then suddenly decide at "the eleventh hour" that the law prevented them from doing so.[220]

C. RELATIONSHIP BETWEEN EGREGIOUSNESS AND SENTENCE

1. A Snapshot of the Overall Pattern of Egregiousness and Sentencing for 205 Cases

While I will analyze the factors that govern capital charging and sentencing decisions in more detail in later sections, it is helpful to start with a graphical picture of the data. As the U.S. Supreme Court highlighted in *Furman*, the sheer infrequency of death sentences and executions, given the number of murders, creates a strong suspicion that the determination of who is to die is highly arbitrary. The system could only be saved if it could be shown that those few death sentences and even fewer executions are reserved for the defendants who, because of their prior histories and the nature of their crimes, are most deserving of death; the worse the crime, the harsher the sentence, with death reserved for the very worst crimes.

We can make an initial evaluation of the system by looking at the relationship between the egregiousness of the crime (measured as described in Section VI.C, *supra*) and the sentence that is ultimately imposed on the defendant. Figure 1 shows the egregiousness scores and the sentences received for my sample of 205 capital-eligible cases in Connecticut from 1973-2007.

[220] Tuohy, Lynne. "Some Heinous Killers Given Life Sentences." The Hartford Courant 16 Jan. 2005, main: A1 ("Prosecutors, who had said all along they would seek the death penalty for Ferguson, changed their minds at the 11th hour without explaining why. Ferguson was sentenced to life in prison without possibility of parole.")
.

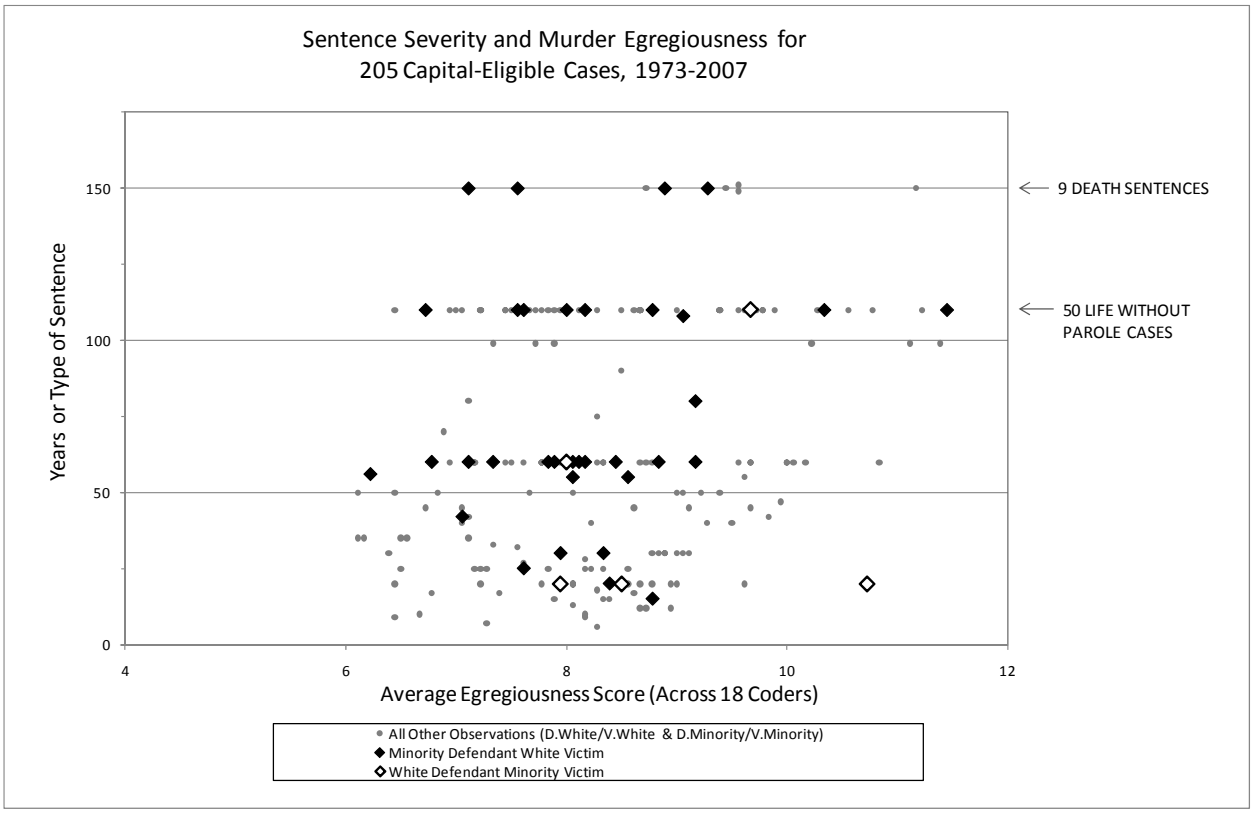
Each point represents a single case, where the sentence (whether a term of years or a categorical sentence) can be read off the vertical axis and the average egregiousness score (on the 4-12 scale) can be read off the horizontal axis (with egregiousness rising as the egregiousness index increases – moving to the right).

The top horizontal line in the Figure shows the 9 cases that generated a sustained death sentence and the next lower horizontal line shows the 50 cases that received life without parole.[221] The Figure also identifies the 34 cases in which minority defendants murdered white victims (designated with a darkened diamond) and the 5 cases in which white defendants murdered minority victims (designated by a black diamond with a white core).

Ideally, there should be a strong correlation between the egregiousness of the crime and the harshness of the sentence. That is, most data points should lie roughly on a line from the lower-left corner of the graph to upper-right corner. Instead, however, death-eligible murderers in Connecticut over the last thirty-five years have received sentences all over the map, with little apparent connection to the egregiousness of their crimes. This suggests a largely capricious process with a high degree of randomness, not one that promotes a rational retributive goal. The cases that did result in a death sentence are not visibly different in terms of egregiousness from those that did not.

[221] For purposes of conveying the information in graphical form, cases in which the defendant was sentenced to death are arbitrarily assigned a value of 150 years and cases generating a sentence of life in prison without the possibility of parole are assigned a value of 110. Ordinary life sentences (with a possibility of parole) were assigned a value of 60, and all sentences for a term of years are depicted as their actual number, although capped at 99.

Figure 1



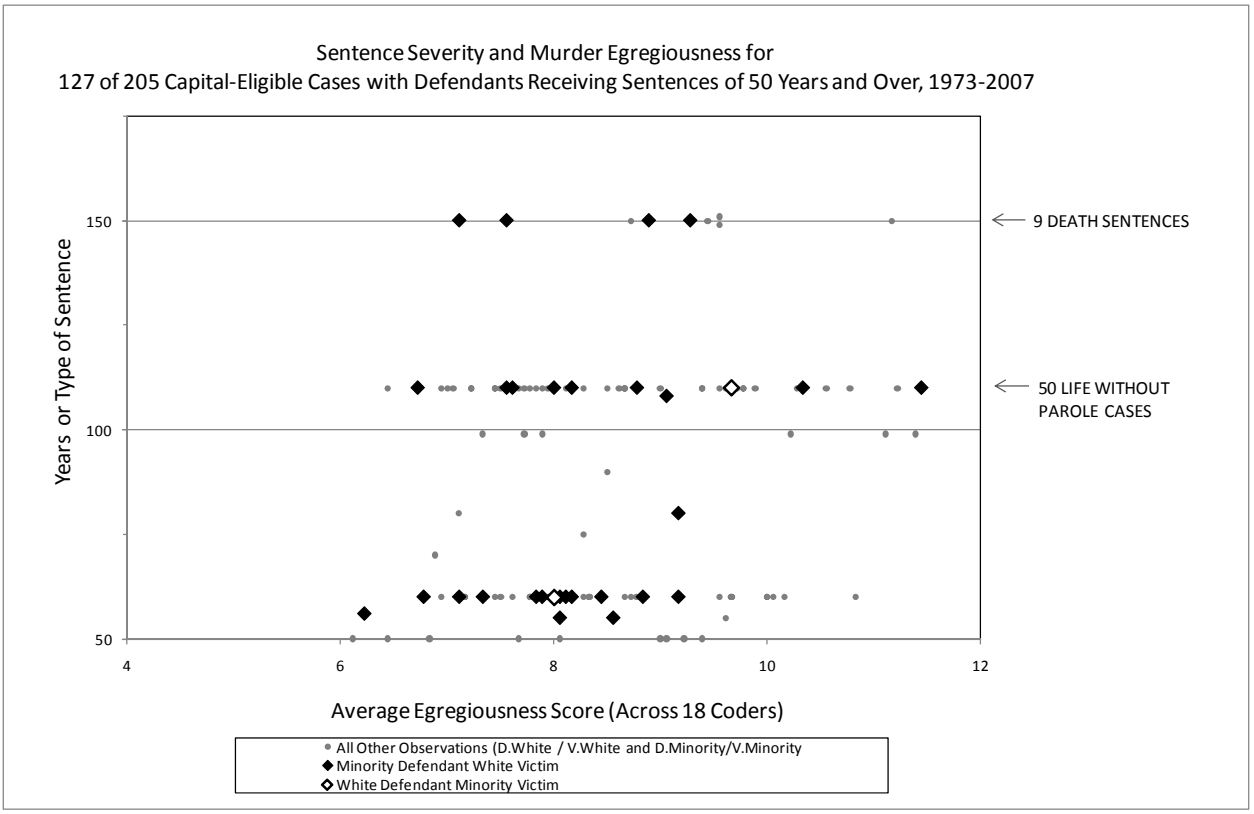
The system portrayed in Figure 1 is arbitrary in two separate ways, which David Baldus has described as either improper selectivity or lack of consistency.[222] First, at any given degree of punishment (represented by a horizontal line associated with a particular sentence chosen from the vertical axis), there is a wide range of egregiousness scores, showing that the same penalty is being assigned to defendants with vastly different levels of deathworthiness as captured by the 18 coders. For example, whether one looks at the horizontal line associated with death sentences, life without parole, or any terms of years, one sees a very broad array of average egregiousness scores from around six to 11 or beyond on the Composite 4-12 egregiousness score.

[222] See David Baldus et al, "Equal Justice in the Administration of the Death Penalty: The Experience of the United States Armed Forces (1984-2005)" (June 29, 2006). Available at SSRN: http://ssrn.com/abstract=91495.

Second, at almost any level of egregiousness (represented by a vertical line rising from an egregiousness score depicted on the horizontal axis), virtually any sentence is possible, suggesting that the system does not reliably treat cases of similar levels of egregiousness in a similar manner. For example, consider the imaginary vertical line rising from an egregiousness level of 7 (or 9). Some defendants convicted of crimes of that egregiousness level will receive penalties of anything from a few years to long terms of years, to life without parole, to sentences of death.

Restricting the data to only those cases where the defendant received a sentence of fifty years or more makes the picture even clearer, as shown in Figure 2. Here one sees what appears to be a completely random pattern, with no discernible difference in the egregiousness scores of the nine cases that resulted in death sentences from the 118 other cases that did not.

Figure 2



Figures 1 and 2 also illustrate visually a finding that I will establish more formally below: minority on white murders (the large black diamonds) are more highly represented in the 9 death sentences than one would expect from their levels of egregiousness. One can see this by looking separately at the 9 sustained death sentences of whom almost 45 percent involved a minority defendant and a white victim and the 196 cases receiving a sentence less than death (for which the percentage of minority on white murders is about one-third the size). Specifically, 4 of the 9 cases (or 44 percent) of sustained death sentences were given to minority defendants with white victims, while only 15.3 percent (30 of 196) of cases receiving a sentence other than death were minority on white murders.

While the 5 cases of white on minority murders (the diamonds with the white cores) are too small in number to draw strong conclusions, we see no similar evidence of either lower than average egregiousness or higher than expected levels of death sentences. In fact, the white on minority murders have higher average egregiousness scores than minority on white murders—the average egregiousness scores are depicted in the top row of Table 20, below—and have no sustained death sentences.

Table 9 provides another illustration of the arbitrary patterns of death sentencing suggested by Figures 1 and 2. For the 8 defendants in my sample who are still on death row, I show the number of cases of equal or greater egregiousness that did not result in a death sentence (for my two egregiousness measures). For each case that led to a death sentence, a surprisingly large number of equally or more serious crimes led to non-death sentences. The median number of equally or more egregious cases receiving non-death sentences is forty-six under the Composite measure and thirty-five under the Overall Score. Explaining away a case here or there

cannot change this dramatic pattern. Taking the most extreme case—Santiago, using the Composite 4-12 egregiousness score—170 cases are equally or more deathworthy according to the coders, but did not receive a sentence of death, as Santiago did. Even taking the defendant and egregiousness measure that generate the *strongest* case for prosecution—Cobb using the Overall Score—sixteen other cases were equally or more egregious, yet did not receive a sentence of death.

Table 9

Number of Non-Death Cases with Equal or Higher Egregiousness Scores than the Current 8 Death Row Cases					
Defendant	**Year of Conviction**	**Composite Score (4–12)**	**# of Non-Death Cases with Equal or Higher Scores**	**Overall Score (1–5)**	**# of Non-Death Cases with Equal or Higher Scores**
Santiago	2004	7.11	170	3.44	117
Reynolds	1995	7.56	148	3.89	61
Campbell	1991	8.72	65	4.06	42
Webb	2004	8.89	54	4.44	21
Cobb	1991	9.28	38	4.61	16
Breton	1998	9.44	34	3.89	61
Peeler	2000	9.56	33	4.28	28
Rizzo	2005	9.56	33	4.28	28

2. The Impact of the Diminishing Murder Clearance Rates in Connecticut

If we expand our scope beyond the 205 death-eligible cases in the sample that generated convictions and look to the broader universe of death-eligible murders including the growing number of cases that are never solved, the picture of arbitrariness becomes even more extreme than Table 9 suggests. A number of conditions must be met before a case makes it into the sample of 205 death-eligible murders: the murderer must first be identified, then apprehended, prosecuted, and convicted. Indeed, a substantial and growing proportion of Connecticut murderers never get past the first threshold: as Figure 3 depicts, the proportion of murders that are solved has fallen from 93% prior to 1973 when Connecticut's current death penalty law was adopted to approximately 60% at present. Most cases that are "cleared" are cleared when a

suspect is arrested (for example, the OJ Simpson case was cleared, even though a jury did not convict him). Since the clearance rate shown in Figure 3 also includes cases where the arrested suspect is acquitted, the number of murderers who go free is even higher than implied by the already low clearance rates.[223] This strongly implies that a significant number of death-eligible murderers are receiving no penalty whatsoever, making the distribution of outcomes even more arbitrary than portrayed above.[224] In fact, the considerable expense devoted to trying death penalty cases consumes precious resources that could otherwise be deployed toward increasing the clearance rate and increasing the chances that all murderers receive at least some penalty.[225] The range in sanctions for cases of equal degrees of egregiousness could not be wider: it spans outcomes ranging from death to nothing, with the percentage now receiving no sentence at roughly 40 percent.

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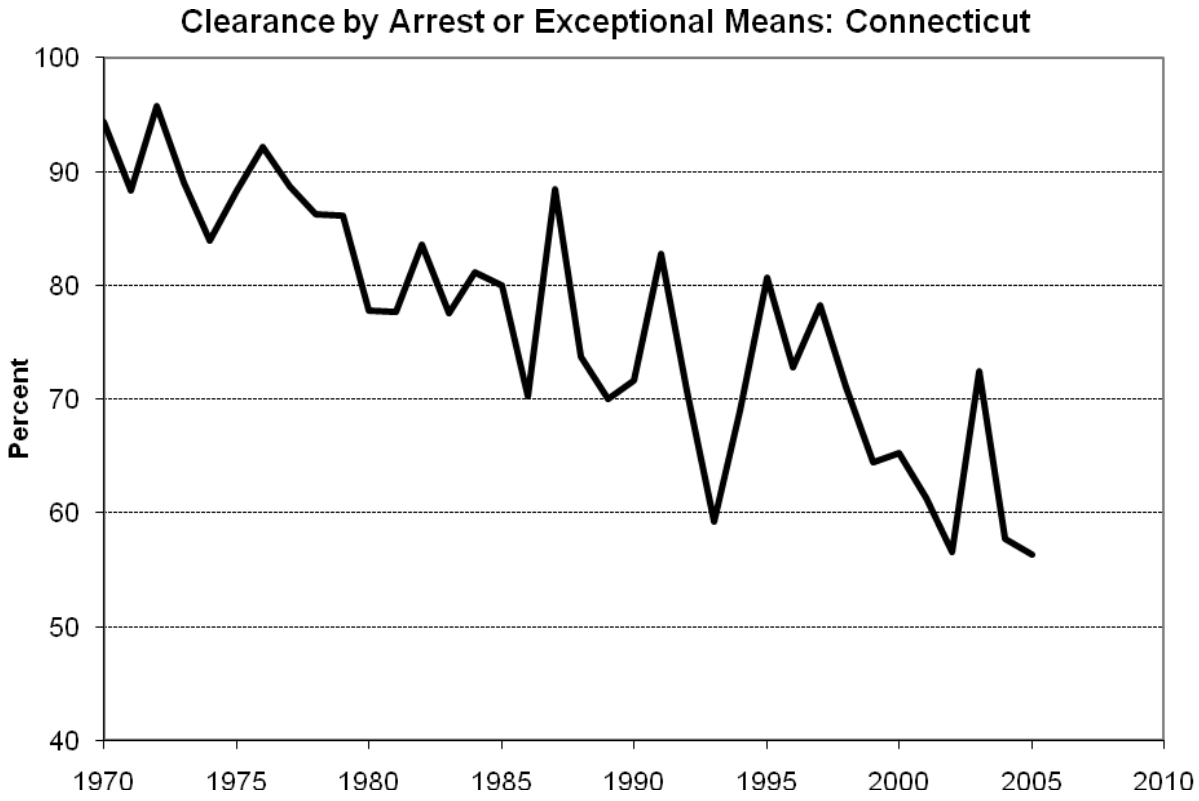
[223] I tried to find data on acquittals for those charged with murder, but was informed by Larry D'Orsi in the Connecticut Court Operations Division that such information is not compiled and cannot be re-created because, in Connecticut, police and court records are erased by statute after an acquittal.

[224] Indeed, I just discussed the murders of Lopez and Pelkey, where Connecticut prosecutors "cleared" the murders back in the 1980s and again with recent arrests of the likely true killers. Such wrongful convictions artificially elevate the true clearance rate either because the real criminal has not been caught (the crime is not correctly "cleared" even though it is counted as such) or because the clearance rate ticks up again when the second defendant is arrested after the first innocent defendant (Roman and Ireland) are released.

[225] COMMISSION REPORT, *supra* note 41, at 12-16. As one scholar notes: "Studies of California, New York, and North Carolina suggest that a capital trial alone (not including any subsequent appeals) costs the state anywhere from $200,000 to $1,500,000. Capital trials rarely reduce prison costs, as less than 10 percent of those sentenced to death are executed." Kuziemko, *supra* note 4, at 117. Two other recent papers in the *American Law and Economics Review* estimate the costs associated with the death penalty. One finds "the state would have spent almost $11 million less each year on criminal justice activities (including appeals and imprisonment) if the death penalty had been abolished." Cook. Philip J. "Potential Savings from Abolition of the Death Penalty in North Carolina" *American Law and Economics Review* 11.2 (2009): 498-529. Another finds that "filing a death notice is associated with an additional one million dollars in costs" over the duration of a case. Roman, John K., and Aaron J. Chalfin. "Reassessing the Cost of the Death Penalty Using Quasi-Experimental Methods: Evidence from Maryland" *American Law and Economics Review* 11.2 (2009): 530-574.

One simple illustration of the burdens on the system that the death penalty imposes is afforded by the Connecticut Supreme Court's decision in *State v. Reynolds*, 836 A.2d 224 (Conn. 2003). This case was argued on September 28, 2001, and ultimately decided in a 171-page opinion over two years later. Reynolds was a cocaine dealer who shot a police officer who had approached to search him. The Court admirably grappled with an enormous array of issues relating to the defendant's sentence of death, illustrating that a huge investment of high-end legal resources was expended only because of the presence of Connecticut's death penalty statute.

Figure 3



VIII. ARBITRARINESS AND DISCRIMINATION: LOOKING AT THE DATA

A. SOME REASONS FOR ARBITRARINESS

Figures 1 and 2 create a strong impression that the Connecticut death penalty system does not confine the death sentence to the most egregious crimes. But what does arbitrariness look like in practice? And why does it occur? To begin to answer these questions, I will introduce five cases (Cases A through E, below), one of which resulted in a death sentence.[226] This section is offered not as statistical proof, but as way of revealing arbitrariness at work. Following the case description, I provide the two egregiousness scores (averaged across the 18 coders), the tally of the special aggravating factors involved in the case, racial information about defendant and

[226] The language shown in these summaries comes directly from the summaries used by the coders, with only minor edits for the sake of clarity and brevity.

victim, and the judicial district of the case. Note that for the three measures of egregiousness/aggravation, I also show where they stand in relation to the entire set of 205 cases (where a "205" would represent the worst case on that particular measure, as our first case Walter gets for the Overall 1-5 egregiousness score).

Case A (**Alan Walter**): On October 21, 1997, the mother of the thirteen-year-old victim reported the child missing after she disappeared from a grocery store parking lot where the child was waiting while her mother was in the store. On July 15, 1998, the victim's body was found floating in a nearby lake, wrapped in a blanket that was held together with heavy chains, hooks and a padlock. The cause of death was determined to be asphyxia. Police investigated the case for the next four years and obtained numerous statements from most of the co-defendants. According to these statements, the eight co-defendants conspired to abduct, assault, and intimidate the victim in order to get her to withdraw sexual assault complaints she had made regarding Defendant and two of the co-defendants. On October 19, 1997, members of the group located the victim in the grocery store parking lot and abducted her. They drove her to a secluded area near the Housatonic River. Male members of the group, including Defendant, forcibly sexually assaulted the victim and all members of the group took part in beating her. Defendant and a co-defendant then drowned her and wrapped her body in a blanket bound by a heavy chain with hooks and a padlock. Members of the group then transported the victim's body to a marina and dumped her body in the Housatonic River.

Egregiousness measure 1-5: 4.89 / 205
Egregiousness measure 4-12: 10 / 189
Special aggravating factors: 6 / 165
Race of defendant: White
Race of victim: White
Judicial District: Litchfield

Case B (**Scott Pickles**): Despairing his family was about to leave because his fledgling law practice couldn't pay the household bills, Defendant, 42, took his wife and two young children out for dinner on June 18, 1997. Defendant's wife had previously given him two months to straighten out his life or she and the children would leave. Returning home from the restaurant, Defendant stabbed his wife (V1) of 13 years as many as 60 times. Defendant then killed his 6-year-old daughter (V2) and his 3- year-old son (V3) as they slept. Defendant then drove south to his brother's house with stolen license plates, leaving behind a note stating, "I expect to spend eternity in hell." He confessed his crime to his brother, who called the police, and then turned himself in and confessed.

Egregiousness measure 1-5: 4.78 / 197
Egregiousness measure 4-12: 11.44 / 204
Special aggravating factors: 5 / 132
Race of defendant: White
Race of victim: White

Judicial District: New London

Case C (**Scott Smith**): Defendant and Co-Defendant, both intoxicated, went to the victim's apartment late at night. The victim, a mentally disabled female acquaintance, invited them inside. Thereafter, Co-Defendant argued with the victim and she ordered Co-Defendant out. Defendant got behind the victim and started choking her. Co-Defendant stabbed her with a can opener and hit her in the head with a clothes iron, kicking her several times until she spit up blood. Defendant then performed cunnilingus on her, and Co-Defendant had vaginal and anal sex with her. Defendants then left the victim's apartment. It was later determined she died from strangulation.

Egregiousness measure 1-5: 4.78 / 197
Egregiousness measure 4-12: 9.67 / 177
Special aggravating factors: 3 / 69
Race of defendant: White
Race of victim: White
Judicial District: Fairfield

Case D (**Jerry Daniels**): Defendant murdered Victim V026A and her three year old daughter V026B. Defendant had gone to the apartment looking for his girlfriend, who was their roommate. Murder victim V026A let him into the apartment but a struggle ensued when she asked him to leave. He stabbed V026A eight times with a kitchen knife, and then sexually assaulted her. He strangled and slashed the throat of the little girl, V026B, to get her to stop crying.
Defendant had a horrific childhood—severe physical abuse by father of mother and all the children, and impaired mental capacity due to brain damage. Two experts testified to the Defendant's intermittent explosive disorder.

Egregiousness measure 1-5: 4.33 / 177
Egregiousness measure 4-12: 10 / 189
Special aggravating factors: 8 / 193
Race of defendant: White
Race of victim: White
Judicial District: New London

Case E (**Eduardo Santiago**): Co-Defendant A hired Defendant and Co-Defendant B to kill the victim because he was infatuated with the victim's girlfriend and thought that the victim treated her poorly. Co-Defendant A drove Defendant and Co-Defendant B to the victim's house where they entered, and, while the victim was sleeping, Defendant shot him in the head with a rifle. After the shooting, all three took items from the victim including cash, Movado watches, a cell phone, a handgun and title to a vehicle. As payment for the killing, Co-Defendant A planned to give Defendant and Co-Defendant B a $2500 snowmobile and some cash.

Egregiousness measure 1-5: 3.44 / 80
Egregiousness measure 4-12: 7.11 / 27
Special aggravating factors: 1 / 8
Race of defendant: Minority

Race of victim: White
Judicial District: Hartford

The last murder—Case E (Eduardo Santiago)—was the only one of the five crimes that resulted in a death sentence. Santiago's two co-defendants were sentenced to eighty years and life without parole. But while Santiago alone in these illustrative five cases is now on death row, the coders deemed his crime to be *less* egregious by a wide margin than most of the 205 death-eligible cases they scored, and far less egregious than the other four cases presented here (which are all in or around the top 10 percent of worst cases according to their two egregiousness scores). Obviously, one cannot draw conclusions about why Santiago got the death penalty and the other more egregious murders did not draw a similar sentence from this selection. For example, although all of the murders were whites killing whites except for Santiago who was a minority killing a white, one needs a regression analysis before one can draw a conclusion that the system is biased against minorities who kill whites (as the regression analysis in fact indicates).

But one can at least rule out the possibility that Santiago was treated so harshly because he had fewer mitigating factors than other cases. Given his horrific childhood circumstances and a history of mental problems, Santiago was clearly someone with an abundance of traits that are often deemed mitigating in death penalty cases. A recent news story on his case noted Santiago's "grim childhood [which] included beatings by his mother and stepfather, sexual molestation, and his nine-year journey through foster care, psychiatric hospitals, orphanages, and shelters."[227]

[227]Dave Collins, "Conn. high court hears death penalty appeal," Associated Press, April 28, 2011 at http://www.boston.com/news/local/connecticut/articles/2011/04/28/conn_high_court_hears_death_penalty_appeal/. Note these mitigating factors were not mentioned in the summaries reviewed by the coders, so if this information had been included the results would have only strengthened the findings of the anomaly of the Santiago case and of harsher treatment for minority on white murders in the Connecticut death penalty regime.

But the recitation of the five cases is illustrative of the general problem with the Connecticut death penalty regime depicted in Figures 1 and 2 above: death sentences are handed out in a widely scattered fashion with some arbitrary few plucked out for death and many far worse murderers escaping this punishment. As we saw in Table 9, even if one were to take the Connecticut death row inmate with the highest Composite egregiousness score (Rizzo, 9.56), thirty-three cases had equal or higher egregiousness scores and did not result in death sentences.

So what happened in the other four cases?

In Case A (Alan Walter), the defendant was charged with three counts of capital felony, but was allowed to plead guilty to the lesser charges of felony murder, kidnapping in the first degree, conspiracy to commit kidnapping in the first degree, conspiracy to commit sexual assault in the first degree, witness tampering, and tampering with physical evidence, and received a total sentence of sixty years.

In Case B (Scott Pickles), the conviction came through a plea bargain under which the prosecution agreed not to seek the death penalty. Kevin Kane, then New London State's Attorney, decided not to pursue the death penalty on the grounds that death would be an undeserved relief for the defendant.[228] Kane's decision went against the wishes of the victim's sister, who asked, "If this obscene crime does not merit the death penalty, what does?"[229] Kane recently testified that the defendant merited more lenient treatment for voluntarily pleading guilty, which may well be true, but this assertion misses the point. Kane decided one way while another Connecticut prosecutor would readily go the other way, perhaps citing the family's strong desire for the death penalty and the horrendous nature of the crime. The arbitrariness

[228] Gary Libow, *Life Sentence for Killing Family; Pickles' Motive Finally Disclosed,* HARTFORD COURANT, Oct. 28, 1999, at A3.
[229] *Id.*

comes from the fact that there is no reason to think this case would be decided similarly by different Connecticut prosecutors.

Case C (Scott Smith) avoided a death sentence through a complicated procedural path. In July 1995, Superior Court Judge Joseph Gormley ruled that Scott Smith, who had admitted strangling the victim Melissa Mills, could not be tried on a charge of capital felony, based on evidence presented during a probable cause hearing.[230] Smith was convicted of murder and rape in the ensuing trial that followed in April-May of 1999, and was sentenced to life in prison (60 years).[231] After the Connecticut Supreme Court granted a retrial because of problems with the jury instructions, the State declared they would seek the death penalty in the retrial.[232] In September, 2004, as the trial began, Smith decided to plead guilty to felony murder and was then sentenced to 45 years in prison.[233] According to news accounts: "Senior Assistant State's Attorney C. Robert Satti Jr. told the judge he was ready to proceed with the trial but agreed to a plea bargain because of the threat of appeals in the case. 'This puts an end to a matter that has gone on nine and a half years,' he said."

In Case D (Jerry Daniels), the defendant avoided the death penalty even though he went to a stranger's house at 1 am, and attacked a twenty year old woman in front of her 3 year old daughter, who he nearly decapitated to keep her from crying out for help in front of her mother, who he then raped and killed. As with so many capital defendants, Daniels had a horrific childhood, and the jury deadlocked over whether this was a mitigating factor. As a result, he was sentenced to 130 years in prison.

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[230] "In Brief," New Haven Register, Aug. 5, 1997.
[231] "2 Men Get Life Terms for Rape, Murder of Retarded Woman, 29," New Haven Register, May 9, 1999.
[232] "State to Seek Death Penalty in Rape, Murder Re-Trial," Connecticut Post, May 17, 2003.
[233] "2nd Trial Leads to 45-Year Term in Killing," Connecticut Post, Sept. 14, 2004.

One obvious source of arbitrariness is the discretion that different state's attorneys have in deciding whether to charge defendants with a capital felony and then whether to pursue the death penalty. This would be a potential problem even if Connecticut had uniform standards and processes for deciding when to pursue the death penalty and when to agree to a plea bargain. In the absence of those standards, the problem is considerably worse. In effect, it was the luck of the draw on the prosecutor and not the crime that was the decisive factor in averting a death sentence for Pickles (Case B).

The issue of the preferences of the victim or the victim's family provides a perfect example of the arbitrary nature of the workings of the Connecticut death penalty.[234] Prosecutors disagree on a question as fundamental as whether the opinions of victims or victims' family members should influence charging decisions. In 2007, Waterbury State's Attorney John A. Connelly, discussing the Petit multiple-victim murder in Cheshire where one of the victims had previously expressed strong opposition to the death penalty, told a newspaper reporter that the victim's preferences were irrelevant. "Our job is to enforce the law no matter who the victim is or what the victim's religious beliefs are," he said. "If you started imposing the death penalty based on what the victim's family felt, it would truly become arbitrary and capricious."[235] The problem is that other prosecutors in Connecticut have exactly the opposite opinion on this issue, which, according to Connelly makes the Connecticut death penalty regime "truly arbitrary and capricious." Executive Assistant State's Attorney Judith Rossi, addressing the state Commission on the Death Penalty on behalf of the Division of Criminal Justice, noted that "the decision to pursue the death penalty is within the discretion of the 13 individual State's

[234] The case of Michael Ross—who voluntarily waived appeals and remains the only defendant executed by Connecticut in the post-*Furman* period—shows that a defendant's preferences can also play a role in the sentencing decision.
[235] Alison Leigh Cowan, *Death Penalty Tests Church As It Mourns,* N.Y. TIMES, Oct. 28, 2007, at A1.

Attorneys" and these decisions sometimes involve factors "independent of the criminal justice system," such as "intra-family homicides where victims are opposed to the death penalty."[236]

Prosecutorial discretion can even result in inconsistent decisions within the confines of a single case, as illustrated by Connelly's prosecution of the Ivo Colon case. Connelly initially pursued and obtained a death sentence against Colon and vigorously challenged Colon's claims on appeal. The Connecticut Supreme Court agreed with Colon that the faulty jury instructions required reversal of his death sentence but specifically stated that the death penalty was permissible under Connecticut law, if handed down by a properly instructed jury, because the victim was under sixteen and the murder was "especially heinous, cruel or depraved."[237] After the decision, the Hartford Courant reported that Connelly "said he has spoken to [the victim's] family, and they want to go forward with a second hearing, as opposed to agreeing to a life sentence."[238] It is unclear why Connelly would make this announcement in light of his later statement (with reference to the Petit murders) that it would truly be "arbitrary and capricious" to consider the wishes of the families of victims in deciding whether to seek the death penalty. In any event, a little over three months later, Connelly decided *not* to pursue the death sentence[239]—a change in course that seems inconsistent with his self-described responsibility to "enforce the

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[236] COMMISSION REPORT, *supra* note 41, at 25. The second quotation is a direct quotation from Rossi; the other quotations are from the report's summary of her testimony.

[237] *See State v. Colon*, 864 A.2d 666, 690, 804-06 (Conn. 2004).

[238] Lynne Tuohy, "Court Limits Please for Mercy," Hartford Courant, December 18, 2004.

[239] *See* Lynne Tuohy, *Colon Gets Life in Baby's Murder*, HARTFORD COURANT, Apr. 4, 2006, at B1.

This potential for capricious prosecutorial decisions is a central feature of the Connecticut system, as Justice Berdon noted in giving an example of the "capriciousness of prosecutorial discretion": "The state's attorney who [was then prosecuting Michael Ross], while arguing a collateral matter before this court, stated that *he* may decide not to seek the death penalty again: '[The case] could go back. It could be that somehow I've reviewed the file and decided that *I don't want to proceed with a death penalty hearing* on behalf of the state. That, in fact, we will recommend no further hearing, thus recommend life imprisonment.'" *State v. Webb*, 680 A.2d 147, 270 (Conn. 1996) (Berdon, J., dissenting).

law," which had not changed since he first obtained a death sentence, in deciding when to seek the death penalty.[240]

What prompted this abrupt reversal from seeking Colon's death to agreeing to a life sentence without possibility of parole? Connelly told the media, "There's no question in my mind the first jury returned the proper verdict, a death sentence," yet he maintained that "the ends of justice are served by sending him away for the rest of his life." If the jury had returned the proper verdict of a death sentence but justice dictated that the verdict should be life imprisonment, then why hadn't Connelly pursued justice in the first trial? Connelly *claimed* that additional information had been revealed about the defendant, and that because the baby's mother received only a five-year sentence for her role in the victim's death, the jury would be reluctant to sentence the father to death. As the Hartford Courant reported:

> Since Colon was first sentenced to death, Connelly said, there have been juvenile court proceedings that have produced transcripts of testimony that would complicate a quest for a death sentence.
>
> ``The mother said she couldn't do any more to protect the little baby," Connelly said. ``But one concern is if the jury looked at her sentence, where she stood by while this little girl was being beaten and she got five years and we're asking for the death penalty for Colon? I'm sure the defense attorney would argue, `We're not asking for five years or even 10; we're asking you to send him away for life.'"
>
> Connelly said, ``The ends of justice are served by sending him away for the rest of his life. The thing too is, this ends the case. If we got the death penalty again, there'd be another appeal. This case would have dragged on for another who knows how long....
>
> "Connelly said Colon's age at the time of the killing, just three months after he turned 18 and his history of drug abuse, also would likely have made a jury's rendering of a death verdict more difficult."[241]

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[240]When Colon's death sentence was originally overturned on appeal, the Hartford Courant reported that Connelly "said he has spoken to [the victim's] family, and they want to go forward with a second hearing, as opposed to agreeing to a life sentence." Lynne Tuohy, "Court Limits Please for Mercy," Hartford Courant, December 18, 2004. It is unclear why Connelly would make this announcement in light of his statement that it would truly be "arbitrary and capricious" to consider the wishes of the families of victims in deciding whether to seek the death penalty.

[241] Lynne Tuohy, *Colon Gets Life in Baby's Murder*, HARTFORD COURANT, Apr. 4, 2006, at B1.

Of course, one would assume the prosecutor realized at the time of the initial capital felony charged was levelled against Colon that had he been a few months younger at the time of the murder he would not have been eligible for the death penalty. Certainly, Connelly would have known about Colon's history of drug abuse. Why these factors would be relevant to Connelly's decision at the time of a second penalty trial when they weren't at the first remains a mystery.

Moreover, the mother's involvement in the daughter's death was dramatically lower than Colon's. As the Court noted in its opinion in *Colon*, "[t]he specific intent to kill is an essential element of the crime of murder. To act intentionally, the defendant must have had the conscious objective to cause the death of the victim." (Internal quotation marks omitted.) *State v. Sivri*, 231 Conn. 115, 126, 646 A.2d 169 (1994). No one ever contended that the mother acted with anything like this specific intent, so it is not clear why her five-year sentence would be in any way relevant to the proper sentence for Colon. Indeed, the statement by Connelly that ``The mother said she couldn't do any more to protect the little baby'' is exculpatory and would explain why she would merit far less punishment than Colon.

Certainly, the desirability of avoiding extended appeals was just as cogent a factor at the first trial when Connelly sought the death penalty for Colon as it was at the time of the second potential penalty hearing when he did not. That the prosecutor would seek a death sentence and fight to retain it all the way up to the Connecticut Supreme Court, only to drop the demand after an appellate decision that specifically supported the finding of the catchall aggravating

circumstance, provides yet another illustration of the untrammelled prosecutorial discretion that contributes to the pattern of arbitrariness in the Connecticut capital sentencing regime.[242]

It would not be surprising for other state's attorneys to decline to seek the death penalty for a case such as that of defendant Colon (indeed, of the more than twenty parental or caretaker child beating cases that caused the death of the child in Connecticut since 1973, no defendant has ever been found to have committed an intentional murder, let alone a capital murder, let alone received a death sentence), but this flip-flopping by a single state's attorney forming two opinions about the same case highlights the degree of arbitrariness with particular clarity. The result of having a system that invests in a single, fallible individual such unbridled prosecutorial discretion that can be exercised without any guidance in deciding whether to seek or shun the death penalty in a capital-eligible case creates an unreasonable risk that the capital regime will be devolve into an arbitrary and capricious system that does not serve legitimate goals of deterrence or retribution. That risk would appear to have been realized in the operation of the Connecticut death penalty system under review in this report.

B. ARBITRARINESS AT KEY DECISION POINTS

Another way to see arbitrariness in action is to follow the course of death-eligible cases and look at the points at which they leave the path that leads to a death sentence and an execution. Figure 4 illustrates the pathway of the cases included in my study. Note that close to one-third of the 205 death-eligible cases are not charged as capital felonies (Exit A) and therefore cannot end with death sentences. Of those defendants charged with capital felonies, twelve were sentenced to death. One of the twelve, Michael Ross, was executed on May 13,

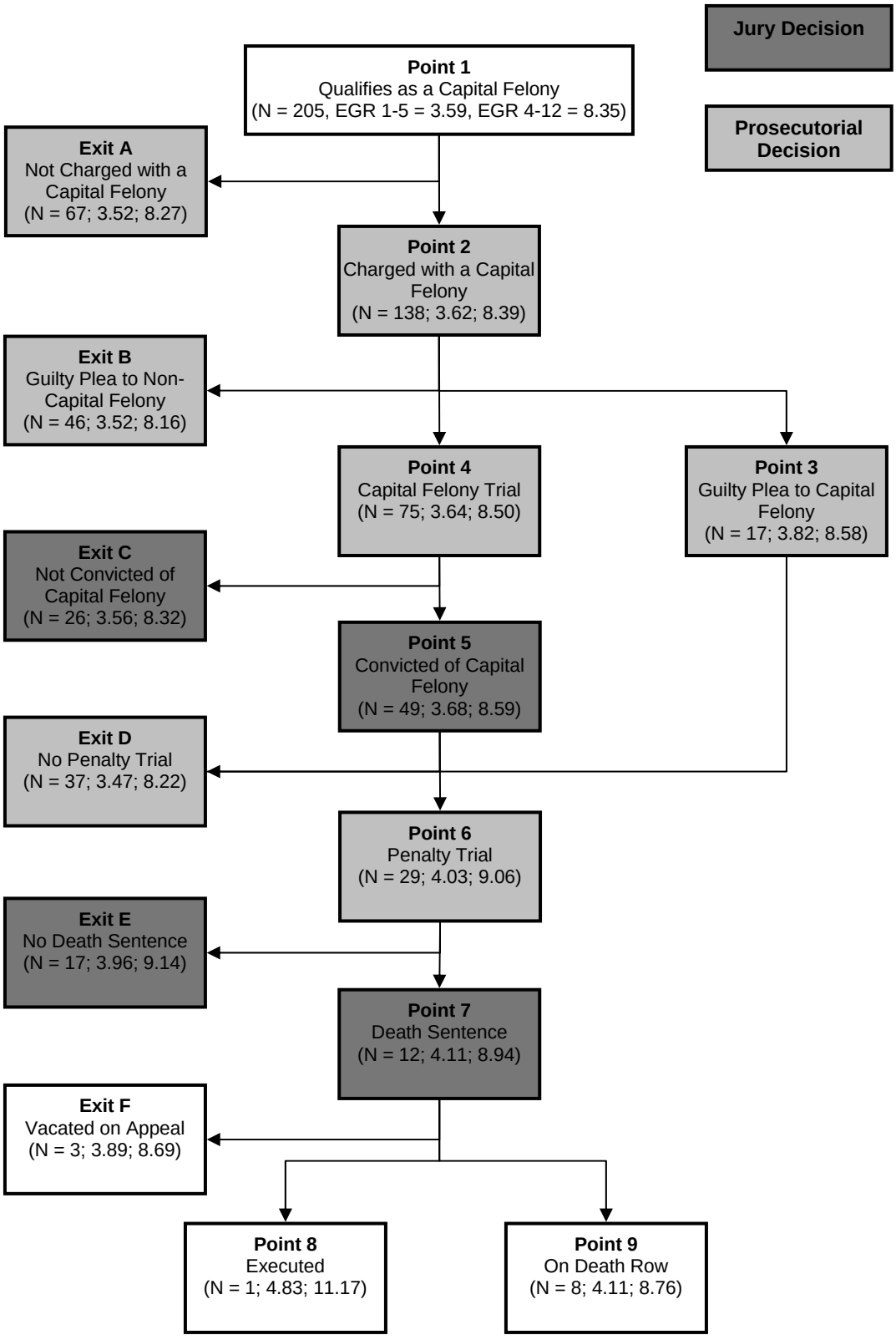
[242] Connelly is no longer Waterbury's State's Attorney. Earlier this year, he was forced to resign "under pressure ... after his superiors concluded that gifts he has received from friends raise questions about his judgment, lawyers familiar with the events said. The information the state Criminal Justice Commission relied on to press for Connelly's resignation is similar to information disclosed through a federal grand jury investigation examining a variety of subjects in and around Waterbury." Edmund Mahony, "Connelly Resigns Under Pressure,"Hartford Courant, January 15, 2011.

2005, after he voluntarily agreed to stop all appeals and to proceed with the execution, and three of the twelve subsequently had their sentences reversed, as noted in Figure 4.

Comparing Exit A with Point 2 in Figure 4, we see that cases that are *not* charged as capital felonies are essentially identical in egregiousness to the cases that are charged as capital cases. Comparing Point 3 to Point 4, we also see that defendants who plead guilty to capital felonies have committed more egregious crimes than those who go to trial; this makes sense from one perspective, since defendants who plead guilty may do so because they are more likely to lose at trial, but it also means that they are less likely to receive the death sentence (since many, though not all, plea bargains include a commitment by the prosecution not to seek the death sentence). Finally, comparing Point 7 to Exit E, we see little difference in the egregiousness of cases that result in a death sentence as opposed to those that result in a sentence of life in prison with parole. At each of these points, egregiousness has little or no impact on determining who is more likely to remain on course toward a death sentence.

Figure 4

Capital Case Procedural Pathways: Death-Eligible Cases, 1973-2007
Egregiousness Scores for 205 Cases at Various Decision Points



What can we expect from the Connecticut death penalty system if it stays on its present course of condemning to death defendants in 4.4 percent of death-eligible cases leading to conviction but solving only 60 percent of murders? It will take well over a decade to amass another set of 205 convicted, death-eligible defendants, and if only 60 percent of murders are solved, then 342 death-eligible murders will have occurred over this period.[243] This implies that over the next period to generate 9 sustained death sentences, we would expect 137 death-eligible cases will not be solved at all. In other words, more than fifteen times as many death-eligible killers would go free as would be sentenced to death. It is hard to think how such a system would promote any rational goal -- of retribution or of deterrence.

C. EGREGIOUSNESS AND CHARGING DECISIONS

A key question for an analysis of the Connecticut death penalty system is determining which crimes from the entire universe of death-eligible murders result in capital felony charges and in death sentences. In this section, I evaluate the extent to which capital felony charging decisions reflect the egregiousness of the crimes involved. In the following section, I repeat this analysis for death sentence outcomes.

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[243] This is only a rough estimate since we don't know with certainty what the future clearance rates will be for death-eligible murders. First, I have assumed that the clearance rate for death-eligible cases is similar to that of murders in general, but of course they could differ. We do know that the web is full of descriptions of post-1973 egregious death-eligible murder cases in Connecticut that have not been solved: just one of the many web pages outlining unsolved murders in Connecticut is http://www.angelfire.com/ct3/unsolvedct/homicides.html. Moreover, there is one dimension on which we can readily compare the universe of Connecticut murders (from which we derive the clearance rates) with my set of 205 death-eligible cases -- the race of the victim. Here we see close agreement between all homicides and death-eligible homicides: the SHR tells us that 54.7 percent of murder victims in Connecticut from 1973-2004 were white, while 53.2 percent (=109/205) of my sample of death-eligible cases is white. If the universe of all Connecticut homicides was cleared at a very different rate from the set of Connecticut death-eligible murders, one might expect to see a very different racial composition in all homicides versus death-eligible homicides -- which we do not. Second, I have assumed that the clearance rate going forward will remain at around 60 percent. The long-term secular decline in clearance rates depicted in Figure 3 suggests that the prediction that 60 percent of murders will be cleared from now on may be optimistic. Third, some additional percentage of death-eligible murderers are apprehended (thus counted in the "cleared" 60 percent of murders) but would not make it into my sample of 205 cases because they are not convicted of a crime. This would again suggest that the 60 percent clearance rate estimate may be optimistic. Of course, the lower the clearance rate (and conviction rate), the more problematic the entire death penalty apparatus becomes since the mis-allocation of resources away from solving crimes that it inflicts both undermines deterrence and disrupts retribution by expanding the set of murderers who goes free.

If the death penalty statute works to ensure that only the "worst of the worst" receive a sentence of death, then we would expect the crimes charged as capital felonies to be significantly more egregious than those that are not. In general, however, crimes that result in capital felony charges are almost indistinguishable in terms of egregiousness from crimes that do not result in capital felony charges, as shown in Table 10. The average level of egregiousness is only very slightly higher for cases with capital felony charges (8.39 to 8.27 on the 4-12 scale, 3.62 to 3.52 on the 1-5 scale).[244] Essentially, this means that cases of virtually identical egregiousness start out getting very different treatment, with one-third of the total death-eligible cases removed from the prospect of a capital sentence at the outset by the charging decision.

Table 10

Egregiousness Scores (4-12) and (1-5) According to Whether Charged				
	Composite (4-12)		Overall (1-5)	
	Charged	Not Charged	Charged	Not Charged
Mean	8.39	8.27	3.62	3.52
Highest Egregiousness Score	11.44	11.39	4.89	4.67
Lowest Egregiousness Score	6.11	6.11	2.11	2.06
Number of Cases	138	67	138	67

1. Egregiousness and Offense Categories

Table 11 shows the charging rates and egregiousness scores for the eight capital felony categories for which we have data.[245] Across categories, there is little relationship between the average level of egregiousness and the rate at which cases are charged as capital felonies. For example, only half (52%) of murders committed during the commission of a kidnapping were charged as capital felonies, although these cases had higher average egregiousness scores on both scales than the three categories of cases in which capital felonies were charged 100% of the time.

[244] Neither difference is anywhere near statistically significant.
[245] There are no cases in the sample where the capital felony category is "selling drugs that lead to the death of the victim."

The same is true for murders of victims under the age of sixteen, which resulted in capital felony charges only two-thirds (67%) of the time, despite their relatively high average egregiousness scores.

Table 11

Capital Felony (CF) Charging and Egregiousness Across Different Offense Categories					
				Average Egregiousness	
Category of Offense	**Total N***	**Number Charged CF**	**% Charged CF**	**Composite (4-12)**	**Overall (1-5)**
Murder of a Law Enforcement Officer	8	8	100%	7.29	3.19
Murder for Hire	17	13	76%	6.92	3.01
Murder by Someone with a Previous Murder Conviction	3	3	100%	7.87	3.43
Defendant Serving Life Sentence	1	1	100%	7.56	3.34
Murder During Commission of Kidnapping	63	33	52%	8.40	3.77
Murder During Commission of Sexual Assault	27	21	78%	9.25	4.35
Murders with Multiple Victims	77	61	79%	8.75	3.55
Murder of Victim Under 16 Years of Age	46	31	67%	8.86	3.86

* The total number of cases adds up to more than the 205 total cases because some cases were death-eligible under more than one provision of the statute, and are thus included in more than one offense category.

Within offense categories, egregiousness also does not consistently explain which crimes are charged as capital felonies. For example, among multiple victim murders (the most common category), cases resulting in capital felony charges were slightly less egregious than those not resulting in capital felony charges (8.70 to 8.90 on the 4-12 scale; equal on the 1-5 scale at 3.54). The same holds for murder for hire cases (6.70 to 7.68 on the 4-12 scale; 2.92 to 3.28 on the 1-5 scale).

2. Egregiousness and Race of Defendant

Table 12 presents data on the average egregiousness of death-eligible felonies by the race of the defendant and by charging status. The table invites two comparisons: within race, are the most egregious cases being charged? And across race, are there differences in egregiousness levels? As seen above, cases charged as capital felonies are of essentially equivalent egregiousness to those that are not so charged. This is even more true for minority defendants, as seen below, where cases charged as capital felonies are marginally *less* egregiousness than those not charged as capital felonies. For white defendants, cases charged as capital felonies are only slightly more egregious than those not so charged.

Table 12

Egregiousness by Defendant Race and Charging Status						
	Composite Index (4-12)			**Overall Index (1-5)**		
Defendant Race	**Charged**	**Not Charged**	**Total**	**Charged**	**Not Charged**	**Total**
Minority	8.18	8.20	8.19	3.46	3.48	3.47
White	8.72	8.40	8.63	3.86	3.60	3.78

Table 12 also illustrates that white defendants overall committed murders with higher average egregiousness scores. In particular, on average, white defendants have avoided capital felony charges for cases that are more egregious than cases for which minority defendants were charged with capital felonies. The average egregiousness score for white defendants who were *not* charged is 8.40 on the Composite Scale and 3.60 on the Overall Scale, while the average egregiousness scores for minority defendants who *were* charged with a capital felony are 8.18 and 3.46. This evidence suggests two possibilities. The different treatment of white and minority defendants may reflect impermissible racial discrimination in the charging decision. Alternatively, the pattern may simply reveal the utter arbitrariness of capital charging decisions.

Of course, whether the charging patterns are discriminatory or simply arbitrary, the Connecticut system would be assailable on both statutory and constitutional grounds.

3. Egregiousness and Race of Victim

The most extreme racial disparities in capital felony charging rates occur with respect to race of the victim, as summarized below in Table 13. Defendants accused of killing a white victim were charged with a capital felony at a rate of 73%, while only 61% of defendants accused of killing a minority victim were so charged. The twelve percentage point difference between defendants accused of killing white and black victims is statistically significant.[246]

Table 13

Average Egregiousness Scores and Charging Probabilities by Victim Race

	Charged			Not Charged			Total			
Victim Race	Composite (4-12)	Overall (1-5)	# Cases	Composite (4-12)	Overall (1-5)	# Cases	Composite (4-12)	Overall (1-5)	# Cases	% Charged
Minority	8.21	3.40	59	8.25	3.46	38	8.23	3.43	97	61%
White	8.53	3.78	79	8.31	3.60	29	8.47	3.73	108	73%
Total	8.39	3.62	138	8.27	3.52	67	8.35	3.59	205	67%

4. Egregiousness and Race of Defendant and Victim Combined

Table 14 depicts the charging decision by the race of both the defendant and the victim. The most striking percentage in the table is that 79 percent of murders by minority defendants of white victims led to a capital felony charge. There are two natural comparisons to explore whether this 79 percent charging rate is unusually high. First, one can look one box up in the first column of Table 14 to see the charging rate for minority defendants with minority victims, or second, one box over to the second column to see the charging rate for white defendants with white victims. In both cases, the charging rates are *lower* even though the mean egregiousness levels of the crimes are similar or *higher*.

[246] Using a Fisher's Exact one-sided test, p=0.042.

Table 14

Composite Egregiousness Scores (4-12) and Capital Felony (CF) Charging Decision by Defendant and Victim Race/Ethnicity				
		Minority defendant	**White defendant**	**Total**
Minority Victim	Egregiousness	8.18	8.97	8.23
	# Cases	92	5	97
	# CF	56	3	59
	% CF	61%	60%	61%
White Victim	Egregiousness	8.19	8.60	8.47
	# Cases	34	74	108
	# CF	27	52	79
	% CF	79%	70%	73%
Total	Egregiousness	8.19	8.62	8.35
	# Cases	126	79	205
	# CF	83	55	138
	% CF	66%	70%	67%

Taking these two comparisons in turn, we see that minority defendants accused of murdering a white victim have been charged with capital felonies at a rate almost one-third higher than that at which minority defendants have been charged in the death of minority victims (61%). This disparity is statistically significant.[247] Note that the two crime categories have virtually identical average egregiousness (8.19 versus 8.18), so the large victim-race disparity in charging rates for minority defendants is *not* attributable to minority-on-white murders being more egregious than minority-on-minority murders.

The second comparison holds "white victim" constant and compares the charging rates for white defendants to minority defendants. White defendants were charged with capital felonies in 70% of cases involving white victims, while minority defendants were charged with capital felonies in 79% of cases involving white victims. Again, this difference is not explained

[247] Using a Fisher's Exact one-sided test, p=0.039.

by the differences in egregiousness scores for these two sets of murders because white defendants have higher mean egregiousness scores.

5. Egregiousness and Judicial Districts

Table 15 summarizes capital felony charging decisions and average egregiousness scores of death-eligible cases for each of the judicial districts. The considerable variation in capital-charging rates across the various judicial districts, ranging from a low of 25 percent in New Britain to 87 percent in Hartford and New London, is striking.[248] Moreover, we once again observe that these charging disparities are not driven by the egregiousness of the cases. For example, death-eligible cases in New Haven were charged as capital felonies at a rate of only 33% compared to a rate of 87% in Hartford, although egregiousness scores of cases in the two districts were very similar: 8.05 and 3.41 in New Haven versus 8.02 and 3.43 in Hartford. In addition, Waterbury cases that were *not* charged as capital felonies are, on average, more egregious than cases that *were* charged as capital felonies in virtually every other district.

[248] Note that the Hartford-New Britain judicial district was divided into two separate districts in 1998. I consider cases in Hartford, Hartford-New Britain, and New Britain separately for purposes of determining charging practices by judicial district.

Table 15

Capital Felony Charging Practices and Egregiousness by Judicial District

				Composite (4-12)			Overall (1-5)		
District	# Cases	# Charged	% Charged	All	Charged	Not Charged	All	Charged	Not Charged
ANSONIA-MILFORD	5	4	80%	8.61	8.82	7.78	3.74	3.78	3.61
DANBURY	9	4	44%	8.12	8.83	7.56	3.49	3.83	3.22
FAIRFIELD	32	22	69%	8.61	8.47	8.91	3.55	3.48	3.72
HARTFORD	53	46	87%	8.06	8.13	7.61	3.45	3.48	3.23
HARTFORD-NEW BRITAIN	9	8	89%	8.58	8.53	9.00	3.86	3.82	4.17
LITCHFIELD	5	4	80%	9.94	10.01	9.67	4.72	4.74	4.67
MIDDLESEX	7	2	29%	8.49	8.75	8.39	3.60	3.69	3.57
NEW BRITAIN	8	2	33%	7.76	7.86	7.73	3.17	2.89	3.26
NEW HAVEN	33	11	87%	8.11	8.27	8.03	3.43	3.49	3.39
NEW LONDON	15	13	67%	8.54	8.43	9.25	3.74	3.72	3.86
STAMFORD-NORWALK	6	4	75%	7.77	7.25	8.81	3.22	2.93	3.81
WATERBURY	12	9	75%	9.22	8.85	10.31	4.08	4.02	4.26
WINDHAM	11	9	82%	8.40	8.52	7.89	3.86	3.88	3.75
Total	205	138	-						

Within judicial districts, egregiousness also fails to explain which cases are charged as capital felonies. In five out of thirteen judicial districts (Fairfield, Hartford-New Britain, New London, Stamford-Norwalk, and Waterbury), cases that were charged as capital felonies have *lower* average egregiousness scores on both measures than cases not charged as capital felonies. For example, in the Fairfield judicial district, the twenty-two death-eligible cases that were charged as capital felonies average 8.47 on the Composite Scale and 3.48 on the Overall Scale, while the ten cases that were *not* so charged average 8.91 and 3.72.

Additionally, some judicial districts presented noticeable disparities with respect to the race of the victim and defendant. For example, in the Hartford judicial district, which had 53 death-eligible cases (the highest of any district), 75% (18/24) of cases involving only minority victims were charged as capital felonies, but 97% of cases involving white victims (28/29) were charged as capital felonies. Egregiousness does not explain this wide disparity: scores for cases with minority victims are little different than cases with white victims on both the Composite and

Overall Scales (8.03 and 3.35 for cases with only minority victims, 8.09 and 3.53 for cases involving white victims).

Similarly, in the New Haven judicial district, cases involving white victims were charged at a rate (56%) that was over twice as high as the rate for cases involving minority victims (25%). Also, only six of the twenty-three cases (26%) involving minority defendants and only minority victims were charged as capital felonies, but three of four cases involving a minority defendant and white victim (75%) were charged as capital felonies.

In Fairfield, cases with white defendants were more egregious than cases with minority defendants on both the Overall and Composite Scales. However, white defendants in Fairfield were charged with capital felonies in only 40% of death-eligible cases, while minority defendants were charged with capital felonies in 82% of cases. Thus, minority defendants were charged with capital felonies at over twice the rate of white defendants, for cases that were less egregious on average.

In a system in which the death penalty should only be applied to the “worst of the worst" offenders, one would expect the offenders who are charged with capital offenses would be those who commit the most egregious offenses. The data demonstrate that this is not the case in Connecticut. Since egregiousness does not explain which death-eligible crimes are charged as capital felonies, the state’s death penalty system does not focus on the worst offenders. Moreover, when analyzed by judicial district, by race (of both defendant and victim), and by type of offense, the data suggest that capital felony charging decisions reflect factors other than the relative egregiousness of death-eligible offenses. Arbitrariness—whether in the form of unprincipled caprice, randomness, error, or discrimination—appears to be a defining feature of prosecutorial charging decisions for capital felonies in Connecticut.

D. EGREGIOUSNESS AND SENTENCING

Of the 138 cases charged as capital felonies since 1973 in my sample, only nine resulted in death sentences that have been upheld.[249] This section considers how these nine cases differ from the other death-eligible cases in which non-death sentences were imposed. Once again, if the death penalty were only imposed on the "worst of the worst" offenders, then we would expect only the most egregious cases to result in a death sentence. My findings below reveal that this has not been the case.

The nine cases resulting in an upheld death sentence had an average egregiousness score of 9.03 on the Composite Scale. While one might expect that these nine cases would be the worst of the worst, this is far from true: the ten highest-scoring cases had an average Composite egregiousness score of 11.06, which is strikingly higher than those that yielded a death sentence. Yet the sentencing of these ten highest-scoring cases is highly variable, ranging from twenty years to death. Of the ten most egregious cases, only one resulted in a death sentence—the unique case of serial killer Michael Ross (who voluntarily dropped his appeals). On the Overall Scale, the disparity is equally striking. The highest ten scores average 4.79, while the average of death-sentenced cases is 4.19. Only one of the ten most egregious cases resulted in an upheld death sentence (again, the Ross case).

It is true that the average egregiousness score of the cases in which a death sentence was imposed (9.03 on the Composite Scale and 4.19 on the Overall Scale) is higher than those for the

[249] Of the twelve defendants who have received death sentences, three have had their sentences overturned and are no longer on death row. In one such case involving a white defendant and a white victim who was a law enforcement officer, the Connecticut Supreme Court ruled that a death sentence could not be imposed under the "heinous, cruel or depraved" catchall aggravating circumstance. *State v. Johnson*, 751 A.2d 298 (Conn. 2000). The second case involved a Hispanic defendant (Colon) and a Hispanic victim who was under the age of 16; and after the death sentence was overturned because of improper jury instructions, the Waterbury prosecutor chose not to seek the death penalty again. *See supra* note 239. Robert Courchesne's death sentence was overturned on June 4, 2010 because of questions about the correct standard of ascertaining whether there were multiple victims in his case. Courchesne then received a sentence of LWOP.

196 cases resulting in a non-death sentence (8.32 and 3.56). However, 23% (46 of 195) of all non-death cases scored *higher* on the Composite Scale than the average death case (9.03), and 16% (32 of 196) of non-death cases scored higher on the Overall Scale than the average death case (4.19).

The failure of egregiousness as an explanatory variable becomes even clearer when the unique case of serial killer Michael Ross, who ultimately waived his appeals and asked to be executed, is excluded. The eight remaining death cases have average egregiousness scores of 8.76 on the Composite Scale and 4.11 on the Overall Scale, as we saw in Figure 4. As shown in Table 9, thirty-three non-death cases scored higher on the Composite Scale than the *highest-ranked* of these nine cases (9.56), and sixteen non-death cases scored higher on the Overall Scale than the highest-ranked death case (4.61 Score).

Last, it is notable that 170 non-death cases scored higher on the Composite Scale than the *lowest* ranked of the nine death cases (7.1), and 117 non-death cases scored higher on the Overall Scale than the *lowest* ranked death case (3.4). That means that, on the Composite Scale, over four-fifths of all death-eligible cases that did not result in a death sentence scored higher than a case in which a death sentence was imposed. Similarly, three-fifths of these non-death cases scored higher on the Overall Scale than the lowest-scoring death case.

1. Egregiousness and Offense Categories

Across the different categories of offense, we observe wide disparities in the proportion of death-eligible cases that actually receive a death sentence. The following within-category analysis controls for the capital felony category and is additional evidence of arbitrariness in the ultimate outcomes. The fact that strikingly few of the most egregious cases result in death sentences, even when controlling for the capital felony category, is suggestive of arbitrariness in the selection of defendants for death. Table 16 presents data on the distribution of death

sentences across offense categories and the egregiousness of death and non-death cases within each category.

Of the eight death-eligible cases that involved the murder of a law enforcement officer, only one resulted in a sustained death sentence, but that 13% death sentencing rate is the highest for any of the capital felony categories. The other category with a high rate of death sentences is sexual assault, which had a death-sentence rate of 11% (3 of 27). All of the sexual assault cases that resulted in death sentences also involved kidnapping and were the only kidnapping cases in which a death sentence was imposed; in the 49 kidnapping cases that did not also involve sexual assault, not a single defendant received the death sentence. Overall, defendants in cases involving kidnapping received a death sentence only 5% of the time; defendants in multiple victim cases and in cases involving victims under sixteen each received death sentences 5% and 4% of the time, respectively.

Table 16

Percent Receiving Death Across Different Categories of Offense									
				Composite (4-12)			Overall (1-5)		
Category of Offense	# Cases	# of Death Sentences	% Sentenced to Death	All	Death	Non-Death	All	Death	Non-Death
Murder of a Law Enforcement Officer	8	1	13%	7.29	7.56	7.25	3.19	3.89	3.10
Murder for Hire	17	1	6%	6.93	7.11	6.92	3.01	3.44	2.98
Murder by Someone with a Previous Murder Conviction	3	0	0%	7.87	N/A	7.87	3.43	N/A	3.43
Defendant Serving Life Sentence	1	0	0%	7.56	N/A	7.56	3.33	N/A	3.33
Murder During Commission of Kidnapping	63	3	5%	8.40	9.78	8.33	3.77	4.62	3.73
Murder During Commission of Sexual Assault	27	3	11%	9.25	9.78	9.19	4.34	4.62	4.31
Murders with Multiple Victims	77	4	5%	8.75	9.72	8.69	3.55	4.26	3.51
Murder of Victim Under 16 Years of Age	46	2	4%	8.86	9.56	8.82	3.86	4.28	3.84

Note: the number of cases sums to more than 205 because some cases qualified in more than one offense category.

For all categories of offenses in which at least one defendant has received a death sentence, the average egregiousness score for cases with death sentences is higher than the average score for cases with non-death sentences; this is not surprising, given the small number of death sentences. However, the death sentence is not reserved for the highest-scoring cases within most categories. Here I examine the four categories with the largest number of cases, which are also the only categories in which more than one case resulted in a death sentence.

Kidnapping: The average egregiousness scores for cases in which a death sentence was imposed are 9.78 (Composite) and 4.63 (Overall). On the Overall Scale, the top nine cases consist of eight non-death cases and the case of serial killer Michael Ross, who had the second highest egregiousness score and was equal in egregiousness to a non-death case. On the Composite Scale, the Ross case had the highest score, but the remainder of the top ten cases are non-death cases.

Sexual Assault: The average egregiousness scores for cases in which a death sentence was imposed are 9.78 (Composite) and 4.63 (Overall) (these are the same as the death cases within the kidnapping category). Again, the top nine cases on the Overall Scale consist of eight non-death cases and the case of serial killer Michael Ross, who had the second highest egregiousness score and was equal in egregiousness to a non-death case, and there are only two death cases (including the Ross case) among the top ten on the Composite Scale.

Multiple Victims: The average egregiousness scores for cases in which a death sentence was imposed are 9.72 (Composite) and 4.26 (Overall). On either egregiousness scale, only one of the top ten cases is a death case (Michael Ross).

Victim Under 16: The average egregiousness scores for cases in which a death sentence was imposed are 9.56 (Composite) and 4.28 (Overall). None of the top ten cases resulted in a death sentence on either egregiousness scale.

In summary, it is not surprising that, on average, cases resulting in death sentences are somewhat more egregious than non-death cases, especially when the entire range of capital-eligible murders is included. However, that so few of the most egregious cases result in death sentences, even when controlling for the capital felony category, suggests arbitrariness in the application of the death penalty in Connecticut.

2. Race of Defendant

I have already alluded to the consistent finding— in numerous studies conducted across the country both in recent years and over time—that killers of minority victims are not treated as harshly as killers of white victims. This is true in Connecticut as well, as the next subsection indicates. One consequence of this phenomenon, given that most murders are intra-racial, is that minority murderers (who typically kill minorities) appear to get a break, in that the system seems to value their victims less highly than white victims. Thus, we see two conflicting effects: the within-race effect leads to more lenient capital sentencing for black defendants, but the cross-race effect leads to much harsher sentencing for black defendants. Overall, the cross-race effect dominates, and white defendants receive sustained death sentences at a lower rate than minority defendants: 3.9% (3 of 79) of white defendants and 4.8% (6 of 126) of minority defendants have received death sentences that were ultimately upheld.

3. Race of Victim

The death penalty is invoked in the Connecticut at three times as high a rate when the victim is white than when the victim is a minority: 6.4% of all cases involving white victims (7 of 108) resulted in a death sentence, as opposed to only 2.1% of cases involving only non-white

victims (2 of 97). Cases with white victims account for 53% of the 205 death-eligible cases, but 78% of all upheld death sentences.

4. Egregiousness and Race of Defendant and Victim Combined

Offenses that involved minority defendants and white victims accounted for 17% of all death-eligible cases (34 of 205), but 44% of all death sentences (4 of 9). Death sentences were imposed in 12% of all cases that involved a minority defendant and a white victim (4 of 34). In other words, one of every eight minority defendants who killed a white victim in a death-eligible case received a death sentence. By contrast, only one out of every *twenty-five* white defendants (3 of 74) who killed a white victim received a death sentence.[250] This wide disparity does not emerge because minority defendant/white victim cases are more egregious than white defendant/white victim cases: white defendant/white victim cases have average egregiousness scores of 8.6 (Composite) and 3.8 (Overall), while minority defendant/white victim cases average 8.2 and 3.6. There is a substantial risk that race is a significant factor in sentencing outcomes, as shown in Table 17.

Table 17

Average Egregiousness by Defendant Race and Outcome, Murders of White Victims				
	Death Sentence		**Non-Death Sentence**	
	Composite Scale	**Overall Scale**	**Composite Scale**	**Overall Scale**
Minority Defendant	8.21	4.10	8.18	3.58
White Defendant	10.06	4.33	8.54	3.75

As is evident from the table, the white defendants sentenced to death for the murder of white victims committed crimes that were more egregious than those committed by minorities sentenced to death for murdering white victims. In fact, measured on the Composite Scale,

[250] Using a Fisher Exact one-sided test, p=0.139.

murders by white defendants that were *not* punished by the death sentence were *more egregious* than murders by minority defendants that *were* punished by the death sentence.

The harsher treatment of minority defendant/white victim cases primarily emerges in kidnapping and sexual assault murders, but can also be seen in the numerically less frequent categories of police murders and murders for hire. Offenses involving minority defendants and white victims account for 14% of all kidnap-murder cases (9 of 63), but 67% of the cases (2 of 3) in which a death sentence was imposed. In contrast, offenses involving white defendants and white victims account for 46% (29 of 63) of all kidnap-murder cases, but only 33% of those in which a death sentence was imposed (1 of 3). This stark difference is not explained by egregiousness; on both the Composite and Overall Scales, cases involving white defendants and white victims score *higher* (8.93 and 4.01) than cases involving minority defendants and white victims (7.99 and 3.81). Another striking fact about kidnap-murders is that not one of the 25 cases involving only minority victims resulted in a death sentence.

Offenses involving minority defendants and white victims account for 26% (7/27) of all sexual assault murders, but 67% (2/3) of cases in which a death sentence was imposed. By contrast, offenses involving white defendants and white victims account for 63% of all sexual assault murder cases (17/27), but only one case resulting in a death sentence—the case of serial killer Michael Ross. Again, this marked difference in outcome cannot be explained by egregiousness: on both the Composite and Overall Scales, cases involving white defendants and white victims are *more* egregious (9.43 and 4.39) than cases involving minority defendants and white victims (8.73 and 4.16).

In the categories of murder of law enforcement officers and murder for hire, the only cases to result in upheld death sentences involved minority defendants and white victims. In the

law enforcement category, three of eight cases involved minority defendants and white victims, and four of eight involved white defendants and white victims. In the murder for hire category, three of seventeen cases involved minority defendants and white victims, and nine of seventeen involved white defendants and white victims. Aggregating across the two categories, minority defendant/white victim cases account for only 24% of all cases yet both death sentences, while white defendant/white victim cases account for 52% of all cases yet none of the death sentences.

We find an even more disturbing result when we compare death sentencing rates for minority defendants across cases with white and minority victims. As noted above, minority defendants received death sentences in 12% of cases with white victims (4 of 34). By contrast, minority defendants received death sentences in only 2% of cases with minority victims (2 of 92). This difference is statistically significant.[251]

5. Egregiousness and Judicial Districts

Connecticut's death penalty regime is marred by substantial within-state geographic disparities. There is dramatic variability in the ratio of death-eligible cases to death sentences imposed across judicial districts, as summarized in Table 18.

The three districts with the most death-eligible offenses together comprise 58% of all death-eligible cases (118 of 205): Hartford (53), New Haven (33), and Fairfield (32). However, together, these three districts account for only three of the ten cases in which a death sentence was imposed and upheld. By contrast, Waterbury accounts for 6% of death-eligible cases (12 of 205), but 44% (4 of 9) of all death sentences. In other words, almost half of those on death row come from Waterbury, which has only one-seventeenth of all death-eligible cases. In addition to Hartford and Fairfield, the other death sentences were imposed in New London and Hartford-New Britain, which had 15 and 9 death-eligible cases, respectively.

[251] For a Fisher's Exact one-sided test, p=0.045.

Table 18

Death Sentences and Egregiousness by Judicial District

				Composite (4-12)			Overall (1-5)		
District	# Cases	# of Death Sentences	% of Death Sentences	All	Death	Non-Death	All	Death	Non-Death
ANSONIA-MILFORD	5	0	0%	8.61	N/A	8.61	3.74	N/A	3.74
DANBURY	9	0	0%	8.12	N/A	8.12	3.49	N/A	3.49
FAIRFIELD	32	1	3%	8.61	9.56	8.58	3.56	4.27	3.54
HARTFORD	53	2	4%	8.06	7.92	8.07	3.45	3.75	3.44
HARTFORD-NEW BRITAIN	9	1	11%	8.58	8.89	8.54	3.86	4.44	3.78
LITCHFIELD	5	0	0%	9.94	N/A	9.94	4.72	N/A	4.72
MIDDLESEX	7	0	0%	8.49	N/A	8.49	3.60	N/A	3.60
NEW BRITAIN	8	0	0%	7.76	N/A	7.76	3.17	N/A	3.17
NEW HAVEN	33	0	0%	8.11	N/A	8.11	3.43	N/A	3.43
NEW LONDON	15	1	7%	8.54	11.17	8.35	3.74	4.83	3.66
STAMFORD-NORWALK	6	0	0%	7.77	N/A	7.77	3.22	N/A	3.22
WATERBURY	12	4	33%	9.22	8.96	9.35	4.08	4.17	4.03
WINDHAM	11	0	0%	8.40	N/A	8.40	3.85	N/A	3.85

In Waterbury, of twelve death-eligible cases, four resulted in upheld death sentences. Cases resulting in a death sentence have similar egregiousness scores to those that did not result in death sentences (8.96 vs. 9.35 and 4.17 vs. 4.03). 67% of cases involving white victims resulted in death sentences (4 of 6), while none of the cases involving minority victims resulted in a death sentence (0 of 6). The egregiousness scores for these two groups of cases are 8.92 and 4.08 for white victims and 9.52 and 4.07 for only minority victims. Again, the Waterbury cases involving minority victims are at least as egregious yet receive the death penalty at a lower rate. In addition, on the Composite Scale, cases involving minority victims that do not result in the death penalty are more egregious on average than cases involving white victims that *do* result in the death penalty.

Given the high egregiousness scores of the *non*-death cases in Waterbury, the imposition of the death sentence in Waterbury cannot be explained by egregiousness of offense alone. Table 19 sharpens this conclusion by comparing Waterbury with the rest of the state. The most

striking result is that death-eligible cases receive the death sentence at a rate *fourteen times higher* in Waterbury than elsewhere in Connecticut.

Table 19

Comparison of Egregiousness in Waterbury vs. Rest of State

				Composite (4-12)			Overall (1-5)		
District	# Cases	# of Death Sentences	% Death Sentences	All	Death	Non-Death	All	Death	Non-Death
Rest of State	193	5	3%	8.30	9.09	8.28	3.56	4.21	3.54
Waterbury	12	4	33%	9.22	8.96	9.35	4.08	4.17	4.03

In New London, one of fifteen death-eligible cases—the Michael Ross case—resulted in a death sentence. Its egregiousness Scores are 11.17 (Composite) and 4.83 (Overall). Remarkably, this case does not have the highest egregiousness scores in the New London judicial district; the Pickles case (the gruesome triple murder discussed above), which had the highest Scores (11.44 and 4.78), did not result in a death sentence.

In Hartford, two of 53 death-eligible cases resulted in a death sentence. On average, the cases that resulted in death sentences had similar egregiousness scores to the non-death cases (7.92 vs. 8.07 and 3.75 vs. 3.44). Fifteen non-death cases had higher Composite egregiousness scores than either death case, and eight non-death cases had higher Overall scores than either death case.

In Fairfield, one of 32 death-eligible cases resulted in a death sentence. While the egregiousness of this case is above the average scores of non-death cases—9.56 vs. 8.58 on the Composite Scale and 4.28 vs. 3.54 on the Overall Scale—this death case is still far from the worst. Nine non-death cases scored higher than this case on the Composite Scale, and six scored higher on the Overall Scale.

One of the main findings of this report is that the race of the defendant and the victim plays a powerful—and legally improper—role in influencing both charging and sentencing decisions in the Connecticut death penalty system. Table 20 summarizes some of the aggregated data from this Section into a single table, and indeed the Table visually highlights that cases in which a minority defendant kills a white victim are treated more harshly than other cases, despite not being more egregious (without regard to race).

Let's begin by looking at which of the four "race of defendant/race of victim" categories is treated most harshly. The very top line of the table shows that effectively there are really only three categories since there are only 5 cases of whites killing a minority in the sample of 205 death-eligible cases. As one can see quickly from looking at rows 1 and 2 of Table 20, the highest rate of both capital charging and sustained death sentencing occurs for minority defendants who kill white victims (column 2). Specifically, it shows that minority on white death-eligible murders are charged at 79.4 percent (over nine percentage points higher than the next closest category of white on white murders) and are sentenced to death at a rate of 11.8 percent; no other defendant/victim category is above the 4.1 percent of white on white murders.

Indeed, if one looks beyond the overall numbers of rows 1 and 2 to various sub-groups, one sees the same pattern: the category of minority on white death-eligible murders is *always* treated more harshly in charging and sentencing than other defendant/victim categories. This is true whether we look across all cases, as we have just stated, but also if one looks only at male defendants, female defendants, cases in Waterbury, or cases not in Waterbury. Table 20 underscores that in ten out of ten comparisons (overall plus the four subcategories each for both capital charging and death sentencing), the minority on white murders were treated most harshly. So that the point is visually clear in Table 20, I highlighted in black the entire box that shows the

highest overall charging or sentencing percentage for each row (with the numbers appearing in white). As one can readily see, the minority on white column (column 2) is highlighted in black for all 10 rows in the table.[252]

Table 20 establishes with unmistakable clarity that minority on white death-eligible murder cases have been treated more harshly than other death-eligible crimes. Of course, if it were the case that minority on white murders were worse than other murders, the harsher treatment might not be constitutionally impermissible. Indeed, Michelson tries to make exactly this claim—which I show in Section X.F is the result of an inexcusable error on his part. Table 20 should easily clear up the record that Michelson badly muddied: minority on white murders are *not* worse than other death-eligible cases, and Michelson is just flat out wrong in saying that they are.

Table 20 presents evidence for my three measures of deathworthiness: the Composite 4-12 egregiousness score, the Overall 1-5 egregiousness score, and a tally of the number of special aggravating factors.[253] The top white-background row of the table, which shows these three

[252] Note that row 2(b) -- examining death sentencing rates for female defendants -- highlights both the minority on white and the white on minority columns, since both had the identical numbers of zero death sentences for the single female death-eligible murders in each cell.

[253] The Special Aggravating Factors variable is generated by taking the sum of Variables 315 through 324 of the Data Collection Instrument, which are intended to capture aggravating elements of the murder. The factors included (in the order they appear on the DCI) are: (1) Methodical infliction of severe pain to punish victim, to extract information, or to satisfy sadistic urge; (2) Brutal clubbing or other unnecessarily painful method of attack; (3) Brutal stomping or beating with hands or feet; (4) Mutilation during the homicide; (5) Multiple gunshot wounds; (6) Single shot to head; (7) Multiple gunshots to head; (8) Slashed throat; (9) Multiple stabbing; (10) Other mode of multiple lethal or painful attack; (11) Extremely bloody; (12) Victim or a nondecedent victim held hostage (other than kidnap); (13) Victim or a nondecedent bound or gagged; (14) Victim or a nondecedent forced to disrobe or disrobed by perpetrator (in whole or in part); (15) Attempt to dispose of/conceal body after death; (16) Multiple victims; (17) Bodily harm to one other than a decedent; (18) Sniper killing; (19) Luring/ambushing/lying in wait; (20) Victim killed in presence of family members or close friends; (21) Ten or more stab wounds or shots, except when murder weapon was a penknife or other small cutting instrument; (22) Physical details of the crime are unusually repulsive (e.g., victim drowned in own blood); (23) Sexual assault of victim prior to killing. Since there are as many as ten potential aggravating factors coded, this variable ranges from 0 to 10, with an overall mean of 3.7.

numbers in parentheses, reveals that minority on white murders are on average *less* egregious than other categories (based on a race-blind assessment of the egregiousness of the crime).

To see this, note that the **three numbers** in the parentheses are averages for 4-12 egregiousness scores, 1-5 egregiousness scores, and total special aggravating factors, respectively. The top row shows these averages for all 205 cases (in Column 1) and for each of the four categories of breakdowns by the race of the murderer and victim. For each of these three measures, I highlight in black the highest value across the row. Across all three measures of deathworthiness, the highest average value is seen in one of the three other defendant/victim categories. For example, note that each of the three measures of deathworthiness for the 34 minority on white murders are *lower* than the three measures for the 74 white on white murders. Thus, while minority on white murders receive the harshest treatment, they are not the most deathworthy crimes on average as indicated by my three measures of egregiousness or aggravation.

The conclusion that minority on white murders are clearly *not* the worst crimes according to the deathworthiness measures is not a complicated matter or one that requires particular expertise or unusual judgment. This is a simple matter of fact. That Michelson would blatantly assert that minority on white cases are more egregious in the face of this undeniable evidence to the contrary is a telling example of how unreliable his report is.[254]

[254] Again, we must highlight that Michelson is not making a point that the deathworthiness measures don't capture the worst cases. He is arguing that on my measure of Overall 1-5 egregiousness, minority on white murders are more egregious than other types of murders. In fact, Table 20 (the top line with the white background) clearly reveals that, on average, white on white murders are more egregious than minority on white murders under both of my egregiousness measures and have more special aggravating factors.

Table 20: Capital Charging and Death Sentencing Rates in Connecticut for 205 Death-Eligible Cases by Race of Defendant/Victim

	1. Total - 205	2. Minority/White - 34	3. Minority/ Minority - 92	4. White/White - 74	5. White/ Minority - 5
Means for 4-12 and 1-5 Egregiousness & Special Aggr. Fac	(8.4, 3.6, 3.7)	(8.2, 3.6, 3.9)	(8.2, 3.4, 3.5)	(8.6, 3.8, 4.0)	(9.0, 3.8 , 2.8)
1. Rate of Capital Felony Charging (% and ratio)	67.3 (=138/205)	79.4 (=27/34)	60.9 (=56/92)	70.3 (=52/74)	60.0 (=3/5)
	(8.4, 3.6, 4.0) (8.3, 3.5, 3.3)	(8.2, 3.6, 4.1) (8.3, 3.7, 3.3)	(8.2, 3.4, 3.7) (8.2, 3.4, 3.1)	(8.7, 3.9, 4.3) (8.3, 3.6, 3.4)	(8.7, 3.8, 1.3) (9.4, 3.9, 5.0)
a. Male Defendants	68.1 (=130/191)	78.8 (=26/33)	59.8 (=52/87)	73.1 (=49/67)	75.0 (=3/4)
	(8.4, 3.6, 4.0) (8.2, 3.5, 3.4)	(8.2, 3.6, 4.1) (8.3 3.7, 3.3)	(8.1, 3.3, 3.9) (8.2, 3.4, 3.2)	(8.8, 3.9, 4.3) (8.3, 3.6, 3.6)	(8.7, 3.8, 1.3) (8.0, 3.8 6.0)
b. Female Defendants	57.1 (=8/14)	100 (=1/1)	80.0 (=4/5)	42.9 (=3/7)	0 (=0/1)
	(8.3, 3.8, 2.8) (8.8, 3.7, 2.2)	(7.1, 3.5, 4.0) (no cases)	(9.0, 4.0 , 1.8) (8.6, 3.8, 0)	(7.9, 3.5, 3.7) (8.4, 3.5, 2.3)	(no cases) (10.7, 4.1, 4.0)
c. Waterbury	75.0 (=9/12)	100 (=2/2)	60.0 (=3/5)	75.0 (=3/4)	100 (=1/1)
	(8.9, 4.0, 3.2) (10.3, 4.3, 2.7)	(8.4, 4.3 , 4.0) (no cases)	(8.5, 3.8, 2.0) (11.0, 4.4, 3.5)	(9.2, 4.0, 4.3) (9, 3.9, 1)	(9.7 , 4.2, 2.0) (no cases)
d. Non-Waterbury	66.8 (=129/193)	78.1 (=25/32)	60.9 (=53/87)	70.0 (=49/70)	50.0 (=2/4)
	(8.4, 3.6, 4.0) (8.2, 3.5, 3.3)	(8.1, 3.6, 4.1) (8.3, 3.7, 3.3)	(8.2, 3.4, 3.8) (8.0, 3.4, 3.1)	(8.7, 3.9, 4.3) (8.3, 3.6, 3.5)	(8.2, 3.5, 1.0) (9.4, 3.9, 5.0)
2. Rate of Death Sentencing (Sustained) (% and ratio)	4.4 (=9/205)	11.8 (=4/34)	2.2 (=2/92)	4.1 (=3/74)	0 (=0/5)
	(9.0, 4.2, 4.9) (8.3, 3.6, 3.7)	(8.2, 4.1, 3.8) (8.2, 3.6, 4.0)	(9.1, 4.2, 5.0) (8.2, 3.4, 3.5)	(10.1, 4.3, 6.3) (8.5, 3.8, 3.9)	(no cases) (9.0, 3.8 , 2.8)
a. Male Defendants	4.7 (=9/191)	12.1 (=4/33)	2.3 (=2/87)	4.5 (=3/67)	0 (=0/4)
	(9.0, 4.2, 4.9) (8.3, 3.5, 3.8)	(8.2, 4.1, 3.8) (8.2, 3.6, 4.0)	(9.1, 4.2, 5.0) (8.1, 3.4, 3.6)	(10.1, 4.3, 6.3) (8.6, 3.8, 4.0)	(no cases) (8.5, 3.8, 2.5)
b. Female Defendants	0 (=0/14)	0 (=0/1)	0 (=0/5)	0 (=0/7)	0 (=0/1)
	(no cases) (8.6, 3.7, 2.5)	(no cases) (7.0, 3.5, 4.0)	(no cases) (8.9, 4.0, 1.4)	(no cases) (8.2, 3.5, 2.9)	(no cases) (10.7, 4.1, 4.0)
c. Waterbury	33.3 (=4/12)	100 (=2/2)	0 (=0/5)	50.0 (=2/4)	0 (=0/1)
	(9.0, 4.2, 5.0) (9.3, 4.0, 2.1)	(8.4, 4.3 , 4.0) (no cases)	(no cases) (9.5, 4.0, 2.6)	(9.5 , 4.1, 6.0) (8.8, 3.9, 1)	(no cases) (9.7, 4.2 , 2.0)
d. Non-Waterbury	2.6 (=5/193)	6.3(=2/32)	2.3(=2/87)	1.4 (=1/70)	0 (=0/4)
	(9.1, 4.2, 4.8) (8.3, 3.5, 3.8)	(8.0, 3.9, 3.5) (8.2, 3.6, 4.0)	(9.1, 4.2, 5.0) (8.1, 3.3, 3.5)	(11.2, 4.8, 7.0) (8.5, 3.7, 4.0)	(no cases) (8.8 , 3.7, 3.0)
Column Totals for Most "Egregious/Aggravated"	**0**	**6**	**6**	**27**	**22**

The darkened boxes identify the highest rate of charging or sentencing for any given row. In every case, the harshest treatment is accorded to the minority on white murders. The shaded individual numbers show the highest levels in each row for my two measures of egregiousness and for special aggravating factors. Note that minority defendant cases tend not to be the most egregious or aggravated (as seen in the last row of the table).

Table 20 also provides additional information about my three measures of egregiousness/aggravation based on whether the cases were treated more harshly (that is, charged with capital felony or received a sustained death sentence) or not. Thus, we can see in the white box just below the row labeled (1a) that there are two sets of numbers. The top set of numbers in parentheses (below each rate figure in the lightly shaded rows) shows the average egregiousness/aggravation measures for those who were capitally charged or sentenced to death for the numerator of each subsample (in other words, those cases that were charged with capital felony/death sentence). For example, the first number in parenthesis—8.2—for the male minority/white cell under "Rate of Capital Felony" (in Row 1a, Column 2) is the mean of *all 26* 4-12 egregiousness scores for male non-white defendants charged with capital felony for killing a white victim.

The **second set** of numbers in parentheses shows the average egregiousness measures for the cases that were NOT charged with a capital felony (top panel) or did NOT receive a sustained death sentence (bottom panel). For the same example of male minority defendants who killed white victims under "Rate of Capital Felony," these would be the averages for such male defendants who were NOT charged with capital felony. For this class of defendants, the mean 4-12 egregiousness score was 8.3. (Note the apparent anomaly that those not charged with a capital felony had higher egregiousness scores—for both Composite and Overall egregiousness—than those who were charged.) The **bolded numbers** in each row represent the most extreme high values in each defendant/victim category (percentage rates, and the three egregiousness numbers in parentheses).[255]

[255] If two means are identical as listed, the table bolds the one that is higher (to decimal places beyond those shown). When the means are identical to all decimal places, they will both be bolded unless one is more extreme in terms of the number of cases (in which case the more extreme entry is bolded).

Note that one of the values of the table is to convey information on which defendant/victim class of death-eligible murders gets treated most harshly by the Connecticut criminal justice system, and which defendant/victim class of death-eligible murders is the worst in terms of two egregiousness measures and one aggravation measure. The table clearly illustrates that one group is treated most harshly: the minority on white murders have the fully blackened boxes showing the highest percentage of harsh treatment across all ten categories.

Table 20 provides strong visual evidence that on average the death-eligible crimes of white defendants are more egregious or aggravated than the crimes of minority defendants but that the system still treats the category of minority on white crimes most harshly. Interestingly, one sees many more highlighted egregiousness/aggravation numbers in the two columns corresponding to white defendants (columns 4 and 5) than in the two columns corresponding to minority defendants (columns 2 and3). Indeed, while the two columns of black defendants each has six highlighted numbers representing the most egregious/aggravated crimes for any particular row, the two corresponding numbers for the two white columns (columns 4 and 5) are 24 and 25, respectively. Of course, one needs the regression results to confirm whether the initial conclusions do in fact hold up. The short answer is, they do—as we will see in the next section: even though minorities do not commit the worst death-eligible murders, the minority on white crimes are treated the most harshly in terms of capital charging and death sentencing.

In summary, reviewing cross-tabulations of the data reveals no meaningful relationship between the egregiousness of a crime and its chances of being charged as a capital felony or resulting in a death sentence that could explain the harsher treatment accorded to minority on white murders in Connecticut. In the next section, I make the analysis more precise by introducing more powerful forms of statistical analysis. The regression analysis supports the

findings from the simple aggregated data of the presence of racial and geographic bias in the implementation of the Connecticut death penalty.

IX. REGRESSION ANALYSIS

This section discusses a regression analysis of capital charging and death sentencing decisions using data on all 205 capital-eligible cases from 1973 to 2007. The data set includes all of the information concerning race of defendants and victims, judicial districts, and offense categories discussed in the egregiousness analysis above. It also includes an additional coded variable that describes aggravating elements of the murders and an indicator variable that identifies the two temporal phases of the project. Using binary-choice regression models, I estimate the effect of legally relevant and legally suspect variables on the issues that I have discussed throughout the report—who gets charged with a capital felony and who receives a sentence of death.[256]

A. METHODOLOGY

The goal of this section is to produce a model that explains which cases are charged with a capital crime and which cases ultimately result in a death sentence. Both outcomes can be viewed as binary in that a death-eligible defendant who makes it into the sample of 205 cases is either charged with a capital felony or not, and is either sentenced to death or not. The preferred technique for modeling these kinds of dichotomous outcomes is logistic regression, which is used as a base model. The linear probability model is less reliable, particularly for low probability events, but I also present my results using this statistical approach because of its relative ease of interpretation.

Table 21 lists summary statistics for the relevant variables. **Table 21**

[256] It is not feasible to explore the issue of who is finally executed in Connecticut using a statistical model since only one individual has been executed pursuant to Connecticut's post-*Furman* death penalty regime. I therefore focus on charging and sentencing.

Summary Statistics for 205 Death-Eligible Cases, 1973 - 2007

	Mean	Std. Dev.	Min.	Max.	Number of Obs. For Which Binary Variable = 1	N
Dependent Variables						
Capital-Felony Charge	.673	.470	0	1	138	205
Death Sentence (Not Overturned)	.044	.205	0	1	9	205
Independent Variables						
Defendant White	.385	.488	0	1	79	205
Victim White	.527	.501	0	1	108	205
Defendant Minority/ Victim Minority	.449	.499	0	1	92	205
Defendant Minority/ Victim White	.166	.373	0	1	34	205
Defendant White/ Victim Minority	.024	.155	0	1	5	205
Defendant White/ Victim White	.361	.481	0	1	74	205
Special Aggravating Factors	3.737	2.167	0	10	--	205
Stranger	0.283	0.452	0	1	58	205
Prior Prison Sentence (Dummy)	0.432	0.497	0	1	82	190
Number of Prior Prison Sentences Imposed	1.172	1.907	0	7	--	186
Waterbury	.059	.235	0	1	12	205
Pre-1998 Cases	.473	.501	0	1	97	205
Defendant Female	.068	.253	0	1	14	205
Murder for Hire	.083	.276	0	1	17	205
Kidnapped	.307	.463	0	1	63	205
Sexual Assault	.132	.339	0	1	27	205
Multiple Victims	.376	.485	0	1	77	205
Under Sixteen	.224	.418	0	1	46	205
Law Enforcement Victim	.039	.194	0	1	8	205
Previous Murder Conviction	.015	.120	0	1	3	205
Defendant Sold Drugs	.000	.000	0	0	0	205
Composite Egregiousness Score (4-12)	8.355	1.146	6.11	11.44	--	205
Overall Egregiousness	3.588	.645	2.06	4.89	--	205

Score (1-5)						
Composite Egregiousness Score (4-12) (Median)	8.361	1.316	6	12	--	205
Overall Egregiousness Score (1-5) (Median)	3.654	.762	2	5	--	205
Number of Victims	1.551	1.177	1	14	--	205
Composite Egregiousness Score (Median = 5)	0	0	0	0	0	205
Composite Egregiousness Score (Median = 6)	.059	.235	0	1	12	205
Composite Egregiousness Score (Median = 7)	.210	.408	0	1	43	205
Composite Egregiousness Score (Median = 8)	.302	.460	0	1	62	205
Composite Egregiousness Score (Median = 9)	.254	.436	0	1	52	205
Composite Egregiousness Score (Median = 10)	.112	.316	0	1	23	205
Composite Egregiousness Score (Median = 11)	.044	.205	0	1	9	205
Composite Egregiousness Score (Median = 12)	.020	.139	0	1	4	205
Overall Egregiousness Score (Median = 2)	.049	.216	0	1	10	205
Overall Egregiousness Score (Median = 3)	.376	.485	0	1	77	205
Overall Egregiousness Score (Median = 4)	.449	.499	0	1	92	205
Overall Egregiousness Score (Median = 5)	.127	.334	0	1	26	205
Victim Suffering (1-3) (Median)	2.254	.848	1	3	--	205
Victim Characteristics (1-3)(Median)	2.229	.728	1	3	--	205
Defendant Culpability (1-3)(Median)	2.634	.503	1	3	--	205
Victim Suffering (Median = 2)	.220	.415	0	1	45	205
Victim Suffering (Median = 3)	.517	.501	0	1	106	205
Victim Characteristics (Median = 2)	.420	.495	0	1	86	205
Victim Characteristics (Median = 3)	.405	.492	0	1	83	205
Defendant Culpability (Median = 2)	.346	.477	0	1	71	205
Defendant Culpability (Median = 3)	.644	.480	0	1	132	205

*There is one case of a defendant -- John C. Barletta -- serving life for a previous murder conviction. We include this case in the category of "Previous Murder Conviction."
**Because of the small numbers of cases in the categories "Law Enforcement Victim," "Previous Murder Conviction," and "Defendant Sold Drugs," we don't separately control for them in my regressions but consider them to be the "omitted category."

A few points should be noted from the above summary table. First, roughly 39 percent of the sample defendants were white, as were 52.7 percent of the victims. Second, 81 percent of capital-eligible murders were same-race killings, with 45 percent involving minorities and 36 percent involving whites. Third, the table shows the mean values for the number of special aggravating factors (somewhat over 3.7 per case) and for the Composite 4-12 and Overall 1-5 egregiousness scores (8.4 and 3.6).[257] In addition, the table provides a number of different breakdowns of these two egregiousness scores: into overall median scores, individual median values and, for the Composite 4-12 egregiousness scores, breakdowns based on its four components. Fourth, only 12 cases were from the Waterbury judicial district, but, as we will see, they lead to a vastly disproportionate number of Connecticut death sentences. Fifth, fewer than 7 percent of capital-eligible defendants are female, and kidnapping and multiple victim cases are the most common death-eligible cases with 63 and 77 cases (out of a total of 205), respectively. Sixth, just under half of the cases (97 of 205) occurred before the end of 1998, and were therefore collected in the first of the two phases of data collection. Sixth, 67.3% of death-eligible cases were charged as capital felonies and 4.4% resulted in a sustained death sentence.

Appendix D reports summary statistics for the pre- and post-1998 cases, and shows that they are similar in all relevant respects, with 5 of the sustained death sentences generated during the first period and another 4 generated during the second period (with the latter figure having dropped by one when the Connecticut Supreme Court vacated the death sentence for Robert Courschesne on June 4, 2010).

B. SPECIFYING THE STATISTICAL MODEL

To generate estimates using binary-choice models, it is first necessary to specify an appropriate statistical model. Beginning with the charging outcome, my Model 1 specification

[257] The special aggravating factors are listed in the next section.

relates the probability that an individual defendant in the sample of 205 death-eligible cases will be charged with a capital felony, controlling for race (minority status) of the defendant and the victim, the degree of deathworthiness of the crime, and other attributes of the case, as follows:

(1) PR(Capital Charge | Death Eligible) = f(Constant,DM_VM,DM_VW_DW_VM,Special Aggravating Factors, Egregiousness Score, Waterbury, Pre-1998 case, ε)

Here, DM_VM is an indicator that takes on the value of 1 if both the defendant and victim are minorities, defined as everyone other than non-Hispanic whites; DM_VW is an indicator that is 1 if the defendant is a minority and the victim is white; and DW_VM is an indicator that is 1 if the defendant is white and the victim is not white.[258]

The Special Aggravating Factors variable, discussed in connection with Table 20, is a tally of factors collected in the DCI that represent aggravating elements of the crime, such as "methodical infliction of pain" or "brutal beating." The DCI codes up to ten potential aggravating factors, so this variable ranges from 0 to 10 in the sample of 205 cases, with a mean of 3.7.

[258] The data allows us to identify a greater number of demographic categories, such as Hispanic and other race, but to simplify the coding, all defendants and victims are classified either as "minority" or "white." This generates four possible defendant race×victim race interactions: white defendant/white victim ("white on white murders"); white defendant/minority victim; minority defendant/minority victim, and minority defendant/white victim. This approach has at least two advantages over the approach employed by Michelson. First, these four categories allow for far easier interpretation of interaction effects than Michelson's chaotic definition of overlapping race of defendant and victim variables. Second, Michelson's use of a greater number of racial breakdowns is particularly unwise since the number of cases that fall into each bin is too small to justify the added categories (recall that there are only 5 white on minority murders, so introducing additional racial breakdowns will not be helpful).

Note that my regressions will only include three of the four race of defendant/victim categories, which means that the coefficients for the included categories are to be interpreted as measuring effects *relative* to those for the omitted category. Thus, when the omitted category is a minority defendant killing a minority victim -- as it is in Table 22 -- the coefficient in column 2 for a minority defendant killing a white victim should be read to mean that a minority defendant killing a white victim has a 21.1 higher percentage point likelihood of being charged with a capital felony than a minority defendant killing a minority victim. Importantly, the choice of the omitted variable has no impact on the actual findings, but it does influence their presentation. (For example, if we excluded the minority on white category, then the coefficient on the indicator for a minority on minority murder would be -.211 instead of .211.)

The egregiousness score has been extensively discussed earlier. In my base model, it is a continuous variable constructed either as a Composite number ranging from 4 to 12 or an Overall Score ranging from 1 to 5. "Waterbury" is an indicator equal to one if the case is from the Waterbury judicial district. The inclusion of this variable allows one to test whether and to what extent, holding other factors constant, the fact that a murder occurs in Waterbury affects capital charging and sentencing. The "Pre-1998" variable is an indicator that reveals whether the data was collected in the initial data collection phase which went through 1998 cases, or in the second phase. When coding is conducted at different times, it is customary to include such controls in the statistical analysis to ensure greater uniformity across the entire data period.

Finally, ε represents random variation from the various omitted influences that are deemed to be orthogonal to the included variables, and the *i* subscript indicates the individual case, running from 1 to 205 for my full sample of death-eligible cases.

Model 2 then seeks to explain who actually receives a death sentence, conditional on being one of the 205 death-eligible cases, using the same basic specification as model 1. That is:

(2) PR(Death Sentence | Death Eligible) =
f(Constant,DM_VM,DM_VW,DW_VM,Special Aggravating Factors,
Egregiousness Score, Waterbury, Pre-1998 case, ε)

Logistic regression is non-linear, which means that the raw regression coefficients are not interpretable as the linear effect of a change in the independent variable on the probability of a positive outcome (i.e., the probability that a defendant is charged or sentenced to death).[259] Standard transformations of these coefficients, however, can generate average probability point estimates. Here, we use Stata's MFX command to produce these marginal effects, as a shorthand

[259] The term "independent variable" is used interchangeably in the econometrics literature and in this report with the terms "explanatory variable" or "control." The basic idea is that the explanatory variables are the factors that explain the dependent variables (which in this report are capital charging and death sentencing).

estimate of the impact the particular variable.[260] In addition, as the name suggests, my linear probability model estimates linear effects, and is thus directly interpretable as the change in the percentage-point probability of either capital-charging or receiving a death sentence for a one unit change in each explanatory variable in the model.

C. DISTINGUISHING CONTROLS FROM INTERMEDIATE OUTCOMES

Determining the appropriate explanatory variables to include in a regression is a basic requirement of any regression analysis. This task is essentially a theoretical exercise that requires the researcher to be highly knowledgeable about the important factors that influence the dependent variable of interest, and then to specify in advance which variables should be included in the researcher's statistical model. A substantial literature has developed over the proper approaches in testing for the presence of racial discrimination in social outcomes.[261] In this subsection, I discuss the consequences for my model selection of clearly distinguishing between "controls," which should be included in the model, and intermediate outcomes (which should not be included).

In *Turner v. Murray*,[262] the U.S. Supreme Court acknowledged that capital sentencing juries are given such broad discretion to choose a sentence of death that the opportunity for race to influence their decisions can be substantial:

> In a capital sentencing proceeding before a jury, the jury is called upon to make a "highly subjective, 'unique, individualized judgment regarding the punishment that a particular person deserves.'" . . . Because of the range of discretion entrusted to a jury in a capital sentencing hearing, there is a unique opportunity for racial prejudice to operate, but remain undetected. On the facts of this case, a juror who believes that blacks are violence prone or morally inferior

[260] The transformation into probabilities is purely algebraic, and simply expresses as a useful approximation a variable's marginal effect on the dependent variable when every other explanatory variable is held at its average value.

[261] For example, see the report and articles in the PANEL ON METHODS FOR ASSESSING DISCRIMINATION, NAT'L RESEARCH COUNCIL, MEASURING RACIAL DISCRIMINATION (2004), of which I was a member. Similar considerations would apply to testing for geographic arbitrariness in the implementation of the death penalty.

[262] 476 U.S. 28, 33-36 (1986) (footnotes omitted).

> might well be influenced by that belief in deciding whether petitioner's crime involved the aggravating factors specified under Virginia law. Such a juror might also be less favorably inclined toward petitioner's evidence of mental disturbance as a mitigating circumstance. More subtle, less consciously held racial attitudes could also influence a juror's decision in this case. Fear of blacks, which could easily be stirred up by the violent facts of petitioner's crime, might incline a juror to favor the death penalty.
>
> The risk of racial prejudice infecting a capital sentencing proceeding is especially serious in light of the complete finality of the death sentence. "The Court, as well as the separate opinions of a majority of the individual Justices, has recognized that the qualitative difference of death from all other punishments requires a correspondingly greater degree of scrutiny of the capital sentencing determination." *California v. Ramos,* 463 U.S. 992, 998-99 (1983). We have struck down capital sentences when we found that the circumstances under which they were imposed "created an unacceptable risk that 'the death penalty [may have been] meted out arbitrarily or capriciously' or through 'whim . . . or mistake.'" . . . In the present case, we find the risk that racial prejudice may have infected petitioner's capital sentencing unacceptable in light of the ease with which that risk could have been minimized. By refusing to question prospective jurors on racial prejudice, the trial judge failed to adequately protect petitioner's constitutional right to an impartial jury.

Similarly, a core feature of the Connecticut death penalty system is that it requires the jury (as well as the prosecutor) to make highly subjective decisions. As noted, a crucial element of every capital sentencing hearing in Connecticut is establishing the presence of an aggravating factor, which most commonly requires a judgment that a murder was committed in an "especially heinous, cruel, or depraved manner."[263] Once that hurdle is reached, highly subjective judgments must be made, taking into account things like the demands of "mercy," the nature of the defendant's history of abuse, current psychological burdens, and present-day virtues. The trier of fact must determine whether these factors are mitigating in nature and sufficient to outweigh the aggravating factors to such a degree that the defendant's life should be spared. The Supreme Court in *Turner* correctly recognized that the opportunities are considerable for racial or other biases to influence these decisions.

[263] See the discussion of Table 8 in Section VII, *supra*, discussing how this catchall aggravating factor is the one most often relied upon in securing sentences of death.

This discussion not only underscores the need to test for the presence of racial discrimination in capital sentencing, but also guides the process of that testing. As the Supreme Court made clear in *Turner*, both the race of the defendant and the victim must be considered in testing for the possibility of racial bias, which has led to my decision, discussed above, to include an array of race-of-defendant, race-of-victim controls. At the same time, the facts of the murder itself are relevant to a model explaining capital sentencing outcomes, and these facts must be ascertained to the greatest extent possible without reference to (and when possible without even knowledge of) the racial characteristics of the defendant and victim. As a result, the race-blind egregiousness measures and the count of the special aggravating factors are legitimate control variables. Similarly, controls for the time period, judicial district in which the crime was committed, and the nature of the offense that enables a capital felony charge are also appropriate controls that influence capital outcomes without the potential of being tainted by a biased decision-maker. Accordingly, all of these appropriate pre-treatment controls are included in the statistical models in this report.

These objective, pre-treatment variables should be contrasted with variables reflecting a jury determination of the presence or absence of aggravating or mitigating factors. Michelson seems to think these would be useful control variables, but he is wrong for both practical and theoretical reasons. First, since only 29 of the 205 cases involved a penalty hearing, the jury determination variables will only be available in those 29 cases, a small subset. Since data is needed on 205 cases (or at least some large subset of 205) to run meaningful regressions, Michelson's suggestion is essentially worthless: meaningful regression results concerning the operation of the Connecticut death penalty regime will not be generated from 29 observations.

Second, one cannot simply enter into a regression on the full sample of 205 cases an identifier of the presence of an aggravating or mitigating factor based on a *jury* finding of such a factor. The reason is that aggravating and mitigating factors are present both in the sample of the 29 cases that went to a penalty trial as well as in the 176 that did not. It would therefore be a serious error to use a jury finding of, say, an aggravating factor (which could only occur in one of the 29 cases that went to a penalty trial) as a measure of whether an aggravating factor was actually present in any of the 205 cases. The folly of this approach should be clear: for some subset of the 29 cases, one would observe a jury finding of, say, an aggravating factor but for the other 176 cases there would be no possibility of generating such a finding—even if the aggravating factor was unassailably present in some of the 176 cases![264]

A valid regression analysis requires similar information about each case and information on jury assessments of aggravating and mitigating factors is not available for those cases that do not go to a penalty trial. This is why we look to the facts of the case—such as the nature of the offense, the egregiousness score and attributes of the defendant, or the tally of special aggravating factors—to define my explanatory variables, and not to procedural judgments that will only provide information on a fraction of the cases. Relying on explanatory variables that are themselves influenced by a dependent variable that one is trying to explain (for example, you don't get to a penalty hearing if you are never charged with a capital offense) would be a fundamental econometric blunder.

[264] One could imagine that data could have been collected which would identify all statutory aggravating and mitigating factors that were present in every case even if not confirmed in a penalty phase hearing. This is a potentially dangerous practice though since the access to information would likely be greater in penalty phase hearings, thus leading to more complete descriptions of statutory aggravating and mitigating factors depending on whether the case got to a penalty hearing. In part for this reason, the DCI never identified the presence of statutory mitigating factors unless there was a penalty trial. The same is true for statutory aggravating circumstances in the first phase of data collection, which meant that neither of these variables would be available for use in a regression analysis on the full data.

Ironically, Michelson criticizes the **specagg** variable, which counts the number of "special aggravating features of the offense," by arguing that I don't explain my choice to count *only* these special aggravating factors.[265] It seems Michelson's criticism is that I choose to consider a count of the number of special aggravating features of the offense, but not special aggravating features pertaining specifically to the victim and defendant, also shown by specific questions in the DCI (questions 92 and 104, respectively). To generate a count of special aggravating factors pertaining to (1) the offense, (2) the defendant, and (3) the victim, however, would double-count certain features of the murder; the **specagg** variable considers specific characteristics of the murder relating to *both* the victim and the defendant. To avoid this double-counting, one of the three measures should be used and I chose to employ the count that captures the most information: accordingly, I used the information from question 93 rather than questions 92 or 104 in creating the **specagg** variable.

Moreover, this choice is consistent with my overall model selection strategy of including the most informative variables given my need to limit the overall number of explanatory variables. This **specagg** variable is an appealling complement to the more subjective egregiousness measures, and is therefore useful for capturing the traits that define the "worst of the worst" murders in the data. As I've previously shown, the "cruel, heinous, or depraved" statutory aggravating factor is the most commonly found aggravating factor in Connecticut capital felonies. The **specagg** variable certainly captures characteristics of a murder that would make it particularly "cruel, heinous, or depraved."[266]

[265] Michelson Report, August 20, 2010, at 109.
[266] Moreover, as the **specagg** count may reach as high as 10 and sums more detailed information, it introduces relevant variation to the regressions.

Third, the jury determinations are likely to be the vehicle through which discriminatory judgments are made and thus are not appropriate controls. Rather, these jury assessments are deemed to be "intermediate outcomes" (on the path to ultimate outcomes such as a death sentence). For example, Samuel Gross and Robert Mauro discuss empirical evidence that "official *descriptions* of homicides by prosecutors were affected by racial considerations."[267] Accordingly, it should not be surprising that race would influence the highly subjective judgments that must be made before a sentence of death is handed down. It is clearly established in the literature that one should *not* control for such post-treatment intermediate outcome variables, which are likely to be influenced by the treatment of interest (the criminal justice system's perception of the racial characteristics of the defendant and victim).[268]

Consequently, rather than relying on a post-treatment decision that identifies whether the trier of fact found an aggravating or mitigating factor, I provide a pre-treatment egregiousness assessment of each case based on a scrubbed summary that conceals evidence of the race of both defendant and victim and the procedural outcomes of the case (that Michelson artlessly tries to reintroduce). This race-blind egregiousness score that is purged of the subsequent procedural history is a useful, reliable, and valid measure of deathworthiness as I discuss in further detail below.

Furthermore, under the Connecticut death penalty regime, juries need not specify what factor they found to be mitigating, so that even when a mitigating factor is found, there is usually

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[267] Samuel Gross & Robert Mauro, *Patterns of Death: An Analysis of Racial Disparities in Capital Sentencing and Homicide Victimization*, 37 STAN. L. REV. 27, 78, 96 (1984).

[268] *See,* Andrew Gelman and Jennifer Hill, *Data Analysis Using Regression and Multilevel/Hierarchical Models* 189 (2007); Daniel Ho, *Why Affirmative Action Does Not Cause Black Students To Fail the Bar,* 114 Yale L.J. 1997 (2005). The analogy often used is that if one were testing for whether smoking increases one's chance of death, one should not control for the presence of lung cancer, since that is not an appropriate pre-treatment covariate but is rather a post-treatment intermediate outcome, which will in turn influence the ultimate outcome of death. A researcher who failed to heed this advice would likely "find" that, controlling for lung cancer, smoking does not increase one's risk of death—an obviously erroneous conclusion.

no way to know what the factor is. To see this, consider the description of *State v. Griffin*,[269] as described by the Connecticut Supreme Court in a subsequent death penalty case:[270]

> On November 1, 1993, the defendant and another individual, Gordon ''Butch'' Fruean, Jr., entered the home of the defendant's former girlfriend. While there, the defendant and Fruean attacked two individuals. The defendant shot each victim, one of them multiple times. Upon realizing that the victims were still alive, the defendant stabbed them both multiple times. Again realizing that the victims were still alive, the defendant smashed a glass mason jar over one victim's head and a ceramic lamp over the other victim's head.
>
> The state, at the defendant's penalty phase hearing, sought to prove the aggravating factor that the defendant had committed the murders in an especially heinous, cruel or depraved manner. The defendant claimed twenty mitigating factors.
>
> The jury returned a special verdict finding that the state had proved the aggravating factor beyond a reasonable doubt for both of the murders…. *The jury further found that the defendant had proved the existence of an unspecified mitigating factor or factors*….The trial court imposed a sentence of life imprisonment without the possibility of release.[271] (emphasis supplied.)

Obviously, there is no way to identify what fact or set of considerations led the jury to find a mitigating factor in the *Griffin* case. Perhaps the jurors were persuaded that the defendant did not have a violent nature, despite the evidence of this atrocious crime, or perhaps for religious or moral reasons they felt mercy should be extended to all criminal defendants. All that can be said is that the jury extended leniency to the defendant, and by *not* controlling for the *finding* of a mitigating factor, we can assess whether that judgment was based on the nature of the crime or instead was a product of race, gender, geography, or other illegitimate factors.

Michelson combs through the hundreds of death-eligible cases and finds a few where he thinks that the mitigating evidence was strong and that that factor explains why some white defendants did not receive harsher treatment. For example, Michelson seems to think that the Guy Levine case should be identified with a variable indicating clear mitigating evidence that

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[269] 741 A.2d 913 (Conn. 1999).
[270] *State v. Breton*, 824 A.2d 778 (Conn. 2003).
[271] *Id.* at 837-38 (citations and footnotes omitted).

would bar a death sentence, citing "State had never filed a notice of intent to seek the death penalty, in large part due to the extensive psychiatric history of Defendant."[272] Michelson continues: "If defendant had a good chance to avoid death through mitigation, why was no variable indicating presence of a race-neutral death-avoiding factor coded and entered into Donohue's equation?"[273]

Michelson's statement is ill-informed for a number of reasons. First, his assertion that one should use an identifier for cases in which the defendant had a "good chance" to avoid a death sentence because of mitigating factors is fanciful. Michelson seems to have overlooked the fact that there are 205 death-eligible cases in the sample and only 9 sustained death sentences. Since there is only a 4.4 percent chance that a death-eligible defendant will be given a sustained death sentence, virtually every case could be listed as having "a good chance to avoid death through mitigation." The type of subjective coding exercise that Michelson's "good chance" rule would require would pose insurmountable difficulties. Perhaps Michelson would code such a variable by looking to see how the case was processed through the system, for example, by noting that the prosecutor did not seek the death penalty in a given case. Of course, this would be exactly the mistake discussed earlier: it is a fundamental error to code the factors that are supposed to explain capital outcomes by looking at what those outcomes were to decide how to code one's variables.

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[272] Michelson Report, Part B, p. 115 (August 20, 2010).

[273] *Id.* Michelson's suggestion that the lenient treatment accorded to some white defendants can be explained by mitigating factors is pure speculation. Note that Eduardo Santiago (an 18 year old minority who killed a white) had the following trio of deathworthiness scores: (3.4, 7.1, 1) while Guy Levine (a 35 year old white who killed two whites) had the following scores: (3.5, 8.4, 6). That is, Santiago, who was just a few months away from being too young to be eligible for the death penalty, committed a crime that was lower in every egregiousness/aggravation measure than Levine, while both had significant mitigating elements (see the discussion of Santiago's harsh childhood and experience in foster care, orphanages, and psychiatric hospitals in the text at footnote 227). Yet only one (Santiago) is on death row. My regression analysis, which *does* incorporate the coders' assessments of Levine's psychiatric problems as noted below, simply does not support Michelson's faulty anecdotal argument.

Second, a far better way to handle the issue of Levine's psychiatric problems is to include this information in the summaries that the coders examined in coding for egregiousness. If that factor is truly mitigating in a race-blind determination, then the coders would reflect that in making their judgment about the culpability of the defendant in light of the circumstances of the crime in the Composite 4-12 egregiousness score, or with respect to their overall assessment of egregiousness in the 1-5 measure. This is exactly how the Levine case was handled in my analysis. Thus, the 18 egregiousness coders considered the following language in reviewing the summary of the two murders that Levine committed: "Defendant had an extensive history of psychiatric problems and treatment, including many years as an inpatient at an exclusive psychiatric hospital." If that factor was truly mitigating in the eyes of the coders, then the underlying fact of Levine's psychiatric problems would lead to a lower egregiousness score that would then explain the less harsh treatment he received.

Conversely, Michelson's "good chance" coding suggestion would require a coder to make an immensely difficult decision about a) what is mitigating, and 2) whether it is sufficiently mitigating to generate a "good chance" that a death sentence would be avoided (all hopefully while ignoring whether a death sentence was in fact avoided in a given case). But the factors that constitute mitigation are constitutionally unbounded, difficult to describe, and often generate disagreement. This should not be surprising in the first instance given the broad statutory definition of mitigating factors under the Connecticut death penalty: "such [factors] as do not constitute a defense or excuse for the capital felony of which the defendant has been convicted, but which, in fairness and mercy, may be considered as tending either to extenuate or reduce the degree of his culpability or blame for the offense or to otherwise constitute a basis for a sentence less than death." Conn. Gen. Stat. §53a-46a(d). The issue of what constitutes mitigation has

been extensively examined and, as a number of studies have found, elements that one set of jurors finds to be *mitigating* are often found by other jurors (or in cases with different defendants) to be *aggravating*. Indeed, the literature discusses how these discrepancies can be at the core of the racial discrimination in the administration of capital punishment.[274]

To see the problems inherent in Michelson's suggested "good chance" standard, how would he treat a case of significant intoxication on the part of the defendant at the time the crime was committed? Is that mitigating in the sense that the defendant's judgment is impaired by intoxication, or is it aggravating in the sense that the defendant is acting irresponsibly? Does it matter if the intoxication is from alcohol or from an illegal drug, even when the degree of mental impairment is the same in both cases?

A preferable approach is to let the coders take these factors into account in making their egregiousness coding judgments. This allows them to have the context of the crime (in a race-blind description so that what might seem mitigating for an in-group member is not deemed aggravating for an out-group member). Thus, in the Curtis Bowman case, the summary indicates that the crime was committed while the defendant "was under the influence of crack and PCP."[275] The coders then considered this information in rendering their ultimate judgment on the two different egregiousness measures. This is far better than assessing whether that fact created a "good chance" that a death sentence would be avoided.

Finally, standard econometric principles inform us that even if there remain some additional mitigating factors that are not fully controlled for in the statistical model, we would *not* expect to obtain downward biased estimates on the key variables of race and geography.

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[274] See the studies discussed in Section IV.C, Controlled experiments and social science evidence on the pathways of racially biased decision making in capital sentencing, at 53-57 and Justice White's majority opinion in *Turner v. Murray*, 476 U.S. 28, 35 (1986), discussed above in footnote 135.

[275] The case is listed in my files as Project No. 113.

Recall that if any remaining mitigating factors for which the model does not control are unrelated to race, then the estimated race effects, which were seen to be large and statistically significant for minority on white murders, will be unbiased. Bias could occur if such elements of mitigation were systematically related to race, but since the heart of most arguments for mitigation are the terrible childhood circumstances in terms of abuse, neglect, and psychological strains and problems, we would expect that, if anything, minority defendants would have *greater* claims for mitigation. There is certainly not the slightest reason to think that minority defendants suffer these problems to a lesser degree than white defendants. Accordingly, the absence of further controls for mitigation in addition to what is captured in the coding summaries should not be problematic and might well understate the estimates of the extent of the racial bias in capital charging and sentencing.

The same reasoning would apply to the estimated effect of Waterbury. There is no reason to think that cases in Waterbury are less likely to show evidence of mitigation than cases elsewhere in the state, so my finding that Waterbury cases receive death sentences at a higher rate than those in other jurisdictions is unlikely to be influenced by additional controls for mitigation. Of course, Michelson has fully recognized and acknowledged the harsher capital sentencing in Waterbury, which means that he concedes there is no omitted variable bias problem to worry about, at least with respect to the impact of geography.

Indeed, a similar set of principles applies in calculating the estimated impact of my two primary deathworthiness variables: the egregiousness measures and my pre-treatment measure of special aggravating factors. Again the basic principle is that if any uncontrolled-for mitigating factors are uncorrelated with the deathworthiness variables, then the models will generate unbiased estimates of the impact of these two deathworthiness variables. On the other hand, if

these mitigating factors are correlated with egregiousness, it matters whether the correlation is positive or negative. Ordinarily, as a statistical tendency one would most plausibly assume that the correlation between the egregiousness of the crime and any uncontrolled dimension of mitigation will be *negative*. Thus, it is likely that those who commit the most atrocious acts (as measured by the egregiousness scores and the special aggravating factors) will tend, on average, to be the worst offenders across the board. Or put differently, it will likely be the case on average that the more heinous the crime, the less prevalent will be factors that weight in favor of a reduced sentence owing to the demands of fairness and mercy. If this statistical tendency is correct, then omitting additional controls for mitigating factors will serve to *increase* the size of the estimated effect of "egregiousness" on the risk of receiving a death sentence. In this event, one should expect that the statistical models will tend to exaggerate the impact of egregiousness on capital sentencing.

Indeed, the only situation under which my estimated effect of egregiousness on capital sentencing would be downward biased would be if more egregious cases were associated with a *reduced* likelihood of finding statutory aggravating factors and an *increased* likelihood of finding mitigating factors. In other words, my estimate of the impact of my deathworthiness factors on capital sentencing would be understated only in the situation in which the worse the crime, the less likely a defendant would be to get the death penalty. I assume the state is not anxious to make that claim, because it would in fact turn the concept of aggravation on its head. It would indeed be an incoherent death penalty regime if, on average, the more atrocious the elements of the crime, the more likely the defendant would be to avert execution.

Note that a jury finding of an aggravating factor tells us relatively little since every case in this sample was screened to ensure that a statutory aggravating factor was present. Obviously,

some cases are more egregious, which increases the likelihood that an aggravating factor would be found, but the model controls for the egregiousness of the crime to capture this information. No further control based on a jury finding is necessary or desirable.

D. RESULTS

As the previous discussion of the extensive literature of death penalty systems from around the country has shown, a common finding is that minority on white murders are treated most harshly. Thus, it is perhaps not altogether surprising that Table 20 reveals a similar racially disparate pattern in the Connecticut death penalty system. Of course, if minority on white murders were the most egregious, then the observed outcome might be legitimate. But we saw in Table 20 that *on average* minority defendants who have committed a death-eligible murder score *lower* than white defendants on the two egregiousness measures and the count of special aggravating factors. Accordingly, the dramatic facial evidence in Table 20 powerfully suggests the presence of racial discrimination in the operation of the Connecticut death penalty system, both in capital charging and in sentencing.

To confirm that the picture that emerges from the aggregate data is correct, we now turn to superior tool of multiple regression, which enables an analysis of the details of each of the 205 individual cases rather than reliance on overall averages. Specifically, the regression tests this proposition of racial discrimination by examining the treatment of all four racial defendant/victim breakdowns while controlling for 1) the egregiousness of the crime (measured in two different ways); 2) the presence of special aggravating characteristics; and 3) five additional explanatory variables designed to capture the nature of the applicable capital-felony crime category that applied to each murder case, whether or not that factor was charged. The

five crime categories included in the model are 1) Murder For Hire, 2) Kidnapping, 3) Sexual Assault, 4) Multiple Victims, and 5) Under Sixteen Years of Age.[276]

Tables 22 and 23 present the estimated effects derived from the regression analysis, with columns 1–3 presenting the results using the Composite 4-12 egregiousness measure and columns 4–6 depicting the results using the Overall 1-5 egregiousness measure. These tables use the identical explanatory variables but differ in that Table 22 describes the capital-felony charging decisions, while Table 23 explains the imposition of a sustained death sentence.[277] In

[276] Other possible categories were Police Killings, Murder by Lifer, Murder by One with Prior Murder Conviction, and Death by Illegal Drugs. In my sample of 205 cases, there are eight Police Killings and three murders by one with a Prior Murder Conviction. These then are the reference cases against which the other crime probabilities are to be assessed.

[277] My analysis examines both the initial charging decision amongst the potential death-eligible cases and the final outcome of sustained death sentences. Michelson argues that I should have used a different set of cases when analyzing charging decisions and when analyzing sentencing outcomes. For example, he asserts, "Cases charged as capital crimes should be included when studying charging, but cases determined by judge or jury not to be capital crimes should be excluded from the analyses of sentencing for capital crimes." (Michelson Report, August 20, 2010, at 81.) Yet again, Michelson's criticism is simply wrong.

When studying capital charging one needs to look at *all death-eligible cases*. Michelson's statement that "cases charged as capital crimes should be included" is baffling. To explain capital charging you cannot just look at "cases charged as capital crimes." We are trying to explain which death-eligible cases are charged as capital cases, so we need to include the universe of death-eligible crimes. This set necessarily includes both cases that are charged as capital felonies and cases that are not so charged. Michelson's suggestion that we only include the first is nonsensical.

Having explored which death-eligible cases are charged with capital felonies, it is also instructive to similarly explore which death-eligible cases lead to a sustained death sentence. While there might be other issues that one could also explore, these are the most vital and critical elements of Connecticut's capital punishment regime, and Michelson's failure to understand that reflects poorly on his judgment.

Note that Michelson's suggested approach can yield highly misleading findings. For example, imagine a situation in which there are ten minority defendants and ten white defendants, all of whom committed homicides whose facts plausibly support a capital felony charge and a death sentence. Further imagine that juries will not convict a white defendant of a capital felony except in the most extreme circumstance -- a clear and unmistakable case of unconstitutional racial bias. As a result, all ten of the minority defendants but only one of the white defendants are convicted of a capital felony (the other nine are convicted of lesser homicide charges) and the white defendant is sentenced to death (having committed the most extreme crime), as are five of the nonwhite defendants.

But we just saw how Michelson says he would conduct his analysis: "cases determined by judge or jury not to be capital crimes should be excluded from the analyses of sentencing for capital crimes." Michelson's approach would erroneously lead him to conclude that the system is biased against whites because the percent of defendants convicted of a capital felony who are sentenced to death is 100% for whites (1 of 1) and only 50% for minorities (5 of 10). However, if one is interested in the operation of the judicial system as a whole, and which perpetrators of death-eligible homicides are sentenced to death, the Michelson approach generates the precisely incorrect answer. In this hypothetical, the important fact is that 10% of white capital-eligible defendants and 50% of minority capital-eligible defendants receive the death sentence. My analysis would reflect that fact, while Michelson's assessment of capital sentencing would not.

Michelson makes this error, and others, because he is confused about the purposes of my analysis and about the case for which he has been hired as an expert. For example, he criticizes me for including, in the sentencing

both tables, the first column (thus, columns 1 and 4 of the Tables) presents the logit coefficient estimates. Just to the right of the logit coefficients (columns 2 and 5), I present the related marginal effect of the particular explanatory variable. Finally, the corresponding linear probability estimates appear to the right of the marginal effects (columns 3 and 6).

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analysis, a case where the prosecutor filed a capital felony charge later dismissed by the judge in the case: "Such cases should not be in the data when the equation is testing a jury's response to evidence." (Id. at 104.) Michelson would be correct if this were a case about "a jury's response to evidence" or of juries in general, or of penalty phases. But it is not. It is a study of the capital charging decisions and the application of the death penalty by the Connecticut criminal justice system as a whole.

Michelson's misunderstanding of the purpose of the Donohue Report and the relevant issues in this case pervades his report. For example, while discussing another case that ended in a plea bargain, Michelson says, "Surely the state and defendant did not go to a penalty hearing in which Mr. Berrios was eligible for the death penalty. Donohue's logit and regression data say they did." (*Id.* at 88.) My data make no such claim; they say only that Berrios's crime made Berrios potentially eligible for a capital felony charge and a death sentence, that he was charged with a capital felony, and that he did not receive a death sentence. Michelson mistakenly criticizes my report because he doesn't understand -- or seeks to avoid -- the relevant issues.

Table 22

Explaining Capital Charging in 205 Connecticut Death-Eligible Cases, 1973 – 2007,

	Dependent Variable = Capital Charges | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.779 (0.407)*	0.153	0.138 (0.074)*	0.638 (0.394)	0.128	0.115 (0.074)
Defendant Minority/ Victim White	1.252 (0.556)**	0.211	0.223 (0.091)**	1.209 (0.576)**	0.207	0.221 (0.094)**
Defendant White/ Victim Minority	0.090 (0.889)	0.018	0.013 (0.204)	-0.056 (1.020)	-0.012	-0.014 (0.222)
Composite Egregiousness (4-12)	-0.413 (0.221)*	-0.086	-0.070 (0.039)*			
Overall Egregiousness (1-5)				-0.199 (0.362)	-0.042	-0.034 (0.067)
Special Aggravating Factors	0.261 (0.107)**	0.054	0.045 (0.018)**	0.211 (0.105)**	0.044	0.037 (0.019)*
Waterbury	0.403 (0.691)	0.077	0.075 (0.126)	0.196 (0.773)	0.040	0.042 (0.138)
Pre-1998 Cases	1.138 (0.364)**	0.230	0.212 (0.070)**	1.022 (0.344)**	0.209	0.200 (0.070)**
Murder for Hire	0.884 (0.698)	0.153	0.196 (0.127)	1.042 (0.708)	0.176	0.225 (0.130)*
Kidnapped	-0.454 (0.468)	-0.097	-0.095 (0.085)	-0.529 (0.457)	-0.115	-0.109 (0.085)
Sexual Assault	0.481 (0.703)	0.092	0.098 (0.119)	0.320 (0.688)	0.064	0.072 (0.118)
Multiple Victims	0.987 (0.504)*	0.193	0.185 (0.087)**	0.667 (0.450)	0.134	0.133 (0.081)
Under Sixteen	1.448 (0.586)**	0.246	0.278 (0.108)**	1.094 (0.555)**	0.198	0.221 (0.105)**
Constant	1.608 (1.563)		0.765 (0.285)**	-0.601 (1.121)		0.388 (0.214)*
R^2 or Pseudo R^2	0.146	0.146	0.172	0.132	0.132	0.159
N	205	205	205	205	205	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10

The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.

In this and the following table, columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.

Table 23

Explaining Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007

	Dependent Variable = Death Sentences | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant Minority/ Victim Minority	-0.146 (1.296)	-0.001	0.001 (0.028)	-0.101 (1.539)	-0.001	0.008 (0.030)
Defendant Minority/ Victim White	2.462 (1.095)**	0.046	0.084 (0.055)	2.511 (1.166)**	0.037	0.084 (0.054)
Defendant White/ Victim Minority	Dropped†		-0.058 (0.073)	Dropped†		-0.060 (0.074)
Composite Egregiousness (4-12)	-0.253 (0.287)	-0.002	0.001 (0.013)			
Overall Egregiousness (1-5)				1.675 (0.738)**	0.009	0.031 (0.029)
Special Aggravating Factors	0.304 (0.169)*	0.002	0.006 (0.008)	0.223 (0.181)	0.001	0.003 (0.009)
Waterbury	6.132 (1.625)**	0.688	0.333 (0.134)**	4.987 (1.617)**	0.364	0.320 (0.135)**
Pre-1998 Cases	-0.928 (1.182)	-0.006	0.005 (0.030)	-0.741 (1.381)	-0.004	0.003 (0.031)
Murder for Hire	4.635 (1.956)**	0.319	0.103 (0.074)	4.571 (2.022)**	0.252	0.107 (0.072)
Kidnapped	1.468 (1.053)	0.014	0.050 (0.048)	0.906 (1.062)	0.006	0.045 (0.048)
Sexual Assault	2.765 (0.963)**	0.065	0.072 (0.057)	1.431 (0.829)*	0.013	0.059 (0.058)
Multiple Victims	3.275 (1.171)**	0.049	0.051 (0.050)	2.124 (1.161)*	0.017	0.052 (0.055)
Under Sixteen	0.874 (1.944)	0.008	0.021 (0.050)	0.322 (2.000)	0.002	0.006 (0.050)
Constant	-6.901 (3.213)**		-0.083 (0.111)	-14.122 (3.498)**		-0.167 (0.101)
R^2 or Pseudo R^2	0.398	0.398	0.192	0.423	0.423	0.197
N	200	200	205	200	200	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10

The omitted category from the race of defendant and victim variables is defendant White/victim White.

Columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.

† Dropped due to perfect prediction.

E. THE EFFECT OF RACE ON CAPITAL CHARGING AND DEATH SENTENCING

The first three variables in both Tables 22 and 23 capture the breakdowns of the defendant and victim into white and minority status. Looking at the second row, one immediately sees the pattern observed above in Table 20: Connecticut death-eligible cases that involve a minority defendant and a white victim receive a charge of capital felony and are sentenced to death at a substantially *higher* rate.

How do these tables tell us that minority on white murders are treated more harshly? To see this, first note that the sample has again been divided into four racial groups based on the status of minority or white for the defendant and the victim (as done in Table 20).[278] Three pieces of information are depicted in row 2 of Tables 22 and 23 (which shows how minority on white cases fare relative to other types of cases, while controlling for the factors specified above). First, notice the direction of the effect: as seen in Table 20 above, minority on white murders are treated more harshly at the capital sentencing phase than, for example, white on white murders with similar characteristics would be treated. This relatively harsher treatment of minority on white murders is shown by the sign of the six estimated effects in row 2 of each table: every one of these estimated effects is positive, suggesting that minority on white murders are treated *worse*, while controlling for the other factors included in the regression that describe the nature of the crime and how egregious or aggravated it was.

[278] Note that the regression only depicts three racial groups because it is econometrically necessary to drop one group from the regression. Any one of the three racial groups can be dropped without influencing the overall results, but in reading off the value of one of the estimated coefficients for a particular racial group, it should be remembered that this value is relative to the omitted category. Thus, if we estimate that minority on white capital charging is 21 percentage points higher (as show in Row 2, Column 2 of Table 22), this means that minority on white cases are charged at a 21 percentage point higher rate than the omitted category of minority on minority murders, controlling for all of the other variables in Table 22. Note that if we had dropped the minority on white category, then the estimate of for minority on minority crimes would have been -21 percentage points, reflecting the identical fact that minority on minority murders are charged capitally at a 21 percentage point *lower* rate. The choice of which category to exclude is therefore simply a matter of convenience.

Second, note the magnitude of the effect: not only are minority on white murders getting harsher treatment controlling for all of the factors specified above, but this harsher treatment is substantial. Minority on white murders are charged as capital felonies at a roughly 21 or 22 percentage point higher rate (see columns 2, 3, 5, and 6 in row 2 of Table 22) and receive death sentences at a roughly 4 to 8 percentage point higher rate (see columns 2, 3, 5, and 6 in row 2 of Table 23). A sense of the importance of these estimated effects can be gained by comparing these effects against the overall charging and sentencing rates. For instance, the overall rate of capital charging from the data set of 205 death-eligible cases is roughly 67 percent (as indicated in Table 21). Clearly, a 21 or 22 percentage point increase in charging for a racially defined class of crimes is a notably large number. Similarly, when the overall death sentencing rate in the sample is only 4.4 percent (see Table 21), an elevated death sentencing rate for minority on white crimes on the order of magnitude of 4 to 8 percent is obviously sizeable. Indeed, the harsher sentencing of minority defendants who kill whites is even greater (proportionally) than the increase in the capital charging rates experienced by this same group. The proportionally greater death sentencing rate suggests that minority on white murders receive harsher treatment not only by virtue of initial prosecutorial decisions to *charge* death-eligible cases as capital felonies, although this is clearly one component, but also because of subsequent racially biased decisions of prosecutors and/or judges and juries subsequent to the initial charging decision.

The third factor that we can distill from Tables 22 and 23 is that the estimated effects are indeed statistically significant at the conventional .05 level. One can see this for all of the estimates in row 2 of Table 22 and for all of the logit estimates in Table 23 (the tables identify statistical significance at the .05 level or greater with two asterisks by the estimated effect).[279]

[279] I chose to show both logit and linear probability estimates since both approaches have some virtues. Logit is more conceptually correct than the linear probability model since it will constrain the estimates to fall between 0 and

Race has a powerful and statistically significant effect on both charging decisions and death sentencing in the state of Connecticut. Moreover, this effect comes through equally powerfully whether one uses my Composite 4-12 measure of egregiousness based on four factors that were designed to channel the egregiousness assessment (generating the estimates in the first three columns of the Tables) or whether one uses my Overall (more intuitive) 1-5 measure of egregious (shown in columns four through six).

One other fact about the capital sentencing regression in Table 23 should also be noted: there are no logit estimates associated with the white defendants who murder minority victims. The reason is that logit models are based on the natural logarithm of the odds of certain events, which will be undefined if one of the events occurs either all of the time or none of the time. In my data, none of the five cases of white defendants killing minority victims ended up with a sustained sentence of death. Therefore, the logit model does not give an estimated death sentence probability for this racial configuration, as indicated in Table 23 by the "Dropped" designation. The linear probability model is not so constrained, so it does generate an estimated effect for white on minority murders. Given the fact that none of these murders resulted in a sustained death sentence, the linear probability estimate unsurprisingly suggests a large negative effect on death sentencing. But since there are only five such cases, the estimate is not statistically significant.

1, which is necessary when speaking of probabilities. The column 1, logit estimates are not intuitive, however, so column 2 provides marginal estimates that are converted into percentage point effects based on the mean values for all explanatory variables. The linear probability model is less theoretically plausible but has the virtue of 1) being able to give estimates when logit cannot (since logit will never produce an estimate when there is a zero or 100 percent probability for a particular category); and 2) being easier to interpret and at times giving more meaningful estimates of the actual percentage point differential that applies to a particular variable (since the logit marginal effects are somewhat artificial).

Note in Table 22 both the logit and linear probability estimates are statistically significant for the minority on white crimes, but that in Table 23 only the logit estimates are statistically significant. In this case, one reposes more confidence in the logit estimates, which are theoretically more appropriate. The linear probability estimates are mis-specified, and tend to perform less well when the probabilities being estimated are smaller as they are for death sentencing (as opposed to capital charging). The fact that Michelson only relies on linear probability estimates therefore turns out to be a major problem in his report.

F. GEOGRAPHIC ARBITRARINESS IN DEATH PENALTY OUTCOMES: THE IMPACT OF WATERBURY

A persistent element of the charge of geographic arbitrariness in the implementation of the Connecticut death penalty has been that Waterbury is the outlier judicial district in Connecticut. My regression analysis in Tables 22 and 23 is well suited to test the proposition of whether, holding legitimate deathworthiness factors constant, death-eligible cases in Waterbury are treated more harshly either in capital charging or in death sentencing.

Table 23 suggests unequivocally that death-eligible cases are substantially more likely than otherwise identical cases to receive a sentence of death in Waterbury than in the rest of the state. The effect is extremely large and highly statistically significant. While only 4.4 % of the 205 capital-eligible cases in my sample received a (sustained) sentence of death, capital-eligible defendants in Waterbury are sentenced to death, holding the other specified factors constant, at a rate 32-69 percentage points higher than non-Waterbury defendants.[280] Taking the low-end point estimate would still suggest that the same death-eligible murder in Waterbury would receive a sustained death sentence at over 7 times as high a rate as elsewhere in Connecticut.

One question that has been debated is whether the Waterbury prosecutor brings capital charges at a higher rate than other jurisdictions, or simply prevails in securing a death sentence at a higher rate than other jurisdictions. Table 22 generates point estimates that the impact of being in Waterbury is to elevate the probability of having a death-eligible case charged as a capital felony by 4-8%, albeit with a low level of statistical significance given the small sample size.

Taken in tandem, Tables 22 and 23 show that while there may be some enhanced likelihood of capital charging in Waterbury, the capital charging decision is not what is making

[280] The lower figure is found in Table 23 column 5 (the estimated marginal effect from the logit model using the Overall egregiousness measure) in the row identifying the Waterbury judicial district as an explanatory factor; the higher figure can be found in Table 23 column 2 (the estimated marginal effect from the logit model using the Composite egregiousness score).

Waterbury stand out: the increased capital *sentencing* comes overwhelmingly not from the higher charging rate but from the vastly higher rate of securing death sentences. This higher capital sentencing rate is so considerable that one can think of Waterbury as having a functionally different death penalty regime than exists in the rest of the state.

Given the constitutional demand that the death penalty be limited to the "worst of the worst" cases, geographic disparity in the administration of a state's death penalty regime is highly problematic: a murder committed in one part of the state that is not "the worst of the worst" does not suddenly rise to this level of egregiousness if committed in another judicial district. Of course, geographic disparities may be found in other elements of the criminal justice system, but what is accepted in those areas is not necessarily permissible in the administration of a capital sentencing scheme: the U.S. Supreme Court has been unwavering in the view that "death is different" and that procedures and disparities that are accepted in other parts of the criminal justice system can be constitutionally impermissible in implementing capital punishment.

Chief Public Defender Gerard Smyth, appearing before an informational hearing on the Connecticut Death Penalty before a joint committee of Connecticut House and Senate lawmakers on January 31, 2005, testified as follows on the issue of the arbitrariness of the state's death penalty system:

> I have heard [Waterbury State's Attorney] Mr. Connelly recently, and [Chief State's Attorney] Mr. Morano this morning, say that the death penalty is reserved for the worst of the worst. And while I would not suggest in any way that the people on death row have not committed highly egregious crimes, in reality, that statement that they are the worst of the worst is simply not true.
>
> For example, we have had 33 convictions of multiple murders since the early 1980's, when prosecutions began under this statute. Of those 33 people convicted of multiple murders, only 2 have been sentenced to death, Robert Breton and Robert [Courchesne, whose death sentence was vacated on June 4 2010], both out of the Waterbury Judicial District. All the others, the 31 others,

> have been sentenced to life imprisonment without the possibility of release or some lesser sentence.
>
> We are talking about people who have killed, in some instances three or four or even five people at the same time. Quite frankly, there are many people who are doing life sentences who are worse than the people on death row.
>
> And when I say that, what I mean is that they are worse in terms of their prior record, they are worse in terms of mitigating evidence they had available to present, they are worse in terms of their degree of remorse, and they are worse in terms of the number of persons they killed and the amount of damage and harm they have caused to their victims.
>
> And so, when you look at what differentiated those 2 people who got death from the other 31 who didn't, I would point out that both came from the Waterbury Judicial District.
>
> . . .
>
> The point is that there is a lot of money and a lot of effort expended on everyone's part for a very small of number of death sentences that are actually imposed. And in terms of arbitrariness, of the ten death sentences that have been imposed under our statutes, one was reduced to life imprisonment by the Supreme Court. So there are then a total of nine death sentences. And of the nine, six were in the Waterbury Judicial District, two were in the Hartford Judicial district, and one, the Ross case, was in the New London Judicial District.
>
> And so there are no death sentences in the remaining ten judicial districts throughout the state. So I think it is clear that there is no consistency in which the manner the death penalty is administered. The law is not being applied evenly around the state, and it is indisputable that it is arbitrary factors that determine who it is that is actually sentenced to death.[281]

Although the precise figures presented by the Chief Public Defender in early 2005 are less up to date than the numbers provided herein, the evidence presented in this report continues to strongly support his conclusion concerning the arbitrariness of the Connecticut death penalty regime and his position that the death penalty in Connecticut is *not* reserved for the worst of the worst. The enormous geographic disparities in capital sentencing contribute to an overall pattern of arbitrariness in the implementation of the Connecticut death penalty. Recent studies in New

[281] Connecticut General State Assembly Judiciary Committee Public Hearing Transcripts, January 31 2005 at 2:00PM. Available from http://www.cga.ct.gov/2005/juddata/chr/2005JUD00131-R001400-CHR.htm. Accessed 3/14/2011.

York, Nebraska, and Virginia have all identified intra-state geography as a strong and problematic determinant of who receives the death penalty.[282]

Descriptions of the Waterbury State's Attorney's conduct in capital cases suggest that he may be more aggressive than other Connecticut prosecutors in his efforts to secure sentences of death in capital cases. For example, the Connecticut Supreme Court majority opinion in *State v. Reynolds,* 836 A.2d 224 (2003), is replete with admonitions concerning improper conduct by the State's Attorney during the course of the penalty trial that led to a sentence of death for Richard Reynolds. Presumably, the State's Attorney engages in this conduct because he believes it will increase the chance of securing a death sentence, which may reflect a greater enthusiasm for capital prosecution, leading to the observed dramatic geographic disparity in the implementation of the death penalty. While the Court found that the series of improper remarks did not warrant reversal of Reynold's death sentence, few prosecutors are singled out for the type of rebuke that Justice Katz offered in her dissent:

> The state's attorney's behavior in this case was calculated to undermine the legitimacy of the defendant's mitigating factors on the basis of a wholly irrelevant consideration, namely, the extent to which defense counsel personally believed in the merits of the defendant's case. Additionally, the conduct of the state's attorney improperly was '''directed to passion and prejudice' '' and ''calculated to incite an unreasonable and retaliatory sentencing decision, rather than a decision based on a reasoned moral response to the evidence.'' *Lesko v. Lehman*, 925 F.2d 1527, 1545 (3d Cir. 1991). By injecting inflammatory emotional considerations, expressing his personal opinions about the merits of the defendant's case, vouching for the credibility of the state's witnesses and injecting his oath into the jury's deliberative process, the state's attorney invited the jury to reach a verdict, in a capital case, based on factors outside of the evidence. This invitation allowed an improper and, indeed, unconscionable diminishment of the jury's responsibility. . . .

[282] New York Capital Defender Office, CAPITAL PUNISHMENT IN NEW YORK STATE: STATISTICS FROM EIGHT YEARS OF REPRESENTATION (1995-2003) (Aug. 2003); NEBRASKA COMM'N ON LAW ENFORCEMENT AND CRIMINAL JUSTICE, THE DISPOSITION OF NEBRASKA CAPITAL AND NON-CAPITAL HOMICIDE CASES (1973-1999): A LEGAL AND EMPIRICAL ANALYSIS (Oct. 2002); JOINT LEGISLATIVE AUDIT AND REVIEW COMM'N, VA. GEN. ASSEMBLY, REVIEW OF THE VIRGINIA SYSTEM OF CAPITAL PUNISHMENT (Jan. 2002), *available at* http://jlarc.state.va.us/reports/rpt274.pdf.

> Past experience has demonstrated that merely to reprimand, *once again*, a state's attorney who engages in deliberate misconduct that undermines the fairness of a trial does not sufficiently convey disapproval of those tactics. I would conclude, therefore, that nothing short of reversal will deter similar misconduct in the future. Accordingly, mindful of all of the circumstances involved in this case, I would reverse the judgment imposing the death sentence and order a new penalty phase hearing.[283]

It is difficult to state whether, and to what extent, this potentially overzealous conduct on the part of the Waterbury State's Attorney explains the aberrationally larger probability that death-eligible cases in Waterbury will result in capital sentences. Now that Connelly has been forced out of his position as State's Attorney during a corruption investigation in Waterbury,[284] it will be possible if data is collected going forward to identify the extent to which this single individual influenced the extremely disparate capital sentencing results in that judicial district.

Justice Katz's comments illustrate the difficulties of policing overzealous prosecutorial conduct, which, if unchecked, can contribute to arbitrary outcomes across judicial districts. Geographic disparity is nearly inevitable in the administration of the Connecticut death penalty as long as the decision of whether to seek a death sentence rests with thirteen State's Attorneys with no centrally administered process to ensure that gross disparities do not become the norm. The mainstream press have recognized the uneven administration of the state's death penalty, with a *New York Times* editorial bluntly indicating: "Connecticut state prosecutors have been inconsistent about who gets charged with capital crimes."[285]

The arbitrariness that results from allowing individual State's Attorneys to decide which cases to pursue for the death penalty, however, would seem to be easily addressed. Instead of the current system, one could simply require that all the State's Attorneys must unanimously agree

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[283] *Id.* at 393-94.
[284] See footnote 242, *supra*.
[285] Jeffrey A. Meyer & Linda Ross, *All Prosecution is Local*, N.Y. TIMES (Mar. 4, 2007), *available at* http://www.nytimes.com/2007/03/04/opinion/nyregionopinions/04CTmeyer.html.

to seek the death penalty in a given case.[286] This allows any individual prosecutor to exercise his existing discretion to be lenient, which is necessary to ensure that the system operates with a sense of proportion. If the prosecutor decides *not* to bring the case as a death penalty case, no change is needed in current practice. Conversely, if the prosecutor decides to seek the death penalty, the other State's Attorneys could be convened to evaluate the prosecutor's arguments, with the case allowed to proceed if unanimous consent could be generated. This would not be a burdensome requirement since only in the relatively limited number of cases where a prosecutor believes the death penalty is warranted would the collective judgment need to be made.[287] The gains in uniformity of application of the death penalty system would seem to dwarf any logistical costs. In this way, the system would ensure that a case that could never get a death sentence in, say, New Haven doesn't receive one in Waterbury.

Alternatively, the state could look to the approach taken when the federal justice system reworked its own death penalty charging procedure in 1995 by establishing a centralized review system. In cases where a United States Attorney charges conduct punishable by death (regardless of whether he or she actually wishes to seek the death penalty), the federal death penalty system launched in 1995 mandates that he or she must submit a number of materials to the Capital Case Unit of the Department of Justice. Among the required materials are:

> a memorandum detailing the facts of the case;
> the background and criminal record of the defendant;
> the background and criminal record of the victim;
> a standardized death penalty evaluation form;
> the indictment; and
> any materials that the defense counsel chooses to submit.[288]

[286] The federal system requires a similar style of review for proceeding with capital charges.
[287] As the 2003 Report of the Connecticut Commission on the Death Penalty observed, "Connecticut has had far fewer death penalty convictions than most other states with the death penalty."
[288] UNITED STATES ATTORNEYS' MANUAL § 9-10.080 (2010).

These materials are then forwarded to the Capital Case Review Committee, a group of senior Department of Justice attorneys. In any case where the U.S. Attorney wishes to seek the death penalty (or upon a Committee member's request in cases where the U.S. Attorney declines to seek death), the Committee holds a conference with defense counsel and representatives of the local U.S. Attorney's Office.[289] At this in-person meeting, defense counsel are free to make their case as to why the United States should not pursue the death penalty.

After the hearing, the Committee makes its recommendation to the Attorney General, who makes the final decision of whether to seek the death penalty.[290] The United States never seeks a death penalty without first giving defense counsel the opportunity to present mitigating evidence to the Capital Case Review Committee and without first ensuring that the case has been thoroughly reviewed by the central Committee.[291]

The *United States Attorneys' Manual* recognizes the unfortunate outcomes that would follow if each of the ninety-four United States Attorneys had the unfettered discretion, as Connecticut prosecutors now possess, in deciding when a death sentence would be appropriate. As the manual explains, "the multi-tier process used to make determinations in this Chapter is carefully designed to provide reviewers with access to the national decision-making context, and thereby, to reduce disparities across districts."[292]

The recommendation for a centralized review process in Connecticut is not new. After several days of hearings, the State Commission on the Death Penalty in Connecticut recommended that a committee of State's Attorneys be established to review those cases where

[289] *Id.* at § 9-10.120
[290] *Id.*
[291] *Id.*
[292] *Id.* at § 9-10.130

the local prosecutor wishes to seek the death penalty.[293] The Commission recommended that the federal review system serve as a model for Connecticut.[294]

My analysis confirms the problems that the State Commission suspected: the capital sentencing rates in Connecticut vary significantly by judicial district. Whether a particular capital-eligible defendant finds himself facing the possibility of death depends as much as anything else on where he happened to commit the crime. This is a straightforward example of the arbitrary and capricious administration of criminal justice stemming from the unfettered discretion awarded to prosecutors.[295]

We have discussed two possible ex ante procedures to address the immense geographic disparities in the Connecticut death penalty system. Adopting either of these would be a simpler and more effective way to ensure greater uniformity in the death penalty process than relying upon ex post review for uniformity. But at present the Connecticut system offers neither this ex ante nor any reliable ex post protection against arbitrariness. Indeed, since 1995 when Connecticut's original statutory requirement of proportionality review was legislatively repealed, the state has had even less protection against arbitrariness than it had initially. The 2003 Report

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[293] STATE OF CONNECTICUT COMMISSION ON THE DEATH PENALTY, STUDY PURSUANT TO PUBLIC ACT NO. 01-151 OF THE IMPOSITION OF THE DEATH PENALTY IN CONNECTICUT 35 (2003).

[294] *Id.*

[295] Death penalty studies in other states that afford wide prosecutorial discretion have reached similar conclusions. *See, e.g.*, JOINT LEGISLATIVE AUDIT AND REVIEW COMMISSION OF THE VIRGINIA GENERAL ASSEMBLY, REVIEW OF VIRGINIA'S SYSTEM OF CAPITAL PUNISHMENT 28 (2002) ("[I]f the goal of the General Assembly in revising the State's capital punishment statutes was to create a statewide system in which death cases are distinguished from non-death cases by concrete and relevant factors such as the vileness of the crime, the future dangerousness of the criminal, and the nature of the evidence then it has not achieved this goal. The findings of this study are equally clear that local prosecutors do not consistently apply the death penalty statutes based on these factors. Cases that are virtually identical in terms of the premeditated murder and predicate offense, the associated brutality, the nature of the evidence and the presence of the legally required aggravators are treated differently by some Commonwealth's Attorneys across the State."); NEBRASKA COMMISSION ON LAW ENFORCEMENT AND CRIMINAL JUSTICE, THE DISPOSITION OF NEBRASKA CAPITAL AND NON-CAPITAL HOMICIDE CASES (1973-1999): A LEGAL AND EMPIRICAL ANALYSIS 67 (2002) (explaining that defendant culpability does not explain geographic disparities in death penalty charging rates).

of the Connecticut Commission on the Death Penalty noted that proportionality review served "a purpose … not addressed by other existing forms of review. Without it, no review is undertaken to address the problem of inconsistency from case-to-case in the imposition of the death penalty statewide or to insure that the death penalty is being administered in a fair and even-handed manner."[296] Given the strong influence of race and geography on death penalty decisions in Connecticut, some major steps would be needed to provide greater safeguards against arbitrary, capricious, and discriminatory capital sentencing decisionmaking. Accordingly, the Connecticut Commission made the following recommendation:

> To (1) ensure that the death penalty is being administered in a rational, non-arbitrary, and even-handed manner, (2) provide a check on broad prosecutorial discretion, and (3) prevent discrimination from playing a role in the capital decision-making process, Connecticut should reinstate proportionality review of any death sentence to ensure that it is not excessive or disproportionate to the sentence imposed in similar cases.[297]

For any scheme of review to police the boundaries of arbitrariness in implementation of the Connecticut death penalty, it is necessary to collect detailed information about death-eligible cases, preferably "contemporaneously with the prosecution of such cases."[298] Although many states mandate the collection of such data, Connecticut has studiously avoided the collection of the type of data that was amassed and analyzed in this report – even though it is precisely this information that is essential to ensure that the system is operating in a permissible fashion.[299] Again, the 2003 Report of the Connecticut Commission on the Death Penalty made a relevant recommendation on this point:

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[296] COMMISSION REPORT, *supra* note 38, at 44.
[297] *Id.* at 46.
[298] *Id.* at 21.
[299] Prior to their relatively recent abolition of the death penalty, New York and New Jersey authorized the collection of detailed contemporaneous death penalty data by the State Capital Defender's Office and the Judiciary, respectively. The 2003 Report of the Connecticut Commission on the Death Penalty, at 21.

> All agencies involved in capitol felony cases should collect and maintain comprehensive data concerning all cases qualifying for capital felony prosecution (regardless of whether the case is charged, prosecuted or disposed of as a capital felony case) to examine whether there is disparity. This should include information on the race, ethnicity, gender, religion, sexual orientation, age, and socioeconomic status of the defendants and the victims, and the geographic data collected as recommended by Item 4. This data should be maintained with respect to every stage of the criminal justice process, from arrest through imposition of the sentence.[300]

G. SUMMARY: THE EFFECT OF RACE AND GEOGRAPHY ON CAPITAL CHARGING AND SENTENCING

Tables 22 and 23 reveal that race and geography—factors entirely unrelated to any legitimate retributive or deterrence interest of the state—have a large and statistically significant impact on capital charging and sentencing decisions in Connecticut. To convey just how large an impact these factors have on capital sentencing, I used the logit models from Table 23 to highlight the very different probabilities that different racial combinations of defendants and victims will receive death sentences inside and outside Waterbury. These predictions, which are presented in Tables 24, show how the probability of a receiving a death sentence changes as the racial or geographic characteristics of the murder change (holding everything else constant). Regardless of which measure of egregiousness is used, the strong influence of race and geography on the probability of receiving a death sentence is readily seen.

Looking at the first row of Tables 24, one sees that holding the egregiousness of the case (on the 4-12 Composite scale) and the special aggravating factors at mean levels, a white killer of a white victim (during the post-1998 period) is predicted to have a .53% probability of receiving a sustained sentence of death if the crime occurred outside Waterbury. The same crime

[300] COMMISSION REPORT, *supra* note 38, at 26. I should note that it is considerably less expensive to collect the data contemporaneously than to do what had to be done for the data analysis in this report: go back over many decades and track down records on various cases to ascertain which murders were death eligible and capture details of the crimes and their prosecutions.

committed inside Waterbury is predicted to have a probability of 71.18% of receiving the death sentence– a value over 134 times as high (see column 4 of row (A)).

Table 24

Predicted Probabilities That a Capital-Eligible Case Will Receive a Sustained Death Sentence (Across all Cases)

Death Sentence – (EGR 4-12) **Table 23, column (1)**	Predicted Pr (Death Sentence) Outside Waterbury (1)	Predicted Pr (Death Sentence) Inside Waterbury (2)	Percentage Point Difference "Inside" vs. "Outside" Waterbury (2)-(1) (3)	(2)/(1) (4)
Post 1998				
White Defendant—White Victim (A)	0.53%	71.18%	70.64	134.30
Minority Defendant—Minority Victim (B)	0.46%	68.10%	67.64	148.04
Minority Defendant—White Victim (C)	5.92%	96.66%	90.74	16.33
(C)/(A)	11.17	1.36		
(C)/(B)	12.87	1.42		
Death Sentence – (EGR 1-5) **Table 23, column (4)**				
Post 1998				
White Defendant—White Victim (A)	0.39%	36.17%	35.78	92.74
Minority Defendant—Minority Victim (B)	0.35%	33.88%	33.53	96.80
Minority Defendant—White Victim (C)	4.55%	87.47%	82.92	19.22
(C)/(A)	11.67	2.42		
(C)/(B)	13.00	2.58		
These estimated probabilities are based on a case with mean values for the other explanatory variables in Table 23.				

Note: These logit estimates come from logit models identical to those in Table 23 that are based on the specific variables identified in Tables 24 and then on mean values for all other explanatory variables listed in Table 23 that are not specifically mentioned in Tables 24. Since Robert Courchesne's death sentence was reversed, there are no white defendant/minority victim cases that have received a sustained death sentence, rendering a logit-based prediction impossible for white on minority murders.

Table 25

Predicted Probabilities That a Capital-Eligible Case Will Generate a Sustained Death Sentence (Omitted Crime Category)

Death Sentence – (EGR 4-12) Table 23, column (1)	Predicted Pr (Death Sentence) Outside Waterbury (1)	Predicted Pr (Death Sentence) Inside Waterbury (2)	Percentage Point Difference "Inside" vs. "Outside" Waterbury (2)-(1) (3)	(2)/(1) (4)
Post 1998				
White Defendant—White Victim (A)	0.04%	15.00%	14.96	375.00
Minority Defendant—Minority Victim (B)	0.03%	13.23%	13.20	441.00
Minority Defendant—White Victim (C)	0.45%	67.43%	66.98	149.84
(C)/(A)	11.25	4.50		
(C)/(B)	15.00	5.10		
Death Sentence – (EGR 1-5) Table 23, column (4)				
Post 1998				
White Defendant—White Victim (A)	0.07%	9.14%	9.07	130.57
Minority Defendant—Minority Victim (B)	0.06%	8.34%	8.28	139.00
Minority Defendant—White Victim (C)	0.84%	55.34%	54.50	65.88
(C)/(A)	12.00	6.05		
(C)/(B)	14.00	6.64		
These estimated probabilities are based on a case using the omitted murder category along with mean values for the other explanatory variables in Table 23.				

Note: These logit estimates come from logit models identical to those in Table 23 for the post-1998 period based on the "omitted category," which includes the following types of murders: Police Killings, Murder by Lifer, Murder by One with Prior Murder Conviction, and Death by Illegal Drugs. As indicated in Table 24, no logit estimates are possible for white defendant/minority victim cases.

Comparing the row (A) and (C) probabilities, one sees that a minority defendant killing a white victim would have a substantially greater chance of receiving a death sentence relative to white/white murders, and this is true whether one is inside or outside Waterbury. Moreover, the

probability of receiving a death sentence is again found to be dramatically higher within Waterbury. While point estimates of these probabilities by racial category, period, and judicial district are inevitably less precise than overall effects, the range in estimated effects is nonetheless striking. The probability of a sentence of death being handed down to a death-eligible defendant, holding the egregiousness and special aggravating factor scores at mean levels, ranges from a low of 0.35% for minority/minority murders occurring outside Waterbury (using the 1-5 Overall egregiousness score estimates) to a high of 96.66 % for a minority/white murder in Waterbury (using the 4-12 Composite egregiousness scale).

The lesson of Table 24 is clear: race and geography play an enormous role in influencing death sentencing in Connecticut. Moreover, the table is not generating anomalous results because I estimated an overall effect for all capital-eligible murders (in the post-1998 period). If we instead simply rely on the omitted crime category of Table 25 (rather than estimate an average effect for all the murder types as we did in generating the estimates in Tables 24) or limit our focus in Table 26 to the single most common type of capital murder—those with multiple victims—one again sees the enormous significance of race and geography in capital sentencing in Connecticut.

For example, the enormously higher rates of capital sentencing experienced by minority defendants who kill white victims or by those committing capital murders in Waterbury is again immediately apparent in Table 25, which looks at the omitted category of crimes in Table 23 (Police Killings, Murder by Lifer, Murder by One with Prior Murder Conviction, and Death by Illegal Drugs). The same racial and geographic disparities are also evident in Table 26, which looks at multiple victim homicides, which are the single most common type of capital-eligible murders in the data set. The essential message across Tables 24-26 is that for the various murder

categories depicted, the likelihood that a death-eligible murder will result in a death sentence is at least an order of magnitude higher for minority on white murders. Minority on white murders will also have an order of magnitude higher probability of receiving the death sentence in Waterbury versus elsewhere in the state, and all other murders will have roughly two orders of magnitude higher rates of death sentencing in Waterbury versus elsewhere. These are prodigious race and geographic effects on who is sentenced to die in Connecticut.

Table 26

Predicted Probabilities That a Capital-Eligible Case Will Generate a Sustained Death Sentence (Multiple Victim Cases)

Death Sentence – (EGR 4-12) Table 23, column (1)	Predicted Pr (Death Sentence) Outside Waterbury (1)	Predicted Pr (Death Sentence) Inside Waterbury (2)	Percentage Point Difference "Inside" vs. "Outside" Waterbury (2)-(1) (3)	(2)/(1) (4)
Post 1998				
White Defendant—White Victim (A)	1.00%	82.36%	81.35	82.36
Minority Defendant—Minority Victim (B)	0.87%	80.14%	79.27	92.11
Minority Defendant—White Victim (C)	10.64%	98.21%	87.57	9.23
(C)/(A)	10.64	1.19		
(C)/(B)	12.23	1.23		
Death Sentence – (EGR 1-5) Table 23, column (4)				
Post 1998				
White Defendant—White Victim (A)	0.57%	45.69%	45.12	80.16
Minority Defendant—Minority Victim (B)	0.52%	43.21%	42.69	83.10
Minority Defendant—White Victim (C)	6.61%	91.20%	84.59	13.80
(C)/(A)	11.60	2.00		
(C)/(B)	12.71	2.11		
These estimated probabilities are based on a case using the most common murder category (multiple victims) along with mean values for the other explanatory variables in Table 23.				

Note: These logit estimates come from logit models identical to those in Table 23 for the post-1998 period for a multiple victims murder, which is the most common murder category overall. As indicated in Table 24, no logit estimates are possible for white defendant/minority victim cases.

Although the extent of the county-by-county variation in death penalty administration in Connecticut is enormous, as these tables illustrate, Connecticut is certainly not alone in this respect. Adam M. Gershowitz, Professor of Law at the University of Houston Law Center, has recently written on the need to eliminate within-state geographic disparities in capital punishment because they are embarrassing to the legal system and intolerably arbitrary, thereby undermining public confidence in the criminal justice system in death penalty states. [301]

This arbitrariness is the inevitable result of a system that privileges local decision making at the expense of uniformity and justice. Gershowitz found many extreme disparities in death penalty states throughout the nation. For example, in the state of Pennsylvania, Philadelphia accounts for only 12% of the total state population but accounts for 48% of Pennsylvania's death row inmates.[302] Yet a similarly large county, Allegheny County, which includes Pittsburgh, accounts for only 4% of Pennsylvania's death row inmates while encompassing 10% of the state population.[303] Meanwhile Harris County, Texas, which includes Houston, accounted for 28% of all of Texas's death sentences between 1976 and 2008 but only 16% of total state population. Yet 130 out of Texas's 254 counties never sent an inmate to death row during this same time period, belying the common impression that the entire state of Texas vigorously prosecutes capital crimes.[304]

Gershowitz also documented similar county-by-county disparities in Maryland, New York,[305] Ohio, and Tennessee. But the grave geographic disparities in Connecticut are even

[301] Adam Gershowitz, Statewide Capital Punishment: The Case for Eliminating Counties' Role in the Death Penalty, 63. Vand. L. Rev. 307 (2010), internal citations omitted.
[302] *Id.* at 315.
[303] *Id.*
[304] *Id.* at 316.
[305] Before New York's capital punishment statute was found unconstitutional by the New York Court of Appeals.

more troubling because they exist despite its state-wide system of choosing judges and prosecutors. The states Gershowitz studied all have locally elected district attorneys and, with the exception of Maryland, also all have locally elected judges. Thus one can at least make an argument that in these other states geographic disparities can be in furtherance of the electoral preferences of voters. In contrast, Connecticut has a statewide, unified system to appoint judges and prosecutors, so one would expect its administration of the death penalty to be uniform across the state as well.

H. THE EFFECT OF EGREGIOUSNESS AND SPECIAL AGGRAVATING FACTORS ON CAPITAL CHARGING AND SENTENCING

I have already shown that race and geography play a dramatically large role in influencing outcomes in the Connecticut death penalty regime, even when controlling for the egregiousness of the crime (as assessed in two different ways by a team of 18 coders), the number of special aggravating factors associated with the crime, and the general type of murder. Since I have controls for these factors that—unlike race and geography—may have a legitimate relationship in determining the worst of the worst death-eligible cases that can permissibly receive a sentence of death, we can also explore the impact they are having on capital charging and sentencing decisions.

The story that emerges from Tables 22 and 23 is that while the illegitimate—or in legal jargon, arbitrary and capricious—factors of race and geography are powerful influences on sentencing outcomes in Connecticut, the legitimate factors of deathworthiness captured in the two egregiousness measures and the count of special aggravating factors are in general far less systematically important in determining outcomes among the death-eligible cases.

Interestingly, different actors seem to be influenced by these three legitimate deathworthiness factors in different ways. Thus, if we look at charging behavior, which

represents prosecutorial conduct, we see that the two egregiousness measures actually have the wrong sign, ostensibly suggesting that more egregious death-eligible cases are *less likely* to be charged as capital felonies (Table 22). At the same time, the count of the special aggravating factors is positively and significantly correlated with capital charging. In fact, the conflicting signs between the egregiousness measures and the special aggravating factor tally is in part a reflection of the high correlation between these two deathworthiness measures.[306]

This multicollinearity suggests that rather than investing too much significance in either the egregiousness measure alone or the deathworthiness measure alone, one should think of their combined effect on charging (since it is not really possible to hold one constant while varying the other). But the opposing signs on these two deathworthiness measures (born of multicollinearity) simply means that increases in the various elements capturing deathworthiness—egregiousness and special aggravating factors—will have little overall impact on charging as shown by the fact that their estimated effects tend to offset. Note that the rather modest effect of the deathworthiness factors on charging stands in contrast to the large racial impact on charging, with minority on white crimes charged at a roughly 20-22 percentage point *higher* rate than a minority who murdered a minority victim, other things being held constant (see Table 22).[307]

The unimportance of the Composite egregiousness score continues when we look at death sentencing in Table 23, but the Overall egregiousness score now seems to influence who gets a

[306] One can see in Table 26 below that if we drop the egregiousness measure from Table 22, the size and significance of the special aggravating factors variable fall, which confirms that egregiousness and special aggravating factors are correlated (which turns out to lead to conflicting estimated effects that tend to offset). As the discussion of Tables 26 and 27 notes, though, whether one drops the egregiousness variables or both deathworthiness measures, the estimated effects of race and geography are unchanged.

[307] If we were to view the effects of egregiousness and special aggravating factors individually, a one standard deviation *increase* in either the Composite 4-12 or Overall 1-5 egregiousness scores would actually *decrease* the likelihood of a capital charge by 7 and 3.4 percentage points, respectively. A comparable one standard deviation increase in the special aggravating factors would increase the likelihood of charging by 4.5 percentage points, which is decidedly lower than the 20-22 percentage point race effect noted above.

death sentence, as shown by the statistically significant logit estimate in column 4 of Table 23. Note though that the magnitude of this effect is slight. The special aggravating factors, which did influence charging decision, have become less significant in Table 23, and are slight in magnitude in any event.

To see this, the column 5 estimates in Table 23 can be used to assess the relative importance of egregiousness and race to the likelihood of receiving a death sentence. Note that learning that a black rather than a white defendant had killed a white victim would cause the estimate of the probability of a death sentence to jump by 3.7 percentage points, which is a considerably higher effect than the almost 2.7 percentage points jump in probability that would result from increasing the Overall 1-5 egregiousness of the murder from the lowest observed level to the highest observed level (3*.009 =2.7 percentage points).[308] Moreover, the column 5 estimated effect of the special aggravating factors of .001 is too small to matter materially. Of course, all of these effects on the probability of receiving a death sentence would be swamped by the massively larger effect of having an identical murder occur on one side or the other of the boundary demarcating the Waterbury judicial district (which is estimated at 36.4 percentage points in Column 5 of Table 23).

The findings about the strong race and geographic effects in capital charging coupled with the generally weak and inconsistent influences of the deathworthiness of the murder (under two separate egregiousness metrics and my tally of aggravating factors of the crime) provides additional support for the conclusions drawn above in Section VIII about the arbitrary and random processing of death-eligible cases. In other words, deathworthiness in the sense of identifying the "worst of the worst" capital-eligible murders (as measured in my egregiousness

[308] The range of Overall egregiousness scores in my sample of 205 cases is roughly three -- from a low value of 2.06 to a high value of 4.89 (Table 15).

and special aggravating factors variables) is a relatively weak influence in Connecticut's capital punishment system compared to the arbitrary and capricious factors of race and geography.

I. EXTENSIONS AND ROBUSTNESS CHECKS

The regression evidence makes out a strong case that arbitrary and capricious elements play an enormous role in determining the charging and sentencing outcomes in death-eligible cases in Connecticut. Even after controlling for legitimate factors that influence capital outcomes, the race of defendants and victims still has a statistically significant impact both on who gets charged with a capital felony and who gets sentenced to death. Moreover, the arbitrary factor of geography has an enormous influence on the likelihood a death-eligible case will result in a death sentence. Indeed, these arbitrary factors are far more influential than the legitimate deathworthiness factors of the egregiousness of the crime and the special aggravating factors, which of necessity means that Connecticut's death penalty regime fails to single out the worst of the worst for execution. These are core findings of this report.

There are some notable advantages with the specifications used in Tables 22 and 23 to generate these core findings. In particular, the use of an egregiousness measure to capture an overall picture of the deathworthiness of a murder has a number of advantages over an attempt to define specific attributes of a murder that might be deemed to influence deathworthiness. First, it is difficult to identify ex ante the specific factors that reflect deathworthiness of death-eligible murders, yet this needs to be done if one wants to include variables in a valid regression model. Michelson's approach of just throwing in hordes of variables to see what turns out to have an impact is *not* an appropriate approach to regression modeling, but rather is a recipe for generating nonsense results.

Second, using Michelson's "hordes of variables" approach quickly creates a serious problem with a data set of 205 observations and only nine death sentences: trying to estimate

lots of variables on a relatively limited data set quickly runs into the statistical problem referred to as the curse of dimensionality. As Michelson's regression analysis shows, you can always generate estimates by running a regression, but they are unlikely to be meaningful if the number of estimated parameters is too large relative to the number of observations. There is no free lunch in econometrics; estimating more parameters from a fixed amount of data always comes at a cost. Having an egregiousness measure that captures much information about the crime in a single number is useful since using this single variable put fewer demands on the regression model by reducing the number of variables that must be estimated (thereby wisely reducing dimensionality and bolstering the stability of the estimates).

Third, as seen above in the discussion of Table 23 for white on minority cases, when the number of observations relevant to any particular variable is small, it may be impossible to generate logit estimates. Indeed, in that Table, all five white on minority cases were dropped from the logit analysis of capital sentencing. As we will see below, adding extra variables—whether to control for the gender of defendants or to complicate the measure of egregiousness—leads to yet further cases dropping out of the logit estimates. This occurs for the technical reason that when the regression equation includes an explanatory factor that predicts an outcome perfectly—such as, female defendant perfectly predicts *not* being sentenced to death in Connecticut—the logit model is undefined if those observations remain in the sample (hence they are dropped). Since it is generally advisable to avoid dropping observations, especially when the data set is not large to begin with, this consideration constitutes yet another advantage of the specification in Tables 22 and 23.

Fourth, another potential advantage of these two tables in using a single egregiousness measure averaged across the 18 coders is that it constrains the effect of egregiousness on capital

charging or death sentencing to be monotonic. In other words, as either the 4-12 Composite egregiousness measure or the 1-5 Overall egregiousness measures rise, they must lead to a uniform impact on the likelihood of capital charging or death sentencing. This constraint can be useful in testing for a number of important issues in this case, such as 1) whether race or geography matters in capital sentencing; 2) whether the capital punishment regime is limiting its harshness to the worst of the worst cases; and 3) whether the system is operating arbitrarily and capriciously. If the egregiousness measure were allowed to operate in a non-monotonic way so that increases in deathworthiness could "explain" more lenient treatment, then the tests of these important issues could be compromised. Conceivably, without the monotonicity constraint, a claim that the system discriminated against a certain race or ethnic group A could be undermined by the "finding" that group A receives *harsher* treatment in part because of its *lower* level of egregiousness. The specification in Tables 22 and 23 reduces the risk of such an aberrant and misleading outcome.

Nonetheless, every regression analysis involves choices concerning data and specifications, and it is useful to submit any set of regression findings such as those presented in Tables 22 and 23 to exacting scrutiny. This section will probe the robustness of these findings and respond to some potential or actual criticisms of the econometric models. Sometimes it is difficult to choose among different regression specifications, so it is customary to present the results of alternative approaches to see if in fact they make any difference to the estimates. Clearly, there is little need to argue about whether specification A or B is superior when the regression findings are identical under both approaches. As we will see, the findings that emerge from Tables 22 and 23 are extremely robust.

1. Controlling for Gender of the Defendant

As in other states and at the federal level, the vast majority of capital-eligible defendants in Connecticut are male. Specifically, only 14 of the 205 death-eligible defendants (6.8%) were female. Of these, 8 have been charged with capital felonies, and none has been sentenced to death. I chose not to include the female control (an explanatory variable that identified female defendants) in my core models of Tables 22 and 23 because of the fact that when every observation of a given variable is completely determined—in this case, no woman has ever gotten the death penalty in Connecticut—these cases would be dropped from the logit models of Table 23. Since 8 women have been charged with capital felonies, logit estimates for the effect of female defendant on charging are possible, and I present this regression below. Therefore, to test whether adding a control for defendant gender influences my core findings, I replicated the analyses presented in Tables 22 and 23 adding an indicator for female defendants.

The addition of this female indicator variable in Tables 27 and 28 has virtually no impact on the size or significance of the coefficients estimated for either the legitimate or illegitimate factors influencing capital outcomes. In other words, just as we saw in Tables 22 and 23, race of defendant and race of victim influence capital outcomes, as does the fact that the crime occurred in Waterbury, which are far more important in overall impact than legitimate elements dealing with egregiousness of the crimes. Consequently, my prior results are robust, or even strengthened (see the yet larger coefficient on the Waterbury variable), when one controls for the gender of the defendant.

What can be concluded from looking at the estimated coefficients on the female indicator variable? Not surprisingly, women are charged less frequently for capital felonies and of course receive death sentences at a considerably lower rate than men, although the small number of female cases renders these results statistically insignificant.

Table 27

Explaining Capital Charging in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Adding a Control for Gender of the Defendant to Prior Table 22

	Dependent Variable = Capital Charges | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.814 (0.405)**	0.160	0.145 (0.074)*	0.679 (0.393)*	0.136	0.122 (0.074)*
Defendant Minority/ Victim White	1.264 (0.560)**	0.212	0.225 (0.091)**	1.222 (0.582)**	0.209	0.222 (0.094)**
Defendant White/ Victim Minority	0.134 (0.820)	0.027	0.021 (0.187)	-0.026 (0.905)	-0.005	-0.006 (0.202)
Defendant Female	-0.484 (0.614)	-0.108	-0.106 (0.135)	-0.549 (0.621)	-0.124	-0.114 (0.138)
Composite Egregiousness (4-12)	-0.402 (0.222)*	-0.083	-0.068 (0.039)*			
Overall Egregiousness (1-5)				-0.178 (0.367)	-0.037	-0.031 (0.068)
Special Aggravating Factors	0.261 (0.107)**	0.054	0.045 (0.018)**	0.211 (0.105)**	0.044	0.037 (0.019)*
Waterbury	0.461 (0.692)	0.087	0.086 (0.125)	0.263 (0.779)	0.052	0.054 (0.138)
Pre-1998 Cases	1.131 (0.365)**	0.229	0.211 (0.070)**	1.016 (0.345)**	0.208	0.200 (0.070)**
Murder for Hire	0.851 (0.703)	0.148	0.189 (0.128)	1.005 (0.716)	0.171	0.216 (0.131)
Kidnapped	-0.511 (0.472)	-0.110	-0.106 (0.086)	-0.594 (0.462)	-0.129	-0.121 (0.086)
Sexual Assault	0.406 (0.710)	0.079	0.084 (0.120)	0.229 (0.699)	0.046	0.057 (0.120)
Multiple Victims	0.924 (0.512)*	0.181	0.173 (0.088)*	0.606 (0.458)	0.122	0.121 (0.083)
Under Sixteen	1.492 (0.589)**	0.252	0.287 (0.108)**	1.147 (0.559)**	0.205	0.231 (0.105)**
Constant	1.577 (1.573)		0.765 (0.285)**	-0.613 (1.135)		0.390 (0.215)*
R^2 or Pseudo R^2	0.148	0.148	0.175	0.135	0.135	0.162
N	205	205	205	205	205	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10

The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.

This table replicates Table 22 with one change: it adds a control for the gender of the defendant.

Table 28

Explaining Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Adding a Control for Gender of the Defendant to Prior Table 23

	Dependent Variable = Death Sentences | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant Minority/ Victim Minority	-0.466 (1.425)	-0.004	-0.003 (0.028)	-0.321 (1.631)	-0.002	0.004 (0.030)
Defendant Minority/ Victim White	2.188 (1.057)**	0.043	0.081 (0.055)	2.311 (1.116)**	0.037	0.080 (0.054)
Defendant White/ Victim Minority	Dropped†		-0.058 (0.076)	Dropped†		-0.059 (0.076)
Defendant Female	Dropped†		-0.064 (0.049)	Dropped†		-0.067 (0.049)
Composite Egregiousness (4-12)	-0.253 (0.287)	-0.002	0.002 (0.013)			
Overall Egregiousness (1-5)				1.567 (0.719)**	0.010	0.033 (0.029)
Special Aggravating Factors	0.235 (0.157)	0.002	0.006 (0.008)	0.161 (0.165)	0.001	0.003 (0.009)
Waterbury	6.109 (1.605)**	0.739	0.340 (0.134)**	4.974 (1.589)**	0.423	0.327 (0.135)**
Pre-1998 Cases	-0.852 (1.245)	-0.007	0.005 (0.030)	-0.649 (1.413)	-0.004	0.003 (0.031)
Murder for Hire	4.316 (1.883)**	0.299	0.098 (0.074)	4.253 (1.965)**	0.234	0.102 (0.072)
Kidnapped	1.422 (1.039)	0.016	0.043 (0.050)	0.878 (1.071)	0.007	0.038 (0.050)
Sexual Assault	2.633 (0.974)**	0.069	0.063 (0.060)	1.360 (0.850)	0.015	0.050 (0.061)
Multiple Victims	3.117 (1.134)**	0.050	0.043 (0.052)	2.026 (1.119)*	0.018	0.044 (0.057)
Under Sixteen	1.048 (1.911)	0.013	0.026 (0.050)	0.540 (2.013)	0.004	0.012 (0.050)
Constant	-6.215 (3.186)*		-0.079 (0.113)	-13.167 (3.274)**		-0.161 (0.102)
R^2 or Pseudo R^2	0.403	0.403	0.198	0.425	0.425	0.203
N	187	187	205	187	187	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant White/victim White.
This table replicates Table 23 with one change: it adds a control for the gender of the defendant.
† Dropped due to perfect prediction.

Note that the logit model does not generate death sentencing estimates in columns 4 and 5 of Table 28 for female defendants. As indicated above, the reason for this is that being female is a perfect predictor for *not* getting the death penalty. When that happens the logit estimator is undefined (either because of division by zero or the inability to take the log of zero), and the logit function will drop all the perfectly predicted cases (all cases of female defendants). The

linear probability estimates for capital sentencing do reflect the reduced likelihood that a female defendant will be sentenced to death. Since the female indicator variable does not alter my previous conclusions, I do not use it in other models in order to avoid dropping 14 additional observations from the sentencing equations.

2. Robustness Check for Regressions Using Michelson's Recommended Cases

As discussed above in Section VI.B, difficult judgments sometimes have to be made in deciding which cases should be included in the sample of death-eligible cases. Michelson has argued that nine of the 205 cases should be dropped entirely.[309] He further argues that 13 more cases should be dropped from the sentencing equation.[310] In Appendix E, I set forth the reasons that I included the cases that Michelson said should be dropped, although I recognize that some are close calls. But rather than argue about whether or not they are in fact death-eligible, I repeated the regressions of Table 22 and 23 while dropping those 9 cases for capital charging and a total of 22 cases for sentencing, thus leaving a total of 196 and 183 cases in the respective samples. There is not much need for extended discussion. Tables 29 and 30 using the new sample of cases show virtually identical results to what we saw above in Tables 22 and 23 with all 205 cases included. Once again, race matters powerfully for both charging and death sentencing, and the location of the crime in Waterbury has a dominant effect on death sentencing.

[309] The 9 cases that Michelson advocates dropping are Joseph Fernandez, Guy Levine, Carlos Maldonado, Joseph Miller, Gordon Burge (2nd case), Beth Carpenter, William Schroff (2nd case), Daryl Valentine (2nd case), and Gary Castonguay (2nd).

[310] The 13 additional cases (on top of the prior 9) that Michelson advocates dropping from the sentencing regression are Jose Berrios, Abin Britton, Michael Cerreta, Thor Colter, Martin Hammond, Phetsaya Vanlop, Winston Watkins, Roy White, William Schroff (1st case), Scott Smith, Ronald Cashwell, Hector Gonzalez, and Frank Cator.

Table 29

Explaining Capital Charging in 196 Connecticut Death-Eligible Cases, 1973 – 2007, Using Composite and Overall Egregiousness Measures

Dropping The Cases Michelson Argued Should Be Dropped for Charging Decision

	Dependent Variable = Capital Charges | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.778 (0.425)*	0.151	0.136 (0.077)*	0.630 (0.409)	0.126	0.114 (0.077)
Defendant Minority/ Victim White	1.194 (0.562)**	0.202	0.211 (0.092)**	1.155 (0.582)**	0.199	0.210 (0.095)**
Defendant White/ Victim Minority	0.078 (0.898)	0.016	0.010 (0.204)	-0.066 (1.034)	-0.014	-0.016 (0.223)
Composite Egregiousness (4-12)	-0.435 (0.227)*	-0.090	-0.072 (0.040)*			
Overall Egregiousness (1-5)				-0.226 (0.364)	-0.047	-0.038 (0.068)
Special Aggravating Factors	0.243 (0.107)**	0.050	0.041 (0.018)**	0.192 (0.105)*	0.040	0.033 (0.019)*
Waterbury	0.392 (0.700)	0.075	0.071 (0.127)	0.190 (0.785)	0.038	0.039 (0.140)
Pre-1998 Cases	1.244 (0.372)**	0.247	0.228 (0.070)**	1.117 (0.349)**	0.225	0.216 (0.070)**
Murder for Hire	0.722 (0.701)	0.129	0.166 (0.130)	0.881 (0.712)	0.153	0.194 (0.133)
Kidnapped	-0.448 (0.478)	-0.095	-0.093 (0.085)	-0.513 (0.466)	-0.111	-0.105 (0.085)
Sexual Assault	0.722 (0.737)	0.131	0.135 (0.120)	0.553 (0.721)	0.105	0.109 (0.119)
Multiple Victims	1.000 (0.520)*	0.193	0.185 (0.087)**	0.659 (0.462)	0.132	0.132 (0.082)
Under Sixteen	1.402 (0.592)**	0.240	0.269 (0.108)**	1.045 (0.561)*	0.190	0.213 (0.105)**
Constant	1.851 (1.606)		0.796 (0.288)**	-0.441 (1.125)		0.415 (0.215)*
R^2 or Pseudo R^2	0.151	0.151	0.176	0.136	0.136	0.162
N	196	196	196	196	196	196

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10

The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.

In this and the following table, columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.

The 9 cases that Michelson advocates dropping are Joseph Fernandez, Guy Levine, Carlos Maldonado, Joseph Miller, Gordon Burge (2nd case), Beth Carpenter, William Schroff (2nd case), Daryl Valentine (2nd case), and Gary Castonguay (2nd).

Table 30

Explaining Death Sentences in 183 Connecticut Death-Eligible Cases, Using Composite and Overall Egregiousness Measure

Dropping The Cases Michelson Argued Should Be Dropped for Death Sentencing

	Dependent Variable = Death Sentences | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant Minority/ Victim Minority	-0.143 (1.281)	-0.001	0.005 (0.031)	-0.105 (1.509)	-0.001	0.011 (0.034)
Defendant Minority/ Victim White	2.340 (1.051)**	0.050	0.088 (0.058)	2.401 (1.148)**	0.041	0.087 (0.058)
Defendant White/ Victim Minority	Dropped†		-0.079 (0.087)	Dropped†		-0.081 (0.088)
Composite Egregiousness (4-12)	-0.244 (0.281)	-0.002	0.001 (0.014)			
Overall Egregiousness (1-5)				1.652 (0.758)**	0.011	0.032 (0.030)
Special Aggravating Factors	0.303 (0.171)*	0.003	0.007 (0.010)	0.217 (0.186)	0.001	0.003 (0.010)
Waterbury	5.926 (1.582)**	0.686	0.335 (0.133)**	4.870 (1.587)**	0.386	0.323 (0.135)**
Pre-1998 Cases	-0.871 (1.144)	-0.007	0.004 (0.034)	-0.780 (1.382)	-0.005	0.001 (0.034)
Murder for Hire	4.462 (1.928)**	0.340	0.110 (0.084)	4.349 (1.977)**	0.263	0.113 (0.082)
Kidnapped	1.361 (1.029)	0.016	0.047 (0.052)	0.889 (1.047)	0.007	0.044 (0.052)
Sexual Assault	2.684 (0.947)**	0.077	0.087 (0.069)	1.396 (0.828)*	0.017	0.074 (0.069)
Multiple Victims	3.045 (1.207)**	0.050	0.047 (0.055)	1.966 (1.173)*	0.019	0.049 (0.060)
Under Sixteen	0.739 (1.949)	0.008	0.014 (0.052)	0.139 (2.063)	0.001	-0.001 (0.053)
Constant	-6.639 (3.107)**		-0.084 (0.115)	-13.702 (3.382)**		-0.170 (0.106)
R^2 or Pseudo R^2	0.388	0.388	0.196	0.412	0.412	0.201
N	179	179	183	179	179	183

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10

The omitted category from the race of defendant and victim variables is defendant White/victim White.

Columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.

† Dropped due to perfect prediction.

The 13 additional cases (on top of the prior 9) that Michelson advocates dropping from the sentencing regression are Jose Berrios, Abin Britton, Michael Cerreta, Thor Colter, Martin Hammond, Phetsaya Vanlop, Winston Watkins, Roy White, William Schroff (1st case), Scott Smith, Ronald Cashwell, Hector Gonzalez, and Frank Cator.

3. Robustness Check for Regressions Dropping Deathworthiness Measures

I have already shown that race and geography have a large and statistically significant effect on death penalty outcomes. These results are clearly seen in my core regressions employing three deathworthiness controls that we have created—the two egregiousness measures (based on evaluations from 18 coders) and the special aggravating factors measure (which tallies up facts of the crime that are captured in the DCIs).

To underscore that the results shown in Tables 22 and 23 are not simply the product of the inclusion of my deathworthiness measures, Tables 31 and 32 replicate these two tables, while first dropping out the egregiousness measures and then additionally dropping out the special aggravating factors variable. The results of these two separate alterations underscore the robustness of the findings of Tables 22 and 23. As one clearly sees, the sign, size, and significance of the minority on white and Waterbury variables are virtually unchanged. Race and geography remain highly important influences on outcomes in the Connecticut death penalty regime in my regression analysis whether or not we include my deathworthiness measures in the regression models.

Table 31

Explaining Capital Charging in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Dropping Deathworthiness Measures

	Dependent Variable = Capital Charges | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.588 (0.381)	0.118	0.106 (0.071)	0.590 (0.366)	0.120	0.116 (0.072)
Defendant Minority/ Victim White	1.151 (0.565)**	0.200	0.212 (0.092)**	1.198 (0.574)**	0.208	0.215 (0.094)**
Defendant White/ Victim Minority	-0.113 (1.054)	-0.024	-0.024 (0.225)	-0.161 (1.069)	-0.035	-0.034 (0.215)
Special Aggravating Factors	0.187 (0.097)*	0.039	0.033 (0.017)*			
Waterbury	0.104 (0.803)	0.021	0.028 (0.143)	0.122 (0.821)	0.025	0.030 (0.147)
Pre-1998 Cases	0.998 (0.341)**	0.204	0.198 (0.070)**	0.986 (0.331)**	0.204	0.198 (0.068)**
Murder for Hire	1.068 (0.702)	0.179	0.230 (0.129)*	1.070 (0.695)	0.182	0.225 (0.128)*
Kidnapped	-0.564 (0.450)	-0.122	-0.114 (0.084)	-0.194 (0.417)	-0.041	-0.056 (0.084)
Sexual Assault	0.221 (0.646)	0.045	0.057 (0.113)	0.651 (0.553)	0.123	0.135 (0.100)
Multiple Victims	0.670 (0.447)	0.135	0.134 (0.081)*	1.113 (0.401)**	0.219	0.213 (0.071)**
Under Sixteen	0.986 (0.493)**	0.181	0.203 (0.094)**	0.949 (0.485)*	0.177	0.195 (0.095)**
Constant	-1.137 (0.535)**		0.296 (0.105)**	-0.792 (0.474)*		0.358 (0.095)**
R^2 or Pseudo R^2	0.131	0.131	0.157	0.118	0.118	0.144
N	205	205	205	205	205	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.
This table replicates Table 22 with one change: the measures capturing deathworthiness are dropped.
Columns (1) to (3) are identical to columns (4) to (6) except in one respect – columns (1) to (3) include the Special Aggravating Factors variable, and columns (4) to (6) drop it.

Table 32

Explaining Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Dropping Deathworthiness Measures

	Dependent Variable = Death Sentences | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant Minority/ Victim Minority	-0.148 (1.352)	-0.001	0.000 (0.026)	-0.219 (1.401)	-0.002	-0.002 (0.026)
Defendant Minority/ Victim White	2.485 (1.111)**	0.050	0.084 (0.054)	2.373 (1.057)**	0.052	0.082 (0.055)
Defendant White/ Victim Minority	Dropped†		-0.058 (0.073)	Dropped†		-0.062 (0.076)
Special Aggravating Factors	0.279 (0.162)*	0.002	0.007 (0.007)			
Waterbury	5.667 (1.559)**	0.606	0.334 (0.132)**	5.482 (1.431)**	0.599	0.334 (0.133)**
Pre-1998 Cases	-0.797 (1.192)	-0.006	0.006 (0.030)	-0.847 (1.057)	-0.007	0.006 (0.030)
Murder for Hire	4.446 (1.991)**	0.298	0.102 (0.071)	4.065 (1.888)**	0.256	0.101 (0.070)
Kidnapped	1.313 (1.069)	0.013	0.050 (0.049)	1.734 (0.961)*	0.023	0.062 (0.044)
Sexual Assault	2.386 (0.898)**	0.050	0.072 (0.060)	2.775 (0.791)**	0.081	0.088 (0.053)*
Multiple Victims	2.765 (1.206)**	0.038	0.052 (0.055)	3.201 (1.129)**	0.057	0.068 (0.051)
Under Sixteen	0.767 (1.936)	0.007	0.022 (0.048)	0.796 (1.709)	0.009	0.021 (0.048)
Constant	-8.543 (2.151)**		-0.073 (0.048)	-7.585 (1.963)**		-0.059 (0.050)
R^2 or Pseudo R^2	0.396	0.396	0.192	0.380	0.380	0.190
N	200	200	205	200	200	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant White/victim White.
This table replicates Table 23 with one change: the measures capturing deathworthiness are dropped.
Columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) include the Special Aggravating Factors variable, and columns (4) to (6) drop it.
† Dropped due to perfect prediction.

4. Robustness Check for Regressions—Computing Composite and Overall Egregiousness Using Medians Rather than Means Across the 18 Coders

a. Replicating the Base Model with Median Egregiousness Scores

Michelson objects to the notion of averaging the egregiousness scores across the 18 coders. As I discuss in greater detail in Section X.D, this criticism is without merit. Anyone who has ever heard of or used a Grade Point Average (GPA) knows how foolish Michelson's

objection is. For example, a law firm or judge might be interested in the law school GPA of a third-year student who is applying for an associates position or judicial clerkship. This GPA is typically constructed by taking the average of the 18 or so classes taken during the first two years of law school where each course grade would be placed on a 0 to 4 scale. In a sense the 18 professors are coding the quality of the exam performance for a given student, and the GPA is the average score across the five-point scale of 18 subjective evaluations of merit. Similarly, the egregiousness measures of 18 coders are averaged to get egregiousness scores for the 205 cases in my sample. Michelson argues that such subjective evaluations could never be averaged, but schools do this every day (and make admission decision based thereon) and employers routinely rely on these GPA scores in hiring. Moreover, GPA is a frequent explanatory variable in many published papers dealing with labor market and education issues. If GPA scores can be used in a regression—as does a paper that Michelson cites with approval in his report —then egregiousness coding scores averaged across 18 coders can be used in a regression. So Michelson is simply wrong on this point.

But a fundamental finding of this report is that Michelson repeatedly makes accusations that are not only incorrect, but also irrelevant. Thus, while I disagree with his criticism on the averaging point, it helps to show that Michelson's critique makes no difference to my analysis. Tables 33 and 34 replicate the base Tables 22 and 23 by taking the median (rather than the mean) values for the two egregiousness measures, and generate nearly identical results to the earlier tables.[311] Once again, we see that race powerfully influences both capital charging and

[311] Essentially, Michelson objects to any averaging of the egregiousness measures. With an even number of coders, taking the precise median can require an average of the two middle observations. To prevent this and preserve integer values, the median values are rounded up to the higher of the two numbers when averaging would otherwise be used.

sentencing and that being in Waterbury powerfully influences the likelihood that a death-eligible case will receive the death sentence.

Table 33

Explaining Capital Charging in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Replicates Table 22 But Using Median Rather than Mean Egregiousness

	Dependent Variable = Capital Charges | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.757 (0.412) *	0.149	0.134 (0.075) *	0.636 (0.387)	0.127	0.114 (0.072)
Defendant Minority/ Victim White	1.238 (0.559) **	0.209	0.222 (0.091) **	1.220 (0.589) **	0.208	0.220 (0.094) **
Defendant White/ Victim Minority	0.094 (0.908)	0.019	0.014 (0.208)	-0.081 (1.011)	-0.017	-0.018 (0.221)
Composite Egregiousness (4-12) (Median)	-0.308 (0.178) *	-0.064	-0.052 (0.032)			
Overall Egregiousness (1-5) (Median)				-0.225 (0.296)	-0.047	-0.036 (0.053)
Special Aggravating Factors	0.240 (0.105) **	0.050	0.041 (0.018) **	0.218 (0.105) **	0.046	0.038 (0.019) **
Waterbury	0.374 (0.699)	0.072	0.072 (0.127)	0.233 (0.752)	0.047	0.047 (0.136)
Pre-1998 Cases	1.070 (0.352) **	0.217	0.202 (0.070) **	1.017 (0.341) **	0.208	0.199 (0.070) **
Murder for Hire	0.913 (0.695)	0.157	0.202 (0.127)	1.007 (0.714)	0.171	0.220 (0.131) *
Kidnapped	-0.477 (0.464)	-0.102	-0.098 (0.085)	-0.529 (0.453)	-0.115	-0.108 (0.085)
Sexual Assault	0.446 (0.699)	0.086	0.092 (0.119)	0.342 (0.684)	0.068	0.074 (0.117)
Multiple Victims	0.898 (0.487) *	0.176	0.172 (0.085) **	0.651 (0.454)	0.131	0.130 (0.082)
Under Sixteen	1.352 (0.573) **	0.233	0.264 (0.107) **	1.110 (0.527) **	0.200	0.222 (0.099) **
Constant	0.919 (1.286)		0.650 (0.242) **	-0.516 (0.993)		0.396 (0.183) **
R^2 or Pseudo R^2	0.144	0.144	0.170	0.133	0.133	0.159
N	205	205	205	205	205	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.
In this and the following table, columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.

Table 34

Explaining Death Sentences in 205 Connecticut Death-Eligible Cases, Replicates Table 23 But Using Median Rather than Mean Egregiousness

	Dependent Variable = Death Sentences | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant Minority/ Victim Minority	-0.144 (1.278)	-0.001	0.001 (0.028)	-0.196 (1.392)	-0.001	0.002 (0.028)
Defendant Minority/ Victim White	2.465 (1.107) **	0.045	0.084 (0.054)	2.470 (1.111) **	0.049	0.083 (0.054)
Defendant White/ Victim Minority	Dropped†		-0.059 (0.073)	Dropped†		-0.058 (0.073)
Composite Egregiousness (4-12) (Median)	-0.226 (0.281)	-0.002	0.001 (0.010)			
Overall Egregiousness (1-5) (Median)				0.249 (0.478)	0.002	0.007 (0.020)
Special Aggravating Factors	0.313 (0.167) *	0.002	0.006 (0.007)	0.268 (0.172)	0.002	0.006 (0.009)
Waterbury	6.201 (1.861) **	0.698	0.333 (0.134) **	5.463 (1.557) **	0.554	0.330 (0.135) **
Pre-1998 Cases	-0.963 (1.197)	-0.006	0.006 (0.030)	-0.762 (1.222)	-0.005	0.005 (0.030)
Murder for Hire	4.729 (2.036) **	0.334	0.103 (0.073)	4.493 (2.004) **	0.302	0.104 (0.072)
Kidnapped	1.496 (1.115)	0.014	0.050 (0.048)	1.171 (0.979)	0.011	0.049 (0.048)
Sexual Assault	2.723 (1.027) **	0.062	0.071 (0.059)	2.215 (0.844) **	0.042	0.069 (0.056)
Multiple Victims	3.289 (1.270) **	0.048	0.051 (0.051)	2.656 (1.199) **	0.034	0.052 (0.056)
Under Sixteen	0.881 (1.981)	0.008	0.021 (0.049)	0.729 (1.951)	0.007	0.019 (0.051)
Constant	-7.179 (2.910) **		-0.084 (0.096)	-9.307 (2.675) **		-0.095 (0.081)
R^2 or Pseudo R^2	0.399	0.399	0.192	0.397	0.397	0.193
N	200	200	205	200	200	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant White/victim White.
Columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.
† Dropped due to perfect prediction.

b. Replicating the Base Model with Median Egregiousness Scores (With Dummies for Each Increment on the Unidimensional Scale)

Michelson also expresses unhappiness with the implicit assumption that the movement from one level to the next in the egregiousness scores can be treated as equally spaced in terms of their impact on capital charging and sentencing. While this is a standard assumption when scales are used in regressions, I am happy to address his concern by simply depicting separate dummies for each integer value of the egregiousness scale, which fully addresses Michelson's argument. Once again, I will show that this critique has not the slightest bearing on the findings

presented for the base models in Tables 22 and 23: race and Waterbury are two factors that strongly influence capital charging and sentencing.

Table 35 shows both charging and sentencing regressions using my modified 4-12 Composite egregiousness measure. Again, rather than using a single *mean* egregiousness score for each of the 205 cases in my regressions as done in Tables 22 and 23, Table 35 is based on assigning all 205 cases a *median* egregiousness score and then putting in separate dummies for each integer value from 6 to 11 (where the omitted value is 12).[312] The first three columns of the Table are comparable to the first three columns of Table 22, providing estimates of the factors that influence capital charging; the one difference is that Table 22 uses the single mean egregiousness score, and Table 35 instead uses six dummies to capture the egregiousness measures. This change actually increases the size of the coefficient on the minority on white murders variable, showing once again that these murders are capitally charged at higher rates relative to other similar crimes with comparable levels of egregiousness. Once again, race matters, and Michelson's criticisms do not.

The last three columns of Table 35 address capital sentencing and are analogous to the first three columns of Table 23. Yet again, the minority on white murders result in death sentences at a substantially (and statistically significantly) higher rate than other comparable crimes, and the impact of Waterbury on death sentencing remains similarly strong.

This exercise also illustrates the wisdom of my initial choice to employ the single mean egregiousness score rather than the series of six dummies shown in Table 35. First, Table 35 shows that the impacts of higher values of the egregiousness measure do not have a monotonic influence on the likelihood of charging or sentencing even though we would expect they would. To see this, note for example that the 23 cases with median egregiousness values of 10 have

[312] As Table 21 indicates, none of my 205 cases had a median Composite 4-12 egregiousness score below 6.

higher likelihood of receiving a death sentence than either the 9 cases with median egregiousness values of 11 or the 4 cases with median scores of 12. This is exactly why one might well prefer using the linear approximation of my core models because it is likely that the probability of death sentencing will rise monotonically with egregiousness. The estimates in Table 23 constrained the data to fit this reasonable theoretical prediction, but the Table 35 regression models did not.

Second, as noted in discussing the virtues of the mean egregiousness variable of Tables 22 and 23, when you divide up your data into too many separate cells—as you do when you have six dummies for egregiousness rather than my mean egregiousness measure—many cases will get dropped from the estimates if they are perfectly predicted. Indeed, the 12 cases with median values of 6 and the 62 cases with median values of 8 get dropped from the logit models in columns 4 and 5 of Table 35, which means that the number of observations drops sharply for these logit regressions.

Table 35

Explaining Capital Charging and Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Decomposing the 4-12 Composite Egregiousness Measure into A Series of Unidimensional Dummy Variables

	Dependent Variable = Capital Charges | Death Eligible			Dependent Variable= Death Sentences | Death Eligible		
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.796 (0.426)*	0.154	0.135 (0.077)*			
Defendant Minority/ Victim White	1.429 (0.539)**	0.228	0.256 (0.090)**	4.029 (1.735)**	0.181	0.102 (0.055)*
Defendant Minority/ Victim Minority				1.017 (1.630)	0.007	0.006 (0.027)
Defendant White/ Victim Minority	0.382 (0.890)	0.072	0.060 (0.188)	Dropped†		-0.058 (0.083)
Composite Egregiousness (Median = 6)	1.819 (1.339)	0.240	0.270 (0.240)	Dropped†		0.079 (0.087)
Composite Egregiousness (Median = 7)	1.696 (1.122)	0.269	0.275 (0.198)	16.183 (2.033)**	0.997	0.144 (0.077)*
Composite Egregiousness (Median = 8)	0.841 (1.057)	0.158	0.106 (0.190)	Dropped†		0.089 (0.073)
Composite Egregiousness (Median = 9)	1.185 (1.084)	0.209	0.179 (0.191)	16.417 (2.230)**	0.993	0.132 (0.080)*
Composite Egregiousness (Median = 10)	1.567 (1.200)	0.232	0.224 (0.201)	17.552 (2.590)**	1.000	0.176 (0.116)
Composite Egregiousness (Median = 11)	-0.669 (1.140)	-0.152	-0.147 (0.235)	15.470 (2.350)**	0.997	0.164 (0.124)
Special Aggravating Factors	0.248 (0.107)**	0.051	0.041 (0.018)**	0.278 (0.206)	0.002	0.007 (0.007)
Waterbury	0.296 (0.715)	0.057	0.037 (0.124)	6.211 (1.525)**	0.675	0.324 (0.128)**
Pre-1998 Cases	1.057 (0.378)**	0.211	0.196 (0.072)**	-0.564 (1.472)	-0.004	0.007 (0.031)
Murder for Hire	0.856 (0.769)	0.146	0.203 (0.152)	6.687 (1.848)**	0.805	0.109 (0.082)
Kidnapped	-0.573 (0.467)	-0.122	-0.104 (0.090)	2.256 (0.972)**	0.029	0.041 (0.053)
Sexual Assault	-0.012 (0.710)	-0.003	0.024 (0.123)	1.652 (1.585)	0.021	0.042 (0.083)
Multiple Victims	0.870 (0.538)	0.168	0.159 (0.093)*	3.293 (1.306)**	0.041	0.031 (0.054)
Under Sixteen	1.149 (0.581)**	0.200	0.236 (0.110)**	0.473 (2.129)	0.004	0.011 (0.048)
Constant	-2.703 (1.338)**		0.061 (0.236)	-26.036 (2.480)**		-0.187 (0.093)**
R^2 or Pseudo R^2	0.169	0.169	0.195	0.476	0.476	0.218
N	205	205	205	128	128	205

Robust Standard errors in parentheses,** = p< 0.05,* = p <0.10

The omitted category from the race of defendant and victim variables is defendant White/victim White for columns (1) – (3), and defendant Minority/victim Minority for columns (4) – (6).

† Dropped due to perfect prediction.

Table 36 replicates Table 35 except that it includes the individual dummies for each integer value of the Overall 1-5 egregiousness score (instead of the Composite 4-12

egregiousness score). Again we see the problems just discussed about lack of monotonicity and the dropping of variables in the sentencing regressions in columns 4-5 of Table 36, which signals yet again that my core models are likely sounder specification choices than the multiple dummy models. Nonetheless, we still see the identical patterns of statistically significant effects for race and geography with this modified set of controls for the Overall 1-5 egregiousness score in Table 36 that we saw in Tables 22 and 23 using the single mean Overall 1-5 egregiousness measure. The bottom line, once again, is that the objections that Michelson raises do *not* affect the results of the regression analysis: race and geography powerfully influence capital outcomes in Connecticut.

a. Decomposing Composite Egregiousness into Four Components: Using Medians

Tables 22 through 30 measured the egregiousness of the crime using mean values (taken across 18 coders) of either the 4-12 Composite egregiousness scale or the 1-5 Overall egregiousness scale. Tables 31 and 32 showed that the core findings of this report were unaffected even if these egregiousness measures were dropped for the analysis, thereby showing the results are not sensitive to the inclusion or exclusion of these measures. Tables 33 and 34 simply shifted to median rather than mean values of these two egregiousness measures, again revealing that the core results from the earlier Tables were unchanged. Tables 35 and 36 further established the robustness of my core findings by converting the two egregiousness measures into a series of dummies rather than using a single numeric measure of egregious. Again the findings were robust.

Table 36

Explaining Capital Charging and Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Decomposing The Overall 1-5 Egregiousness Measure into A Series of Unidimensional Dummy Variables

	Dependent Variable = Capital Charges | Death Eligible			Dependent Variable= Death Sentences| Death Eligible		
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.625 (0.394)	0.124	0.111 (0.073)			
Defendant Minority/ Victim Minority				0.128 (1.440)	0.000	0.001 (0.029)
Defendant Minority/ Victim White	1.221 (0.596)**	0.206	0.213 (0.095)**	2.497 (1.216)**	0.001	0.083 (0.056)
Defendant White/ Victim Minority	-0.008 (1.044)	-0.002	-0.008 (0.226)	Dropped†		-0.059 (0.076)
Overall Egregiousness (Median = 2)	1.239 (1.237)	0.192	0.183 (0.169)	Dropped†		-0.024 (0.064)
Overall Egregiousness (Median = 3)	-0.157 (0.849)	-0.033	-0.018 (0.128)	-15.060 (1.316)**	-0.034	-0.010 (0.056)
Overall Egregiousness (Median = 4)	-0.212 (0.741)	-0.044	-0.026 (0.104)	0.736 (1.146)	0.000	-0.002 (0.055)
Special Aggravating Factors	0.224 (0.104)**	0.046	0.037 (0.019)*	0.232 (0.182)	0.000	0.006 (0.009)
Waterbury	0.136 (0.800)	0.027	0.034 (0.141)	5.198 (1.294)**	0.011	0.330 (0.136)**
Pre-1998 Cases	1.019 (0.344)**	0.207	0.196 (0.071)**	-0.473 (1.380)	0.000	0.006 (0.028)
Murder for Hire	1.027 (0.730)	0.172	0.222 (0.134)*	19.945 (2.122)**	1.000	0.105 (0.071)
Kidnapped	-0.682 (0.450)	-0.148	-0.128 (0.084)	1.602 (0.907)*	0.000	0.050 (0.046)
Sexual Assault	0.114 (0.713)	0.023	0.047 (0.117)	2.169 (0.835)**	0.000	0.071 (0.051)
Multiple Victims	0.547 (0.454)	0.110	0.114 (0.083)	3.029 (1.242)**	0.001	0.054 (0.058)
Under Sixteen	1.008 (0.561)*	0.182	0.205 (0.102)**	0.938 (2.010)	0.000	0.020 (0.053)
Constant	-1.100 (1.124)		0.301 (0.180)*	-8.952 (2.519)**		-0.064 (0.071)
R^2 or Pseudo R^2	0.142	0.142	0.166	0.416	0.416	0.193
N	205	205	205	190	190	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant White/victim White for columns (1) – (3), and it is defendant Minority/victim Minority for columns (4) – (6).
† Dropped due to perfect prediction.

We now take another step to address a Michelson complaint about the egregiousness measure and yet again show it is unimportant. Michelson complains that the 4-12 scale should be disaggregated into its four components instead of aggregated into a single measure. Of course, there are very good substantive and statistical reasons to add the four components of the

4-12 measure (which are each ranked on a 1 to 3 scale) into a single egregiousness measure, as discussed above. Including the individual components as separate explanatory variables risks perverse findings that, for example, the *more* victim suffering, the *less* likely that the case will receive harsher treatment in the Connecticut death penalty system. In fact, as we shall see, this is exactly what we will find, so Michelson's suggestion may have actually helped uncover another dimension of the arbitrary and capricious results produced by the Connecticut death penalty system.

I say "may have" because I have less confidence in relying on some of the individual components of the Composite 4-12 egregiousnesss measure than on the overall aggregated score. For example, victim suffering and defendant culpability, which are two components of the Composite measure, might be correlated. Similarly, it is possible that multiple victim cases tend to have *less* victim suffering (think about a bombing that kills many instantly versus a slow beating of someone to death or a prolonged stabbing to death or strangulation). In these cases the two individual components will likely not produce valid estimates on the individual impacts on charging and sentencing of these two components (owing to the problem of multicollinearity), even though the aggregated Composite measure that adds them both would still generate a useful indication of the impact of their combined effect on capital charging and sentencing.

As discussed previously, adding the four components into a single Composite egregiousness measure better constrains the data to reflect sensible relationships between egregiousness and capital outcomes. Accordingly, there is value in using the constrained model when testing for discriminatory outcomes, such as race, gender, or geographical effects. Given the strong findings that minority on white murders are treated most harshly, the disaggregation that Michelson advocates risks obscuring this racial discrimination by, for example, finding the

harsher treatment of minority on white murders is "explained" by the lower level of victim suffering involved in these cases. Of course, this would be a nonsense result, but throwing in additional explanatory variables, especially into a small data set, increases the risks that such spurious results could deprive important variables of their true statistical significance. Indeed, this has long been a standard ploy of defense experts in discrimination cases: try to cram in as many extra explanatory variables into a data set with the hope that the evidence of discrimination will be weakened as the regression gets taxed by the greater demands of estimating more and more parameters.

As a statistical matter we are constrained in the number of explanatory variables we can add to a regression explaining 9 sustained death sentences out of 205 (at the most) death-eligible cases. A sensible response to the limited number of cases is to try to limit the number of explanatory variables in prudent and transparent ways. This in part explains my original choice of the single numeric egregiousness measures (although of course I present estimates using two different numeric measures—the Composite and the Overall egregiousness scores). Nonetheless, it turns out that the results found in the tables above are so strong that the changes that Michelson advocates do not alter them. In other words, as is generally the case, Michelson's strident objections are doubly feckless: they are both substantively dubious, and have no impact on the ultimate results in any event.

Table 37

Explaining Capital Charging and Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Decomposing the 4-12 Composite Egregiousness Measure into Four Components (Medians)

	Dependent Variable = Capital Charges | Death Eligible			Dependent Variable = Death Sentences | Death Eligible		
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.797 (0.436)*	0.156	0.143 (0.077)*			
Defendant Minority/ Victim Minority				0.716 (1.525)	0.001	0.013 (0.028)
Defendant Minority/ Victim White	1.124 (0.559)**	0.193	0.203 (0.091)**	3.112 (1.599)*	0.015	0.084 (0.053)
Defendant White/ Victim Minority	0.581 (0.852)	0.105	0.103 (0.193)	Dropped†		-0.029 (0.079)
Victim Suffering (1-3) (Median)	-0.484 (0.281)*	-0.100	-0.086 (0.051)*	-1.467 (0.932)	-0.002	-0.023 (0.014)
Victim Characteristics (1-3) (Median)	-0.174 (0.357)	-0.036	-0.033 (0.063)	1.079 (0.941)	0.001	0.052 (0.021)**
Defendant Culpability (1-3) (Median)	0.368 (0.380)	0.076	0.080 (0.067)	2.305 (1.148)**	0.003	0.016 (0.028)
Number of Victims	-0.338 (0.190)*	-0.070	-0.056 (0.018)**	-0.846 (1.114)	-0.001	-0.025 (0.015)
Special Aggravating Factors	0.227 (0.111)**	0.047	0.039 (0.019)**	0.485 (0.261)*	0.001	0.009 (0.008)
Waterbury	0.781 (0.800)	0.136	0.135 (0.117)	8.843 (1.978)**	0.836	0.351 (0.134)**
Pre-1998 Cases	1.125 (0.360)**	0.227	0.211 (0.069)**	-1.373 (1.668)	-0.002	0.001 (0.030)
Murder for Hire	0.373 (0.762)	0.072	0.097 (0.137)	6.011 (2.503)**	0.227	0.103 (0.078)
Kidnapped	-0.593 (0.486)	-0.128	-0.122 (0.087)	1.719 (1.188)	0.003	0.068 (0.053)
Sexual Assault	0.370 (0.661)	0.072	0.084 (0.116)	4.740 (1.613)**	0.067	0.065 (0.059)
Multiple Victims	0.816 (0.551)	0.160	0.148 (0.090)	5.369 (2.449)**	0.033	0.083 (0.056)
Under Sixteen	1.378 (0.599)**	0.235	0.269 (0.106)**	0.196 (2.487)	0.000	-0.011 (0.051)
Constant	-0.502 (1.334)		0.378 (0.242)	-16.886 (4.831)**		-0.162 (0.097)*
R^2 or Pseudo R^2	0.170	0.170	0.202	0.505	0.505	0.222
N	205	205	205	200	200	205

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category for capital charges from the race of defendant and victim variables is defendant Minority/victim Minority. The omitted category for death sentences from the race of defendant and victim variables is defendant Minority/victim Minority.
This table replicates Tables 28 and 29 with one change: it calculates the values of the components of the Composite egregiousness measure using medians rather than means.
† Dropped due to perfect prediction.

To show this I begin in Table 37 to alter the specifications of Tables 22 and 23 that are based on the 4-12 Composite egregiousness measure in the following ways. First, rather than adding the four components of the 4-12 composite measure, I introduce the first three

components as individual explanatory variables. Mean values for each of these three components could be taken across the 18 coders, but Michelson objects to the averaging. Accordingly, we again circumvent Michelson's concerns by using median values. Second, since Michelson complains that the number of victims should be included as a new explanatory variable (rather than put on a 1-3 scale to correspond with the other three components of my Composite egregiousness measure), I have added this new "number of victims" measure (which ranges from 1 to 14, with a mean of 1.55 as shown in Table 21). Once again, the results in Table 37 confirm the primary findings of Tables 22 and 23 that minority on white murders are both capitally charged and receive death sentences at higher rates than other comparable murders, and that Waterbury cases receive substantially harsher capital sentencing.[313]

The decomposition of the 4-12 egregiousness measure into its four components indicated that three of the four components had the wrong sign for capital charging decisions and two of the four had the wrong sign for death sentencing. Some of this apparent chaos is simply the result of the correlation between the components that we discussed earlier: multicollinearity can cause the coefficients on the collinear variables to bounce around in spurious ways. (This represents one argument for preferring the aggregated egregiousness score to the disaggregated scores presented in Table 37, but again note that the core findings of the importance of race and geography to capital outcomes doesn't turn on this modeling choice.)

To the extent the incorrect signs are capturing further elements of the arbitrariness of the Connecticut death penalty system, the decomposition would be helpful. For example, the greater the number of deaths in a death-eligible case, the *less* likely it was that the case would be

[313] The minority on white coefficient in column 4 of Table 37 just misses statistical significance at the .05 level, coming in with a p-value of 0.052. This would not alter my overall conclusion on the impact of race on death sentencing in Connecticut. As one can see in all of the regression tables: race matters (with minority on white crimes treated most harshly).

charged as a capital felony. In his deposition, Michelson—who reached this same conclusion—conceded that this finding was bizarre.[314] Subsequently, Michelson tried to explain away the finding by arguing that this was simply because the multiple victim cases were arson cases in which there was no proof of intent.[315] This is incorrect. While Michelson (erroneously) tried to include the Daryl Lee Harrell case in the sample—which was a case in which there was no intent to murder—I excluded that case for precisely this reason: I limited my analysis to cases that were eligible for the death penalty. An individual who killed by committing arson without intending to take a life would simply not fall into the class of death-eligible crimes. It is unlikely that the explanation for the lower capital charging rate of unambiguously more egregious cases—remember other factors are held constant by the regression—is that prosecutors perversely go after the least deathworthy cases. Rather, the likely explanation is that either the number of victims coefficient is being marred by the inclusion of the collinear Multiple Victims identifier, or the arbitrary factors of race and geography are simply undergirding the haphazard results that prevent the limitation of the death penalty in Connecticut to the truly worst of the worst.

b. Decomposing Both Egregiousness Measures Into a Full Series of Dummy Variables

I also tried one final response to Michelson's allegations that the egregiousness scores were not proper cardinal numbers, should be disaggregated, and could not be averaged. Here, I disaggregated the Composite 4-12 egregiousness measure (there is no need to disaggregate the Overall 1-5 measure since that is already unidimensional), and I used medians rather than means (to deal with the alleged problems of averaging). I then created a full series of dummy variables

[314] Michelson Dep. Sep. 16 2010 865:8 – 865:22; Michelson Dep. Sep. 16 2010 867:1 - 867:16; Michelson Dep. Sep. 16 2010 866:20 – 866:25.
[315] Michelson Report, October 15, 2010 at 308.

to deal with the claim that the egregiousness measures were not proper cardinal numbers. Specifically, I created dummy variables for each value of the median score in the first three components of Composite 4-12 egregiousness, and then used the number of victims as an additional explanatory variable.

The results of this exercise are shown for the charging equation in the first three columns of Table 38, and again we see that one of the most powerful factors influencing charging for capital felonies among death-eligible cases is whether the case involves a minority on white murder. In other words, responding to every concern that Michelson raised about the mathematical structure of the egregiousness scores had no impact on the Table 22 findings. Michelson's objections simply have no influence on this study's findings!

The last three columns of Table 38 show why Michelson's objections are imprudent; we cannot follow the approach from the left-hand side of Table 38 to estimate a sentencing equation because the logit model fails to converge when we use the full array of dummies for the first three components of my Composite egregiousness measure.[316] The takeaway lesson from Table 38 is that the charging equations yield generally similar results, whether one uses the core 4-12 Composite egregiousness measure (as in Table 22) or a more complicated dummy structure for each of the components of Composite egregiousness. In every case, where valid estimates emerge, the findings that race and geography powerfully influence capital outcomes in Connecticut are clearly demonstrated.[317] One cannot control for Composite 4-12 egregiousness scores in estimating the likelihood of a death sentence using the approaches that address

[316] One problem that researchers can encounter in estimating logistic regression models is a failure of the likelihood maximization algorithm to converge. In most cases, this failure is a consequence of data patterns in which certain dummy predictor variables will have one level of the variable for which either every observation has the event or no observation has the event. Allison, Paul D. (2004) "Convergence problems in logistic regression." Pp. 247-262 in Micah Altman, Jeff Gill, and Michael McDonald (eds.) *Numerical Issues in Statistical Computing for the Social Scientist.* New York: Wiley-Interscience. For these patterns, the maximum likelihood estimates do not exist.

[317] Similarly, Table 36 provided individual dummy variables for the Overall 1-5 egregiousness measure, also showing the importance of race and geography in capital sentencing.

Michelson's concerns, which underscores yet again that the original specifications of Tables 22 and particularly Table 23 are preferable to the approaches Michelson seems to advocate. Every permutation of my base model uniformly supports the impact of race and geography on capital outcomes in Connecticut.

1. Robustness Check for Regressions—Adding Controls for Stranger Murders and Prior Serious Criminality of Defendants

My analysis thus far has controlled for an array of potential explanatory characteristics of each death-eligible case and documented that race is a strong determinant of capital charging, and both race and geography are strong determinants of death sentencing. This finding has been robust to the addition of a gender variable, dropping of the cases that Michelson argued should be dropped, and all sorts of changes in specifications to address Michelson's arguments about the egregiousness measures. This section provides one final robustness check to see if my findings are robust to controls for two *additional* factors: an identifier for whether the murder is of a person who was a stranger to the defendant and a control for prior serious criminality by the defendant. Accordingly, we now replicate Tables 22 and 23, but include controls for these two factors.

The Data Collection Instrument (DCI) contains information for all 205 cases on the degree of intimacy of the relationship between defendant and victim(s), ranging from "Intimate/Family" to "Friend or Acquaintance" to "Stranger." Tables 39-42 will contain a dummy variable called "Stranger" to reflect this final category.[318] There are 58 stranger cases out of the total of 205 (28%), 45 stranger cases out of the 138 charged with capital felony (32%), and four stranger cases out of the nine that received a sustained death sentence (44%).

[318] To generate the Stranger dummy, we code stranger=1 if the relationship between the defendant and the victim or *any* of the victims is strictly "Stranger," and stranger=0 if the relationship falls into any other non-stranger category.

Table 38

Explaining Capital Charging in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Decomposing the 4-12 Composite Egregiousness Measure into A Series of Dummy Variables (With a Control for Number of Victims)

	Dependent Variable = Capital Charges | Death Eligible			Dependent Variable = Death Sentences | Death Eligible		
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	0.765 (0.434)*	0.157	0.139 (0.078)*	**Does Not Converge**		
Defendant Minority/ Victim White	1.180 (0.566)**	0.212	0.211 (0.092)**			
Defendant White/ Victim Minority	0.420 (0.836)	0.083	0.069 (0.190)			
Victim Suffering (Median = 2)	-0.975 (0.583)*	-0.225	-0.169 (0.097)*			
Victim Suffering (Median = 3)	-1.045 (0.586)*	-0.221	-0.181 (0.103)*			
Victim Characteristics (Median = 2)	-0.204 (0.486)	-0.044	-0.043 (0.089)			
Victim Characteristics (Median = 3)	-0.410 (0.733)	-0.090	-0.069 (0.128)			
Defendant Culpability (Median = 2)	13.832 (0.918)**	0.982	0.457 (0.119)**			
Defendant Culpability (Median = 3)	14.070 (0.950)**	0.997	0.516 (0.117)**			
Number of Victims	-0.339 (0.189)*	-0.073	-0.056 (0.019)**			
Special Aggravating Factors	0.207 (0.112)*	0.045	0.037 (0.019)*			
Waterbury	0.680 (0.789)	0.128	0.114 (0.120)			
Pre-1998 Cases	1.062 (0.354)**	0.224	0.199 (0.068)**			
Murder for Hire	0.484 (0.740)	0.096	0.112 (0.132)			
Kidnapped	-0.492 (0.498)	-0.109	-0.111 (0.089)			
Sexual Assault	0.360 (0.666)	0.073	0.076 (0.118)			
Multiple Victims	0.982 (0.589)*	0.200	0.169 (0.093)*			
Under Sixteen	1.489 (0.667)**	0.264	0.286 (0.116)**			
Constant	-13.977 (1.076)**		0.008 (0.137)			
R^2 or Pseudo R^2	0.182	0.182	0.214			
N	205	205	205			

Robust Standard errors in parentheses,** = p< 0.05,* = p <0.10

The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.

We ran the same model for capital sentencing but no results are shown in Columns 4-6 because the logit model did not converge.

Harvard Professor Rafael Di Tella and his coauthor Ernesto Schargrodsky have shown that the single most important factor in explaining the likelihood that recent convicts assigned to some form of electronic monitoring would either escape or subsequently commit a crime that sends them to prison is the number of prior episodes of incarceration.[319] Given the unusual importance of this factor in recidivism, it is worth asking whether this same measure could capture something important about the criminal defendant that explains capital charging and death sentencing. Accordingly, I used the precise variable that Di Tella and Schargrodsky employed: a count of "Prior Separate Prison Sentences Imposed." In Tables 39 and 40, I use this measure to capture the prior serious criminal history of the defendant by including a dummy variable called Prior Prison Sentence Imposed (=1 if there *was* a prior prison sentence imposed and =0 if not). I then go on to capture this effect a second way, in Tables 41 and 42, by replacing the dummy variable on Prior Prison Sentences with the actual count of the number of Prior Separate Prison Sentences Imposed (capping at 07 following the DCI coding). Thus, a defendant who was never previously sentenced to prison would receive a 0 and a defendant with three prior spells in prison would receive a value of 3.[320]

The bottom line from these four tables is that controls identifying whether the crime is a stranger murder or whether the defendant has prior prison sentences does not change the

[319] Rafael Di Tella and Ernesto Schargrodsky, "Criminal Recidivism after Prison and Electronic Monitoring," NBER Working Paper No. 15602, http://www.nber.org/papers/w15602 (August 16, 2010).

[320] It is worth noting that in the DCI, total number of prior separate prison sentences imposed is coded

00-06 = As is
07 = 7 or greater
09 = Unknown if sentenced to state prison sentence

The total number of cases for which prior prison sentences imposed is available (any value other than 09) is 190. However, we have four anomalous cases where the number recorded is higher than 07 (and not equal to 09) and thus does not correspond to any of the above codes. I include these four cases in my first set of regressions using the prior prison sentence dummy (regressions in Tables 39 and 40) coding them as =1, but drop these cases out of the second set of regressions using continuous values for prior separate prison sentences (regressions in Tables 41 and 42). My assumption is that the out of code variable is reflecting there was a prior prison sentence but we are not sure if it was to be top coded at 7 or not, so I drop it from my continuous measure.

fundamental results: race and geography still affect capital outcomes in much the way that we have seen throughout. All four tables show that minority on white murders are treated more harshly in capital charging and sentencing, and Waterbury cases are more likely to result in a death sentence controlling for all of the listed factors.

Stranger murders may be treated more harshly than non-stranger murders but this effect, if any, is not statistically significant. The status of having been in prison has too high a standard error to give meaningful information, and the number of prior prison sentences is similarly uninformative for capital charging and ostensibly perverse for capital sentencing. Again, all of the previously discussed results are robust to the introduction of these additional controls. The bottom line from this additional robustness check: race and geography are powerful determinants of capital outcomes in Connecticut.

Table 39

Explaining Capital Charging in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Adding Controls for Prior Prison Sentences Imposed and Stranger Murders

	Dependent Variable = Capital Charges | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	1.019 (0.454) **	0.195	0.180 (0.080) **	0.866 (0.432) **	0.170	0.157 (0.080) *
Defendant Minority/ Victim White	1.351 (0.632) **	0.222	0.228 (0.101) **	1.331 (0.646) **	0.223	0.234 (0.104) **
Defendant White/ Victim Minority	0.264 (0.850)	0.051	0.042 (0.192)	0.112 (0.982)	0.023	0.018 (0.213)
Composite Egregiousness (4-12)	-0.534 (0.231) **	-0.110	-0.090 (0.041) **			
Overall Egregiousness (1-5)				-0.460 (0.385)	-0.096	-0.078 (0.072)
Special Aggravating Factors	0.222 (0.115) *	0.046	0.038 (0.020) *	0.185 (0.112) *	0.039	0.032 (0.020)
Prior Prison Sentences Imposed	0.107 (0.390)	0.022	0.029 (0.071)	0.118 (0.383)	0.024	0.024 (0.071)
Stranger	0.263 (0.489)	0.053	0.042 (0.085)	0.290 (0.470)	0.059	0.046 (0.085)
Waterbury	0.608 (0.777)	0.109	0.106 (0.129)	0.376 (0.886)	0.072	0.071 (0.149)
Pre-1998 Cases	1.253 (0.394) **	0.254	0.230 (0.076) **	1.124 (0.372) **	0.231	0.218 (0.076) **
Murder for Hire	0.819 (0.716)	0.142	0.191 (0.129)	1.001 (0.733)	0.170	0.219 (0.133)
Kidnapped	-0.391 (0.511)	-0.083	-0.086 (0.091)	-0.441 (0.505)	-0.095	-0.096 (0.091)
Sexual Assault	0.817 (0.802)	0.145	0.151 (0.131)	0.702 (0.793)	0.129	0.130 (0.131)
Multiple Victims	1.258 (0.566) **	0.241	0.226 (0.092) **	0.828 (0.483) *	0.165	0.158 (0.085) *
Under Sixteen	1.671 (0.636) **	0.269	0.314 (0.116) **	1.324 (0.605) **	0.228	0.258 (0.114) **
Constant	2.220 (1.657)		0.862 (0.298) **	-0.099 (1.229)		0.471 (0.231) **
R^2 or Pseudo R^2	0.166	0.166	0.193	0.146	0.146	0.174
N	190	190	190	190	190	190

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.
In this and the following table, columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.

We only show 190 cases because of missing values on the prior prison sentence variable.

Table 40

Explaining Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Adding Controls for Prior Prison Sentences Imposed and Stranger Murders

	Dependent Variable = Death Sentences | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant Minority/ Victim Minority	-1.750 (3.026)	-0.002	-0.020 (0.027)	-2.031 (3.697)	-0.000	-0.014 (0.029)
Defendant Minority/ Victim White	3.853 (1.050) **	0.020	0.078 (0.053)	4.884 (1.692) **	0.009	0.080 (0.053)
Defendant White/ Victim Minority	Dropped†		-0.093 (0.092)	Dropped†		-0.093 (0.092)
Composite Egregiousness (4-12)	-0.137 (0.400)	-0.000	-0.005 (0.014)			
Overall Egregiousness (1-5)				2.497 (1.585)	0.000	0.009 (0.026)
Special Aggravating Factors	0.338 (0.223)	0.000	0.007 (0.008)	0.355 (0.258)	0.000	0.006 (0.008)
Prior Prison Sentences Imposed	-0.318 (0.848)	-0.000	-0.009 (0.025)	-0.788 (0.745)	-0.000	-0.010 (0.025)
Stranger	1.322 (1.459)	0.002	0.017 (0.031)	1.759 (1.601)	0.000	0.017 (0.030)
Waterbury	8.471 (3.049) **	0.748	0.436 (0.160) **	8.137 (4.133) **	0.290	0.428 (0.162) **
Pre-1998 Cases	0.433 (1.109)	0.000	0.015 (0.024)	1.414 (1.667)	0.000	0.013 (0.024)
Murder for Hire	6.323 (2.093) **	0.219	0.092 (0.069)	7.537 (3.739) **	0.137	0.096 (0.068)
Kidnapped	2.475 (1.378) *	0.005	0.057 (0.046)	2.022 (1.477)	0.001	0.055 (0.046)
Sexual Assault	2.587 (1.256) **	0.008	0.059 (0.056)	1.286 (1.327)	0.000	0.052 (0.057)
Multiple Victims	3.496 (1.468) **	0.007	0.037 (0.050)	2.897 (1.312) **	0.001	0.033 (0.055)
Under Sixteen	3.955 (1.071) **	0.020	0.054 (0.049)	4.680 (2.128) **	0.007	0.044 (0.045)
Constant	-11.737 (5.292) **		-0.036 (0.126)	-23.712 (11.127) **		-0.098 (0.107)
R^2 or Pseudo R^2	0.551	0.551	0.277	0.581	0.581	0.277
N	185	185	190	185	185	190

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant White/victim White.
Columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.
† Dropped due to perfect prediction.

We only show 190 cases in Columns (3) and (6) because of missing values on the prior prison sentence variable.

Table 41

Explaining Capital Charging in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Adding Controls for Number of Prior Prison Sentences Imposed and Stranger Murders

	Dependent Variable = Capital Charges | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant White/ Victim White	1.031 (0.465) **	0.190	0.180 (0.082) **	0.886 (0.447) **	0.167	0.158 (0.083) *
Defendant Minority/ Victim White	1.366 (0.626) **	0.215	0.226 (0.101) **	1.336 (0.637) **	0.216	0.230 (0.103) **
Defendant White/ Victim Minority	0.197 (0.892)	0.037	0.027 (0.203)	0.055 (1.017)	0.011	0.003 (0.222)
Composite Egregiousness (4-12)	-0.501 (0.236) **	-0.100	-0.082 (0.042) *			
Overall Egregiousness (1-5)				-0.431 (0.390)	-0.087	-0.068 (0.074)
Special Aggravating Factors	0.216 (0.111) *	0.043	0.036 (0.020) *	0.177 (0.109)	0.036	0.030 (0.020)
Number of Prior Prison Sentences Imposed	-0.104 (0.092)	-0.021	-0.019 (0.020)	-0.113 (0.091)	-0.023	-0.022 (0.020)
Stranger	0.295 (0.467)	0.057	0.051 (0.083)	0.328 (0.451)	0.064	0.054 (0.082)
Waterbury	0.617 (0.770)	0.106	0.098 (0.128)	0.389 (0.877)	0.072	0.065 (0.145)
Pre-1998 Cases	1.157 (0.391) **	0.229	0.207 (0.075) **	1.025 (0.369) **	0.206	0.194 (0.075) **
Murder for Hire	0.577 (0.713)	0.102	0.144 (0.130)	0.725 (0.728)	0.126	0.166 (0.134)
Kidnapped	-0.208 (0.503)	-0.042	-0.046 (0.089)	-0.228 (0.490)	-0.047	-0.052 (0.089)
Sexual Assault	0.617 (0.769)	0.109	0.111 (0.130)	0.493 (0.758)	0.091	0.087 (0.131)
Multiple Victims	1.142 (0.566) **	0.214	0.203 (0.093) **	0.731 (0.483)	0.142	0.139 (0.085)
Under Sixteen	1.438 (0.632) **	0.231	0.265 (0.119) **	1.094 (0.600) *	0.189	0.208 (0.117) *
Constant	2.300 (1.660)		0.873 (0.303) **	0.155 (1.203)		0.515 (0.232) **
R^2 or Pseudo R^2	0.150	0.150	0.171	0.132	0.132	0.154
N	186	186	186	186	186	186

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant Minority/victim Minority.
In this and the following table, columns (1) to (3) are identical to columns (4) to (6) in all but one respect – columns (1) to (3) use the Composite egregiousness measure (4-12), and columns (4) to (6) use the Overall egregiousness measure (1-5). As one can see, the basic findings of the table are unaffected by the choice of egregiousness scale.

We only show 186 cases because of missing values on the number of prior prison sentences variable.

Table 42

Explaining Death Sentences in 205 Connecticut Death-Eligible Cases, 1973 – 2007, Adding Controls for Number of Prior Prison Sentences Imposed and Stranger Murders

	Dependent Variable = Death Sentences | Death Eligible					
	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit Marginal Effects	Linear Prob. Model	Logit	Logit Marginal Effects	Linear Prob. Model
Explanatory Variables						
Defendant Minority/ Victim Minority	-0.987 (2.543)	-0.000	-0.020 (0.028)	-1.229 (3.336)	-0.000	-0.014 (0.030)
Defendant Minority/ Victim White	4.516 (1.322) **	0.013	0.079 (0.053)	6.083 (2.097) **	0.005	0.080 (0.053)
Defendant White/ Victim Minority	Dropped†		-0.098 (0.092)	Dropped†		-0.099 (0.091)
Composite Egregiousness (4-12)	-0.155 (0.421)	-0.000	-0.003 (0.014)			
Overall Egregiousness (1-5)				3.135 (1.604) *	0.000	0.014 (0.028)
Special Aggravating Factors	0.485 (0.227) **	0.000	0.007 (0.008)	0.514 (0.284) *	0.000	0.005 (0.009)
Number of Prior Prison Sentences Imposed	-0.876 (0.327) **	-0.000	-0.010 (0.005) **	-1.056 (0.352) **	-0.000	-0.010 (0.005) **
Stranger	2.451 (1.783)	0.002	0.021 (0.031)	2.765 (1.909)	0.000	0.021 (0.031)
Waterbury	9.999 (3.718) **	0.821	0.433 (0.159) **	9.528 (4.504) **	0.243	0.424 (0.161) **
Pre-1998 Cases	-0.169 (0.901)	-0.000	0.014 (0.023)	1.107 (1.546)	0.000	0.012 (0.023)
Murder for Hire	6.583 (2.246) **	0.112	0.082 (0.068)	8.353 (3.976) **	0.064	0.085 (0.067)
Kidnapped	2.968 (1.435) **	0.003	0.065 (0.049)	2.418 (1.380) *	0.000	0.063 (0.049)
Sexual Assault	2.595 (1.370) *	0.003	0.049 (0.053)	0.992 (1.405)	0.000	0.040 (0.054)
Multiple Victims	4.062 (1.463) **	0.004	0.031 (0.049)	3.533 (1.516) **	0.000	0.029 (0.054)
Under Sixteen	4.326 (1.356) **	0.010	0.047 (0.049)	5.547 (2.739) **	0.003	0.035 (0.045)
Constant	-13.361 (5.707) **		-0.041 (0.129)	-28.703 (12.056) **		-0.101 (0.111)
R^2 or Pseudo R^2	0.592	0.592	0.282	0.631	0.631	0.283
N	181	181	186	181	181	186

Robust Standard errors in parentheses, ** = p< 0.05, * = p <0.10
The omitted category from the race of defendant and victim variables is defendant White/victim White.

We only show 186 cases in Columns (3) and (6) because of missing values on the number of prior prison sentences variable.

J. FINAL COMMENTS ON THE REGRESSION RESULTS

Before we turned to the regression analysis in this Section IX, we had presented figures and tables documenting the harsher treatment that the Connecticut death penalty system inflicts on cases with minority defendants and white victims, and the vastly higher pattern of death sentencing in Waterbury. These findings virtually leapt out of the raw aggregated data, as highlighted visually in Table 20. The more sophisticated regression results overwhelmingly confirm what we saw in the simple tables and figures: race and geography substantially influence capital outcomes in Connecticut. These results cannot be explained by the types of murders involved, the number of victims, the egregiousness of the crime (measured in two primary distinct ways based on the evaluation of 18 coders, as well as with many variations in specification and disaggregation into component elements), various aggravating factors that might attend the crime, the gender of the defendant, whether the crime is a stranger murder, the record of prior prison sentences of the defendant, or whether we drop out cases that Michelson argues should be omitted. My findings are statistically significant and robust.

Of course, race and geography are not elements that can permissibly be deemed to be aggravating factors of a murder, so these findings highlight the unprincipled elements of capital charging and sentencing that undermine the constitutional requirement to limit the application of the death penalty to the worst of the worst offenders. A system that permits such unprincipled elements to influence these capital outcomes so strongly is arbitrary and capricious.

The opposing expert in this case, Stephan Michelson, fully concedes the strong geographic disparities but tries to argue that perhaps there is some other factor that can explain away the strong statistical findings of race discrimination. He essentially makes two (flawed) arguments. The first is that some factor that is omitted from my regression analysis really explains the identified unprincipled racial influences on capital outcomes. The second is my

own measure of egregiousness -- a key explanatory variable that I included in my regression models -- can explain these findings. Both arguments should be rejected for the following reasons.

First, Michelson would do well to examine the Supreme Court decision in *Bazemore v. Friday,* 478 U.S. 385, 393 (1986), which addressed the following question: "May a regression analysis be treated as probative evidence of discrimination where the analysis does not incorporate every conceivable relevant variable?" The Court emphatically answered this question in the affirmative, as every knowledgeable econometric expert would readily attest.

The great virtue of regression analysis is that regression findings of racial disparities are *not* undermined by omitted variables if those variables are not correlated with race. Thus, when Michelson sputters that a prosecutor might not have charged a potentially capital-eligible defendant with a capital felony or a jury might not have awarded a death sentence to such a defendant because of the weakness of the evidence on some key point, there is a simple answer that dismisses this point as irrelevant. Weak evidence in a given case could influence a decision in that case, but it would *not* undermine a strong finding of racial disparity unless "weakness of the evidence" was something that systematically was related to race. Moreover, the "weakness of the evidence" effect would have to be related in a particular way that would make minority on white cases *more* likely to favor the prosecution. But there is not the slightest reason to believe that the evidence is *inherently* stronger when minorities kill whites than it is in other cases.[321] Certainly Michelson has offered *nothing* in support of such a conclusion. Indeed, the proposition seems utterly implausible.

[321] Of course, it might be true that the state marshals its forces to collect more evidence when minorities kill whites but this argument would simply explain the manner in which the state discriminates on the basis of race in investigating and prosecuting crimes.

Moreover, as noted above, Michelson fully concedes that Waterbury capital-eligible cases are treated more harshly than cases from elsewhere in Connecticut. But given the strong evidence of racial disparity and Michelson's implicit concession that "omitted factors" do not undermine the regression findings on geography, he should similarly recognize that such factors do not undermine the regression findings on race.

This point applies generally. One cannot challenge regression findings of racial disparity by merely asserting that some factor that is not included in the regression equation could explain these patterns unless there is some legitimate basis for believing that the omitted factor correlates with race (in the direction needed to undermine the relevant finding). For example, the regression model controls for the enabling factor that makes the case death eligible, the racial configuration of the defendant and victim, the number of victims, the location of the crime in Waterbury, the presence of special aggravating factors, and all the aspects of the crime that are captured in the cases summaries (via the egregiousness scores), which also reflects some potentially mitigating factors. The regression does not have additional controls for factors that we could certainly imagine to be mitigating—very low intelligence, psychological problems, abuse of the defendant as a child, etc. But this again does not undermine the regression finding *unless there is some reason to think that these mitigating factors are present less often for minority defendants who murder whites or for Waterbury defendants than for the other capital-eligible defendants in my sample.* Michelson offers not the slightest reason to believe this is true.

In fact, if there were any such correlation, one would likely expect *greater* degrees of mitigation for minority defendants based on a whole host of societal and personal deprivations, but this would only suggest that if we could generate a valid control for mitigation, it would only *strengthen* the evidence of racial bias. To that extent, the findings of racial disparity illustrated

in my regression models would *understate* the full extent of the racial bias in the operation of the Connecticut death penalty system.

Second, Michelson offered the entirely spurious argument that minority on white murders are treated more horribly because they are more egregious crime (without regard to race). As we saw in Table 20, Michelson is simply wrong on the predicate fact -- minority on white crimes are clearly *not* more egregious. Moreover, he also fails to understand that my regressions control for egregiousness, so this factor *cannot* explain why minority on white crimes are treated more harshly. In other words, Michelson's argument is both wrong and incoherent, as I explain in greater detail in Section X.F.

X. MICHELSON'S MANY, ERROR-FILLED, AND HYPERBOLIC REPORTS

Michelson initially provided an astoundingly intemperate and lengthy diatribe purporting to undermine my report but, as set forth in the Executive Summary of this report, essentially confirming—explicitly or implicitly—all of the major elements of my report. Specifically, Michelson directly or inadvertently confirms that the capital punishment regime of Connecticut is characterized by the existence of discrimination, geographic bias, arbitrariness, and the failure of the system to limit the application of the death penalty to the worst of the worst offenders. While Michelson termed my report "a failure," he has perhaps unwittingly paid it the highest tribute by embracing and/or inadvertently advancing its major findings.

One might wonder why if Michelson was accepting the major elements of my report, he was simultaneously railing. I have wondered about that myself.

Perhaps I should just deem Michelson's attacks against me and my report for all sorts of imaginary crimes and misdemeanors as irrelevant in light of his clear admission that identical cases will be treated vastly differently depending on where they occur within the small state of

Connecticut, that female defendants are treated vastly differently than male defendants, and that these arbitrary factors (and presumably a host more) explain why the worst crimes (according to his own classification scheme) were *not* treated most harshly. Michelson's own regressions also showed the powerful influence of race on capital charging and plea bargaining, although he did struggle against his own evidence on this issue.

But since Michelson has muddied the waters so badly -- particularly on the issue of racial disparities and some of his nonsensical charges against me -- I should probably take some time to respond. This is not a simple task because not only has Michelson been verbose and pugilistic from the start, but he has also made so many errors in his reports that I have had to constantly deal with yet another report that tries to start again at doing what Michelson did so badly in his previous attempt. Just so I can try to keep these straight, Michelson started off with his May 19, 2009 report, which was followed up by his July 1, 2009 revised report, then his August 1, 2009 report followed by the September 1, 2009 report, then ending the year with his November 30, 2009 report. Michelson then resumed with his August 20, 2010 report, which he followed up with his October 15, 2010 report. That is seven reports so far. In addition, in March 2011, Michelson announced that he has generated or is still working on an eighth report, as yet unreleased. At that time, Michelson produced an entirely new set of tables of regression output using a new data set and newly created variables. Moreover, he continues to write lengthy memoranda that are apparently designed to clean up the mess from errors in his deposition testimony or earlier reports. The sheer volume of this enormous cacophony of shifting arguments and discarded material acknowledged by Michelson to be utterly flawed complicates the task of trying to decide what, if anything, is worth responding to in Michelson's continually growing body of work.

This section will be divided into a number of subsections. Subsections A and B will address the overall poor choices that Michelson adopts in his regression approach: First, he presents only linear probability estimates instead of the conceptually more appropriate logit model. In most cases, these models give similar results, but in this instance—largely because the percentages are small for cases receiving a sentence of death—the choice matters. Some of Michelson's findings of lack of significance are simply the product of his poor choice of estimation methodology. Second, Michelson uses an invalid data-mining specification approach that has been roundly criticized by the eminent MIT econometrician Frank Fisher as "a recipe for spurious results."[322]

Subsection C addresses Michelson's utter failure to either appreciate or acknowledge that loading up his regression with large numbers of data-mined variables completely robs his regressions of power to identify true causal effects. Michelson badly misstates how many explanatory variables could be used in a regression analysis given the size of and patterns in my death-eligible data. It is no surprise when he then proceeds to conclude something is statistically insignificant, especially when he makes based on absurdly low ratios of observations to variables—for example, in one death sentence regression he makes estimates coefficients on 12 variables with only 38 observations!

Subsection D addresses Michelson's dogmatic attack on the use of my egregiousness measures, which conflicts with a huge body of research across all disciplines of economics, social science, and medicine—all of which Michelson concedes he has never read. This subsection illustrates that Nobel Prize winning researchers, perhaps the most eminent American statistician in the last century, a book that Michelson calls "the most impressive academic books he has ever read," and articles that he cites in his own report have used or endorsed the precise

[322] *Id.* at 713-14

use of ordinal variables that Michelson contends is impermissible. After being shown that the only source he offered as authority for his position—the Stata manual—actually ran a logit regression in a way that Michelson argued could not be done, he finally relented and conceded that the burden to show any problem with my regressions is now on him. Michelson later tried to backtrack to offer another article to support his view, but this very article directly contradicted his discredited position.

The Michelson Report criticizes the analytical models used in my report on the grounds that they improperly fail to take into account the judicial process and other intermediate outcome variables.[323] In Subsection E, I explain why it is crucial *not* to include intermediate outcomes such as plea bargains as explanatory variables in a regression. Such outcomes are not proper controls, but rather are factors that may merit explanation in themselves. Thus, while these outcomes could be perfectly reasonable dependent variables, they are not valid explanatory variables in an analysis trying to look at the operation of the Connecticut death penalty system as a whole.

A. THE LINEAR PROBABILITY MODEL V. A LOGIT MODEL

One of the first choices one must make in trying to explain dichotomous outcomes such as capital charging and sentencing is the appropriate regression tool. Michelson, who often presents himself as the extreme statistical purist (for example, with his dogmatic arguments about ordinal versus cardinal variables in regression models), makes the odd choice of using a linear probability model in all of his regressions.

When modeling a binary dependent variable, such as whether a defendant was charged with a capital felony or sentenced to death, logit models are conceptually superior to linear probability models. The primary problem with the linear probability model is that it fails to

[323] *See* MICHELSON REPORT, AUGUST 20, 2010, at viii-ix.

ensure that the probability estimates fall within the 0-1 range: as the authors of a major series of econometrics books state, "…we can easily obtain [probability] values that are less than 0 or greater than 1. Values like these do not make sense as probabilities, and we are left in a difficult situation. The problem lies in the fact that in the linear probability model we implicitly assume that increases in x have a constant effect on the probability of y."[324] The only way to overcome this problem is to use a nonlinear model using maximum likelihood estimation, such as a logit model.

As Hill, Griffiths and Judge state in their basic text, *Undergraduate Econometrics*: "For these models, usual least squares estimation methods are not the best choices. Instead, maximum likelihood estimation is the usual method chosen."[325] The linear probability that Michelson employs throughout his report is not preferred "since the least squares estimator is both biased and inconsistent."[326]

The bottom line is that for most purposes the logit model will be superior. The linear probability model will generally give the right result, so it is not infrequently used because it does have a few advantages in terms of ease of interpretation and ability to generate estimates in circumstances where the logit model fails. For that reason, while I always show the logit regressions first, I also present linear probability estimates for each table in my report.

Under certain circumstances, however, the logit and linear probability models do give different answers, and in these cases, the logit model results should be preferred. Indeed, one can see that in various tables that are presented in my report. For example,

[324] R. Carter Hill, William E. Griffiths, and George G. Judge, *Undergraduate Econometrics* (Second Edition) p. 370 (2001).
[325] *Ibid*, p. 369.
[326] *Ibid*, p. 368.

Note that my Table 23 estimates for the impact of Waterbury on death sentencing show highly statistically significant results using either the logit or the linear probability models (a point that even Michelson fully concedes). But look what happens to the estimated coefficients on the minority on white murders in Table 23. Now we see how Michelson is led astray by his choice of the linear probability model. While that model shows that minority on white murders do receive death sentences at a higher rate by roughly 4-8 percentage points, which is a very large effect, the estimate is *not* statistically significant (as indicated by the absence of the two asterisks). From this Michelson concludes that race doesn't affect sentencing (although he did concede it affected charging as we saw for both the logit and linear probability estimates in Table 22).

But Michelson's conclusion is wrong. Race does matter, and if he had used the preferable logit model, as we do in columns 1-2 and 4-5 in Table 23 (and throughout), then Michelson would have been led to the same conclusion. The reason that Michelson's regressions go astray here is that the linear probability model tends to do better (and thus better replicate the results of the preferred logit model) when the probabilities being estimated are in the range of 50 percent (essentially a more linear portion of the logistic curve). For the lower probability event of capital sentencing and the low overall number of death sentences, the linear probability estimates are simply less reliable.

The bottom line, then, is that all of Michelson's regression results are suspect because he uses the regression tool that is "not the best choice" because it gives results that are "both biased and inconsistent."[327] My Table 23 reveals that Michelson's choice erroneously understates the importance of race of defendant and victim in influencing who gets a sentence of death.

[327] *Ibid*, p. 368

B. MICHELSON'S SPECIFICATION APPROACH

After getting off on the wrong foot by relying solely on a less appropriate linear probability model to estimate the relevant effects, Michelson commits another major blunder in specifying his regression equation. There is a clear and preferred approach to specification, and there is a disfavored and troubling approach. I chose the former, while Michelson chose the latter.

Using econometric models to explain capital outcomes requires a very detailed knowledge of criminal justice matters to ensure that truly independent explanatory variables are properly specified to explain the relevant dependent variable. [328] A coherent theory of capital punishment charges and sentencing is a necessary condition for developing a model of the factors that influence charging and sentencing. Valid statistical inference must be premised on ex ante articulations of the theoretically relevant explanatory variables which are then tested against the data. Accordingly, I specified my regression model in advance based on an understanding of the particular criminal justice outcomes being examined and the likely important influences on those decisions, and then used the data to test certain propositions, such as whether race or geography influenced capital outcomes. The model in my report is specified a priori based on the factors the United States Supreme Court and the Connecticut legislature and Supreme Court have indicated are acceptable reasons for distinguishing among murders.[329]

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[328] Chris Chatfield, *Model Uncertainty, Data Mining, and Statistical Inference*, 158 J. ROYAL STAT. SOC. 419, 420 (1995); STEPHEN L. MORGAN & CHRISTOPHER WINSHIP, COUNTERFACUTALS AND CAUSAL INFERENCE: METHODS AND PRINCIPLES FOR SOCIAL RESEARCH 161 (2007).

[329] That is, my report is specifically attuned to what are permissible rather than arbitrary factors in assessing death eligibility. *See also* Samuel Gross & Robert Mauro, *Patterns of Death: An Analysis of Racial Disparities in Capital Sentencing and Homicide Victimization*, 37 STAN. L. REV. 27, 37 (1984) (defining arbitrariness as "the absence of a legitimate justification for an action or pattern of actions"); David Matas, *The Death Penalty as a Violation of International Human Right Norms*, 22 AM. J. CRIM. L. 254, 257 (1994) ("Arbitrary does not just mean random. It also means imposition of the death penalty for reasons that have nothing to do with the crime.").

1. Michelson's Data Mining Technique

An ill-advised alternative to fitting data based on a prior conception of the true model is to engage in the type of data mining techniques employed by Michelson that select independent variables because they appear predictive for a particular dataset. Michelson's atheoretical step-wise regression approach -- which formulates and fits a model based on the same data, and then make inferences from the results as if the model had been known a priori -- violates the assumptions of econometric analysis, rendering statistical inferences invalid.[330]

Michelson admits this is his approach, telling us he "start[s] with an a priori equation, and then proceed[s] to take out variables that do not contribute to the equation, and add others that do."[331] He declares, without scholarly support, a "rule of thumb is to delete a variable that has a t-statistic below 1.00"[332] and applies this rule of thumb. He criticizes me for failing to engage in a similar process of variable inclusion and exclusion. Michelson claims:

> In "specifying" an equation, I delete independent variables that appear to have no impact on the dependent variable. Donohue does not. He uses a prior specification, at times using less informative variables than [*sic*] remain unused.[333]

In contrast to sound statistical practice, Michelson criticizes me for selecting variables "without reference to their effect in an equation."[334]

Michelson's advice violates conventional econometric wisdom. The magisterial authority on this issue is the famed MIT econometrician Frank Fisher. In his widely cited paper, "Multiple Regression in Legal Proceedings," Fisher explains to his target audience of judges and lawyers that "In multiple regressions, one should never eliminate a variable that there is firm theoretical

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[330] JEFFREY M. WOOLDRIDGE, INTRODUCTORY ECONOMETRICS: A MODERN APPROACH 656 (2d ed. 2002).
[331] MICHELSON REPORT, AUGUST 20, 2011, at App.B 12.
[332] *Id.* app. at B12.
[333] *Id.* at 121.
[334] *Id.* at 261.

foundation for including just because its estimated coefficient happens not to be significant in a particular sample."[335] Adding and deleting variables "by first looking at the data and then including those factors that appear correlated with the dependent variable is a recipe for spurious results."[336] Michelson has followed the recipe perfectly -- and now offers his spurious results to the Court.

Variable selection based principally or solely on the data to be fit is decried in every first-year econometrics course as illegitimate data mining. Data-driven variable selection is both logically unsound and practically misleading.[337]

Michelson's particular version of data mining is known as "stepwise regression."[338] Noted MIT economist Franklin M. Fisher argues against stepwise regressions for two reasons:

> In the first place, even if none of the independent variables have anything to do with the dependent variable, proceeding in this fashion is very likely to produce the appearance of a high correlation in a particular sample. Second, variables that in fact belong in the relationship but that are correlated with the independent variables used early in the procedure tend never to get in.[339]

Multiple regression analysis assumes that the model is specified in advance and is used as a tool for testing hypotheses. The econometrician must have a prior theory of the relationship between the independent variables and the dependent variable, which is then tested by examining the empirical evidence. Michelson proceeds in the opposite fashion where he trolls through the data and then presents some artificially selected variables that appear to be significant -- but only because they have been selected by virtue of their apparent significance. This is an unsound econometric approach, as Fischer explains:

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[335] Franklin M. Fisher, *Multiple Regression in Legal Proceedings*, 80 COLUM. L. REV. 702, 715 (1980).
[336] *Id.* at 713-14.
[337] Ping Zhang, *Inference After Variable Selection in Linear Regression Models*, 79 BIOMETRIKA 741 (1992)(proving the invalidity of standard statistical inference with data-driven selection criteria).
[338] MICHELSON REPORT, AUGUST 20, 2010, at 263 n. 474.
[339] Fisher, *supra* note 335, at 714.

> While multiple regression and related econometric techniques are powerful tools for analyzing data, their proper use presupposes *an underlying theory of the structure generating those data*. While some hypotheses concerning that structure can be tested with these tools, the theory itself cannot be discovered by computer runs and data experimentation. Thus, the expert making the study must not only understand the proper uses of the statistical tools, he also must learn something about the phenomena and hypothesis being investigated.[340]

Michelson's admission that he has little or no knowledge or expertise regarding the criminal justice system is critical here and likely explained why he was in no position to specify appropriate explanatory variables based on theoretical considerations, but rather had to rely on his illegitimate step-wise approach. This admission calls into question his capacity to devise a valid statistical model when he lacks knowledge of the "underlying theory of the structure generating" the data he purports to analyze.

True to form, Michelson actually criticizes me for implementing a regression model based on a set of predictors that is specified a priori, when this in fact the preferred approach. The top econometrician, Jeffrey M. Wooldridge, also highlights the problems with Michelson's data mining approach in his highly-acclaimed recent text, Introductory Econometrics: A Modern Approach (2009):

> "Unfortunately, this practice of **data mining** violates the assumptions we have made in our econometric analysis. The results on unbiasedness of OLS and other estimators, as well as the *t* and *F* distributions we derived for hypothesis testing, assume we observe a sample following the population model and we estimate that model once. Estimating models that are variants of our original model violates that assumption because we are using the same set of data in a specification search. In effect, we use the outcome of tests by using the data to respecify our model. The estimates and tests from different model specifications are not independent of one another."[341]

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[340] Fisher, *supra* note 335, at 735 (emphasis added).

[341] Wooldridge, at p.677-678. See also A. Colin Cameron and Pravin K. Trivedi, Microeconometrics: Methods and Applications 286 (2005), which stresses that such stepwise regression approaches are particularly problematic when "small samples are analyzed," which well describes Michelson's efforts to look at continually smaller samples using this problematic stepwise approach.

Wooldridge then goes on to discuss how Michelson's type of stepwise regression is a "severe form of data mining." Because of the undesirability of the method in general and issues of interpretability, Wooldridge notes that while "in principle, it is possible to incorporate the effects of data mining into our statistical inference; in practice this is very difficult and is rarely done, especially in sophisticated empirical work." (p.678.) Wooldridge concludes by stating that data mining should be minimized when at all possible.

In summary, Franklin M. Fischer's highly relevant paper "Multiple Regression Analysis in Legal Proceedings"[342] reinforces the point that the robustness and unbiasedness of a multiple regression model is based on variables conceived of *beforehand* that could theoretically influence the dependent variable, rather than retrospectively selecting variables that "appear correlated with the dependent variable." In language that perfectly describes Michelson's chaotic and uninformative approach to model selection, Fischer states: "Without some theory about which variables are likely to matter, throwing a great number of variables into the hopper is likely to lead to spurious results. If one tries enough combinations of variables, then, in a particular sample, one will tend to get some relationship that appears to fit well. Therefore, a properly done study begins with a decent theoretical idea of what variables are likely to be important."[343]

2. An Example of Michelson's Data Mining

To give a sense of how much manipulation Michelson goes through without any theoretical idea of how the relevant explanatory variables are supposed to be important to explaining capital outcomes, consider how he used the components of my Composite 4-12 egregiousness measure in his own regressions in Part B of his report. Rejecting my single Composite egregiousness score, Michelson first dismisses the fourth subcomponent of the

[342] Franklin M. Fischer, Multiple Regression in Legal Proceedings, 80 *Columbia Law Review,* 702-736 (1980)
[343] *Ibid*, 715.

composite 4-12 egregiousness measure altogether, and then modifies each of the first three subcomponents into three individual dummy variables, **eg13**, **eg23**, and **eg33**, referring to egregiousness subcomponents one, two, and three, respectively. How does Michelson define these dummies? One must give him credit for ingenuity here. Michelson sets the dummies equal to one if for the given case and given subcomponent, either (1) all nine coders gave a ranking of three or (2) eight of nine coders gave a ranking of three and the remaining coder gave a ranking of two. Otherwise, the dummies take on a value of zero.[344] Note that Michelson's variable reconstruction involves several unexplained and arbitrary specification. Michelson says he gave his dummy variables the names ending in 3 (for example, eg13) because this "reminds us that this variable is counting 3s."[345] Not really, it is counting all threes and all threes plus one two in the egregiousness coding. Why use his two-part variable definition instead of just the first? If the second was to be used, why 8 of 9, instead of more than 6 of 9 or some other number? Given Michelson's data mining proclivities, the answer to these questions are not likely not to be promising.)

Michelson then uses these three measures in producing OLS regression estimates of the likelihood of a variety of outcomes, including capital charging (figure B17, p.121), a guilty plea (figure B18, p.128), a non-Alford plea (figure B19, p.130), a dropped capital charge (figure B20, p.132), an acquitted capital charge (figure B21, p.135), a dismissed capital charge (figure B22, p.139), and a death sentence (figures B23 and B24, p.145 and p.147). Each of these tables presents a different specification – essentially each estimate uses a different set of explanatory variables and a different sample. For each successive table, Michelson limits his sample to the cases that come through the earlier stage and remain eligible for the outcome of interest. The

[344] *Id* at 75.
[345] *Id.*

legitimacy of these sample restrictions is an altogether separate issue that I discuss in Appendix E. However, he refers the reader to Appendix B for an explanation of his method for choosing which explanatory variables ultimately are to be included in the model specification. Here, Michelson explains the process of his variable choice:

> I define the minimum parameters of "a relationship," and delete independent variables that fail it. They do not contribute to understanding the dependent variable. However, I will retest some of the variables I have deleted to see if, after deleting others, some do in fact appear to deserve a place in the equation. That is what I call the "specification process…. My rule of thumb is to delete a variable that has a t-statistic below 1.00.[346]

This is a sloppy, unprincipled and unsound process that does not conform to the standards of good econometric practice. There is no indication of what variables were included, except in the rare instances where Michelson tells us a variable failed to make his t-statistic cut. Moreover, Michelson says he "will retest *some* of the variables I have deleted to see if, after deleting others, some do in fact appear to deserve a place in the equation (emphasis supplied)." Some? Which ones? Michelson never tells us. This haphazard process is exactly what Frank Fisher warned against as a poor specification approach. Theoretically important variables can be excluded. One would expect that one of twenty of the truly *unimportant* variables he tries will seem to be statistically significant even though that is just an artifice of his specification approach. These random findings will then be trumpeted as important influences. With the 600 plus variables that Michelson combs through, he has created a recipe for the worst forms of data mined spurious results.

The result of this process, with regard to the egregiousness measures in particular, is a set of regressions each including a seemingly arbitrary combination of the **eg13**, **eg23**, and **eg33** variables. In order, the regressions presented in figures B17 through B24 contain the following

[346] *Id*, Appendix B at 12.

combinations: B17: eg33, B18: eg23, B19: eg23, B20: none, B21: eg23 and eg33, B22: eg13 and eg23, B23: eg23 and eg33, B24: eg23 and eg33. Michelson's reasoning for the specification in each case, as explained above, is that only these specific subcomponents contribute to the regression enough to justify their inclusion in the model. Ultimately, Michelson provides a set of different specifications to estimate similar outcomes (such as capital charging and capital sentencing), and a set of different estimates which seem to privilege certain components or aspects of egregiousness above others on an outcome-by-outcome basis. Michelson directly fails to do what Fisher, and every other solid econometrician would do: ask whether the egregiousness factors are theoretically valid explanatory variables in a regression examining, say, capital charging or capital sentencing, and if they are, include them in the regression. Instead, he drops variables in and out of his models in opaque and unexplained ways, opening himself up to the charge that he is just trying enough combination of variables until he gets the results he likes. This is not serious work.

C. THE NUMBER OF EXPLANATORY VARIABLES

We have just seen that Michelson starts off with two strikes against him before we have ever looked at a single regression estimate: first, he relies exclusively on a less favored linear probability model, which we know fails to generate accurate results when compared with logit models for capital sentencing evaluation, and second, lacking any expertise in the area of the death penalty or the criminal justice system, he falls back on a decidedly inferior stepwise regression approach to the problem of model specification. We now discuss Michelson's third strike—his tendency to cram too many explanatory variables into his model in an attempt to make the race coefficients appear statistically insignificant.

A typical Michelson pattern when he is violating some precept of good statistical practice is to attack me for *not* violating the practice (as we just saw above his attacks on my appropriate

a priori approach to model specification). Thus, Michelson argues that I should have used more explanatory variables in my regressions. The econometric issue in question is how many explanatory variables (traditionally denoted k) can be used to reliably estimate a regression model given the number of data points (denoted n). Michelson, imprudently, takes issue with my deposition testimony that "As a general matter for statistical analysis, the number of observations has to be many times the number of variables employed, if you are going to get reliable statistical estimates." Michelson then criticizes my statement (in language reminiscent of his earlier similarly misguided attack on me for noting that the Supreme Court had identified retribution and deterrence as the two permissible goals of the death penalty), saying: "Where did he get this bizarre idea? The general idea is that the t-distribution becomes the Normal distribution with 30 degrees of freedom. A more conservative rule would be, perhaps, 50 degrees of freedom. In principle Donohue could use 100 variables with his 207 cases—maybe 150."[347] In full conspiracy-spotting mode, Michelson even claims that I used a reasonable number of independent variables because I "was trying to avoid confronting [my] inability to solve the problem [Michelson] outlined in Section 5, the failed key-entry of the DCI data."[348] Again, Michelson's statements are all utter nonsense—both in being clearly wrong on the statistics and in making the outrageous claim that my model selection was based on anything other than valid statistical criteria.

Michelson's astonishingly uninformed assertion that I could use 100 or maybe 150 variables in a regression with just over 200 cases is contradicted by *every* authority in statistics and econometrics who has written on this issue. Such an approach might be helpful to Michelson's goal of loading up the regression to obscure true effects, but it cannot generate

[347] MICHELSON REPORT, AUGUST 20, 2010, at 245.
[348] *Id.* at 246.

sensible regression results. Michelson then states that my belief that one needs many observations per explanatory variable to estimate a valid regression is a "bizarre idea." Michelson is flat out wrong yet again. In response to Michelson's cry about where did I "get this bizarre idea" that one needs many observations for each explanatory variable to properly estimate a regression equation, I have a simple answer: from the econometric literature, which Michelson frankly admitted he had not looked at in years.[349] Indeed, Michelson candidly conceded in his deposition that he is *not* an expert in econometrics.[350]

I offer the following recommendations from various econometric textbooks, which directly support my position and refute Michelson's: T.E. Dielman, *Applied Regression Analysis for Business and Economics* (1991) advises 30 observations for simple regression and 10-20 additional for each additional variable. Jacob Cohen and Patricia Cohen, *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (2003), suggest 15 observations for each explanatory variable. M.S. Younger, *A Handbook for Linear Regression* (1979), recommends 10 per predictor. E.J. Pedhazur, *Multiple Regression in Behavioral Research* (Holt, Reinhart & Winston 2nd ed. 1982), suggests 30. J. Scott Long, *Regression Models for Categorical and Limited Dependent Variables* (Sage Publications, 1997), recommends 10, with some caveats:

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[349] When questioned about his similarly wrong-headed views about ordinal and cardinal variables in regression studies, Michelson answered as follows:
Q And you're not able to cite one authority or authoritative text that supports your position; am I summarizing that correctly?
A I can't cite any text for anything. When was the last time I read a text?
Q When was the last time you read a text?
A Five years ago, ten years ago.
Michelson, Stephan - Vol. II 8-27-09 dep P. 334: 17 - 21.

[350] Q. You consider yourself an expert in the field of econometrics; is that right?
A. No.
Michelson, Stephan, August 27, 2009, Deposition transcript Vol. III P. 564: 14-16.

> A rule of at least 10 observations per parameter seems reasonable . . . This does not imply that a minimum of 100 is not needed if you have only two parameters. Second, if the data are ill-conditioned (e.g., independent variables are highly collinear) or if there is little variation in the dependent variable (e.g., nearly all the outcomes are 1), a larger sample is required. Third, some models seem to require more observations (such as the ordinal regression model or the zero-inflated count models).

B.G. Tabachnick and L.S. Fidell, *Using Multivariate Statistics* 128-29 (2nd ed. 1989), recommend 20, with a "bare minimum" of 5:

> If either standard multiple or hierarchical regression is used, one would like to have 20 times more cases than IVs [independent variables]. That is, if you plan to include 5 IVs, it would be lovely to measure 100 cases. In fact, because of the width of the errors of estimating correlation with small samples, power may be unacceptably low no matter what the cases-to-IVs ratio if you have fewer than 100 cases. However, a bare minimum requirement is to have at least 5 times more cases than IVs ....[351]

Samuel Green, co-author of the highly regarded text "Analyzing and Understanding Data (6th Edition, 2010), specifically rejects this bare minimum suggestion of a 5-to-1 ratio as too low (which is still far higher than Michelson recommends). Commenting on Tabachnick and Fidell's statement that it would desirable to have at least 20 observations per explanatory variable with 5 to 1 being a bare minimum, Green stated: "researchers who use the rule-of-thumb of 5 subjects for each predictor (Tabachnick and Fidell 1989) are conducting studies that have a high probability of not yielding significance unless the effect size is extremely large."[352] Of course, that is Michelson's goal to water down his regression results with loads of extraneous explanatory variables to obscure the true racial impact in capital charging and sentencing in Connecticut. He concedes the Waterbury effect, because it is so huge that even Michelson's array of obfuscatory tactics cannot make it go away.

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[351] B.G. TABACHNICK & L.S. FIDELL, USING MULTIVARIATE STATISTICS 128-29 (2nd ed. 1989).
[352] Samuel B. Green, *How Many Subjects Does It Take To Do a Regression Analysis*, 26 MULTIVARIATE BEHAV. RES. 499, 508 (1991).

The range of 10-20 observations per variable is corroborated in textbooks for various disciplines, including education, medicine, and chemical engineering. A standard educational research text states that for multiple regression, the recommended sample size is "at least 15 observations per variable."[353] A medical specialty research treatise advises that the practicing statistician "be aware that there is a maximum number of variables for any model and that is related to the number of observations. As a rule of thumb, you need about 10 observations per variable in the model."[354] A materials science treatise notes that "[f]or large numbers of observations per variable, confidence in the results is high and the error is small regardless of the variability. For small numbers of observations per variable, the confidence decreases substantially and is sensitive to the number of observations taken . . . When resources permit, some statisticians recommend 12-18 observations per variable.[355]

The vast majority of published recommendations by practicing statisticians hold that there should be *at least* ten observations for each explanatory variable (hence the words "many times" in my deposition statement that Michelson criticized). Given the small variation in the dependent variable in this case (only 9 death sentences out of 205 cases), Long's recommendation (quoted above) for more data per explanatory variables if we are to detect true relationships is entirely appropriate in this case. Therefore, a reasonable rule of thumb in this case might be to have at least 30-50 observations to estimate a single predictor and then 10 to 15 additional observations per added explanatory variable. This would suggest that 10 to 15 explanatory variables would be about right if one hoped to generate accurate estimates from my data set with 205 death-eligible cases, which is roughly what I have used. (Note that Michelson

[353] W.R. BORG & M.D. GALL, EDUCATIONAL RESEARCH: AN INTRODUCTION (3d ed. May 1979).
[354] JOSEPH SCHULMAN, MANAGING YOUR PATIENTS' DATA IN THE NEONATAL AND PEDIATRIC ICU 303 (2006).
[355] Stephen D. Cramer, *Planning and Design of Tests*, *in* CORROSION TESTS AND STANDARDS: APPLICATION AND INTERPRETATION 54 (R. Baboian ed., 2004).

often crams in many more explanatory variables, even when he looks at only a subset of the full sample of cases.)

In fact, I was acutely aware of the need to limit the number of explanatory variables to a reasonable size given my data set of 205 death-eligible cases. This requirement was an important rationale behind the use of the egregiousness measures because it captured a great deal of information into a single measure, thereby reducing the number of variables that needed to be estimated. I have carefully attended to the recommendations of the literature on the number of permissible or desirable numbers of explanatory variables for a data set with 205 observations, especially for the death sentencing regression in which we only have nine sustained death sentences, which is one of the factors counseling for a higher number of observations per explanatory variable beyond the customary rules of thumb. For example, my base model regressions in Tables 22 and 23 used 12 explanatory variables, for a ratio of observations to explanatory variables of 17.1 in Table 22 and 16.7 in Table 23 (where 5 cases are dropped from the logit model due to perfect predictions). When I added in the female dummy control in Tables 27 and 28, the ratio fell to 15.8 for Table 27 and 14.4 for Table 28 (again owing to cases being dropped from the logit model). I limited my further efforts to introduce additional explanatory variables to tests of the robustness of my results. In every case, the findings of racial and geographic disparities remained strong and statistically significant.

In contrast, the ratio of observations to explanatory variables in the regressions that Michelson runs is often so low that there is no reasonable expectation that sensible results could emerge therefrom. Table 43 lists 10 regressions from Michelson's report, by order of appearance (page number), that are far below the recommended ratios discussed above.[356] Indeed, he

[356] The part B tables refer to Michelson's August 20, 2010 report, and the part D tables refer to the regressions that appear in the excel file Michelson produced in March 2011.

frequently runs a regression on the right-hand side of his tables, which shows statistically significant results, only to claim that his left-had side regressions undermine that view. But all the left-hand side regressions do when the ratio of observations to explanatory variables falls this low—note for Table D11 Michelson is trying to estimate 12 explanatory variables from only 38 observations—is confirm that the ability to estimate meaningful regression results requires a more astute exercise in model selection.[357] Having only 3.17 observations per explanatory variable is simply inadequate.

None of Michelson's ratios for his primary regressions rise to even the level of 10 observations per explanatory variable (the highest is 9.64, and for his own statistical analysis in Part D, the ratios are even lower with the highest being only 8.75). In fact, all of Michelson's ratios are actually artificially elevated because Michelson double counts numerous cases that involved multiple trials or multiple death penalty hearings from the same defendant-victim combination. Such duplicates in his count of observations are clearly not independent events, and all of the recommendations for the desired number of observations per explanatory variable estimated are based on counts of independent observations. Thus, the true picture of the inadequacies of his regression models is even worse than the table already suggests. The bottom line is that Table 43 casts yet another a dark cloud over Michelson's efforts to try to undermine the statistical significance of the impact of race on death penalty outcomes in Connecticut.

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[357] Recall the recommendation from some authorities that one would need 30 - 50 observations to expect to generate valid statistical estimates for just a single explanatory variable.

Table 43: The Low Ratio of Observations to Explanatory Variables — Michelson Report

Figure Number	Page in Michelson's Report	Description	Number of Observations	Number of Explanatory Variables	Ratio
B21	135	Estimating acquittal of a capital felony charge (left panel including defendant-victim race indicators)	71	11	6.45
B22	139	Estimating capital charge dismissed by judiciary (left panel including defendant-victim race indicators)	59	9	6.56
B23	145	Estimating receives Death Sentence (A "Legalistic" view), includes cases charged with a capital felony, not dropped by prosecutor, and not acquitted.	52	11	4.73
D03	289	The capital felony charging decision (left panel including defendant-victim race indicators)	214	33	6.48
D04	294	Capital charging of "nonwhites" (including single indicator for nonwhite defendants)	214	30	7.13
D06	299	Tried under capital charge –1 (left panel including defendant-victim race indicators)	210	24	8.75
D07	302	Tried under capital charge – 2 (left panel including defendant-victim race indicators)	144	21	6.86
D08	303	Plead guilty – Not clear to what (left panel including defendant-victim race indicators)	144	25	5.76
D09	306	Death sentence among defendants not acquitted of capital charge (left panel including defendant-victim race indicators)	138	25	5.52
D11	311	Death sentence among defendants guilty of capital felony (left panel including defendant-victim race indicators)	75	18	4.17
D12	313	Death sentence among murderers (left panel including defendant-victim race indicators)	126	19	6.63

Note: these references are to Michelson's August 20, 2010 report.

D. MICHELSON'S ERRONEOUS CRITIQUE OF THE EGREGIOUSNESS MEASURES

Controlling for the level of egregiousness is an important element of my regression analysis because it aids the effort to determine whether the Connecticut death penalty system applies the death penalty to those cases most deserving of severe punishment in a logical and orderly fashion, or rather operates in a racially discriminatory or otherwise arbitrary fashion, taking all relevant factors into account. For the 205 cases in my study for which a capital felony enabler and a statutory aggravating factor are present, the "badness" of the underlying crime—the degree to which it offends socially prevalent norms and sensibilities—must be a key factor in determining who receives a death sentence. If that were not true, the implementation of the death penalty truly would be irrational and/or arbitrary.

The egregiousness variables in my study capture the legally salient differences between homicides that can be distilled by my 18 coders from summary descriptions of the nature of the murders and major aggravating and mitigating elements of the crimes. They are based on subjective coding of case summaries for two reasons. First, it is preferable to condense the measure of egregiousness into a small number of variables for the reasons we just discussed in the previous section: we could not expect to obtain valid regression estimates if we included a large number of explanatory variables to capture aggravating and mitigating elements of each offense given that there are just a little over two hundred death-eligible cases in my data set. Even with a single measure for egregiousness and a second measure tallying the number of special aggravating factors (combined with the other 11 controls for race of defendants and victims, crime type, and judicial district that we use in our based models of Table 22 and 23), we are pushing the limits of the number of explanatory variables one could sensibly use given my data set with only nine death sentences. Second, in finding facts, prosecutors, judges, and juries

confront the narrative story of a crime, and the cumulative effects of the narrative can go beyond the simple facts contained therein. Egregiousness ratings capture the reactions of coders to those narrative stories.

Michelson fails to appreciate the first point, either because of his poor grasp of econometrics or because any recognition that regression results are compromised when the ratio of observations to explanatory variables falls too low will undermine his effort to run regressions with no power to identify true relationships (such as the higher capital charging and sentencing rates imposed on minority on white murders). He seems not to understand the second point, perhaps because of his woeful ignorance about the nature of the criminal justice process in general and the death penalty in particular (displayed when he couldn't distinguish between homicide and murder, even after being instructed by a Connecticut prosecutor over multiple breaks in the deposition, which he memorialized in his incorrect written notes that he brought into the deposition in order to correct the record following the coaching by the prosecutor!—see the extended quote from Michelson's deposition in Section VI(B), above).

1. Michelson's Misguided Critique Concerning Ordinal Measures of Egregiousness

Failing to appreciate the virtues of the egregiousness measure, Michelson launches what he deems to be a devastating and fundamental critique of this measure in his allegation that it is an ordinal measure that cannot be used as an independent variable in a regression. While it may sound unbelievable given the vehemence of his attack, Michelson conceded in his deposition under withering cross examination (reproduced at length below), that his central complaint is largely semantic. According to Michelson, the very nature of his complaint about my egregiousness measure would have changed if I had simply dropped a footnote stating that when the coders gave scores ranging from 1 to 5 as a measure of how egregious the murders were (on

the Overall 1-5 egregiousness scale) these numbers should be treated as cardinal numbers rather than ordinal numbers. His rationale for this position is that ordinal numbers should not be added, averaged, or used in a regression, but that it is permissible to do so if one calls them cardinal numbers.

Given Michelson's strongly articulated—albeit incorrect and misinformed—objections to my use of the two egregiousness scores in regression models, one might think he would not run any regression that uses either the two egregiousness scores, or the subcomponents of the Composite 4-12 egregiousness measure, in the form they were created as an average across the egregiousness coders. But interestingly, despite all his criticisms of my egregiousness measures, Michelson relies on the averaged, disaggregated subcomponents of the 4-12 egregiousness measure and my exact 1-5 egregiousness score to make one of his major claims—that nonwhite-on-white homicides are more egregious than other homicides in the data set. As Michelson states (based on an embarrassingly egregious econometric error[358]): "Which cases were the worst? Mixed race cases, nonwhite defendant and white victim cases. If Donohue' s coders rated them this way without knowledge of race, it just could be that black-on-white murders are more horrific than other murders, *without regard to race.*"[359] He continues in this vein, stating:

> We are left with this question: Do coders view the world with race-biased eyes? I prefer to believe the more straight-forward explanation, that they see the murders that are committed by nonwhites on whites as more egregious than other murders *from their race-neutral facts alone.*[360]

Michelson insists on this same point (quite incorrectly), which he derives using my averaged egregiousness measures that he had spent paragraphs attacking:

> If Yale coders assess crimes committed by blacks against whites worse than other crimes, then why can representatives of the state not do the same? Without regard for race? Are

[358] I discuss the gross econometric error that Michelson makes to reach this inaccurate conclusion in Section X.F of this Report.
[359] Michelson Report, August 10, 2010, at 71.
[360] *Id* at 73.

> analysts afraid of the 'politically incorrect' conclusion that nonwhite-on-white crimes are, by their nature (without regard for race), more egregious than other crimes?[361]

So Michelson denounces my egregiousness measures as invalid, and then tries to rely on them (incorrectly) to explain away the key finding that minority on white murders are treated more harshly than other murders by the Connecticut capital punishment regime. It turns out, though, that my egregiousness measures were not mis-specified, for the reasons I discussed in my Section IX regression analysis: addressing all of Michelson's concerns about ordinality or averaging egregiousness scores did *not* undermine my base case regressions that used the simpler linear Overall and Composite egregiousness measures. Thus, we have another case where Michelson makes an overheated attack that ultimately proves to be meaningless since we reach the same conclusions whether we proceed in the fashion I initially chose or the way that he argues is superior. Perhaps then the reader may wish to just skip further discussion of this issue in both Michelson's and this report since at the end of the day, the attacks on the egregiousness measure have no substantive impact.

On the other hand, the intensity, obtuseness, and injudicious character of the essentially semantic onslaught that Michelson launches against me likely will convey useful information to the Court once again about the unreliability of Michelson's claims—even when he issues them with great venom and at exhausting length.

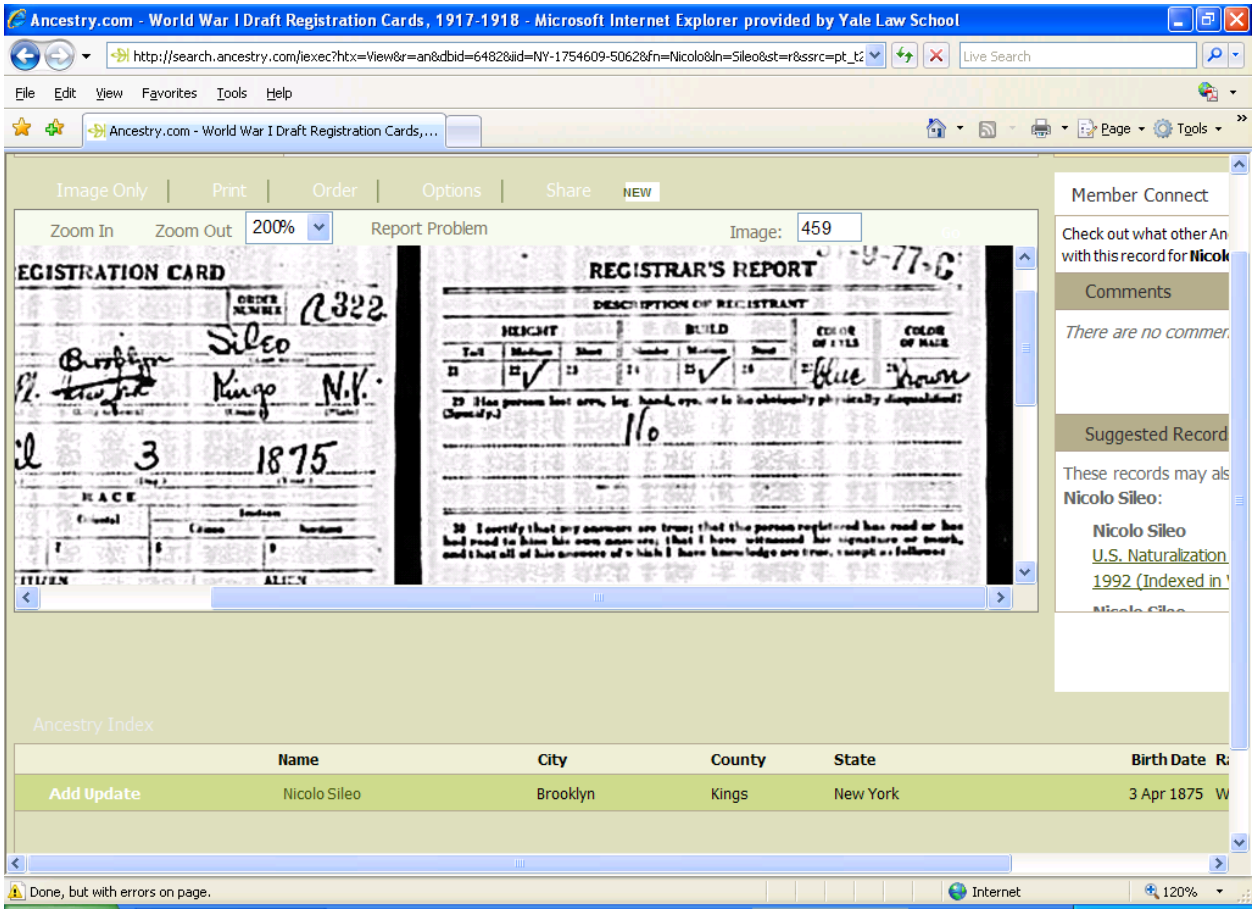
a. An Example of Ordinal Measures and Their Value

It may help the discussion to begin with a simple example of the relevant issues in this ordinal-cardinal issue that Michelson launched. In Figure 5 below, I depict my great-grandfather's (Nicolo Sileo) World War I Draft Registration Card. In it you see that, Sileo was born in 1875, was living in Brooklyn, New York, and had blue eyes and brown hair. One also

[361] *Id* at 74. In his earlier reports, Michelson answers his own question, with the boast "Obviously, I am not." He has now removed this four word sentence from his November 2009 and August 2010 reports.

sees that the Registrar has reported on the height and build of Sileo, who is listed as falling into the medium category for both characteristics. Today, one presumes there would have been an effort to collect the more precise figures of height and weight, but apparently almost a century ago, it was easier and quicker to collect the "ordinal" data in categories (presumably based on an inspection from the Registrar), rather than "cardinal" measures in actual inches and pounds.

Figure 5: Nicolo Sileo's World War I Draft Registration Card



Assume you were doing research on draft registrants in World War I and you wanted to find out, say, who among the registrants actually ended up serving in the U.S. military in the War, one might find it interesting to use the information on height and build, and hence conduct

a regression analysis. Obviously, you can't enter into the computer "short, medium, and tall," since the computer needs numbers to process a regression model. Thus, a researcher might say something like "The heights of draft registrants were collected in the three categories of 'short, medium, and tall,' and I converted these into a HEIGHT variable with values 1, 2, and 3, which I then used as an explanatory variable in my regression explaining who served in the U.S. military in World War I."

Anyone who was familiar with regression analysis would understand this completely, and would know that nothing in the least "illegitimate" was being done here. The assumptions of the researcher could not be clearer to any informed reader with knowledge of regression. The researcher was using a single variable that could assume three values to see if there was a linear relationship between the three categories of "short, medium, and tall" and military service in World War I. Nothing could be simpler to any informed reader, and I had assumed that any statistical or econometric expert would understand this when I wrote my report, which contains a similar use of numbers in creating my egregiousness scale.

Now to stick with my draft registration example for a moment longer. It would be fine for an intelligent reader to ask whether the three categories of "short, medium, and tall" will correctly capture the relationship between height and military service. This question is tangentially related to the ordinal-cardinal distinction in that the data was collected in ordinal format, but it really is a question about the best specification of the regression equation.

b. The True Issue—Specification, Not Ordinal/Cardinal

To see that Michelson has focused on the wrong issue, consider the most common regression run by labor economists—a regression that explains wages or earnings with (among others) an explanatory variable designed to capture education, which is very frequently measured by "years of education." This is clearly a cardinal measure, since it is simply capturing how

many years someone attended school. But just as we asked whether my HEIGHT variable was appropriate to capture the relationship between the height of World War I draft registrants and subsequent military service, we can ask—and indeed labor economists have frequently discussed—whether the "years of education" variable is appropriately capturing the relationship between education and earnings applies. The relevant issues between the military service regression (which began with ordinal data on height) and the wage equation (which used the cardinal variable of "years of education") are identical.

One can readily imagine possible critiques of the earnings regression using a "years of education" variable: perhaps going from 1 to 7 years of education does nothing to enhance your wages, and it is only after you have been in school for eight years that earning begin to rise linearly. In that case, one would redefine the education variable to reflect a zero value for less than eight years of education and count each year of education above seven in integer terms beginning with 1 for eight years, two for nine years, etc. A purist might say that you have now created an ordinal variable, because you have now ordered your data in a way that doesn't reflect equal steps between 0 and 1 for example (which could represent a difference of, say, six years in education for a particular person), and between 2 and 3, which reflects only a jump of a single year in added education. But the nomenclature is unimportant, reflecting how the relevant issue is not ordinal versus cardinal, as Michelson mistakenly believes. Rather, the appropriate issue is "how do we specify the relationship between two variables that are being measured by some proxy: height being proxied by the three categories in the draft example, and the contribution of education being proxied by years of education?"

Similarly, one could ask in my World War I military service regression whether the three height categories are linearly related to military service. Perhaps it would be better to create two

dummy variables instead—one identifying those with medium height and a second identifying those who were tall. On the other hand, it might well be preferable to use the single HEIGHT variable (measured as 1, 2, and 3) if you were confident that taller individuals were more valued by the military and, other things equal, would be more likely to be selected for service. In this case, you would know that the relationship should be monotonic (that is the taller you are, the more likely you will be taken into military service), and the value of simply constraining the regression to identify a monotonic relationship might exceed any imprecision caused by possible deviations from linearity.

It should now be clear that the same issues exist with the two egregiousness measures that I designed to control for elements of the crime and the defendant that are deemed to make a case more deathworthy. It is certainly a reasonable assumption that other things being equal (such as the type of the murder—whether involving rape or kidnapping or the killing of a child, etc.), the relationship between the egregiousness score and charging and sentencing should be monotonic—presumably, the higher the egregiousness score, the greater the likelihood of charging and sentencing (at the least, we wouldn't expect higher charging and sentencing rates for cases valued at an Overall 1-5 egregiousness score of 4 than would be observed for cases with egregiousness scores of 5.) Thus, there is some value in using a linear specification to constrain this monotonic relationship rather than to insert additional explanatory variables which would not constrain the data in this way (especially when there are concerns that the ratio of observations to explanatory variables is potentially low).

While we have previously alluded to the fact that Michelson is not an expert in econometrics,[362] Michelson denounces my incompetence for using ordinal variables—my

[362] Q. You consider yourself an expert in the field of econometrics; is that right?
A. No.

egregiousness scores—in a regression analysis. Clearly, if the ordinal variable is "short, medium, and tall" it cannot be used in a regression, since those are words not numbers. One needs to convert these categories to numbers, but of course the egregiousness scores are coded as numbers and then averaged across 18 coders. Similar types of coding and measurement scores are used constantly in medical research, education research, and throughout the social sciences because they are incredibly important and useful to use. Reliance on the categories "Short, medium, and tall" can often be circumvented by actual measurement in feet and inches (although for the historical research on draft registrants in World War I this might not be possible). But to capture information on things such as pain (in medical research), happiness (in much recent work in psychology and economics), and in a host of indices measuring everything from corporate governance to corruption to credit scores, ratings similar to the egregiousness scores are used by Nobel winning scientists and throughout business generally, the financial sector, and the medical and social sciences on a daily basis with the academic work published in the top peer-reviewed journals. In Appendix F, I furnish a list of some prominent examples of use of measurement scores in regression in 25 major publications that just happened to come across my desk as I was writing this report. I will now discuss three of these 25 articles plus three additional scholarly works Michelson cites approvingly that do exactly what Michelson says is impermissible—either averaging subjective scores or using ordinal variables in a regression model.

c. Some Examples of Major Articles and Work that Michelson Lauds which Refute his Claims about the Use of Ordinal Variables

In this section, I begin with a brief discussion of two major studies by giants in social science research and statistical analysis—the first by a Nobel Prize winner in economics creates

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Michelson, Stephan, August 27, 2009, Deposition transcript Vol. III P. 564: 14-16.

a subjective measure of outrageousness based on the averaged scores by coders reviewing brief descriptions of personal injury cases, and the second by an eminent psychologist who similarly averaged subjective faculty ratings of graduate applicants and completing graduate students, which were then used in regression analysis to probe the relationship between prediction and performance by psychology graduate students. The third example of using ordinal values directly in statistical analysis is a book that Michelson lauds as "one of the most impressive academic books I have ever read," and the fourth is an article that Michelson cites against me (albeit inappropriately) on another matter.

i. A Major Study Assessing the Outrageousness of Actions by Civil Defendants

Consider, for example, the important study of "the psychology of punitive damages" by Daniel Kahneman, David Schkade, and Cass Sunstein.[363] This study found that there is substantial consensus on judgments of the outrageousness of defendant conduct in personal injury cases and the appropriate severity of punishment the defendant should receive, but that judgments about the appropriate dollar award of punitive damages in these cases were far more erratic. The authors ask coders to rate the outrageousness and punishment-worthiness of ten different personal injury fact patterns, in almost the identical manner that my egregiousness scale does.[364] Their scales run from 0 to 6, with intermediate values denoted as follows. On the outrage scale, 0 denotes "completely acceptable" behavior, 2 denotes "objectionable" behavior, 4 denotes "shocking" behavior, and 6 denotes "absolutely outrageous" behavior. On the punishment scale, 0 denotes "no punishment" as the appropriate level, 2 denotes "mild punishment," 4 denotes

[363] Daniel Kahneman, David Schkade & Cass R. Sunstein, *Shared Outrage and Erratic Awards: The Psychology of Punitive Damages*, 16 J. RISK & UNCERTAINTY 49 (1998).
[364] *Id.* at 56-58.

"severe punishment," and 6 denotes "extremely severe punishment."[365] The authors describe these as "category scales,"[366] of which they write: "Category scales consist of a bounded set of ordered responses, as in the familiar format of many opinion surveys. The categories can be represented by numbers; in such cases descriptive labels are always attached to the extremes of the scale, and sometimes to some or all intermediate values."[367] My egregiousness scale fits this description.

Having obtained ratings on these scales from 899 coders, Kahneman, Schkade, and Sunstein go on to calculate their means and standard deviations[368] and to use these values in extensive analysis.[369] If these elite researchers had subscribed to Michelson's claims that rating scales could not be averaged or used in regression analysis, this important and oft-cited work would have been impossible.

Four years after this work was published, Kahneman, a psychologist by training and Princeton professor, won the 2002 Nobel Prize in Economics. (Not surprisingly given his expressed lack of interest in peer-reviewed research, Michelson had never heard of Kahneman.[370]) Sunstein is an astonishingly prolific scholar of law and behavioral economics,[371]

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[365] *Id.* at 57.
[366] *Id.* at 54.
[367] *Id.* at 53.
[368] *E.g.*, *id.* at 59.
[369] *Id.* at 58-72.
[370] The following quotes from Michelson's deposition are revealing:

Q Okay. Let me ask you this question: Do economists in peer review journals regularly and customarily average ordinal variables; yes or no?
A I have no idea.

...

Q You don't look at peer review journals of economics?
A No, I don't.
Q Okay. Let's not limit it to the field of economics, let's put it throughout the social sciences.... Do articles published in peer review journals throughout the social sciences contain research that involves averaging of ordinal variables; yes or no?
A Yes or no? I don't know.
Q Okay. Let me just make sure that you understand my question. Do articles that are accepted and published in peer review articles throughout the social science journals, customarily and routinely contain research involving averaging of ordinal variables?

former chaired professor first at the University of Chicago Law School and then at Harvard Law School, and a member of the American Academy of Arts and Sciences, who currently serves as the Administrator of the White House Office of Information and Regulatory Affairs. Schkade is a widely cited Professor of Management and Strategy at the University of California-San Diego School of Management. These are particularly prominent and elite scholars with world-wide recognition. Yet they have conducted a study that from start to finish bears striking parallels to my own effort to secure coder assessments of egregiousness in death-eligible cases, average them across coders, and analyze these results to see if judgments of the outrageousness of the defendant conduct correlate closely with punitive damage awards assessed.

A I think it's averaging of variables that have zero, one, two and three as the only permissible value, the answer should be no.
24 Q But you have no idea?
25 A I don't read those journals.
0331
1 Q ...What do you read? What journals do you read? Do you read any journals -- any professional journals?
4 A Yes. I read law journals mostly, not regularly. That is, I get them, I bring up articles in US law. I
6 don't read the journal.
7 Q Do you subscribe to any professional journals?
8 A No.
9 Q Do you receive any professional journals on a regular basis, whether you subscribe to them or not?
11 A I'm assuming we don't think the Economist is a professional journal. No.
13 Q Do you have any professional journals in the library in your office in North Carolina?
15 A Not in any systematic way, not several volumes.
16 Q You mean, you might have a copy of a journal that has an article, but you don't get them on any systematic basis?
19 A That's correct.
20 Q And you don't read them on any systematic basis?
22 A That's correct.
23 Q And that's true not just professional journals in the field of economics, it's throughout the social
25 sciences.
1 A That's correct.
Michelson Dep. Aug. 27 2009 328:18 - 332:1.

[371] His three hundred most recent publications—omitting more than 150 others—are listed at Faculty Directory: Cass R. Sunstein, http://www.law.harvard.edu/faculty/directory/index.html?id=552&show=bibliography (last visited Mar. 15, 2010).

ii. Another Pre-Eminent Scholar Using Averaged Subjective Ratings in Regression

In "A Case Study of Graduate Admissions: Application of Three Principles of Human Decision Making,"[372] Robyn Dawes explores whether a simple regression model predicting the future performance of graduate admissions applicants does a better job of predicting outcome than the admissions committee itself. Dawes uses a sample of 111 students. Each applicant was rated separately by four members of the admissions committee on a 1 - 6 scale where 1 was denoted by "reject now" and 6 reflected "admit and offer a top scholarship." These independent ratings were then averaged to generate an overall applicant rating. Dawes studies this rating to determine how well it predicts graduate performance. The applications of each of applicants were examined, and four ordinal variables were analyzed: overall undergraduate grade-point average (GPA), a crude index of the quality of the undergraduate institution (QI), GRE score, and the average rating (AR) made by the admissions committee at the time the applicant was accepted.

When a multiple-regression analysis is performed using GRE, GPA, and QI as independent variables and post-graduation faculty rating (another subjectively rated ordinal scale averaged across the faculty raters) as the dependent variable, the multiple correlation was 0.40. This correlation was substantially higher than that between the admissions committee rating and the post-graduate school performance rating, showing that the linear combination of three simple ordinal measures has more predictive power than an admissions committee assessment that had all three measures in addition to other information about the applicants.

[372] Dawes, Robyn M. "A Case Study of Graduate Admissions: Application of Three Principles of Human Decision Making," *American Psychologist*, 1971 (2): 180-188.

This article is immensely impressive on many fronts, but for my purposes it is worth noting the use of subjective ratings that are averaged and then used in regressions. Not only is Dawes an absolutely top flight statistician and psychologist,[373] but the paper was published in perhaps the top psychology journal and, importantly, was reprinted in W.B. Fairley & F. Mosteller's "Statistics & Public Policy," Addison-Wesley, Reading, MA 1977. The introduction to this book notes that the editors selected for inclusion articles of high quality that were designed to illustrate statistical techniques used in public policy analysis. In case one is wondering whether the selection of Dawes' article for this book represents the statistical seal of approval on the work presented, consider the fact that Frederick Mosteller (December 24, 1916 - July 23, 2006) was one of the most eminent statisticians of the 20th century. He was "the founding chairman of Harvard's statistics department and a pioneer in using statistics to analyze an array of topics" and served as the president of the following professional bodies: the Psychometric Society, the American Statistical Association, the Institute of Mathematical Statistics, the American Association for the Advancement of Science, and the International Statistical Institute.[374]

iii. Michelson's Dogmatic Position and Praise for a Book and an Article that Both Refute His Position

The punitive damages and graduate admissions articles are only two of the many thousands I could cite that use measurement scales as I have done. They are particularly compelling examples because of the extraordinary and recognized talent of the authors and because their outrageousness coding of personal injury cases and subjective ratings of graduate

[373] For further information on the eminence of Dawes's scholarship, see Joachim Krueger, ed., Rationality and Social Responsibility: Essays in Honor of Robyn Mason Dawes, Psychology Press, 2008. Dawes was the 1990 William James Book Award (APA) winner for *Rational Behavior in an Uncertain World*, and is a fellow in the American Statistical Association and the American Academy of Arts and Sciences.

[374] Kenneth Chang, "C. Frederick Mosteller, a Pioneer in Statistics, Dies at 89," The New York Times, Section B; Column 3; Business/Financial Desk; Pg. 7 (July 27, 2006).

applicants and students were identical in kind and methodology to my egregiousness coding of death-eligible cases. Yet Michelson would have the court believe that this enormous body of peer-reviewed research in top journals across many disciplines is wrong and that his criticisms alone should be heeded.[375] Some quotes from Michelson's depositions will make his position clear:

> Q Don't you think you have a professional obligation, before you start using the word incompetence about an expert in the case, to know what the peer review literature says, to know what the authorities say, know what's done customarily and routinely in social science research, and to know whether the papers and reports you cite, texts you cite, do the same thing? Don't you have a professional obligation to know that stuff?
> A No.[376]

> Q Okay. Let me make this simpler. Can you cite anyone, other than yourself, who says you cannot use an ordinal variable in regression?
> A I cite the definition of ordinal.
> Q Do you understand my question. I'm asking you for somebody who is an authority in the field, or a text that is authoritative that says you cannot use an ordinal variable in regression. Can you name a person who's an authority, or a text that's authoritative that supports your position?
> A Can I today? No. I haven't reviewed text for this.[377]

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[375] In his report Michelson asks the reader to "consider Michael Finkelstein's article "The Application of Statistical Decision Theory to the Jury Discrimination Cases," 80 *Harvard Law Review* 2:338 (1966). Surely the most famous and influential law review article in the history of statistical analysis in courts, one might see it today as fallacious and even having had a deleterious effect on statistics as used in law."[375] Michelson's response to a question about this statement in his deposition shows his tendency to hold extremely idiosyncratic views:

> Q So you take the position that the most famous, influential law review article in the history of statistical analysis in courts is fallacious and has deleterious effects on statistics used in law?
> A I do take that position.
> Q Now, that's a minority view, I take it?
> A Very much so.
> […]
> Q Okay. So is there any peer review article that supports your view that Professor Finkelstein's article is fallacious and has a deleterious effect on statistics as used in law?
> A I know of none.
> Q You're just out there on that by yourself?
> A I am.[375]

[376] Michelson, Stephan - Vol. II 8-27-09 dep P. 344: 23 – P. 345: 6.
[377] Michelson, Stephan - Vol. II 8-27-09 dep P. 333: 23 – P. 334: 9.

Q So I want to make sure I understand your position. You sit here today accusing Professor Donohue of gross incompetence in the use of ordinal variables; correct?
A Yes.
Q And you're not able to cite one authority or authoritative text that supports your position; am I summarizing that correctly?
A I can't cite any text for anything. When was the last time I read a text?
Q When was the last time you read a text?
A Five years ago, ten years ago.[378]

Q Okay. But before you do this kind of criticism of the competence -- not of the opinions, but of the competence of the expert who's opposing you, don't you have an obligation to make sure that you're right?
A I am.
Q Don't you have an obligation to make sure that you've got some authority to support yourself?
A I'm right. It's not a matter of authority.[379]

Q So if -- assuming that the peer review journals throughout the social sciences use ordinal variables in regression analysis, if authoritative texts use ordinal variables in regression analysis, in the text and papers you cite in your paper approvingly in your report -- approvingly -- use ordinal variables in regression analysis, none of that would change your view that you, Stephan Michelson, is right on that point; is that correct?
A The things you named would not change my mind.[380]

In light of Michelson's insistence that one cannot average measurement scales across coders or use them in regression analysis, I was surprised to read the following statement in Michelson's report:

> "In one of the most impressive academic books I have ever read, two professors explained Gross National Product (GNP), using countries as observations, from their different economic characteristics. Then they put that study aside and estimated the same Gross National Products, quite as well, using only social descriptive variables. Which is the cause, which is the effect? Or can one have a high GNP without certain social conditions, and if not, how does a country bring them about? Of course this study was too deep for the economics profession, which essentially ignored it. Irma Adelman and Cynthia Taft Morris, *Society Politics and Economic Development*, Johns Hopkins Press (1967)."[381]

[378] Michelson, Stephan - Vol. II 8-27-09 dep P. 334: 10 - 21.
[379] Michelson, Stephan - Vol. II 8-27-09 dep P. 346: 5-12
[380] Michelson, Stephan - Vol. II 8-27-09 dep P. 346: 13-22
[381] Stephan Michelson, August 20 2010 report, p. 338 (footnote 568)

Michelson's extreme enthusiasm for this book—although perhaps not the dismissive aside about "the economics profession"—was a bit of surprise though. The issues he references are typically only addressed—indeed, only can be addressed—with the sorts of measurement scales that he excoriates me for using. In fact, this is one of the great virtues of these measurement scales—they add to our source of knowledge about an immense array of topics of enormous social importance.

As I suspected, the Adelman and Morris book uses similar measurement scales (in concept) to explore how social, political, and economic factors are associated with economic growth using factor analysis. According to the authors, the majority of the social and political variables are "purely judgmental" indicators. For example, one factor that is analyzed is "the degree of national integration and sense of national unity." This is an ordinal variable that groups countries into four broad categories, taking into account common language, culture, integration of local and central political systems, and overall national unity (using interviews and other sources of country information):

"A. Countries characterized by a marked degree of national integration"
"B. … by a moderate degree of national integration"
"C. … by a small degree of national integration"
"D. … by a marked absence of national integration."[382]

But Michelson conceded that "one of the most impressive academic books" he had ever read used "ordinal variables in regression analysis:"

Q You call it one of the most impressive academic books you've ever read; correct?
A Yes.
Q Is that -- does that book use ordinal variables in regression analysis?
A Of course.[383]

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[383] Michelson, Stephan - Vol. II 8-27-09 dep p. 335: 16-21

Forgive me for thinking that Michelson's behavior in this matter is problematic. Michelson has made his position on the use of ordinal variables in logistic regression analysis quite clear: "You can't average ordinal data. It is not susceptible to averaging. It is not susceptible to the mathematics of regression" (Michelson Deposition, 9/16/2010). Yet we have a Nobel economist doing just that, the most eminent American statistician of the last century endorsing just that, and even the authors of the book that Michelson greatly admires.

iv. Yet another example of Michelson himself citing and praising work that uses variables in a manner identical to my methodology.

Michelson argues that the allegedly ordinal nature of my coders' egregiousness scores invalidates the use of the resulting average score as a regressor.[384] However, Michelson himself has relied on and admired work that uses variables identical in structure to my own in regression analyses. Consider Michelson's citations[385] to the work of Richard Sander,[386] which uses averaged scales as regressors in much the same way that my regressions do. Sander's paper is susceptible to the very allegations that Michelson levels against me.

Consider Sander's use of a student's grade point average (GPA) in his regressions. Sander employs two measures of GPA—undergraduate and law school—depending on the outcome variable under analysis. GPA enters regressions both in raw and standardized forms.[387]

Of course, it is a widespread practice in the economics literature on education to use GPA as a regressor, so there is nothing in the least unusual about Sander's reliance on this measure. Indeed, even though the Sander paper that Michelson endorses was roundly criticized by many

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[384] *Id.* at 64 ("Component ranks are summed, per coder, and then these per-coder 'total scores' are averaged over the nine coders. . . . All of these operations are illegitimate. . . . Scores must be cardinal to be summed or averaged.").
[385] *Id.* at 118-19.
[386] Richard H. Sander, *A Systemic Analysis of Affirmative Action in American Law Schools*, 57 STAN. L. REV. 367 (2004).
[387] *Compare id.* at 463 tbl. 7.3 (raw GPAs) *with id.* at 464 tbl. 7.4 (standardized GPAs).

top empiricists, including Dan Ho and Ian Ayres, not one even mentioned the criticism that Michelson finds so debilitating in his attack on my work (and that Michelson himself completely overlooked in praising Sander's paper).

But consider carefully the identical structure of a law school grade-point average and my metric of egregiousness. First, a law professor reviews a student essay exam at the end of a semester or year long course and subjectively awards a grade on what is essentially a five-point scale of merit (from 0 to 4). This is exactly analogous to the actions of an egregiousness coder in my study reviewing a factual summary and subjectively awarding a five-point measure of egregiousness (from 1 to 5 on the Overall egregiousness measure). (The only difference is that a professor is assigning a score reflecting virtues as the measure rises from 0 to 4, while the egregiousness coders are assigning scores that reflect deathworthiness as the scale rises from 1 to 5.)

Of course, Michelson insists these "test scores" are ordinal measures and therefore they cannot be averaged. But, of course, the law school grade scores are always averaged. Indeed, that average is simply the GPA—the grade point average derived from averaging all of the subjective scores that different professors awarded to their students based on their law school exam essays (or, in some courses, academic papers). Whatever criticism of subjectivity that Michelson made about my egregiousness score would apply with equal force to the GPA. Just as I had 18 coders and thus derived an average from 18 subjective egregiousness scores, a final law school GPA would typically be based on about 27 evaluations (one for each law school course over a three year span).

Note that averaging is used, despite the dogmatic Michelson objections, because it gives a useful picture of the overall performance of a student and tends to dampen the effect of an

unrepresentative evaluator (or aberrational performance in one course). This is the exact reason that I relied on 18 coders rather than following Michelson's practice where he coded subjective variables on his own—a practice than no one I know would ever endorse as preferable to my approach of averaging the scores of the 18 coders. But when Michelson was asked about the nature of a GPA, he didn't realize these were identical numerical measures in construct to my egregiousness scores. In fact, he called the GPA a cardinal measure in his deposition, as seen in the following exchange:

Q Okay. And isn't it true that in that article,
Mr. Sanders uses ordinal variables in regression?
A He uses dummy variables.
Q Sorry?
A He uses dummy variables, which is ordinal.
Q Is a GPA a dummy variable?
A Is a GPA an ordinal?
Q What does GPA stand for?
A Grade Point Average.
Q And you think -- isn't grade point average an ordinal variable, Dr. Michelson?
A No, not as used there. It's a cardinal variable.
Q It's a cardinal variable?

20 A As used there, yeah.[388]

Michelson's concession reveals that his dogmatic insistence that only cardinal numbers be used in regression models essentially is a semantic point—as long as numerical values approximate cardinal numbers, as GPA values (and egregiousness scores) do, then he is willing to treat them as cardinal and endorses their use in regression. This is sensible and should be the approach adopted with respect to my treatment of the egregiousness score. Then one can proceed to discuss any relevant issues about specification and functional form instead of being distracted by Michelson's odd formalism.

Yet Michelson has gotten himself so mixed up in his confused semantic applications that he (apparently) wants to call a GPA a cardinal number and an egregiousness score ordinal even though they are entirely *identical* in structure.[389] In both cases, the variables arguably have a categorical nature in Michelson's conception. But Sander and other scholars uniformly treat grade-point averages as interval variables—averaging them and using them in regressions—for the simple reason that doing so is useful and far more pragmatic than assigning a binary indicator variable to each potential grade. Thus, both GPA's and egregiousness scores, even if arguably ordinal, are more properly treated as continuously scaled interval variables, which is why GPA's and other scales similar to my egregiousness measures are constantly used in the peer-reviewed literature throughout economics, and the social and medical sciences.[390]

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[388] Michelson Deposition. 336:6 - 336:20 (Aug. 27 2009).

[389] Despite all of his hyperbolic rhetoric that even high school students know the difference between ordinal and cardinal numbers, the evident truth is that Michelson – the supposed expert – simply does not. "All of these operations [summing egregiousness components and averaging egregiousness scores] are illegitimate. One should not be able to graduate from high school without knowing that." To which we respond, "please tell us Dr. Michelson how the egregiousness score differs from the GPA." MICHELSON REPORT, AUGUST 20, 2010, at 64.

[390] Sander's data actually goes further than my egregiousness scores in violating Michelson's dogmatic cardinality rule. Specifically, Sander uses a self-collected data instrument for a project known as "After the JD" (AJD). The AJD data contain law school grades measured "by the box a respondent checked on the survey form (asking about law school GPA, and providing boxes ranging from 'below 2.25' to '3.75 to 4.0')." Sander, *supra* note 386, at 459; *see also id.* at 460 tbl. 7.2 (showing explicitly that the law school grades data are mere bands that, when employed in

d. Michelson Cites the Stata Manual—Which Refutes His Position

We have seen that when initially questioned on the issue of using ordinal variables in a regression, Michelson was not able to cite a single authority who shared his dogmatic position on the use of measurement scales. In a subsequent round of depositions, he went as far as to claim: "They don't even mention it, it's so obvious. It's high school. You can't find one that says the opposite…I can't find one that even discusses the topic, because it's so obvious" (Deposition, 9/16/2010).

Again, Michelson is innocent of any knowledge of the literature. In response to his hapless lament that he "can't find one that even discusses the topic," let me offer some assistance: "Allan (1976), Borgatta (1968), Kim (1975, 1978), Labovitz (1967, 1970), and O'Brien (1979a), among others, claim that multivariate methods for interval-level variables should be used for ordinal variables because the power and flexibility gained from these methods out-weigh the small biases that they may entail." Christopher Winship and Robert D. Mare, "Regression Models with Ordinal Variables," American Sociological Review, Vol. 49, No. 4 (Aug., 1984), pp. 512-525. **Stable URL: http://www.jstor.org/stable/2095465**.[391]

The towering statistician John Tukey listed Michelson's views on measurement scales and regression as a "badmandment"—an "unwise statement[] which most of us can imagine

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"raw" form, would have to be transformed to an ordinal ranking). This variable is used in a regression of second-year associate earnings on school prestige, law school GPA, market area, race, and gender. Sander concludes "that law school GPA retains great explanatory power." *Id.* at 465.

[391] The full cites are: G. J. Boris Allan, Ordinal-Scaled Variables and Multivariate Analysis: Comment on Hawkes, 81 Am. J. Soc. 1498 (1976); Edgar Borgatta, My Student, the Purist: A Lament, 9 Soc. Q. 29 (1968); Jae-On Kim, Multivariate Analysis of Ordinal Variables, 81 Am. J. Soc. 261 (1975); Jae-On Kim, Multivariate Analysis of Ordinal Variables Revisited, 84 Am. J. Soc. 448 (1978); Sanford Labovitz, Some Observations on Measurement and Statistics, 46 Soc. Forces 151 (1967); Sanford Labovitz, The Assignment of Numbers to Rank Order Categories, 35 Am. Soc. Rev. 515 (1970); Robert M. O'Brien, The Use of Pearson's R with Ordinal Data, 44 Am. Soc. Rev. 851 (1979).

someone else teaching to his students."[392] Tukey specifically ridiculed the belief that "if it isn't ***exactly*** an interval scale, it's only ordinal," and lampooned Michelson's position by stating that if a researcher followed his prescription, "no one can question your judgment ... since you didn't use any!"[393] Tukey then quoted a 1959 statement that perfectly summarized Michelson's position, and termed it a "dangerous view," adding that "If generally adopted it would not only lead to inefficient analysis of data, but it would also lead to failure to give any answer at all to questions whose answers are perfectly good, though slightly approximate. All this loss for essentially no gain."[394]

Of course, while "all benefit and little cost" may not be true for all measurements scales, an issue that I discuss in greater detail below in Section X.D.2 , I should emphasize once again that this is exactly what we found in this case in the robustness checks in Section IX: whether we used the egregiousness measurement scales as interval scales that could be averaged and regressed or whether we circumvented averaging and used dummy variables, the results were essentially the same (but my base models did show greater power and flexibility—hence "all benefit and little cost"). The issue is a non-issue, except to the extent it underscores yet again the intemperate, inconsistent, and unsound nature of Michelson's attacks.

When further pressed for an authority to support his position, Michelson ultimately relented and offered a cite to a solitary source that (he thought, incorrectly) defended his position: "Okay, I'll name you one: The Stata Manual…look at the Stata user's manual. It's clear" (Michelson Deposition, 9/16/2010). Michelson was disappointed, then, to have us point out to him that the Stata manual actually presents an example from medical research where blood

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[392] JOHN W. TUKEY, *Data Analysis and Behavioral Science or Learning to Bear the Quantitative Man's Burden by Shunning Badmandments*, *in* 3 THE COLLECTED WORKS OF JOHN W. TUKEY 187, 243 (Lyle V. Jones ed., 1986).
[393] Id. at 201.
[394] Id. at 197.

serum levels for two proteins are measured for infants at age six months to see if they predict subsequent HIV infections. The manual provides two examples using this data. In Example 1, the Stata manual states "*The blood serum levels are coded as ordinal values 0, 1, and 2*" and then used in a logistic regression (the same logit model that I employ in my analyses in Section IX).[395]

When the noose finally tightened around his neck on this, Michelson's tone in the deposition changed quite a bit, as I will show in a moment. Sadly, the deposition-chastened Michelson reverted back to his old form after the deposition, when he thought he found some kernels of support for his absurdly dogmatic position. Michelson later issued a memorandum (September 21, 2010; Re: Questions and answers), which references Example 2 on the same data set involving blood proteins in infants and HIV (discussed above with reference to Example 1). In this example, unlike in Example 1, the manual does introduce dummy (or "indicator") variables rather than relying on the 0, 1, and 2 coding. Michelson thinks this proves that you *must* use such dummy variables, but of course the Stata manual would not have used the 0, 1, 2 coding for the blood serum levels in Example 1 if this were impermissible in some global way.

Moreover, the manual does *not* state Example 2 is the only correct way to approach this problem. In fact, in introducing Example 2, the manual says "*another approach* to the analysis is to use indicator variables...."[396] (Emphasis supplied.) Indeed, the manual's purpose in presenting the data in two ways is to make exactly the point that the results are similar regardless of which method is used. The manual states: "the output is in agreement with example 1" (which does not re-code the blood serum variable as a series of dummy variables).

Even with time to reflect on his error in thinking that the Stata manual supported his dogmatic views, Michelson refused in his September 21, 2010 memo to concede that the

[395] StataCorp. 2009. *Stata Statistical Software: Release 11*. College Station, TX: StataCorp LP. Page 439.

[396] StataCorp. 2009. *Stata Statistical Software: Release 11*. College Station, TX: StataCorp LP. Pages 443.

approach used in Example 1 of the Stata manual (the source that he cited as an authority on exactly this proposition) is acceptable. To underscore the Stata manual position on this issue (which favors my thoughts on the matter), I have also included the relevant excerpt from the Stata manual below. Below is the exact text of the two examples of the analysis of blood proteins and HIV infection in infants (presented to Michelson in his deposition as Exhibit 129).[397]

[397] Source: StataCorp. 2009. *Stata Statistical Software: Release 11*. College Station, TX: StataCorp LP. Pages 439-441

▷ Example 1

One example presented by Mehta and Patel (1995) is data from a prospective study of perinatal infection and human immunodeficiency virus type 1 (HIV-1). We use a variation of this dataset. There was an investigation Hutto et al. (1991) into whether the blood serum levels of glycoproteins CD4 and CD8 measured in infants at 6 months of age might predict their development of HIV infection. The blood serum levels are coded as ordinal values 0, 1, and 2.

```
. use http://www.stata-press.com/data/r11/hiv1
(prospective study of perinatal infection of HIV-1)
. list
```

	hiv	cd4	cd8
1.	1	0	0
2.	0	0	0
3.	1	0	2
4.	1	1	0
5.	0	1	0
	(output omitted)		
46.	0	2	1
47.	0	2	2

We first obtain the MLEs from `logistic` so that we can compare the estimates and associated statistics with the CMLEs from `exlogistic`.

```
. logistic hiv cd4 cd8, coef
Logistic regression                               Number of obs   =         47
                                                  LR chi2(2)      =      15.75
                                                  Prob > chi2     =     0.0004
Log likelihood = -20.751687                       Pseudo R2       =     0.2751
```

hiv	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
cd4	-2.541669	.8392231	-3.03	0.002	-4.186517	-.8968223
cd8	1.658586	.821113	2.02	0.043	.0492344	3.267938
_cons	.5132389	.6809007	0.75	0.451	-.8213019	1.84778

```
. exlogistic hiv cd4 cd8, coef
Enumerating sample-space combinations:
observation 1:   enumerations =          2
observation 2:   enumerations =          3
  (output omitted)
observation 46:  enumerations =        601
observation 47:  enumerations =        326
Exact logistic regression                       Number of obs =         47
                                                Model score   =   13.34655
                                                Pr >= score   =     0.0006

------------------------------------------------------------------------------
         hiv |      Coef.   Suff.    2*Pr(Suff.)  [95% Conf. Interval]
-------------+----------------------------------------------------------------
         cd4 |  -2.387632      10         0.0004   -4.699633   -.8221807
         cd8 |   1.592366      12         0.0528   -.0137905    3.907876
------------------------------------------------------------------------------
```

`exlogistic` produced a log showing how many records are generated as it processes each observation. The primary purpose of the log is to provide feedback because generating the distribution can be time consuming, but we also see from the last entry that the joint distribution for the sufficient statistics for `cd4` and `cd8` conditioned on the total number of successes has 326 unique values (but a size of $\binom{47}{14} = 341{,}643{,}774{,}795$).

The statistics for `logistic` are based on asymptotics: for a large sample size, each Z statistic will be approximately normally distributed (with a mean of zero and a standard deviation of one) if the associated regression parameter is zero. The question is whether a sample size of 47 is large enough.

On the other hand, the p-values computed by `exlogistic` are from the conditional distributions of the sufficient statistics for each parameter given the sufficient statistics for all other parameters. In this sense, these p-values are exact. By default, `exlogistic` reports the sufficient statistics for the regression parameters and the probability of observing a more extreme value. These are single-parameter tests for H_0: $\beta_{\text{cd4}} = 0$ and H_0: $\beta_{\text{cd8}} = 0$ versus the two-sided alternatives. The conditional scores test, located in the coefficient table header, is testing that both H_0: $\beta_{\text{cd4}} = 0$ and H_0: $\beta_{\text{cd8}} = 0$. We find these p-values to be in fair agreement with the Wald and likelihood-ratio tests from `logistic`.

The confidence intervals for `exlogistic` are computed from the exact conditional distributions. The exact confidence intervals are asymmetrical about the estimate and are wider than the normal-based confidence intervals from `logistic`.

Both estimation techniques indicate that the incidence of HIV infection decreases with increasing CD4 blood serum levels and increases with increasing CD8 blood serum levels. The constant term is missing from the exact logistic coefficient table because we conditioned out its observed sufficient statistic when tallying the joint distribution of the sufficient statistics for the `cd4` and `cd8` parameters.

The `test()` option provides two other test statistics used in exact logistic: the conditional scores test, `test(score)`, and the conditional probabilities test, `test(probability)`. For comparison, we display the individual parameter conditional scores tests.

```
. exlogistic, test(score) coef
Exact logistic regression                       Number of obs =         47
                                                Model score   =   13.34655
                                                Pr >= score   =     0.0006

------------------------------------------------------------------------------
         hiv |      Coef.     Score    Pr>=Score  [95% Conf. Interval]
-------------+----------------------------------------------------------------
         cd4 |  -2.387632  12.88022        0.0003   -4.699633   -.8221807
         cd8 |   1.592366  4.604816        0.0410   -.0137905    3.907876
------------------------------------------------------------------------------
```

For the probabilities test, the probability statistic is computed from (1) in *Methods and formulas* with $\beta = 0$. For this example, the significance of the probabilities tests matches the scores tests so

```
. use http://www.stata-press.com/data/r11/hiv_n, clear
(prospective study of perinatal infection of HIV-1; binomial form)
. list
```

	cd4	cd8	hiv	n
1.	0	2	1	1
2.	1	2	2	2
3.	0	0	4	7
4.	1	1	4	12
5.	2	2	1	3
6.	1	0	2	7
7.	2	0	0	2
8.	2	1	0	13

Further, the cd4 and cd8 variables of the hiv dataset are actually factor variables, where each has the ordered levels of $(0, 1, 2)$. Another approach to the analysis is to use indicator variables, and following Mehta and Patel (1995), we used a 0–1 coding scheme that will give us the odds ratio of level 0 versus 2 and level 1 versus 2.

```
. gen byte cd4_0 = (cd4==0)
. gen byte cd4_1 = (cd4==1)
. gen byte cd8_0 = (cd8==0)
. gen byte cd8_1 = (cd8==1)
. exlogistic hiv cd4_0 cd4_1 cd8_0 cd8_1, terms(cd4=cd4_0 cd4_1,
> cd8=cd8_0 cd8_1) binomial(n) test(probability) saving(dist) nolog
note: saving distribution to file dist
note: CMLE estimate for cd4_0 is +inf; computing MUE
note: CMLE estimate for cd4_1 is +inf; computing MUE
note: CMLE estimate for cd8_0 is -inf; computing MUE
note: CMLE estimate for cd8_1 is -inf; computing MUE
Exact logistic regression                       Number of obs =         47
Binomial variable: n                            Model prob.   =   3.19e-06
                                                Pr <= prob.   =     0.0011
```

hiv	Odds Ratio	Prob.	Pr<=Prob.	[95% Conf.	Interval]
cd4		.0007183	0.0055		
cd4_0	18.82831*	.007238	0.0072	1.714079	+Inf
cd4_1	11.53732*	.0063701	0.0105	1.575285	+Inf
cd8		.0053212	0.0323		
cd8_0	.1056887*	.0289948	0.0290	0	1.072531
cd8_1	.0983388*	.0241503	0.0242	0	.9837203

```
(*) median unbiased estimates (MUE)
. matrix list e(sufficient)
e(sufficient)[1,4]
    cd4_0  cd4_1  cd8_0  cd8_1
r1      5      8      6      4
. display e(n_possible)
1091475
```

Here we used terms() to specify two terms in the model, cd4 and cd8, that make up the cd4 and cd8 indicator variables. By doing so, we obtained a conditional probabilities test for cd4, simultaneously testing both cd4_0 and cd4_1, and for cd8, simultaneously testing both cd8_0 and cd8_1. The significance levels for the two terms are 0.0055 and 0.0323, respectively.

This example also illustrates instances where the dependent variable is completely determined by the independent variables and CMLEs are infinite. If we try to obtain MLEs, `logistic` will drop each variable and then terminate with a no-data error, error number 2000.

```
. use http://www.stata-press.com/data/r11/hiv_n, clear
(prospective study of perinatal infection of HIV-1; binomial form)
. gen byte cd4_0 = (cd4==0)
. gen byte cd4_1 = (cd4==1)
. gen byte cd8_0 = (cd8==0)
. gen byte cd8_1 = (cd8==1)
. expand n
(39 observations created)
. logistic hiv cd4_0 cd4_1 cd8_0 cd8_1
note: cd4_0 != 0 predicts success perfectly
      cd4_0 dropped and 8 obs not used
note: cd4_1 != 0 predicts success perfectly
      cd4_1 dropped and 21 obs not used
note: cd8_0 != 0 predicts failure perfectly
      cd8_0 dropped and 2 obs not used
outcome = cd8_1 <= 0 predicts data perfectly
r(2000);
```

In the previous example, `exlogistic` generated the joint conditional distribution of $T_{\texttt{cd4_0}}$, $T_{\texttt{cd4_1}}$, $T_{\texttt{cd8_0}}$, and $T_{\texttt{cd8_1}}$ given $M = 14$ (the number of individuals that tested positive), and for reference, we listed the observed sufficient statistics that are stored in the matrix `e(sufficient)`. Below we take that distribution and further condition on $T_{\texttt{cd4_1}} = 8$, $T_{\texttt{cd8_0}} = 6$, and $T_{\texttt{cd8_1}} = 4$, giving the conditional distribution of $T_{\texttt{cd4_0}}$. Here we see that the observed sufficient statistic $T_{\texttt{cd4_0}} = 5$ is last in the sorted listing or, equivalently, $T_{\texttt{cd4_0}}$ is at the domain boundary of the conditional probability distribution. When this occurs, the conditional probability distribution is monotonically increasing in $\beta_{\texttt{cd4_0}}$ and a maximum does not exist.

```
. use dist, clear
. keep if cd4_1==8 & cd8_0==6 & cd8_1==4
(4139 observations deleted)
. list, sep(0)
```

	_f_	cd4_0	cd4_1	cd8_0	cd8_1
1.	1668667	0	8	6	4
2.	18945542	1	8	6	4
3.	55801053	2	8	6	4
4.	55867350	3	8	6	4
5.	17423175	4	8	6	4
6.	1091475	5	8	6	4

When the CMLEs are infinite, the MUEs are computed (Hirji, Tsiatis, and Mehta 1989). For the `cd4_0` estimate, we compute the value $\overline{\beta}_{\texttt{cd4_0}}$ such that

$$\Pr(T_{\texttt{cd4_0}} \geq 5 \mid \beta_{\texttt{cd4_0}} = \overline{\beta}_{\texttt{cd4_0}}, T_{\texttt{cd4_1}} = 8, T_{\texttt{cd8_0}} = 6, T_{\texttt{cd8_1}} = 4, M = 14) = 1/2$$

using (1) in *Methods and formulas*.

The output is in agreement with example 1: there is an increase in risk of HIV infection for a CD4 blood serum level of 0 relative to a level of 2 and for a level of 1 relative to a level of 2; there is a decrease in risk of HIV infection for a CD8 blood serum level of 0 relative to a level of 2 and for a level of 1 relative to a level of 2.

We also displayed `e(n_possible)`. This is the combinatorial coefficient associated with the observed sufficient statistics. The same value is found in the `_f_` variable of the conditional distribution dataset listed above. The size of the distribution is $\binom{47}{14} = 341{,}643{,}774{,}795$. This can be verified by summing the `_f_` variable of the generated conditional distribution dataset.

```
. use dist, clear
. summarize _f_, meanonly
. di %15.1f r(sum)
 341643774795.0
```

Foolishly pugilistic 'til the end, Michelson quotes in his September 21, 2010 memo that because the Mehta and Patel article states that they transformed the ordinal data into binary data, this shows that he was correct all along. It certainly does not. Michelson stated that you could not take ordinal data and directly use it in a regression, which is true if your ordinal values are expressed in words, but obviously not true if your ordinal values are in numbers. He cited the Stata manual as the authority for his proposition. But of course, as he was forced to concede in the deposition, the Stata manual *did* take ordinal data in the form 0, 1, and 2, and directly use it in a regression. The Stata manual discussed Mehta and Patel's *alternative* approach of using indicator variables, and showed they both generated similar conclusions.

Michelson continues in his role as the master of misquotation in the September 21, 2010 memo when he states that "I expect them to withdraw the Stata reference and apologize for trying to imply that Mehta and Patel used ordinal data within a logit analysis." But in the deposition, we showed Michelson that *the Stata manual*—the authority *he* cited—used ordinal data within a logit analysis. We made no claim at that time about what Cyrus Mehta (Adjunct Professor in the Department of Biostatistics of the Harvard School of Public Health) and his coauthor Nitin Patel (a statistician) did or did not do.

But since Michelson raised the issue, we can now confirm that he is wrong once again. Although I never previously implied it, I can now explicitly state that Mehta and Patel *did* use ordinal data within a logit analysis. A few pages later in the Stata Manual from what was given to Michelson at his deposition is example 4 (page 446). This example states: "Mehta and Patel (1995) use a case–control study to demonstrate this model, which is useful in comparing the estimates from exlogistic and clogit. This study was intended to determine the role of birth complications in people with schizophrenia (Garsd 1988). Siblings from seven families took part in the study, and each individual was classified as normal or schizophrenic. A birth complication index is recorded for each individual that ranges from 0, an uncomplicated birth, to 15, a very complicated birth." I contacted Cyrus Mehta, and he confirmed that the birth complication index was an ordinal measure directly used in the logistic regression.

Of course, Mehta and Patel (and the State reference manual authors) are hardly alone in this—index measures are directly used in logit and ordinary least squares regression throughout the social and medical sciences routinely. But once again in the very Mehta and Patel article that Michelson tries to cite for the proposition that an ordinal scale cannot be used in a logistic regression, Mehta and Patel use an ordinal scale in a regression. Perhaps it is now time for Michelson to apologize.

e. Michelson Finally Concedes the Burden is on Him on this Issue

To demonstrate Michelson's conduct on this issue, we have an extended excerpt from the relevant depositions below (I add some footnote commentary):

[Excerpt from 9/16/2010 Deposition:]

Q: And [you called Donohue's] manipulation of the data illegitimate.

A: Well, his use of ordinal data as if they're cardinal is illegitimate, and you are not bringing in a Nobel Prize lawyer to say otherwise. It's just not going to happen.[398]

Q: So let me just ask you this, because I questioned you on ordinal and cardinal.

A: Yes, you did.

Q: And Mr. Kane wasn't here to hear it last time, but the last time what you agreed was that your understanding of ordinal and cardinal is different than the mainstream of mainstream ordinal and cardinal.

A: Absolutely not. Mine is the view.

Q: Do you remember when I asked you if you could name one authority, either literature or person, who agreed with your interpretation of ordinal and cardinal and you were unable to do that, remember that? Do you remember that, yes or no?

A: I remember that because everybody agrees with mine.

Q: So I'll ask you again –

A: People don't even discuss it.

Q: I'll give you another opportunity. You believe that Professor Donahue doesn't understand how ordinal and cardinal numbers get used, is that right? Scales get used, is that right?

A: That is right.

Q: And you believe it's a fundamental mistake that he got wrong?

A: Yes.

Q: And what is it that you believe he got wrong, on that topic?

A: You can't average cardinal data, ordinal data. It is not susceptible to averaging. It is not susceptible to the mathematics of regression.

Q: All right. Would you please tell us, everyone here, one authority in the field who agrees with you on that?

A: Everybody agrees with me.

---

[398] Michelson's reference to the Nobel Prize alludes to my pointing out to him that Princeton professor and winner of the Nobel Prize in Economics Daniel Kahneman asked coders to review cases to assess the outrageousness of the defendant's behavior and he then averaged the resulting scores (in exactly the same fashion I performed my egregiousness coding), which Michelson claims to be illegitimate. This research is discussed in Section X, D(1)(c)(1) above.

Q: I want a name. I want -- give me a text.

A: They don't even mention it, it's so obvious. It's high school. You can't find one that says the opposite.

Q: Let me just make sure I understand you. You are not able to name one text that supports what you just said, or one authority in the field, a person, who supports what you just said, is that correct?

A: No, they all support what I said.

Q: Name one.

A: I can't find one.

Q: Name a text that says –

A: I can't find one that even discusses the topic, because it's so obvious. Okay, I'll name you one. The Stata Manual.

Q: Anything else?

A: Look at the Stata user's manual. It's clear.

[Excerpt from 9/17/2010 Deposition:]

Q: Okay. So look at the part that's in red on the second page, which is an example that the Stata Reference Manual gives. And it's your position it's improper to average ordinal values, correct?

A: Yes.

Q: Okay. And isn't it true that the Stata Reference Manual release gives a specific example of a use of ordinal values being averaged?

A: I haven't seen averaging yet.

Q: Are you reading example 1? Do you see what's in red on the third page?

A: Uh-huh. What's your question?

Q: Okay. Does this -- let me make it a simpler question for you. Doesn't this example from the Stata Reference Manual support the way in which -- doesn't it support the way in which Professor Donohue used ordinal values in his report, yes or no?

A: No.

Q: Okay. Does this reference manual indicate that ordinal values were used in a regression analysis?

A: No. This is a logit analysis.[399]

Q: What is logit?

A: Well, it's a way of estimating relationships between independent and dependent variables, but it's not regression, but it's like it.

Q: Is it the same, is it analytically similar to regression?

A: Well, it's similar in use. It's not analytically similar, but it's similar in use.

Q: If you were right in your criticism of Professor Donohue's use of ordinal values in his report, then you wouldn't use ordinal values in the way that's set forth in [Example 1] in logit either, would you?

A: No, that's not true.

Q: And why isn't that true?

A: Thank you for the opportunity. There are a number of ordinal routines in Stata, including one, something called ordered logit in which the ordinal values are the dependent variable, but if you look at the code, you'll realize that of course you can't use ordinal values, and Stata doesn't pretend to use ordinal values. Stata tells you it simply converts them to cardinal values.

Q: How does it do that?

A: It simply takes first, second, third and makes them one, two, three, which is exactly what Dr. Donohue did, but Stata tells you that it does that.

Q: Wait a minute. What you're saying is Stata takes the ordinal values and gives them, and assigns cardinal numbers?

A: Yes, it does.

Q: Which is exactly what Professor Donohue did?

A: Yes, he did.

Q: And you're criticizing Dr. Donohue for doing that?

A: Yes, I am.

Q: Is logit analysis also called logistic regression?

---

[399] Recall that it was Michelson who cited the Stata manual as an authority. The regression output in Example 1, which was just presented in the prior subsection (and was given to Michelson in this deposition as Exhibit 129), explicitly refers to the logit model towards the bottom of the first page as "**Logistic regression**."

A: Yes, it is.

Q: But you're saying logit isn't regression?

A: It's not regression. But the words are used that way. We've been through that.

Q: Okay.

A: I think people use ordinal logit without knowing that it is, in fact, cardinal.

Q: Okay. And it's your position as you sit here today having looked at what I've just given you that this is not the use of ordinal, the Stata example is not the use of ordinal variables in a regression?

A: It is not. You can't run a regression or a logit with ordinal values, you have to convert them to cardinal, and as I said, Dr. Donohue could have cleared this up in a paragraph in a sentence or two by simply saying that's what he did.

Q: Wait a minute. So you're not saying he did anything wrong, you're just saying he didn't explain what he did properly?

A: No, I'm saying he made an assumption, because you have to make an assumption. Ordinal numbers don't contain enough information to run a regression, so you're adding information. If you look at the part of the Stata Manual that talks about conversion from categorical to ordinal to cardinal, there is no such thing, but there is a discussion of conversion from cardinal to ordinal to categorical, because –

Q: From cardinal to ordinal or ordinal to cardinal?

A: No, the discussion in Stata is from cardinal to ordinal, because you're taking away information. There is no discussion of how to go the other way because you have to add information. You can add information by assumption.

Q: But you're just saying, Dr. Michelson, that that example is going from -- the one in front of you, Exhibit 129, is an example of going from ordinal to cardinal.

A: People do that, by adding information. They add information by an assumption. It's not the world's worst assumption. It gets them past a problem. The problem is that you can't do this manipulation with ordinal data, so you make an assumption, you get past it.

Q: And what is the assumption in the example there in 129?

A: That zero is to one as one is to two. Believe me, the manipulations are made cardinally.

Q: Well, it strikes me that the answer you've just given is a complete change in the testimony you gave at your prior deposition where you said not that it could be done with an explanation, but where you said that it was completely not allowable to use ordinal values in this way.

A: Let me try to clarify.

Q: So let me give you an opportunity right now to clarify which position you're taking. Are you taking the position that it is not allowed, is not allowable, under any circumstances to take, to use ordinal values in a regression, or are you saying it is allowed to use ordinal values in a regression if you explain it?

A: I'm not saying it's not allowed. I'm saying it's not technically possible to use ordinal values. You have to convert them to cardinal values. You can do that. The easiest way to do that is just assume that they're cardinal, but you should tell the person that I'm going to assume these are cardinal.

Q: Okay. In the blood serum example in 129 in front of you, the blood serum levels are coded as ordinal values zero, one, two, are they not?

A: Exactly, and --

Q: Just a second. They're coded as ordinal values zero, one, two, and they are then used in a regression, are they not?

A: This is why they tell you that, because you can't do this with ordinal values.

Q: Okay.

A: So they've decided to call them cardinal.

Q: Wait a minute. But they did it?

A: No, they didn't.

Q: You said at your last deposition, you can't do this, it's impossible to do this, it's wrong to do this, Donohue was an idiot to do it. In fact, that may have been –

A: I'm sorry, you don't understand.

Q: I understand fine, Dr. Michelson.

A: The values, the ordinal values zero, one, two are converted to cardinal values because you cannot do this arithmetic with ordinal values.

Q: Do you agree that what is done in that serum level, blood serum level analysis regression in front of you is just what Professor Donohue did in his report?

A: No, because they tell you.

Q: Okay. How did you know when you read Professor Donohue s report that he had taken ordinal values and assigned numbers to them, how did you know that if he didn't tell you?

A: He told me that he was doing it with ordinal values. What you have to do is call them cardinal values, and believe me, the mathematics in what you've handed me is cardinal.

Q: Well, let me ask you, because it sounds to me now as if all you're saying is Professor Donohue should have dropped a footnote to say what he was doing, is that what you're saying?

A: I think he should have done a sensitivity analysis to ask whether his conversion from ordinal to cardinal mattered.

Q: Well, how did they do that? Where is the sensitivity analysis in the sample in front of you?

A: If they didn't do one, they should have.

Q: Well, look at what you have. Does it say anything about a sensitivity analysis?

A: No, they didn't do one. So? They're wrong.

Q: But you've said the Stata Reference Manual is your example of the literature that supports your position that Professor Donohue did something wrong.

A: I've just told you what I was referring to.

Q: No, wait a minute.

A: I was referring to the --

Q: Wait a minute. Does the Stata Manual support your position or not support your position that Professor Donohue did something wrong with the use of ordinal values in his report?

MR. KANE: Does the excerpt?

MR. GOLUB: Yes, the excerpt.

THE WITNESS: Oh, the excerpt. He did something wrong.

BY MR. GOLUB:

Q: No, just does the excerpt, the example of the blood serum level regression that I've just put in front of you, does that support your position that Professor Donohue did something wrong or not support your position?

A: It supports my position.

Q: And how does it support your position?

A: Because it converts ordinal value zero, one, two to cardinal values.

Q: Which is exactly what you're accusing Professor Donohue of doing wrong, correct?

A: No. Converting to cardinal values is what he did. He didn't seem to know it. He said I'm going to use ordinal values. You can't do that. You have to convert to cardinal.

Q: What ordinal values did he use, zero, one, two?

A: One, two, three.

Q: Okay. Is there any analytic difference between using one, two, three as opposed to zero, one, two?

A: No, but you asked me a question.

Q: Okay. And you're saying it's okay in the Stata Manual example to use zero, one, two, but it's not okay for Professor Donohue in his report to use one, two, three?

A: Oh, I didn't say it's not okay. It's not okay to call them ordinal. You can't do the arithmetic with ordinal.

Q: Can I see -- wait one second. On the second page of this exhibit, you said it's not okay to call them ordinal. The part that's been read on the second page, the last line, could you read that aloud?

A: Sure. "The blood serum levels are coded as ordinal variables, values, zero, one, two."

Q: Okay.

A: That's how they came coded.

Q: So let me make sure I understand what you just said. You said it was wrong for Professor Donohue to code the [egregiousness scores] as ordinal values, the Stata Manual is the example you gave of the support in the literature, and the thing I just had you read said the blood serum levels are coded as ordinal values?

A: That's a completely false statement.

Q: Let's see which part of it was false.

A: Right at the beginning, I never said it was wrong for him to code ordinal values. I think that's all he could have coded.

Q: I thought you said in your report and in your testimony before today that -- let's try it again. I thought you said in your report and in your testimony prior to today that Professor Donohue's conclusions based upon his use of ordinal values were completely invalid and demonstrated a fundamental lack of understanding of regression analysis because you can't use ordinal values in regression. I thought you said that explicitly in your report and in your prior testimony. Are you retracting that now?

A: No. As far as that goes, that is –

Q: That's your position?

A: Well, invalid, I'm not sure I said it's invalid. I said you can't do this manipulation with ordinal numbers.

Q: You said Professor Donohue's conclusions based upon his using ordinal values was not proper, isn't that what you said?

A: Yes.

Q: And it was because you said he was improperly coding in ordinal values when it had to be cardinal values, isn't that what you said?

A: I'm not sure what you mean by "coded in". The coding, the egregiousness coding was properly done in ordinal values. I don't see how you could have done it any other way. The problem is then using those values, averaging them. You can't average ordinal values, but you can convert them to cardinal and average those values.

Q: Well, did Professor Donohue ever even use the word ordinal in his discussion of the egregiousness values?

A: Well, essentially, yes. They were ranks. I quote various places where he makes it clear these are ordinal.

Q: I'm asking, is the word ordinal in his report?

A: I don't know. The word ranks is in his report, ranking. A synonym is in his report.

Q: Okay, just so we're clear, as you sit here today, having seen what's in the Stata Manual, release 11, Exhibit 129, is it still your position that the Stata Manual is an authority that supports your contention that Professor Donohue did not properly conduct regression analysis on the egregiousness scale?

A: Yes.

Q: Is it your position today that if Professor Donohue puts a footnote into his report that explains how he calculated the values in the egregiousness scale, that that will resolve your criticism in the same way you're saying it was done in this example?

A: No. It would shift, I think it would shift the burden to me.

Q: To do what?

A: He would say, I am assuming, that the distance from one to two is the same as the distance from two to three, and he's basically saying Michelson, if you don't like that assumption, you show me what's wrong with it. That's fair.

Although it was a painful journey given his rigid, unreflective, and dogmatic posturing, Michelson finally acknowledged the truth: there is nothing unclear about what my report did or

what it assumed about the nature of the egregiousness measure. Moreover, books that he lauds with great praise employ similar measurement scales in regression analyses; indeed, the authority he claimed at his deposition would support his position, did exactly what I have done using a logit regression (as did the authority he invoked after his deposition). Some of the most eminent statisticians and economists of the day have done what Michelson said is wholly inappropriate. As he finally conceded, the burden is now on Michelson to show that modern social science with the backing of the most eminent statisticians and economists has uniformly gone astray when using measurement indices. That burden will not be met.

2. My Egregiousness Metrics Were Properly Designed and in Conformity with Contemporary Statistical Standards of Analysis.

The distinction between ordinal and interval (or cardinal) numbers is often unimportant in applied econometric work, which is why measurement scales of the type used to capture egregiousness in this report are used everywhere in modern social science and in medical research. Every major economics, sociology, political science, medical, and psychology journal routinely publishes papers that employ these scales, which are averaged and introduced into regression models in exactly the way that Michelson says they cannot be used.

The bottom line is that Michelson seemed entirely ignorant of the fact that his semantic criticisms of my egregiousness measure do not govern modern empirical work for the simple reason that decades of research has shown that intelligent use of measurement scales, whether referred to as ordinal or cardinal, can generate highly useful regression results. For our purposes, it is important to realize that 1) my egregiousness measure is valid and useful and Michelson's broad critique simply reveals his ignorance of modern empirical methodology; and 2) this point is underscored by my illustration that when one fully adjusts the measure to address Michelson's alleged concern, the results of the regression analysis are essentially unchanged. Moreover, the

irony of Michelson's overblown objections is that he showed that 1) he did not understand the nature of the ordinal and cardinal concepts he purported to be used; 2) he did not understand that measurement scores that he endorsed in regression applications by authors he praised were *identical* in structure to my egregiousness measure; and 3) a book that he lavishly praised as one of the best examples of social science he had ever seen was entirely based on ordinal measures that the author rampantly (and in Michelson's description, effectively) used in averaging and regression-type calculations.

Indeed, we see the precise fruitful results that emerge from the egregiousness coding in this case. The egregiousness measures are transparent and their use furthers the desirable goal of reducing the number of explanatory variables that must be estimated. Since Section IX, above, just showed that the conclusions of this report are quite robust regardless of how we measure egregiousness—that is, based on the egregiousness scale that Michelson finds problematic or on one that complies with his concerns about ordinality and cardinality—the pragmatic virtues of my approach should be clear.

Statisticians Paul F. Velleman and Leland Wilkinson have catalogued an extensive critique of the dogmatic position that Michelson adopts, noting that it can be a "dangerous practice" that doesn't address the pragmatic needs of researchers and can undermine the search for truth:

> First, restricting the choice of statistical methods to those that "exhibit the appropriate invariances for the scale type at hand" is a dangerous practice for data analysis. Second, [this ordinal-cardinal] taxonomy is too strict to apply to real-world data. Third, [critiques such as those of Michelson] often lead to degrading data by rank ordering and unnecessarily resorting to nonparametric methods.[400]

[400] Paul F. Velleman & Leland Wilkinson, *Nominal, Ordinal, Interval, and Ratio Typologies are Misleading*, 47 AM. STATISTICIAN 65, 67 (1993).

Velleman and Wilkinson referenced the work of many noted statisticians who have disputed Stevens's dogmatism, including several who have undertaken technical work, "rel[ying] on the Central Limit Theorem and Monte Carlo simulations to show that for typical data, worrying about whether scales are 'ordinal' or 'interval' doesn't matter."[401] The extensive robustness checks in this report confirm this common finding in modern empirical work, which is why measurement scales are so commonly used.

For example, Sanford Labovitz, Professor of Sociology at the University of Calgary, undertook a simulation to show that it mattered little which of seven sets of numerical scores he assigned to the levels of an ordinal variable.[402] "[E]ven without a rationale concerning the differences between ranks," Labovitz found, "we are highly likely to choose a scoring system correlating with the 'true' system above .9 and with greater probability above .8. . . . Possessing some knowledge about the amount of differences between ranks will reduce the chance of error . . . ."[403]

Ultimately, as Labovitz wrote, "In a science where measurement of crucial variables is not well developed, it may be necessary to treat 'not quite interval' scales as interval."[404] Famed statistician John Tukey wrote, similarly: "The question must be 'If a scale is not an interval scale, must it be merely ordinal?' . . . [It] *may* be reasonable to apply relatively sophisticated analyses to equally spaced values . . . which have been 'arbitrarily' assigned to an ordered classification."[405]

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[401] *Id.*
[402] Sanford Labovitz, *Some Observations on Measurement and Statistics*, 46 SOC. FORCES 151 (1967).
[403] *Id.* at 155.
[404] *Id.* at 152.
[405] JOHN W. TUKEY, *Data Analysis and Behavioral Science or Learning to Bear the Quantitative Man's Burden by Shunning Badmandments*, *in* 3 THE COLLECTED WORKS OF JOHN W. TUKEY 187, 245, 247 (Lyle V. Jones ed., 1986).

a. Michelson Misconceives the Ordinal-Cardinal Taxonomy

Michelson's definitions of cardinal and ordinal variables are valid, to a point. However, in using the broad term "cardinal," he really refers to the narrower category of interval values.[406] Cardinal values, Michelson writes, lie on a scale such that "a value of 4 is as far from 3 as 3 is from 2 and 2 is from 1, within that variable's measure."[407] (This is actually the hallmark of interval values specifically.) Ordinal variables lack this property. Michelson then states that "a single multi-valued ordinal variable such as '1 = ordinary crime, 2 = scary crime, 3 = horrible crime'" could not be used as a regressor because its values lack meaning in relation to each other.[408]

But Michelson goes astray in his analysis of *why* such a variable is ordinal. The problem is not, as he seems to assume, that the values lack fixed and easily quantifiable units. Values need not be measurable in years or dollars in order to be cardinal.[409] They simply must lie on an interval *scale*, as opposed to representing ranked *categories*. Nothing in Michelson's example other than his arbitrary ranking would indicate the order that would attach to his three categories. "Scary" could be above or below "horrible" depending on what metric one has in mind. It should be clear now why Michelson's example is inapposite for assessing the egregiousness metrics where there is no doubt that that higher numbers represent greater egregiousness.

Michelson is therefore mistaken as to the nature of most of my egregiousness metrics. If the coders had been asked to assign each case to a category (ordinary, scary, or horrible) and then to code the relevant egregiousness metric with a number corresponding to that category (1

[406] *See* MICHELSON REPORT, AUGUST 20, 2010, at 45-46.
[407] *Id*. at 45.
[408] *Id.* at 46.
[409] *Contra id.* at 45.

for ordinary, 2 for scary, 3 for horrible), the resulting variable would have been purely and arbitrarily ordinal. But this is not what they were asked to do.

Michelson's ordinal label is most clearly misapplied to the Overall egregiousness metric. For that metric, the instruction sheet asked coders simply to "provide a[] . . . score on a scale from 1-5, 5 being the most egregious," taking into account "any factors" that the coder found "relevant."[410] There are no categories here. This 1-5 rating scale is *indistinguishable* from the "hypothetical cardinal scoring" scale that Michelson proposes, except that the maximum value on Michelson's scale is 100 rather than 5.[411] The granularity of the scale can have an impact, as I discuss below, but it has nothing at all to do with the ordinal-cardinal distinction. Thus, Michelson has misunderstood the nature of the egregiousness scale.

The same is true for the narrower egregiousness ratings for victim suffering, victim characteristics, and defendant intent or culpability, although Michelson may have been led astray by the imprecise use of the word rank in the egregiousness coder instructions. Essentially, Michelson's claim is that there are two problematic elements in the instruction sheet's language concerning the coding of the 4-12 Composite egregiousness measure, in which the coders are instructed to "rank whether the given factor was low (1), medium (2), or high (3)."[412] To Michelson, this direction creates an impermissible ordinal variable because of the use of the word "rank" and the assignment of a case to one of several categories, with a corresponding numeric value for that category. But note that Michelson's ordinal/cardinal objection would have gone away if the instruction had simply invited the coders to rate the factor "on a scale from 1 to 3, with 3 being high," in which case this scale would be just like the Overall egregiousness scale. The same would be true, of course, if coders had been asked to use "a scale from 1 to 3, with 3

[410] *Id.* at 55.
[411] *See id.* at 58.
[412] *Id.* at 55.

being high and 1 being low." Either of these instructions would establish a scale with labeled high and low ends, not discrete categories, and thus would avoid Michelson's complaint.

The word "rank" is inappropriately criticized here because it was used in a non-technical sense for the student coders. Michelson seizes on this word without bothering to recognize that the coders were by no means engaged in ranking but rather were engaged in the precise rating that Michelson would endorse. True, the two activities look alike in a trivial sense: one can derive a ranking from multiple ratings. If I rate case A as 1, case B as 2, and case C as 3, I have ranked these cases from most to least egregious in the following order: C, B, A. But the same is of course true of Michelson's "hypothetical cardinal scoring."[413] In both systems, unlike in a ranking process, the egregiousness value of a given case does not *depend* on the egregiousness values of other cases. However any ranking is *derivative* of the independent ratings; the coders simply were not engaged in a ranking task.

b. Michelson's Many Criticisms of My Egregiousness Coding Methodology Are Unsubstantiated or Unimportant to My Results or Both.

A second set of Michelson's criticisms of the egregiousness metric relates not to the definition of the variable itself but to the methodology by which it was coded. These criticisms fall generally into four categories, and I respond to each set of categories in turn. First, Michelson argues that the coders, law school students, were not representative of a more general population—perhaps the Connecticut jury pool. Second, Michelson argues that the scrubbed summaries used by the coders were missing information relevant to the determination of egregiousness. Third, Michelson criticizes the absence of an absolute "Chinese wall" between those who prepared the scrubbed summaries and those who coded egregiousness based on those summaries. Fourth, Michelson alludes to certain minor inconsistencies or putative errors in

[413] *See id.* at 58.

coding. The first two criticisms reflect Michelson's fundamental misunderstandings of the egregiousness study. The third and fourth are utterly trivial in that they have both been entirely corrected and never had any impact on the regression estimates in the first place. They certainly have no bearing on any of the findings of my report.

i. Representativeness of the Coders is Important Only in a Narrow Sense - Not in the Fundamental and Sweeping Way that Michelson Implies.

Michelson's broadest indictment of my egregiousness coders is that we would like to "substitute[] the judgments of nine undirected Yale students for the judgments of prosecutors, juries, and three-judge panels" in the State of Connecticut.[414] He wonders (rhetorically) whether "the Supreme Court would accept their opinion on who should be meted out death, who should not."[415] At one point, Michelson goes so far as to suggest that I view the egregiousness coders as a kind of super-appellate court: "For his assertion that the Supreme Court should rule the sentencing system unconstitutional if it conflicts with his nine student coders, for that alone, [Donohue] should be excluded. That is not an expert concept."[416] One might, in kind, question whether anyone who read my initial Report in this light could claim expertise on its subject matter. But the essential task at present is to clarify how and why I use the egregiousness metric and—given that objective—to define rigorously what sorts of external validity are and are not relevant.

Michelson's analysis reflects two fundamental misconceptions. First, he seems to believe that the egregiousness coders are engaged in *normative* analysis rather than what in fact is *descriptive* analysis. Second, in a related vein, he seems to believe that the coders identify

[414] MICHELSON REPORT, AUGUST 20, 2010, at 186.
[415] *Id.* at 50.
[416] *Id.* at 266. Just to be clear on one numeric detail, the preliminary version of this report did rely on nine coders to develop two different measures of egregiousness, but the current version uses 18 coders. The entire thrust of Michelson's statement is incorrect for the reasons I spell out in great detail throughout this report.

appropriate *outputs* rather than actual *inputs* to the criminal justice system. In other words, Michelson imagines that each coder sits down with a case description and asks, "In light of the entire case history, was this crime so egregious that the offender should be put to death?" This is, of course, the role of a criminal jury and to some extent that of a prosecutor. However, the job of the coders was to ask, "In light of all the facts that occurred *at the time of the murder*, how would a reasonable person assess the egregiousness of this crime in the most objective possible way?" This enterprise has no normative component whatsoever. However the coders may have felt about the death penalty, they were for this purpose agnostic as to whether a given offender *should* or *should not* incur a death sentence. They were, for that matter, agnostic as to whether offenders should be punished at all. Far from serving as a super-jury or super-appellate court, the panel of coders simply did not consider what *should* have happened at the end of the sampled cases. The panel's concern was with the most objective possible accounting of the *inputs* to the criminal justice system—the relative egregiousness of the crime itself, aside from any question of sentencing.

Consider, then, what it means to ask whether "these students are representative of any group."[417] What does "representative" mean in this context? What specific indicia of external validity are we to require?

It may be easiest to begin by identifying what we do *not* care about, and that is whether the egregiousness ratings produced by my coders vary in any linear way from those that would be produced by a more general population. It is well established that a linear transformation of an explanatory variable such as my egregiousness scales does *not* affect the statistical significance of their coefficients in a regression. As a result, if a general population would rate the egregiousness of a given crime as x, my coders could rate the egregiousness of that crime as

[417] *Id.* at 50.

$ax + b$, where a and b take any real values (other than $a = 0$), without the slightest effect on the results we care about.

This has a number of important practical implications, which Michelson seems not to grasp. First, it is irrelevant whether my coders were in general harsher ($b > 0$) or more lenient ($b < 0$) in their assessments of egregiousness than the general population. Second, it is irrelevant whether the coders tended to cluster their egregiousness ratings closer to the bottom of the scale ($a < 0$) or the top of the scale ($a > 0$) than the general population. Of course, these deviations from the general population *would* matter if the coders were acting as the kind of super-jury that Michelson imagines. But they do not matter in the actual context of my study.

Michelson insinuates that my 9 coders from Yale Law School viewed certain kinds of cases or offenders as systematically more or less egregious than other might:

> Murder involving drug dealing does not impress these students. My interpretation is that drug dealers live in a world apart from these students. Drug dealers elect a culture in which death is a possible, even likely consequence. Students have no sympathy for them. On the other hand, being kidnapped . . . is a fearful event to students, as is being sexually assaulted. . . . My final piece of evidence is the case that was the clear winner in the egregiousness sweepstakes . . . a case of a lawyer (Scott Pickles) gone bad. If drug dealers live in some other world, the defendant in [this case] lived in the same world as these law students. He is one of their own. Someone like them doing something like that is, to them, egregious indeed.[418]

Even Michelson questions the value of this amateur exercise in psychoanalysis: "Am I stretching? Am I reading too much into these associations, too much about the coders, as opposed to the cases?"[419] But the clear answers (yes and yes) do not deter him. Nor do the absurd implications of his musings. Does Michelson doubt that Connecticut jurors, in general, view the murder of innocent citizens—especially combined with rape or kidnapping—as worse than violent crime among participants in the drug trade? As for Scott Pickles, who stabbed his wife sixty times and smothered or beat to death his three- and six-year-old children—does

[418] *Id.* at 72.
[419] *Id.*

Michelson truly believe that only lawyers or law students would view his conduct as especially bad?

Michelson's criticism of my initial Yale law student coders is almost wholly ad hominem. He has provided no useful evidence to suggest that they differ from the general population in a way that affects the validity of their egregiousness ratings. Now that 11 additional University of Connecticut law students -- all Connecticut residents -- have been added and their coding led to virtually identical regression results, Michelson's unfounded speculations can now be fully laid to rest.

ii. In Criticizing the Scrubbed Summaries, Michelson Ignores the Fundamental Methodological Reasons I Confined My Analysis to Facts Related to the Crime Rather than to the Criminal Justice Treatment of the Defendant.

A second class of criticisms from Michelson has to do with the completeness of the scrubbed summaries that coders used to assess egregiousness. Again, however, Michelson's criticisms reflect his misconception of the purpose of these summaries. Consider his most extensive description of the deficiencies that he perceives:

> I display two scrubbed summaries in Figures B06 and B07. . . What is "scrubbed" from these summaries is race, gender, and some of what happened within the Connecticut criminal justice system. For example, both defendants turned themselves in to the police, not only the defendant in Figure B06. The summary for Case 029 does not say that the defendant questioned the reliability of eyewitnesses. The prosecutor did not press capital felony charges, and the defendant received a sentence of life without possibility of parole. A plea bargain? No scrubbed case summary informs the reader whether the defendant pled guilty, or provides any information how strong the information being presented would be considered in a court room.[420]

Note that once again Michelson is simply wrong: the B07 summary *does* state that the defendant "turned himself in" to the police and confessed.[421] Michelson has not only failed to read the

[420] *Id.* at 54.
[421] *Id.*

summaries carefully, but worse still, he has failed to understand their basic function: to provide coders with the relevant facts of a crime *prior to arrest*.

The importance of this point cannot be overstated. The basic principle of my study is to determine whether the *inputs* to the criminal justice system bear any relation to the *outputs* of that system in death penalty cases. The most relevant *input* is, or should be, the nature of the crime itself. Other inputs to the system include the demographic characteristics of the defendant, such as his or her race, but the purpose of the scrubbing process was to *remove* race as a potential consideration for coders—to insulate the perceived egregiousness of the crime from the race of the offender. Anything that follows arrest is not an *input* to the system; it is a *function* of the system. To include information about post-arrest treatments—such as a prosecutor's charging decision, or a plea bargain—would defeat the entire purpose of coding egregiousness. If Michelson wishes to criticize the content of my scrubbed summaries, he would do well to understand the purpose for which they exist.

iii. The Breach of the "Chinese Wall" in My Research Represented a Trade-Off When I Had Fewer Egregiousness Coders; I Now Have More and Have Dropped those Coders.

Michelson alleges with great fanfare that two of the people who scrubbed case summaries—Sonia Kumar and David Gopstein—also coded the egregiousness of those cases. As with so many of Michelson's overblown criticisms, the simple answer is that his point doesn't matter: it has no bearing on my results.

My initial reason to include Kumar and Gopstein was that averaging across more coders tends to produce better results. This is the reason that a four-year GPA would give a better picture of a college student's performance than a GPA for a single semester, where idiosyncratic effects would not average out. As researchers find with many statistical judgments, I was trading

off issues of precision and potential bias.[422] For the current version of the report, I have added eleven additional egregiousness coders from the University of Connecticut Law School to the nine Yale coders used in the initial version of the study. Therefore, it is a simple matter just to drop Kumar and Gopstein from the analysis, and rely on 7 Yale coders and 11 Connecticut coders. In doing so, I have now doubled the number of coders from the original 9 to the current 18, thereby simultaneously increasing precision in my egregiousness coding while eliminating any fear of bias.

At the end of the day, of course, the crowning irony of Michelson's "Chinese wall" criticism stems from the fact that his own work is far more "tainted" than my initial report was. Whereas I recognize the separation of scrubbers and coders as a methodological desideratum, Michelson appears to apply that standard only to people other than himself. How else could he attack my coders as "tainted" and yet consider it appropriate to devise the *awful* variable (his "version of an egregiousness code" -- page 110, Michelson August 20, 2010 report). Michelson coded this variable based on his idiosyncratic opinions as to which crimes involve the victim's being "ripped out of his ordinary life, suddenly to be enmeshed in a horrific episode unlike anything he (she) would have expected"?[423]

Michelson creates his own egregiousness measures while fully aware of the outcome of the cases he is coding, which is the very problem he excoriates vis-a-vis Gopstein and Kumar. Moreover, I initially averaged their two scores with 7 other coders (again, remember they are now dropped from my report), while Michelson just relies on his own judgment without the protection of averaging. Finally, unlike Michelson, I *always* maintained a Chinese wall between

[422] Of course, there is not the slightest evidence that Kumar or Gopstein did generate biased results. The inter-coder reliability ratings presented in the original report were extremely high, and Kumar and Gopstein were essentially middle of the road coders. Dropping them from the analysis and adding in 11 University of Connecticut coders yields results that are virtually identical to the original study.
[423] *Id.* at 110.

the coding function and the regression design and analysis, and it is the lack of separation in these functions that poses the greatest concern about subjective or inadvertent bias.

Michelson excoriates my initial report for the supposed methodological error of using a "tainted" coder (a criticism that can no longer attach to my current report) even as his own report contains a far more egregious example of the very error of which he accused me.[424]

c. My Egregiousness Variable Does Measure Egregiousness, and it Measures Egregiousness in an Appropriate Manner, Contrary to Michelson's Criticisms.

In addition to questioning the statistical properties of the egregiousness variable and the methodology by which it was coded, Michelson challenges the manner in which I define the variable. He makes three arguments in this vein. The first is that the egregiousness variable is not *valid*—in essence, that it does not measure what I say it measures.[425] The second is that I should have disaggregated the three components of the Composite egregiousness measure and included them as separate regressors. The third is that the measurement of egregiousness should account for the substantive law and for the procedural history of individual cases—for "aggravating factors and mitigating factors, pleas and other elements of the criminal justice process, and the strength of the evidence."[426] Like Michelson's criticisms of the egregiousness coding methodology, his objections to the definition of the egregiousness metric are woefully misguided, as I explain in turn below.

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[424] Among the few specific coding errors to which Michelson refers, I have of course corrected the few instances in which a coder incorrectly coded the number of victims involved in a particular crime. Note that these trivial errors would have had no impact on the regression results because the findings of racial and geographic bias are too robust to be moved by minor errors. Moreover, the number of victims measure in my initial report was only presented as part of the Composite 4-12 egregiousness measure, which was averaged across nine coders, thereby diminishing the impact of a single error.

[425] *See* MICHELSON REPORT, AUGUST 20, 2010, at 188-91.

[426] *Id*. at 190.

i. The Composite Egregiousness Variable Embodies Four Elements that Unassailably Bear on Whether a Particular Murder Can Properly be Deemed to be Among the "Worst of the Worst" that can be Constitutionally Subject to Capital Punishment.

Michelson does not seem to be able to keep in his mind that my report used two egregiousness standards. The first channeled the discretion of the coders to focus on four core elements that would be central to any rational system designed to limit the application of the death penalty to the "worst of the worst cases." The four factors -- listed in Section VI.C.1 above -- were 1) the extent of victim suffering, 2) victim characteristics that make the crime more deathworthy, 3) the defendant's intent and culpability, and 4) the number of victims. Each of these four core elements was coded on a 1-3 metric, which when summed generated a 4-12 Composite egregiousness measure. The second standard -- the Overall 1-5 egregiousness measure -- was used to see if the coders would feel constrained by the four elements of the Composite egregiousness standard and would focus on other factors that might lead to a different ranking when arrayed on a 1-5 scale.

Michelson's claim that the Composite egregiousness standard is not valid would only be sensible if he could establish that the four factors are somehow not valid considerations in determining the deathworthiness of a murder. Despite his demonstrated willingness to utter the most profound inanities, even Michelson cannot bring himself to argue that the four elements of the Composite egregiousness standard are not critical to an assessment of the deathworthiness of a murder. It is not a surprise that he can offer no such argument since all four factors derive directly from the Connecticut death penalty statute or decisions of the Connecticut and U.S. Supreme Courts.

Consider the first factor measuring the extent of the victim's suffering. What is Michelson supposed to say? That the suffering that the murderer inflicts on the victim is *not*

important in determining whether a death penalty is constitutionally and legislatively permissible?

Here is the language in the coding document that my egregiousness coders were asked to use:

> **Victim Suffering—Intensity and Duration**
>
> In this category, consider the intensity and duration of the victim's suffering. Factors to consider include: 1) intensity, as measured by the degree of physical pain and/or mental anguish, and 2) duration, which is the amount of time that a victim suffered.

Perhaps Michelson should compare this language to the Connecticut Supreme Court's interpretation of "heinous, cruel, and depraved," which, as shown in Table 8, is the primary aggravating factor used in death penalty cases in Connecticut:

> In order for the state to prove this aggravating factor, that the defendant committed the crime in an especially heinous, cruel or depraved manner, the state must prove beyond a reasonable doubt that the defendant intended to, and **in fact did, inflict extreme physical or psychological pain, suffering or torture on the victim**, or that he was callous or indifferent to the extreme physical or psychological pain, suffering or torture that his intentional conduct, in fact, inflicted on the victim.[427]

The Connecticut Supreme Court's effort to give content to the "heinous, cruel, and depraved" statutory aggravating circumstance has emphasized the degree of victim suffering as a central feature of this key aggravating factor. My coding document is unequivocally and directly related to the relevant legal standard on the most important aggravating factor in the Connecticut death penalty regime. The relationship between the first factor of my Composite egregiousness measure and the relevant Connecticut law is clear and direct.

The same is true for the other three factors of the Composite egregiousness score, which refer to key elements of both the Connecticut death penalty statute and the constitutional law of

[427] *State v. Colon*, 272 Conn. 106, 360 (2004)(emphasis supplied). The quoted language was from the jury instruction in the Colon case and was endorsed by the Connecticut Supreme Court.

capital punishment. How do we know that certain victim characteristics (the second of the four factors) make the crime more deathworthy? The law clearly tells us: killing a police officer and killing a child are each specifically singled out as deathworthy elements under Connecticut law.

The third factor in the Composite egregiousness score -- the defendant's intent and culpability -- is so central to the U.S. Supreme Court's line of cases eliminating the death penalty for minors and the retarded [428] that Michelson can scarcely attack this component – and of course he offers no argument that it should not be included in the egregiousness measure, except for his blunderbuss attacks on the entire enterprise.

The entire edifice of this line of Supreme Court death penalty jurisprudence that eliminated the death penalty for minors and for the retarded is premised on the view that these defendants should not face the death penalty, even though their crimes make them eligible for it, because their lower capacity means that they do not rise to that level of defendant's intent and culpability that would render the crime one of the "worst of the worst."

In *Atkins v. Virginia*, 536 U.S. 304, 318-19 (2002), the Supreme Court explicitly stated that unless the death penalty contributes to one or both of the goals of retribution and deterrence, it is an unconstitutional punishment. Specifically, the Court noted that:

> With respect to retribution-the interest in seeing that the offender gets his "just deserts"-**the severity of the appropriate punishment necessarily depends on the culpability of the offender**. Since Gregg, our jurisprudence has consistently confined the imposition of the death penalty to a narrow category of the most serious crimes. For example, in Godfrey v. Georgia, 446 U.S. 420, 100 S.Ct. 1759, 64 L.Ed.2d 398 (1980), we set aside a death sentence because the petitioner's crimes did not reflect "a consciousness materially more 'depraved' than that of any person guilty of murder." Id., at 433, 100 S.Ct. 1759. If **the culpability of the average murderer is insufficient to justify the most extreme sanction available to the State**, the lesser culpability of the mentally retarded offender surely does not merit that form of retribution. Thus, pursuant to our narrowing jurisprudence, which seeks to ensure that **only the most deserving of execution are put to death**, an exclusion for the mentally retarded is appropriate.[429]

[428] *Roper v. Simmons*, 543 U.S. 551 (2005); *Atkins v. Virginia*, 536 U.S. 304 (2002).
[429] Id. at 319-320 (emphasis supplied).

The Court's language illustrates both the importance of the third component of my egregiousness measure—defendant culpability—as well as the critical need to have a comparative scale in mind under which the culpability of the murderer could be assessed. Importantly, the Court revealed that the culpability of the average murderer is deemed inadequate to establish the standard of "most deserving of execution." Examining cases with an eye to applying such a comparative assessment of egregiousness is exactly what the egregiousness coders were asked to do.

Finally, the Composite egregiousness score invites the coders to reflect on the number of victims that were murdered. Despite Michelson's bizarre claim that these egregiousness factors are not validated, it is a simple and unassailable fact of logic that, ceteris paribus, murdering two people is worse than murdering one. Of course, the Connecticut death penalty statute recognizes exactly this fact in considering multiple victims to be a qualifying element of a capital felony. Claiming that the elements of my Composite 4-12 egregiousness score are not validated is tantamount to arguing that the rules of logic and the dictates of law are to be suspended.

Hopefully, we can now inter Michelson's unpersuasive and conclusory objections. For all his vituperations against my definition of egregiousness, Michelson never once suggests some standard from which he supposes that my measurement departs. In fact, while Michelson never seems to understand what he is actually doing, he provides further empirical confirmation of the validity of my egregiousness factors in his own report. I have already shown that the Composite egregiousness score is based on four factors that are core elements of any effort to delineate the "worst" murders. Michelson might attack this ranking by showing that what the coders deem to be high egregiousness cases are really low egregiousness cases. Conversely, if one identifies one's own set of the worst cases, one can test to see if the Composite egregiousness factors

similarly show that the worst cases score high in egregiousness. In fact, this is exactly what Michelson does – he defines his group of worst cases and then shows that they are indeed highly egregious under the composite factors.

Specifically, Michelson's own "version of an egregiousness code"—his *awful* variable, characterizing the extent to which the victim of a crime is "ripped out of his ordinary life, suddenly to be enmeshed in a horrific episode unlike anything he (she) would have expected"[430]—is then shown to be highly correlated with the various components of the Composite 4-12 egregiousness measure. (I show the regression below in Section X.G.) Moreover, as my discussion of Michelson's Figure B15 below reveals, these same components of my Composite egregiousness measure are enormously highly correlated with my Overall 1-5 egregiousness measure. In other words, Michelson's own work yields further validation of *both* of my egregiousness measures.

ii. The Common Practice of Aggregating Components into a Composite Measure, which I Used for One of My Egregiousness Measures, Affords Both Pragmatic and Theoretical Advantages.

Michelson argues that I should have disaggregated the four components of my Composite egregiousness metric rather than using a single Composite 4-12 score. The first response to this, as to so many of Michelson's claims, is that I have now done this and it makes no difference: in Section IX, I show that my findings are the same whether one uses the aggregated measure of egregiousness or relies on the individual components (see Table 37). At the end of the day, the results of racial and geographic bias are robust to Michelson's critiques.

While there is no need to dwell on this issue, it is in fact the case that my aggregation of scores into a composite whole, using components as an analytic framework, is quite common.

[430] Michelson Report, August 20, 2010 at 110.

Indeed, Michelson's favorite example—the scoring of women's gymnastics—illustrates the point nicely.[431] Under the current scoring system, a gymnast's score is the sum of two disparate measures, rated by two different panels of judges. One panel determines the difficulty score of an element, which itself is the sum of points for difficulty value, composition requirements, and connection value. Another panel rates the execution of the element.[432] The aggregation of disparate components is a common way of arriving at a single rating, whether of the skill of a gymnast's routine or the egregiousness of a murder.

Moreover, there are a number of advantages using the single aggregated number instead of four component variables, which is why I chose it as my base case specification. First, aggregation is common in modern measurement because it ordinarily has little impact on regression results where the causal relationships are strong (as we see is the case here -- compare Tables 22 and 23 with Table 37). As a pragmatic factor, aggregation is transparent, and simplicity is a virtue in econometrics. Moreover, aggregation serves the function of reducing dimensionality, which is a critical concern when the number of observations is limited as it is in the context of only 9 sustained death sentences and 205 death-eligible cases (if one variable can do the work of four, that is a plus). As we saw in Section X.C above, the ratio of observations to explanatory variables in our Table 23 base model of capital sentencing is 16.7 (using the single measure of egregiousness). When we instead use four measures by decomposing the Composite egregiousness score in Table 37, the ratio for our capital sentencing model drops to 13.3 (=15/200), which is a more borderline ratio given the low variance in the sentencing data. Of course, this only makes it more dramatic that the evidence of racial and geographic disparity still

[431] *See id.* at 52.
[432] *See* FÉDÉRATION INTERNATIONALE DE GYMNASTIQUE, 2009 CODE OF POINTS—WOMEN'S ARTISTIC GYMNASTICS (2009), *available at* http://figdocs.lx2.sportcentric.com/external/serve.php?document=1653.

comes through so strongly, even as the capacity of the regression to detect such disparities is degraded by the introduction of the four additional variables.

Second, the concept of an egregiousness measure is directly connected to the Supreme Court's assertions in 2002 that *Godfrey* shows that "the culpability of the average murderer is insufficient to justify the most extreme sanction available to the State"[433] and in 2005 that "[c]apital punishment must be limited to those offenders who commit 'a narrow category of the most serious crimes' and whose extreme culpability makes them 'the most deserving of execution.'"[434] The Supreme Court's language is at least suggestive of the view that it has in mind a unidimensional scale of deathworthiness. Average murder cases are too low on this scale to constitutionally justify execution, which is only permissible for murders that fall in the extreme tail on this scale of egregiousness.

It is more difficult to implement this conception if the three subjective components of the Composite egregiousness measure are thought of as independent factors in total egregiousness. I included the component break-down in an effort to guide egregiousness coders—to provide them with an analytic framework for their task. (The reason I also employed an unguided "overall" egregiousness measure in addition to the composite measure was to ensure that I was not distorting the overall picture by focusing coders on the four components in particular.) But in many cases, the components will seem closely intertwined.

Suppose, for instance, that a particular victim is highly vulnerable. That circumstance is likely to affect not only the victim characteristics component but also the victim suffering component (because a victim who cannot defend herself may be perceived to have suffered more) and the defendant culpability component (because a defendant who preys on a defenseless

[433] Atkins v. Virginia, 536 U.S. 304, 319 (2002).
[434] Roper v. Simmons, 543 U.S. 551, 568 (2005) (quoting *Atkins,* 536 U.S. at 319).

victim may seem especially culpable). Viewed in this way, the three subjective elements may not be fully independent variables in the sense that one variable can be thought of as increasing (or decreasing) independently as the other two are held constant. Instead, if egregiousness coders—or prosecutors, judges, or jurors—weigh the components together, in a holistic way, rather than finding that one component strengthens their perception of a crime's egregiousness while another component detracts, then the additive approach is sensible. Thus, if one believes that the factors that bear on whether a murder is average or extreme in the language of the U.S. Supreme Court affect the relevant outcomes only in aggregate, not independently, then the correct model is one that uses the sum of the components as a regressor rather than disaggregating them.

Michelson notes that individual components of the Composite egregiousness metric diverge in their regression coefficients and significance.[435] Specifically, he finds that his modified variables for the second and third components of egregiousness "negate each other."[436] My regression tables showing the results using disaggregated measures of egregiousness reveal a similar divergence -- for example, in Table 37 the signs of the victim suffering and the defendant culpability variables conflict (when we would expect them both to be positive). Since, as the discussion above illustrated, these components of egregiousness are all such highly validated dimensions of what the Supreme Court envisions as the worst murders, the divergence suggests either of two possibilities: 1) most likely, noise in the data or multicollinearity is making the estimated effects for the individual components bounce around (in which case we should prefer the aggregated models that constrain this effect), or 2) the divergence is real, and another defect

[435] MICHELSON REPORT, AUGUST 20, 2010, at 148.
[436] *Id*.

in the operation of the Connecticut death penalty is revealed.[437] If important elements of egregiousness are negatively correlated with capital outcomes, then the case for arbitrariness in implementation is buttressed.

The bottom line, of course, is that I show the analysis using both aggregated and disaggregated measures of egregiousness, and in every case race and geography have a substantial impact on charging and/or sentencing in capital cases in Connecticut.

iii. The Entire Purpose of My Egregiousness Metric is that it does not Reflect Factors Internal to the Criminal Justice System.

Finally, Michelson argues that because my egregiousness "measure ignores aggravating factors and mitigating factors, pleas and other elements of the criminal justice process, and the strength of the evidence, this court might declare it invalid on its face."[438] This sentence is mystifying on its face because it confuses two issues, both of which Michelson gets wrong. First the claim that my egregiousness measure ignores aggravating and mitigating factors is nonsense. As Table 8 clearly showed, the primary aggravating factor in Connecticut death penalty cases asks whether the murder was committed in an especially heinous, cruel, and depraved manner, so the facts that would give rise to such a characterization would certainly be captured in the egregiousness measure. Similarly, the egregiousness coders did take into account a defendant's psychiatric problems, stress at the time of the murder, or lesser involvement in the crime, and these mitigating elements would thereby reduce the perceived egregiousness of the crime.[439]

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[437] Because the three subjective egregiousness components "may not be fully independent variables" the resulting correlation between the individual components ("multicollinearity") can make their coefficients and significance unstable and unreliable.

[438] MICHELSON REPORT, AUGUST 20, 2010, at 190.

[439] For example, as I pointed out in Section IX.C *supra*, the 18 egregiousness coders considered the following language in the summary for the Guy Levine double-murder case: "Defendant had an extensive history of psychiatric problems and treatment, including many years as an inpatient at an exclusive psychiatric hospital." If that factor was mitigating in the eyes of the coders, then the underlying fact of Levine's psychiatric problems would lead to a lower egregiousness score.

Based on the other factors that Michelson specifies in the above quote, it is clear that what he meant to say was that my egregiousness coding does not take into account criminal justice outcomes (such as a *finding in a criminal proceeding* of an aggravating factor, or a subsequent guilty plea, or a determination that the evidence in a certain case was weak). This argument misses the point of measuring egregiousness in the first place: to distinguish the inherent qualities of crimes from the justice system's treatment of those crimes, as I discussed in Section IX.C.

To see the extent of Michelson's error, consider his final point about weight of the evidence. Imagine a brutal torture-axe murder case, where the weight of the evidence against the defendant is not strong, but the extent of the numerous pre-mortem wounds is clearly established. Michelson inexplicably thinks that this case should be treated as less egregious because the evidence is weak. This is arrant nonsense. A torture-axe murder case is highly egregious regardless of the nature of the evidence about defendant guilt.

As I discussed in Section X.D.2.b.ii, Michelson made the same erroneous claim when he suggested that the scrubbed summaries (on which egregiousness codes were based) should have included information about charging decisions, plea bargaining, and so on. Again, Michelson fails to note that controlling for plea bargains when trying to explain capital sentencing outcomes would in effect control for the very thing that one is trying to explain. This is such a basic error that one would think that no expert could make it, but Michelson never fails to disappoint when it comes to making outlandish and misguided criticisms.

Contrary to the language quoted from Michelson above, the measure of egregiousness should *not* reflect information about "pleas or other elements of the criminal justice process" any more than scrubbed summaries should contain that information. In a study that attempts to

determine whether the *inputs* to the criminal justice system bear any relation to the *outputs* of that system in death penalty cases, the egregiousness score must reflect only inputs, not the operation of the system on those inputs.

E. INTERMEDIATE OUTCOMES SHOULD NOT BE INCLUDED AS EXPLANATORY VARIABLES IN A REGRESSION ANALYZING THE WORKINGS OF THE DEATH PENALTY AS A SYSTEM.

The problems created when one controls for post-treatment intermediate outcomes in a regression analysis are well-known and widely discussed and accepted in the statistical and econometric literature. When Michelson complains that my regressions have failed to control for intermediate outcomes, such as plea bargains or findings of a mitigating factor, he is essentially at odds with this large and growing literature, about which he is largely innocent since he does not keep up with the peer-reviewed literature, as we have already seen.

The basic problem with Michelson's approach is that the addition of post-treatment independent variables may remove all or part of the effect of the treatment being investigated.[440] A classic mistake in the Michelson mode would be to study whether a drug reduces the risk of stroke, while controlling for the post-treatment variable of blood pressure. One could easily imagine Michelson's insistence that one must control for blood pressure since this is something that directly influences the rate of stroke and therefore. In fact, it would be entirely inappropriate to control for this intermediate outcome of the drug treatment (post-treatment blood pressure) in trying to explain the final outcome of interest (stroke), Paul Rosenbaum makes clear in the following discussion:

> Imagine a study comparing a placebo and a drug intended to reduce blood pressure, the outcome being the incidence of stroke. If the groups were compared after adjustment for blood pressure levels six months after the start of treatment, then the adjusted incidence of stroke might be similar in drug and placebo groups, not because the drug has failed to work, but rather because the drug reduces the

[440] PAUL R. ROSENBAUM, OBSERVATIONAL STUDIES 73-77 (2002).

> risk of stroke by reducing blood pressure. **If the effect of the drug on blood pressure is removed, the effect on stroke is removed with it.**[441] (emphasis supplied.)

Blood pressure reduction is the mechanism through which the drug impacts the incidence of stroke. Including the mechanism, blood pressure reduction, as a separate independent variable masks the treatment effect.

The basic statistical rule is as follows: If a treatment variable affects the value of a post-treatment intermediate variable, then including this post-treatment intermediate variable as a model covariate will bias the coefficient estimate for the treatment variable. Inclusion of the intermediate variable in the regression model is particularly inappropriate in cases where the intermediate variable is the presumptive mechanism through which the treatment variable affects the dependent variable. One cannot test for the presence of discrimination using a model that will obscure the presence of discrimination in all cases in which it exists.

In our case, the judicial process is the mechanism through which characteristics of the crime and of the defendant affect the sentencing outcome. Michelson includes elements of the judicial process in his model, when he controls for exoneration, conviction on reduced charges, findings of aggravating and mitigating factors, and plea agreements. Controlling for these elements obscures the very questions that I have been asked to investigate.

Michelson disagrees with my approach. He acknowledges that the judicial process has a disparate impact on minority defendants but assumes that such disparities are outside the scope of the lawsuit:

> The defendant can initiate a plea to whatever he wants, essentially whenever he wants . . . It appears that, among those charged with a capital felony, blacks are

[441] *Id*. at 73-74.

> particularly unlikely to plead guilty—other than by Alford—even to a reduced charge.[442]
>
> Why blacks would be more reluctant to plead guilty than others, I do not know. But simply assuming there could be no such difference by race is to put one's head in the sand. It could be related to attorney quality, it could be a cultural phenomenon, it could be that attorneys are equal but blacks do not trust them, it could be many things I have not thought of.[443]

As I have explained, the claim in this lawsuit is that the death penalty in Connecticut is not solely applied to defendants "most deserving of execution" in "a narrow category of the most serious crimes."[444] Accordingly, for Michelson's use of the judicial process to be persuasive in rebuttal, he must convince the court that the exercise of prosecutorial discretion *itself* makes a crime less "deserving of execution."

But of course, pleas can emanate from many factors that have nothing to do with the deathworthiness of a particular murder. For example, in 1988, defendant Willie Scruggs (case 90 in my data sample) "went to trial on capital felony, but before the jury reached a verdict, entered a plea to conspiracy to commit murder…. There were allegations of juror misconduct; in order to avoid having to try the case again, the State agreed to allow the defendant to plead to the reduced charges." In this case, it appears that juror misconduct led to a plea, yet Michelson's decision to control for pleas would make it appear that some rational factor intrinsic to the crime led to the more lenient treatment of the defendant, rather than an arbitrary factor that had no bearing on the egregiousness of the crime.

In a study examining racial disparities in the application of the death penalty, the "treatment" is race or ethnicity and the event is the crime. Events in the criminal justice system

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[442] MICHELSON REPORT, AUGUST 20, 2010, at 164; *cf.* Michael L. Radelet & Glenn L. Pierce, *Race and Prosecutorial Discretion in Homicide Cases*, 19 LAW & SOC'Y REV. 587 (1985) (finding prosecutorial discretion impacted sentencing dispositions in death-eligible cases in Florida). It is trivially true that the defendant can choose to "initiate" a guilty plea; it is only the prosecution, however, that can offer a *plea bargain*.

[443] MICHELSON REPORT, AUGUST 20, 2010, at 164-5.

[444] DONOHUE, *supra* note 270, at 13 (citing Roper v. Simmons, 543 U. S. 551, 568 (2005) (quoting Atkins v. Virginia, 536 U. S. 304, 319 (2002))).

between the beginning of the judicial process and the final judgment of the judicial system are "post-treatment concomitant variables." In general, post-treatment concomitant variables are not included in regression analysis, as Rosenbaum explains:

> The goal is to compare subjects who were comparable *prior* to treatment. An outcome is, by definition, measured *after* treatment. Adjustments for unaffected outcomes render people comparable prior to treatment only under special and restrictive circumstances, that is, under assumptions that may be wrong and are often difficult to justify.[445]

Including judicial process variables risks removing the main pathways through which the death penalty framework may treat defendants differently based on race.[446] As Rosenbaum notes, "Estimators that adjust for a concomitant variable that has been affected by the treatment are generally biased."[447]

Post-treatment variables can be useful, however, not as controls but as dependent variables. Used in the latter way, post-treatment variables may help illuminate at what stage in the criminal justice system disparate treatment occurs. For example, with enough data, one could estimate the impact of defendant and victim race on the charging decision, plea bargaining, and jury and judicial decision making to isolate the discretionary processes where disparate treatment occurs.[448] Although some researchers with far more cases to work with have attempted studies that focus on successive stages of prosecutorial, judicial, and jury decision-making, in this case the limited data supply of cases at each stage in the process limits the value

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[445] PAUL R. ROSENBAUM, OBSERVATIONAL STUDIES 220-21 (2002)(citing Paul R. Rosenbaum, *The Consequences of Adjustment for a Concomitant Variable That Has Been Affected by the Treatment*, 147 J. ROYAL STAT. SOC'Y 656, 656 (1984)).

[446] *See* Daniel J. Ho, Comment, *Affirmative Action's Affirmative Actions: A Reply to Sander*, 114 YALE L.J. 2011(2005) (noting that if we hold constant something that is itself affected by the treatment, then we are removing precisely one of the main effects we are trying to study); Paul R. Rosenbaum, *The Consequences of Adjustment for a Concomitant Variable That Has Been Affected by the Treatment*, 147 J. ROYAL STAT. SOC'Y 656, 656 (1984).

[447] Rosenbaum, *supra* note 446 at 656. Rosenbaum explains that "if treatment assignment is strongly ignorable… given the pretreatment variables…, then appropriate adjustment for [the pretreatment variables] is sufficient." *Id.* at 659.

[448] David C. Baldus & George Woodworth, *Race Discrimination in the Administration of the Death Penalty: An Overview of the Empirical Evidence with Special Emphasis on the Post-1990 Research*, CRIM. L. BULL., Spring 2005, at 3.

of analysis at that level of granularity. As Table 43 reveals, when Michelson tried to move down this path, his regressions became perilously fragile because he simply didn't have enough observations to validly estimate the number of explanatory variables he was trying to use.

F. MICHELSON'S CLAIM THAT MINORITY ON WHITE MURDERS ARE MORE EGREGIOUS ON AVERAGE THAN OTHER MURDERS IS DEMONSTRABLY FALSE

A stunning error in Michelson's report is his outrageous effort to establish that minority on white murders are treated most harshly because these are the worst murders (without regard for the race of the participants).

Since we have already seen that the facts are exactly the opposite of what Michelson contends—minority on white murders tend to be *less* egregious than other murders, how does Michelson purport to establish this non-fact? Amazingly, he uses my two egregiousness measures—the very ones that he claimed made no sense when he attacked my report. Although he hopelessly bungles his statistical evaluation using my egregiousness measures, the very fact that he employs them in his own analysis and then tries to conclude that minority on white crimes are the "worst" reveals that Michelson understands that the egregiousness measure has the precise content I intended.

Thus, despite all of his attacks on my egregiousness measures, in Part B.5 of his report Michelson essentially embraces these measures as valid because he—quite mistakenly—thinks he can establish that the most harshly treated category of crimes are the most egregious. In particular, Michelson claims in Figure B15 that minority on white homicides are correlated with higher egregiousness, which he interprets in this way:

> I prefer to believe the more straight-forward explanation, that [coders] see the murders that are committed by nonwhites on whites as more egregious than other murders *from their race-neutral facts alone.*[449]

[449] MICHELSON REPORT, AUGUST 20, 2010, at 73.

He continues,

> Are analysts afraid of the 'politically incorrect' conclusion that nonwhite-on-white crimes are, by their nature (without regard for race), more egregious than other crimes?[450]

Michelson's taunting of imaginary "politically correct" analysts, however, is both highly inflammatory and completely unwarranted. Michelson is flat-out wrong when he says minority-on-white crimes are more egregious than other crimes; this result stems from an elementary statistical error on his part. Because of the importance of this issue, I will establish the nature of Michelson's error in detail.

1. Michelson's Claim that Minority-on-White Homicides are More Egregious is False.

Minority-on-white crimes are simply not more egregious than other crimes, according to the coders. Table 44 uses Michelson's own donplusrev.dta data set to illustrate the average egregiousness score, Eg(B) (what I refer to as Overall egregiousness on a 1-5 scale) for each of the four race categories of (minority and white for defendants and victims):

Table 44

Egregiousness By Defendant Race and Victim Race from Michelson's Dataset		
	White Defendant	Minority Defendant
White Victim	3.71	3.41
Minority Victim	3.65	3.25

This table clearly shows that death-eligible murders committed by *whites* in Connecticut are, on average, *more egregious* than those committed by minorities. Note that minority *defendants* (the last column) have lower average Overall egregiousness scores than white defendants, regardless of the race of the victim. In the following sections, we will show in detail why Michelson's Figure B15, which purports to show the opposite, is fatally flawed. However, even without that

[450] *Id.* at 74.

explanation, Table 44 indicates that his overall bald assertion "that nonwhite-on-white crimes are, by their nature (without regard for race), more egregious than other crimes" is simply wrong.

Additionally, Michelson cannot possibly be right that differences in egregiousness explain differences in capital charging and sentencing because, as I have previously shown in detail throughout this report, minority-on-white crimes receive the most severe treatment *controlling for egregiousness of the crime*. Table after table in this report establishes beyond dispute that when we control for either measure of egregiousness that I employ—Michelson refers to them as Eg(A) or Eg(B)—the minority-on-white variable correlates *positively* with both capital charging and death sentence. That is, minority defendants with white victims in death-eligible cases are charged and sentenced to death at a substantially higher rate for crimes of the same level of egregiousness and for similar types of crimes.

In light of the above fact, we do not need to examine Figure B15 to know that Michelson's conclusions are wrong. When he asserts that minority-on-white crimes receive the harshest treatment because they are the most egregious, he is dead wrong on two counts: these crimes are *not* the most egregious, and they receive more severe treatment than other death-eligible crimes when we compare cases of the same level of egregiousness. We could stop there and the Court may be inclined to do so, since Michelson's point is clearly wrong. However, it may be worth taking some time to illustrate the gross econometric error that Michelson made in running his regressions that led him to argue so vehemently that something that simply isn't true should be believed by this Court. Michelson's econometric error is outlined in the next subsection.

2. Michelson Draws His Faulty Conclusion Because of His Faulty Methodology.

Michelson's Figure B15 is reproduced here:

	Eg(B)		
Variable	Coefficient	t	p
Defendant NW / Victim W	0.189	3.22	0.001
Eg1	0.498	11.39	0.000
Eg2	0.603	14.85	0.000
Eg3	0.717	13.35	0.000
Murder For Hire	0.112	1.21	0.229
Kidnapped	0.157	2.25	0.025
Sold Drugs	-0.354	-2.92	0.004
Sex Assault	0.241	3.82	0.000
Multiple Victims	0.365	5.82	0.000
Constant	-0.794	-4.97	0.000
N	207	R^2	0.887

	Eg(B)		
Variable	Coefficient	t	p
Def. & victim Same Race	-0.169	-3.28	0.001
Eg1	0.494	12.21	0.000
Eg2	0.596	14.90	0.000
Eg3	0.728	13.37	0.000
Murder For Hire	0.108	1.19	0.234
Kidnapped	0.156	2.49	0.013
Sold Drugs	-0.333	-2.14	0.034
Sex Assault	0.252	3.51	0.001
Multiple Victims	0.362	6.49	0.000
Constant	-0.633	-3.63	0.000
N	207	R^2	0.887

What is Michelson doing here? He runs two separate regressions where he uses my Overall 1-5 egregiousness score (what Michelson calls as Eg(B)) as the dependent variable and correlates it with the listed set of independent variables, which includes Eg1, Eg2, and Eg 3, and a measure for multiple victims, which are essentially the four components of my Composite 4-12 egregiousness score (which Michelson terms as Eg(A)).[451] There is actually some interesting information in this table, although Michelson chose not to mention it. In essence, what Michelson has done is provide strong confirmation that my two egregiousness scores are in fact measuring the same thing. In other words, when the coders identified the cases of greatest victim suffering, most vulnerable victims, most culpable, or crimes involving multiple murders they were identifying the cases that overall seemed most egregious to them. Indeed, a simple examination of the t-statistics in the table reveals that these four factors—that is, the four components of my 4-12 egregiousness score were extremely highly correlated with egregiousness.

This is exactly what one would want from an egregiousness measure, and Michelson shows that is exactly what we find in this data. The t-statistics on these four variables are the highest in both sets of tables and indeed are stunningly high—one rarely sees t-statistics in the

[451] MICHELSON REPORT, AUGUST 20, 2010, at 71.

neighborhood of 11-15 as we see for the first three components of my 4-12 egregiousness component (and the t-statistics on Multiple Victims of roughly 6 are also enormous). So far, so good. Although Michelson doesn't mention it, he provides strong support for the accuracy and reliability of the egregiousness measure. Since the four components of the 4-12 Composite egregiousness are all central elements of any conception of egregiousness, Michelson's Figure B15 powerfully supports the validity and reliability of my egregiousness measures.

Unfortunately, when Michelson tries to discuss this table, he quickly runs the train off the tracks, making a gross error in understanding (or at least expounding upon) his regression. In Michelson's Figure, he thinks (or says) he is showing in his first regressions that there is a positive correlation between egregiousness and cases with a minority defendant and white victim, and in the second showing a negative correlation between egregiousness and cases where the victim and defendant were of the same race. While Michelson seems to think that he is showing two pieces of information, he is really showing just one piece: since all but a handful of cases are either minority on white cases or cases where the defendant and victim are the same, if one group of cases is higher, the other must be lower. This explains why the coefficients in the top row of his table have virtually identical significance and size, yet opposite signs. (The two coefficients would be identical in size and opposite in size were it not for the trivial handful of white on minority death-eligible crimes -- which totaled five in my final 205 data set.) It is like saying George is taller than Larry, and Larry is shorter than George. That is one fact, not two, so the second regression is unnecessary.

Michelson then erroneously uses his race coefficients from this Figure throughout his report to claim, "[w]e have seen the students' reaction to white victim crimes, and especially

black defendant-white victim crimes. They are, at least in their eyes, worse crimes."[452] Michelson suggests that if the coders, who did not know the race of the defendant or victim, found these crimes to be more egregious, a higher rate of capital felony charges or death sentences for minority-on-white murders is not evidence of a racially-biased system.[453] This is nonsense, and simply comes from Michelson's commission of a gross econometric error. Either Michelson doesn't know what he is doing, or he knows and is trying to deceive the Court.

Michelson seems to forget that his regressions in Figure B15 regress one measure of egregiousness on another. In other words, the variable "egregiousness" appears on both sides of his regression equation, in two different forms. On the left hand side, his dependent variable is Eg(B), which is overall egregiousness measured on a five-point scale. On the right hand side, he includes as dependent variables Eg1, Eg2, and Eg3, which stand for three components of the Eg(A) egregiousness measure (victim suffering, victim characteristics, and defendant intent/culpability, respectively) and the Multiple victim variables, which is essentially the fourth component of the Eg(A) egregiousness measure. The left-hand egregiousness metric and the right-hand egregiousness metrics are just two different measures of the same overall trait: the egregiousness of the crime. Michelson does not explain his choice to use Eg(B) as his dependent variable and components of Eg(A) as independent variables, and of course there is no logical justification for doing so.

The important point to note, then, is that the sign of the coefficient on the race variable (in his top row of the table), which Michelson seems to think explains how race and egregiousness are related, is entirely dependent on which egregiousness measure Michelson chose to use as his independent variable and which he chose to use as his dependent variable.

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[452] MICHELSON REPORT, AUGUST 20, 2010 at 166. *See also id*. at viii n.7.
[453] *See id*. at 71-72.

Had Michelson chosen to use Eg(A) as his left hand variable, minority-on-white crimes would appear to be *less* egregious than average, and crimes where the defendant and victim were of the same race would appear to be *more* egregious than average. It is easy to see why. Suppose we have a simplified regression equation that explains Eg(B) only in terms of a race variable, R, and Eg(A):

Equation 1 $$Eg(B) = \alpha R + \beta Eg(A) + \gamma$$

Assume α is positive, indicating a positive correlation between Eg(B) and race (which is what Michelson shows in the left hand column of Figure B15). Using this equation to solve for Eg(A), the alternative measure of egregiousness, we get:

Equation 2 $$Eg(A) = \frac{-\alpha}{\beta} R + \frac{1}{\beta} Eg(B) - \frac{\gamma}{\beta}$$

If β were positive in Equation 1—which is what one would expect, since Eg(A) and Eg(B) are highly positively correlated in that they are different measures of the same underlying trait, and indeed is the case in Figure B15—then the race coefficient in Equation 2 would *necessarily* be negative. Had Michelson chosen to use Eg(A) as his dependent variable instead of Eg(B), his race related coefficients would have come out with opposite signs. Of course, under Michelson's logic, this finding suggests the *opposite* conclusion: that minority-on-white murders are *less* egregious. Obviously, one type of crime cannot both be more and less egregious than other types, so it is Michelson's interpretation itself that is hopelessly confused.

The following regressions show empirically what was just demonstrated theoretically: switching the egregiousness variables reverses the sign on the race coefficients. First, we reproduce the regressions in Michelson's Figure B15, using the combined measure Eg123, the sum of Eg1, Eg2, and Eg3, instead of the individual measures. (Eg123 is highly correlated with Eg(A).) The relevant coefficients, t-statistics, and p-values (bolded) remain much the same as

they were in Michelson's Figure B15: note that in Table 45a the coefficient on "minority on white crimes" is positive and significant (and in Table 45b, the comparable coefficient on same race crimes is in the opposite direction) as in Figure B15

Table 45a

. reg EGB dnonwhitevwhite EG123 ForHire kidnap selldrugs SexAssault MultVics if casenum < 300, robust

Linear regression	No. of obs	=	207
	F(7, 199)	=	377.95
	Prob > F	=	0.0000
	R-squared	=	0.8810
	Root MSE	=	0.28416

EGB	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
dnonw~vwhite	**0.2156957**	0.0569809	**3.79**	0.000	0.1033318	0.3280595
EG123	**0.5674786**	0.0196071	**28.94**	0.000	0.5288141	0.606143
ForHire	0.2129187	0.0917606	2.32	0.021	0.0319708	0.3938665
kidnap	0.1685952	0.0570101	2.96	0.003	0.0561738	0.2810166
selldrugs	-0.5259249	0.1163163	-4.52	0.000	-0.7552956	-0.2965541
SexAssault	0.2483905	0.0608747	4.08	0.000	0.1283482	0.3684328
MultVics	0.4117558	0.0631828	6.52	0.000	0.2871621	0.5363495
_cons	-0.5309541	0.1444215	-3.68	0.000	-0.8157471	-0.2461612

Table 45b

. reg EGB samerace EG123 ForHire kidnap selldrugs SexAssault MultVics if casenum < 300, robust

Linear regression	No. of obs	=	207
	F(7, 199)	=	375.86
	Prob > F	=	0.0000
	R-squared	=	0.8797
	Root MSE	=	0.28576

EGB	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
samerace	**-0.1846381**	0.0521201	**-3.54**	0.000	-0.2874166	-0.0818595
EG123	**0.5634777**	0.019927	**28.28**	0.000	0.5241826	0.6027728
ForHire	0.2201352	0.0914457	2.41	0.017	0.0398083	0.4004622
kidnap	0.175058	0.0576555	3.04	0.003	0.0613639	0.288752
selldrugs	-0.5132657	0.1146008	-4.48	0.000	-0.7392534	-0.287278
SexAssault	0.2650207	0.0606018	4.37	0.000	0.1455167	0.3845248
MultVics	0.4140518	0.0634088	6.53	0.000	0.2890125	0.5390911
_cons	-0.3261298	0.1523555	-2.14	0.034	-0.6265682	-0.0256914

Now we show where Michelson went wrong. We re-run these regressions but now with Eg123 as the dependent variable and Eg(B) as a right-hand variable. Our theoretical demonstration that this reversal must shift the sign on the race variables in fact occurs: now the coefficient on minority white in Table 46a is *negative* and significant (and the same race coefficient in Table 46b is positive and significant), which is the opposite of what we saw in Tables 45a and 45b.

Table 46a

. reg EG123 dnonwhitevwhite EGB ForHire kidnap selldrugs SexAssault MultVics if casenum < 300, robust

Linear regression	**No. of obs**	**=**	**207**
	F(7, 199)	=	289.8
	Prob > F	=	0.0000
	R-squared	=	0.878
	Root MSE	=	0.44259

EG123	**Coef.**	**Robust Std. Err.**	**t**	**P>|t|**	**[95% Conf. Interval]**	
dnonw~vwhite	**-0.347991**	0.0923164	**-3.77**	**0.000**	-0.530035	-0.1659471
EGB	**1.376667**	0.0527801	**26.08**	**0.000**	1.272587	1.480747
ForHire	-0.5686341	0.1322126	-4.3	0.000	-0.8293516	-0.3079166
kidnap	-0.1948386	0.0888704	-2.19	0.030	-0.3700872	-0.01959
selldrugs	0.0484663	0.1963431	0.25	0.805	-0.3387138	0.4356463
SexAssault	-0.0501878	0.1059205	-0.47	0.636	-0.2590584	0.1586828
MultVics	-0.7083529	0.0938096	-7.55	0.000	-0.8933414	-0.5233645
_cons	2.214209	0.1934376	11.45	0.000	1.832758	2.59566

Table 46b

. reg EG123 samerace EGB ForHire kidnap selldrugs SexAssault MultVics if casenum < 300, robust

Linear regression	No. of obs	=	207
	F(7, 199)	=	291.57
	Prob > F	=	0.0000
	R-squared	=	0.8754
	Root MSE	=	0.44729

EG123	Coef.	Robust Std Err	t	P>|t|	[95% Conf.	Interval]
samerace	**0.2788102**	0.08628	**3.23**	**0.001**	0.1086699	0.4489505
EGB	**1.380537**	0.0528008	**26.15**	**0.000**	1.276416	1.484658
ForHire	-0.5854755	0.1312994	-4.46	0.000	-0.8443921	-0.3265589
kidnap	-0.2031559	0.0906119	-2.24	0.026	-0.3818385	-0.0244732
selldrugs	0.0090644	0.1923138	0.05	0.962	-0.37017	0.3882988
SexAssault	-0.0746546	0.106569	-0.7	0.484	-0.2848041	0.1354949
MultVics	-0.7150098	0.0949159	-7.53	0.000	-0.9021799	-0.5278397
_cons	1.92908	0.2054143	9.39	0.000	1.524012	2.334148

Of course now we see that Michelson's interpretation of his regression result was wrong. He stated that the positive sign on the minority on white murders meant they were more egregious, but that can't be right because when we do the regression one way (see Table 45a), the coefficient is positive and when we do it the other way (see Table 46a), it is negative. The heart of Michelson's confusion is that he erroneously thought that the coefficient on the race variable identifies the relationship between race and egregiousness. He was wrong. Rather, the coefficient signifies a correlation between race and *the difference between the two measures of egregiousness*.

Another theoretical demonstration will make the point. From Equations 1 and 2, we find:

Equation 3 $$Eg(B) - \beta Eg(A) = \alpha R + \varepsilon$$

Thus, the coefficient on the Race variable in Michelson's regression (which I here refer to as α) identifies the difference between the egregiousness estimates which is not the same as the level of egregiousness.

While Michelson's error is so basic that no knowledgeable econometrician would make it, it still may be hard for a lay person to understand this point. Perhaps an example might help. Assume that a set of coders were asked to assess the heights of NBA basketball players while watching them in a game and while observing them at a dinner function. If the "game" estimates were higher than the "dinner" estimates for black players (but not for other players), this does not mean that black players are taller. It simply means that the discrepancy in the two estimates is greater for black players than for non-black players (perhaps, as in Michelson's Figure B15 by some trivial amount).

As the above discussion shows, Michelson thought his Figure B15 regressions were telling us something about the level of egregiousness of minority on white murders when they were only telling us that there was a difference in the two measures of egregiousness for these crimes (and since there is a difference, one estimate has to be higher than the other). The fact that there are minor differences in the two egregiousness measures is exactly the reason that two measures were coded. Since we generated the same results that minority on white crimes were treated more harshly in both charging and death sentencing whether we controlled for the Composite or Overall egregiousness measures simply means that Michelson's Figure B15 is irrelevant to the argument that he is trying to make. Michelson is wrong when he tries to claim that minority on white crimes are more egregious. His explanation for why minority on white crimes are treated more harshly in the Connecticut capital punishment regime fails.

G. MICHELSON'S CONCEPTUALLY AND TECHNICALLY FLAWED (AND HENCE, EVER-CHANGING) REGRESSIONS

Michelson has repeatedly made serious errors in his regression analysis, which can be grouped into two broad categories. The first is that he somehow gets the regression wrong in the sense that what he puts in his tables (which he oddly refers to as "Figures" -- a term usually used as a label for a graph -- is not what comes from the regressions he says he is running. One would be well advised to be charitable if this were an occasional or rare mis-step, but Michelson has generated faulty regression output over and over again. This has imposed enormous burdens, since so much time has to be invested in finding and then pointing out the errors, which then leads to yet another in the endless set of Michelson reports (with number 8(!) apparently on the way). It is challenging enough to understand an expert report when the regressions are run correctly (from the technical perspective), but it is impossible when, by virtue of such shoddy work by Michelson, the reader has no confidence that what the reader is reading is actually what Michelson intended to write.

The second problem is that even when Michelson gets the regression technically correct, he often completely misinterprets his results. This typically reflects Michelson's conceptual confusion over what he is trying to accomplish with the regression tool.

This section shows that the regressions in the Michelson report emphatically do *not* support the conclusions he draws from them. In Part B of his report, Michelson purports to show that my "statistical analysis may 'explain' nothing"[454] because my egregiousness measures are "technically illegitimate."[455] In Part D he attempts to "provid[e] a counter-example"[456] to my report, demonstrating how he would have analyzed the data, given all 231 DCIs. In both of these

[454] MICHELSON REPORT, AUGUST 20, 2010, at 29.
[455] *Id* at 46.
[456] *Id* at 272.

Parts, Michelson uses Stata to perform his own regression analysis, plugging data into the program and using the output to declare that my egregiousness measures are flawed and the factors influencing which defendants are sentenced to death are non-arbitrary and not race-based. He is wrong on all accounts. Many of Michelson's regressions are problematic in concept or execution, and this section highlights these problems, which yet again undermine the credibility of his report.

I discuss both recurring problems with Michelson's regressions. I begin by looking at cases where Michelson runs a reasonable regression but then interprets the regression in an unreasonable way. Next, I point out some of the abundant instances where Michelson has sloppily generated unreplicable regressions in his reports.

1. Michelson Draws Unsupported Inferences From His Regressions.

Michelson frequently runs a regression that is, in itself, accurate, but then goes on to make assertions based on the regression that are wholly unsupported by the data or by his statistical analysis of it. Sometimes Michelson misinterprets his results, suggesting that his coefficients indicate a flaw in my report where they are actually entirely consistent with or even strongly buttress my work. Other times, Michelson suggests my regressions have been set up incorrectly, but implementing his suggested changes does nothing to remedy the "problematic" result. Here, I show examples of all these kinds of errors.

a. Michelson Uses Conceptually Flawed Regressions to Attack the Composite 4-12 Egregiousness Measure When Proper Regressions Strongly Validates Its Components

Michelson sets out to try to discredit my Composite 4-12 egregiousness measure, but his regression approach is conceptually flawed. If he had adopted a conceptually proper approach, he would have strongly validated this egregiousness measure.

It is important to note initially that even if Michelson could undermine the Composite egregiousness measure—and I will show presently that he cannot—he completely overlooks that I generate substantively identical results using the Overall 1-5 egregiousness measure, which is not susceptible to Michelson's objection that it is based on adding four distinct components. Furthermore, Table 37 shows that decomposing the Composite measure into its components (rather than adding them into a single score) generates the identical findings of racial and geographic disparity depicted in my base Tables 22 and 23 Thus, every finding of my report would still stand without challenge even if Michelson were right in his critique of the Composite egregiousness score -- which I will now show in detail is distinctly *not* the case.

Michelson begins with the conceptual mistake of trying to discredit my Composite egregiousness measure by showing that the first three components of that egregiousness metric—victim suffering, victim characteristics that make the crime more deathworthy, and the defendant's intent and culpability—do not well explain capital charging decisions in Connecticut. In Table 47, I replicate Michelson's Figure B13, in which he performs a logistic regression of "chargecap" (reflecting the filing of a capital charge) on the first three egregiousness components: eg1, eg2, and eg3, to see if these factors influence capital charging.[457]

[457] My tables shows that Michelson did at least get his Figure B13 numbers technically correct, and they appear in the August 20, 2010 report at page 66. But one immediately notices a number of errors: first, Michelson, inexplicably, excludes the fourth egregiousness factor of the Composite egregiousness measure – the number of victims. Second, in his other regressions, Michelson always insisted that more explanatory variables must be used (for example, controls on the type of crime categories), so it is unclear why he thinks this sparse model would be correct here but nowhere else. Finally, Michelson always uses a linear probability model in his regressions, so why he uses the (preferable) logit model here and nowhere else is again a puzzle.

Table 47

. logit chargecap eg1 eg2 eg3 if casenum <300

Iteration 0:	log likelihood	=	-131.05439
Iteration 1:	log likelihood	=	-127.68897
Iteration 2:	log likelihood	=	-127.66827
Iteration 3:	log likelihood	=	-127.66827

Logistic regression	Number of obs	=	207
	LR chi2(3)	=	6.77
	Prob > chi2	=	0.0795

Log likelihood = -127.66827		Pseudo R2	= 0.0258

chargecap	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
eg1	-0.6361411	0.2526337	-2.52	0.012	-1.131294	-0.1409882
eg2	0.2567512	0.265571	0.97	0.334	-0.2637584	0.7772607
eg3	0.1176768	0.3295932	0.36	0.721	-0.5283139	0.7636676
_cons	1.261284	0.9903977	1.27	0.203	-0.6798594	3.202428

On its face, Michelson's regression suggests that the more the homicide victim suffered the *less* likely the case was to be charged by a prosecutor as a capital felony (this is shown by the negative coefficient on the first egregiousness factor). He concludes from his regression that there is inconsistency between the coefficients of the three measures because eg1 is *inversely* related to capital charges, a counterintuitive result, whereas the other two seem to be unrelated. On this basis, Michelson argues, "Unlike gymnastic scores, which measure different characteristics of the same thing, these scores are not consistent, complementary measures of anything, and therefore not of egregiousness."[458] In other words, when the regression that Michelson alone chooses and uses (I never presented this regression in my report) on its face suggests arbitrariness in the implementation of the capital charging decision, he tries to attack the three egregiousness components.

[458] MICHELSON REPORT. AUGUST 20, 2010 at 67.

This attack is absurd if it is meant to suggest that there is something wrong with the egregiousness measure. We have already discussed that the extent of victim suffering is a highly relevant factor to deciding who should get a sentence of death under Connecticut law, as reflected in the definition of "heinous, cruel, and depraved," which, as shown in Table 8, is the primary aggravating factor used in death penalty cases in Connecticut. The idea that victim suffering would *not* be a factor increasing the likelihood of a death sentence in a rational death sentencing scheme is so inconsistent with the law and with common sense that it cannot be seriously entertained. Certainly, Michelson makes not even the slightest argument that the factors captured by the egregiousness score should not be relevant—as a matter of law or as a matter of logic—to the deathworthiness of a particular capital defendant.

But more fundamentally Michelson's entire rationale behind this regression is misguided. If one believed this regression, one would conclude that it reflects poorly on the capital charging decisions of Connecticut prosecutors, yet instead Michelson tries to argue that his regression somehow reflects badly on my completely different regressions or on the egregiousness standard itself.

So what does Michelson say about the evidence that *he* creates that victim suffering doesn't increase the likelihood of capital charging? He states (page 66) that "there could be any combination of five reasons to explain this seemingly anomalous finding [that eg1 is inversely related to capital charging]." The reasons that Michelson offers include possibilities that only someone who doesn't understand regression analysis would offer. For example, his first factor is that the summaries give too little information. No, this cannot explain a finding that victim suffering is inversely related to capital charging in a highly statistically significant way. Too little information biases the estimate toward zero, not to a large and statistically significant

negative coefficient. In fact, Michelson's second and third points are only variants of his first point – the coders are not capturing the information correctly. Again, unless the coders got everything *backwards* (which we will soon show is *not* the case), having too little information or not knowing what to do would only generate a small and insignificant result, not one that was large, negative, and statistically significant. What Michelson says is simply nonsense. He doesn't understand the concept of measurement error and its effect on regression coefficients.

Having knocked out Michelson's first three factors, we come to his fourth: "prosecutors do not charge according to victim suffering, at least not victim suffering as coders see it."[459] Yes. So it would appear (if we are to believe Michelson's sparse regression), but again this may be a criticism of the prosecutors, but it certainly isn't a criticism of the egregiousness factors. To argue that it is would be similar to a student complaining that a professor's answer sheet is invalid because the student's answers conflicted with it in a major way. Usually, this is not a winning argument.

Michelson then goes on to say that the fifth factor that could explain the anomalous result is that something is left out of the equation. Again, yes. He did leave out the multiple victims component of the egregiousness score and many other factors, as I noted above. But he seems to forget that it is *his* regression. If he left something out, perhaps he might try to fix it instead of blaming its inadequacies on me. I never ran that regression. Nor would I.[460]

Finally, after saying there are *five* possible factors that could explain the anomalous result, Michelson offers a *sixth*: he dislikes the average of the coders' scores. Again, this is an absurd point. If I only used one coder, there would have been no averaging. Would that have been preferable? If he understood his own example of scoring gymnasts he might realize that

[459] *Id* at 66.

[460] See my Tables 22 and 37 for what I contend are the correct way to run these regressions.

gymnastic scores are averaged for the good reason that averaging eliminates idiosyncratic judgments. Michelson did not understand at his deposition that a GPA is an average of ordinal grades given by different professors, as I discussed above in Section X.D.c.iv. This is *exactly* the process that Michelson claims to be illegitimate. If Michelson is going to criticize someone about ordinal and cardinal numbers, it might make sense for him to learn what ordinal and cardinal numbers are.[461]

Michelson suggests that because the three components of egregiousness do not all correlate with capital charging in the same way, they cannot be "consistent, complementary measures of anything, and therefore not of egregiousness."[462] But again Michelson is missing the point by trying to validate the egregiousness standard to prosecutorial behavior instead of to an independent measure of factors that merit harsher capital outcomes. Thus, unless Michelson can show that the high egregiousness cases really should be deemed low egregiousness cases, he has offered nothing in the way of criticism of my egregiousness measure.

Interestingly, Michelson inadvertently provided a basis to conduct a more proper effort at validation of my egregiousness measure in creating his own "awful" variable – which he deems to be his "version of an egregiousness code."[463] Imagine if an individual who had absolutely no bias in favor of the petitioners of this litigation could be paid close to $1 million to go through the death-eligible cases and select the worst of the worst (which would be called the AWFUL

[461] Of course, to the extent Michelson's complaint is with taking the mean value across coders, I should note that Table 37 avoids this problem by using medians rather than means. Again, the core findings of racial and geographic disparities remain fully intact.
[462] MICHELSON REPORT, AUGUST 20, 2010 at 67.
[463] While there are plenty of problems with this variable – Michelson just made it up on his own (despite his arguments that those who code egregiousness must not be "tainted" by having other knowledge about the cases)—it can serve a useful function. But imagine what Michelson would have said if I had gone through the cases and identified the worst of the worst. Although this might be a valuable exercise as a mechanism for validating the egregiousness measures, Michelson would have intoned that "Donohue would have us believe ...." There is no need to go on. If you have read any of Michelson's many reports, you know the bluster and blather.

cases). We could then use this information to validate the egregiousness scores, and Michelson would be in no position to complain. But this is what has happened. And Michelson is the coder who created the AWFUL variable while clearly having no bias *in favor of petitioners*. As I show below in Table 48, the three components of egregiousness that Michelson used above in his Figure B13 do, in fact, positively correlate with his "awful" variable:

Table 48

. logit awful eg1 eg2 eg3 if casenum < 300

Iteration 0:	log likelihood	=	-102.25167
Iteration 1:	log likelihood	=	-71.621556
Iteration 2:	log likelihood	=	-64.336572
Iteration 3:	log likelihood	=	-64.100242
Iteration 4:	log likelihood	=	-64.099656
Iteration 5:	log likelihood	=	-64.099656

Logistic regression	Number of obs	=	210
	LR chi2(3)	=	76.30
	Prob > chi2	=	0.0000

Log likelihood = -64.099656	Pseudo R2	=	0.3731

awful	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
eg1	1.551266	0.4344205	3.57	0.000	0.6998174	2.402714
eg2	0.7704291	0.4130186	1.87	0.062	-0.0390725	1.579931
eg3	3.875121	0.8384651	4.62	0.000	2.231759	5.518482
_cons	-16.88995	2.663193	-6.34	0.000	-22.10971	-11.67018

Table 48 reveals the enormous conceptual error in Michelson's Figure B13 regression: One doesn't validate the egregiousness standard by looking to see if capital charging and sentencing decisions comport with it, as Michelson erroneously tries to do. This is what we are trying to find out. One validates the egregiousness standard by looking at the worst cases and seeing if they get high egregiousness scores. We do have to thank Michelson for providing a variable, however subjective, that helps establish the validity of my egregiousness measure.

Michelson's AWFUL variable regressed above against the components of egregiousness provides direct evidence that my egregiousness measures cohere in explaining what Michelson himself considers to be the worst of the worst murders. To paraphrase Michelson's language quoted above, the components of my 4-12 Composite egregiousness scores "are consistent, complementary measures" of the egregiousness of death-eligible crimes in Connecticut. Since all the factors cohere to reflect Michelson's single measure of egregiousness (AWFUL), Table 48 powerfully validates the summing of the factors of the Composite egregiousness measure, as well as the validity of each of the three components.

b. Figure B14 Repeats the Same Conceptual Error Michelson Made in Figure B13—But Also Makes Sloppy Technical Errors

Michelson tells us that his table "Figure B14" – again oddly referred to by Michelson as a "Figure" -- "is the same concept as in Figure B13, except that the dependent variable in B14 is whether the defendant received a death sentence." Indeed, since it is the same concept as B13, it has the same conceptual flaw as Figure B13. Michelson falsely believed once again that he could invalidate the egregiousness factors by showing they were uncorrelated with an outcome variable—in this case, with death sentencing. Michelson correlates the first three components of the egregiousness metric with his variable **death –** which takes on a value of 1 for cases in which a death sentence was returned and zero otherwise.

In the September 2009 version of his report, Michelson argued that it would be inappropriate to add the three egregiousness components because they do not have a similar impact on death sentencing. Again, Michelson gets the enterprise backwards, as he did in the B13 capital charging regression. First, one validates egregiousness – which as we saw above, we have (using his AWFUL measure) – then, one sees if the components of egregiousness influence capital sentencing. Once again, Michelson thought that by showing the egregiousness measures

do not have similar signs in influencing capital sentencing, this would undermine the validity of the egregiousness measure. Here is the B14 regression Michelson reported in his September 2009 report (yes, this table is from the September 2009 report, even though it says it is from the July 2009 report):

Figure B14: Logit Estimation, Death Sentence = f(components of Eg(A))

```
Logistic regression                                     Number of obs   =        139
                                                        LR chi2(3)      =       6.48
                                                        Prob > chi2     =     0.0903
Log likelihood = -32.708061                             Pseudo R2       =     0.0902
------------------------------------------------------------------------------
       death |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         eg1 |  -.0030914   .5355188    -0.01   0.995    -1.052689    1.046506
         eg2 |   .9188463   .6364311     1.44   0.149    -.3285357    2.166228
         eg3 |   1.783028   1.027709     1.73   0.083    -.2312441      3.7973
       _cons |   -9.11461    3.05046    -2.99   0.003     -15.0934   -3.135819
------------------------------------------------------------------------------
```

In the September 2009 version of the report, Michelson used this regression to assert that eg1, eg2, and eg3 cannot possibly cohere as three components of one quality, egregiousness. As with Figure B13, Michelson (incorrectly) claimed that "these factors are not complementary. They cannot be added up into a coherent metric,"[464] but he no longer makes this claim in the August 20, 2010 report (as we show below).

It now turns out that Michelson's array of errors[465] led him to get incorrect results for Table B14, which he has now corrected in his subsequent work. When he corrects his prior errors, Michelson now finds that all egregiousness measures positively influence capital sentencing albeit not statistically significantly. Here is his updated Figure B14:

[464] MICHELSON REPORT, SEPTEMBER 1, 2009, at 64.

[465] By Michelson's own admission, he had incorrect coding for one or more cases in the **chargecap, acquit, nocap, acqnocap, drop,** and **plea** variables. Memorandum from Stephan Michelson to CTDEATH file, petitioners, Sept. 6, 2009, revised Sept. 28, 2009. This does not seem to fully account for the drop from 139 to 135 observations in Figure B14, as only one case received a new **chargecap** value. Michelson apparently corrected other errors in addition to those disclosed in his memorandum.

Figure B14: Logit Estimation, Death Sentence = f(components of Eg(A))

```
Logistic regression                                     Number of obs   =        135
                                                        LR chi2(3)      =       6.17
                                                        Prob > chi2     =     0.1038
Log likelihood = -39.69366                              Pseudo R2       =     0.0721
------------------------------------------------------------------------------
       death |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         eg1 |   .2428884   .4865403     0.50   0.618     -.710713     1.19649
         eg2 |   .7554497   .5619808     1.34   0.179    -.3460125    1.856912
         eg3 |   1.208108     .82139     1.47   0.141     -.401787    2.818003
       _cons |  -7.489257   2.520342    -2.97   0.003    -12.42904   -2.549478
------------------------------------------------------------------------------
```

Reluctantly conceding that the factors "likely have some positive relationship to the death sentence," Michelson now drops the argument about the egregiousness factors not cohering to a single egregiousness measure, at least from the results of Figure B14. Of course, the main point to remember from the last session is that the egregiousness factors have been validated by Michelson's own egregiousness measure (AWFUL), so his regression is misguided yet again. (The ancillary point is that Michelson's regressions are frequently incorrect, and when he corrects them and they refute his prior findings, he sticks to his same conclusions but just modifies his text a bit).

But having lost his ability to make his main point, Michelson then uses his discussion of his Figure B14 regression to push another favorite Michelson theme: he argues we should limit the regression on the "death" variable to those cases where the defendant was charged with a capital felony. It is unclear whether he means for this regression to support that assertion in any way, or whether he is merely taking the opportunity of a regression on "death" to argue that my method in looking at all cases is flawed. If he actually wishes to argue that the B14 regression results would be changed if instead of using only the 135 capitally charged cases we included all cases, including those where the defendant was not charged with a capital felony, he is mistaken. The regression is very similar to his revised Figure B14:

Table 49

. logit death eg1 eg2 eg3 if casenum < 300

Iteration 0:	log likelihood	=	-48.757105
Iteration 1:	log likelihood	=	-45.722352
Iteration 2:	log likelihood	=	-45.390158
Iteration 3:	log likelihood	=	-45.389213
Iteration 4:	log likelihood	=	-45.389213

Logistic regression	Number of obs	=	210
	LR chi2(3)	=	6.74
	Prob > chi2	=	0.0808

Log likelihood = -45.389213	Pseudo R2	=	0.0691

death	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
eg1	0.1171205	0.4873958	0.24	0.81	-0.8381577	1.072399
eg2	0.8532931	0.5421267	1.57	0.115	-0.2092557	1.915842
eg3	1.375611	0.819334	1.68	0.093	-0.2302537	2.981477
_cons	-8.329436	2.502403	-3.33	0.001	-13.23406	-3.424817

c. Michelson had Originally Used his Figure B17 to Attack My Finding that Blacks who Kill Whites are Capitally Charged at Higher Rates, but His Corrected Figure Now Shows Confirms My Finding.

Michelson's Figure B17 shows the results of his regression of **chargecap** on a large set of variables.[466] Once again, the astonishing point to note about the Figure is not what Michelson says – as usual, he seems utterly confused about what he is doing, and mostly conveys nonsense in his written material – but what *his own regression shows*! Specifically, Michelson provides strong statistical support for one of the key points of my report: controlling for 23 variables, Michelson finds that blacks who kill whites are more likely to be charged with a capital felony

[466] Michelson Report, August 20, 2010, at 121.

than white defendants.[467] Michelson attempts to explain away the clear conclusion of this regression, that capital charging is significantly correlated with race, but he is unable to do so since his own regression destroys his argument.

Figure B17 aims to show which variables influence whether a defendant was charged with capital felony murder. In the right column, Michelson includes race variables (black defendant, Hispanic defendant, and white victim), and in the left column he includes interaction variables. Some of these interactions—hispx, blackx, and vwhitex—are new to Michelson's November 30, 2009 report: hispx is a dummy variable that only takes the value 1 when the defendant is Hispanic and the victim is nonwhite; blackx takes the value 1 when the defendant is black and the victim is nonwhite; and vwhitex is 1 when both the defendant and the victim are white.

[467] Michelson's regressions often have mislabeled variable names, making it difficult to understand what he is actually doing. In this regression his race variables each refer to a discrete group of defendants: **hispx** equals one for Hispanic defendants with nonwhites victims, **hispwhite** equals one for HIspanic defendants with white victims, **blackx** equals one for black victims with nonwhite victims, **blackwhite** equals one for black defendants with white victims, and **vwhitex** equals one for white defendants with white victims (Michelson actually refers to this variable in his data set as "White victims except of blacks or Hispanics." Michelson's odd variable naming and description did serve to obfuscate his regression manipulations. If **vwhitex** is included in the regression, then the omitted category is white defendants with nonwhite victims, and the estimated coefficients for the remaining race groups are estimates of the extent to which the outcome differs for each group compared with the omitted category (commonly known as the "base case"). In the left hand panel of figure B17, however, Michelson does not include **vwhitex**, and hence the omitted category is all white defendants. The positive and statistically significant coefficient on **blackwhite** in the left side of Michelson's Figure B7, then, implies that blacks who kill whites are charged at a higher rate than white defendants in general.

Figure B17: Charge Defendant With Capital Felony Murder

Condition: delete = 0

N = 197	ChargeCap		
Variable	Coefficient	t	p
hispx	0.067	0.74	0.461
hispwhite	0.029	0.28	0.779
blackx	-0.051	-0.60	0.547
blackwhite	0.198	3.07	0.003
vwhitex			
eg33	0.097	1.49	0.138
dfemale	-0.094	-0.73	0.468
specagg	0.035	2.44	0.016
waterbury	0.140	1.00	0.321
newhaven	-0.127	-1.25	0.214
hartford	0.313	4.09	0.000
fairfield	0.186	1.69	0.093
newlondon	0.286	3.04	0.003
phase1	0.132	2.09	0.038
ForHire	0.399	3.79	0.000
SexAssault	0.309	2.70	0.008
MultVics	0.293	3.64	0.000
UnderSixteen	0.285	3.06	0.003
selldrugs	0.413	3.38	0.001
hush	-0.210	-2.61	0.010
PrevConv	0.608	5.48	0.000
vlaw	0.557	5.14	0.000
wrong	-0.117	-1.23	0.220
constant	0.111	1.03	0.303
		R^2	0.420

Condition: delete = 0

N = 197	ChargeCap		
Variable	Coefficient	t	p
hisp	0.161	1.98	0.049
black	0.115	1.85	0.065
vwhite	0.159	1.97	0.050
eg33	0.116	1.73	0.085
def. female	-0.127	-1.05	0.294
specagg	0.030	2.08	0.039
waterbury	0.164	1.17	0.244
newhaven	-0.140	-1.35	0.180
hartford	0.315	4.03	0.000
fairfield	0.154	1.38	0.171
newlondon	0.319	3.10	0.002
phase1	0.139	2.09	0.038
ForHire	0.318	2.98	0.003
SexAssault	0.280	2.44	0.015
MultVics	0.251	3.15	0.002
UnderSixteen	0.293	3.03	0.003
selldrugs	0.324	3.02	0.003
hush	-0.211	-2.55	0.012
PrevConv	0.616	5.25	0.000
vlaw	0.499	4.52	0.000
wrong	0.139	1.08	0.282
constant	-0.012	-0.09	0.930
		R^2	0.407

In the September 1, 2009 Report, Michelson concluded from a similar regression that there is no relationship between race and charging.[468] That regression was run on Michelson's old, flawed data set, it controlled for **kidnap** in addition to the variables in the new B17, and it included the variables **black** and **hisp** (noting the defendant's race but not the victim's) instead of **blackx** and **hispx**. However, with the new regression, it is clear that black defendants with white victims are significantly more likely to be charged with a capital crime than other defendants. Note the extremely high t-statistic of 3.07 on the blackwhite variable in the left hand column of his table. Michelson attempts to explain this away by referring to Part D of his report and noting his earlier (entirely flawed) result in Figure B15 that nonwhite-on-white crimes are considered more egregious than other crimes. Michelson knows that minorities who kill whites are charged with capital felonies at a substantially higher rate (controlling for relevant factors)

[468] MICHELSON REPORT, SEPTEMBER1, 2009, at 113.

than other death-eligible criminals. His only defense for this fact—that the minority on white murders are actually more egregious—is patently false (as I discussed in detail in Section X.F above).

d. Michelson understands that black defendants have fewer guilty pleas, but doesn't understand why

One of Michelson's most insistent findings has been that black defendants end up with fewer guilty pleas than other death-eligible defendants. This has been an enormous embarrassment to Michelson because, if true, he would have identified a powerful mechanism that explains why on average black defendants would be treated more harshly than other similarly situated capital-eligible defendants: their cases are resolved by guilty pleas at lower rates. His latest August 20, 2010 report confirms this both in his Figure B18 (analyzing my data) and in Figure D08 (analyzing his own models).

This topic, like so many in the Michelson report, has basically given us a large dose of 1) sloppy mistakes in performing his regression; 2) technical misinterpretation of his own regression results; 3) substantive misinterpretation of his own results; and 4) the nagging fear that Michelson is just playing around with the data until he finally gets a result he wants.

Let's begin with the major finding—endorsed across numerous versions of the Michelson reports: blacks are particularly unlikely to plead guilty. Michelson has obviously been uncomfortable with this result and he has labored mightily to try to circumvent the obvious implications of his findings that prosecutors are less willing to work out plea arrangements with certain defendants. He does this by asserting—with not the slightest evidence—that blacks are just foolishly passing up good deals. Michelson's views on this point will appear ludicrous to anyone who understands the criminal justice system and how prosecutors are the dominant force

in plea negotiations. To Michelson, the death-eligible criminal defendant drives the process of plea bargaining (as he states at p. 150 of his September 1, 2009 report):

> The defendant can plead to whatever he wants, whenever he wants. Among those charged with a capital felony, **blacks are particularly unlikely to plead guilty** … even to a reduced charge…. Although Donohue interprets every finding as implying an action or inaction on the part of the state, I do not think this finding can be interpreted that way. **We are observing defendant behavior.** Why blacks are more reluctant to plead guilty than others, I do not know. It could be related to attorney quality, it could be a cultural phenomenon, it could be that attorneys are equal but blacks do not trust them, it could be many things I have not thought of. (emphasis supplied.)

In August 2010 report, the comparable section is:

> The defendant can initiate a plea to whatever he wants, essentially whenever he wants. The court may not be interested in a plea to anything but his current charge, but the defendant and prosecutor surely discuss such matters, which is why the DCl asks about such discussions....
>
> It appears that, among those charged with a capital felony, **blacks are particularly unlikely to plead guilty**—other than by Alford—even to a reduced charge. See Figure B19 in Section 9. Although Donohue interprets every finding as implying an action or inaction on the part of the state, **I do not think this finding can be interpreted that way. Or, if it can be, I do not think it must be. I**t lingers as something to investigate. (emphasis supplied.)[469]

Interestingly, while Michelson remains emphatic that blacks end up with fewer guilty pleas, he has now pulled back from his earlier categorical rejection of the obvious conclusion that prosecutors are treating black capital-eligible defendants more harshly and therefore not giving them the breaks that typically accompany a plea bargain. Now he concedes that the obvious interpretation may be correct.

Of course, a big part of the problem is Michelson's stunning lack of knowledge of the criminal justice system. We have already discussed his inability to understand the difference between homicide and murder; his insistence that murder was the broader of the two categories; his failure to understand that murder was a crime in the state of Connecticut, and to this we now

[469] MICHELSON REPORT, AUGUST 20, 2010 at 164.

add the gem (quoted just above from the September 2009 report): ”The defendant can plead to whatever he wants, whenever he wants."

Michelson's comments on Alford pleas further reveal his ignorance. Alford pleas are not a distinctly important aspect of the criminal processing of death-eligible defendants, but Michelson writes about them as though they are—and even tells us (quoted above) that blacks don't show the same reluctance to taking Alford pleas that they do for ordinary guilty pleas. (Indeed, he presents two regression equations "explaining" the Alford pleas at pages 18 and 19 of Appendix B to his August 2010 report.) Michelson begins his discussion of the Alford plea on page 128 of his August 2010 report as follows: "Under federal law, the Alford plea follows an offer from the state. However, typically that 'offer' is negotiated. It can be initiated by either party." Again, to someone knowledgeable in criminal justice matters, this wooden description sounds ludicrous. What federal law is he referring to, and how does treating an Alford plea as different from an ordinary guilty plea have any bearing on the Connecticut death penalty system?

Given Michelson's level of sophistication about criminal justice matters, it is therefore not surprising that he does not understand the consequences of his finding that black defendants plead guilty at a lower rate and thus end up with harsher treatment for their crimes. He has at least (since the August 2010 report) conceded that my interpretation may be the correct one, but he wants further evidence.

Amazingly, Michelson's own Figure D08 supplies it: the Figure has two panels, both of which show that black defendants end up with fewer guilty pleas, as Michelson notes

> Figure D08 confirms the story from Part B..... Blacks in general are less likely to plead guilty than whites or Hispanics regardless of the race of their victim.[470]

[470] MICHELSON, AUGUST 20, 2010 REPORT, P. 304.

It must be noted that Michelson labels his regression output in the left hand side of his Figures (D08 included) in a completely misleading way. With one label referring to both panels of his Tables, Michelson actually uses different interpretations of these identically named variables (with virtually no explanation of what he is actually doing). For example, Michelson's names the variables "black defendant" and "black defendant white victim," which would seem to suggest that "black defendant" was an indicator equal to one for any black defendant and that "black defendant white victim" was an indicator equal to one for black defendants with white victims – an term interacting black defendant effects and white victim effects. In this framework, the coefficient on the interaction term would represent the extent to which the likelihood of a plea differed for black defendants with white victims compared to other black defendants. However, close examination of the Stata code producing figure D08 reveals that while in the right hand panel "black defendant" does mean any black defendant, in the left hand panel it does not – it means black defendant except those with white victims. In other words, the two indicators refer to discrete groups, and the respective coefficients compare each distinct group's likelihood of a plea to that of the base case, a white defendant. This sloppiness may explain why Michelson has made so many mistakes in his regressions -- he has enormous problems keeping his variables straight.

As Michelson notes at page 263 of his September 2009 report:

> If some defendants are not executed because of a plea bargain (which is true), and if blacks, for whatever reason, are less likely to enter into a plea bargain than others (which is true), then "black" will become associated with a death sentence in a regression that does not contain a variable indicating whether the defendant pled guilty. [471]

[471] In his August 2010 report Michelson changed the "is" in the second parenthetical to "may be." (Michelson, August 20 2010 at 261). It is hard to know what prompted that change since his regression results in the August report are even stronger in showing the lower rate of black pleas than in the earlier report, which was already strong on this point to begin with. His direct textual discussion mimics the regression results, reflecting no doubt that blacks end up with pleas at a lower rate.

Although Michelson tries to run away from the implications of his own finding that black defendants are given guilty pleas at a lower rate than other defendants, he can't run from the results of his own regressions.

2. Michelson's Carelessness Has Led Him Repeatedly To Churn Out Concededly Incorrect Results

By his own admission, virtually every table in the July 1, 2009 (and earlier) versions of his report was completely wrong. On September 30, 2009, attorney David Golub asked, "Is it your position today that you intend to submit a revised report that changes all of your tables?" Michelson replied, "Yes. And I don't know to what. This isn't because I know the answer. I don't know the answer; I don't care what the answer is. It's because the data are wrong."[472] One would think that after the deplorable record of sloppiness and incompetence that characterized his previous work in this case, Michelson would have taken extraordinary efforts to clean up his errors.

But time and again, Michelson has generated utterly flawed regression output. Here, I pinpoint just a few of the latest round of Michelson bloopers in his August 2010 report.

3. Figure B18 Cannot be Replicated; Moreover, it Rests on Incorrect Legal Premises.

In Figure B18, Michelson regresses the "anyplea" variable on a set of explanatory variables.[473] Earlier in this section, we discussed Michelson's odd views on the ability of capital-eligible defendants to drive the plea bargaining process. But Michelson not only misinterprets his data, he also gets the numbers wrong. Specifically, two of the most important coefficients in Figure B18, the coefficients on "hispwhite" and "blackwhite," are completely incorrect in the figure. Both Michelson's table and my attempted replication of it are reproduced below:

[472] Michelson Deposition, Oct. 19, 2009, at 0485.
[473] Michelson Report, October 20, 2010, at 128.

Figure B18: Plead Guilty To Some Charge

Condition: delete = 0, chargecap = 1

N = 135	Anyplea		
Variable	Coefficient	t	p
hisp	-0.387	-1.57	0.118
hispwhite	-0.148	-0.49	0.622
black	-0.475	-1.97	0.051
blackwhite	-0.546	-2.36	0.020
vwhite	-0.330	-1.48	0.142
eg23	0.154	1.22	0.224
phase1	-0.137	-1.71	0.090
waterbury	-0.563	-4.26	0.000
hartford	-0.261	-2.73	0.007
fairfield	-0.257	-1.70	0.092
newlondon	-0.477	-3.79	0.000
ForHire	0.357	2.37	0.020
selldrugs	0.476	3.02	0.003
MultVics	-0.196	-2.03	0.045
gangs	-0.136	-0.93	0.352
Constant	1.180	4.67	0.000
		R^2	0.341

Condition: delete = 0, chargecap = 1

N = 135	Anyplea		
Variable	Coefficient	t	p
hisp	-0.026	-0.18	0.858
black	-0.204	-2.07	0.041
vwhite	-0.032	-0.27	0.789
eg23	0.156	1.25	0.212
phase1	-0.140	-1.75	0.082
waterbury	-0.544	-4.23	0.000
hartford	-0.248	-2.60	0.011
fairfield	-0.242	-1.58	0.117
newlondon	-0.437	-3.51	0.001
ForHire	0.368	2.60	0.010
selldrugs	0.564	4.90	0.000
MultVics	-0.201	-2.10	0.038
gangs	-0.168	-1.16	0.248
Constant	0.885	5.41	0.000
		R^2	0.322

Table 50a

reg anyplea hisp hispwhite black blackwhite vwhite eg23 phase1 waterbury hartford fairfield newlondon F

> orHire selldrugs MultVics gangs if delete == 0 & chargecap == 1, robust

Linear regression	**No. of obs**	**=**	**135**
	F(15, 119)	=	8.58
	Prob > F	=	0.0000
	R-squared	=	0.3407
	Root MSE	=	0.43213

anyplea	**Coef.**	**Robust Std. Err.**	**t**	**P>|t|**	**[95% Conf. Interval]**	
hisp	-0.3870004	0.2458362	-1.57	0.118	-0.8737807	0.0997799
hispwhite	**0.5683516**	**0.3192989**	**1.78**	**0.078**	**-0.0638921**	**1.200595**
black	-0.4750421	0.2407669	-1.97	0.051	-0.9517846	0.0017004
blackwhite	**0.2591039**	**0.2710431**	**0.96**	**0.341**	**-0.2775886**	**0.7957963**
vwhite	-0.3297508	0.2232388	-1.48	0.142	-0.7717858	0.1122843
eg23	0.1540837	0.1260048	1.22	0.224	-0.0954185	0.4035858
phase1	-0.1367201	0.0798969	-1.71	0.090	-0.294924	0.0214838
waterbury	-0.5634986	0.13241	-4.26	0.000	-0.8256836	-0.3013137
hartford	-0.2608603	0.095638	-2.73	0.007	-0.4502331	-0.0714875
fairfield	-0.2573983	0.1514173	-1.70	0.092	-0.5572197	0.0424231
newlondon	-0.4765906	0.125625	-3.79	0.000	-0.7253406	-0.2278406
ForHire	0.357086	0.1509647	2.37	0.020	0.0581608	0.6560112
selldrugs	0.4759939	0.1577603	3.02	0.003	0.1636128	0.7883751
MultVics	-0.1961661	0.0967515	-2.03	0.045	-0.3877437	-0.0045886
gangs	-0.1360052	0.1455431	-0.93	0.352	-0.4241951	0.1521847
_cons	1.180466	0.2527438	4.67	0.000	0.6800082	1.6809240

Table 50b

. reg anyplea hisp black vwhite eg23 phase1 waterbury hartford fairfield newlondon ForHire selldrugs Mult

> Vics gangs if delete == 0 & chargecap == 1, robust

Linear regression	No. of obs	=	135
	F(13, 121)	=	13.00
	Prob > F	=	0.0000
	R-squared	=	0.3219
	Root MSE	=	0.4346

anyplea	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
hisp	-0.026339	0.146403	-0.18	0.858	-0.3161825	0.2635044
black	-0.2038472	0.0985152	-2.07	0.041	-0.398884	-0.0088104
vwhite	-0.0317259	0.1185001	-0.27	0.789	-0.2663282	0.2028763
eg23	0.1563239	0.1247256	1.25	0.212	-0.0906035	0.4032512
phase1	-0.1401574	0.0799024	-1.75	0.082	-0.2983452	0.0180303
waterbury	-0.5441203	0.1286499	-4.23	0.000	-0.7988167	-0.2894238
hartford	-0.2484372	0.0957257	-2.60	0.011	-0.4379514	-0.058923
fairfield	-0.2418166	0.1533361	-1.58	0.117	-0.5453858	0.0617526
newlondon	-0.4365388	0.1244218	-3.51	0.001	-0.6828645	-0.190213
ForHire	0.3684078	0.1415825	2.60	0.010	0.0881079	0.6487076
selldrugs	0.5642888	0.1152289	4.90	0.000	0.3361629	0.7924148
MultVics	-0.2014424	0.0959284	-2.10	0.038	-0.391358	-0.0115269
gangs	-0.1682339	0.1448391	-1.16	0.248	-0.4549812	0.1185134
_cons	0.8851237	0.1635269	5.41	0.000	0.561379	1.208868

How Michelson manages to make these errors is puzzling, since the rest of the regression is correct, indicating that these coefficients were never part of the regression he ran. Perhaps they were pasted from a different regression that does not appear in the final report? Whatever the cause, the Court should view every Michelson assertion with extreme caution since he can't even get the basic numbers right when running a simple regression.

4. Michelson's Figure B23 Cannot be Replicated.

Figure B23 analyzes which of the defendants charged with a capital felony receive the death

penalty.[474] I am able to replicate neither the standard errors on the left side of the figure nor the numerical totals for the "sex" variable on the right side.

Figure B23: Death Sentence — A Legalistic View

dondeath1rev.dta, condition: chargecap = 1, drop = 0, acquit = 0, nocap = 0

N = 52

Variable	Execute Coefficient	t	p
hisp	0.075	0.40	0.693
black	-0.081	-0.50	0.619
vwhite	-0.109	-0.71	0.484
eg23	-0.198	-1.53	0.133
eg33	0.243	1.52	0.136
awful	0.325	2.27	0.028
waterbury	0.803	6.45	0.000
newlondon	0.414	2.72	0.009
vlaw	0.936	3.20	0.003
sex	0.158	1.57	0.125
plea	-0.150	-1.30	0.199
Constant	0.032	0.20	0.843
		R^2	0.698

dondeath1rev.dta, condition: chargecap = 1, drop = 0, acquit = 0, nocap = 0

N = 52

Variable	Total	vwhite	Execute
hisp	9	2	2
black	18	8	5
vwhite	34		16
awful	17	15	11
Waterbury	8	6	8
New London	8	8	6
Law Officer	3	3	3
sex	12	8	12
plea	9	9	4

[474] Michelson Report, October 20, 2010, at 145.

I attempted to replicate the left side of this table using both regular and robust standard errors.

Table 51a

. reg execute hisp black vwhite eg23 eg33 awful waterbury newlondon vlaw sex plea if chargecap ==1 & drop == 0 & acquit == 0 & nocap == 0 & delete == 0

Source	SS	df	MS	No. of obs	=	52
				F(11, 40)	=	8.42
Model	8.5947241	11	0.781338554	Prob > F	=	0
Residual	3.71296821	40	0.092824205	R-squared	=	0.6983
				Adj R-squared	=	0.6154
Total	12.3076923	51	0.2413273	Root MSE	=	0.30467

execute	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
hisp	0.0745179	0.1580187	0.47	0.640	-0.2448498	0.3938857
black	-0.0809005	0.1374123	-0.59	0.559	-0.3586212	0.1968202
vwhite	-0.1088575	0.1239296	-0.88	0.385	-0.3593286	0.1416135
eg23	-0.1983355	0.151441	-1.31	0.198	-0.5044091	0.1077381
eg33	0.2427058	0.115144	2.11	0.041	0.0099911	0.4754205
awful	0.3248276	0.1186516	2.74	0.009	0.0850237	0.5646314
waterbury	0.8027853	0.1329965	6.04	0.000	0.5339894	1.0715810
newlondon	0.4141095	0.1664639	2.49	0.017	0.0776734	0.7505455
vlaw	0.9361742	0.2189221	4.28	0.000	0.4937162	1.3786320
sex	0.1582097	0.1150651	1.37	0.177	-0.0743456	0.3907649
plea	-0.1504555	0.1482455	-1.01	0.316	-0.4500709	0.1491599
_cons	0.0323587	0.1459270	0.22	0.826	-0.2625708	0.3272882

Table 51b

reg execute hisp black vwhite eg23 eg33 awful waterbury newlondon vlaw sex plea if chargecap ==1 & drop == 0 & acquit == 0 & nocap == 0 & delete == 0, robust

Linear regression	No. of obs	=	52
	F(11, 40)	=	21.72
	Prob > F	=	0.0000
	R-squared	=	0.6983
	Root MSE	=	0.30467

execute	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
hisp	0.0745179	0.194369	0.38	0.703	-0.3183165	0.4673524
black	-0.0809005	0.1612488	-0.50	0.619	-0.4067965	0.2449955
vwhite	-0.1088575	0.1607297	-0.68	0.502	-0.4337043	0.2159892
eg23	-0.1983355	0.1377948	-1.44	0.158	-0.4768292	0.0801582
eg33	0.2427058	0.1733803	1.40	0.169	-0.1077088	0.5931204
awful	0.3248276	0.1495474	2.17	0.036	0.0225810	0.6270742
waterbury	0.8027853	0.1241321	6.47	0.000	0.5519050	1.0536660
newlondon	0.4141095	0.1511872	2.74	0.009	0.1085487	0.7196702
vlaw	0.9361742	0.2919467	3.21	0.003	0.3461279	1.5262210
sex	0.1582097	0.1085697	1.46	0.153	-0.0612179	0.3776372
plea	-0.1504555	0.1145909	-1.31	0.197	-0.3820523	0.0811414
_cons	0.0323587	0.1734238	0.19	0.853	-0.3181438	0.3828612

While I replicate his coefficients exactly, Michelson's standard errors are off. It is hard to know where the Michelson train went off the tracks this time, but his uncanny ability to generate error is truly remarkable.

On the right side of "Figure" 23, I am unable to replicate Michelson's numeric totals for "sex."

Table 52

tab vwhite execute if sex ==1 & chargecap ==1 & drop == 0 & acquit == 0 & nocap == 0 & delete == 0

White Victim	Death Sentence		Total
	0	1	
0	3	1	4
1	5	3	8
Total	**8**	**4**	**12**

This chart shows that only four people charged with a capital felony who committed sexual assault during the murder were sentenced to death, whereas Michelson's chart indicates all twelve were sentenced to death. Michelson's record of sloppiness steadily continues to grow.[475]

H. Correcting Michelson's regressions reveals that Minority on White Murders are Capitally charged and Sentenced at Higher rates

If we can step back for a moment and reflect on what my report has found concerning racial discrimination in the Connecticut death penalty system, three points should be clear. First, as Table 20 showed, minority defendants who committed death-eligible murders of whites were both capitally charged and received death sentences at substantially higher rates than other death-eligible defendants. Second, this dramatic difference in capital charging and sentencing rates stood in contrast to the fact that the minority on white crimes were *not* more egregious crimes. Third, these findings were strongly confirmed in regression models of charging and sentencing that were statistically significant and extremely robust to various changes in specifications.

Since Michelson so readily conceded the enormously greater chance of receiving a death sentence in Waterbury, which was another central finding of my regression models, the question arises why his analysis endorses the geographic disparities that I found but not the racial discrimination? In other words, "How does Michelson generate regression results that obscure

[475] It is pointless to spend further time documenting all of the Michelson errors, but I note that his Figure D06 ('tried under capital charge") regression in his November 2009 Report was flawed, but has now been corrected in the August 20, 2010 version of the report.

the racial effect that my models have clearly demonstrated?" It turns out that the answer is surprisingly simple: if one cleans up a few Michelson errors, then even his models with his explanatory variables and his selection of cases show exactly what my regression estimates revealed: there is compelling, statistically significant evidence that the race of the defendant and the victim influence the rates at which death-eligible defendants are capitally charged and receive death sentences.

1. Race of Defendant and Victim Influence Capital Charging Rates.

Let's start with Michelson's estimate of capital charging rates, which he presents in Figure D03. This is his preferred model, his preferred explanatory variables, and his preferred set of cases. I begin showing his Figure D03 results in full:

Figure D03: The Capital Felony Charging Decision

Condition: delete = 0, sentence only = 0.

N = 214		ChargeCap			ChargeCap		
Variable		Coefficient	t	p	Coefficient	t	p
Hispanic defendant	race	-0.196	-1.45	0.149	-0.028	-0.39	0.695
Hisp def white victim	race	-0.022	-0.15	0.883			
black defendant	race	-0.123	-1.02	0.310	0.074	1.21	0.229
black def white victim	race	0.152	1.12	0.263			
first victim white	race	0.002	0.02	0.985	0.190	2.70	0.008
Victims of mixed race	race	0.199	2.10	0.037	0.217	2.31	0.022
female defendant	gender	-0.234	-2.98	0.004	-0.243	-3.17	0.002
first victim female	gender	0.031	0.54	0.589	0.037	0.63	0.527
Child or infant victim	gender	0.275	3.64	0.000	0.260	3.39	0.001
Enabler: hired to kill	enablers	0.227	2.00	0.047	0.210	1.89	0.061
Enabler: multiple victims	enablers	0.206	2.17	0.031	0.201	2.10	0.037
Enabler: victim < 16	enablers	0.671	8.86	0.000	0.681	8.97	0.000
Enabler: prev. conv.	enablers	0.436	2.34	0.020	0.475	2.32	0.021
Enabler: law officer	enablers	0.336	3.20	0.002	0.341	3.23	0.001
Enabler: sell drugs	enablers	0.547	4.11	0.000	0.541	4.14	0.000
Other contemporaneous	defendant	0.074	2.24	0.026	0.073	2.22	0.028
Prior convictions	defendant	-0.013	-4.10	0.000	-0.014	-4.33	0.000
Def. no remorse (v378)	defendant	-0.127	-2.63	0.009	-0.125	-2.57	0.011
Def. educ. < high grad (v73)	defendant	0.160	2.91	0.004	0.146	2.71	0.007
Killing by weapon	the crime	0.220	3.18	0.002	0.211	3.03	0.003
execution-style murder	the crime	0.087	1.41	0.159	0.082	1.34	0.183
Awful (SM's egregiousness)	the crime	0.093	1.36	0.177	0.086	1.24	0.216
victim aggravation (Q92)	the crime	-0.041	-2.53	0.012	-0.039	-2.37	0.019
Thrill kill (v413)	the crime	0.100	1.27	0.207	0.114	1.39	0.167
Sex gratification (v416)	the crime	0.209	2.18	0.030	0.198	2.04	0.043
Kill to silence victim	the crime	0.080	1.29	0.200	0.082	1.30	0.194
Money involved (v408-411)	the crime	0.102	1.46	0.146	0.120	1.76	0.080
Confess, but not right away	procedure	0.159	2.24	0.026	0.162	2.26	0.025
phase 1 (coded <1998)	procedure	0.116	2.15	0.033	0.107	2.00	0.047
New Haven	procedure	-0.258	-3.34	0.001	-0.260	-3.38	0.001
New Britain	procedure	-0.314	-2.64	0.009	-0.322	-2.69	0.008
Danbury	procedure	-0.195	-1.28	0.202	-0.220	-1.47	0.143
Public defender is attorney	procedure	0.084	1.68	0.095	0.096	1.92	0.056
Constant		0.105	0.77	0.440	-0.066	-0.59	0.554
			R^2	0.618		R^2	0.612

[476]

[476] *Id* at 289.

Michelson fails to show a race effect in this model for one reason: he defines his racial categories in an odd and misleading way that obscures the racial impact on charging. Here is my version of Michelson's Figure D03, which leaves everything the same but it just re-organizes the racial categories in a less confusing and more illuminating way.

Table 53: Correcting Michelson's Figure D03 Reveals Racial Discrimination in Charging

```
. regress chargecap ddefhisp hispwhite ddefblack blackwhite dvic1white dvicracemix ddeffem
dvic1fem dallchild dehire demultvics deyoung deprev devlaw deselldrugs dothercon priorconvict
dnoremorse ddefedlow dweapon dexecute oawful daggvic dthrill dgratify dhush dmoney dconfess2
phase1 newhaven newbritain danbury dattypd if sentonly == 0 & delete == 0, vce(robust)
Linear regression                                      Number of obs
=     214                                                               F( 33,   180)
=   22.66
                                                       Prob > F      =  0.0000
                                                       R-squared     =  0.6176
                                                       Root MSE      =   .3114
 ------------------------------------------------------------------------------
             |               Robust
   chargecap |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    ddefhisp |  -.1957714   .1349868    -1.45   0.149    -.4621315    .0705886
   hispwhite |   .1713092   .1604891     1.07   0.287    -.1453728    .4879912
   ddefblack |  -.1226351   .1204488    -1.02   0.310    -.3603084    .1150382
  blackwhite |   .2722619   .1408565     1.93   0.055    -.0056806    .5502043
  dvic1white |   .0024716   .1271207     0.02   0.985     -.248367    .2533102
 dvicracemix |     .19932   .0949069     2.10   0.037     .0120468    .3865932
     ddeffem |  -.2340985   .0800118    -2.93   0.004    -.3919803   -.0762167
    dvic1fem |   .0311682   .0575669     0.54   0.589    -.0824246    .1447609
   dallchild |   .2747973   .0755185     3.64   0.000     .1257819    .4238127
      dehire |   .2266959   .1135972     2.00   0.047     .0025424    .4508494
  demultvics |   .2061269   .0948852     2.17   0.031     .0188964    .3933573
     deyoung |    .670872   .0757583     8.86   0.000     .5213834    .8203606
      deprev |   .4361034   .1861517     2.34   0.020     .0687832    .8034236
      devlaw |   .3360933   .1049703     3.20   0.002     .1289627     .543224
 deselldrugs |   .5470612   .1332443     4.11   0.000     .2841394    .8099829
   dothercon |    .073617   .0328137     2.24   0.026      .008868    .1383661
priorconvict |   -.013403   .0032684    -4.10   0.000    -.0198523   -.0069537
  dnoremorse |  -.1272222   .0484008    -2.63   0.009    -.2227282   -.0317162
   ddefedlow |   .1600143   .0549271     2.91   0.004     .0516304    .2683983
     dweapon |   .2195692   .0690795     3.18   0.002     .0832595     .355879
    dexecute |   .0870026   .0615271     1.41   0.159    -.0344046    .2084097
      oawful |   .0925766   .0683027     1.36   0.177    -.0422003    .2273536
     daggvic |  -.0414713    .016362    -2.53   0.012    -.0737574   -.0091852
     dthrill |   .1000494   .0790829     1.27   0.207    -.0559993    .2560982
    dgratify |   .2085514   .0955638     2.18   0.030     .0199821    .3971208
       dhush |   .0801687   .0622955     1.29   0.200    -.0427547     .203092
      dmoney |   .1022891   .0699995     1.46   0.146    -.0358361    .2404144
   dconfess2 |   .1592008   .0711057     2.24   0.026     .0188927    .2995088
      phase1 |   .1159228   .0539319     2.15   0.033     .0095026     .222343
    newhaven |  -.2575875   .0770975    -3.34   0.001    -.4097186   -.1054563
  newbritain |  -.3141264   .1187792    -2.64   0.009    -.5485053   -.0797475
     danbury |  -.1952133   .1524302    -1.28   0.202    -.4959932    .1055667
     dattypd |   .0839501   .0500906     1.68   0.095    -.0148902    .1827904
       _cons |   .1048811   .1355057     0.77   0.440    -.1625029    .3722652
------------------------------------------------------------------------------
```

Note the coefficient on **blackwhite** is extremely large, suggesting an enormously higher rate of capital charging for black defendants who kill whites. Michelson's own regression was

designed to mask this result by his obfuscatory racial categories, but making this one adjustment we can see that a model using Michelson's own choice of specification adjusted to include interaction terms resoundingly supports the conclusion that the defendant/victim racial configuration matters powerfully in capital sentencing.

What's interesting about my Table 53 is that it essentially runs the identical regression that anyone looking at Michelson's D03 racial category identifiers would think was the regression he ran. Someone familiar with reading regression result tables here would think that "Hispanic defendant" is an indicator equal to one for any Hispanic defendant (that is, identifying any case in which the defendant was Hispanic), that "black defendant" is an indicator equal to one for any black defendant, and that "hisp def white victim" and "black def white victim" are "interaction terms," interacting race of defendant with race of victim. An interaction term here would estimate the extent to which blacks who killed whites are treated differently from other black defendants and other killers of whites in their likelihood of receiving a capital charge. That is what a researcher conforming to best practice would do, and that is the regression I ran in Table 53. Correctly done, then, the regression clearly shows that race matters powerfully in capital charging in Connecticut.

But that is not the regression that Michelson ran. Instead, in the left panel of his Figure D03 reproduced above, "Hispanic defendant" doesn't mean what it says, but rather is based on a variable **hispx** means "Hispanic defendant *except* those with white victims." Michelson's reference to "Black defendant" is similarly misleading, being based on a variable **blackx** meaning "black defendants *except* those with white victims."[477] Of course, you could never know this from the table and indeed, the labels shift because the same label means

[477] Description taken verbatim from the variable labels in Michelson's own dataset for **hispx** and **blackx**, which are the variables that Michelson used to generate the left-hand side of Figure D03.

something different on the right hand side of the table. To put it mildly, Michelson's labeling scheme is extremely confusing.[478]

The bottom line, then, is that despite the fact that Michelson's labels suggest otherwise, the racially identified defendant-victim categories are each included as discrete groups (not pure interaction terms), and the regression results must then be interepreted as the extent to which each discrete group differs from the base case. Of course, this means that before one can interpret Michelson's table with his odd racial categories one needs to know the base case to which, say, the treatment of black defendants with white victims could be compared. But I defy anyone to figure out which base case Michelson is using from his table descriptions or his textual discussion. Michelson throws in so many ill-defined or inadequately labeled explanatory variables that it is virtually impossible to tell what he is doing if you do not have his computer code, which is clearly a defect in a report that is supposed to be read by lawyers and judges -- at least if clarity and illumination are one's goals.

Thus, my Table 53 makes only one change from Michelson's Figure D03: I drop the confusing Michelson variables **hispx** and **blackx** and replace them with **ddefhisp** (Hispanic defendants) and **ddefblack** (black defendants), respectively. Now **ddefhisp** and **ddefblack** compare all Hispanic and black defendants to the base case (white defendants), while **hispwhite** and **blackwhite** are now true interaction terms. This change allows one to observe the combined

[478] To add to the confusion, Michelson's Figure D03 labels the variable "first victim white," but in fact in the left panel, his variable is actually **vwhitex** and in the right panel it is **dvic1white**. What is **vwhitex?** It certainly has nothing to do with the label Michelson gives it -- first victim white. If one digs through Michelson's data, one learns that **vwhitex** refers to "white victims except of blacks or Hispanics." From the variable name, this would appear to be a race of victim variable, but in actuality it is an indicator equal to one for "white defendants with white victims," and hence is really the same type of variable as **hispx** and the rest of the defendant group variables. One can only wonder why Michelson would use this awkward terminology. When **vwhitex** is included, then, the omitted comparison group, or base case, is white defendants with minority victims, whereas when **vwhitex** is omitted, the base case is all white defendants. This is relevant, of course, because the coefficients on the defendant indicators are all estimated relative to the base case, so the estimates will be quite different depending on the choice of base case.

effect of being a black defendant who killed a white victim, holding constant the 33 explanatory variables that Michelson believes are important. These defendants experience a 27 point higher charging rate, which is an extremely large effect with a high degree of significance, especially given the fact that Michelson has loaded up his regression with 33 explanatory variables (a ratio of only 6.5 observations per variable, which Section X.C noted tends to lessen power to reveal true effects). Race has a major impact on capital charging in Connecticut, as a correct assessment of Michelson's own Figure D03 reveals.

2. Minority-on-White Homicides are Capitally Sentenced at Higher Rates.

Having shown that a sensible modification of Michelson charging regression (Figure D03) shows a powerful race effect, we now turn to the death sentencing regressions. We begin with Michelson's Figure D12, which I reproduce in full:

Figure D12: Death Among Murderers

Condition: (delete = 0 or second sentence = 1), and (sentence of death, lwop or life).

N = 126	death			death		
Variable	Coefficient	t	p	Coefficient	t	p
Hispanic defendant	0.035	0.48	0.635	0.103	0.82	0.416
Hispanic def. white victim	0.279	1.39	0.167			
black defendant	0.017	0.24	0.814	-0.003	-0.04	0.964
black def white victim	-0.035	-0.47	0.636			
first victim is white				-0.012	-0.13	0.895
Victims of different races	-0.030	-0.43	0.667	-0.046	-0.62	0.536
Defendant is female	-0.353	-2.34	0.021	-0.349	-2.23	0.028
first victim is female	0.023	0.38	0.705	0.035	0.61	0.545
Enabler: Vict. Law Officer	0.230	1.28	0.202	0.268	1.57	0.119
Defendant says mistake	-0.107	-1.54	0.126	-0.105	-1.37	0.173
Motive: sexual gratificatior	0.108	1.25	0.213	0.117	1.36	0.178
Def. neglected as child	0.209	3.22	0.002	0.208	3.18	0.002
Def. on drugs at crime	-0.186	-1.91	0.059	-0.210	-1.88	0.062
Public Defender	0.062	1.24	0.218	0.051	0.92	0.359
Defendant pled guilty	-0.224	-4.24	0.000	-0.223	-4.15	0.000
Prior hung jury	-0.206	-2.18	0.031	-0.239	-2.75	0.007
Diminished responsibility	-0.142	-2.06	0.041	-0.129	-1.89	0.061
Def felt good afterward	-0.046	-0.78	0.436	-0.060	-1.07	0.285
Waterbury	0.413	2.46	0.015	0.390	2.44	0.017
New London	0.303	3.69	0.000	0.294	3.65	0.000
Constant	0.226	2.13	0.035	0.266	1.80	0.075
		R^2	0.474		R^2	0.458

[479]

[479] *Id* at 313.

So that I could be sure I understood what Michelson was doing, I replicated his table using the dataset Dr. Michelson provided. Below is a successful reproduction of the left panel regression of Michelson's Figure D12 above, pasted in Stata format:

Table 54: Replicating Michelson's Figure D12

```
. use "U:\CDP\steve_michelson_data\2011\D-redo-02.dta", clear

. regress odeath hispx hispwhite blackx blackwhite dvicracemix ddeffem dvic1fem devlaw dmistake
dgratify dneglect dondrugs dattypd danyplea hung  ddimres
> pons defhappy waterbury newlondon if  (delete == 0 | smsent == 1) & (ddeath == 1| dlwop == 1 |
dlife == 1), vce(robust)

Linear regression                                       Number of obs =     126
                                                        F( 19,   106) =    4.92
                                                        Prob > F      =  0.0000
                                                        R-squared     =  0.4744
                                                        Root MSE      =  .27659

------------------------------------------------------------------------------
             |               Robust
      odeath |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       hispx |   .0352896   .0740197     0.48   0.635    -.1114617    .1820408
   hispwhite |   .2785021   .2002487     1.39   0.167    -.1185104    .6755146
      blackx |    .016653   .0705055     0.24   0.814    -.1231311    .1564371
  blackwhite |  -.0354242    .074695    -0.47   0.636    -.1835143    .1126659
 dvicracemix |  -.0298487   .0692596    -0.43   0.667    -.1671627    .1074652
     ddeffem |  -.3532866   .1508422    -2.34   0.021    -.6523459   -.0542273
    dvic1fem |   .0228945   .0602303     0.38   0.705     -.096518     .142307
      devlaw |   .2296243   .1788873     1.28   0.202    -.1250373    .5842859
    dmistake |  -.1070821   .0694285    -1.54   0.126    -.2447308    .0305666
    dgratify |   .1079714   .0861027     1.25   0.213    -.0627356    .2786784
    dneglect |   .2093428   .0649387     3.22   0.002     .0805955    .3380902
    dondrugs |  -.1859611   .0975582    -1.91   0.059    -.3793797    .0074574
     dattypd |   .0619521   .0500195     1.24   0.218    -.0372165    .1611206
    danyplea |  -.2239439     .05278    -4.24   0.000    -.3285854   -.1193024
        hung |  -.2059165   .0943848    -2.18   0.031    -.3930436   -.0187895
 ddimrespons |  -.1417447   .0686849    -2.06   0.041    -.2779192   -.0055701
    defhappy |  -.0462972   .0592097    -0.78   0.436    -.1636861    .0710917
   waterbury |   .4130758   .1677626     2.46   0.015     .0804701    .7456816
   newlondon |   .3027627   .0820268     3.69   0.000     .1401366    .4653888
       _cons |   .2255645   .1057719     2.13   0.035     .0158615    .4352675
------------------------------------------------------------------------------
```

Since the above regression perfectly replicates Michelson's Figure D12, we know that Michelson used his **odeath** "death sentence" variable to create that Table and did not cluster his standard errors (as he should and as he did elsewhere in his other sentencing regressions). Since we will see that Michelson's **odeath** is badly flawed, the bottom line is that his entire Figure D12 is worthless.

To see where Michelson went wrong, note that Michelson also has another death penalty variable which he calls **ddeath**.[480] To see what difference the choice between these variables makes, we now present the values for both of these Michelson death sentence variables -- **odeath** and **ddeath**.

Table 55: Michelson's Erroneous Death Sentence Variables

```
. use U:\CDP\steve_michelson_data\2011\D-redo-02.dta
\* Set Used for Sentencing Figures in Michelson's August 2010 Report *\

. list casenum name odeath ddeath if odeath==1 | ddeath==1
```

	casenum	name	odeath	ddeath
6.	6	Robert Breton	0	1
18.	18	Sedrick Cobb	1	1
51.	51	Terry Johnson	1	1
76.	76	Richard Reynolds	1	1
84.	84	Michael Ross NL1	1	1
85.	85	Michael Ross NL2	1	1
86.	86	Michael Ross NL3	1	1
101.	101	Daniel Webb	1	1
105.	105	Robert Breton 2nd	1	1
119.	119	Jessie Campbell	0	1
121.	121	Scott Cancel	1	0
126.	126	Ivo Colon	1	1
128.	128	Robert Courchesne	1	1
201.	201	Todd Rizzo	1	1
206.	206	Eduardo Santiago Jr	1	1
236.	384	Michael Ross NL1	1	1
237.	385	Michael Ross NL2	1	1
238.	386	Michael Ross NL3	1	1
240.	419	Jessie Campbell	1	1
243.	490	Russell Peeler	1	1
245.	501	Todd Rizzo	0	1
247.	513	Scott Smith	1	0

Once again, we see that Michelson has messed up the data badly. First, note that Michelson's **odeath** variable indicates that Scott Cancel and Scott Smith each received death sentences. The problem is that neither Cancel nor Smith ever received a death sentence. It is hard to imagine a grosser error in a report on the Connecticut death penalty than to code two

[480] Just to confirm that **ddeath** is different and that Michelson did not use that variable in creating his Figure D12, we also ran this same regression using **ddeath** instead of **odeath,** and the resulting table did *not* match Michelson's Figure D12.

individuals as getting the death sentence who clearly did not receive death sentences. Putting that error aside, we can surmise what Michelson was trying to achieve with this variable from the other codings. Apparently, **odeath re**presents Michelson's effort to have a variable that reflects the outcome of each specific trial or penalty phase. Thus, we know that Jessie Campbell was convicted of a capital felony and went to a penalty trial, but the jury hung. In his second penalty trial, Campbell was sentenced to death. Thus, we see that for the two Campbell observations under the **odeath** column, the first Campbell observation is coded as **odeath** = 0 and the second is coded as **odeath** = 1. Thus, **odeath** is messed up because it shows two defendants receiving a death sentence when they did not, but the remainder of the **odeath** coding decisions have some logic because **odeath** shows what happens in the two separate phases in the full Campbell death penalty prosecution.

Second, when we examine **ddeath,** we see it has the opposite problems from Michelson's **odeath** variable: **ddeath** doesn't make the gross error that appears in **odeath** of indicating that Cancel and Smith received death sentences**,** but **ddeath** messes up in that it shows certain defendants getting two death sentences when they only got one. Thus, returning to the case of Jesse Campbell, we see that Michelson now shows **ddeath**=1 for both Campbell observations, even though Campbell did not get a death sentence in his first penalty hearing owing to the hung jury. The other two cases that differ for **odeath** and **ddeath** are Breton and Rizzo, which are both coded identically to Campbell for their two observations in each data set: 0 and 1 in **odeath** and 1 and 1 in **ddeath.**[481]

[481] It is unclear what Michelson is thinking about the *Breton* case in his coding decisions. Breton was initially sentenced to death with the penalty reversed on appeal. He was subsequently given a death sentence in his second penalty hearing. Whether the reversal in the first proceeding should lead to a 0 (as Michelson has under **odeath** for Breton) or a 1 (since the jury did render a death sentence at the first penalty trial, as **ddeath** seems to suggest) is unclear. If the former is Michelson's view, then he has miscoded the Colon case (whose death sentence was also over-turned on appeal but who gets a 1 under both **odeath** and **ddeath** in the Michelson coding**.**

To meaningfully analyze results from the Michelson equations, we first need to be certain we are using a correctly coded sentencing variable, instead of the flawed version of **odeath** that was used to generate Michelson's Figure D12. I therefore corrected Michelson's coding errors to show that neither Scott Cancel nor Scott Smith received a death sentence. I will call this corrected version of Michelson **odeath** variable, **jd_odeath**, which is identical to the original **odeath**, except that Cancel and Smith are coded as zero's.

A second adjustment to the Michelson D12 sentencing equation will be a change in how the racial variables are included in the model. Rather than treat Hispanics and black defendants as separate groups, we combine the two into a single minority or minority defendant group. Also, rather than treat minorities who kill whites and minorities who kill other minorities as discrete groups (as Michelson actually does in his models), we use the same interaction framework that his tables suggest he is using. In other words, we include an indicator equal to one for any minority defendant, **ddefmin**, and an indicator for any minority defendants with a white victim, **minwhite**. The coefficient on **ddefmin** is the extent to which, according to the model, minority defendants differ from the base case (either white defendants or white defendants who kill minorities, depending on specification) in their propensity to receive a death sentence. The estimated coefficient on **minwhite**, on the other hand, is the extent to which minorities who kill whites differ from other minorities in likelihood of receiving a death sentence.[482]

However, another important consideration when evaluating Michelson's empirical models is the fact that Michelson's estimates use OLS, whereas our report, along with most prior researchers examining determinants of death sentencing, uses logistic regression estimates. As we saw in my capital sentencing regressions, the superior logit estimates were always

[482] It is useful to note that in order for the interaction term to function, there must also be an indicator equal to one for all murders with white victims. When it is not already present, then, I add **dvic1white**, equal to one for murders with a white primary victim, to serve this purpose.

statistically significant even when at times they were not using the inferior OLS estimates. Accordingly, in addition to correcting Michelson's data errors and using clearer racial categories, we will also estimate the capital sentencing regressions using the logit model.

When running a logit model on Michelson's Figure D12 sample of 126 observations, Stata drops variables that perfectly predicted a dependent variable outcome (i.e. a no defendant facing a hung jury received a death sentence, so **hung**=1 perfectly predicts **jd_odeath**=0).[483] To retain the full 126 observations, then, we had to drop **dmistake** and **hung**.

We now re-estimate Michelson's Figure D12 on his sample of 126 observations using a logit model while replacing the race variables and using the corrected **jd_odeath** dependent variable:[484]

[483] I pointed out earlier that it was inappropriate to use outcome variables as controls, and the **hung** variable is a good case in point as to why it should *not* be included as a control. Essentially, the way the Michelson codes his data, if the jury was hung in a penalty trial, the dependent variable for that defendant in that trial is zero (because the defendant did not get a death sentence in that penalty trial). Thus, for defendant Jesse Campbell who received a death sentence in his second penalty trial but not his first, which ended with a hung jury, Michelson thinks he has explained why Campbell received a death sentence in the second (he didn't have a hung jury) but didn't in his first (he had a hung jury). The outcome of a hung jury is clearly not an independent variable that explains the outcome of a capital sentence.

[484] As noted above, our replications of Michelson's regressions reveals that he used standard errors clustered by name in the regressions shown in Figures D09 and D11, but not in Figure D12. For consistency, and because clustered standard errors are more appropriate, we use them here in our version of D12.

Table 56: Corrected Capital Sentencing Estimates for Michelson's Figure D12 (126 Observations)

```
. logit jd_odeath ddefmin minwhite dvic1white dvicracemix  dvic1fem devlaw  dgratify dneglect
dondrugs dattypd
>  danyplea  ddimrespons defhappy waterbury newlondon if (delete == 0 | smsent == 1) & (ddeath ==
1| dlwop ==
> 1 | life == 1), vce(cluster name)

Iteration 0:   log pseudolikelihood = -51.674656
Iteration 1:   log pseudolikelihood = -27.727998
Iteration 2:   log pseudolikelihood = -22.101435
Iteration 3:   log pseudolikelihood = -20.339697
Iteration 4:   log pseudolikelihood = -20.272898
Iteration 5:   log pseudolikelihood = -20.272411
Iteration 6:   log pseudolikelihood = -20.272411

Logistic regression                               Number of obs   =        126
                                                  Wald chi2(15)   =      37.11
                                                  Prob > chi2     =     0.0012
Log pseudolikelihood = -20.272411                 Pseudo R2       =     0.6077

                                (Std. Err. adjusted for 120 clusters in name)
------------------------------------------------------------------------------
             |               Robust
   jd_odeath |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     ddefmin |  -3.842379   1.669631    -2.30   0.021    -7.114795   -.5699627
    minwhite |   5.165096   2.229209     2.32   0.021     .7959263    9.534266
  dvic1white |  -6.202423   2.171548    -2.86   0.004    -10.45858   -1.946266
 dvicracemix |  -.6164401   1.371363    -0.45   0.653    -3.304262    2.071382
    dvic1fem |   .7691643   1.205944     0.64   0.524    -1.594442    3.132771
      devlaw |   3.741944   1.985939     1.88   0.060    -.1504252    7.634313
    dgratify |   1.551441   1.300353     1.19   0.233    -.9972038    4.100086
    dneglect |   2.488801   1.015895     2.45   0.014     .4976833    4.479919
    dondrugs |  -3.755727   1.310405    -2.87   0.004    -6.324075   -1.187379
     dattypd |   1.195457   1.357353     0.88   0.378    -1.464906     3.85582
    danyplea |   -.716187   .6378068    -1.12   0.261    -1.966265    .5338914
 ddimrespons |  -3.126797   1.553507    -2.01   0.044    -6.171615     -.08198
    defhappy |  -1.233738   .9335172    -1.32   0.186    -3.063398    .5959225
   waterbury |   3.711015   .9560984     3.88   0.000     1.837097    5.584934
   newlondon |   3.502835   1.090913     3.21   0.001     1.364684    5.640985
       _cons |   3.098176   1.633417     1.90   0.058    -.1032621    6.299614
------------------------------------------------------------------------------
```

The logit estimates of Table 56 tells an altogether different story from the one that Michelson presents in his Figure D12. The interaction term identifying minority defendants who kill whites has a coefficient that is very large, positive, and highly statistically significant, showing very strong evidence that minorities who kill whites face harsher capital sentencing. Essentially, if one cleans up the Michelson errors and uses the preferred estimation approach of logit with appropriate racial categories, then Michelson's own model on his exact Figure D12 sample shows exactly what my report shows: minority on white murders lead to death sentences at a vastly higher rate, controlling for the factors that Michelson said are important.

This is a critical point since we see that so many of Michelson's attacks are irrelevant. He has argued that I did not use the appropriate explanatory variables, yet Table 56 uses his explanatory variables. Michelson complained that I did not limit my sample to those who he thought could get the death penalty, yet Table 56 uses his identical sample of 126 observations. As long as one uses the correct sentencing data (Michelson did not as we saw), uses the superior logit estimation model, and chooses the racial categories to illuminate rather than obscure the racial impact, Michelson own sentencing regression fully supports my findings of racial discrimination in capital sentencing.

Recall that my capital sentencing model used all of the observations of death-eligible cases. I thought it would be useful to see if I ran one modification of my Table 56 correction of Michelson's Figure D12 by expanding the sample to the full set of observations and used his exact Figure D12 model. Table 57 shows the results (this time without my dropping the variables that are perfectly predicted in the logit model).

Table 57: Corrected Capital Sentencing Estimates for Michelson's Figure D12 (196 Observations)

```
. logit jd_odeath ddefmin minwhite dvic1white dvicracemix ddeffem dvic1fem devlaw dmistake dg
> ratify dneglect dondrugs dattypd danyplea hung  ddimrespons defhappy waterbury newlondon, v
> ce(cluster name)

note: ddeffem != 0 predicts failure perfectly
      ddeffem dropped and 20 obs not used

note: dmistake != 0 predicts failure perfectly
      dmistake dropped and 25 obs not used

note: hung != 0 predicts failure perfectly
      hung dropped and 6 obs not used

Iteration 0:   log pseudolikelihood =  -60.12631
Iteration 1:   log pseudolikelihood = -41.615933
Iteration 2:   log pseudolikelihood = -31.642282
Iteration 3:   log pseudolikelihood = -25.561898
Iteration 4:   log pseudolikelihood = -23.062945
Iteration 5:   log pseudolikelihood = -22.564004
Iteration 6:   log pseudolikelihood = -22.557484
Iteration 7:   log pseudolikelihood = -22.557478
Iteration 8:   log pseudolikelihood = -22.557478

Logistic regression                               Number of obs   =        196
                                                  Wald chi2(15)   =      42.79
                                                  Prob > chi2     =     0.0002
Log pseudolikelihood = -22.557478                 Pseudo R2       =     0.6248

                                (Std. Err. adjusted for 180 clusters in name)
------------------------------------------------------------------------------
             |               Robust
   jd_odeath |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     ddefmin |   -2.46275   1.201275    -2.05   0.040    -4.817205   -.1082944
    minwhite |     3.8202   1.641526     2.33   0.020     .6028686    7.037532
  dvic1white |  -4.289451   1.583145    -2.71   0.007    -7.392358   -1.186543
 dvicracemix |   .3549497   1.833229     0.19   0.846    -3.238114    3.948013
     ddeffem |  (omitted)
    dvic1fem |   .8760156   .9322875     0.94   0.347    -.9512344    2.703266
      devlaw |   4.891714   1.640249     2.98   0.003     1.676885    8.106543
    dmistake |  (omitted)
    dgratify |    2.36769   1.240075     1.91   0.056    -.0628124    4.798192
    dneglect |   3.421664   1.162695     2.94   0.003     1.142825    5.700504
    dondrugs |  -3.389065   1.435181    -2.36   0.018    -6.201967   -.5761617
     dattypd |   1.162026    1.03098     1.13   0.260    -.8586577     3.18271
    danyplea |  -2.534252   .6956887    -3.64   0.000    -3.897777   -1.170727
        hung |  (omitted)
 ddimrespons |  -1.578982   .8263044    -1.91   0.056    -3.198509    .0405453
    defhappy |  -.6913958   1.080152    -0.64   0.522    -2.808455    1.425663
   waterbury |   2.828108   1.214303     2.33   0.020     .4481168    5.208098
   newlondon |   1.886884    .808076     2.34   0.020     .3030844    3.470684
       _cons |    .417022   1.621207     0.26   0.797    -2.760486     3.59453
------------------------------------------------------------------------------
```

Again, we see that the story of Table 56 is unchanged whether we look at Michelson's sentencing sample or the full sample of death eligible cases (Table 57). The term identifying

minority on white murders is large, positive, and highly significant. Race matters exactly as I have stressed throughout my report.

Once again, because several of the variables in Michelson's original specification are perfect predictors of a defendant not receiving a death sentence, the logit model drops several observations from the analysis, reducing Michelson's full sample of 246 observations to 196 observations. To get the broadest possible picture of who receives a death sentence and who does not, we drop those perfect predictors so that we can re-estimate the model using all 248 observations in Michelson's data set. Removing the necessary variables and re-estimating the equation using the full sample yields the following estimates:

Table 58: Corrected Capital Sentencing Estimates for Michelson's Figure D12 (248 Observations)

```
. logit jd_odeath ddefmin minwhite dvic1white dvicracemix  dvic1fem devlaw  dgratify dne
> glect dondrugs dattypd danyplea  ddimrespons defhappy waterbury newlondon, vce(cluster
>  name)

Iteration 0:   log pseudolikelihood = -64.545396
Iteration 1:   log pseudolikelihood = -54.055284
Iteration 2:   log pseudolikelihood = -38.037445
Iteration 3:   log pseudolikelihood = -29.702482
Iteration 4:   log pseudolikelihood = -27.577435
Iteration 5:   log pseudolikelihood =  -27.40878
Iteration 6:   log pseudolikelihood = -27.407922
Iteration 7:   log pseudolikelihood = -27.407922

Logistic regression                               Number of obs   =        248
                                                  Wald chi2(15)   =      39.75
                                                  Prob > chi2     =     0.0005
Log pseudolikelihood = -27.407922                 Pseudo R2       =     0.5754

                                (Std. Err. adjusted for 230 clusters in name)
------------------------------------------------------------------------------
             |               Robust
   jd_odeath |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     ddefmin |  -2.662685   1.462232    -1.82   0.069    -5.528607    .2032375
    minwhite |   3.639845   1.686638     2.16   0.031     .3340964    6.945595
  dvic1white |  -3.579238   1.399906    -2.56   0.011    -6.323003    -.835473
 dvicracemix |  -.1805838   1.397703    -0.13   0.897     -2.92003    2.558863
    dvic1fem |   .0858778   .9315639     0.09   0.927    -1.739954     1.91171
      devlaw |   3.089253   1.394963     2.21   0.027     .3551759     5.82333
    dgratify |   1.917644   1.133465     1.69   0.091    -.3039063    4.139195
    dneglect |   2.670929   .8162715     3.27   0.001     1.071066    4.270792
    dondrugs |  -2.620593   1.069502    -2.45   0.014    -4.716779   -.5244076
     dattypd |   1.349829   1.068411     1.26   0.206    -.7442172    3.443876
    danyplea |  -2.067453   .7058466    -2.93   0.003    -3.450887    -.684019
 ddimrespons |  -2.146683   .8486188    -2.53   0.011    -3.809946   -.4834211
    defhappy |  -1.086635   .8832268    -1.23   0.219    -2.817727     .644458
   waterbury |   3.165405    .918653     3.45   0.001     1.364878    4.965932
   newlondon |   2.079486   .7283186     2.86   0.004     .6520078    3.506964
       _cons |   .0149522   1.948552     0.01   0.994     -3.80414    3.834044
------------------------------------------------------------------------------
```

Table 58 using all 248 observations in the Michelson data set shows that a sensibly modified version of Michelson's Figure D12 -- including his plea bargain variable and the other variables he claims are important -- reveals that minorities who kill whites face harsher death sentencing. The estimated effect is again large and highly significant.

But recall that Michelson said that some cases were not death eligible and therefore shouldn't be part of the data set. Those cases were dropped from his sample of 126 cases in Figure D12 and we still found racial bias in capital sentencing in Table 56. But Tables 57 and 58

have expanded the number of observations (again finding racial bias), but perhaps things might be different if we dropped the 22 cases (discussed in my Appendix E) that Michelson argues should not be included in the analysis. Table 59 does just that and we see that the results are essentially unchanged. If Michelson were to correct the errors in his sentencing data, use the appropriate logit model, and clearer racial categories, he would be compelled to recognize the racial disparities in capital sentencing that infect the Connecticut death penalty system, even controlling for all of his preferred set of explanatory variables.

Table 59: Corrected Capital Sentencing Estimates for Michelson's Figure D12 (226 Observations)

```
. logit jd_odeath ddefmin minwhite dvic1white dvicracemix  dvic1fem devlaw  dgratify dneglect
dondrugs dattypd
>  danyplea  ddimrespons defhappy waterbury newlondon if jd_drop==0, vce(cluster name)

Iteration 0:   log pseudolikelihood = -62.806298
Iteration 1:   log pseudolikelihood = -48.684021
Iteration 2:   log pseudolikelihood = -33.034634
Iteration 3:   log pseudolikelihood = -27.154158
Iteration 4:   log pseudolikelihood = -26.196017
Iteration 5:   log pseudolikelihood = -26.172717
Iteration 6:   log pseudolikelihood = -26.172679
Iteration 7:   log pseudolikelihood = -26.172679

Logistic regression                                     Number of obs   =        226
                                                        Wald chi2(15)   =      43.60
                                                        Prob > chi2     =     0.0001
Log pseudolikelihood = -26.172679                       Pseudo R2       =     0.5833

                                 (Std. Err. adjusted for 209 clusters in name)
------------------------------------------------------------------------------
             |               Robust
   jd_odeath |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     ddefmin |  -3.178356   1.356879    -2.34   0.019    -5.837789   -.5189224
    minwhite |   4.287234   1.697067     2.53   0.012     .9610446    7.613423
  dvic1white |  -3.867574   1.281206    -3.02   0.003    -6.378692   -1.356456
 dvicracemix |  -.5610014   1.690387    -0.33   0.740    -3.874099    2.752096
    dvic1fem |   .0736012   .8796896     0.08   0.933    -1.650559    1.797761
      devlaw |   3.129358   1.399374     2.24   0.025     .3866346    5.872081
    dgratify |     1.2149   1.355046     0.90   0.370    -1.440941    3.870742
    dneglect |   2.408375    .813244     2.96   0.003     .8144458    4.002304
    dondrugs |  -2.514973   .9850525    -2.55   0.011    -4.445641   -.5843059
     dattypd |   1.721994   1.387688     1.24   0.215    -.9978242    4.441813
    danyplea |  -2.187882   .7606865    -2.88   0.004      -3.6788   -.6969634
 ddimrespons |  -2.707073   1.069128    -2.53   0.011    -4.802525   -.6116205
    defhappy |  -1.194549   .9529657    -1.25   0.210    -3.062327    .6732294
   waterbury |   2.865781   .8877241     3.23   0.001     1.125874    4.605688
   newlondon |    2.85947    1.04574     2.73   0.006     .8098572    4.909083
       _cons |   .6016765   1.712701     0.35   0.725    -2.755155    3.958508
------------------------------------------------------------------------------
```

3. OLS Estimates Are Inferior Because They Can Lead to Inappropriate Negative Probabilities

The choice between linear probability models (OLS) and logit models when estimating discrete choice models is often unimportant. Indeed, my capital charging models typically gave virtually identical results with both OLS and logit. Of course, at times the two estimates will diverge and then one must use the superior tool of logit. Indeed, my capital sentencing regressions frequently showed significant logit results and insignificant OLS results, which may have prompted Michelson to cling to the less appropriate model. This divergence is often greatest when estimating rates in cases where the probability of a given outcome is either very high or very low (at it is for capital sentencing where the average rates are only around 4 percent), In fact, for certain Connecticut death-eligible defendants the likelihood of capital sentencing is vanishingly small, and this contributes to the poorer performance of Michelson's OLS models.

To highlight the problems with Michelson's approach, I use the "clarify" package in Stata to simulate the predicted probability for a person of a given set of characteristics using an OLS model. In this case, we consider a defendant who Michelson's estimates suggest would have a very low probability of receiving a death sentence: a minority defendant who killed another minority male, did not kill a law enforcement officer, was neglected as a child, was on drugs at the time of crime, had counsel from a public defender, pled guilty, felt fine about the crime afterwards, did not kill in Waterbury, and whose statements to the court diminished his responsibility:

```
. setx ddefmin 1 minwhite 0 dvic1white 0 dvicracemix 0 dvic1fem 0 devlaw 0 dgratify 0 dneglect 1 dondr
> ugs 1 dattypd 1 danyplea 1 ddim 1 defhappy 1 waterbury 0
```

Stata tells us that a death-eligible convicted murderer in Connecticut with these traits would have a negative probability of getting a death sentence as indicated by the mean value in Table 60.

Table 60

```
. simqi

     Quantity of Interest |      Mean      Std. Err.    [95% Conf. Interval]
--------------------------+-------------------------------------------------
           E(jd_ode~h) |  -.0027503     .0516202    -.1068843    .0967444
```

Thus Michelson's OLS model would predict that a defendant of these characteristic has a probability of receiving a death sentence of -.002, or a probability lying (with 95 percent confidence) between -0.11 and .097. But probabilities *by definition* lie between 0 and 1, so the OLS model fails at predicting a viable probability range for the given defendant. This example highlights that in certain circumstances, OLS fails as an effective model in predicting probabilities.

Even with a far less extreme case, one sees that the confidence interval of the probability estimate intrudes into impermissible grounds. Thus, using the same OLS model, we predict the probability that a white defendant with one white male victim would be sentenced to death:

Table 61

```
. setx ddefmin 0 minwhite 0 dvic1white 1 dvicracemix 0 dvic1fem 0 devlaw 0 dgratify 0 dneglect 0
dondr
> ugs 0 dattypd 0 danyplea 0 ddimrespons 0 defhappy 0 waterbury 0 newlondon 0

. simqi

      Quantity of Interest |      Mean       Std. Err.     [95% Conf. Interval]
---------------------------+-------------------------------------------------
               E(jd_ode~h) |   .1137673     .0806864    -.0423505     .2767664
```

The probability of this defendant receiving a death sentence is considerably higher, but note that the estimated 95% confidence interval has a lower bound of *negative* four percent. And again, a probability cannot be below zero. Given that the probabilities of interest here are generally quite low (as so few have received death sentences in CT), then, the logit model, which *cannot* offer predicted probabilities outside the acceptable 0-1 range, is clearly preferable to OLS for the purposes of estimating the likelihood of receiving a death sentence.

With this in mind, the credence one should attach to the logit evidence that the defendant/victim racial configuration matters in death sentencing, with minorities who kill whites treated more harshly than other minorities, becomes clearer. Even Michelson's own models, which employ an arbitrary array of explanatory variables, show strong evidence of this racial discrimination in the sentencing process when estimated using the full dataset or his preferred selective sample. Race clearly matters in capital sentencing in Connecticut according to the best evidence.

XI. MODERN DEATH PENALTY STUDIES SUPPORT MY METHODOLOGICAL CHOICES

Michelson devotes a substantial part of his report to arguing that my analysis is fundamentally flawed in various ways. As I have shown in previous sections, most of these attacks are based on Michelson's own errors of methodology (for example, regressing egregiousness against itself and thinking this says something about the egregiousness *level* of certain racially defined crimes), his failure to understand the issues in this case (for example, his confused insistence that the case is really about the sentencing decisions of Connecticut juries), or his use of inferior estimation approaches (using OLS instead of logit in his capital sentencing regressions).

In this section, I again consider two of Michelson's specific charges against my report: 1) the claim that I should *not* have regressed death sentences on all capital cases; and 2) the claim that my regressions *should have* controlled for intermediate outcomes such as plea bargains to explain ultimate sentencing outcomes. This time, however, I address Michelson's empty charges from the perspective of the existing body of scholarship on the subject. After reviewing the numerous studies on the application of the death penalty that have been published in recent years, I show that my decisions on these two issues are overwhelmingly supported by

mainstream modern death penalty research. With respect to these methodological issues, Michelson's burden is not simply to contend with my work, but also to demonstrate fault with the work product of the vast majority of researchers who have written on the death penalty in recent years.

First, I document 12 death penalty studies published in the last decade that examine death penalty regimes of a single state as I have done here. I then describe Michelson's two criticisms of my work that reveal his misunderstanding of this case and his lack of familiarity with other highly respected death penalty studies. Finally, I highlight the salient methodological decisions of the 12 recent death penalty studies and show how they overwhelming support the decisions I made in my regression analysis for this report.

A. THERE IS A SIGNIFICANT BODY OF RECENT DEATH PENALTY RESEARCH THAT CAN INFORM THE DEATH PENALTY STUDIES IN THIS CASE.

Since 2001, 12 regression-based studies have examined the application of the death penalty in a single state. This time period was chosen to provide a picture of currently prevailing practices in death penalty research and ultimately yielded the following studies:

> Glenn L. Pierce and Michael L. Radelet, *The Impact of Legally Inappropriate Factors on Death Sentencing for California Homicides, 1990-1999*, 46 SANTA CLARA L. REV. 1 (2005).
>
> Glenn L. Pierce and Michael L. Radelet, *Race, Region, and Death Sentencing in Illinois, 1988-1997*, 81 OR. L. REV. 39 (2002).
>
> Raymond Paternoster & Robert Brame, An Empirical Analysis of Maryland's Death Sentencing System with Respect to the Influence of Race and Legal Jurisdiction (2003); Raymond Paternoster, Robert Brame, Sarah Bacon & Andrew Ditchfield, *Justice by Geography and Race: The Administration of the Death Penalty in Maryland, 1978-1999*, 4 Margins 1 (2004). (The two Paternoster et al. papers on Maryland are based on the same study.)
>
> MICHAEL LENZA, DAVID KEYS & TERESA GUESS, *The Prevailing Injustices in the Application of the Missouri Death Penalty (1978-1996)*, 32 SOCIAL JUSTICE 151 (2005).

Katherine Barnes, David Sloss & Stephen Thaman, *Place Matters (Most): An Empirical Study of Prosecutorial Decision-Making in Death-Eligible Cases*, 51 ARIZ. L. REV. 305 (2009).

David Baldus et al., Arbitrariness and Discrimination in the Administration of the Death Penalty: A Legal and Empirical Analysis of the Nebraska Experience (1973-1999), 81 NEB. L. REV. 486 (2002).

David S. Baime, Systemic Proportionality Review Project: 2004-2005 Term (2005); David Weisburd & Joseph Naus, Report to Special Master David Baime: Applying the Race Monitoring System to May, 2005 Proportionality Review Data (2005). (The Weisburd and Naus report on New Jersey is the statistical study behind the Baime report.)

Isaac Unah & John Charles Boger, Race and the Death Penalty in North Carolina: An Empirical Analysis: 1993-1997; Initial Findings - April 16, 2001.

Marian R. Williams & Jefferson E. Holcomb, *Racial Disparity and Death Sentences in Ohio*, 29 J. CRIM. JUST. 207 (2001).

Michael J. Songer & Isaac Unah, The Effect of Race, Gender, and Location on Prosecutorial Decisions to Seek the Death Penalty in South Carolina, 58 S.C. L. REV. 161 (2006).

Scott Phillips, *Racial Disparities in the Capital of Capital Punishment*, 45 HOUS. L. REV. 807 (2008).

Joint Legislative Audit and Review Commission of the Virginia Assembly, Review of Virginia's System of Capital Punishment 19-20 (2000).

Note that this list includes academic papers as well as studies commissioned by various states, including Maryland, Nebraska, New Jersey, and Virginia.[485]

[485] A study examining a sample that included only those defendants who were sentenced to death in Tennessee was excluded because it did not focus on capital charging or death sentencing. The regression analysis in this Tennessee study attempts to explain not who received the death penalty (since the entire sample did), but how many aggravating and mitigating factors were found. Michael B. Blankenship & Kristie R. Blevins, *Inequalities in Capital Punishment in Tennessee Based on Race: An Analytical Study of Aggravating and Mitigating Factors in Death Penalty Cases*, 31 U. MEM. L. REV. 823 (2001).

B. MICHELSON'S REPORT AND CRITICISMS OF MY RESEARCH SHOW HIS MISUNDERSTANDING OF THIS CASE AND HIS LACK OF FAMILIARITY WITH CONTEMPORARY DEATH PENALTY RESEARCH METHODOLOGY.

Michelson levels two particular charges at my report that should be considered in the light of recent death penalty research. First, claiming that a study of the application of the death penalty should focus on judicial procedures rather than outcomes, Michelson argues that I failed to take into account facts about the judicial process as explanatory variables, most notably the presence of plea bargains. In his account, plea bargains should be used as regression controls because whether a defendant accepts a plea bargain helps explain which defendants get the death sentence.[486] I have addressed this argument explicitly above in Section X.E of this report; here I only show that my approach -- not Michelson's -- is the standard in this field of research.

Second, Michelson argues against my approach of looking at who ultimately receives sustained death sentences from among the set of 205 death-eligible cases. Instead, he claims that regressions should focus on specific decision points in the process and should be conditional on what has occurred "upstream" in the process. In particular, he contends that regressions investigating sentencing should be restricted to defendants who arrive at the point of sentencing. This is why he runs his death sentence regressions on a restricted sample.[487] (Again, I have addressed this argument explicitly in Section VI.A.1 of this report.)

Michelson's attachment to running his regressions on a continually dwindling number of cases is either an attempt to rob his regressions of statistical power to thwart findings of racial bias, or reflects Michelson's misunderstanding of this case, which is fundamentally about whether similar cases (defined by the characteristics of the crime, the defendant, and the victim) lead to dissimilar outcomes. Because the goal of this project is to analyze the operation of the

[486] *Id.* at 93-100.
[487] *Id.* app. at B34-42.

Connecticut death penalty system as a whole, my death sentencing regressions compare the set of cases that resulted in death sentences (which were upheld on appeal) with the entire set of capital-eligible cases. In addition, I do not restrict the sample for my second regression (death sentencing outcomes) to some subset of the sample I used for my first regression (capital charging). In other words, I use the full sample to study both the initial charging decision and the final outcome. My goal in this section is simply to illustrate that my approach of using the full sample to study who gets sentenced to death has been overwhelmingly adopted by other researchers facing similar questions.

C. THE DONOHUE REPORT IS CONSISTENT WITH THE METHODOLOGY IN CURRENT DEATH PENALTY STUDIES.

The twelve recent studies are summarized in the following table.

Table 62

Study	Sample	Outcomes	Regressions	Independent variables	Process variables?
Pierce and Radelet, California	All homicides (N=25,648)	Death sentences	Death sentences against all homicides	Victim race, aggravating circumstances, county demographics	No
Pierce and Radelet, Illinois	First-degree murder convictions resulting in a sentence (sentencing events) (N=4,182)	Death sentences	Death sentences against all sentencing events following first-degree murder convictions	Defendant/victim race and sex, facts of crime, prior criminal record, county, aggravating circumstances	No
Paternoster et al., Maryland	Death-eligible homicides (N=1,202)	Capital charge filed; capital charge "stuck" (not withdrawn); penalty trial; death sentence	Death sentence against death-eligible cases; charge filed against death-eligible cases; charge stuck against charge filed; penalty trial against charge stuck; death sentence against penalty trial	Facts of crime; characteristics and criminal record of defendant/victim; strength of evidence (including confession);[488] statutory aggravating factors, geography	No
Lenza et al., Missouri	Capital murder prosecutions (N=551)	Capital murder trial; death sentence	Death sentences against 281 defendants taken forward to a capital murder trial; capital murder trials against prosecutions	Defendant/victim race and sex; defendant age; facts of crime	No
Barnes et al., Missouri	Homicides (resulting in conviction) (N=247[489])	Capital charge filed; capital trial pursued; death sentence	Death sentences against homicides; capital charges filed against homicides; capital trials pursued against capital charges filed; death sentences against capital trials pursued	Defendant/victim race; county; county jury pool demographics	No

[488] Some of the other strength of evidence variables collected might be considered to be process variables, such as the number of eyewitnesses who testified at the trial; however, these variables were not included in any of the main regressions.

[489] These 247 observations are a sample from a population of 1,046 cases.

Study	Sample	Outcomes	Regressions	Independent variables	Process variables?
Baldus et al., Nebraska	Death-eligible homicides (N=185)	Penalty trial; death sentence[490]	Death sentences against death-eligible homicides; penalty trials against death-eligible homicides; death sentences against penalty trials	Defendant characteristics; victim characteristics; facts of crime; statutory aggravators and mitigators; county demographics; guilty plea (used only in sentencing regression)	Yes (guilty plea only)
Baime/Weisburd, and Naus, New Jersey	Death-eligible cases (N=555)	Penalty trial; death sentence	Death sentences against death-eligible cases; penalty trials against death-eligible cases; death sentences against penalty trials	Defendant and victim race; statutory aggravators and mitigators; facts of crime; prior criminal record[491]	No
Unah and Boger, North Carolina	Murder cases (N=451[492])	Death sentence	Death sentences against murders; death sentences against death-eligible cases; death sentences against cases where prosecutor sought the death sentence; death sentences against penalty phases; death sentences against cases that went to trial	Defendant/victim characteristics; facts of crime; statutory aggravators and mitigators; prior criminal record; political variables (DA's party and time to election)	No
Williams and Holcomb, Ohio	Homicides (N=5,319)	Death sentence	Death sentences against homicides; death sentences against homicides with felony circumstances	Defendant/victim characteristics; facts of crime; geographic demographics	No
Songer and Unah, South Carolina	Homicides (N=2,227)	Decision to seek death sentence	Decisions to seek death sentence against homicides	Defendant/victim characteristics; facts of crime; district demographics; political variables	No

[490] The report by David Baldus et al., Arbitrariness and Discrimination in the Administration of the Death Penalty: A Legal and Empirical Analysis of the Nebraska Experience (1973-1999), 81 Neb. L. Rev. 486 (2002) primarily looks at the outcomes of penalty trials and death sentences, but at one point this study also looks at the decision to waive the death sentence by the prosecution.

[491] Weisburd and Naus does not fully document the full list of independent variables is (in the regression output they are referred to only by variable names), but there is no evidence of any process variables.

[492] The 451 observations are a sample representing 3,990 cases.

Study	Sample	Outcomes	Regressions	Independent variables	Process variables?
Phillips, Texas	Capital murder indictments by grand jury (N=504)	Decision to seek death sentence by DA; death sentence	Decisions to seek death sentence against indictments; death sentences against indictments	Defendant/victim characteristics; facts of crime; prior criminal record; heinousness (researcher-coded); type of attorney	Yes (type of attorney only)
Virginia	Death-eligible cases (N=159[493])	Capital murder indictment; prosecutor sought death sentence	Capital murder indictments against death-eligible cases; cases where prosecutor sought death sentence against death-eligible cases	Defendant/victim race; victim characteristics; facts of crime; strength of evidence; population density	No

Two facts are evident from this review. First, eleven out of twelve studies contain a regression of the end outcome (usually, imposition of the death sentence) against the full sample.[494] This is precisely the regression that Michelson says that I should not have done

[493] The 159 observations are a sample representing 215 death-eligible cases.

[494] The one exception is the Lenza et al. study of Missouri, which examined death sentencing among the 281 defendants taken forward to a capital murder trial to face the death penalty. Of course, this study had many more observations than are available in the Connecticut death penalty dataset so it is reasonable to run regressions on this final stage (in contrast to Michelson's regressions which have both too few observations and too many explanatory variables to have adequate statistical power). Moreover, the Lenza et al study also used a logistic regression analysis and states that "Keeping the same independent variables throughout the analysis, each stage had a different dichotomous dependent variable" (Lenza et al. 153). In other words, this study followed my approach both in using logistic regression and in using the same independent variables to look at both capital charging and sentencing, which Michelson (incorrectly) criticized. Moreover, the results of this study of the Missouri death penalty system -- which noted that "blacks who kill whites are five times more likely to be charged with capital murder than are blacks who kill blacks" (Lenza et al. 158) -- are similar in broad outline to some of the major results in my report concerning Connecticut:

> The majority opinions in Gregg assured Americans that "arbitrary and capricious" sentencing was an element of the racist past and that if the provisions in Gregg were followed by lawmakers and practiced by the courts, fair and equitable treatment was possible in the overwhelming majority of cases. This article will argue that the procedural remedies in Gregg have failed to rectify those inequities and that in the instance of the State of Missouri, arbitrary nd capricious sentences of death have proceeded in numbers that are exceptional in proportion to its population (Radelet, 1998). This analysis of one state's resumption of capital sentencing over an 18-year period (1978 to 1996) will demonstrate that defendants in capital trials did not receive equal protection under the law and that their fates are still subject to extralegal elements that constitute arbitrariness and capriciousness in Missouri....
>
> Furthermore, this analysis will support a view that Missouri's death penalty has changed very little in its essential character from *pre-Furman* conditions, in that executions continue to be symbolic events with a racist character similar to the legal conditions prevailing in that state before the Civil Rights Movement. Such a system of institutional racism reserves its harshest sanctions for offenders with white victims while

(sentencing outcomes against all cases), and it is the regression that Michelson does not do in his Part D.6, where he only compares death sentences to a limited subset of cases. Leaving aside the theoretical arguments made before, it is clear that mine is the standard approach conforms in empirical death penalty studies. This of course makes perfect sense, because the single most important issue is, when looked at as a whole and considering all of the elements where discretion is exercised by prosecutors, judges, and juries, is the death sentence being meted out in a way that reveals racial, geographic, or other illegitimate bias within the Connecticut death penalty system. This is the only regression that can answer that question.

Of course, there is certainly nothing wrong with doing "point-to-point" regressions (for example, analyzing who receives a death sentence using a sample of defendants who faced penalty trials) if one has enough observations to generate meaningful results and one understands what these point-to-point regressions are revealing. When these two pre-conditions are met, such estimates can provide important information about *where* in the system the most problematic behavior occurs. But while Michelson shuns the overall estimates and relies exclusively on the point-to-point approach, he fails to appreciate that neither of the conditions needed to generate useful results are present for the Connecticut death penalty system. Note that ten of the twelve studies summarized in Table 62 had far more observations to work with. Only two studies—Nebraska and Virginia—had fewer data points available than I did, and of those only the Nebraska study included a regression on a reduced sample.

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unscrupulously waiving the heaviest penalties (e.g., death or life without parole) when the victim is nonwhite. (Michael Lenza, David Keys, and Teresa Guess, "The Prevailing Injustices in the Application of the Missouri Death Penalty (1978 to 1996)," Social Justice 32 (2005): 151–166, at 151- 152.

But note that the authors of the Nebraska study explicitly noted that they "first developed a logistic regression model of death sentences imposed among all death-eligible cases," which is exactly the approach that I took (and that Michelson failed to adopt, shunning both the preferred logistic regression approach as well as the overall regression).[495] The authors of the Nebraska study then went on to note, correctly, that "the regression coefficients estimated in this [overall] analysis reflect the combined impact of all decisions taken by prosecutors and sentencing judges."[496] Therefore, the fact that the authors of the Nebraska study chose to include these regressions does not invalidate their "beginning-to-end" regressions, as Michelson would have it; the "point-to-point" regressions simply answer different questions.

Second, eleven of the twelve studies do *not* include a control for plea bargaining, which I contend is an intermediate variable and therefore not an appropriate control. Michelson points out that the Baldus study of Nebraska does use plea bargains as an explanatory variable (although overlooking that this study uses the overall logistic regression that I use and Michelson calls incompetent).[497] However, he fails to point out that eleven of the twelve studies that do *not* use plea bargains as an explanatory variable. Once again, by *not* including process variables, my approach conforms to the vast majority of recent death penalty studies (as well as modern best practice in econometrics).[498]

This brief overview should demonstrate that the overall approach I took in my initial report of (1) regressing sentencing outcomes against all capital-eligible cases, and (2) excluding intermediate outcomes such as plea bargains, is the overwhelmingly dominant approach to

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[495] David Baldus et al., Arbitrariness and Discrimination in the Administration of the Death Penalty: A Legal and Empirical Analysis of the Nebraska Experience (1973-1999), 81 Neb. L. Rev. 486, 535 (2002).
[496] *Id.*
[497] MICHELSON REPORT, AUGUST 20, 2010, at 93.
[498] The Texas study is the only other study that contains any variables that reflect the operation of the judicial process, by controlling for the type of attorney (retained or appointed). The study does *not* control for guilty pleas.

studying the application of the death penalty. When evaluating my report in light of prevailing norms of scholarship, this Court can rest assured that my methodological choices on these issues in my analysis of the Connecticut death penalty both conform to the best practice in modern econometrics and are the prevailing ones in modern death penalty research. In contrast, the Michelson Report relies on methodologies that are difficult to defend from a theoretical perspective and that are out of the academic mainstream.

XII. DATA PRODUCTION

Appendix A of the Michelson Report, "Petitioners' Data Production," discusses, among other things, the history of data production by petitioners in this case. As such, it has no bearing on the substantive issues that Michelson and I were engaged to explore. In Appendix A, however, Michelson puts forth various fantastic theories regarding my behavior and my motivations, going so far as to accuse me of lying in my testimony.[499] As a result, I believe it worthwhile to clarify a few factual issues and dispel any confusion caused by Michelson's elaborate fantasies.

Much of Appendix A is based on Michelson's homespun theory of the rules of civil procedure and their implications for discovery. As I am an expert witness in this case, and not an attorney for the petitioners, I will not waste the Court's time discussing matters of discovery law. However, I will address some of the specific charges asserted by Michelson. Although they are well disguised by a host of extraneous issues (such as an unrelated criticism of my usage of "special aggravating features of the offense" variables,[500] and even Michelson's opinion about the

[499] For example: "Petitioners—their representatives—told a false story to the Special Master. As did John Donohue. I think that is unacceptable behavior. Donohue was under oath to tell the truth." MICHELSON REPORT, AUGUST 20, 2010 at App. A 36.
[500] *Id.* at App. A 29-34.

recent financial crisis[501]), the principal charges are as follows. First, Michelson incorrectly alleges that I sought to hide twenty four observations from respondents. Second, Michelson wildly and falsely alleges that I "intended to use" all of the data from the DCIs but later tried to cover this up. Finally, Michelson inexplicably and again falsely writes that I was unable to correct the DCI data and also tried to cover this up. I treat each of these accusations in turn below.

A. I DID NOT HIDE ANY OBSERVATIONS; IN FACT, I EXPLAINED THE DIFFERENCES IN MY REPORT BETWEEN THE SETS OF 207 AND OF 231.

The coding project for this case initially produced 231 DCIs. As I explained in detail above (Section VI.A.3), when I received the data in late 2007, however, I only received 213 "unscrubbed" case summaries. These summaries were essential for coding egregiousness, because I needed a narrative description of each case to show my coders. Because the egregiousness variables were a central element of my analysis, there was no point in using a case for which I did not have a case summary.

While this is all irrelevant now since I have since received the additional summaries, which have been coded for egregiousness and analyzed throughout this report, Michelson makes all sorts of outrageous and inaccurate allegations about these cases. Michelson claims to discern a conscious and devious conspiracy behind this: "What petitioners were fighting was disclosing . . . the missing 24 observations. . . . [P]etitioners had hidden 24 observations, because they did not 'use' them."[502] Later, he writes, "Every case should have had an unscrubbed summary, which

[501] *Id.*, at App. A 24 n. 48.
[502] *Id.*, at App. A 4. My initial report analyzed 207 cases, and the difference between 231 and 207 is where Michelson comes up with the (incorrect) idea that there were 24 missing cases. In fact, there were 18 missing summaries, which brought me down to 213 cases. I dropped six of these cases for various reasons related to proper design methodology and legal correctness in case selection (specifically, these were related to consolidation of the Michael Ross cases, duplicate cases for the same defendant and crime, and one case that was never death-eligible). This left 207 cases in my initial report, and this is why my original dataset had data for only 207 cases.

was produced by the case coder, presumably concurrently with coding. All but three DCIs had a scrubbed summary, which raises the question why Donohue dropped 24 cases."[503] In a footnote, he speculates, "I think [Donohue] lost access to at least one 'egregiousness' coder, which meant that he could not produce consistent codes for the remaining cases."[504] These are absurd and groundless speculations. I never lost access to any coder. Every case was coded by all the coders. All of this speculation on Michelson's part is unnecessary. The simple explanation is that I received the missing unscrubbed summaries too late to be coded and analyzed in time for my initial report. Since receiving the missing summaries, I have in fact coded those cases for egregiousness (using the original coders), and include them in this Report.

B. I NEVER COULD HAVE INTENDED TO USE ALL THE DCI DATA; MY UNDERSTANDING OF THE DEATH PENALTY AND CRIMINAL JUSTICE SYSTEM MOTIVATED MY VARIABLE SELECTION.

The DCIs produced in the original coding project include several hundred variables. Using all of the DCI variables in an analysis of only two hundred-odd data points would be statistical nonsense,[505] so I knew from the outset that I would be able to use *at most* a small subset of those variables, as has been discussed in Sections VI and X.C.

Prior to receiving the actual data, I knew what variables I would certainly be using: for example, variables for defendant and victim race, and various outcome measures, such as capital charging and sentencing. I also knew that many of the DCI variables would not be usable, because they were only captured for a small subset of cases.[506] However, I had not definitively chosen a model specification, because I knew that it would depend in part on the data I received. Still, since I would be using some DCI variables—that was my data source—the raw DCIs were

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[503] *Id.*, at App. A 10.
[504] *Id.*, at App. A 10 n. 23.
[505] The number of data points should be significantly larger than the number of explanatory variables; how much larger is explained in Section X.C of this report.
[506] For example, certain variables were only captured for cases that proceeded to a penalty phase trial.

sent to Dataprep for entry into machine-readable format, as they had been during the Phase 1 version of the project (years before I became involved with this case). At this point, not knowing exactly which variables I would have complete data on and from which sections of the DCI, the obvious and *standard* choice was to have Dataprep process all of the DCI variables.

After receiving the data files from Dataprep in late 2007, I realized that there were errors in the data, and I asked one of my research assistants to look into fixing those errors. At the same time, I made my final decisions about what regression specifications to use in my analysis. In those decisions, I was guided both by my understanding of the questions to be answered and by my assessment of the data available to me. Based on my years of experience with regression models of criminal justice issues in general and the death penalty in particular, I determined what specification would be most theoretically appropriate in light of the available data. Once I knew which variables I would use in my analysis—as expected, a small subset of the DCI variables—my research assistants and I focused solely on those variables, rather than expend further effort in cleaning up and validating the remaining DCI variables that I had consciously decided not to use.

This is a very straightforward and boring story, yet Michelson attempts to transform it into a sordid conspiracy. For example:

> Donohue's assertion that he had decided early on not to use these variables cannot be believed. He 'considered' those other variables. He did more than key enter them. He instructed his staff to recalculate, recode and rename them. The truth is, he would have used those variables if he could have. They were not used because of his lack of competence, not because of his lack of intent.[507]

Michelson's claim is sheer fantasy. I decided on my final specification after receiving the DCI data, extracted the subset that I needed, and did all of my subsequent work with that subset. This

[507] MICHELSON REPORT, AUGSUST 20, 2010 at App. A 12.

is why the full DCI database was never completely scrubbed and validated. Any variable that I wanted to use, I used -- and have done so with a considerably higher degree of care and accuracy than Michelson has demonstrated in his endless array of repeatedly withdrawn reports. What Michelson fails to mention is that that there was not a single error in my report resulting from any data alignment issue. All of the so-called "errors" he alleges were corrected by my team, and the corrections are visible *in the files that I produced to him*.

When Michelson crosses over into pure speculation, the absurdity of his position becomes evident. He says, "[Donohue] would have used those variables if he could have." Taken at face value, Michelson's statement maintains that I would have used all 600+ DCI variables in my analysis if I could have, which is patently ridiculous. A study of 205 cases could not possibly use anything approaching even 205 variables, as I explained in detail in Section X.C above. With a data set of this size, I was thinking in terms of needing around 20 variables, certainly not 600+ variables. The other interpretation of Michelson's statement—the only sensible one—is that I would have used some subset of the DCI variables. But that is exactly what I did. I fail to see how anything I did in this is even remotely controversial.

For Michelson, the fact that Dataprep was asked to key-enter all of the DCI variables -- as they had done years earlier in the first phase of data collection -- is a veritable smoking gun. Michelson trumpets the fact that I did not tell Dataprep *not* to key-enter the variables that I did not end up using in my analysis, concluding that "the story told to the court was a fabrication."[508] I would invite the Court to reflect on the integrity and reliability of an expert such as Michelson who could so recklessly and inaccurately make this false statement. Anyone who works with data knows that key coding your data is cheap, and it helps avoid errors if all data is coded rather than asking low-paid coders to pick and choose what to be coded. If I had selected only the

[508] *Id.*, at App. A 25-27.

variables I ultimately used prior to Dataprep's key entry, I would have risked the possibility that I would realize I had missed something I wanted, thus requiring a return to Dataprep for additional work. I recall that the entire Dataprep coding cost something in the neighborhood of $2000—a few hours of my time at my normal hourly billing rate. But if I had to go through the DCI's and tell the coders which variables to select, it would have taken me hours to specify that and more time to explain to the coders what to take and what not to take. Moreover, jumping around the DCI instead of methodically capturing all the data might have raised the chance of greater data entry errors. This would have been costly, inefficient, and complicated when instead I chose the least expensive, most efficient, and simplest approach: key enter all the Phase 2 data and then make the final selection of the variables to be used, when I could see which variables have too many missing values to use, etc. As I said in my deposition on December 4, 2008, it was simpler to ask Dataprep to process the entire DCIs. This had the benefit of consistency, because it would ensure that all of the data that had previously been coded in Phase 1 years before I joined the project would also be available from Phase 2.

The simple truth is that I looked at the DCIs, got the data I needed, worked to clean up those variables, and ignored the rest. Michelson's story of a sinister cover-up—like so much in his curious report—is deliberately confusing fiction.

XIII. CONCLUSION

The Connecticut Supreme Court has ruled that, facially, the structure of the Connecticut death penalty regime comports with federal and state constitutional standards.[509] These decisions do not address whether, looking beyond the scheme's legislature structure, its implementation violates the principles that have been enumerated in numerous federal and state

[509] *State v. Cobb*, 663 A.2d 948, 954 n.10 (Conn. 1995); *State v. Webb*, 680 A.2d 147 (Conn. 1996).

court decisions. The current litigation has raised the question of whether the death penalty as applied in Connecticut has led to arbitrary, capricious, or racially disparate outcomes.

This report furnishes substantial and compelling evidence that indicts the Connecticut death penalty system on these grounds. Despite all the elaborate processes and procedures designed to eliminate arbitrariness in the infliction of the ultimate sanction, the Connecticut death penalty regime still is marred by the defects that prompted *Furman*. At 4.4 percent (less than on third of the rate deemed unacceptable in *Furman*), *Connecticut* has one of the lowest rates in the country of selecting for execution from the class of death-eligible murders, yet it fails to conduct this narrowing in a way that limits the death penalty to the "worst of the worst" crimes. There is no way to distinguish the few that are singled out for death from the many death-eligible defendants that receive lesser sentences. Some judicial districts in the state punish identical crimes drastically differently from those in other parts of the state. The defendant's and victim's races play a crucial role in deciding who is charged with a capital felony and who receives a death sentence.

The pattern of arbitrary, capricious, and discriminatory decisions is not surprising to those who understand how Connecticut's death penalty works. Leaving so much discretion in the hands of thirteen different State's Attorneys invites this arbitrariness. In one judicial district a prosecutor can seek a death sentence for any case construed to fit within the contours of Connecticut's capital sentencing statute. Elsewhere, prosecutors believe that the death penalty should truly be limited—as the U.S. Supreme Court has instructed—to the "worst of the worst" murder cases. Still other Connecticut prosecutors no doubt feel considerable ambivalence about the death penalty in light of the increasing evidence concerning its lack of deterrent benefit, high cost of imposition, the frequency of errors in murder convictions across the nation (as well as in

Connecticut, just in the recent past), the ever-present concerns of racial discrimination, and the fact of its infrequent application. The end result is that identical murders within Connecticut will be treated very differently depending on illegitimate factors, such as race or judicial district.

Of course, the legislature initially made an effort to control the arbitrary implementation of the death penalty through proportionality review, but that device was narrow in scope and ultimately repealed. Nothing in Connecticut's current death penalty system examines whether similar crimes are treated in similar fashion—from charging decision to sentencing. There is no ongoing means to determine whether these decisions are marred by discriminatory or arbitrary patterns of capital sentencing. Indeed, since Connecticut doesn't even collect—let alone analyze—this information, the State has not been in a position to address these problems. The findings of this report -- substantiated in so many ways by the oddly contentious report of the State's expert -- that the Connecticut death penalty system has been marred by racial and geographic discrimination and arbitrary and capricious decisionmaking will hopefully provide a useful factual basis for addressing these serious concerns.

APPENDIX A: THE EVOLVING CONNECTICUT DEATH PENALTY LAW

Substantive Revisions in Connecticut Death Penalty Statue, 1973-Present

Part I of this appendix highlights the various changes in the substance and statutory language of Connecticut's Death Penalty Statute from the statute's enactment in 1973 to the present. Part II highlights the post-1993 amendments in the statute's aggravating and mitigating factors.

Part I

Five categories of murder have *always* been death eligible under the Connecticut Statute, C.G.S.A. § 53a-54b. They are, summarily:

The murder of a police officer, judicial marshal, firefighter, corrections officer, or other law enforcement officer in the performance of his or her duties. There have been some minor changes to this subsection in various amendments, which we note below.[510] (*See Subsection 1*)
Murder committed for pecuniary gain, where either the defendant committed the murder or hired someone else to commit the murder. (*See Subsection 2*)
Murder committed by a defendant with a prior conviction for either intentional murder or felony murder. (*See Subsection 3*)
Murder committed by a defendant who was under a sentence of life imprisonment at the time of the murder. (*See Subsection 4*)
Murder committed by a kidnapper of a kidnapped person during the course of the kidnapping. (*See Subsection 5*)

A number of amendments to C.S.G.A. § 53a-54b have changed the scope of death-eligibility in Connecticut. The following summarizes the different versions of the statute, beginning with the original in 1973. Each section provides a complete version of the statute as it existed during that time period. Changes that occurred at the beginning of each time period are referenced by highlighting the date of their enactment.

1973 (original statute)-July 6, 1977:
Subsection 1—The original statute made the murder of a "county detective" a capital felony, which differs from the current statute (as amended on July 6, 1977) which replaced "county detective" with "chief inspector or inspector in the division of criminal justice."
Subsection 6—In addition to the above, the original statute contained a subsection 6, which made the following a capital felony:

[510] Subsection 1 of each version of the statute makes reference to §29-18, "Special Policemen for State Property," which reads: "The Commissioner of Public Safety may appoint one or more persons nominated by the administrative authority of any state buildings or lands including, but not limited to, state owned and managed housing facilities, to act as special policemen in such buildings and upon such lands. Each such special policeman shall be sworn and may arrest and present before a competent authority any person for any offense committed within his precinct."

“the illegal sale, for gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone, provided that such seller was not, at the time of such sale, a drug dependent person.”
The statute in its entirety during this time period read as follows:
A person is guilty of a capital felony who is convicted of any of the following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a county detective, a sheriff or deputy sheriff, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-18 , an official of the Department of Correction authorized by the Commissioner of Correction to make arrests in a correctional institution or facility and the actor is confined in such institution or facility, or any fireman, while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit the same for pecuniary gain; (3) murder committed by one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) the illegal sale, for gain, of cocaine, heroin or methadone to a person who dies as a direct result of the use by him of such cocaine, heroin or methadone, provided that such seller was not, at the time of such sale, a drug dependent person.
July 6, 1977- October 1, 1980:
Subsection 1—As noted above, on July 6, 1977 it became a capital felony under subsection 1 to murder a “chief inspector or inspector in the division of criminal justice,” which replaced the term “county detective.”
Subsection 6—Remains in the statute exactly as it was in the original statute, making the following a capital felony:
“the illegal sale, for gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone, provided that such seller was not, at the time of such sale, a drug dependent person.”
The statute in its entirety during this time period read as follows:
A person is guilty of a capital felony who is convicted of any of the
following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a chief inspector or inspector in the Division of Criminal Justice, a sheriff or deputy sheriff, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-18 , an official of the Department of Correction authorized by the Commissioner of Correction to make arrests in a correctional institution or facility and the actor is confined in such institution or facility, or any fireman, while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit the same for pecuniary gain; (3) murder committed by one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) the illegal sale, for gain, of cocaine, heroin or methadone to a person who dies as a

direct result of the use by him of such cocaine, heroin or methadone, provided that such seller was not, at the time of such sale, a drug dependent person.
October 1, 1980-October 1, 1985:
Subsection 1—As noted above, in 1977 it became a capital felony under subsection 1 to murder a "chief inspector or inspector in the division of criminal justice," which replaced the term "county detective."
Subsection 6—Remains exactly as it was in the original statute, making the following a capital felony:
"the illegal sale, for gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone, provided that such seller was not, at the time of such sale, a drug dependent person."
Subsection 7— Subsection 7 took effect on October 1, 1980. It makes the following a capital felony:
"murder committed in the course of the commission of sexual assault in the first degree."
Subsection 8— Subsection 8 took effect on October 1, 1980, making the following a capital felony:
"murder of two or more persons at the same time or in the course of a single transaction."
The statute in its entirety during this time period read as follows:
A person is guilty of a capital felony who is convicted of any of the following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a chief inspector or inspector in the Division of Criminal Justice, a sheriff or deputy sheriff, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-18 , an official of the Department of Correction authorized by the Commissioner of Correction to make arrests in a correctional institution or facility and the actor is confined in such institution or facility, or any fireman, while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit the same for pecuniary gain; (3) murder committed by one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) the illegal sale, for gain, of cocaine, heroin or methadone to a person who dies as a direct result of the use by him of such cocaine, heroin or methadone, provided that such seller was not, at the time of such sale, a drug dependent person (7) murder committed in the course of the commission of sexual assault in the first degree; (8) murder of two or more persons at the same time or in the course of a single transaction.
October 1, 1985-October 1, 1995:
Subsection 1—As noted above, in 1977 it became a capital felony under subsection 1 to murder a "chief inspector or inspector in the division of criminal justice," which replaced the term "county detective."
Subsection 6— Two changes to subsection 6 took effect on October 1, 1985. The changes added the word "economic" before the word "gain," and deleted the provision, "provided that such seller was not, at the time of such sale, a drug-dependent person," so that the subsection read:

“the illegal sale, for economic gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone.”
Subsection 7—Subsection 7 took effect on October 1, 1980. It makes the following a capital felony:
“murder committed in the course of the commission of sexual assault in the first degree.”
Subsection 8—Subsection 8 also took effect on October 1, 1980, making the following a capital felony:
“murder of two or more persons at the same time or in the course of a single transaction.”
Note: Another amendment took effect on October 1, 1992, but made only technical, and no substantive changes to the statute. Therefore, these changes did not affect the coding of case summaries.
The statute in its entirety during this time period read as follows:
A person is guilty of a capital felony who is convicted of any of the
following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a chief inspector or inspector in the Division of Criminal Justice, a sheriff or deputy sheriff, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-18 , an official of the Department of Correction authorized by the Commissioner of Correction to make arrests in a correctional institution or facility and the actor is confined in such institution or facility, or any fireman, while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit the same for pecuniary gain; (3) murder committed by one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) the illegal sale, for economic gain, of cocaine, heroin or methadone to a person who dies as a direct result of the use by him of such cocaine, heroin or methadone (7) murder committed in the course of the commission of sexual assault in the first degree; (8) murder of two or more persons at the same time or in the course of a single transaction.
October 1, 1995-October 1, 1998:
Subsection 1—As noted above, in 1977 it became a capital felony under subsection 1 to murder a “chief inspector or inspector in the division of criminal justice,” which replaced the term “county detective.”
Subsection 6—two changes to subsection 6 took effect on October 1, 1985. The changes added the word “economic” before the word “gain,” and deleted the provision, “provided that such seller was not, at the time of such sale, a drug-dependent person,” so that the subsection read:
“the illegal sale, for economic gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone.”
Subsection 7—Subsection 7 took effect on October 1, 1980. It makes the following a capital felony:
“murder committed in the course of the commission of sexual assault in the first degree.”
Subsection 8—Subsection 8 also took effect on October 1, 1980, making the following a capital felony:
“murder of two or more persons at the same time or in the course of a single transaction.”

Subsection 9— Subsection 9 took effect on October 1, 1995. It made the following a capital felony—
"murder of a person under sixteen years of age."
The statute in its entirety during this time period read as follows:
A person is guilty of a capital felony who is convicted of any of the following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a chief inspector or inspector in the Division of Criminal Justice, a sheriff or deputy sheriff, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-18 , an official of the Department of Correction authorized by the Commissioner of Correction to make arrests in a correctional institution or facility and the actor is confined in such institution or facility, or any fireman, while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit the same for pecuniary gain; (3) murder committed by one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) the illegal sale, for economic gain, of cocaine, heroin or methadone to a person who dies as a direct result of the use by him of such cocaine, heroin or methadone (7) murder committed in the course of the commission of sexual assault in the first degree; (8) murder of two or more persons at the same time or in the course of a single transaction; or (9) murder of a person under sixteen years of age.
October 1, 1998—December 1, 2000:
Subsection 1— Subsection 1 was broadened on October 1, 1998 when it made it a capital felony to murder "an employee of the Department of Correction or a person providing services on behalf of said department when such employee or person is acting within the scope of his employment or duties in a correctional institution or facility and the actor is confined in such institution or facility." This replaced the language which made it a capital felony to murder "an official of the Department of Correction authorized by the Commissioner of Correction to make arrests in a correctional institution or facility."
Subsection 6—Two changes to subsection 6 took effect on October 1, 1985. The changes added the word "economic" before the word "gain," and deleted the provision, "provided that such seller was not, at the time of such sale, a drug-dependent person," so that the subsection read: "the illegal sale, for economic gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone."
Subsection 7—Subsection 7 took effect on October 1, 1980. It makes the following a capital felony:
"murder committed in the course of the commission of sexual assault in the first degree."
Subsection 8—Subsection 8 also took effect on October 1, 1980, making the following a capital felony:
"murder of two or more persons at the same time or in the course of a single transaction."
Subsection 9—Subsection 9 took effect on October 1, 1995. It made the following a capital felony—
"murder of a person under sixteen years of age."
The statute in its entirety during this time period read as follows:

A person is guilty of a capital felony who is convicted of any of the following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a chief inspector or inspector in the Division of Criminal Justice, a sheriff or deputy sheriff, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-18 , an employee of the Department of Correction or a person providing services on behalf of said department when such employee or person is acting within the scope of such employee's or person's employment or duties in a correctional institution or facility and the actor is confined in such institution or facility, or any fireman, while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit the same for pecuniary gain; (3) murder committed by one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) the illegal sale, for economic gain, of cocaine, heroin or methadone to a person who dies as a direct result of the use by him of such cocaine, heroin or methadone (7) murder committed in the course of the commission of sexual assault in the first degree; (8) murder of two or more persons at the same time or in the course of a single transaction; or (9) murder of a person under sixteen years of age.

December 1, 2000-July 1, 2001:

Subsection 1— Subsection 1 was broadened on December 1, 2000, making it a capital felony to murder a "state marshal who is exercising authority granted under any provision of the general statutes, a judicial marshal in performance of the duties of a judicial marshal." This replaced the narrower, "sheriff or deputy sheriff."

Subsection 6—Two changes to subsection 6 took effect on October 1, 1985. The changes added the word "economic" before the word "gain," and deleted the provision, "provided that such seller was not, at the time of such sale, a drug-dependent person," so that the subsection read: "the illegal sale, for economic gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone."

Subsection 7—Subsection 7 took effect on October 1, 1980. It makes the following a capital felony:

"murder committed in the course of the commission of sexual assault in the first degree."

Subsection 8—Subsection 8 also took effect on October 1, 1980, making the following a capital felony:

"murder of two or more persons at the same time or in the course of a single transaction."

Subsection 9—Subsection 9 took effect on October 1, 1995. It made the following a capital felony—

"murder of a person under sixteen years of age."

The statute in its entirety during this time period read as follows:

A person is guilty of a capital felony who is convicted of any of the following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a chief inspector or inspector in the Division of Criminal Justice, a state marshal who is exercising authority granted under any provision of the general statutes, a judicial marshal in performance of the duties of a judicial marshal, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-

18 , an employee of the Department of Correction or a person providing services on behalf of said department when such employee or person is acting within the scope of such employee's or person's employment or duties in a correctional institution or facility and
the actor is confined in such institution or facility, or any fireman,
while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit the same for pecuniary gain; (3) murder committed by one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) the illegal sale, for economic gain, of cocaine, heroin or methadone to a person who dies as a direct result of the use by him of such cocaine, heroin or methadone (7) murder committed in the course of the commission of sexual assault in the first degree; (8) murder of two or more persons at the same time or in the course
of a single transaction; or (9) murder of a person under sixteen years of age.
July 1, 2001-Present:
Subsection 1— Subsection 1 was further amended and expanded on July 1, 2001, when it was made a capital felony to murder "a conservation officer or special conservation officer appointed by the Commissioner of Environmental Protection under the provisions of section 26-5."
Subsection 6— Subsection 6 was **DELETED** on July 1, 2001. Thus, in the present statute, the "illegal sale, for economic gain, of cocaine, heroin, or methadone, to a person who died as a direct result of the use by him of such cocaine, heroin or methadone" is NO LONGER a capital felony.
Subsections 7, 8, and 9 were renumbered as subsections 6, 7, and 8.
Subsection 6—makes the following a capital felony:
"murder committed in the course of the commission of sexual assault in the first degree."
Subsection 7—makes the following a capital felony:
"murder of two or more persons at the same time or in the course of a single transaction."
Subsection 8—makes the following a capital felony:
"murder of a person under sixteen years of age."
The current statute reads as follows:
A person is guilty of a capital felony who is convicted of any of the following: (1) Murder of a member of the Division of State Police within the Department of Public Safety or of any local police department, a chief inspector or inspector in the Division of Criminal Justice, a state marshal who is exercising authority granted under any provision of the general statutes, a judicial marshal in performance of the duties of a judicial marshal, a constable who performs criminal law enforcement duties, a special policeman appointed under section 29-18, a conservation officer or special conservation officer appointed by the Commissioner of Environmental Protection under the provisions of section 26-5, an employee of the Department of Correction or a person providing services on behalf of said department when such employee or person is acting within the scope of such employee's or person's employment or duties in a correctional institution or facility and the actor is confined in such institution or facility, or any firefighter, while such victim was acting within the scope of such victim's duties; (2) murder committed by a defendant who is hired to commit the same for pecuniary gain or murder committed by one who is hired by the defendant to commit thesame for pecuniary gain; (3) murder committed by

one who has previously been convicted of intentional murder or of murder committed in the course of commission of a felony; (4) murder committed by one who was, at the time of commission of the murder, under sentence of life imprisonment; (5) murder by a kidnapper of a kidnapped person during the course of the kidnapping or before such person is able to return or be returned to safety; (6) murder committed in the course of the commission of sexual assault in the first
degree; (7) murder of two or more persons at the same time or in the course of a single transaction; or (8) murder of a person under sixteen years of age.

Part II

In 1995, the statutory requirements for imposing the death penalty in Connecticut changed drastically. Prior to the amendment that initiated this change, Connecticut General Statute §53a-46a provided several factors—called mitigating factors—which, if found to be existent, prohibited the imposition of the death penalty:

> The court shall not impose the sentence of death on the defendant if the jury or, if there is no jury, the court finds by a special verdict . . . that any mitigating factor exists. The mitigating factors to be considered concerning the defendant shall include, but are not limited to, the following: That at the time of the offense (1) he was under the age of eighteen or (2) his mental capacity was significantly impaired or his ability to conform his conduct to the requirements of law was significantly impaired but not so impaired in either case as to constitute a defense to prosecution or (3) he was under unusual and substantial duress, although not such duress as to constitute a defense to prosecution or (4) he was criminally liable under sections 53a-8, 53a-9 and 53a-10 for the offense, which was committed by another, but his participation in such offense was relatively minor, although not so minor as to constitute a defense to prosecution or (5) he could not reasonably have foreseen that his conduct in the course of commission of the offense of which he was convicted would cause, or would create a grave risk of causing, death to another person. Conn. Gen. Stat. § 53a-46a(g) (1993) (now, in amended form, § 53a-46a(h)).[511]

Under the pre-1995 version of the statute, a finding of any mitigating factor prevented a defendant from receiving the death penalty. A defendant could only receive the death penalty if the court or jury found no mitigating factor and at least one of the following six aggravating factors:

1. the defendant committed the offense during the commission or attempted commission of, or during the immediate flight from the commission or attempted commission of, a felony and he had previously been convicted of the same felony; or (2) the defendant committed the offense after having been convicted of two or more state offenses or two or more federal offenses or of one or more state

[511] Conn. Gen. Stat. §§ 53a-8-10 address criminal liability for the acts of another.

> offenses and one or more federal offenses for each of which a penalty of more than one year imprisonment may be imposed, which offenses were committed on different occasions and which involved the infliction of serious bodily injury upon another person; or (3) the defendant committed the offense and in such commission knowingly created a grave risk of death to another person in addition to the victim of the offense; or (4) the defendant committed the offense in an especially heinous, cruel or depraved manner; or (5) the defendant procured the commission of the offense by payment, or promise of payment, of anything of pecuniary value; or (6) the defendant committed the offense as consideration for the receipt, or in expectation of the receipt, of anything of pecuniary value.

In 1993, the statute was amended to make an offense committed with an assault weapon an aggravating factor, the seventh such factor under the statute. P.A. 93-306, § 12. Once the court found that any of the aforementioned aggravating factors existed, it was required to impose the death penalty unless a mitigating factor was found.

In 1995, the Connecticut legislature enacted P.A.95-19, "An Act Concerning the Death Penalty." P.A. 95-19 instructed judges and courts to consider three categories of factors when determining whether to impose a death sentence: factors that automatically prohibit the imposition of the death penalty, mitigating factors, and aggravating factors. The revised statute provided four factors that, if found to be in existence, prohibited the death penalty. These factors were four of the five mitigating factors under the pre-1995 version of the statute:

> [T]hat at the time of the offense (1) [the defendant] was under the age of eighteen or (2) his mental capacity was significantly impaired or his ability to conform his conduct to the requirements of law was significantly impaired but not so impaired in either case as to constitute a defense to prosecution or (3) he was criminally liable under sections 53a-8, 53a-9 and 53a-10 for the offense, which was committed by another, but his participation in such offense was relatively minor, although not so minor as to constitute a defense to prosecution or (4) he could not reasonably have foreseen that his conduct in the course of commission of the offense of which he was convicted would cause, or would create a grave risk of causing, death to another person. Conn. Gen. Stat. § 53a-46a(h) (1995).

The fifth mitigating factor in the pre-1995 version of the statute was whether the defendant "was under unusual and substantial duress, although not such duress as to constitute a defense to prosecution." P.A. 95-19 deleted this provision, and thus a finding of "unusual and substantial duress" no longer prohibits the imposition of the death penalty. While P.A. 95-19 stated that a finding of any of the four factors under §53a-46a(h) would prevent a death sentence, it did not refer to these factors as "mitigating" factors. Rather, P.A. 95-19 seemingly distinguished the factors that prevent the death penalty from mitigating factors, defined as "such [factors] as do not constitute a defense or excuse for the capital felony of which the defendant has been convicted, but which, in fairness and mercy, may be considered as tending either to extenuate or reduce the degree of his culpability or blame for the offense or to otherwise constitute a basis for a sentence

less than death." Conn. Gen. Stat. §53a-46a(d).[512] Under P.A. 95-19, the jury or court must conduct a balancing test of aggravating and mitigating factors in order to determine whether one outweighs the other: "If the jury or, if there is no jury, the court finds that (1) none of the factors set forth in subsection (h) exist, (2) one or more of the aggravating factors set forth in subsection (i) exist and (3)(A) no mitigating factor exists or (B) one or more mitigating factors exist but are outweighed by one or more aggravating factors set forth in subsection (i), the court shall sentence the defendant to death." Thus, under the revised statute, a finding of a mitigating factor does not necessarily prevent the imposition of a death sentence.

Conn. Gen. Stat. §53a-46(a) was most recently amended in 2001, when the legislature added an eighth aggravating factor to consider when weighing aggravating and mitigating factors: under the current version of the statute, the court or jury should consider whether "the defendant committed the offense set forth in subdivision (1) of section 53a-54b to avoid arrest for a criminal act or prevent detection of a criminal act or to hamper or prevent the victim from carrying out any act within the scope of the victim's official duties or to retaliate against the victim for the performance of the victim's official duties." Conn. Gen. Stat. § 53a-46a(i)(8).[513] The 2001 amendment to the statute also added a fifth factor that, if found by the judge or jury, prohibits the imposition of the death penalty: a defendant cannot be sentenced to death if, at the time of the offense, he "was a person with mental retardation." Conn. Gen. Stat. §53a-46a(h)(2).

[512] P.A. 95-19 did not amend this definition of "mitigating factors."

[513] Conn. Gen. Stat. §53a-54b(1) makes the murder of a police officer or other law enforcement officer a capital felony.

APPENDIX B: CASE SUMMARIES—COMPLETE AND SCRUBBED

This Appendix provides two examples of cases that were used in the egregiousness study. For each case, we provide the complete summary in its original form followed by the scrubbed summary that was used by the nine coders.

EXAMPLE ONE

A. COMPLETE SUMMARY

I. PROJECT NO. [RASHEEN GIRAUD]

Hartford JD
Dkt. No. CR95482272T

Sources of information: Trial court opinion, Appellate court opinion, PSI, Record, Affidavit of probable cause/police reports, Complaint/information, Autopsy/medical examiner's report, Defendant brief, Media reports

Def atty: Zeldis
State's Atty: O'Connor

Judge: Barry

Date of offense: 11/26/95
Date of conviction: 6/22/98
Date of sentence: 8/17/98 85 years on all charges (see below)

Charges: Murder, felony murder, kidnap 1st deg, robbery 1st deg, larceny 2nd deg

Cause of death: Gunshot wound to neck and head

D(H) asked V(B) to give him and coD a ride, directed V an uninhabited area, forced V to gunpoint to remove and turn over his clothing, and then shot V in the head

At around 2:00 am on 11/26/95 defendant observed the victim pull up in a car to use the telephone at a Hartford gas station. Defendant approached the victim and asked for a ride. When the victim agreed, defendant called over the codefendant and they joined the victim in the car, after which defendant directed him to drive to a boarded up housing complex. Defendant pulled out a gun, put it to the victim's head and ordered him out of the car. Defendant ordered the victim to remove his clothes, which he did, and then directed the victim to a grassy area, where defendant forced him to kneel before shooting him in the head. Defendant and codefendant then left in victim's car with victim's clothing. After discovering the victim's body, police identified him through fingerprints and from his mother identified the car he had been driving. Defendant was arrested driving that car and wearing victim's clothing with victim's electronic organizer in pocket. Additional items of victim's clothing were discovered at the

apartment where defendant had been staying, and codefendant gave a statement describing the homicide and implicating the defendant.

D was charged with murder, felony murder, kidnap 1st deg, robbery 1st deg, larceny 2d deg, and carjacking. After jury trial D was convicted of all charges. Trial court vacated carjacking count and sentenced D on remaining charges: 60 years for murder (felony murder merged), 10 years consecutive (5 years nonsuspendable) for robbery, 5 years concurrent for larceny, 10 years consecutive for kidnap plus an additional 5 years nonsuspendable and nonreducable as a sentence enhancement. Total effective sentence of 85 years to serve.

B. SCRUBBED SUMMARY

II. PROJECT NO. 141

Cause of death: Gunshot wound to neck and head

D asked V to give him and coD a ride, directed V to an uninhabited area, forced V to gunpoint to remove and turn over his clothing, and then shot V in the head

At around 2:00 am, Defendant observed the victim pull up in a car to use the telephone at a Hartford gas station. Defendant approached the victim and asked for a ride. When the victim agreed, defendant called over the codefendant and they joined the victim in the car, after which defendant directed him to drive to a boarded up housing complex. Defendant pulled out a gun, put it to the victim's head and ordered him out of the car. Defendant ordered the victim to remove his clothes, which he did, and then directed the victim to a grassy area, where defendant forced him to kneel before shooting him in the head. Defendant and codefendant then left in victim's car with victim's clothing. After discovering the victim's body, police identified him through fingerprints and from his mother who identified the car he had been driving. Defendant was arrested driving that car and wearing victim's clothing with victim's electronic organizer in pocket. Additional items of victim's clothing were discovered at the apartment where defendant had been staying, and codefendant gave a statement describing the homicide and implicating the defendant.

EXAMPLE TWO

C. COMPLETE SUMMARY

III. PROJECT NO. [QUINCY ROBERTS]

Hartford JD
Dkt. No. CR99053155

Sources of information: Affidavit of probable cause/police reports, DOC records, Autopsy/ME report

Def atty: Barrs
State's Atty: Unknown

Judge: Clifford

Date of offense: 1/5/99
Date of conviction: Unknown
Date of sentence: 6/21/00 18 years

Charges: Manslaughter, Risk of injury to a minor

Cause of death: Craniocerebral trauma

Six week old V(B) died of head injuries incurred while in the care of D(B), her father

The defendant was alone caring for his six week old daughter. He stated that he left her on a bed for a short time and when he returned she had vomited and was choking and gasping for breath. Defendant first claimed that he shook the baby in an effort to help her breathe and then later stated that he may have shaken her harder than he realized. Defendant called 911 and the victim was taken to the hospital, where she died two days later. An autopsy revealed that the victim had a broken skull and broken clavicle which had occurred shortly before she was taken to the hospital.

Defendant was charged with capital felony (victim under 16), murder and risk of injury to a minor. He pled guilty to manslaughter and risk of injury and received a sentence of 18 years.

D. SCRUBBED SUMMARY

IV. PROJECT NO. 205

Cause of death: Craniocerebral trauma

Six week old V died of head injuries incurred while in the care of D, her father.

The defendant was alone caring for his six week old daughter. He stated that he left her on a bed for a short time and when he returned she had vomited and was choking and gasping for breath. Defendant first claimed that he shook the baby in an effort to help her breathe and then later stated that he may have shaken her harder than he realized. Defendant called 911 and the victim was taken to the hospital, where she died two days later. An autopsy revealed that the victim had a broken skull and broken clavicle which had occurred shortly before she was taken to the hospital.

APPENDIX C: INTERCODER RELIABILITY

Panels A and B of Table C.1 provide information on the inter-coder reliability of the egregiousness scales. A high degree of uniformity suggests that the different coders were indeed measuring the same underlying factor when they scored each case. (It is worth noting that the egregiousness assessments were made independently of each other, based on case summaries stripped of identifying information such as the sentence ultimately received.)

Both panels reveal that inter-coder reliability is high. The correlation matrices for both the Composite (4-12) and Overall (1-5) measures exhibit strong positive correlations among the coders, and no significant outliers. Cronbach's α is a measure of how strongly the Score obtained from the actual panel of coders correlates with the Score that would have been obtained by another random sample of coders (drawn from the same population). Values of α of 0.952 for Composite Egregiousness and 0.932 for Overall Egregiousness demonstrate a high degree of consistency across coders, and are highly desirable since they are very close to the gold standard of 0.95.[514]

[514] On the standards for Cronbach's α, see, for example, J.C. NUNALLY & I.H. BERNSTEIN, PSYCHOMETRIC THEORY 264 (3d ed. 1994), which suggests that a value close to 0.95 is desirable.

Table C.1:

Summary Statistics on Intercoder Reliability

Panel A: Correlation Coefficients for Coders A-T excluding G and I, N = 205 Cases, Composite (4-12) Scale of Egregiousness

	A	B	C	D	E	F	H	J	K	L	M	N	O	P	Q	R	S	T
A	1																	
B	.702	1																
C	.556	.629	1															
D	.683	.640	.735	1														
E	.581	.616	.576	.656	1													
F	.576	.661	.562	.701	.660	1												
H	.646	.713	.649	.613	.494	.610	1											
J	.595	.596	.559	.598	.579	.544	.563	1										
K	.699	.718	.684	.763	.638	.667	.749	.691	1									
L	.563	.710	.621	.620	.593	.644	.622	.577	.648	1								
M	.464	.528	.489	.435	.488	.408	.439	.664	.508	.498	1							
N	.652	.621	.595	.700	.464	.505	.623	.538	.683	.528	.434	1						
O	.579	.541	.456	.449	.434	.430	.601	.604	.600	.535	.664	.517	1					
P	.658	.690	.616	.631	.539	.612	.613	.582	.643	.622	.473	.573	.529	1				
Q	.565	.528	.532	.572	.417	.475	.555	.625	.598	.483	.504	549	.464	.520	1			
R	.597	.617	.625	.626	.523	.510	.610	.553	.643	.560	.473	.622	.437	.577	.482	1		
S	.674	.685	.736	.816	.554	.612	.718	.630	.757	.607	.490	.716	.546	.621	.568	.633	1	
T	.521	.485	.533	.519	.416	.480	.600	.614	.549	.514	.592	.504	.587	.502	.508	.459	.603	1

Average interitem correlation: 0.524
Number of items in the Scale: 18
Scale reliability coefficient: 0.952

Panel B: Correlation Coefficients for Coders A-T Excluding G and I, N = 205 Cases, Overall (1-5) Scale of Egregiousness

	A	B	C	D	E	F	H	J	K	L	M	N	O	P	Q	R	S	T
A	1																	
B	.590	1																
C	.366	.490	1															
D	.272	.560	.624	1														
E	.282	.514	.564	.593	1													
F	.384	.518	.524	.532	.510	1												
H	.566	.644	.549	.569	.523	.525	1											
J	.474	.342	.178	.130	.249	.204	.422	1										
K	.273	.471	.482	.541	.466	.458	.606	.357	1									
L	.355	.496	.490	.464	.432	.542	.526	.341	.401	1								
M	.314	.385	.257	.267	.276	.156	.457	.449	.312	.289	1							
N	.285	.468	.565	.632	.425	.484	.496	.066	.545	.383	.222	1						
O	.463	.529	.326	.393	.387	.344	.599	.492	.549	.347	.539	.354	1					
P	.568	.595	.429	.445	.307	.363	.538	.400	.400	.312	.368	.401	.620	1				
Q	.490	.467	.474	.437	.422	.493	.552	.369	.494	.479	.348	.508	.489	.501	1			
R	.299	.527	.563	.619	.547	.616	.523	.098	.515	.575	.245	.527	.320	.324	.574	1		
S	.486	.666	.507	.612	.520	.533	.722	.386	.596	.504	.353	.532	.536	.464	.533	.557	1	
T	.215	.268	.228	.233	.261	.265	.349	.327	.342	.294	.394	.257	.383	.297	.329	.221	.309	1

Average interitem correlation: 0.432
Number of items in the Scale: 18
Scale reliability coefficient: 0.932

APPENDIX D: SUMMARY STATISTICS BEFORE AND AFTER 1998

Summary Statistics for 97 Death-Eligible Cases, 1973 - 1998

	Mean	Std. Dev.	Min.	Max.	Number of Obs. For Which Binary Variable = 1	N
Independent Variables						
Defendant White	.392	.491	0	1	38	97
Victim White	.536	.501	0	1	52	97
Defendant Minority/ Victim Minority	.443	.499	0	1	43	97
Defendant Minority/ Victim White	.165	.373	0	1	16	97
Defendant White/ Victim Minority	.021	.143	0	1	2	97
Defendant White/ Victim White	.371	.486	0	1	36	97
Special Aggravating Factors	4.082	2.230	0	10	--	97
Composite Egregiousness Score (4-12)	8.462	1.265	6.11	11.44	--	97
Overall Egregiousness Score (1-5)	3.588	.669	2.33	4.83	--	97
Stranger	.351	.480	0	1	34	97
Prior Prison Sentence (Dummy)	.417	.496	0	1	40	96
Number of Prior Prison Sentences Imposed	1.135	1.879	0	7	--	96
Waterbury	.062	.242	0	1	6	97
Pre-1998 Cases	1.000	.000	1	1	97	97
Defendant Female	.041	.200	0	1	4	97
Murder for Hire	.072	.260	0	1	7	97
Kidnapped	.237	.428	0	1	23	97
Sexual Assault	.155	.363	0	1	15	97
Multiple Victims	.526	.502	0	1	51	97
Under Sixteen	.062	.242	0	1	6	97
Law Enforcement Victim	.052	.222	0	1	5	97
Previous Murder Conviction	.021	.143	0	1	2	97
Defendant Sold Drugs	.000	.000	0	0	0	97
Dependent Variables						
Capital-Felony Charge	.784	.414	0	1	76	97
Death Sentence (Not Overturned)	.052	.222	0	1	5	97

Summary Statistics for 108 Death-Eligible Cases, 1998 - 2007

	Mean	Std. Dev.	Min.	Max.	Number of Obs. For Which Binary Variable = 1	N
Independent Variables						
Defendant White	.380	.488	0	1	41	108
Victim White	.519	.502	0	1	56	108
Defendant Minority/ Victim Minority	.454	.500	0	1	49	108
Defendant Minority/ Victim White	.167	.374	0	1	18	108
Defendant White/ Victim Minority	.028	.165	0	1	3	108
Defendant White/ Victim White	.352	.480	0	1	38	108
Special Aggravating Factors	3.426	2.070	0	10	--	108
Composite Egregiousness Score (4-12)	8.258	1.025	6.11	11.44	--	108
Overall Egregiousness Score (1-5)	3.588	.625	2.06	4.89	--	108
Stranger	.222	.418	0	1	24	108
Prior Prison Sentence (Dummy)	.447	.500	0	1	42	94
Number of Prior Prison Sentences Imposed	1.211	1.946	0	7	--	90
Waterbury	.056	.230	0	1	6	108
Pre-1998 Cases	.000	.000	0	0	0	108
Defendant Female	.093	.291	0	1	10	108
Murder for Hire	.093	.291	0	1	10	108
Kidnapped	.370	.485	0	1	40	108
Sexual Assault	.111	.316	0	1	12	108
Multiple Victims	.241	.430	0	1	26	108
Under Sixteen	.370	.485	0	1	40	108
Law Enforcement Victim	.028	.165	0	1	3	108
Previous Murder Conviction	.009	.096	0	1	1	108
Defendant Sold Drugs	.000	.000	0	0	0	108
Dependent Variables						
Capital-Felony Charge	.574	.497	0	1	62	108
Death Sentence (Not Overturned)	.037	.190	0	1	4	108

APPENDIX E: MICHELSON's CASE SELECTION

9 Cases Michelson Contends Should be Dropped from my Dataset of 205 Cases (For Capital Charging and Death Sentences)

Name	Project Number	Reason Michelson wants the case dropped	Reason we decided to keep it in
Fernandez, Joseph	33	p. 116: no aggravator; p. 282: no aggravator Summary says "Although the case was a qualifying multiple victim case, the State declined to seek death penalty because it said it could not prove aggravating factor of especially cruel, heinous, depraved. (both victims were killed instantly and shooting was unannounced and sudden)"	Michelson suggests there is no aggravating factor. However, a prosecutor could make a strong argument that the defendant's conduct presented a grave risk of injury to others. Defendant, seated in the back seat of a car, shot the driver and the driver's girlfriend, who was sitting in the passenger seat. The driver was making pizza deliveries. There was a third individual (14 years' old) in the back seat with the defendant. *See State v. Fernandez*, 728 A.2d 1, 3 (Conn. App. 1999). The defendant could have endangered the third individual, other drivers, or pedestrians in the street with an errant shot.
Levine, Guy	58	Suggests there should be an additional variable in my equation because of lack of aggravation or clear mitigation evidence (p. 115). "State had never filed a notice of intent to seek the death penalty, in large part due to the extensive psychiatric history of Defendant"	Michelson suggests that substantial evidence of mitigation prevented the state from seeking the death penalty. Nothing prevented the state from seeking the death penalty, however. While the defense presented expert evidence to support a mental disease/defect defense, the question was one of fact—and there were facts that the prosecutor could have argued ran contrary to the defense. For instance, the defendant told his friend that he had just killed his parents; he was 35 years old at the time of the killings; and he had a tumultuous relationship with his

			parents. The brutal trauma wounds inflicted with defendant's fists and another blunt object provide clear evidence that the killings were heinous, cruel, and depraved.
Maldonado, Carlos	62	p. 115: again suggests clear evidence of mitigation. "Immediately after arrest, Defendant was found incompetent…State allowed him to plead guilty to murder, dropping the capital felony charge, most likely because of the psychiatric issue"	The defendant sexually assaulted the victim, strangled her, and stabbed her multiple times. It appears that he came to her house with a knife and threatened her, killing her after she called the police. A three-judge panel affirmed his sentence, referencing the defendant's "vicious conduct in imposing death in such a cruel and demented way." *State v. Maldonado*, 1994 WL 362324 at *1 (Conn. Super. May 24, 1994). While the defendant was initially found incompetent, he was found competent to stand trial. While the defendant could have argued impaired mental capacity as a mitigating factor, this would be a question for the jury—the State had plenty of evidence to support a death penalty verdict.
Miller, Joseph	68	p. 115: "Defendant was 'falling down' drunk at the time of the incident…State did not believe it could get a death sentence as there was mitigation"	Regardless of whether the State thought it could secure a conviction, there was plenty of evidence to support a decision to seek the death penalty. By throwing a firebomb into a halfway house, the defendant presented a grave risk of injury to others. While he was under the influence of alcohol at the time of the offense, a prosecutor could have argued that he had the capacity to construct the firebomb. He had the capacity to throw it into the residence. And he knew a woman who had rejected his romantic overtures lived in that halfway house (though she was not home at the time). One victim died that night, the

			other had burns on over 60% of his body and died 16 days later.
Burge, Gordon (2nd)	9	p. 87; says second trial (9) should have been excluded because of double jeopardy (he wasn't charged with a capital crime in first trial so couldn't have been charged at second trial). P. 116: double jeopardy. P. 282: double jeopardy	Under the one-defendant, one-crime, one-outcome rule, we count Burge only once (dropping #8 and including #9). While the State did not seek a capital felony charge at the first trial, they could have. The defendant allegedly strangled a 13 year-old boy with the boy's belt, most likely after sexually assaulting him. There was evidence that the boy was taken from his school to a secluded part of the woods near a cemetery, where he was killed. Though there was evidence of impaired mental capacity, the prosecution could have left it up to the jury to determine whether the defendant could establish mitigation. Given the facts of the crime the State would have had strong evidence of aggravating factors.
Carpenter, Beth	122	at ix, should have been excluded. P. 116: extradition treaty prevented her from receiving the death penalty. P. 282: extradition treaty. Summary says "D was extradited from Ireland, on the condition death would not be an option at trial."	The defendant is death eligible because she and her lover hired a third man to kill her brother-in-law. She fled to Europe about 18 months after the killing. Had the police arrested her any time during that year and a half she would have faced the death penalty given that this was a murder for hire. The question is not what the prosecution could have sought at the time of trial, the question is whether the facts of the case could lead to a death sentence. And here, they could.
Schroff, William (2nd)	89	P. 116: "no evidence of enabler or aggravator"; p. 282: no evidence of enabler or	Both of Schroff's killings are properly included in my data set. The murders were similar: he abducted a victim, took her to the

		aggravator. Also seems to take both 1st and 2nd cases out of sentencing equation -- p. 83: Says he could not have received a capital felony because he did not receive a CF charge. This is true; he pled to life on his first. For his second, Michelson concedes it was "likely a capital crime." A sufficiency of the evidence issue. Separate summaries. Both in my dataset. 89 says "This case could have qualified as a capital felony, as it involved both an apparent kidnapping and rape of the victim. However, because there was no direct evidence to prove either of these offenses (other than the Defendant's statements to the police), the State proceeded on straight murder charges only."	woods, raped her, strangled her, and left her nude body. Both murders are capital because they involved a sexual assault and a kidnapping. As for aggravating factors, he had a prior sexual assault conviction and these murders are heinous, cruel, and depraved (the victims were conscious for the kidnapping, the sexual assault, and the strangulation). Michelson can only argue that there were questions about the sufficiency of the evidence, particularly on the second instance where he went to trial. But as we explained in the rebuttal, the strength of the evidence is not independent of the qualities of the criminal justice system at issue in this report. Moreover, the defendant admitted to raping and strangling the second victim and supplied police with incriminating evidence in the first murder.
Valentine, Daryl (2nd)	98	p. 161: double jeopardy. p. 282: double jeopardy	Valentine is included only once in my data set (#98). His murders are death penalty eligible: he killed multiple victims and created a grave risk of injury to others. Because Valentine is only included once there is no double jeopardy issue.
Castonguay, Gary (2nd)	15	p. 116: double jeopardy. P. 282 says to drop both first and	The defendant was death eligible. There were two aggravating factors in his case. First, he had been

		second trials; death penalty not available at first trial; double jeopardy prevented state from seeking it at second trial. Summary says "The CT death penalty statute was declared unconstitutional prior to D's first trial. After conviction reversed (on other grounds), State was barred by double jeopardy from seeking DP again."	previously convicted of the same felony. Second, he killed a law enforcement officer, meaning the murder prevented the victim from carrying out his official law enforcement duties. The court's incorrect decision to rule the death penalty unconstitutional prior to his first trial is independent of the inclusion decision. That decision is based on the facts of the case—and in this case, the defendant was eligible for the death penalty, according to the statute. Only Castonguay's second DCI is included, to be consistent with my one defendant-one crime-one inclusion approach.

13 Cases Michelson Says Should Be Excluded from the Sentencing Equation (In Addition to the 9 above) in my 205 Dataset

Name	Number	Michelson's Notes	Reason we decided to keep it in
Berrios, Jose	3	p. 88: state dropped capital felony charge before trial (but apparently survived probable cause) -- so M implies that he took Berrios out of at least sentencing	The Berrios crime was a case of murder for hire, making it death eligible – there is strong evidence that this was murder for hire even though the State decided to drop the capital felony charge. One of the defendant's friends said that the defendant told him he had been hired in New York to kill the victim. Questions about sufficiency of the evidence to establish this theory (or a kidnapping theory) does not mean that this case was not death eligible.
Britton, Abin	115	p. 77: should have included in charging, not sentencing	As long as the case is death eligible, we include it in both the charging and sentencing analysis. Here the prosecution (properly) argued that the defendant had kidnapped the victim, had previously been convicted of the same felony, and committed the killing in heinous, cruel, or

			depraved way.
Cerreta, Michael	123	p. 81: could not get the death penalty. P. 88 says that because conviction was reversed and state decided not to retry, he should be excluded from the sentencing portion because "state could not even sustain a conviction." M incorrectly claims Cerreta was "never again prosecuted." p. 94	This was death eligible because he was previously convicted of the same felony and also had two previous felony convictions with bodily harm. Again we are not making inclusion decisions based on outcomes, we are making them based on the facts of the killing. Michelson is incorrect in stating that the state could not sustain a conviction, since they did obtain a conviction after Cerreta pled guilty in 2003 to 1st degree manslaughter and 1st degree burglary. The state decided not to retry because of the guilty plea.
Colter, Thor	20	p. 98: claims there was insufficient evidence of aggravator; state dropped capital felony in exchange for a guilty plea to manslaughter	Michelson challenges the sufficiency of evidence of the HCD aggravator. Colter was charged with killing his ten-month-old stepdaughter, who died of blunt traumatic head injury and skull fracture. The range of conduct covered by HCD is broad; while it's unclear exactly how the child suffered the trauma, a prosecutor could argue that the defendant intended to kill the child by slamming her head on a hard surface and did so using more pain than was necessary.
Hammond, Martin	44	p. 94: should be deleted from the sentencing analysis because judge found no probable cause for capital felony count	Hammond is properly included in both the charging and sentencing analysis. He had sex with and then strangled the victim, who had a slight mental handicap. Though he claimed the sex was consensual, he had been convicted of rape three years previously when he also claimed the sex was consensual. The prosecutor could argue for sexual assault and kidnapping, and in fact Hammond pled guilty to murder and a count of kidnapping 2d. Though the court found the evidence insufficient for a capital felony, again we are analyzing the system independent of outcomes—we are looking at the facts of the case. The aggravating factor here was that the killing was HCD, plus the defendant had the prior

			sexual assault conviction, so he would have been previously convicted of the same felony.
Phetsaya, Vanlop	75	p. 85: excluded from sentencing but not charging. Claims that because he got 10 years for aiding and abetting manslaughter he couldn't have ever received death.	Apparently the prosecutor's office thought this was a case of murder for hire but the "for hire" element was "never pursued," which means this is another case of limited evidence, not a lack of intrinsic death eligibility. We are making inclusion decisions based on whether the cases are death-eligible, not what the State did or did not pursue.
Watkins, Winston	99	p. 81: could not get the death penalty.	The case is a capital one because there were multiple victims. As for an aggravating factor, Watkins created a grave risk of injury to others by shooting and seriously injuring someone other than the murder victims.
White, Roy	102	p. 81: could not get the death penalty	See case above. White was a co-defendant of Watkins and was similarly culpable.
Schroff, William (1st)	88	p. 83: Says he could not have received a capital felony because he did not receive a CF charge. This is true; he pled to life on his first. Separate summaries. Both in my dataset.	Both of Schroff's killings are properly included in my data set. The murders were similar: he abducted a victim, took her to the woods, raped her, strangled her, and left her nude body. Both murders are capital because they involved a sexual assault and a kidnapping. As for aggravating factors, he had a prior sexual assault conviction and these murders are heinous, cruel, and depraved (the victims were conscious for the kidnapping, the sexual assault, and the strangulation). Michelson can only argue that there were questions about the sufficiency of the evidence, particularly on the second instance where he went to trial. But as we explained in the rebuttal, the strength of the evidence is not independent of the qualities of the criminal justice system at issue in this report. Moreover, the defendant admitted to raping and strangling the second victim and supplied police with incriminating evidence in the first murder.
Smith, Scott	213	p. 98: could not have received a death	Apparently Michelson agrees that this case was properly included in the charging

		sentence, no probable cause was found for capital felony	decision: the facts of the homicide make it a death-eligible offense. A jury convicted the defendant of first degree sexual assault; the evidence overwhelmingly demonstrated that he strangled the victim, causing her death. *See State v. Smith*, 262 Conn. 453, 455-58 (2003). Thus there is sufficient evidence to prove the enablers of kidnapping and rape, and the aggravating factor HCD. Though a judge found that there was no probable cause for a capital felony charge—a finding one might question in light of the jury's verdict on first degree assault—our criterion for inclusion is whether the facts of the case make the homicide death eligible; in this case, the facts undoubtedly do (as the prosecutors argued as well).
Cashwell, Ronald	13	p. 103: capital charge thrown out at probable cause hearing	Cashwell's co-defendant told police that he hired Cashwell to kill the victim. This is enough evidence to charge the defendant with a capital felony. While the judge at the probable cause hearing did not find this statement to be sufficient evidence of a capital felony category, again we did not divide cases into charging and sentencing categories. The case was death eligible in that there was sufficient evidence for the prosecutor to charge the defendant with a capital felony; this was the criterion for inclusion.
Gonzalez, Hector	103	p. 103: court granted motion to strike aggravating factors	The jury found the defendant guilty of capital felony, for the murder of two or more persons in the same transaction. Michelson only disputes the death eligibility of this case insofar as the judge struck the proposed aggravating factors (grave risk of injury to another person and HCD). Given that the jury found the defendant guilty of attempted murder of a third victim, there is clearly a grave risk of injury to others—the third victim. While this is a grey area, Judge Blue's recent holding in the Petite murders—that intended victims can satisfy the "grave risk

			of injury to others" aggravator—suggests that the judge's decision in this case was debatable. The facts of this case demonstrate that it was death eligible, as does the jury's verdict.
Cator, Frank	16	p. 103: court dismissed the capital felony charge prior to submission to the jury	The jury convicted the defendant of kidnapping, and the victim was killed with an assault weapon (a mac-10 automatic pistol). While the judge found there was no probable cause for the capital felony count, this decision was based on insufficiency of evidence that the defendant was the shooter. However, the State is not required to prove the defendant was the shooter; the kidnapping conviction seems sufficient for a capital felony count. Given the jury's conviction we are comfortable concluding that the facts of this case (kidnapping, death by assault weapon) make it death eligible.

APPENDIX F: MAJOR ARTICLES AVERAGING AND USING MEASUREMENT SCORES IN REGRESSION

This appendix lists 25 articles that happened to be on or come across my desk that use ordinal scales in regression in exactly the way that Michelson says cannot be done. I broke this list of articles down into two groups: one in which the measurement scale was not based on averaging scores across coders, and one in which there was such averaging. Both of these manipulations are said to be impossible by Michelson, yet these articles are published by many elite academics publishing in the flagship journals of economics, political science, finance, and sociology. As noted in the text of this report, the Dawes piece below employs subjectively rated averaged codings in regressions that are identical in form to my egregiousness scores. Dawes is a pre-eminent quantitative psychologist, and the cited paper was selected for publication in a book edited by Fred Mosteller, the Chairman of the Harvard statistics department and one of the towering figures in statistics over the last century.

This list of articles includes publications by top academics (including one Nobel Prize winner in Economics) at Harvard, Yale, Columbia, Princeton, et al. Moreover, the articles have been published in many pre-eminent journals from the fields of economics, political science, sociology, psychology, and medicine, as I document with a quick assessment of journal quality at the end of the articles list.

Articles without Averaged Scales

1. Paulo Mauro, "Corruption and Growth," *The Quarterly Journal of Economics* 110(3) (1995): 681-712 - analyzes the impact of corruption (using an index of corruption) on economic growth.

2. David C. Barker and James D. Tinnick III, "Competing Visions of Parental Roles and Ideological Constraint," *American Political Science Review* 100 (May 2006): 249-263 – studies the correlation between political values and predictors such as parental values and religiosity (a number of their control variables take on ordinal values—for example sexism, moral absolutism, and moral tolerance, which are on a five-point scale).

3. Dan M. Kahan, Donald Braman, Paul Slovic, John Gastil, and Geoffrey Cohen, "Cultural Cognition of the Risks and Benefits of Nanotechnology" *Nature Nanotechnology 4*(2) (2009) – conducts an experimental study to determine how the public might react to balanced information about nanotechnology risks and benefits, in which a major explanatory variable is respondents' perceptions of nanotechnology (all subjects responded to a self-reported knowledge item that asked, "How much have you heard about nanotechnology before today?" Responses were provided on a scale of 1 to 4, corresponding to the answers "nothing at all, "just a little," "some" or "a lot.").

4. Nicholas A. Valentino and David O. Sears, "Old Times There Are Not Forgotten: Race and Partisan Realignment in the Contemporary South" *American Journal of Political Science* 49(3) (2005): 672-688 - Using ordinal measures constructed from multiple item 7-point scales (participants are asked to rate their subjective feelings on multiple characteristics, one at a time, on a scale from 1 to 7), the authors explore how racial conservatism has influenced the American South's shift to the Republican party.

5. Danila Serra, “Empirical Determinants of Corruption: A Sensitivity Analysis” *Public Choice*, 126(1-2) (2006): 225-256 – identifies how political, economic, and social factors (using a variety of ordinal indices) correlate with the presence of corruption.

6. Bo Becker, and Todd Milbourn – “How Did Increased Competition Affect Credit Ratings?” - uses ordinal credit rating to predict risk of default. *Journal of Financial Economics*, September 2011;101(3):493-514.

7. Peter T. Leeson – "Media Freedom, Political Knowledge, and Participation" *Journal of Economic Perspectives*, 2008 (2):155-169 - uses an ordinal measure of a country's media freedom from government control to explain citizens’ political knowledge, political participation, and voter turnout.

8. Richard Freeman – "Varieties of Labor Market Institutions and Economic Performance" *IRRA Session on Labor Market Institutions and Economic Outcomes* (2003) – uses indices of economic freedom to measure how labor market institutions vary among successful economies.

9. David E. Odd et al, “Resuscitation at birth and cognition at 8 years of age: a cohort study” *The Lancet* 373(9675) (2009): 1615-1622 – explores the link between resuscitation at birth and mild cognitive deficits in later childhood, using various ordinal variables to control for mother's education and socioeconomic status.

10. James Druckman, Martin J. Kifer, and Michael Parkin, “Campaign Communications in U.S. Congressional Elections” *American Political Science Review 103: 343-366, 2009* – Explores the behavior of political candidates using ordinal variables, including the three categories of “clear front-runner,” “not clear trailer or front-runner,” and “clear trailer” and a “competition” variable, using the four point rating where 0= solid Democratic or Republican, .33= likely Democratic or Republican, .67= leaning Democratic or Republican and 1= toss up.

11. D. Sunshine Hillygus, “The Dynamics of Voter Decision Making Among Minor Party Supporters: The 2000 U.S. Presidential Election” *British Journal of Political Science*, 37(2) (2007): 225-244 -- Uses an array of ordinal responses from survey data in regressions designed to predict voter behavior, such as a measure of ideology (based on self-placement on a scale from very liberal to very conservative) and Likert-type favorability ratings towards Clinton.

12. Gypsyamber D’Souza et al, “Case-Control Study of Human Papillomavirus and Oropharyngeal Cancer” *The New England Journal of Medicine,* 356 (2007): 1944-56 – a study of the link between lifestyle factors, Human Papillomavirus infection and Oropharyngeal Cancer that controls for a number of factors that might influence cancer using ordinal variables as explanatory variables (for example, education was included in the model as either some high school, high school graduate or some college, and college graduate; oral hygiene was measured on a scale of tooth loss including none, some or complete; mouthwash use during the past year was included as either less than one time per day, 1-2 times per day or 3-4 times per day; Smoking was coded as no pack years, 1-19 or

more than 20; and duration of alcohol consumption of more than 15 drinks per week was coded as 0 years, 1-14 years or more than 15 years).

13. Alan Gerber and Gregory Huber, "Partisanship, Political Control, and Economic Assessments" *American Journal of Political Science. 54(1):153-73* - a study of the mechanism(s) through which partisan affiliation of individuals and co-partisan control of government influences evaluations of economic prosperity that uses many ordinal variables as controls: Education was measured not by years in school, but rather by an ordinal ranking of educational achievement where 6 =postgraduate degree, 5 =four-year college degree, 4 =two-year college degree, 3 =some college, 2 =high school graduate, 1 = didn't graduate high school. Economic assessment was measured through the use of the following (ordinally coded) question: "Preelection national economy forecast/Postelection national economy forecast: Thinking about the economy in the country as a whole, over the next year do you expect the nation's economy to get worse, stay the same, or get better? 2 ="much better"; 1 ="better"; 0 ="about the same"; −1 ="worse"; −2 ="much worse."" Also included are post-election household income forecast using a -2 to 2 five item scale and a partisanships scale ranging from 2 (strong Democrat) to -2 (strong Republican).

14. G. Webster Ross et al, "Frequency and Characteristics of Silent Dementia Among Elderly Japanese-American Men" *Journal of the American Medical Association* 277(10) (1997): 800-805 – an attempt to identify the features associated with non-recognized dementia among known sufferers, using an array of ordinal variables as explanatory variables.

Articles with Averaged Scales

15. Daniel Kahneman, David Schkade, and Cass Sunstein – "Shared Outrage and Erratic Awards: The Psychology of Punitive Damages" *Journal of Risk and Uncertainty* (16) 49-86. – averages perceptions of outrageousness on a six point scale to illustrate the defects in punitive damage awards.

16. Rick Sander, "A Systemic Analysis of Affirmative Action in American Law Schools" *Stanford Law Review* 57 (November 2004): 367-483 - analyzes the costs and benefits of affirmative action in the realm of legal education, focusing on black law school applicants, with law school GPA as one predictor of performance

17. Sydney C. Ludvigson, "Consumer Confidence and Consumer Spending" *Journal of Economic Literature* 18 (2004): 29–50 - explores the relationship between the real economy and consumer attitudes, which are measured by the University of Michigan's Consumer Sentiment Index and the Conference Board's Consumer Confidence Index.

18. John G. Matsusaka and Argia M. Sbordone, "Consumer Confidence and Economic Fluctuations," *Economic Inquiry* 33 (1995): 296-318 - explores the effect of consumer sentiment, also measured by the University of Michigan's Consumer Sentiment Index, on GNP.

19. Raymond Fisman and Edward Miguel, “Corruption, Norms, and Legal Enforcement: Evidence from Diplomatic Parking Tickets” *Journal of Political Economy*. 2007. 115(6): 1020–48 - studies the influence that cultural norms and legal enforcement have on corrupt behavior, measured by an ordinal corruption index.”

20. Lennart Berg and Reinhold Bergstrom, “Consumer confidence and consumption in Sweden,” Uppsala University, Working Paper No. 7 (1996) – examines the relationship between consumer confidence indices (regarding the general economy and personal finance) and level of consumption.

21. Peter Rossi, Emily Waite, Christine E. Bose, and Richard Berk, “The Seriousness of Crimes: Normative Structure and Individual Differences” *American Sociological Review,* 39 (1974): 224–237 **–** Explores existence of consensus on the perceived seriousness of criminal behavior, using averages of subjective ratings of crime seriousness.

22. Rafael La Porta, Florencio Lopez-De-Silanes, Andrei Shleifer, Robert W. Vishny, "Legal Determinants of External Finance" *Journal of Finance*, 52(1997): 1131-1150 – explore whether countries with poorer investor protections measured have smaller and narrower capital markets, using a measure of "rule of law" based on a scale from 0 to 10, with lower scores indicating less tradition of law and order in a country. .

23. Naci Mocan, “Vengeance” *NBER Working Paper 14131* (2008): 1-66 – explores the determinants of vengeful feelings using survey data from over fifty countries, with indices designed to measure the extent of a country's rule of law and degree of individualism.

24. Dawes, Robyn M., "A Case Study of Graduate Admissions: Application of Three Principles of Human Decision Making" *American Psychologist*, 1971 (2): 180-188 – explores principles of decision-making using graduate school admissions in which key explanatory variables were averaged ratings of applicants and graduate student performance.

25. John D. Huber and Cecilia Martinez-Gallardo, “Replacing Cabinet Ministers: Patterns of Ministerial Stability in Parliamentary Democracy” American Political Science Review 102, 2 (May 2008), 169-80. - explores individual factors related to stability in the tenure of cabinet minister tenure. A number of ordinal measures are used as explanatory variables, including, ***Ministerial Autonomy,*** which is a survey response by country experts who were asked to place their country on a scale that goes from 1 (where ministers have the least autonomy) to 9 (where ministers have the most autonomy), and ***Policy Value of Portfolios,*** which is also a survey response to the question: “Are cabinet portfolios valued more as rewards of office or as a means to affect policy?” The scale ranges from 1 to 9, where 1 indicates that portfolios are valued as rewards of office and 9 indicates that they are valued as means of affecting policy."

Quality and Impact Assessment of Referenced Journals

Political Science

American Political Science Review (APSR)

The flagship journal of the American Political Science Association, the *APSR* is widely recognized as a preeminent journal in political science both reputationally and based on the influence *APSR* published articles have had on the field. In a cross-national survey of practicing political scientists in the US, UK and Canada, the *APSR* was ranked as the top journal in the field by both American and Canadian political scientists, and as the second most influential journal in the field by political scientists in the UK (McLean, Blais, Gilles and Garand 2008)[515]. In the 2009 Thomson Reuters Journal Citation Reports, the *APSR's* impact factor was ranked 2/112[516].

American Journal of Political Science (AJPS)

The official journal of the Midwest Political Science Association, the *AJPS* is a leading general interest (i.e. not sub-field specific) journal of political science. In the same survey of political scientists, the *AJPS* was ranked 2nd by American political scientists and 5th by both Canadian and UK political scientists. The impact factor of the *AJPS* was ranked 3/139 (political science) in the 2010 Thomson Reuters Journal Citation Reports.

British Journal of Political Science (BJPS)

The *BJPS* is again a sub-field and related field open journal of political science. The *BJPS* was assessed as the top journal in political science by UK political scientists, the 4th by Americans and 3rd by Canadians in the McLean et al survey of journal reputation. The impact factor of the *BJPS* ranked 10/139 in political science in the 2010 Thomson Reuters Journal Citation Reports.

Public Choice

As an interdisciplinary journal, *Public Choice* is classified is designated by ISI as both economics and political science[517]. *Public Choice* was ranked 24th by American political scientists and 58th by Canadian and UK political scientists in the McLean et al reputational survey of political scientists. *Public Choice's* eigenfactor score (total importance to the scientific community) and article influence scores (based on Thomson Reuters (Scientific) data and methodology developed by Carl Bergstrom) ranked in the 68.14th and 52.50th percentile respectively.

Economics

Quarterly Journal of Economics

The *Quarterly Journal of Economics'* IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was first[518]. Among economic journals ranked on

[515] Available from http://www.nuff.ox.ac.uk/politics/papers/2008/McLean%20Blais%20Giles%20and%20Garand%20%28April%202008%29.pdf
[516] All Thomson Reuters Journal Citation Reports information provided by the respective journal/publisher
[517] http://www.eigenfactor.org/detail.php?year=2009&jrlname=PUBLIC%20CHOICE&issnnum=0048-5829
[518] http://ideas.repec.org/top/top.journals.simple.html

eigenfactor and article influence scores, the *Quarterly Journal of Economics* ranked first[519]. Based on the Engemann and Wall (2009) "ambition-adjusted" journal rankings (accounting for sub-field versus general journals), the *Quarterly Journal of Economics* was once again ranked first[520].

Journal of Financial Economics

Among economic journals ranked on eigenfactor and article influence scores, the *Journal of Financial Economics* ranked 6th. The Engemann and Wall ranking placed the *Journal of Financial Economics* at 25th. Its IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was 12th.

Journal of Economic Perspectives

Among economic journals ranked on eigenfactor and article influence scores, the *Journal of Economic Perspectives* ranked 10th. The *Journal of Economic Perspectives* was not included in the Engemann and Wall ranking as they did not include journals that were invited-paper or non-refereed. Its IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was 7th.

Journal of Economic Literature

Among economic journals ranked on eigenfactor and article influence scores, the *Journal of Economic Literature* ranked third. Its IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was second. The *Journal of Economic Literature* was not included in the Engemann and Wall ranking as they did not include journals that were invited-paper or non-refereed.

Journal of Risk and Uncertainty

Among economic journals ranked on eigenfactor and article influence scores, the *Journal of Risk and Uncertainty* ranked 50th. Engemann and Wall ranked the *Journal of Risk and Uncertainty* 37th. Its IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was 54th.

Economic Inquiry

Among economic journals ranked on eigenfactor and article influence scores, *Economic Inquiry* ranked 82nd. *Economic Inquiry* was ranked in 40th place by Engemann and Wall. Its IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was 107th.

Journal of Political Economy

Among economic journals ranked on eigenfactor and article influence scores, the *Journal of Political Economy* ranked second. Again, the Engemann and Wall ranking also placed the

[519] http://www.eigenfactor.org/results.php?fulljournalname1=&rosvcat=ECONOMICS&year=2009&resultsperpage=100&issnnumber=&ordering=perarticle&grping=%25&nam=names&Submit=Search

[520] http://research.stlouisfed.org/publications/review/09/05/Engemann.pdf

Journal of Political Economy in second. Its IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was 8th.

Journal of Finance

Among economic journals ranked on eigenfactor and article influence scores, the *Journal of Finance* ranked 5th. Engemann and Wall ranked the *Journal of Finance* in 20th place in their ambition-adjusted ranking. Its IDEAS/RePEc simple impact factor ranking (based on the ratio of citations to number of items) was 17th.

Medicine

The New England Journal of Medicine

As of 2010, the *Journal's* impact factor was 53.48.[521] With an eigenfactor score in the 99.90th percentile and an Article Influence Score in the 99.94th percentile, the *New England Journal of Medicine* ranked second among all journals in the "medicine" category in the eigenfactor journal rankings.

The Journal of the American Medical Association

With an eigenfactor score in the 99.740th percentile and an Article Influence Score in the 99.64th percentile, the *Journal of the American Medical Association (JAMA)* ranked third among all journals in the "medicine" category in the eigenfactor journal rankings. The 2010 impact factor for *JAMA* was 30[522].

The Lancet

Lancet ranked 2nd in Medicine – Internal and General by Elsevier in the 2009 Journal Impact Factor rankings[523]. Among medical journals generally, *Lancent* ranked 4th, with an Eigenfactor Score in the 99.81st percentile and an article influence score in the 99.61st percentile[524].

Other

American Sociological Review

The *ASR* is the flagship journal of the American Sociological Association and a sub-field open journal of sociology. Based on the analysis done by Jerry Jacobs (Univ. of Pennsylvania, Dept. of Sociology), the *American Sociological Review* was ranked as the top journal in sociology based on a combination of Google Scholar and ISI Web of Knowledge citation frequency and impact factors[525]. Michael Allen's 2001 ranking of sociology journals ranked the *ASR* second based on core influence in the field[526]. The impact factor of the *ASR* was ranked 1/129 (sociology) in the 2010 Thomson Reuters Journal Citation Reports.

[521] http://www.nejm.org/page/about-nejm/frequently-asked-questions
[522] http://jama.ama-assn.org/site/misc/aboutjama.xhtml
[523] http://www.elsevier.com/wps/find/authored_newsitem.cws_home/companynews05_01589
[524] http://www.eigenfactor.org/detail.php?year=2009&jrlname=LANCET&issnnum=0140-6736
[525] Available from sociology.sas.upenn.edu
[526] Top 10 peer reviewed journals listed at http://socialforces.unc.edu/sub_info/ranking

American Psychologist

The official journal of the American Psychological Association, *American Psychologist* publishes articles covering "current issues in psychology, the science and practice of psychology, and psychology's contribution to public policy". Based on ISI impact factors, the *American Psychologist* is ranked 4/120 in "Psychology-Multidisciplinary"[527]. *American Psychologist* was ranked 9th in psychology (2009) as a discipline by eigenfactor (total importance to the scientific community) and article influence scores based on Thomson Reuters (Scientific) data and methodology developed by Carl Bergstrom[528].

Stanford Law Review

Among journals in the eigenfactor Law category, the *Stanford Law Review* ranked 4th, with an article influence score in the 90.28th percentile[529]. Over the 1981-2007 period, the *Stanford Law Review's* impact factor was ranked an average of 3rd[530].

Nature Nanotechnology

Published by the Nature Publishing Group, *Nature Nanotechnology* is multidisciplinary journal which publishes articles related to nanoscience and nanotechnology extending "from basic research in physics, chemistry and biology, including computational work and simulations, through to the development of new devices and technologies for applications in a wide range of industrial sectors (including information technology, medicine, manufacturing, high-performance materials, and energy and environmental technologies)"[531]. *Nature Nanotechnology* is ranked 13th in Molecular and Cell Biology (2009) based on the Bergstrom eigenfactor methodology previously mentioned, with an article influence score in the 99.77th percentile[532].

[527] http://www.apa.org/pubs/journals/amp/
[528] http://www.eigenfactor.org/index.php; eigenfactor subject category: Psychology
[529] http://www.eigenfactor.org/results.php?fulljournalname1=&rosvcat=LAW&year=2009&resultsperpage=100&issnnumber=&ordering=perarticle&grping=%25&nam=names&Submit=Search
[530] http://sciencewatch.com/dr/sci/08/sep28-08_2/
[531] More detail of specific areas covered available at http://www.nature.com/nnano/authors/index.html
[532] Journal-specific details: http://www.eigenfactor.org/detail.php?year=2009&jrlname=NAT%20NANOTECHNOL&issnnum=1748-3387

APPENDIX G: JOHN J. DONOHUE III CURRICULUM VITAE

JOHN J. DONOHUE III

Stanford Law School
Stanford, CA 94305
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http://www.law.stanford.edu/directory/profile/528/John%20J.%20Donohue%20III/

EMPLOYMENT

Stanford Law School, C. Wendell and Edith M. Carlsmith Professor of Law, September 2010 to the present.
2011 Faculty Scholar in Residence, University of Denver Sturm College of Law, April 21-22, 2011.
Yale Law School, Leighton Homer Surbeck Professor of Law, July 2004 to August 2010.
Visiting Fellow, The Milton Friedman Institute for Research in Economics, University of Chicago, October 2009
Schmidheiny Visiting Professor of Law and Economics, St. Gallen University, November – December, 2007.
Visiting Lecturer in Law and Economics, Gerzensee Study Center, Switzerland, June 2007.
Visiting Professor, Tel Aviv University School of Law, May 2007.
Herbert Smith Visitor to the Law Faculty, University of Cambridge, England, February 2006.
Stanford Law School, Professor of Law, September 1995 to June 2004.
William H. Neukom Professor of Law, February 2002 – June 2004.
John A. Wilson Distinguished Faculty Scholar, March 1997 – January 2002.
Academic Associate Dean for Research, since July 2001 – July 2003.
Stanford University Fellow, September 2001 – May 2003.
Visiting Professor, Harvard Law School, January 2003.
Fellow, Center for Advanced Studies in the Behavioral Sciences, Stanford, California, Academic year 2000-01.
Visiting Professor, Yale Law School, Fall, 1999.
Professor, Center for the Study of American Law in China, Renmin University Law School, Beijing, July 1998.
Visiting Professor of Law and Economics, University of Virginia, January 1997.
Lecturer, Toin University School of Law, Yokohama, Japan, May-June 1996.
Cornell Law School, Distinguished Visiting Fellow in Law and Economics, April 8-12, 1996 and September 25-29, 2000
Northwestern University School of Law:
Class of 1967 James B. Haddad Professor of Law, September 1994-August 1995
Harry B. Reese Teaching Professor, 1994-1995
Professor of Law, May 1991-September 1994

Associate Professor, May 1989-May 1991
Assistant Professor, September 1986-May 1989.
Research Fellow, American Bar Foundation, September 1986-August 1995.
Visiting Professor, University of Chicago Law School, January 1992-June 1992.
Visiting Professor of Law and Economics, University of Virginia Law School, January 1990-May 1990.
Fellow, Yale Law School Program in Civil Liability, July 1985-August 1986.
Private Practice (part-time), New Haven, Connecticut, September 1981-August 1986.
Instructor in Economics, Yale College, September 1983-August 1985.
Summer Associate, Donovan Leisure Newton & Irvine, New York, Summer 1982.
Associate Attorney, Covington & Burling, Washington, D.C., October 1978-July 1981 (including last six months as Attorney, Neighborhood Legal Services)
Law Clerk to Chief Justice T. Emmet Clarie, U.S. District Court, Hartford, Connecticut, September 1977-August 1978.
Summer Associate, Perkins, Coie, Stone, Olsen & Williams, Seattle, Washington, Summer 1976.
Research Assistant, Prof. Laurence Lynn, Kennedy School of Government, Harvard University, Summer 1975.
LSAT Tutor, Stanley Kaplan Education Center, Boston, Massachusetts; Research Assistant, Prof. Philip Heymann, Harvard Law School; Research Assistant, Prof. Gordon Chase, Harvard School of Public Health. (During Law School)

EDUCATION

Yale University, 1981-1986

University Fellow in Economics; M.A. 1982, M. Phil. 1984, Ph.D. 1986.
Dissertation: ″A Continuous-Time Stochastic Model of Job Mobility: A Comparison of Male-Female Hazard Rates of Young Workers.″ Awarded with Distinction by Yale.
Winner of the Michael E. Borus Award for best social science dissertation in the last three years making substantial use of the National Longitudinal Surveys--awarded by the Center for Human Research at Ohio State University on October 24, 1988.
National Research Service Award, National Institute of Health.
Member, Graduate Executive Committee; Graduate Affiliate, Jonathan Edwards College.

Harvard Law School, 1974-1977 (J.D.)

Graduated Cum Laude.
Activities: Law Clerk (Volunteer) for Judge John Forte, Appellate Division of the District Court of Central Middlesex; Civil Rights, Civil Liberties Law Review; Intra-mural Athletics; Clinical Placement (Third Year): (a) First Semester: Massachusetts Advocacy Center; (b) Second Semester: Massachusetts Attorney General's Office--Civil Rights and Consumer Protection Divisions. Drafted comments for the Massachusetts Attorney General on the proposed U.S. Department of Justice settlement of its case against Bechtel Corporation's adherence to the Arab Boycott of Israeli companies.

Hamilton College, 1970-1974 (B.A.)

Departmental Honors in both Economics and Mathematics
Phi Beta Kappa (Junior Year)

Graduated fourth in class with the following academic awards:
Brockway Prize
Edwin Huntington Memorial Mathematical Scholarship
Fayerweather Prize Scholarship
Oren Root Prize Scholarship in Mathematics
President, Root-Jessup Public Affairs Council.

V. PUBLICATIONS

Books and Edited Volumes:

Employment Discrimination: Law and Theory, Foundation Press, 2005, 2009 (2d edition) (with George Rutherglen).

Economics of Labor and Employment Law: Volumes I and II, Edward Elgar Publishing, 2007. http://www.e-elgar.co.uk/bookentry_main.lasso?id=4070

Foundations of Employment Discrimination Law, Foundation Press, 2d edition (2003).

Foundations of Employment Discrimination Law, Oxford University Press (1997) (Initial edition).

Blog Posts:

"It Takes Laws to Control the Bad Guys," The New York Times -- Room For Debate: http://www.nytimes.com/roomfordebate/2011/01/11/more-guns-less-crime (January 11, 2011).

"Have "Woman-Protective" Studies Resolved the Abortion Debate? Don't Bet on It," http://balkin.blogspot.com/2008/09/have-woman-protective-studies-resolved.html (September 2008).

"Dodging the Death Penalty Bullet On Child Rape," http://balkin.blogspot.com/2008/07/dodging-death-penalty-bullet-on-child.html (July 2008).

"Why I'd Stick With Yale Clerks-- Some Econometric Ruminations," http://balkin.blogspot.com/2008/04/why-id-stick-with-yale-clerks-some.html (April 2008).

Articles:

"Punishment is a Cost, Not a Benefit," Review of Mark A. R. Kleiman's "When Brute Force Fails: How to Have Less Crime and Less Punishment," XLVII Journal of Economic Literature (March 2010), 168-172.

"The Politics of Judicial Opposition: Comment," Journal of Institutional and Theoretical Economics, 166(1), 108—114 (2010).

"Introduction to the Death Penalty Symposium," 11 American Law and Economics Review. v (Fall 2009) (with Steve Shavell).

"Estimating the Impact of the Death Penalty on Murder," 11 American Law and Economics Review. 249 (Fall 2009) (with Justin Wolfers).

"The Impact of the Death Penalty on Murder," Criminology & Public Policy (November 2009, Volume 8, Issue 4) at pp. 795-801.

"The Impact of Legalized Abortion on Teen Childbearing," 11 American Law and Economics Review 24 (2009) (with Jeff Grogger and Steven Levitt).

"Assessing the Relative Benefits of Incarceration: The Overall Change Over the Previous Decades and the Benefits on the Margin," in Steven Raphael and Michael Stoll, eds., "Do Prisons Make Us Safer? The Benefits and Costs of the Prison Boom," pp. 269-341 (2009).

"More Guns, Less Crime Fails Again: The Latest Evidence from 1977-2006," 6 Econ Journal Watch 218-233 (May 2009)(with Ian Ayres).

"Yet Another Refutation of the More Guns, Less Crime Hypothesis – With Some Help From Moody and Marvell," 6 Econ Journal Watch 35-59 (January 2009)(with Ian Ayres).

"AntiDiscrimination Law," in Steven Durlauf and Lawrence Bloom, eds., The New Palgrave Dictionary of Economics, 2d Edition, 2008.

"Murder in Decline in the 1990s: Why the U.S. and N.Y.C. Were Not That Special," Punishment and Society 10: 333 (2008) at http://pun.sagepub.com

"Understanding the 1990s Crime Drops in the U.S. and Canada," Canadian Journal of Criminology and Criminal Justice, Vol 49, No. 4, p. 552 (October 2007) at http://www.ccja-acjp.ca/en/cjcr200/cjcr278.html

"The Law and Economics of Antidiscrimination Law," A. M. Polinsky and Steven Shavell, eds., Handbook of Law and Economics, Volume 2 (2007), Pages 1387-1472.

"Economic Models of Crime and Punishment," Social Research, Vol. 74: No. 2, Summer 2007, pp. 379-412.

"Rethink the War on Drugs," Yale Law Reports, Summer 2007, pp. 46-47.

"More Cops," Brookings Policy Brief #158, March 2007 (with Jens Ludwig), http://www.brookings.edu/papers/2007/03crime_john-j--donohue-iii.aspx.

"Studying Labor Market Institutions in the Lab: Minimum Wages, Employment Protection, and Workfare: Comment," Journal of Theoretical and Institutional Economics, 163(1), 46—51 (March 2007).

"The Impact of Damage Caps on Malpractice Claims: Randomization Inference with Difference-in-Differences," (with Daniel Ho), 4 Journal of Empirical Legal Studies 69 (2007).

"The Discretion of Judges and Corporate Executives: An Insider's View of the Disney Case," The Economists' Voice: Vol. 3: No. 8, Article 4. Available at: http://www.bepress.com/ev/vol3/iss8/art4

"The Knicks Boldly Go Where Companies Have Not," The New York Times, July 2, 2006 Sunday (with Ian Ayres).

"The Death Penalty: No Evidence of Deterrence," The Economists' Voice, (with Justin Wolfers) (April 2006), http://bpp.wharton.upenn.edu/jwolfers/Press/DeathPenalty(BEPress).pdf.

Reprinted in Stiglitz, Edlin, and DeLong (eds), The Economists' Voice: Top Economists Take on Today's Problems (2008).

"The Costs of Wrongful-Discharge Laws," 88 Review of Economics and Statistics (with David Autor and Stewart Schwab)(2006), pp. 211-31.

"Security, Democracy, and Restraint," 1 Opening Argument 4 (February 2006).

Reprinted in Loch Johnson and James Wirtz, Intelligence and National Security: An Anthology 406-407 (2d ed. 2008).

"Uses and Abuses of Empirical Evidence in the Death Penalty Debate," 58 Stanford Law Review 791 (2005) (with Justin Wolfers).

Reprinted in Steven Levitt and Thomas Miles, eds., The Economics of Criminal Law, Edward Elgar Publishing (2008).

Reprinted in Robert Cooter and Francesco Parisi, eds., Foundations of Law and Economics, Edward Elgar Publishing (2010)

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Winner of the 1989 Scholarly Paper Competition, Association of American Law Schools.

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WORKSHOPS AND ADDRESSES

"Drug Legalization and its Alternatives," *Lessons from the Economics of Crime: What Works in Reducing Offending?* **CESifo Venice Summer Institute Workshop,** July 22 , 2011

"Incapacitating Addictions: Drug Policy and American Criminal Justice," in Rethinking the War on Drugs through the US-Mexico Prism," **Yale Center for the Study of Globalization**, May 12, 2011.

Plenary Session: Flashes of Genius (Glimpses of Extra-ordinarily Novel Thinking) -- "Has Legalized Abortion Reduced Crime?" **Renaissance Weekend**, Liguna Niguel, CA., Feb. 18, 2011.

"An Evidence-Based Look at the More Guns, Less Crime Theory (after Tucson)" The American Constitution Society for Law and Policy (ACS), **Stanford Law School**, January 25, 2011; **Renaissance Weekend**, Liguna Niguel, CA., Feb. 19, 2011; "Faculty Forum" at the External Relations Office, **Stanford Law School**, April 5, 2011.

"Empirical Evaluation of Law: The Dream and the Nightmare," Legal Studies Workshop, **Stanford Law School**, Feb. 7, 2011; **Renaissance Weekend**, Liguna Niguel, CA., Feb. 20, 2011; **University of Denver Sturm College of Law**, April 22, 2011; Presidential Address, Annual Meeting of the American Law and Economics Association, **Columbia University**, May 20, 2011.

Death Sentencing in Connecticut," **American Society of Criminology Annual Meeting**, San Francisco, Nov. 17, 2010.

"The Impact of Right to Carry Laws and the NRC Report: Lessons for the Empirical Evaluation of Law and Policy," Conference on Empirical Legal Studies, **Yale Law School**, Nov. 6, 2010.
Comment on Bushway and Gelbach, "Testing for Racial Discrimination in Bail Setting Using Nonparametric Estimation of a Parametric Model," Conference on Empirical Legal Studies, **Yale Law School**, Nov. 6, 2010.

Commentator, "A Test of Racial Bias in Capital Sentencing," **NBER Political Economy Program Meeting**, April 23, 2010.
"The Challenge to the Connecticut Death Penalty," **Yale Law School**, Death Penalty Clinic, November 5, 2007; Graduate Student Seminar, November 11, 2009; Stanford Program in International Legal Studies Seminar, **Stanford Law School**, Nov. 11, 2010; Faculty Workshop, **Stanford Law School**, June 8, 2011.

"The (Lack of a) Deterrent Effect of Capital Punishment," Faculty Workshop, **University of Chicago Economics Department**, October 21, 2009.
"Rethinking America's Illegal Drug Policy," Law and Economics Workshop, **Harvard Law School**, April 20, 2010; NBER Conference, "Economical Crime Control," **Boalt Hall**, Berkeley, CA, January 16, 2010; **NBER Summer Institute** Pre-Conference "Economical Crime Control," July 23, 2009; **Whitney Center** Lecture Series, Hamden, CT, October 5, 2009; Law and Economics Workshop, **University of Chicago Law School**, October 13, 2009; Seminar for Spanish Law Professors, **Harvard Law School**, October 23, 2009; The Criminal Law Society, **Stanford Law School**, March 31, 2011, **University of Denver Sturm College of Law**, April 21, 2011.

Keynote Address, "The Evolution of Econometric Evaluation of Crime and Deterrence,"1st Paris& Bonn Workshop on Law and Economics: The Empirics of Crime and Deterrence, **University of Paris Ouest Nanterre,** September 24, 2009.
Comment on Cook, Ludwig, and Samaha, "Gun Control after *Heller*: Litigating Against Regulation," NBER Regulation and Litigation Conference, **The Boulders**, Carefree, Arizona, September 11, 2009.
"Impact of the Death Penalty on Murder in the US," Faculty Workshop, Law School, **Universitat Pompeu Fabra (Barcelona),** June 18, 2009.
Comment on Joanna Shepherd's "The Politics of Judicial Opposition," Journal of Institutional and Theoretical Economics Conference, **Kloster Eberbach, Germany**, June 12, 2009.
"The Great American Crime Drop of the '90s: Some Thoughts on Abortion Legalization, Guns, Prisons, and the Death Penalty," **Hamilton College**, Clinton, NY, June 5, 2009.
"The Impact of the ADA on the Employment and Earnings of the Disabled," **American Law and Economics Association Meetings**, University of San Diego, May 15, 2009.
"Crime and Punishment in the United States," **Eastern State Penitentiary, Yale Alumni Event**, Philadelphia, PA, April 26, 2009.
"Measuring Culpability in Death Penalty Cases," Conference on Applications of Economic Analysis in Law, **Fuqua School of Business, Duke University,** April 18, 2009.

"Autopsy of a Financial Crisis," Workshop on New International Rules and Bodies for Regulating Financial Markets, **State University of Milan**, March 23, 2009.

"Yet Another Refutation of the More Guns, Less Crime Hypothesis – With Some Help From Moody and Marvell, Law and Economics Workshop**, NYU Law School**, March 10, 2009.

Intelligence-Squared Debate: "Guns Reduce Crime," **Rockefeller University**, New York, October 28, 2008.

"The D.C. Handgun Controls: Did the Supreme Court's Decision Make the City Safer?" Debate, **The Contemporary Club of Albemarle**, Charlottesville, VA, October 23, 2008.

"Evaluating the Empirical Claims of the Woman-Protective Anti-Abortion Movement," Panel on The Facts of the Matter: Science, Public Health, and Counseling, Yale Conference on the Future of Sexual and Reproductive Rights, **Yale Law School**, October 11, 2008.

"Can You Believe Econometric Evaluations of Law, Policy, and Medicine?" **Stanford Law School**, Legal Theory Workshop, March 1, 2007; Faculty Workshop, **Tel Aviv University School of Law**, May 14, 2007; Faculty Workshop, **University of Haifa Law School**, May 16, 2007; Law and Economics Workshop, **Georgetown Law School**, September 19, 2007; Law and Economics Workshop, **St. Gallen Law School**, Switzerland, November 29, 2007; and Yale Law School, February 25, 2008; Law and Economics Workshop, **Swiss Institute of Technology**, Zurich, Switzerland, May 21, 2008; Faculty Workshop, **University of Virginia Law School,** October 24, 2008; Plenary Session, Latin American and Caribbean Law and Economics Association, **Universitat Pompeu Fabra (Barcelona),** June 15, 2009.

"Empirical Evaluation of Gun Policy," **Harvard Law School**, October 9, 2008.

"Assessing the Relative Benefits of Incarceration: The Overall Change Over the Previous Decades and the Benefits on the Margin," **Russell Sage Foundation**, New York, May 3, 2007; Law and Economics Workshop, **Tel Aviv University School of Law**, May 28, 2008.

Death Penalty Debate with Orin Kerr, Bloggingheads, April 11, 2008.

"Evaluating Connecticut's Death Penalty Regime," Faculty Public Interest Conversation, **Yale Law School**, April 9, 2008.

"The Death Penalty in Connecticut and the United States," **The Whitney Center**, Hamden, CT, November 5, 2007; Seminar on Advanced Criminal Law: Criminal Sentencing and the Death Penalty, **Fordham Law School**, April 8, 2008; Law and Economics Workshop, **Swiss Institute of Technology**, Zurich, Switzerland, May 20, 2008.

Radio Interview, "The Death of Capital Punishment?" Morning Edition: Where We Live. WNPR. Connecticut, March 10, 2008.

Comment on Thomas Dee's "Born to Be Mild: Motorcycle Helmets and Traffic Safety," **American Economics Association Meetings,** New Orleans, Louisiana, January 4, 2008.

"The Empirical Revolution in Law and Policy: Jubilation and Tribulation," **Keynote Address, Conference on Empirical Legal Studies, NYU Law School,** Novermber 9, 2007.

"The Optimal Rate of Incarceration," **Harvard Law School**, October 26, 2007.

"Empirical Evaluation of Law: The Impact on U.S Crime Rates of Incarceration, the Death Penalty, Guns, and Abortion," Law and Economics Workshop, **St. Gallen Law School, Switzerland**, June 25, 2007.

Comment on Eric Baumer's "A Comprehensive Assessment of the Contemporary Crime Trends Puzzle," Committee on Law and Justice Workshop on Understanding Crime Trends, **National Academy of Sciences**, Washington, D.C., April 25, 2007.

Comment on Bernard Harcourt, Third Annual Criminal Justice Roundtable Conferemce, **Yale Law School, "**Rethinking the Incarceration Revolution Part II: State Level Analysis," April 14, 2006.

"Corporate Governance in America: The Disney Case," **Catholic University Law School**, Milan, Italy, March 19, 2007.

"The U.S Tort System," (Latin American) Linkages Program, **Yale Law School**, February 13, 2007.

Panel Member, "Guns and Violence in the U.S.," **Yale University, International Center**, January 24, 2007.

"Economic Models of Crime and Punishment," Punishment: The U.S. Record: A Social Research Conference at **The New School**, New York City, Nov. 30, 2006

Comment on Baldus et al, "Equal Justice and the Death Penalty: The Experience fo the United States Armed Forces, Conference on Empirical Legal Studies, **University of Texas Law, School**, Austin, Texas, October 27, 2006.

"Empirical Evaluation of Law: The Promise and the Peril,"**Harvard Law School**, October 26, 2006.

"Estimating the Impact of the Death Penalty on Murder," Law and Economics Workshop, **Harvard Law School**, September 12, 2006; Conference on Empirical Legal Studies, **University of Texas Law School**, October 28, 2006; Joint Workshop, Maryland Population Research Center and School of Public Policy, **University of Maryland,** March 9, 2007.

"Why Are Auto Fatalities Dropping so Sharply?" **Faculty Workshop, Wharton**, Philadelphia, PA, April 19, 2006.

"The Law of Racial Profiling," Law and Economic Perspectives on Profiling Workshop, **Northwestern University Department of Economics**, April 7, 2006.

"Landmines and Goldmines: Why It's Hard to Find Truth and Easy To Peddle Falsehood in Empirical Evaluation of Law and Policy," **Rosenthal Lectures, Northwestern University School of Law**, April 4-6, 2006.

"The Impact of Legalized Abortion on Crime," **American Enterprise Institute**, March 28, 2006.

"The Impact of Damage Caps on Malpractice Claims: Randomization Inference with Difference-in-Differences,"**Conference on Medical Malpractice, The Rand Corporation**, March 11, 2006.

"Powerful Evidence the Death Penalty Deters?" **Leighton Homer Surbeck Chair Lecture, Yale Law School**, March 7, 2006.

"Uses and Abuses of Empirical Evidence in the Death Penalty Debate," Faculty Workshop, **University of Connecticut Law School,** October 18, 2005; Faculty Workshop, **UCLA Law School**, February 3, 2006; Law and Economics Workshop, **Stanford Law School**, February 16, 2006; ; Law Faculty, **University of Cambridge, Cambridge, England**, February 28, 2006; **University of Illinois College of Law,** Law and Economics Workshop, March 2, 2006; Faculty Workshop, **Florida State University Law School**, March 30, 2006; **ALEA**,

Berkeley, CA May 6, 2006; **University of Chicago Law School,** Law and Economics Workshop, May 9, 2006.

"Is Gun Control Illiberal?" Federalist Society Debate with Dan Kahan at Yale Law School, January 31, 2006.

"Witness to Deception: An Insider's Look at the Disney Trial," **2005-2006 Distinguished Lecture, Boston University School of Law**, November 10, 2005; Center for the Study of Corporate Law, **Yale Law School**, November 3, 2005; **Law Offices of Herbert Smith, London, England**, February 23, 2006; Law Faculty, **University of Cambridge, Cambridge, England**, February 27, 2006.

"Understanding the Surprising Fall in Crime in the 1990s," **Rotary Club**, Orange, CT, August 5, 2005; Faculty Workshop, **Yale School of Management**, September 21, 2005.

Panel Member, "The Board's Role in Corporate Strategy," The Yale Global Governance Forum, **Yale School of Management**, September 8, 2005.

"Crime and Abortion," **Museo de la Cuidad de Mexico**, Mexico City, October 20, 2003.

"Allocating Resources towards Social Problems and Away From Incarceration as a Means of Reducing Crime," **MacArthur Foundation Research Network on Adolescent Development and Juvenile Justice**, San Francisco, CA, February 28, 2003.

"Shooting Down the More Guns, Less Crime Hypothesis," **Stanford Law School**, Law and Economics Seminar, January 28, 2003; Faculty Workshop, Center for the Study of Law and Society, **Boalt Hall**, University of California, Berkeley, Feb. 24, 2003; Development Workshop, **Stanford Law School**, April 25, 2003; Faculty Workshop, **Stanford Law School**, July 2, 2003; Law and Public Affairs Program Workshop, **Princeton University,** September 29, 2003; Stanford Alumni Weekend, **Stanford University**, October 17, 2003; Faculty Workshop, **CIDE**, Mexico City, October 20, 2003.

"The Impact of Legalized Abortion on Teen Childbearing," **NBER Labor Summer Institute**, Cambridge, MA, July 30, 2002.

"Do Concealed Handgun Laws Reduce Crime?" Faculty Workshop, **Stanford Law School**, October 4, 2000; First-Year Orientation, **Stanford Law School**, September 5, 2001; Faculty Workshop, **Harvard Law School**, April 26, 2002; Faculty Workshop, **Columbia Law School**, April 29, 2002.

"The Evolution of Employment Discrimination Law in the 1990s: An Empirical Investigation," Fellows Workshop, American Bar Foundation, February 11, 2002.

"The Role of Discounting in Evaluating Social Programs Impacting on Future Generations: Comment on Arrow and Revesz," Colloquium on Distributive Justice, **Stanford Law School**, Oct. 18, 2001.

"The Impact of Wrongful Discharge Laws," **NBER Labor Summer Institute**, Cambridge, MA, July 30, 2001; Labor and Employment Seminar, **NYU Law School**, October 16, 2001; Faculty Workshop, **Stanford Law School**, September 18, 2002; **Yale Law School**, January, 2004.

"Racial Profiling: Defining the Problem, Understanding the Cause, Finding the Solution," **American Society of Criminology Conference**, San Francisco, CA, November 15, 2000.

"Institutional Architecture for Building Private Markets," Conference on "Latin America and The New Economy" at **Diego Portales University** in Santiago, Chile, October 26, 2000.

"The History and Current Status of Employment Discrimination Law in the United States," Unicapital School of Law, (Centro Universitario Capital), Sao Paulo, Brazil, March 10, 2000.

"Corporate Governance in Developing Countries: Opportunities and Dangers," Conference on Neoliberal Policies for Development: Analysis and Criticism," University of Sao Paulo Law School, March 13, 2000

"Legalized Abortion and Crime," Law and Economics Workshop, **University of Pennsylvania Law School**, September 21, 1999; Faculty Workshop, **Yale Law School**, September 27, 1999; **John Jay College of Criminal Justice**, October 7, 1999; Faculty Workshop, **Quinnipiac Law School**, October 13, 1999; Faculty Workshop, **University of Connecticut Law School**, October 19, 1999; **University of Virginia Law School**, October 25, 1999; Faculty Workshop, **Baruch College**, November 9, 1999; MacArthur Foundation Social Interactions and Economic Inequality Network Meeting, **Brookings Institution**, December 4, 1999; Faculty Workshop, **NYU Law School**, January 21, 2000; Faculty Workshop, **University of San Diego Law School**, February 18, 2000; Public Economics Workshop, Department of Economics, **Stanford University**, April 28, 2000; Law and Economics Workshop, **University of California at Berkeley Law School**, September 18, 2000; Faculty Workshop, **Cornell Law School**, September 26, 2000; OB-GYN Grand Rounds, **Stanford Medical School**, October 2, 2000; **Center for Advanced Studies in the Behavioral Sciences,** October 11, 2000; Faculty Workshop, **Graduate School of Business**, February 5, 2002.

Panel member, Session on Executive Compensation, Director's College, **Stanford Law School**, March 23, 1999.

"Exploring the Link Between Legalization of Abortion in the 1970s and Falling Crime in the 1990s," Law and Economics Workshop, **Harvard Law School**, March 16, 1999; Law and Economics Workshop, **University of Chicago Law School**, April 27, 1999; Faculty Workshop, **Stanford Law School**, June 30, 1999.

"Is the Increasing Reliance on Incarceration a Cost-Effective Strategy of Fighting Crime?" Faculty Workshop**, University of Wisconsin School of Social Science**, February 19, 1999.

"What Do We Know About Options Compensation?" Institutional Investors Forum**, Stanford Law School**, May 29, 1998.

Commentator on Orlando Patterson's presentation on "The Ordeal of Integration," **Stanford Economics Department**, May 20, 1998.

"Understanding The Time Path of Crime," Presentation at Conference on Why is Crime Decreasing? **Northwestern University School of Law**, March 28, 1998; Faculty Workshop, **Stanford Law School**, September 16, 1998; Faculty Workshop, **University of Michigan Law School**, February 18, 1999.

Commentator, Conference on Public and Private Penalties, the **University of Chicago Law School**, Dec. 13-14, 1997.

"Some Thoughts on Affirmative Action," Presentation at a conference on Rethinking Equality in the Global Society, **Washington University School of Law**, November 10, 1997.

Commentator on Chris Jencks' Presentation on Welfare Policy, **Stanford Economics Department**, October 8, 1997.

"The Impact of Race on Policing, Arrest Patterns, and Crime," Faculty Workshop, **Stanford Law School**, September 10, 1997; Law and Economics Workshop, **University of Southern**

California Law School, October 23, 1997; Law and Economics Workshop, **Columbia University Law School**, November 24, 1997; Law and Economics Workshop, Haas School of Business**, University of California at Berkeley**, February 19, 1998; Annual Meeting of the American Law and Economics Association, **University of California at Berkeley**, May 8, 1998; Conference on the Economics of Law Enforcement, **Harvard Law School**, October 17, 1998.

"Crime in America: Understanding Trends, Evaluating Policy," **Stanford Sierra Camp**, August 1997.

"Executive Compensation: What Do We Know?" TIAA-CREF Committees on Corporate Governance and Social Responsibility, Center for Economic Policy Research, **Stanford University**, June 27, 1997; NASDAQ Director's Day, **Stanford University**, June 30, 1997.

Panel Chair, Criminal Law (Theory), Criminal Law (Empirical), and Labor/Discrimination/Family Law, American Law and Economics Association, **University of Toronto Law School**, May 9-10, 1997.

Commentator, "Diversity in Law School Hiring," **Stanford Law School**, February 25, 1997.

Keynote Speaker, "The Optimal Rate of Crime," 11th Annual Conference, **The Oklahoma Academy for State Goals**, Tulsa, Oklahoma, May 7, 1996.

Panel member, Session on Executive Compensation, Director's College, **Stanford Law School**, March 28-29, 1996.

"The Power of Law: Can Law Make a Difference in Improving the Position of Women and Minorities in the Labor Market?" The Fellows of the **American Bar Foundation**, Baltimore, Maryland, February 3, 1996.

"Public Action, Private Choice and Philanthropy: Understanding the Sources of Improvement in Black Schooling Quality in Georgia, 1911-1960," **Stanford Faculty Workshop**, January 24, 1996; Faculty Workshop, **University of Virginia Law School**, January 22, 1997; **National Bureau of Economic Research**, Cambridge, Massachusetts, Labor Studies Conference, April 3, 1998.

Commentator, "The Effect of Increased Incarceration on Crime," Meetings of the **American Economics Association**, San Francisco, January 6, 1996.

Commentator, Symposium on Labor Law, **University of Texas Law School**, November 10-11, 1995.

Panel Member, Symposium on Criminal Justice, **Stanford Law School**, October 6-7, 1995.

Commentator, "The Litigious Plaintiff Hypothesis," Industrial and Labor Relations Conference, **Cornell University**, May 19, 1995.

Commentator on Keith Hylton's, "Fee Shifting and Predictability of Law," Faculty Workshop, **Northwestern University School of Law**, February 27, 1995.

"The Selection of Employment Discrimination Disputes for Litigation: Using Business Cycle Effects to Test the Priest/Klein Hypothesis," **Stanford University**, Law and Economics Seminars, October 31, 1994.

"Is the United States at the Optimal Rate of Crime?" Faculty Workshop, **Indiana University School of Law**, Indianapolis, November 18, 1993; Faculty Workshop, **Northwestern University School of Law**, April 18, 1994; Law and Economics Workshop, **Stanford Law School**, April 28, 1994; Meetings of the American Law and Economics Association,

Stanford Law School, May 13, 1994; **American Bar Foundation**, September 7, 1994; Faculty Workshop, **DePaul Law School**, September 21, 1994; Law and Economics Workshop, **University of Chicago Law School**, October 11, 1994; Faculty Seminar, **Stanford Law School**, October 31, 1994; Law and Economics Luncheon, **Stanford Law School**, November 1, 1994; Faculty Seminar Workshop, **University of Illinois College of Law**, Champaign, November 22, 1994; Law and Economics Workshop, **Harvard Law School**, November 29, 1994; School Alumni Luncheon, Chicago Club, December 13, 1994; **Northwestern Law School**; Law and Economics Workshop, **Yale Law School**, February 1, 1996; Faculty Workshop, **Cornell Law School**, April 10, 1996; Faculty Workshop, **Tokyo University Law School**, June 4, 1996; Panel on ″The Economics of Crime,″ **Western Economics Association** Meeting, San Francisco, July 1, 1996.

″The Broad Path of Law and Economics,″ Chair Ceremony, **Northwestern University School of Law**, September 30, 1994.

Commentator on Paul Robinson's ″A Failure of Moral Conviction,″ **Northwestern University School of Law**, September 20, 1994.

″The Do's of Diversity, The Don'ts of Discrimination,″ Kellogg School of Business, **Northwestern University**, May 17, 1994.

″Does Law Matter in the Realm of Discrimination?″ **Law and Society Summer Institute**, Pala Mesa Lodge, Fallbrook, California, June 25, 1993.

Commentator, ″The Double Minority: Race and Sex Interactions in the Job Market,″ Society for the Advancement of Socio-Economics, **New School for Social Research**, March 28, 1993.

″The Effects of Joint and Several Liability on Settlement Rates: Mathematical Symmetries and Meta-Issues in the Analysis of Rational Litigant Behavior,″ Economic Analysis of Civil Procedure, **University of Virginia School of Law**, March 26, 1993.

Debate with Richard Epstein on Employment Discrimination Law, **Chicago Federalist Society**, February 23, 1993.

Panel Chair, ″Optimal Sanctions and Legal Rules in Tort and Criminal Law,″ Meetings of Annual Association of Law and Economics, **Yale Law School**, May 15, 1992.

Panel Member, ″The Law and Economics of Employment at Will,″ **The Institute For Humane Studies**, Fairfax, Virginia, March 27, 1992.

″The Efficacy of Title VII,″ Debate with Professor Richard Epstein, **University of Chicago Law School**, February 26, 1992.

Moderator, ″Using Testers to Demonstrate Racial Discrimination,″ **University of Chicago Law School**, February 13, 1992.

″Law & Macroeconomics: The Effect of the Business Cycle on Employment Discrimination Litigation,″ Law and Society Workshop, **Indiana University**, November 6, 1991; Faculty Workshop, **University of North Carolina Law School**, Chapel Hill, November 8, 1991; Faculty Workshop, **Northwestern University School of Law**, December 11, 1991; Law and Economics Conference, **Duquesne Law School**, March 14, 1992; **University of Chicago Law School**, April 2, 1992.

Panel Chair and Commentator, ″New Perspectives on Law and Economics,″ **Society for the Advancement of Socioeconomics**, Stockholm, June 17, 1991; **Law and Society Meetings**, Amsterdam, June 29, 1991.

Panel Chair, ″Regulation of International Capital Markets,″ **Law and Society Meetings**, Amsterdam, June 27, 1991.

Panel Chair, ″The Law and Economics of Discrimination,″ American Association of Law and Economics, **University of Illinois Law School**, May 24, 1991.

″The Economics of Employment Discrimination Law,″ **Industrial Relations Research Association**, Chicago, Illinois, March 4, 1991.

″Does Current Employment Discrimination Law Help or Hinder Minority Economic Empowerment?″ Debate with Professor Richard Epstein, The Federalist Society, **Northwestern Law School**, February 26, 1991.

Panel Member, ″The Law and Economics of Employment Discrimination,″ **AALS Annual Meeting**, Washington, D.C., January 6, 1991.

″Re-Evaluating Federal Civil Rights Policy,″ Conference on the Law and Economics of Racial Discrimination in Employment, **Georgetown University Law Center**, November 30, 1990.

″Opting for the British Rule,″ Faculty Seminar, **Northwestern Law School**, September 11, 1990; Faculty Seminar, **University of Virginia Law School**, September 14, 1990; Law and Economics Seminar, **University of Michigan Law School**, October 18, 1990; Faculty Workshop, **NYU Law School**, November 14, 1990; Faculty Workshop, **University of Florida Law School**, March 18, 1991.

″The Effects of Fee Shifting on the Settlement Rate: Theoretical Observations on Costs, Conflicts, and Contingency Fees,″ at the **Yale Law School Conference** ″Modern Civil Procedure: Issues in Controversy,″ June 16, 1990.

″Studying the Iceberg From Its Tip?: An Analysis of the Differences Between Published and Unpublished Employment Discrimination Cases,″ **Law and Society Meetings**, Berkeley, California, May 31, 1990.

Panel Discussion on Tort Reform, **University of Pennsylvania Law School**, April 27, 1990.

Panel Discussion of ″The Role of Government in Closing the Socio-Economic Gap for Minorities,″ at the Federalist Society National Symposium on ″The Future of Civil Rights Law,″ **Stanford Law School**, March 16, 1990.

″Continuous versus Episodic Change: The Impact of Affirmative Action and Civil Rights Policy on the Economic Status of Blacks,″ **University of Virginia Economics Department**, February 15, 1990; **Princeton University Department of Economics**, February 21, 1990 (with James Heckman); Law & Economics Workshop, **University of Toronto Law School**, October 8, 1991.

″Sex Discrimination in the Workplace: An Economic Perspective,″ Fellows Seminar, **American Bar Foundation**, October 16, 1989.

″The Changing Nature of Employment Discrimination Litigation,″ Law and Economics Workshop, **Columbia Law School**, March 23, 1989; Faculty Seminar, **University of Virginia Law School**, March 24, 1989; Law and Economics Workshop, **University of**

Chicago, April 25, 1989; **Law & Society Meeting**; Madison, Wisconsin, June 8, 1989; Labor Economics Workshop, **University of Illinois**, Chicago, November 1, 1989; Law & Economics Workshop, **University of Pennsylvania Law School**, November 9, 1989; Law and Economics Seminar, **University of California at Berkeley**, October 4, 1990; Law and Social Science Workshop, **Northwestern University**, February 3, 1991; Law and Economics Seminar, **Stanford Law School**, March 21, 1991; Faculty Workshop, **Cornell Law School**, April 3, 1991; Visiting Committee, **Northwestern Law School**, April 5, 1991.

″Law & Economics: The Third Phase,″ The Association of General Counsel, **Northwestern University School of Law**, October 14, 1988.

″Employment Discrimination Litigation,″ **Northwestern Law School** Alumni Monthly Loop Luncheon. **Chicago Bar Association**, May 31, 1988.

″The Morality of the Death Penalty.″ A debate with Ernest Van Den Haag. **Northwestern University School of Law**, April 19, 1988.

″Models of Deregulation of International Capital Markets.″ A presentation with David Van Zandt, Faculty Seminar, **Northwestern University School of Law**, April 1, 1988; Visiting Committee, May 5, 1988.

″Is Title VII Efficient?″ A debate with Judge Richard Posner, Faculty Seminar, **Northwestern University School of Law**, November 20, 1987.

″The Senate's Role in Confirming Supreme Court Nominees: The Historical Record,″ **Northwestern University School of Law**, September 22, 1987.

″Diverting the Coasean River: Incentive Schemes to Reduce Unemployment Spells,″ **Yale Law School** Civil Liability Workshop, March 30, 1987; Faculty Seminar, **Northwestern University School of Law**, March 18, 1987; **University of Southern California Law Center**, May 1, 1987; and Seminar in Law and Politics, Department of Political Science, **Northwestern University**, May 8, 1987; Labor Workshop, Department of Economics, **Northwestern University**, October 27, 1987; **AALS Annual Meeting**, New Orleans, January 7, 1989.

″Women in the Labor Market--Are Things Getting Better or Worse?″ **Hamilton College**, February 23, 1987.

″The Changing Relative Quit Rates of Young Male and Female Workers,″ **Hamilton-Colgate Joint Faculty Economics Seminar**, February 23, 1987.

″Living on Borrowed Money and Time--U.S. Fiscal Policy and the Prospect of Explosive Public Debt,″ **Orange Rotary Club**, February 22, 1985.

″Capital Punishment in the Eighties,″ **Hamilton College**, April 6, 1981.

″Terms and Conditions of Sale Under the Uniform Commercial Code,″ Executive Sales Conference, **National Machine Tool Builders' Association**, May 12, 1980.

PROFESSIONAL ACTIVITIES

Co-Editor (with Steven Shavell), American Law and Economics Review, May 2006 – present.

President, American Law and Economics Association, May 2011 – May 2012.

Testified before the Connecticut Legislature in Support of Senate Bill 1035 and House Bill 6425 (A Bill to Eliminate the Death Penalty)., March 7, 2011.

Member of the Special Committee on ALI Young Scholars Medal, October 2009 – February 2011..

Vice-President/President Elect, American Law and Economics Association, June 2010 – May 2011.

Secretary-Treasurer, American Law and Economics Association, June 2009 – May 2010.

Board of Advisors, Yale Law School Center for the Study of Corporate Law, July 2004 – August 2010.

Evaluated the Connecticut death penalty system: "Capitol Punishment in Connecticut, 1973-2007: A Comprehensive Evaluation from 4600 murders to One Execution," http://works.bepress.com/john_donohue/55/

Member, Panel on Methods for Assessing Discrimination, National Academy of Sciences, September 2001 – June 2004. Resulting Publication: National Research Council, Measuring Racial Discrimination (2004), http://www.nap.edu/catalog/10887.html

Member, National Science Foundation Review Panel, Law and Social Sciences, September, 1999 – April 2001.

Editorial Board, Journal of Empirical Legal Studies, July 2003 – present.

Editorial Board, International Review of Law and Economics, October 1999 – present.

Editorial Board, Law and Social Inquiry, February 2000 – present.

Board of Editors, American Law and Economics Review, August 1998 – present.

Consultant, Planning Meeting on Measuring the Crime Control Effectiveness of Criminal Justice Sanctions, National Academy of Sciences, Washington, D.C., June 11,1998
Member, Board of Directors, American Law and Economics Association, June 1994-May 1997. Member, ALEA Nominating Committee, July 1995-May 1996. Member, Program Committee, July 1996-May 1998 and July 2000 – May 2002.
Statistical Consultant, 7th Circuit Court of Appeals Settlement Conference Project (December, 1994).
Testified before U.S. Senate Labor Committee on evaluating the Job Corps, October 4, 1994.
Assisted the American Bar Association Standing Committee on the Federal Judiciary in evaluating the qualifications of Ruth Bader Ginsburg (June 1993) and David Souter (June, 1990).
Chair, AALS Section on Law and Economics, January 1990-January 1991.
Economic Consultant to Federal Courts Study Committee. Analyzing the role of the federal courts and projected caseload for Judge Richard Posner's subcommittee. February 1989-March 1990.
Member, 1990 AALS Scholarly Papers Committee.
Member, Advisory Board, Corporate Counsel Center, Northwestern University School of Law. Since December 1987.
Associate Editor, Law and Social Inquiry. Summer 1987-December 1989.

Interviewed Administrative Law Judge candidates for U.S. Office of Personnel Management. Chicago, Illinois. May 23, 1988.
Member, Congressman Bruce Morrison's Military Academy Selection Committee. Fall 1983.
1982 Candidate for Democratic Nomination, Connecticut State Senate, 14th District (Milford, Orange, West Haven).

PRO BONO LEGAL WORK

Death Penalty case: Heath v. Alabama. Fall 1986-Fall 1989.
Wrote brief opposing death sentence in Navy spy case. Court ruled in favor of defendant on September 13, 1985.
Staff Attorney, Neighborhood Legal Services, January-July 1981.
Appealed sentence of death for Georgia defendant to the United States Supreme Court. Sentence vacated on May 27, 1980. Baker v. Georgia.
Court-appointed representation of indigent criminal defendant in District of Columbia Superior Court, February-July 1980.

RESEARCH GRANTS

Stanford University Research Fund, January 1997 and January 1998.
The National Science Foundation (project with James Heckman), December 1992; (project with Steve Levitt), July 1997.
Fund for Labor Relations Studies, University of Michigan Law School, March 1988.

BAR ADMISSIONS

Connecticut - October 1977; District of Columbia - March 1978 (Currently Inactive Status); United States Supreme Court - November 1980; U.S. District Court for the District of Connecticut – February 14, 1978.

PROFESSIONAL and HONORARY ASSOCIATIONS

American Bar Association
American Economic Association
American Law and Economics Association
American Law Institute (since September 29, 2010).
Research Associate, National Bureau of Economic Research (since October 1996) – in Law and Economics and Labor Studies.
American Academy of Arts and Sciences (since April 2009).

PERSONAL

Born: January 30, 1953.

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Research Associate, National Bureau of Economic Research (since October 1996) – in Law and Economics and Labor Studies.
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PERSONAL

Born: January 30, 1953.