LETHAL ELECTIONS: GUBERNATORIAL POLITICS AND THE TIMING OF EXECUTIONS*

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ABSTRACT

We document the existence of a gubernatorial election cycle in state executions, which suggests that election-year political considerations play a role in determining the timing of executions. Our analysis indicates that states are approximately 25 percent more likely to conduct executions in gubernatorial election years than in other years. We also find that elections have a larger effect on the probability that an African-American defendant will be executed in a given year than on the probability that a white defendant will be executed and that the overall effect of elections is largest in the South.

I. INTRODUCTION

THE rapid increase over the past decade in both the number of executions conducted nationally and the number of states that utilize capital punishment has renewed interest in the policy ramifications of death penalty laws and their application. Figure 1 shows the trend in the number of executions by year from 1977 to 2000. In the period from 1976, when the death penalty was again ruled constitutional by the U.S. Supreme Court in *Gregg v. Georgia*, until the early 1990s, there was a gradual increase in the number of executions performed by state governments.[1] However, beginning in the early 1990s, the pace at which states have been executing defendants has accelerated rapidly, from approximately 20 executions per year in the early 1990s to a high of roughly 100 in 1999.

There have also been significant increases over this period in the number of states that have reinstated the death penalty and the percentage of death penalty states that have conducted executions. Figure 2 shows the trend in the number of states that have a death penalty over the sample period. At the beginning of the sample, only 28 states had a death penalty, but over the last 20 years, 10 more states have added death penalty laws. As the number

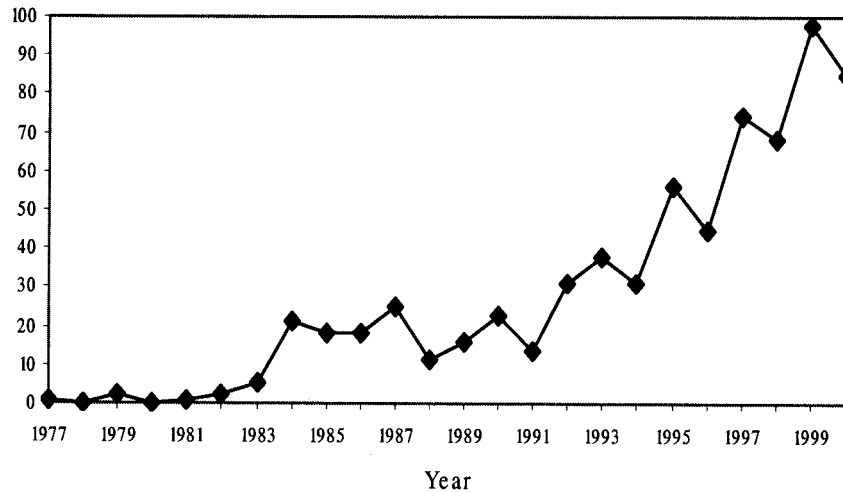[1] Gregg v. Georgia, 428 U.S. 153 (1976).

FIGURE 1.—Number of executions per year, 1977–2000

of states with the death penalty has increased, the percentage of these states that execute a defendant in a given year has also increased. Figure 3 shows the trends in the percentage of states that use the death penalty over time. Over the last 4 years of the sample, almost one-half of states with a death penalty used it in any given year.

These trends, although informative about what has occurred nationally, mask sizeable differences in the frequency with which states conduct executions. Table 1 presents the average number of executions performed in each death penalty state for the years in which the death penalty was in effect. The majority of death penalty states average fewer than one execution per year, which indicates that executions are rare events in most states. However, there are several states that conduct executions with considerable regularity, including Texas (with approximately 10 executions per year), Virginia (three executions per year), Florida (two executions per year), and Missouri (two executions per year).

In the absence of any consensus on the deterrent effects of capital punishment,[2] the focus of recent policy debates has shifted to the possible arbitrary application of the death penalty and the associated implications for

[2] Isaac Ehrlich, The Deterrent Effect of Capital Punishment: A Question of Life and Death, 65 Am. Econ. Rev. 397 (1975); Jeffrey T. Grogger, The Deterrent Effect of Capital Punishment: An Analysis of Daily Homicide Counts, 85 J. Am. Stat. Assoc. 295 (1990); Isaac Ehrlich & Zhiqiang Liu, Sensitivity Analysis of the Deterrence Hypothesis: Let's Keep the Econ in Econometrics, 42 J. Law & Econ. 455 (1999).
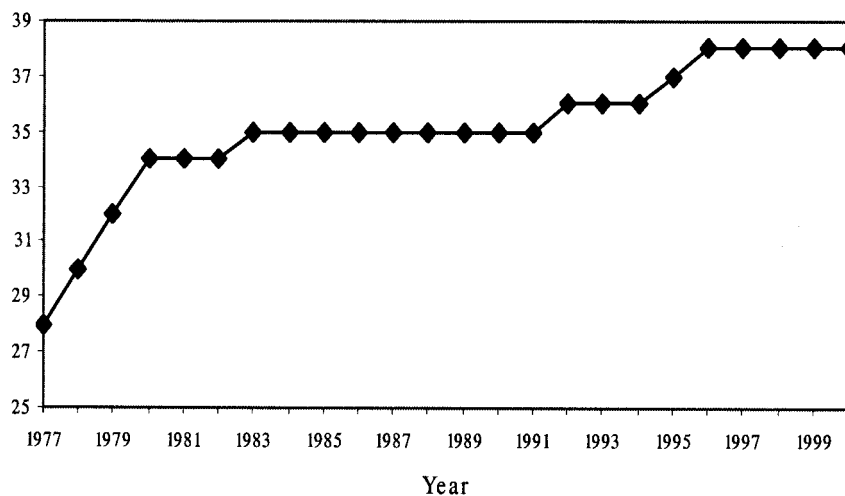
FIGURE 2.—Number of states with the death penalty, 1977–2000

defendants' due process rights.[3] This focus is consistent with the conditions set forth by the U.S. Supreme Court in *Gregg v. Georgia*, where the Court ruled that states could again impose the death penalty provided that its application was neither arbitrary nor discriminatory.[4] In evaluating whether current state practices meet these criteria, policy makers have for the most part focused on racial and other disparities observed at the sentencing stage of the process, with considerably less attention being paid to possible irregularities that exist at the time of execution.

In this paper, we conduct an analysis of the impact of gubernatorial elections on state executions.[5] We find that the occurrence of a gubernatorial election increases the probability of a state execution by approximately 25 percent. We also find that elections have a larger effect on the probability that an African-American defendant will be executed in a given year than

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[3] For conflicting evidence on the existence of racial disparities in the administration of the federal death penalty, see U.S. Department of Justice, The Federal Death Penalty System: A Statistical Survey (1988–2000) (2000); and U.S. Department of Justice, The Federal Death Penalty System: Supplementary Data, Analysis and Revised Protocols for Capital Case Review (2001).

[4] *Gregg,* 428 U.S. 153.

[5] State and local elections have previously been shown to exert an independent influence on other public policy decisions. See James M. Poterba, State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics, 102 J. Pol. Econ. 799 (1994); Steven D. Levitt, Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime, 87 Am. Econ. Rev. 270 (1997); and Jeffrey D. Kubik & John R. Moran, Can Policy Changes Be Treated as Natural Experiments? Evidence from State Excise Taxes (CPR Working Paper Ser. No. 39, Syracuse Univ., Dep't Econ. & Ctr. Pol. Res. 2001).
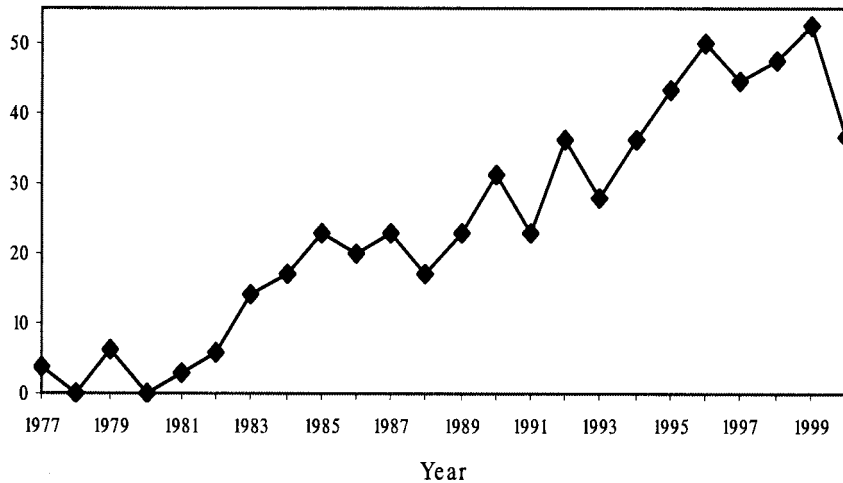
Figure 3.—Percentage of states with the death penalty that have an execution by year, 1977–2000.

on the probability that a white defendant will be executed and that the overall effect of elections is largest in the South. It is also interesting to note that the effect of elections is attenuated by the presence of gubernatorial term limits, which presumably weaken the incentives to manipulate the timing of executions for political gain. Although not definitive, we also present some evidence that the cyclical effects we identify lead to reductions in the amount of time that defendants spend on death row before they are executed.[6]

These results suggest that concerns about legal due process should not be restricted to the sentencing phase but should also extend to the manner in which defendants are selected for execution. The issue of how gubernatorial discretion is exercised in capital cases has taken on increased importance over time as the availability of postconviction judicial review has been increasingly limited at both the state and federal levels.[7]

Other recent work has also been concerned about the possibility that political and other extralegal factors may be playing a role in both the sentencing and punishment phases of capital cases. John Culver documents the widespread politicization of the death penalty at the state level and the sometimes

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[6] Unfortunately, the data do not permit us to determine the extent to which the additional executions performed in election years represent a net increase in the number of executions conducted or whether they are brought about purely through a reallocation of executions that would have taken place anyway. We discuss this issue in more depth in Section V.

[7] Laura I. Langbein, Politics, Rules and Death Row: Why States Eschew or Execute Executions, 80 Soc. Sci. Q. 629 (1999); William A. Pridemore, Empirical Examination of Commutations and Executions in Post-*Furman* Capital Cases, 17 Just. Q. 159 (2000).

TABLE 1

Number of Executions by State: 1977–2000

State	Year Death Penalty Reinstated	Average Yearly Executions
Alabama	1976	.96
Alaska	No death penalty	. . .
Arizona	1973	.92
Arkansas	1973	.96
California	1978	.36
Colorado	1975	.04
Connecticut	1973	0
Delaware	1974	.46
Florida	1972	2.08
Georgia	1973	.96
Hawaii	No death penalty	. . .
Idaho	1973	.04
Illinois	1974	.5
Indiana	1973	.29
Iowa	No death penalty	. . .
Kansas	1994	0
Kentucky	1975	.08
Louisiana	1973	1.08
Maine	No death penalty	. . .
Maryland	1975	.13
Massachusetts	No death penalty	. . .
Michigan	No death penalty	. . .
Minnesota	No death penalty	. . .
Mississippi	1974	.17
Missouri	1975	1.92
Montana	1974	.08
North Carolina	1977	.70
North Dakota	No death penalty	. . .
Nebraska	1973	.13
Nevada	1973	.33
New Hampshire	1991	0
New Jersey	1982	0
New Mexico	1979	0
New York	1995	0
Ohio	1974	.04
Oklahoma	1973	1.25
Oregon	1978	.09
Pennsylvania	1974	.13
Rhode Island	No death penalty	. . .
South Carolina	1974	1.04
South Dakota	1979	0
Tennessee	1974	.04
Texas	1974	9.96
Utah	1973	.25
Vermont	No death penalty	. . .
Virginia	1975	3.38
Washington	1975	.13
West Virginia	No death penalty	. . .
Wisconsin	No death penalty	. . .
Wyoming	1977	.04

NOTE.—Average yearly executions is the number of executions in a state in a year, either after 1976 or after the state adopted the death penalty.

intense political pressure that is brought to bear on elected officials who oppose capital punishment.[8] A well-known example is the removal of Rose Bird and two of her colleagues from the California Supreme Court, the first time in the state's history that appellate judges were removed from office. In a similar case, Penny White, a Tennessee Supreme Court justice, was the first appellate judge in Tennessee to lose a retention election, primarily because of her support for a controversial decision that overturned a death sentence in a high-profile murder case.

Culver also discusses the apparent political pressures that capital cases create for governors.[9] Examples include New Mexico's Toney Anaya (D; 1983–86), who in his last months in office commuted the death sentences of all five men on New Mexico's death row, and Ohio governor Richard Celeste (D; 1983–91), who commuted the death sentences of seven death row prisoners just 4 days before leaving office. The timing of executive decisions in these examples suggests that political considerations have played a role in the disposition of capital cases.

Another study, by Laura Langbein, examines whether the same racial and political factors that appear to play a role in determining which defendants receive the death penalty carry over to the decision to perform an execution.[10] Using data on a panel of death penalty states from 1977 to 1992, she finds that the number of executions performed in a state are significantly related to measures of black political power and the adoption by states of restrictions on the postconviction legal options of defendants. She also finds some evidence that the race and gender of victims play a role, as does the severity of the crime.

Finally, a recent study by William Pridemore examines the determinants of governors' commutation decisions.[11] Using data on 4,800 persons sentenced to death in the United States between 1974 and 1995, Pridemore finds that the number of commutations per execution in a state declines in gubernatorial election years compared with other years. Although Pridemore's finding of a gubernatorial election cycle in commutation decisions in relation to executions is suggestive of the type of political influence that we seek to quantify, our analysis differs from his in several important ways. First, although his study is based on a relatively long panel of data, he does not control for either national trends in executions or state-specific differences in the propensity to execute. Second, given that he examines only how the number of commutations in relation to the number of executions varies over the electoral cycle, his work cannot determine whether this cycle is being

[8] John H. Culver, Capital Punishment Politics and Policies in the States, 1977–1997, 32 Crime L. & Soc. Change 287 (1999).

[9] *Id.*

[10] Langbein, *supra* note 7.

[11] Pridemore, *supra* note 7.

driven by changes in commutation behavior, changes in execution behavior, or both.[12] Our work disentangles these effects. Finally, we examine other (related) outcomes that may be influenced by elections, such as differential effects of elections by race, region, and party affiliation of the governor, the impact of term limits, and the effect of elections on the amount of time that prisoners spend on death row.

The paper is organized as follows. In Section II, we describe the data. In Section III, we discuss our empirical methodology and present our main findings. Section IV presents some additional evidence supporting the existence of an election cycle in state executions. Section V explores, to the extent possible, how the election effect we document influences the amount of time defendants spend on death row before they are executed. Concluding remarks are offered in Section VI.

II. Data

The execution data come from two sources. The first is a panel of U.S. states, with yearly observations running from 1977 to 2000. Information on the annual number of executions in a state is taken from publications of the Death Penalty Information Center, and tabulations on the race of defendants executed by states are obtained from the publication *Death Row, U.S.A.,* published annually by the NAACP Legal Defense and Educational Fund.[13]

States are excluded from the sample if they had no death penalty at any time between 1977 and 2000. States that instituted a death penalty during the sample period are included in the data set beginning the year after the death penalty was reinstated.[14] Table 1 lists the states that reinstated the death penalty, the year of the reinstatement, and the average number of people who have been executed per year by each state in the years after the death penalty was reinstated.

Summary statistics of this panel of states are presented in Table 2. In about one-quarter of the state/year cells in the sample, there is at least one execution; on average, there are about .8 executions per year in a state with the death penalty. About 55 percent of these executions are of white defendants, and about 36 percent are of African Americans.

We also have information on all persons sentenced to death since 1972

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[12] Pridemore's result, *supra* note 7, is consistent with states' increasing executions and decreasing commutations in election years. But it is also consistent with states' increasing only executions, or holding the number of executions constant and decreasing commutations. Alternatively, states might decrease both executions and commutations during election years but decrease commutations by more than executions. Or states might increase both executions and commutations, but increase executions more.

[13] Death Penalty Information Center, Executions in the U.S. (2001) (http://www .deathpenaltyinfo.org/dpicexec76-86.html); NAACP Legal Defense and Educational Fund, Death Row, USA (2002) (http://www.deathpenaltyinfo.org/DeathRowUSA1.html).

[14] These restrictions result in a data set with 842 state/year cells.

TABLE 2

SUMMARY STATISTICS OF YEARLY EXECUTIONS BY STATE: 1977–2000

	Mean (1)	Minimum (2)	Maximum (3)
Indicator that state had execution in year	.2530		
Number of executions in year	.8111	0	40
	(2.937)		
Indicator that state executed white defendant	.1876		
Number of white defendants executed	.4489	0	21
	(1.583)		
Indicator that state executed African-American defendant	.1390		
Number of African-American defendants executed	.2898	0	16
	(1.113)		
Average months on death row of defendants executed in year	119.6	3	242
	(51.77)		

NOTE.—The sample includes states that have a death penalty between 1977 and 2000. Standard deviations are shown in parentheses. There are 842 state/year observations.

from the Bureau of Justice Statistics publication *Capital Punishment in the United States: 1972–1999.*[15] This data set contains information on the demographic characteristics of death row inmates, their criminal backgrounds, and the amount of time that each spent on death row. For each year that a state has at least one execution between 1977 and 1999, we calculate the average time spent on death row for the defendants executed that year.[16] On average, the wait on death row is slightly less than 10 years.

Data on the timing of gubernatorial elections are taken from the *Book of the States.*[17] Election cycles vary across states for several reasons. First, some states have gubernatorial elections every 2 years, while most states have elections every 4 years. Also, most states schedule their elections for even calendar years, but there is a significant minority of states that hold elections in odd years. Finally, among states with a 4-year election cycle during even years, some hold elections in presidential election years, while others have elections at the midpoint of presidential terms. There is a similar staggering for states with 4-year cycles that hold elections in odd years.

III.   ELECTION CYCLES IN STATE EXECUTIONS

To measure the effect of gubernatorial elections on executions, we begin by estimating a probit model of the form

$$\Pr(\text{Execution}_{i,t}) = \Phi(\alpha + \beta \text{Election Indicator}_{i,t} + \varphi_t + \gamma_i + \eta_{i,t}), \quad (1)$$

[15] U.S. Department of Justice, Bureau of Justice Statistics, Capital Punishment in the United States, 1973–1999 (2001).

[16] There are 199 state/year cells with at least one execution between 1977 and 1999.

[17] Council of State Governments, The Book of the States (various years).

TABLE 3

TABULATION OF NUMBER OF EXECUTIONS IN A
STATE IN A YEAR: 1977–2000

Number of Executions	Frequency	Percentage	Cumulative Percentage
0	629	74.7	74.7
1	111	13.2	87.9
2	35	4.2	92.0
3	16	1.9	94.0
4	15	1.8	95.8
5	8	1.0	96.7
6	8	1.0	97.6
7	2	.2	97.2
8	4	.5	98.3
9	2	.2	98.6
10	1	.1	98.7
11	1	.1	98.8
12	1	.1	98.9
13	1	.1	99.0
14	2	.2	99.1
17	1	.1	99.3
19	1	.1	99.4
20	1	.1	99.5
35	1	.1	99.6
37	1	.1	99.8
40	1	.1	100.0

where i indexes states and t indexes time. Execution$_{i,t}$ is an indicator that state i had at least one execution in year t; Election Indicator$_{i,t}$ is an indicator that state i had a gubernatorial election in year t. The term φ_t is a full set of year effects, γ_i is a full set of state effects, and $\eta_{i,t}$ is a set of state linear time trends.

The coefficient of interest is β, which measures how having a gubernatorial election in a state affects the probability that the state has an execution that year. The year dummies control for national trends in executions that may be correlated with gubernatorial elections. The state fixed effects control for any fixed state-specific omitted variables that may be correlated with the propensity of states to hold executions, and the state trends control for linear changes over time in the propensity of a state to perform executions that might be correlated with elections. Therefore, β is identified by differences in execution behavior in states with and without a gubernatorial election in a given year that are different from their linear trends.

We concentrate on the probability that a state has at least one execution in a given year rather than on the number of executions performed, for a couple of reasons. First, as discussed in Section I, executions are rare in most states; the majority of death penalty states have either no executions or one execution per year during the sample period. Table 3 presents a tabulation

of the frequency of executions for the 842 state/year observations in our sample. In a large majority of state/year cells, there are no executions. For years in which states do hold executions, more than half of the time they have only one execution. Thus, for most states, the primary source of variation in their propensity to execute is based on whether they have any executions in a given year.

Second, if there is an effect of elections on execution propensities, we would expect it to be concentrated on the margin where the political benefit of holding an additional execution is likely to be the largest. Because, from a political perspective, there are probably diminishing returns to conducting executions, it seems likely that the marginal benefit of performing an execution would be largest in states where executions are uncommon. In states that rarely execute, an additional execution often attracts substantial press coverage; in states where executions are commonplace, an extra execution typically generates little coverage. As a result, if there is an election cycle in state executions, we would expect it to be most pronounced along the zero-one margin. Later, we will also estimate a count model that restricts the marginal effect of an election to be constant and independent of the number of executions conducted.

The estimates from the probit model are presented in Table 4, using our sample of executions from 1977 to 2000. Recent work indicates that it is important to take into account serial correlation in the error term when calculating the standard errors in differences-in-differences models, especially in applications such as this one where both the outcome (executions) and independent variable of interest (elections) are serially correlated. Marianne Bertrand, Esther Duflo, and Sendhil Mullainathan show that in settings such as ours, a satisfactory correction for this problem can be obtained by clustering the standard errors at the state level, a procedure we utilize in all of our regression models.[18] Column 1 displays the results of the estimation of equation (1). The coefficient on the election indicator is positive and statistically different from zero at a 6 percent level of significance. The estimated marginal probability suggests that a gubernatorial election increases the probability of a state execution by slightly less than 6 percentage points. Evaluated at the mean execution probability observed in our sample, this estimate indicates that states are about 25 percent more likely to perform an execution in an election year than in other years.

We are concerned that the state linear trends might not be adequately controlling for time-varying omitted variables that are correlated with elections and the probability that a state holds an execution. Therefore, we investigate the robustness of our results to two alternative specifications. In column 2, we add division × year interactions to the model presented in

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[18] Marianne Bertrand, Esther Duflo, & Sendhil Mullainathan, How Much Should We Trust Differences-in-Differences Estimates? (Working Paper No. w8841, Nat'l Bur. Econ. Res. 2002).

TABLE 4

EFFECT OF GUBERNATORIAL ELECTIONS ON WHETHER A STATE
HAS AN EXECUTION DURING THE YEAR

	(1)	(2)	(3)	(4)	(5)
Indicator for gubernatorial election	.4507	.6701	.5718	.5704	.6230
	(.2385)	(.3575)	(.2457)	(.2564)	(.2743)
	[.0588]	[.0670]	[.0681]	[.0674]	[.0719]
ln(state unemployment rate)	. . .	. . .	. . .	1.347	1.205
				(1.046)	(.9623)
				[.0511]	[.0445]
ln(state per capita income)	. . .	. . .	. . .	2.456	.7630
				(5.579)	(5.786)
				[.1189]	[.0364]
ln(number of death row inmates)	. . .	. . .	. . .	. . .	.1167
					(.6700)
					[.0225]
ln(% of death row population that is white)	. . .	. . .	. . .	. . .	−.7674
					(.7920)
					[−.0294]
State effects	Yes	Yes	. . .	. . .	. . .
Year effects	Yes	. . .	Yes	Yes	Yes
State linear trends	Yes	No	No	No	No
Division × year effects	No	Yes	No	No	No
Governor effects	No	No	Yes	Yes	Yes

NOTE.—The coefficients are from probit models in which the dependent variable is an indicator for whether a state has an execution during the year. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. Average marginal effects are shown in brackets. There are 842 observations.

equation (1). The divisions are the nine census divisions of the United States.[19] Adding these interactions controls for any division-level time-varying omitted variables that are correlated with the likelihood that a state performs an execution. The coefficient on the election indicator is again positive and statistically different from zero at a 6 percent significance level. The marginal effect of an election is slightly larger than the estimate in column 1, but an election still increases the probability of an execution by about 25 percent.[20]

We add governor fixed effects to the model presented in equation (1); these are dummy variables for each individual who served as governor in a

[19] They are New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), Middle Atlantic (New Jersey, New York, and Pennsylvania), East North Central (Illinois, Indiana, Michigan, Ohio, and Wisconsin), West North Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota), South Atlantic (Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia), East South Central (Alabama, Kentucky, Mississippi, and Tennessee), West South Central (Arkansas, Louisiana, Oklahoma, and Texas), Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming), and Pacific (Alaska, California, Hawaii, Oregon, and Washington).

[20] We have also estimated all of our probit models using logit and linear probability models and obtain similar estimates of the marginal effects.

state over the sample period. The results are presented in column 3 of Table 4. The coefficient on gubernatorial elections is identified in this specification by examining whether the propensity to perform executions varies across election and nonelection years within each individual governor's tenure in office.[21] The estimate of the effect of an election using this model is again slightly larger than our previous estimates and still statistically different from zero at a 2 percent significance level. The marginal effect of an election in this model implies an increase in the probability of an execution of slightly less than 7 percentage points, which represents more than a 25 percent increase over the baseline execution probability.

Finally, we add additional control variables to the specification that includes governor fixed effects. In column 4, we include two measures of state economic performance: the state unemployment rate and state per capita income. The addition of these variables does not change the effect of gubernatorial elections on execution probabilities. In column 5, we add measures of the state death row population at the beginning of each year. The first variable is the number of people on death row in the state, and the second is the percentage of the death row population that is white. These additional controls also have little effect on our parameter estimates. We have included these state-level controls in all of our models, and in no case do they affect our estimates of interest. For brevity, we do not report these results.[22]

Given our finding that elections increase the probability of an execution in a state, we next examine whether the effect of an election on the likelihood of a state execution varies by the race of the defendant. We reestimate equation (1) with two separate dependent variables: the first is an indicator for whether a state executes at least one white defendant in a given year, and the second is an indicator for whether a state executes at least one African-American defendant in a given year. These results are presented in Table 5. Columns 1–3 present the results for the executions of white defendants using, in column 1, our basic probit model with state-specific trends, in column 2, division × year effects, and in column 3, governor fixed effects. In all specifications, the effect of gubernatorial elections is positive but small and not statistically different from zero at typical levels of significance; a gubernatorial election increases the probability that a state executes a white defendant by only between 7 percent (column 1) and 13 percent (column 2).

On the other hand, as shown in columns 4–6, there is a large effect of elections on the probability that a state executes an African-American in all specifications. The effect of a gubernatorial election is positive, large, and

[21] Including a fixed effect for each governor is akin to allowing for different period effects by state, where the periods are defined by the years that each governor held office. We also include year dummies to capture trends that arise at the national level.

[22] To examine whether the election cycle in executions has diminished over time, we also estimated our probit models separately for the periods before and after 1990. The marginal effect of an election is similar in both time periods.

TABLE 5

Effect of Gubernatorial Elections on Whether a State
Has an Execution, by Race

	Whites			African Americans		
	(1)	(2)	(3)	(4)	(5)	(6)
Indicator for						
gubernatorial election	.1002	.2334	.1257	.6502	.8526	.6740
	(.2111)	(.2330)	(.2174)	(.3014)	(.2963)	(.3054)
	[.0132]	[.0253]	[.0158]	[.0442]	[.0512]	[.0403]
State effects	Yes	Yes	. . .	Yes	Yes	. . .
Year effects	Yes	. . .	Yes	Yes	. . .	Yes
State linear trends	Yes	No	No	Yes	No	No
Division × year effects	No	Yes	No	No	Yes	No
Governor effects	No	No	Yes	No	No	Yes

Note.—The coefficients are from probit models in which the dependent variable is an indicator for whether a state has an execution during the year. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. Average marginal effects are shown in brackets. There are 842 observations.

statistically different from zero in all specifications, which implies that a gubernatorial election increases the chance that there is at least one execution of an African-American defendant by between 29 percent (column 6) and 37 percent (column 5).[23] In the literature on sentencing, it is often noted that attempts to determine the pure effect of race on the receipt of the death penalty are confounded by the fact that African Americans are more likely to be involved in murders with aggravating circumstances.[24] To investigate this possibility, we estimated the same probit models as were used for black defendants but changed the dependent variable to the probability that the state executes at least one defendant who was involved in a multivictim homicide in a given year. The election coefficients from these models were one-third to one-half those from the corresponding models for black defendants and were not statistically different from zero.

There are also differences in the effect of gubernatorial elections on executions by region of the country. We divide the United States into the South and the rest of the country and estimate a probit model that allows the effect

[23] In contrast to many of the studies on racial disparities in sentencing, we did not find evidence of disparate treatment based on the race of the victim. See Samuel R. Gross & Robert Mauro, Patterns of Death: An Analysis of Racial Disparities in Capital Sentencing and Homicide Victimization, 37 Stan. L. Rev. 27 (1984); David C. Baldus, George C. Woodworth, & Charles A. Pulaski, Jr., Equal Justice and the Death Penalty: A Legal and Empirical Analysis (1990); Edward L. Glaeser & Bruce Sacerdote, The Determinants of Punishment: Deterrence, Incapacitation, and Vengeance (Working Paper No. w7676, Nat'l Bur. Econ. Res. 2000). One possible reason for this is the potentially different motivations that arise at the sentencing and punishment stages. At the time of sentencing, there is a substantial focus on the victims of the crime; however, by the time an inmate is scheduled to be executed, news accounts typically focus on the race of the inmate rather than that of the victim.

[24] Langbein, *supra* note 7.

TABLE 6

EFFECT OF GUBERNATORIAL ELECTIONS ON WHETHER A STATE
HAS AN EXECUTION, BY REGION

	(1)	(2)	(3)
Indicator for gubernatorial election	.0810	.1134	.1261
	(.3723)	(.5997)	(.3439)
	[.0102]	[.0110]	[.0146]
Election × South	.6937	1.051	.8765
	(.3895)	(.7020)	(.4113)
	[.0946]	[.1063]	[.1046]
State effects	Yes	Yes	. . .
Year effects	Yes	. . .	Yes
State linear trends	Yes	No	No
Division × year effects	No	Yes	No
Governor effects	No	No	Yes

NOTE.—The coefficients are from probit models in which the dependent variable is an indicator for whether a state has an execution during the year. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. Average marginal effects are shown in brackets. There are 842 observations.

of gubernatorial elections to vary across these regions.[25] The model specification is

$$\Pr(\text{Execution}_{i,t}) = \Phi(\alpha + \beta_1 \text{Election Indicator}_{i,t} \tag{2}$$

$$+ \beta_2 \text{Election}_{i,t} \times \text{South Indicator}_i + \varphi_t + \gamma_i + \eta_{i,t}).$$

South$_i$ is an indicator that state i is in the South, and the other variables are as defined before.[26] The coefficient of interest is β_2, which measures whether the effect of gubernatorial elections on execution probabilities is different in the South than the rest of the United States.[27] The results of this estimation are displayed in Table 6. Column 1 presents the basic estimates, column 2 adds division × year effects to the regression specification, and column 3 adds governor effects. All specifications produce similar patterns in the coefficients on the direct election effect and the interaction term, which suggests that the positive effect of gubernatorial elections on the probability of executions is largest in the South.[28] This difference is statistically significant at

[25] Similar results are obtained if the effect of elections is allowed to vary across the four census regions.

[26] The South is defined as states in the three census divisions that make up the South census region. They are the South Atlantic, the East South Central, and the West South Central divisions.

[27] The direct effect of a state being located in the South is subsumed in the state effects.

[28] Using a similar methodology, we also examine whether there are differences in the effect of gubernatorial elections on executions based on the party affiliation of the governor. We find little difference in the effect of elections for states with Republican governors compared with other states.

TABLE 7

PROBABILITY OF HOLDING AN EXECUTION IN THE SOUTH FOR
ELECTION VERSUS NONELECTION YEARS

	Election Year	Nonelection Year
Alabama	.500	.500
Arkansas	.375	.375
Delaware[a]	.500	.222
Florida	.667	.833
Georgia	.500	.556
Kentucky[a]	.167	.056
Louisiana[a]	.833	.444
Maryland[a]	.333	.056
Mississippi[a]	.333	.056
North Carolina[a]	.500	.353
Oklahoma	.333	.333
South Carolina[a]	.500	.389
Tennessee	.000	.056
Texas[a]	.833	.722
Virginia	.667	.778

NOTE.—Mean execution probabilities are calculated over the period 1977–2000 for all southern states that conducted at least one execution. The South is defined as states in the three census divisions that make up the South census region (South Atlantic, East South Central, and West South Central).

[a] States that are more likely to conduct an execution in a gubernatorial election year.

the 8 percent level in the specification with state time trends (column 1) and at the 3 percent level in the specification with governor fixed effects (column 3). Table 7 shows the raw probabilities of an execution occurring in an election year versus a nonelection year in each of the 15 southern states over the sample period. Just over half of these states were more likely to hold executions in election years than in other years, but the difference in execution probabilities across election and nonelection years was larger, on average, for those states that were more likely to execute in election years, with the largest differences occurring in Louisiana, Mississippi, Delaware, and Maryland.

Our final cut of the data is to examine whether the effect of elections on the probability of executions differs for states with gubernatorial term limits compared with other states. In a state in which an administration can be reelected only a limited number of times, there might be less of an incentive to manipulate executions. Our model specification is

$$\Pr(\text{Execution}_{i,t}) = \Phi(\alpha + \beta_1 \text{Election}_{i,t} + \beta_2 \text{Term Limit}_{i,t} + \beta_3 \text{Election}_{i,t} \times \text{Term Limit}_{i,t} + \varphi_t + \gamma_i + \eta_{i,t}),$$ (3)

TABLE 8

EFFECT OF GUBERNATORIAL ELECTIONS ON WHETHER A STATE HAS AN
EXECUTION BY WHETHER STATE HAS TERM LIMITS

	(1)	(2)	(3)
Election indicator	1.087	1.081	1.438
	(.5267)	(.5745)	(.3834)
	[.1231]	[.0916]	[.1436]
Indicator for term limit	−.0665	.5452	.2181
	(.7770)	(.3836)	(.5597)
	[−.0074]	[.0447]	[.0223]
Election × indicator			
for term limit	−.7889	−.4925	−1.048
	(.4640)	(.5320)	(.4106)
	[−.0775]	[−.0386]	[−.0917]
State effects	Yes	Yes	. . .
Year effects	Yes	. . .	Yes
State linear trends	Yes	No	No
Division × year effects	No	Yes	No
Governor effects	No	No	Yes

NOTE.—The coefficients are from probit models in which the dependent variable is an indicator for whether a state has an execution during the year. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. Average marginal effects are shown in brackets. There are 842 observations.

where Term Limit$_{i,t}$ is an indicator that state *i* has a gubernatorial term limit in year *t*, and the other variables are defined as before.[29] The coefficient on the interaction term measures whether elections have a different effect in states with term limits than in other states. Table 8 displays the estimates of equation (3). In all three specifications, the effect of elections in states with term limits is smaller than in other states. In the specifications with state time trends (column 1) and governor fixed effects (column 3), the difference is statistically significant at conventional levels.[30]

IV.   ADDITIONAL EVIDENCE

Instead of estimating how gubernatorial elections affect the likelihood that a state holds an execution, we can also measure how elections affect the number of executions held in a state in a given year. To do this, we estimate

[29] Data on gubernatorial term limits come from Michael Barone & Grant Ujifusa, The Almanac of American Politics (various years).

[30] We have also attempted to examine whether the election effect varies on the basis of the closeness of the gubernatorial election. Using data on election outcomes from Barone & Ujifusa, *id.,* we found a small but statistically insignificant increase in the probability of an execution in years with a close election. An obvious problem with this methodology is that whether an election is close or not might depend on whether there are executions in the state that year. Polling data on the popularity of the incumbent governor (sufficiently far in advance of the election to permit a reaction by the governor) would be a better measure, but consistent polling information across states and over time is not readily available.

TABLE 9

EFFECT OF GUBERNATORIAL ELECTIONS ON THE
NUMBER OF EXECUTIONS IN A STATE

	(1)	(2)	(3)
Indicator for gubernatorial election	.1960	.2868	.2569
	(.1422)	(.1455)	(.1476)
	[.1681]	[.2535]	[.2237]
State effects	Yes	Yes	. . .
Year effects	Yes	. . .	Yes
State linear trends	Yes	No	No
Division × year effects	No	Yes	No
Governor effects	No	No	Yes

NOTE.—The coefficients are from negative binomial models in which the dependent variable is the number of executions in a state during the year. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. Average marginal effects are shown in brackets. There are 842 observations.

a count model in which the independent variables are the same as in our probit models but the dependent variable is the number of executions that a state holds in a year.

Results for three negative binomial regressions are presented in Table 9. The coefficient on the indicator for a gubernatorial election in column 1 is positive but imprecisely estimated. The implied marginal effect of a gubernatorial election is about .17 additional executions in a state, an increase of about 20 percent. In column 2, division × year effects are again added to the model specification. The effect of elections is again positive and now statistically different from zero at the 5 percent significance level. The calculated marginal effect implies that an election increases the number of executions in a state by about 30 percent. Finally, in column 3, we add the governor effects. The coefficient on gubernatorial elections is similar to that in the previous specification and is statistically different from zero at the 8 percent level.[31]

One drawback of using a count model is that it constrains the estimated marginal effect of an election on the likelihood that a state has an additional execution to be constant, no matter how many executions a state has in a given year. As discussed above, we expect the effect of elections to be more important in states that typically have few executions and to be less of a

[31] The count models in Table 9, as well as the probit models in Tables 4 and 5, were also estimated using data for the pre-*Furman* (Furman v. Georgia, 408 U.S. 238 (1972)) era from M. Watt Espy & John Ortiz Smykla, Executions in the United States, 1608–1991: The Espy File (1994). For the period 1935–68, we failed to find any large or significant effect of elections on either the probability of conducting an execution (either in general or broken down by race) or on the number of executions performed. This result is perhaps not surprising in light of the fact that executions were very common during this period, which implies that the marginal political benefit from holding an additional execution was probably negligible.

factor in states with a high number of executions. This may explain why our count model results are somewhat weaker than the estimates from our probit models.

As a sensitivity check on our probit models, we estimated a multinomial logit model to examine the effect of gubernatorial elections on the transitions of all death row inmates out of death row. The sample includes every death row inmate each year he is on death row, using data from *Capital Punishment in the United States, 1973–1999.*[32] Four outcomes can occur during the year. The inmate can continue to stay on death row or leave death row because he is executed, die for other reasons, or have his sentence overturned.[33] In our multinomial logit model, the probability of outcome *j* occurring is given by

$$p_j = \frac{\exp(X'\beta_j)}{D}, \qquad j = 1, 2, \ldots, m-1 \tag{4}$$

and

$$p_m = \frac{1}{D},$$

where

$$D = 1 + \sum_{j=1}^{m-1} \exp(X'\beta_j), \qquad j = 1, 2, \ldots, m,$$

are the different outcomes that can occur to a death row inmate in a year, p_j is the probability that outcome *j* occurs, X is a vector of characteristics, and β_j is the vector of coefficients pertaining to outcome *j*.

As with a simple bivariate logit model, the coefficients in a multinomial logit are estimated only up to a scale factor, while the coefficients for the reference choice (β_m, remaining on death row in this application) are set equal to zero. The explanatory variables included in the model are an indicator for whether there is a gubernatorial election in the state the year of the observation, various demographic characteristics of the inmate (dummies for race, sex, marital status, education, and time on death row), and our standard set of state and year effects and state linear trends. As with the count models, this model does not allow for different effects of elections on the movement

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[32] U.S. Department of Justice, *supra* note 15.

[33] A death sentence can be overturned because a court has declared the death penalty unconstitutional, because the conviction of a defendant was confirmed by a court but the death sentence was reversed, because both the conviction and sentence were overturned, or because there was a commutation of the death sentence. In our data, the probability that an inmate is executed in a year is .0126, the probability that an inmate dies for other reasons is .0042, and the probability that an inmate's sentence is overturned is .0362.

TABLE 10

EFFECT OF GUBERNATORIAL ELECTIONS ON THE TRANSITIONS OF DEATH ROW INMATES

	EXECUTION TRANSITION			DEATH SENTENCE OVERTURNED TRANSITION		
	(1)	(2)	(3)	(4)	(5)	(6)
Indicator for						
gubernatorial election	.2818	.4016	.2172	−.0753	.0864	−.0212
	(.1745)	(.1345)	(.4243)	(.1153)	(.4599)	(.1591)
	[.0038]	[.0054]	[.0029]	[−.0026]	[.0027]	[−.0008]
State effects	Yes	Yes	. . .	Yes	Yes	. . .
Year effects	Yes	. . .	Yes	Yes	. . .	Yes
State linear trends	Yes	No	No	Yes	No	No
Division × year effects	No	Yes	No	No	Yes	No
Governor effects	No	No	Yes	No	No	Yes

NOTE.—The estimates are from a multinomial logit model. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. Specification also includes dummies for race, marital status, sex, and time on death row. Average marginal effects are shown in brackets. The annual probability that an inmate is executed is .0126; the probability that an inmate's sentence is overturned is .0362. There are 42,239 observations.

of prisoners off death row on the basis of the number of executions that have occurred in the state.

The results of this estimation are presented in Table 10. We are most interested in two transitions out of death row: executions and overturned sentences. Therefore, the coefficients we present measure the effect of gubernatorial elections on the probability that a defendant is executed instead of remaining on death row and the probability that a defendant has his sentence changed instead of remaining on death row.

Columns 1–3 present the estimates of the execution transition. Column 1 shows the results of our basic model; the effect of a gubernatorial election is positive and statistically different from zero at the 10 percent level of significance. The implied increase in the probability of an execution in an election year is approximately .38 percentage points, or about a 30 percent increase relative to the baseline probability. In column 2, we add division × year effects to the model specification. Again there is a positive estimated effect of elections on the probability that an inmate is executed, and the estimate is statistically different from zero. The implied increase in the probability that a defendant is executed in an election year is about 50 percent in this specification. Finally, in column 3, we add governor effects; the coefficient on the election indicator is similar to that in the previous specifications, but the standard error is very large and the effect is not statistically different from zero. Columns 4–6 present the estimates of the sentence change transition. In all specifications, the effect of an election year is small and not statistically different from zero.

In an effort to better understand the source of the election cycle in exe-

TABLE 11

EFFECT OF GUBERNATORIAL ELECTIONS ON WHETHER A STATE
COMMUTES A DEATH SENTENCE DURING THE YEAR

	(1)	(2)	(3)
Indicator for gubernatorial election	.2728	.0674	−.0608
	(.3319)	(.3566)	(.6322)
	[.0200]	[.0035]	[−.0032]
State effects	Yes	Yes	. . .
Year effects	Yes	. . .	Yes
State linear trends	Yes	No	No
Division × year effects	No	Yes	No
Governor effects	No	No	Yes

NOTE.—The coefficients are from probit models in which the dependent variable is an indicator for whether a state commutes a death sentence during the year. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. Average marginal effects are shown in brackets. There are 842 observations.

cutions, we examine whether changes in commutations can explain the increase in executions during election years. Using data on all death row inmates from *Capital Punishment in the United States, 1973–1999,* we calculate the number of commutations in each state each year.[34] We then estimate whether states are more or less likely to commute death sentences during election years than during other years. The probit specification we use is identical to equation (1), except that the dependent variable is an indicator for whether the state commutes a death sentence in a given year. Results of this estimation are reported in Table 11. Using our usual sets of controls, we find no evidence that states are more or less likely to commute death sentences during election years.[35] Therefore, it does not appear that the election cycle in executions is being driven by changes in commutation behavior.[36,37]

[34] U.S. Department of Justice, *supra* note 15.

[35] We find similar null results when using a count model to estimate the effect of gubernatorial elections on the number of commutations.

[36] This suggests that the election cycle in commutations per execution found by Pridemore, *supra* note 7, is due to changes in executions rather than commutations.

[37] Another possibility is that the election cycles we observe are based on judicial, rather than gubernatorial, elections or that gubernatorial elections coincide with the election of district attorneys. To investigate this possibility, we gathered data on the timing of elections to each state's supreme court from the Justice at Stake Campaign (http://www.faircourts.org) for the death penalty states in our sample. An examination of these data reveals little overlap in when state supreme court justices are elected, which makes it difficult to distinguish between "election" and "nonelection" years. The majority of death penalty states have between five and nine supreme court justices, with seven being the modal number. It is rare for half or more of a state's supreme court justices to be up for election in the same year. Typically, only one or two justices are running for election in a given year. Moreover, seven of the death penalty states do not select supreme court justices through popular elections. On the basis of these observations, we believe it is unlikely that a judicial election cycle is the source of our findings. In the case of district attorneys, we spoke with representatives from the state election com-

V. Issues Related to Timing

In this section, we explore the temporal process that leads to additional executions in election years relative to nonelection years. We study whether the election cycle in state executions is generated by, on average, moving executions up in time or holding them back. This distinction is of interest because the latter scenario would not appear to compromise the due process rights of death row inmates while the former scenario might. As discussed below, the data do not permit us to directly test whether the additional executions held in election years represent "extra" executions that would not have occurred otherwise or whether they instead reflect substitutions over time from among a fixed stock of executions. Of course, these two possibilities are not mutually exclusive.

We investigate whether defendants executed during election years stayed on death row for shorter periods of time than defendants executed in other years using information on all persons on death row between 1973 and 1999. For each year that a state has at least one execution, we calculate the average time the people executed in that state were on death row. By "time on death row," we mean the number of months between the date that the defendant was first sentenced to death and the date that he was executed. Note that there are only 199 state/year cells between 1977 and 1999 with at least one execution; thus, the precision of our estimates is limited by the small size of the sample. The regression specification is

$$\ln(\text{Average Time on Death Row}_{i,t})$$
$$= \alpha + \beta \text{Election Indicator}_{i,t} + \varphi_t + \gamma_i + \eta_{i,t} + \varepsilon_{i,t}, \tag{5}$$

where Average Time on Death Row$_{i,t}$ is the average number of months that defendants who were executed in state i in year t waited on death row, and the other variables are defined as before.

The results of the ordinary least squares regressions of equation (5) are presented in Table 12. The coefficient on the election indicator is negative and statistically different from zero at the 6 percent level in column 1, which suggests that defendants executed during election years spent about 19 percent $(\exp(-.1777) - 1)$ less time on death row than people executed in other

missions for the six states with the highest relative probability of conducting executions in election years (Louisiana, Mississippi, Delaware, Maryland, Illinois, and Utah). Among these states, only two (Mississippi and Maryland) elect district attorneys in the same year as the governor. In the other four states, all district attorneys are up for election in the same year, but these elections are held in nongubernatorial election years. (Having only three counties, Delaware does not have county-level district attorneys. Instead, they elect a state attorney general who appoints deputies to conduct prosecutions in each county. Elections for state attorney general in Delaware are held in nongubernatorial election years.) On the basis of these findings, we believe it is unlikely that our results are being driven by a concurrent election cycle for district attorneys.

TABLE 12

EFFECT OF GUBERNATORIAL ELECTIONS ON THE AMOUNT OF TIME
AN EXECUTED PERSON IS ON DEATH ROW

	(1)	(2)	(3)
Indicator for gubernatorial election	−.1777	−.0885	−.1288
	(.0914)	(.1126)	(.0916)
State effects	Yes	Yes	. . .
Year effects	Yes	. . .	Yes
State linear trends	Yes	No	No
Division × year effects	No	Yes	No
Governor effects	No	No	Yes

NOTE.—The coefficients are from ordinary least squares regression models in which the dependent variable is the logarithm of the average time the people executed in a state during the year spent on death row. Standard errors are shown in parentheses and are adjusted to take into account the correlation of observations within states. There are 199 observations.

years. Given an average stay on death row of approximately 10 years, this implies that inmates executed during election years have their stays shortened by slightly less than 2 years on average. In column 2, division × year effects are added to the specification; the coefficient becomes smaller in absolute value and is not statistically different from zero. By this estimate, a defendant executed during an election year has about a 9 percent shorter spell on death row (approximately 11 months) than other defendants who are executed. Column 3 adds the governor effects. The coefficient implies that inmates executed during election years had about a 14 percent shorter stay on death row (approximately 17 months) than other executed defendants, but the standard error is too large for this effect to be statistically different from zero.

Given that inmates who are executed during election years appear to spend less time on death row than other inmates, a natural question to ask is whether the increased executions during election years represent "extra" executions or whether they would have occurred at a later date anyway. This is a difficult question because the evidence we have generated does not allow us to discriminate among these two possibilities. To definitively distinguish between the two scenarios, one would need to know the counterfactual of how states would behave in the absence of an election cycle. But because all states have election cycles, and have them all the time, it is impossible to know this counterfactual. Sorting out the exact mechanisms through which election cycles in executions are implemented does not appear to be possible with our data but remains an important area for future research.[38]

[38] We have shown that the cycle is not attributable to a greater reluctance to issue commutations in election years. Another possibility, but one that we cannot investigate with our data, is that governors, or clemency boards, simply "stay" fewer executions in election years than in other years. These stays, which are temporary in nature, would lead to both an election cycle in executions and shorter death row spells for inmates executed in election years (who,

VI. Conclusions

Our analysis indicates that, holding other factors constant, states are approximately 25 percent more likely to conduct executions in gubernatorial election years than in other years. Moreover, elections have a larger effect on the probability that an African-American defendant will be executed in a given year than on the probability that a white defendant will be executed. We also find evidence that the total number of executions performed is higher in election years, that the relationship between elections and executions is strongest in the South, and that gubernatorial term limits weaken the impact of elections on executions. Further, we find some evidence that the existence of politically timed executions reduces the average time that executed defendants spend on death row, which suggests that the increased executions observed in election years may result from an acceleration of the process by which inmates are selected for execution.

Taken together, our results indicate that election-year political considerations influence both the timing and racial composition of executions. Although not a legal analysis, this work does point to the need for further research on how death sentences are carried out by state governments.

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under this theory, would be less likely to receive a stay). This theory offers a somewhat attractive explanation for the cycle because it does not require collusion between governors (or their representatives) and members of either the judicial or criminal justice systems. Nonetheless, it would still have important implications for the due process rights of prisoners, since those not receiving stays would be executed more quickly and would also have less time to gather potentially exculpatory evidence. It would also suggest, on the basis of our earlier findings, that the likelihood of receiving a stay is a function of the defendant's race, at least in election years.

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