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PRISON CROWDING, RECIDIVISM, AND EARLY RELEASE IN EARLY RHODE ISLAND

Howard Bodenhorn

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ABSTRACT

Prison overcrowding is a perennial problem and several states are under court order to reduce crowding. The long-term solution to crowding has been more prisons. The short-term solution is early release. Early release programs can be effective when they balance the savings of reduced prison costs against the costs of recidivism by released convicts. This paper uses historical data to investigate how prison officials altered their early release policies in the face of prison crowding and rising real per prisoner detention costs. The empirical evidence is consistent with the hypothesis that prison officials make use of information about the risks of recidivism revealed at trial and during incarceration to make informed decisions about whom to release and when.

Howard Bodenhorn
John E. Walker Department of Economics
College of Business and Behavioral Science
201-B Sirrine Hall
Clemson University
Clemson, SC 29634
and NBER
bodenhorn@gmail.com

1. Introduction

In its 2011 *Plata v. Brown* decision the Supreme Court of the United States upheld a lower court's decision that overcrowded prisons violated prisoners' Eighth Amendment rights against cruel and unusual punishments. Overcrowded conditions reduced the state's ability to provide adequate medical and mental health care for its prisoners, which by the court's findings resulted in about one extra death per week in the system. The order required California to reduce its prison population from about 150,000 to 110,000, which still implies that the state's system would be operating at 137.5% of overall design capacity (Moore 2009).

Prison crowding is not a new problem and California is not alone (Giertz and Nardulli 1985). In 1992, 37 states and the District of Columbia were under court orders to reduce prison crowding. And the problem persists: in June 2014, Alabama's governor formed a task force to study how best to deal with its 25,000 prisoners housed in prisons designed for 13,000 inmates (Lloyd 2014). In 2008 Rhode Island was one of the few states with excess prison capacity. Overall its system operated at 90 percent of federally allowable capacity, but even two of its facilities exceeded 100 percent (American Legislative Exchange Council 2014).

The long-term solution to prison crowding has been more prisons. The short term solution is early release. In 1981, for example, Georgia freed up 900 prison beds when the parole board, under order from the governor to make space, freed 901 non-violent offenders with the earliest prospective release dates (Kuziemko 2007). Georgia's solution to crowding resolved the immediate problem of over-capacity, but it mitigated the incapacitation effect and may have increased the social costs of crime by releasing potential recidivists at an earlier than optimal date. The social costs of early release can be reduced through selective or so-called "good-time"

release, under which prisoners who behave and participate in rehabilitative, vocational or academic programs earn points toward early release. Modern early-release systems are based on the presumption that prison officials might have access to information concerning a prisoner's recidivism risk that is revealed only after sentencing (Abadinsky 2003). If, by the officials' determination, a prisoner presents a lower recidivism risk than implied by the original sentence, they can reduce the effective sentence and free up prison capacity at a relatively low cost.

Miceli (1994), Garoupa (1996), Kuziemko (2007), Scoones (2008) and Bernhardt, Mongrain and Roberts (2010) develop models of early release of increasing complexity, but the basic result remains: early release increases social welfare when, at the margin, a good-time policy equates the reduced costs of maintaining order in prison against the implicit increase in the cost of recidivism-based crime.[1] Using the Georgia quasi-experimental release and a later change that eliminated parole for inmates convicted of certain crimes, Kuziemko (2007) finds that parole boards employ early release as if they gather and act on information useful in predicting post-release recidivism. The elimination of parole for select crimes also led to more disciplinary infractions, lower completion rates in GED courses, and a higher recidivism rate. Yet even an effective parole system can operate sub-optimally if crowding pressures force it to accelerate the process and release prisoners earlier than is optimal given their recidivism risk. It is not hard to accept, for example, that Texas' policy of 90 days good-time credit for every 30 days served without incident is less an efficient than a pragmatic response to prison overcrowding (Abadinsky 2003, 178).

[1] See, also, Polinsky (2012) who develops a model of rewards for good behavior, including parole, on deterrence. He shows that privileges are generally inferior to early release, but notes that the reverse might be true if the principal purpose of incarceration is incapacitation.

This paper uses historical data from the Rhode Island state prison (1849-1907) to investigate how prison officials altered their good-time policies in response to overcrowding and rising costs of housing prisoners. Despite expanding its prison capacity twice in the second half of the nineteenth century, Rhode Island prisons were seriously overcrowded by the 1890s and the real cost of housing prisoners doubled between 1850 and 1900. Authorities were under increasing pressure to alleviate crowding and the burden on the state's taxpayers, so it is not surprising that the use of good-time early release programs increased. The issue is whether prison authorities responded in a manner consistent with economic models of early release; that is, whether the authorities balanced the cost of an additional day of incarceration with the incremental increase in crime due to expected recidivism. Using information on post-release recidivism, the data provide insights into whether good-time deductions were consistent with the likelihood of recidivism based on actual post-release recidivism or with observable characteristics of the criminal and his crime associated with future recidivism at sentencing and during incarceration.

Using a Heckman (1979) sample selection approach, which models the early release decision as a two-step process, the empirical results are consistent with the idea that Rhode Island's prison officials responded in a predictable and systematic fashion to changing conditions. Prison crowding and higher incarceration costs are associated with greater probabilities of prisoners being selected into the early release program. This holds for violent and nonviolent criminals, though the effect is stronger for prisoners serving time for property crimes. One feature of the data is that the historian/econometrician observes one measure of post-release recidivism in retrospect that prison officials did not observe in prospect; that is, we observe whether an ex-convict returned for a second term at the state prison. These future recidivists did

not differentially select into early release, but they received significantly fewer days off through Rhode Island's early release program conditional on selecting in. When we put ourselves in the position of contemporary prison officials and include those characteristics of the criminal that predict future recidivism – prisoner's age, length of original sentence and nativity – into the second-stage of the Heckman model, the results are consistent with the conclusion that prison officials exercised their early release prerogative in a fashion consistent with concerns for minimizing the social costs of incarceration, including recidivism risk.

The modern reader might, quite legitimately, wonder what is to be gained by studying the nineteenth-century prison. One response is that the power to deny a criminal his or her liberty is, next to the state's power to impose capital punishments, "the most formidable" power the state has over the individual (Garman 2005, p.7). It was in the mid-nineteenth century that Americans were convinced by reformers that the use of that formidable power could be prudentially exercised in the pursuit of a well functioning, more orderly society. And it is useful to understand whether prison officials exercised their power judiciously. A second response is that it was during the nineteenth century that the prison evolved from the Jacksonian-era experiment in the power of the state to reform the criminal to a place to warehouse society's criminal flotsam at the least possible cost to the taxpayers. Once the concern with prison costs and taxpayer contributions toward housing prisoners became paramount, contemporary penal philosophies were mostly abandoned in the search for pragmatic solutions to increased criminality, increased prison costs, and limited prison capacity. Early release, which had once fallen from favor, came back into use in Rhode Island and elsewhere in the second half of the nineteenth century (Friedman 1993). The available evidence from Rhode Island points to rational practice on the part of the state's prison officials.

2. Nineteenth-century penology

When Rhode Island opened it prison in 1838, it could choose between either of two contemporary approaches to penology: New York's Auburn or Pennsylvania's Eastern State model. Each was centered on housing prisoners in massive, intimidating structures, but each offered a distinct vision of prison life. The Auburn system, sometimes referred to as the "congregate system," was originally based on the Upstate Calvinist belief in the "depravity of man" and divided convicts into three groups: hardened offenders; serious felons; and less dangerous thieves (Lewis 1965, p. 57). Hardened offenders were committed to solitary confinement in a cell measuring 7 feet by 3½ feet by 7 feet high in which they were forced to stand continuously during daylight hours. Unremitting solitary confinement in tight quarters was designed to replace physical with psychological punishment. And it apparently worked, perhaps too well. Suicide attempts and insanity occurred regularly enough that the punitive, claustrophobic experiment was abandoned in 1825, nine years after the prison's opening. After that, hardened criminals joined ordinary felons and the less dangerous men, who slept in solitary confinement cells at night, but worked together during the day in complete silence. The combination of hard labor and silence were the defining features of the Auburn system and, according to Lewis (1965, 81), silence was enforced much more effectively than many contemporary skeptics believed possible.

The Eastern State Penitentiary in Philadelphia offered an alternative approach. Steeped in the Quaker tradition of the inherent goodness and "inner light" of man, time served at Eastern State was designed less to punish than to provide an extended period for the prisoner to reflect on one's life and actions and offer an opportunity to initiate change. Prisoners spent nearly all their

days in complete isolation in a private cell constructed of thick stone walls with running water and a toilet; a skylight and a private outdoor exercise yard surrounded by a 10 foot-high wall offered limited access to the outdoors. Inmates were to spend their days engaged in productive labor, shoemaking and weaving being common, and serve their sentence in nearly complete silence. Guards passed meals through a slot in the door without speaking. If a prisoner needed to be removed from his cell, he was hooded beforehand so he could not construct a mental map of his surroundings. The only regular, permissible conversation a prisoner might engage in was with the prison chaplain.

The Eastern State experiment attracted visitors who debated the merits of long-term solitary confinement. Gustave de Beaumont and Alexis de Touqueville (1833, p. 22) visited the prison in 1831 and left believing in its efficacy. "Placed alone, in view of his crime," they wrote, "[the criminal] learns to hate [the crime] ... remorse will come to assail him." They were convinced that the consequence of enforced silence and solitude would lead from "reflection to remorse." Charles Dickens (1874, p. 115), who toured in the prison in 1843, disagreed. He considered the silence and solitude inhumane: "I hold this slow and daily tampering with the mysteries of the brain," he wrote, "to be immeasurably worse than any torture of the body." Despite its critics, of which Dickens was one among many, the Eastern State maintained the silence and solitude model until 1913.

In the early days of the penitentiary, whether built on the congregate or solitary model, rehabilitation, reintegration and deterrence were the driving concerns. In 1834, for instance, a Rhode Island legislative committee considering the advisability of constructing a state prison reported that "no government can be presumed to be actuated by that spirit of revenge ... the penalties ... have as their object the prevention of crime by reforming the delinquent and by

detaining others from like course" (quoted in Garman 2005, p. 6). In one of their early annual reports to the legislature, the prison inspectors noted the success of former prisoners in "becoming reputable members of society" which provided evidence of the prison's efficacy (Rhode Island Board of Inspectors 1857, p. 6). But little was written about reformation after that. In 1867, the prison chaplain concluded that, despite his best efforts, "many prisoners after their release from prison ... return[ed] to their former associates and old modes of life" (Rhode Island Board of Inspectors 1868, p. 35). The chaplain's assessment matched that of the warden of New York's Auburn prison, who fully expected about 60 percent of discharged prisoners to resume their criminal career, 30 percent were likely to do the same. Of the remaining 10 percent, "he could not form a confident opinion" (Friedman 1993, p. 159). Such sentiments were hardly an endorsement of the prison's ability to reform or rehabilitate and they point to the difficulties of determining how and how well a prison might alter a prisoner's post-incarceration choices.

It was not long after their establishment that contemporaries lost faith in prisons as a reformative institution. Thomas Larcombe, the Eastern State's chaplain wrote that prisoners presented "a cheerless aspect" of ignorance, profligacy, licentiousness and depravity (quoted in Janofsky 2012, p. 116). As it became increasingly evident that a term in the penitentiary was unlikely to elicit reform, deterrence and incapacitation became the central objectives. Prisons and prison discipline reflected this new approach. Prison structures themselves were to be so monstrous and uninviting as to invoke terror and provide a warning to those contemplating a criminal act. While reformation may have been a concern, it had to be secondary because the moment it became ascendent, "then the period will arrive when insurrection, incendiarism, robbery and the evils most fatal to society and detrimental to law and order, will reign supreme (New York Senate 1848, quoted in Lewis 1965, 249-50).

Whether it adopted the congregate (Auburn) or solitary (Pennsylvania) system, nearly every state's prison grew increasingly crowded and often exceeded design capacity. Rhode Island adopted the solitary system in 1838, but crowding forced its abandonment it in favor of the congregate model by 1844.[2] In 1850 as many as three prisoners sometimes shared a cell, which was "injurious to their health" and mitigated "all efforts for improvement in morals," so a planned expansion was imperative if the prison was to function effectively (Prison Discipline Society 1850, p.28). The expansion was completed by 1855 and the number of cells increased from 40 to 88, but the original prison cells were considered so inferior to the new that it appears that prisoners were mostly housed in the 48 new cells.[3] Figure 1 traces prison capacity and population between 1849 and 1910. Population slightly exceeded capacity in the early 1850s, fell below capacity with the addition of 48 cells in 1855, but consistently exceeded capacity after the early 1860s, when prisoners were no longer housed in the original, pre-1855 cells. The opening of the new prison in November 1876 relieved overcrowding only until the 1890s, after which time the number of prisoners approached 150 percent of design capacity. Prison overcrowding undermined the "solitary-confinement- at-night-enforced-silence-around- the-clock" penology model because the least troublesome, least hardened prisoners shared cells at night.

A second feature shared by nineteenth-century prisons was that prisoners were expected to work. To contemporaries, prison labor served three purposes: it developed habits of routine

[2] Garman (2005, p.1) writes that the Rhode Island prison was a Pennsylvania-style solitary confinement prison in 1867, but that is inconsistent with contemporary and other accounts. Inmates labored together in workshops by day.

[3] In his 1866 report, the prison chaplain explained that in winter frost formed on the inside of the cell walls of the old prison and he considered forcing prisoners to live in them "barbarous treatment" (Rhode Island Board of Inspectors 1867, p. 40).

and steady work, which most criminals lacked; it provided instruction in a useful trade, which most criminal lacked; and it was supposed to make former prisoners self-supporting, an attribute that most criminals lacked. Finally, the prisons themselves were expected to be partly if not wholly self-supporting and, therefore, independent of taxpayer support (Garman 2005, p. 121). Rhode Island's prison authorities contracted with outside firms for the employment of its prisoners. In the mid-1850s, the majority of the inmates worked at cabinetmaking; the others worked in a machine shop (Rhode Island Board of Inspectors 1857, p.4). In the mid-1880s, Rice & Hucthins, a Boston shoemaking firm, contracted for the employment of 100 men at 40¢ per prisoner work day; George Campbell contracted for 12 men in a wire-making shop for 50¢ per prisoner day; the remaining men worked in the cabinetmaking shop, the coal dump or the prison garden (Rhode Island Board of Charities 1884). The use of contract labor and market gardening defrayed the costs of housing prisoners, but not every prisoner was employable and it is unlikely that more than a few worked a full year.

Figure 2 reveals four noteworthy features of the costs of running Rhode Island's nineteenth-century prison. First, housing prisoners was expensive. Gross annual per prisoner expenditures in 1856 of $78.02 is approximately $14,800 in constant 2013 dollars. The $118.60 per prisoner cost in 1880 is $18,200 and the 1910 cost of $251.72 is about $26,000 in 2013 dollars.[4] These values are in line with modern costs of incarceration, which average about $14,000 across states and range upwards of $23,500 in California and $27,000 in federal prisons (Abadinsky 2003, p. 18). Second, until about 1900, prison labor reduced the effective taxpayer contribution to the cost of housing prisoners by about one-half to two-thirds of the gross costs. In

[4] Conversions made using the online calculator available at Williamson (2014).

1900, for example, the gross annual per prisoner cost was $133; the net cost was $64. Third, the state prison sometimes ran small per prisoner surpluses (revenues exceeded expenditures): 40¢ in 1861; $18 in 1862; $2 in 1874; and between $3 and $9 in the late 1870s and early 1880s. Fourth, after the mid-1880s the cost of housing prisoners escalated rapidly. Prison labor still offset the rising costs, but prisoners were no longer able to pay their own way. After 1883, annual per prisoner net costs rarely fell below $30 ($4900 in 2013) and approached $150 by 1910 ($15,700 in 2013).

As early as 1867, the state's prison inspectors warned the legislature that "the people of the State must not expect to be relieved of the necessary expense of supporting their penitentiaries exclusively by the labor of convicts" (Rhode Island Board of Inspectors 1867, p. 8). Wardens were effective in controlling costs for another two decades after the inspector's warning, but less so after that due, in part, to the severe overcrowding problem that developed after 1900. Table 1 shows that, measured in constant 1860 dollars, gross expenditures on salaries doubled, driven more by increases in salaries than to increases in the number of prison guards. The warden's salary increased from $1,050 in 1856 to $2,500 in 1900 in current dollars, or by 2.4 times in constant dollars. The deputy warden, in 1900, earned three times the deputy warden's constant dollar 1856 salary. Electrification of the prison also led to the addition of an electrician at $60 per month. The number of overseer's (guards) increased from four to five, despite the prison population increasing from 63 to 195 convicts; and, there was a modest increase in the number of watchmen.[5] The amount spent on fuel and lighting per prisoner tripled;

[5] In 1856 the prison report provides separate employment records for the state prison and the Providence county jail. The 1900 report provides a combined report. In 1856 the prison reported four overseers and three watchmen, all of whom were employed for the entire year. In 1900 the prison and jail combined reported four overseers who worked for the entire year and two who, combined, worked for one year (6 months, 9 days plus 5

bedding and clothing costs doubled; and repairs and maintenance expenses increased fivefold. The real cost of feeding prisoners remained relatively constant. Prisoners were fed a relatively boring but high-protein diet, augmented by seasonal vegetables grown in the prison garden (Rhode Island Board of Inspectors 1868, p. 24). Costs rose in most categories, but increases in salaries and wages account for about one-half of the overall increase in the cost of housing prisoners.

Nineteenth-century prison officials dealt with short-term crowding problems and long-term rising costs in the same way modern prison authorities do; they released prisoners early. The basis for early release dated to the earliest days of the penitentiary, when reformers believed in the institutions' reformative mission. Caleb Lownes, a Philadelphia penal reformer, advocated for an early-release policy when the prisoners' disposition led the "inspectors to believe that they might be restored to their liberty" (quoted in Teeters 1955, p. 42). Both prisoners and prison officials quickly learned the value of early release programs. Prison officials faced a challenge: how were a handful of lightly armed guards expected to maintain control over, much less enforce silence and elicit diligent labor from, several dozen dangerous men confined in a space no larger than a city block? The answer, as Caleb Lownes, recognized was to appeal to the prisoners' rationality. Bad behavior earned a flogging and true solitary time in a dark, dungeon cell; good behavior earned early release credits. In one annual report, the Rhode Island Board of Prison Inspectors (1861, p. 6) took obvious pride in reporting that no corporal punishment had been meted out during the preceding year and that only a few prisoners' bad behavior had been

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months, 15 days). In 1900 the prison and jail combined reported 14 watchmen; two reported all-year employment; one worked for one day; the remaining 11 men were employed between two and seven months. I assume the "day officers" reported in the combined prison-jail report worked at the jail, as did the second deputy warden. See Rhode Island Board of Inspectors (1856, p. 119) and Rhode Island Board of State Charities (1900, pp. 70-71).

punished by 36 hours in solitary confinement. By 1896, floggings were prohibited and other corporal punishments (mostly reduced rations or solitary confinement in the dungeon cells) could be imposed only if authorized by at least two members of the prison oversight board (Rhode Island General Assembly 1896, p. 1048). Absent the authority to mete out harsh and immediate punishments, early release was the carrot that replaced previously relied on sticks. Prisoners appear to have responded favorably to the incentive. Of the 77 prisoners in detention on 31 December 1873, 47 had clean disciplinary records for the year; and, of the 67 prisoners on 31 December 1874, the warden reported no disciplinary sanction against 46 of them (Rhode Island Board of Prison Inspectors 1874, p. 10; 1875, p. 11).

Because the prison was new at mid-century Rhode Island had no formal early-release program in place so prisoners seeking early release petitioned the governor for pardons, often with the encouragement of prison officials. Under Rhode Island's constitution the governor, with the advice and consent of the state senate, was given the exclusive pardoning power (Rhode Island 1896, p. 35). Although Rhode Island's governors did not pardon at the rate of governors elsewhere, they were not reluctant to exercise their power. Between 1854 and 1907 governors pardoned 142 prisoners. The average sentence of those receiving pardons was 126.4 months and they were released, on average, 2,440.3 days early. Men convicted of serious crimes – murder, manslaughter, rape, and robbery, in particular – were more likely to receive a pardon than men convicted of property crimes, as were men who received longer than average sentences for a given crime (see Appendix Table A1). John O'Brien, a 26 year-old, native-born Rhode Islander,

convicted of murder in February 1863, received the most generous pardon having served only 39 months of a prospective 40-year (life) sentence.[6]

Not every prisoner considered eligible for early release was deserving of a pardon, which restored the convicted criminal's civil rights and expunged his or her criminal record. When the legislature was convinced that an individual deserved a reduction in his or her sentence, but no pardon was forthcoming, it was free to exercise its right to grant clemency. In January 1850, for example, the legislature directed the prison warden to release Thaddeus Manchester, a 20 year-old convicted of burglary, because his family had secured him a place on a whaling vessel (Rhode Island 1850, p.64). In another case that came before the January 1850 term, the legislature instructed the warden to release Aaron Batcheller, a 55 year-old convicted of murder who had served less than seven years of a prospective life (18 year) sentence. But in granting clemency the legislature directed any judge who became aware of a threat uttered by or any *alleged* violence perpetrated by Batcheller to immediately have the felon recommitted to the prison for the remainder of his life sentence. Before parole emerged, this was about all that could be done toward monitoring post-release behavior and punishing post-release misconduct.[7]

As the state prison and county jail population grew, the legislature searched for an alternative to the growing number of requests for clemency from inmates. In its 1867 annual report, Rhode Island's prison inspectors (1868, p.8) recommended the adoption of a good-time

[6] The prospective sentence (in months) for murderers serving life sentences was calculated using life tables for nineteenth-century white men. Life expectancy for men in their mid-twenties was 40 years.

[7] In their 1872 (p. 10) report, Rhode Island's Board of Inspectors recommended the adoption of a parole-like program to complement the early-release program. Rather than release a prisoner unconditionally, it would be better to place the ex-convict under the surveillance of the police, who could return him to prison for serious misconduct. My reading of Rhode Island statute law suggests that the legislature did not enact a parole-like program up to 1907.

release program. "Prisoners are," they wrote, "like the rest of mankind, open to such inducements to good conduct." They called their proposal an appeal to "higher rather than the lower motives" of punishment. A short time later a statute was enacted under which the majority of the board of prison inspectors could, with the consent of the governor, deduct as many days per month as there were years in a prisoner's sentence, "provided, that when the sentence is for a longer term than five years, only five days shall be deducted for one month's good behavior" (Rhode Island General Assembly 1872, p. 586). A prisoner sentenced to one year, for example, was eligible for up to 12 days of good-time release; a prisoner sentence to two years was eligible for 48 days (= 2 days per month of sentence times 24 months).[8]

The prison inspectors made extensive use of the program. Of 1,100 prisoners sentenced to less than five years and not released by pardon, the average prescribed term was 19.0 months; the average number of days deducted was 28.4, or 1.5 days per month of sentence. Of 142 prisoners sentenced to more than 60 months and released under this program after 1871, the average sentence was 74.1 months and the average number of days deducted was 296.1 days, or an average of 4.0 days deducted per month.[9]

In discussing prison practice, the Board of Inspectors (1873, pp. 8-9) noted that the early-release program might be interpreted as subverting the intention of judges and juries. But they were keenly aware that, in some instances, punishment might be "carried too far." Because

[8] Maximum good-time release was limited to 12 days for a 1 year sentence; 48 days for a 2-year sentence; 108 days for 3 years; 192 days for 4 years; 300 days for 5 years. For sentences exceeding five years, potential good-time release says increased at a constant 60 days per additional year of sentence. Thus a prisoner sentenced to 6-year sentence was eligible for 360 days; 420 days for 7 years; 480 days for 8 years, and so on.

[9] Another 41 prisoners were released by pardon after 1871. Their mean sentence was 113.3 months and the pardon provided them with an average of 2041 days off, or a deduction of 18 days for every month of the original sentence. Given the difference in time off between pardons and good-conduct time, regression analyses sometimes excludes prisoners released by pardon.

criminals were individuals, the appropriate punishment for some was shorter than for others. The question of whether to release early involved the prisoner's character, deportment, disposition, and the "sincerity of his professions of penitence." To keep a prisoner too long could be as bad for the prisoner as it was to keep him too short a time. The question of how long to incarcerate a prisoner, the Board of Inspectors (1873, p.9) concluded, "is [as] important to society… as to the convict." It was and it is.

3. The economics of early release

When an individual is convicted of a crime, the social costs of his crime, pretrial detention, and trial are sunk, but he may impose future costs on society.[10] Assuming that the crime warrants a jail term, food, clothing, shelter and supervision are provided by the state during his period of incarceration. Moreover, if he engages in further criminal activity after release, he imposes additional (recidivism) costs on society.

Figure 3 provides a simple model for thinking about the adoption and expansion of Rhode Island's early-release program. At the beginning of each day, a social planner whose principal concern is minimizing the social cost of crime, including recidivism, chooses whether to keep a prisoner through that day. The planner compares the incremental cost of that day's incarceration, which defines the marginal cost curve in the figure, to the incremental reduction in the social cost of crime due to incarcerating him for the additional day, which defines the marginal benefit curve. The planner releases the inmate on day t*, when the marginal social cost

[10] My discussion here follows Kuziemko (2007), but is consistent with approaches discussed in Miceli (1991), Garoupa (1996), Scoones (2008) and Berhardt, Mongrain and Roberts (2010).

of an additional day's incarceration equals the marginal social benefit of the expected reduction in recidivism (see Appendix A for an algebraic approach).

The analysis in Figure 3 relies on several assumptions. First, the marginal social cost of incarceration is upward sloping when the prison faces capacity constraints. Although many of the daily per-inmate costs of housing prisoners – food and clothing – are approximately constant, a capacity constraint implies that each additional day of time served for already-incarcerated prisoners reduces the space available for incoming prisoners. Crowding-related costs include the increased supervision required to maintain order in more crowded prisons, the potentially detrimental effects on prisoner health due to prison crowding, and modifications in the prison officials' preferred approach to penology.

Second, it is assumed that the marginal social benefit of incarceration declines in the number of days served. The marginal benefit curve is, conceptually, made up of two parts. Incarceration prevents whatever crimes the prisoner may have committed were he not in prison, which are labelled the incapacitation effect. The incapacitation effect is the product of the prisoner's probability of recidivating and his initial recidivism risk, as determined by the sentencing court. The marginal social incapacitation benefit follows from the fact that an additional day in jail is an additional day that the prisoner is not committing crime (outside the prison). If the probability of committing crime falls with days spent in prison, the incapacitation component of the marginal social benefit curve also falls with days spent in prison.

The marginal social benefit curve is also influenced by what Kuziemko (2007, p.35) labels the rehabilitation benefit. The rehabilitation benefit equals the change in the prisoner's recidivism risk due to time served multiplied by the prisoner's remaining criminal career, which is shortened by each additional day in prison. Because crime is mostly an enterprise of youth,

time spent in prison effectively shortens the prisoner's effective criminal career. If the effect is diminishing in time, this, too, will lead to a downward sloping marginal social benefit curve. It is also presumed that additional time in prison reduces the prisoner's recidivism risk at a declining rate, though prison officials then and now were concerned that young convicts might develop criminal human capital in prison as they learn from more experienced criminals.[11] Nineteenth-century penology's insistence on silence was an effort to combat this problem. To the extent they were correct and silence was reasonably well enforced, additional days in prison imply a decrease in criminal human capital if it deteriorated with inactivity.

A third assumption implicit in Figure 3 is that the sentencing court observes the convicted criminal and imposes an initial sentence, which reflects the court's assessment of the criminal's recidivism risk and the cost of housing the prisoner, as well as any explicit statutory and implicit sentencing norms. If the court behaves as if it were the cost-minimizing social planner and it faces the marginal benefit curve mb_0 and the marginal cost curve mc_0, the optimal sentence, given the information available to the sentencing court at the time the sentence is imposed is t_0*.

Early release programs are justified on the belief that prison officials (parole boards in the modern context) observe the prisoner's post-conviction behavior and can update the sentencing court's assessment of the danger the convict presents to society. If the prison officials' update is such that they revise the recidivism risk downward, this new information shifts the marginal benefit curve to the left to, say, mb_1. The rational response to the officials' new information is to reduce the prisoner's sentence to t_1*. In nineteenth-century Rhode Island, the law created an asymmetric response in that, absent escape and recapture or assaulting a prison official, a

[11] Lochner (2004) and Mocan, Billups and Overland (2005) develop dynamic models of criminal human capital formation.

prisoner's sentence could not be extended (that is, there was no indeterminate sentencing in the period considered here). When new information about a prisoner suggested a shorter optimal sentence, prison officials could reduce the number of days served within the limits imposed by the statutory law. If the new information suggested a substantially shorter sentence, the prisoner could apply for executive pardon or legislative clemency. But when new information points to a longer optimal sentence, prison officials were bound by the sentencing court's determination and could not lengthen the prisoner's term.

Figure 4 presents a second scenario, one also consistent with the evidence on nineteenth-century prison practice. Again, assume that the sentencing court observes the convicted criminal and the costs of housing prisoners and assigns the optimal sentence t_0* at sentencing. After the convict is committed to prison, the marginal cost of housing the prisoner increases, such that the marginal cost curve shifts left to mc_1. A cost-minimizing social planner will respond by reducing each prisoner's sentence from t_0* to t_2*. In this case, no new information is revealed concerning the prisoner's recidivism risk; rather the new information concerns the cost of incarcerating prisoners. As the marginal cost increases, optimal sentences become shorter, holding constant recidivism risk and the expected social costs of post-release crime.

This simple model of recidivism risk and optimal sentencing illuminates several features. First, optimal sentences depend on both the court's initial determination of the convict's recidivism risk and the cost of housing the prisoner over some period of time. Second, it is optimal to alter the sentence if prisoners reveal something about their post-release recidivism risk during their time in prison. If good behavior reflects legitimate changes in behavior, as opposed to simply gaming the system, good-behavior credits toward early release can be efficient in that they reduce the costs of housing prisoners during their time in prison and the social costs of

future crime. In cases where prisoners demonstrate some actual behavioral changes, there are welfare gains to early release. Third, the asymmetric nature of determinant sentencing means that prison officials cannot extend sentences for prisoners who reveal that they are more dangerous than the original sentencing court believed. In these cases, there would be welfare gains to extending sentences, but those gains cannot be captured under a determinant sentencing regime. Fourth, increases in the cost of housing prisoners means more prisoners with given characteristics select into early release. The remainder of this paper considers whether Rhode Island's nineteenth-century prison officials responded rationally to observable features of the criminal and his crime in reducing time served through the early release program adopted in 1871.

4. Criminals, crimes, punishments and good-time deductions

Most convicts ended up in Rhode Island's prison for the same reason they ended up in most nineteenth-century prisons; they stole something. "The criminal masses," as Lawrence Friedman (1993, 212) notes, "committed property crimes of staggering banality." They stole a pig, perhaps, or a few slices of bacon, a hat, a bucket, a wheelbarrow, a $1 banknote. With few exceptions such petit larcenists did not end up in prison; they spent a few days to a few months in the city or county jail. The larcenists that ended up in prison generally stole something fairly substantial or they made a habit of stealing or both.

Nineteenth-century prisons also housed dangerous felons – murderers, highway robbers, rapists and those convicted of assault with a dangerous weapon and with the intent to rape, rob or murder. Table 2 provides information on the principal violent and property crimes for which Rhode Island's prisoners were convicted, the statutory penalties, average sentence lengths and

the average number of days of good-time credit earned. Murders were exempt from the good time deductions described earlier, but they were eligible for executive pardons. The median sentence for the 41 men committed for manslaughter, whose commitment and discharge dates are observed, was 60 months; their mean sentence was 72.3 months. These 41 men earned an average of 179.6 good-time days, so that time served amounted to less than 92 percent of their original sentences. Convicted rapists, on average, served just less than 90 percent of their original sentences. Men convicted of robbery served about 85 percent of their original sentences.

Among property offenses, the law imposed the steepest penalty on burglary, which was differentiated from larceny in that it involved theft accomplished by breaking and entering, often at night. The line between larceny and burglary, writes legal historian Lawrence Friedman (1993, p. 109) was significant because burglary implied a violation of the "sanctity of the home, and thus [was] more menacing than simple theft." And judges and juries were particularly punitive when that sanctity was violated after dark – when people were most vulnerable. Despite the seriousness of the burglars' offense, they still received enough good time credits that they served just 87 percent of their sentences, on average, while men convicted of breaking a dwelling in daytime with intent to steal (i.e., they were caught before they made off with the goods) received only one third of the burglars' sentences, but served nearly 95 percent of their sentences. Larcenists, likewise, served 95 percent of their sentences, as did men convicted of receiving goods under false pretenses (fraud). It is important to note that the last column, which reveals a great deal of within-crime variation in good-time credits earned, a feature that will be exploited in the empirical analysis below.

Another feature of crime is that it is (and was) a youthful enterprise. Figure 5 provides a histogram of age at commitment between ages 15 and 75. More than 40 percent of prisoners

entered the prison by age 25 and the proportion of men entering prison after age 30 drops markedly. Age enters into a rational early-release decision because criminal careers tend to be over by middle age, so recidivism risk declines in age (Moehling and Piehl 2009; Bodenhorn, Moehling and Piehl 2011). Table 3 provides some evidence of a negative relationship between age and days deducted from the sentence as part of the prison's early release program (the statistics exclude executive pardons). Teenage criminals were sentenced, on average, to 23.5 months and were released 43.7 days early. Prisoners in their early 30s were sentenced to 28.3 months and had 100.2 days deducted. The relationship is not linear in age but the pattern holds over the life cycle. Older prisoners received larger early-release deductions, probably because they represented a lesser risk for post-release crime than younger, more impetuous men.

5. Selection into and the determinants of early release

An empirical investigation of whether Rhode Island's prison officials were systematic in their early release decisions employs Heckman's (1979) selection bias correction technique and is based on the following econometric approach to early release. Whether prison officials chose to release a prisoner early is represented by a binary variable R = 1 if the prisoner was released early and zero otherwise. But theory implies that there is some propensity to release early R*, which is unobserved, and that the unobserved propensity is related to a vector of covariates X. The true model of selection into early release is:

(1) $R_i^* = \alpha X_i + \eta_i$

where i indexes the prisoners. To estimate the effect of covariates thought to be correlated with the propensity to release early, a probit model of the following form is estimated:

(2) $Pr(R_i = 1 \mid x) = \Phi(\alpha X_i)$

where $\Phi(.)$ represents the standard normal distribution; and, $R_i = 1$ if a prisoner is released early.

The selection mechanism implied by equation (2) is then incorporated into the regression equation for days deducted from the original sentence through the prison board's early release prerogative, executive pardon, or legislative clemency. For the cases, where $R_i = 1$, the following regression model is estimated:

(3) $Z_i = \beta W_i + \varepsilon_i$

The Heckman selection procedure assumes (η_i , ε_i) is bivariate normal, so that when $R_i = 1$

(4) $E(Z \mid R_i = 1) = \beta W_i + \gamma\lambda_i$

where $\lambda_i = f(\alpha X_i)/ F(-\alpha X_i)$, where f(.) and F(.) are the standard normal density and cumulative distribution functions, and α is the vector of parameter estimates in Eq (2). Identification depends on having at least one explanatory variable in Eq (2) that is not included in Eq (4), though estimation improves if there is variation in selection unrelated to the outcome decision, so it is important for theory to offer guidance on variables to include in the first-stage probit and the second-stage outcome regressions.

One way to thing about connecting the different cases presented in Figures 3 and 4 is that reductions in the sentence itself due to post-incarceration changes in expected recidivism, conditional on being selected into the early-release program, were idiosyncratic to the prisoner. That is, prison officials made choices based on individual characteristics and behaviors, which shifted the marginal benefit curve. Unless an individual prisoner had unique housing or supervisory needs, cost increases applied to all prisoners. The Heckman model is an appropriate modeling choice because individual characteristics mostly influence the marginal benefit curve, which is captured by the outcome (days off) equation, while systemic changes in costs influence the marginal cost curve, which is captured by the first-stage selection equation.

For Rhode Island prisoners the probit (selection) equation takes the following form:

$$(5)\quad \text{Early release}_{it}\ (0/1) = \alpha_0 + \alpha_1 \ln(\text{Sentence}_{it}) + \alpha_2\ (\%\ \text{Capacity}_t) + \alpha_3\ (\%\ \text{Capacity}_t)^2 + \alpha_4 \ln(\text{Gross Cost}_t) + \alpha_5 \ln(\text{Age at Release}_{it}) + \sum \alpha_j\ \text{Nativity}_{it} + \eta_{it}$$

where *Sentence* is the sentence (in months) imposed by the court at conviction; it is included in the first-step equation because prisoners sentenced to longer-than-average terms, for a given offense, contributed to crowding. It is likely that prison officials would have looked to shortening these prisoners' sentences as the prison approached or exceeded its capacity constraint. The term *% Capacity* is calculated as the number of prisoners incarcerated on January 1 of each year divided by the number of cells available to house prisoners on that date; its square is included to capture any nonlinearity in the relationship. This variable is included because it is assumed that when the prison is operating above capacity, prison officials were more motivated to identify candidates for selecting into early release. *Gross Cost* is the real daily per-prisoner cost reported by the warden in the annual prison reports. It is included in the selection equation because it is expected that higher costs of housing prisoners will induce prison officials to identify more prisoners for early release.[12] *Age at Release* is included because theory predicts that older prisoners are less likely to recidivate and are, therefore, more attractive early release candidates. Finally, the selection equation is alternatively estimated with and without a vector of *Nativity* dummy variables. There is no *a priori* reason why a prisoner's place of birth would make him a

[12] Gross rather than net cost is used because the two series move together (see Figure 2), and the correlation coefficient (0.87) is high and gross cost is always positive, which allows taking the natural log. Alternative specifications of the regressions included the inverse hyperbolic sine transform of net costs and the results were qualitatively the same, though the interpretation of the ihs transform is less transparent.

more or less attractive candidate for early release, but prison officials may have been prejudiced toward certain groups and those prejudices may have influenced a prisoner's candidacy for early release.[13]

The early release (outcome) regression takes either of the two following forms:

(6a) $\ln(\text{Days Off}_{it}) = \beta_0 + \beta_1 \text{ Future recidivist}_{it} + \beta_2 \lambda_{it} + \varepsilon_{it}$

(6b) $\ln(\text{Days Off}_{it}) = \beta_0 + \beta_1 \ln(\text{Sentence}_{it}) + \beta_2 (\text{Age at release}_{it}) + \beta_3 \lambda_{it} + \sum \beta_j \text{ Nativity}_{it} + \varepsilon_{it}$

The logarithmic specification for the outcome variable in Equations 6a and 6b follows from the skew, or the long right tail, of the Days Off variable. In estimating equation (6a), the principal explanatory variable is whether the prisoner who received a non-zero number of good-behavior days off returned to the prison in the future; thus, "future recidivist" is a binary variable that equals one if the convict returned to the prison on a second conviction and zero otherwise. This specification presupposes that prison officials observed something about the prisoner that was correlated with his return to the prison and that they acted on those observations through smaller reductions in the prisoner's sentence.

To identify future recidivists, the data were sorted by prisoner name, prisoner number, incarceration date, age, and place of birth. In most instances, future recidivists were identified by name. George M. Boss, for instance, was committed on December 21, 1876 for 12-month sentence for larceny. He received 9 good-behavior days and was released on December 13, 1877;

[13] There is some evidence of reverse ethnic discrimination in Rhode Island's sentencing. After controlling for the recommended sentence and criminal's age and its square, Irish, Canadians and British immigrants all received statistically significantly shorter sentences than criminals born in Rhode Island. These are consistent with Bodenhorn (2009), who finds little evidence of discriminatory sentencing in nineteenth-century Pennsylvania.

or two less days than the maximum number for which he was eligible. Boss returned to the prison on September 18, 1883, to serve 96-months for a conviction on assault and attempted rape charges. In the case of common names, a combination of date, age and place of birth was used to identify whether the individual in question was a repeat offender, recognizing that age was not always accurately reported.[14] Between 1856 and 1904, for example, the prison housed four George Browns, one from Rhode Island, one from Maine, one from Massachusetts and one from the District of Columbia. It is clear that George H. Brown, a 25-year old from Rhode Island is not the same George H. Brown, a 42-year old from D.C. sentenced in 1904. But there is good reason to think that George Brown, a 25-year old from Massachusetts who entered the prison on September 28, 1878 to serve 12 months for breaking and entering and the 27-year old George Brown from Massachusetts who was sentenced to the prison for larceny and receiving stolen goods on March 18, 1882 were the same George Browns, despite the one-year discrepancy in recorded ages.

The issue, of course, is whether, when making their early-release decisions, prison officials were able to observe and act on some characteristic(s) correlated with future recidivism. Figures 6a and 6b provide histograms of the fraction of good-behavior days off received relative to the maximum number of days off a prisoner might receive. Figure 6a presents the distribution for prisoners not identified as having returned to the Rhode Island state prison; Figure 6b presents the distribution of the fraction of days off relative to eligible days off for prisoner who did return to the prison. The most striking feature of the diagrams is the disparate outcomes for future recidivists and non-future recidivists. Approximately 22% of future recidivists received no

[14] See A'Hearn, Baten and Crayen (2009) for a study of the connection between misreporting of age and numeracy in the nineteenth century.

good-behavior credits; only about 10% of non-future recidivists received no good-time credits. Similarly, only about 15% of future recidivists received the maximum number of eligible good time credits compared to about 22% of non-future recidivists. Moreover, a larger proportion of non-future recidivists received between 80% and 90% of their maximum eligible days off. It appears that prison officials identified something about prisoners' recidivism risks and conditioned their early release decisions on those observations.

One concern with using return to the state penitentiary as the measure of recidivism risk is that it captures recidivism conditional on it occurring in Rhode Island and that the recidivists' crimes were of sufficient gravity to warrant a return to the state penitentiary. People in the nineteenth century were mobile and criminals may have been more transient than others; and, Rhode Island was small and many of the people entering the prison were from outside the state, which makes it likely that they left after their prison term expired. They may have recidivated outside Rhode Island or been committed to a county jail rather than the state penitentiary. Equation (6b) offers an alternative specification of the outcome equation using, instead of observed recidivism, those characteristics of the convict observable to the econometrician (and the prison officials) that are correlated with recidivism (see Appendix Table 3). Probit and linear probability models of recidivism on sentence length, recidivism and nativity reveal that they are strongly correlated with observed recidivism.

The logarithm of *Sentence* is included in the Days Off (outcome) equation because the mechanical rule created by statute in 1872 meant that prisoners who received longer sentences were eligible for more good-time days, as well as the empirical result that prisoners sentenced to longer than average terms for a given offense were more likely to receive executive pardons or

legislative clemency. It is also possible that criminals serving longer sentences, all else equal, were less likely to recidivate because their criminal human capital deteriorated relative to their legitimate human capital during the long prison term (Lochner 2004; Mocan, Billups, and Overland 2005). It enters the equation in logarithmic form because of the significant right skew in sentence lengths. *Age at Release* is included because the prisoner's remaining criminal career and his potential for recidivism declines in age. And, finally, the prisoner's place of birth is included to capture either of two possible effects. First, although there is little evidence that immigrants were discriminated against at sentencing, prison officials may have discriminated against immigrants or non-Rhode Islanders in early-release days. Second, convicts from outside Rhode Island may have returned home or otherwise have moved on where they may have committed new crimes that are not observed in the Rhode Island data.

Table 4 provides the summary statistics for the full sample and the subsamples analyzed in subsequent sections. Among prisoners not released by pardon, the average sentence was 26.4 months; violent offenders received sentences about 4 months longer than offenders convicted of property crimes.[15] Prisoners released through the early release program (excluding pardons) earned nearly 89 good-time days, on average. Violent criminals earned 55% more good-time days even though their original sentences were only 17% longer. Men tended to be in their late twenties and early thirties when they were released. In real terms, the cost of housing, feeding and supervising a prisoner averaged 30¢ per day, though the costs increased sharply after the 1880s. In the second half of the nineteenth century, the prison operated about 20 percent above design capacity, on average. And, finally, about 10% of property offenders and 3% of violent

[15] The residual category of nonviolent and non-property crime consists of morals offenses (adultery, bigamy, carnal knowledge of underage girls) and perjury.

offenders received a second sentence to the prison; they are the "future" recidivists used in the estimation.

5.1 Selection and early release: full sample results

Table 5 reports the results from four sample selection specifications. Columns 1 through 3 include all crimes and all forms of early release, including executive pardons, for the years after the 1871 adoption of a formal early release program. Because pardons tended to grant very large numbers of days off, columns 4 through 6 report results when early release was granted other than through executive pardon.

Panel A of Table 5 reports parameter estimates from the first-step selection equation, which is implemented as probit specification in the standard Heckman (1979) approach, and Panel B reports the outcome (days off) regression. The results from Column 1 of Panel A, which report the marginal effects calculated from the first-stage probit of the standard two-step Heckman (1979) model are consistent with predictions from the economic model: older prisoners serving longer sentences when the prison was more crowded and the cost of housing prisoners was higher were more likely to select into the early release program. The question of interest is the relative magnitude of the effects. One standard deviation change around the mean for each of the variables of interest shows that the capacity constraint had the largest effect on selection into early release: a one standard deviation increase in the *Percent Capacity* variable led to a 57% increase in the likelihood of being selected into early release.[16] By comparison, a one standard deviation increase in the (log) cost of housing a prisoner increased the likelihood of selecting in

[16] The estimated marginal effects imply that the likelihood of selecting into early release occurred when the population was 130 percent of design capacity.

by 11%; a one standard deviation increase in the prisoner's age at release increased the likelihood of release by 6.6%; and a one standard deviation change in (log) sentence length increased the likelihood of early release by 5.6%. Using the marginal effects from the maximum likelihood specification implies different magnitudes, but does not alter the basic interpretation: a one standard deviation increase in capacity leads to a 68% increase in likelihood of early release, 18% for length of sentence, 5.3% for cost, and 3.7% for age at release.

Columns 4 through 6 of Panel A report marginal effects when prisoners released by executive pardon are excluded from the estimation. Because executive pardons tended to release prisoners several months to several years prior to their eligibility for release through the conditions contemplated by the 1871 statute, it is important to know whether they are driving the results. The estimated coefficients (and, by implication, the marginal effects) are smaller when pardons are excluded than when they are included, but the estimates are still statistically significant in most cases and the magnitudes are economically meaningful. Using the two-step estimates from Column 4 imply that a one standard deviation increase in *Percent Capacity* leads to a 47% increase in the likelihood of early release. One standard deviations increase in the cost of holding a prisoner increases the likelihood of early release by 13%; 7.2% for age at release; and 2.6% for sentence length.

The results of the selection specifications are, therefore, consistent with theory and with what is generally known about recidivism. Prison crowding creates increases the cost of housing prisoners, which pressures prison authorities to select more prisoners in an early release program. They responded by differentially releasing prisoners serving longer sentences and older prisoners into the program. They responded to crowding and direct costs in predictable fashion. But they also selected prisoners sentenced to longer terms into the early release program because a longer

sentence, all else constant, contributes to crowding if new convicts enter at a faster rate than seasoned convicts are released. Older prisoners at release were also granted more days off, which is consistent with the empirical phenomenon that crime is a youthful activity. Older men are less likely than younger men to commit crimes, and they are less likely to recidivate (Kuziemko 2007; Worthington, Higgs and Edwards undated).

Panel B of Table 5 reports the results from the alternative specifications of the outcome or the (log) Days Off equation. The histograms presented in Figures 6a and 6b suggest that prison officials observed some characteristic(s) of prisoners that provided some information about future recidivism and they acted on those observations. The econometric results are consistent with that interpretation. The exponentiated coefficient on *Future Recidivist* reported in Column 4 implies that ex-convicts who later returned to the state penitentiary (which is a lower-bound estimate of recidivism) received about 68% of the number of days off, conditional on selecting into the early release program, as ex-convicts who did not later return to the penitentiary. The coefficient from the maximum likelihood specification imply that future recidivists were received, on average, about 70% of the number of days off as non-recidivists.

Column 6 reports the effects when, instead of observed recidivism, the outcome equation is estimated using characteristics correlated with future recidivism. Given the log-log specification, the reported coefficients can be interpreted as elasticities. Thus, a one percent increase in sentence length leads to a 1.9 percent increase in the number of early-release days. This is, in part, a purely mechanical result given the statutory procedure for calculating the eligibility for early release. But is also reflects, in part, that longer sentences were likely to have eroded criminal human capital, which reduced the expected recidivism costs of early release. Early-release days were relatively inelastic with respect to the prisoner's age at release; a one

percent increase in convict's age increased the number of early-release days by just 0.26%. Finally, to save space, the individual nativity coefficients are not reported, but the nativity variables as a group add meaningful information to the regression.[17] It is of interest that the individual coefficients on the Irish (-0.33) and Germans (-0.75) suggest some measure of ethnic discrimination; whereas the coefficient on Canadians (+0.31) suggest that they were either more well behaved than men of other nationalities or that the prison authorities thought they might return home and, therefore, present less of a recidivism risk for Rhode Island than men from farther afield.

5.2 Property and violent crime and early release

Table 6 reports maximum likelihood parameter estimates when crimes are separated into property crimes and violent crimes. The regressions are well behaved for the large sample of property crimes and the results mirror the full sample results reported in Table 5. Prisoners were more likely to be selected into the early release program if they were serving a longer sentence, were older at prospective release date, when the prison was crowded, and when cost of feeding and clothing prisoners were higher. The estimated coefficient in the outcome equation in Column (2), which excludes prisoners released by pardon, implies that future recidivists received 72% of the days off, on average, as non-recidivists.

A comparison of the results from the violent and non-violent subsamples generates some seemingly counterintuitive results. Using the marginal effects reported in Columns (2) and (4), which excludes pardons, a one standard deviation increase in sentence length is associated with a

[17] Nativity was divided into 13 categories that include Rhode Island, Massachusetts, Connecticut, other New England, Mid-Atlantic, South, Old Northwest, Ireland, Britain, Germany (including Austria), Canada, Italy,

19% increase in the likelihood of release for violent convicts, but only a 15% increase for nonviolent convicts. At the mean *Percent Capacity*, violent convicts were nearly three times more likely than non-violent convicts to select into the early release program; and at the mean *Cost*, they were nearly twice as likely to select in. At the mean *Age at Release*, however, violent criminals were about half as likely as non-violent offenders to select into early release. This apparently counterintuitive result is consistent with other features of the data: violent offenders were initially sentenced to longer terms so at a given capacity constraint, holding violent offenders for their full terms exacerbated the crowding problem; and, violent offenders were only about one-third as likely as non-violent offenders to recidivate. The results of the outcome equations in Panel B also reveal that, while violent offenders were more likely to select into early release, they served relatively more of their sentences, conditional on selecting into the early release program.

6. Concluding comments

The introductory section closed by posing a question about what lessons an historical study might offer modern criminologists. The answer, in part, comes from the results of this study: historical prison officials appear to have responded reasonably and systematically to observables believed to be correlated with recidivism risk, as well as to the social costs of crime and incarceration. As Dharmapala, Garoupa and Shepherd (2010) note, the late twentieth-century movement away from discretionary sentencing through the adoption of sentencing guidelines and truth-in-sentencing laws may have had the unintended consequence of exacerbating prison crowding and contributing to the already rising costs of prisons. Mandating long(er) terms keeps

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and Other Immigrant. Rhode Island is the excluded category in the regressions.

existing prison bunks full, so that any increase in crime or conviction rates increases crowding and costs. Discretionary parole systems can mitigate these unintended consequences and, if properly implemented and administered, still serve the public interest by balancing the social costs and benefits of incarceration. But the same legislatures that constrained the judiciary through guidelines and truth-in-sentencing laws, did away with or reined in discretionary parole decisions, as well.

One argument against discretion is that it can be driven by or subject to prejudice. Determinant sentences or strict guidelines can mitigate trial-level sentencing disparities across groups that may be compounded through discretionary parole or other early release programs, which formed the basis for liberal political support for both measures in the late twentieth century. There is some evidence of discriminatory sentencing and disparate use of good-time release for immigrants in nineteenth-century Rhode Island, but the effects worked in opposite directions. Irish immigrants, for example, received sentences about 12 percent shorter than native Rhode Islanders, but they were about 30 percent less likely to select into the early release program. It is difficult to determine whether the net effect operated to the disadvantage of Irish-born convicts. I have found no historical discussion of disparate treatment, so it seems unlikely that concerns with potential disparities drove the use of good time policies in the nineteenth century.

A second concern driving the adoption of sentencing guidelines and the elimination of discretionary parole was that judicial and parole discretion undermined the deterrent effects of imprisonment. Less severe and less certain punishments are thought to offer less of a deterrent to crime. And, rising crime rates in the post-war era were attributed in part to the increased use of discretion in sentencing and parole. While the excessive use of pardons in Pennsylvania and New

York came under fire in the early nineteenth century, there was little criticism of Rhode Island's good-time policy, which may have been due to the prison board's limited use of good-time release: the typical prisoner that earned good time credits served 90 percent or more of his original sentence. Compare this to 1999, when inmates released under discretionary parole programs across the United States served a mere 37 percent of their original sentence (Dharmapala, Garoupa and Shepherd 2010, p. 1048) and all prisoners served about half their original sentence (Benson 2009). One difference between then and now is that, despite increasing urbanization, and an increase in the aggregate number of crimes and criminals, the crime rate in Providence, Rhode Island declined about 40 percent between 1855 and 1905.[18]

As the rehabilitative and reformative aspects of imprisonment came to be doubted in the post-war era, early release programs based on presumed post-incarceration changes in convicts' behavior lost their appeal. If incarceration did not rehabilitate, it was hard to defend an early-release (parole) system premised on a prisoner's changed behavior. This was the argument put forward in the 1970s and 1980s, which led to the elimination of discretionary parole in many states. A related argument was put forth in the 1870s as the original promises of the penitentiary went unrealized, yet early release continued. The continued use of early release may have been driven, in part, by the greater nineteenth-century concern with the consequences of crowding and rising prison costs on prisoners and taxpayers alike. Asking prison officials to offer annual income statements and explain why their institutions failed to return a profit kept cost containment in the forefront.

[18] If the arrest rate approximately reflects the crime rate, admissions to the Providence County, Rhode Island jail declined from about 700 per 100,000 in the mid-1850s to about 400 per 100,000 in the mid-1900s. Rates calculated from data reported in Rhode Island Board of Inspectors (1857-1859) and Rhode Island Board of Charities (1901-1905).

In assessing the modern approach to criminal corrections, John DiIulio (1992, p. 6) notes that Americans want a system that visits harm on criminals (*retribution*); makes criminals more law abiding (*rehabilitation*); dissuades potential offenders from criminal activities (*deterrence*); protects citizens from becoming victims of crime (*incapacitation*); and successfully returns inmates that have served their time to the community (*reintegration*) without violating public norms concerning appropriate punishment (*civil rights*) or imposing too great a cost on taxpayers (*cost containment*). The mid-nineteenth-century approach included the same concerns, though the earliest advocates of the penitentiary placed different weights on retribution, rehabilitation and the other concerns than do modern penologists. There was, for instance, less concern for a prisoner's constitutional rights, but particularly brutal punishments, including unsupervised use of the bludgeon and generous use of the lash by prison guards, fell from public favor by mid-century and disappeared from most prisons soon thereafter (Lewis 1965, p. 251; Rhode Island Board of Inspectors 1862). The common thread linking then and now is the ongoing concern with crowding and cost containment. The available evidence points toward Rhode Island's attempts to balance the rising costs of housing prisoners and the social costs of post-release recidivism.

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Appendix A

Consider types of inmates, indexed by j, convicted of the same crime each of which receives sentences of S_j months in prison. Statutory law defines the minimum and maximum sentence, which places sometimes binding constraints on the sentence, and the court sentences the convicted criminal to a term based on the statutory limits, standard sentencing practice (simple larceny typically merited twelve months), the court's assessment of the criminal's recidivism risk, as well as other characteristics, only some of which are observable to the historian. Individual deviations from the mean sentence are assumed to reflect the court's assessment of the type-j prisoner's capacity to recidivate. Prisoners receiving sentences longer than the mean likely present a relatively greater recidivism risk, and extended incapacitation is expected to reduce future social costs. It is further assumed that prison officials observe aspects of the inmates' behavior, which reveals information about their expected post-release recidivism risk.

An inmate's annual risk of recidivating $R(r_j, t_j)$ depends on the prisoners' initial recidivism risk, r_j, and the time in months, t, since his admission to prison. For simplicity, further assume that the inmate imposes additional post-release social costs γ if he recidivates and zero if he does not. At the moment the inmate arrives at prison he has T_j months remaining to his expected criminal career, after which he has zero probability of committing a crime.

Under these assumptions, we can write the social costs of incarcerating prisoners of type j for t months as:

$$(A1) \quad SC = Ct_j + \gamma R(r_j, t_j)\,(T_j - t_j)$$

where C is the daily per-inmate costs of incarceration. Dropping the j subscripts and taking the derivative with respect to t yields the following first-order condition:

$$(A2) \quad C = \gamma\,[R(r, t^*) - R'(r, t^*)(T-t^*)]$$

where the left-hand side is the marginal cost of incarcerating a prisoner for one additional day. It is assumed to increase in t because, as the prison become more crowded, an additional day served by each prisoner increases the crowding-related costs. The term on the right-hand side defines the marginal benefit curve, and is made up of two parts. First, incarceration prevents whatever crimes the prisoner may have committed were he not in prison. This is captured by the term $\gamma\, R(r, t^*)$, which is simply the social cost of crime times the recidivism risk. It depends on the level of $R(r, t^*)$. The second element of the right-hand side is what Kuziemko (2007, p.35) labels the rehabilitation benefit. It is the incremental change in the recidivism risk due to time

served multiplied by the prisoner's remaining criminal career, which is shortened by each additional day in prison.[19]

Rearranging terms and solving for t* yields the optimal sentence:

(A3) $t^* = T + [(\gamma R - C) / - \gamma R']$

Kuziemko (2007) finds the empirical evidence to be consistent with $R'<0$ and $R''>0$, so that the denominator is positive. The optimal sentence increases with initial recidivism risk (R), the social cost of recidivism, γ, and the prisoner's remaining criminal career (T). The optimal sentence declines in the cost, including crowding cost, of incarceration.

[19] For the marginal benefit curve to slope downward, the following must hold for the second derivative with respect to time: $2R' - R''(T-t) > 0$. Kuziemko (2007) provides empirical evidence that the condition is met in modern data. I assume it is met in the historical data.

Figure 1
Effective prison capacity and inmate population
1849-1910

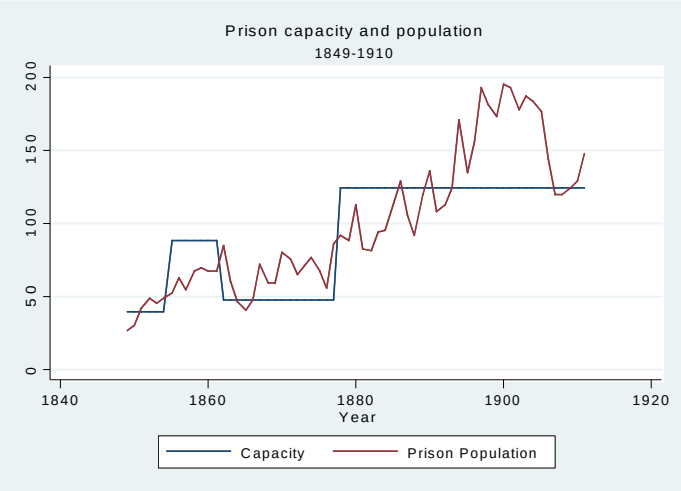

Figure 2
Per prisoner gross and net annual expenditures
1849-1910

Figure 3
Optimal good-time policy when recidivism risk is lower than originally believed

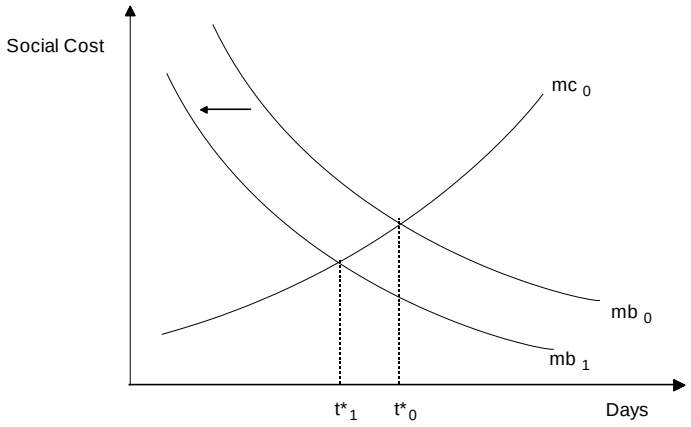

Figure 4
Optimal good-time policy when cost of incarceration increases

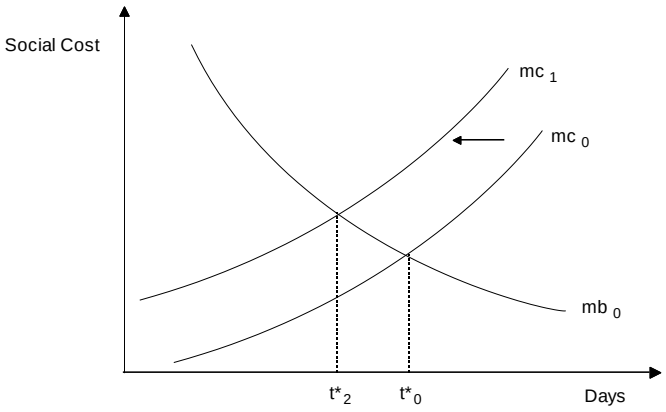

Figure 5
Age at commitment
Rhode Island state prison, 1856-1907

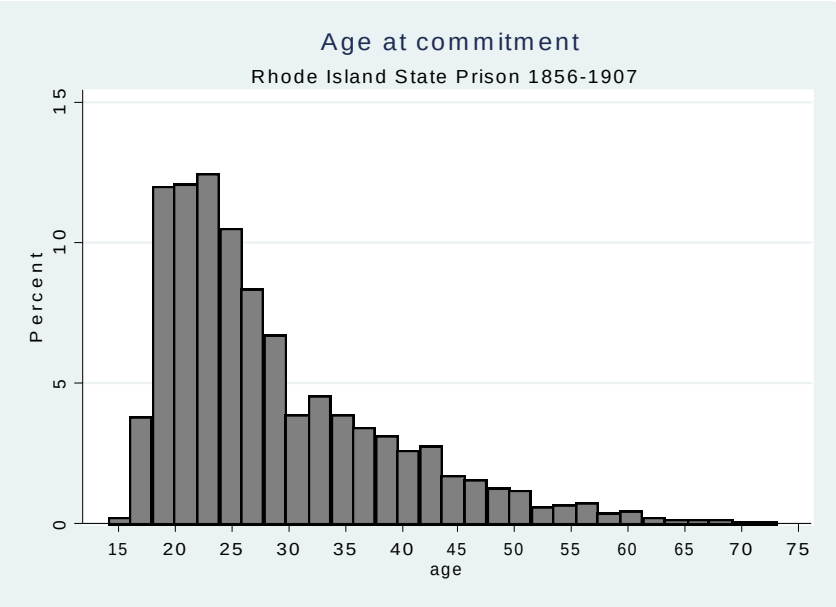

Figure 6a
Histogram of good-behavior days off as a fraction of maximum eligible days off for prisoners not returning to the Rhode Island state prison (non-Future Recidivists)

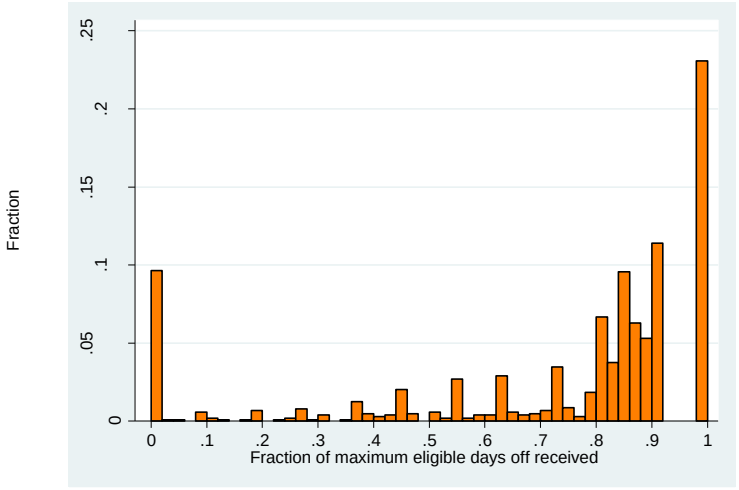

Figure 6b
Histogram of good-behavior days off as a fraction of maximum eligible days off for prisoners who latere returned to the Rhode Island state prison (Future Recidivists)

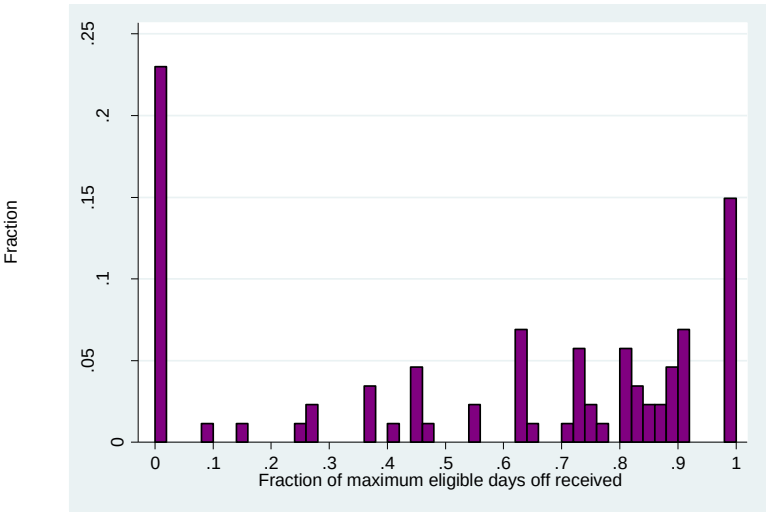

Table 1
Per prisoner annual cost of incarceration, 1856 and 1900

Expense category	1856 (Constant 1860 $)	1900 (Constant 1860 $)
Salaries	$25	$50
Provisions and groceries	35	38
Fuel and lighting	4	15
Bedding and clothing	3	7
Repairs and maintenance	1	5
Discharge of convicts	1	1
Miscellaneous	4	6
Other expenses	4	11
Total expenses	**$77**	**$133**

Sources: Expenses from Rhode Island Board of Inspectors (1856) and Rhode Island Board of Charities (1900). Price index from Lindert and Margo (2006).

Table 2
Statutory penalties, median and mean sentences (in months), and days deducted

Crime	Statutory penalty	Median sentence	Average sentence	Std Dev (sentence)	Commit-ments	Days deducted	Std Dev (days)
			Panel A: Violent crime				
Murder	Life	Life	Life	na	40	na	na
Manslaughter	≤240	60	72.3	56.4	41	179.6	226.1
Robbery	60 - Life	72	98.2	57.9	75	453.1	548.9
Rape	120 - Life	180	199.4	94.4	13	627.3	134.8
Assault	12 - 240	12	17.7	20.3	38	14.3	23.6
w/ intent to kill	12 - 240	42	44.8	34.1	46	179.2	292.4
w/ intent to rape	12 - 240	36	46.7	36.8	57	102.9	127.5
w/attempt to rob	12 - 240	18	26.5	16.2	16	0	na
w/dangerous weapon	≤24	12	18.0	15.0	147	19.1	29.2
			Panel B: Property crime				
Burglary	60 - Life	60	76.7	41.6	111	298.7	344.8
Breaking – commercial property	≤ 120	18	22.2	14.1	445	29.1	64.1
Breaking – dwelling	≤ 60	20	25.8	15.1	313	41.3	58.3
Larceny	12 - 120	15	19.8	11.6	528	33.2	78.3
Larceny from the person	12 - 120	18	23.3	18.0	149	38.4	65.1
Receiving stolen goods	12 - 120	12	17.2	9.6	19	24.2	37.9
Entering – dwelling	≤60	18	24.0	14.6	84	33.9	46.1
Entering – non-dwelling	≤24	15	18.4	8.9	7	28.0	35.6
False pretenses	≤60	14	19.7	12.3	23	26.9	26.5
Forgery	≤60	24	35.4	16.7	89	89.9	106.7
Embezzlement	12 - 120	18	19.3	9.8	30	38.7	105.7

Sources: Statutory penalties: Rhode Island General Assembly (1857, 1872, 1896); median and average sentences and days deducted: author's calculations from Rhode Island prison reports (1856-1907).

Table 3
Average sentences and early-release time by age

Age group (years)	Sentence (months)	Deduction (days)	N
15-19	23.52 (17.65)	43.65 (113.95)	231
20-24	25.12 (19.13)	51.70 (124.81)	481
25-29	27.44 (21.13)	70.50 (176.05)	313
30-34	28.27 (23.31)	100.17 (250.33)	169
35-39	31.20 (30.24)	83.02 (153.94)	128
40-44	20.99 (17.68)	56.74 (178.41)	92
45-49	26.34 (20.92)	93.11 (286.95)	53
50-54	22.27 (14.40)	56.77 (108.88)	26
55-59	28.26 (18.74)	146.89 (366.53)	19

Sources: authors' calculations from Rhode Island prison reports (1856-1907).

Table 4
Summary statistics

Variable	Full sample	Full sample, exclude pardons	Property crime, exclude pardons	Violent crime, exclude pardons
Sentence (mos)	33.77 (51.64)	26.37 (26.58)	22.84 (16.27)	26.66 (26.38)
ln(Sentence)	6.55 (0.74)	6.45 (0.61)	6.38 (0.53)	6.41 (0.68)
Days off	261.02 (1141.95)	88.75 (523.48)	46.92 (120.97)	72.84 (166.09)
ln(Days off)	3.73 (1.74)	3.38 (1.37)	3.19 (1.19)	3.33 (1.42)
Age at release	30.36 (10.18)	30.17 (10.08)	28.72 (9.09)	33.78 (11.89)
ln(Age at release)	3.36 (0.30)	3.36 (0.30)	3.31 (0.28)	3.46 (0.33)
Daily per prisoner cost	0.30 (0.09)	0.30 (0.09)	0.30 (0.08)	0.31 (0.09)
ln(daily per prisoner cost)	-1.25 (0.33)	-1.24 (0.31)	-1.24 (0.31)	-1.22 (0.30)
Percent capacity	1.19 (0.32)	1.20 (0.32)	1.20 (0.32)	1.19 (0.32)
Future recidivism	0.08 (0.26)	.08 (0.27)	0.10 (0.29)	0.03 (0.18)
Uncensored obs	1,371	1,236	909	201
Censored obs	342	342	249	49

Sources: authors' calculations from Rhode Island prison reports (1856-1907).

Table 5
Heckman selection specification results – All crimes

	(1) **Full sample two-step**	(2) **Full sample MLE**	(3) **Full sample** MLE	(4) **No pardons two-step**	(5) **No pardons MLE**	(6) **No pardons MLE**
			A. Selection equation: Early release (0/1)			
ln(Sentence)	0.076 (0.013)**	0.297 (0.016)**	0.069 (0.013)**	0.042 (0.016)**	0.288 (0.022)**	0.044 (0.016)**
% Capacity	0.721 (0.207)**	0.902 (0.194)**	0.549 (0.269)*	0.595 (0.218)**	0.719 (0.190)**	0.637 (0.221)**
% Capacity^2	-0.238 (0.090)**	-0.345 (0.084)**	-0.165 (0.113)	-0.189 (0.094)*	-0.272 (0.081)**	-0.208 (0.096)*
ln(Cost)	0.333 (0.023)**	0.160 (0.039)**	0.344 (0.025)**	0.430 (0.028)**	0.391 (0.032)**	0.431 (0.025)**
ln(Age release)	0.220 (0.031)**	0.124 (0.032)**	0.212 (0.035)**	0.241 (0.032)**	0.165 (0.033)**	0.241 (0.032)**
Constant	-4.958 (0.805)**	-8.855 (0.659)**	-4.069 (1.122)**	-3.384 (0.865)**	-8.263 (0.751)**	-3.536 (0.869)**
Nativity dummies F-stat (p-value)	Yes (0.10)	Yes (0.11)	Yes (0.07)	Yes (0.10)	Yes (0.03)	Yes (0.04)
			B. Days off regression			
Future recidivist	-0.536 (0.172)**	-0.492 (0.130)**	--	-0.383 (0.140)**	-0.361 (0.090)**	--
ln(sentence)	--	--	2.029 (0.028)**	--	--	1.950 (0.029)**
ln(Age release)	--	--	0.139 (0.065)*	--	--	0.258 (0.054)**
Constant	4.183 (0.076)**	4.188 (0.058)**	-10.750 (0.555)**	3.740 (0.064)**	3.744 (0.048)**	-10.029 (0.253)**
Nativity dummies F-stat (p-value)	No	No	Yes (0.07)	No	No	Yes (0.04)
lamba	-1.529 (0.203)	-1.671 (0.056)	0.289 (0.272)	-1.251 (0.169)	-1.301 (0.050)	-0.053 (0.024)
Wald test statistic (p-value)	--	407.19 (0.00)	1.00 (0.32)	--	277.62 (0.00)	4.55 (0.03)

Note: selection equation results, except constant, are marginal effects corrected for inclusion in both equations, when relevant. Wald test: null is independent equations in maximum likelihood estimation (MLE).
** implies p-value <0.01; * implies p-value <0.05.

Table 6
Heckman selection specifications – Property and violent crimes

	(1) Property crimes All	(2) Property crimes No pardons	(3) Violent crimes All	(4) Violent crimes No pardons
	A: Selection equation: Early release (0/1)			
ln(Sentence)	0.293 (0.031)**	0.288 (0.031)**	0.255 (0.033)**	0.272 (0.076)**
% Capacity	0.534 (0.246)*	0.427 (0.225)*	1.475 (0.589)*	1.213 (0.534)*
% Capacity^2	-0.196 (0.105)	-0.155 (0.094)	-0.553 (0.274)*	-0.460 (0.229)*
ln(Cost)	0.309 (0.047)**	0.437 (0.035)**	-0.010 (0.066)	0.204 (0.098)*
ln(Age at release)	0.229 (0.042)**	0.248 (0.043)**	0.156 (0.075)*	0.098 (0.070)
Constant	-9.163 (1.024)**	-8.698 (0.988)**	-10.910 (1.522)**	-8.917 (1.802)**
Nativity dummies	Yes	Yes	Yes	Yes
F-stat (p-value)	(0.03)	(0.00)	(0.07)	(0.14)
	B: Outcome equation: ln(Days off)			
Future recidivist	-0.429 (0.115)**	-0.328 (0.093)**	-0.520 (0.491)	-0.130 (0.443)
Constant	3.747 (0.059)**	3.501 (0.047)**	4.106 (0.145)**	3.683 (0.120)**
Lamba	-1.209 (0.079)	-1.086 (0.050)**	-1.862 (0.127)**	-1.449 (0.123)**
Wald test statistic (p-value)	124.63 (0.00)	158.34 (0.00)	35.71 (0.00)	25.50 (0.00)
Censored/Uncensored N	967/249	909/249	270/49	250/49

Note: selection equation results, except constant, are marginal effects corrected for inclusion in both equations, when relevant. Wald test: null is independent equations in maximum likelihood estimation (MLE).
** implies p-value <0.01; * implies p-value <0.05.

Appendix Table A1
Determinants of receiving a pardon

	(1)	(2)	(3)	(4)
Arson (malicious burning)	0.141 (0.066)*		1.132 (0.478)*	
Assault	-0.035 (0.007)**		--	
Assault w/weapon	-0.022 (0.012)		-1.256 (0.282)**	
Attempted rape	-0.018 (0.019)		1.356 (0.246)**	
Attempted robbery	0.027 (0.061)		0.531 (0.246)*	
Breaking-dwelling	-0.032 (0.008)**		-1.081 (0.246)**	
Breaking-commercial	-0.018 (0.009)		-0.196 (0.402)	
Burglary	0.199 (0.041)**		1.133 (0.285)**	
Counterfeiting	0.112 (0.070)		-1.187 (0.731)	
Embezzlement	0.064 (0.055)		0.266 (0.592)	
Entering-dwelling	-0.036 (0.007)**		--	
Entering-commercial	-0.036 (0.007)**		--	
Fraud	--		--	
Forgery	0.122 (0.039)**		0.284 (0.292)	
Larceny from person	-0.029 (0.010)**		-0.873 (0.246)**	
Manslaughter	0.184 (0.065)**		1.334 (0.410)**	
Murder	0.389 (0.079)**		2.795 (0.290)**	
Rape	0.349 (0.136)**		1.795 (0.318)**	
Receiving stolen goods	-0.036 (0.007)**		--	
Robbery	0.164 (0.047)**		1.002 (0.308)**	

Appendix Table A1
Determinants of receiving a pardon

	(1)	(2)	(3)	(4)
Sentence / Mean sentence		0.031 (0.009)**		0.591 (0.130)**
Constant	0.036 (0.007)**	0.012 (0.008)	6.156 (0.246)**	6.015 (0.191)**
N	2485	2215	135	90
F-statistic	10.4	13.0	92.8	20.6
R-square	0.13	0.01	0.63	0.22

Notes: Columns (1) and (2) report regression coefficients from linear probability models (OLS) in which the dependent variable =1 if the prisoner received a pardon and zero otherwise. Columns (3) and (4) report regression coefficients from OLS regressions where the dependent variable equals ln(days deducted) only for those receiving a pardon. The regressor Sentence / Mean Sentence is calculated as the sentence received by individual i for some crime j divided the mean sentence of all convicts sentenced for crime j. The mean value across all crimes is 1.02 with a standard deviation of 0.68; minimum value = 0.16 and maximum value 6.78. See Data section of further description of the data and the variables. Standard errors are corrected for heteroskeadsticity using the Huber-White correction. The excluded category in Columns (1) and (3) is larceny, which was differentiated under Rhode Island law from larceny from the person.
Sources: authors calculations from data reported in Rhode Island Board of Prison Inspectors (1856-1875) and Rhode Island Board of State Charities (1876-1910).

Appendix Table A2
Determinants of sentence length

	(1)	(2)	(3)	(4)
ln(Recommended sentence)	0.493**	(0.022)	0.495**	(0.028)
Age	0.009	(0.008)	0.010	(0.008)
Age squared	-0.0001	(0.0001)	-0.0001	(0.0001)
Massachusetts			-0.008	(0.043)
Connecticut			0.127	(0.079)
Other New England			-0.180*	(0.069)
Mid-Atlantic			0.037	(0.052)
South			-0.096	(0.091)
Old Northwest			-0.067	(0.103)
Ireland			-0.120*	(0.054)
Canada			-0.181**	(0.060)
Britain			-0.234**	(0.058)
Germany			-0.012	(0.132)
Italy			0.129	(0.138)
Other Immigrant			-0.039	(0.088)
Constant	4.430**	(0.177)	4.427**	(0.179)
Observations	2407		2407	
F-stat	103.1**		23.24**	

Notes: Columns (1) and (3) report ordinary least squares (OLS) regression coefficients in which the dependent variable = ln(Sentence Lenth), where sentence length is measured in months. Columns (2) and (4) report estimated standard errors on the coefficients. Recommended Sentence is the midpoint of the statutory minimum and maximum sentence. The midpoint for larceny, for example, is 54, which is based on a minimum 12 month and maximum 120-month sentence (i.e., 54= (120-12)/2). Standard errors are corrected for heteroskeadsticity using the Huber-White correction. The excluded category in Columns (1) and (3) is Rhode Island nativity.
Sources: authors calculations from data reported in Rhode Island Board of Prison Inspectors (1856-1875) and Rhode Island Board of State Charities (1876-1910).

Appendix Table A2
Determinants of future recidivism

	(1)	(2)	(3)	(4)
ln(Sentence)	-0.024**	(0.007)	-0.028**	(0.009)
ln(Age at Release)	-0.085**	(0.020)	-0.083**	(0.020)
Massachusetts	-0.063**	(0.019)	-0.041**	(0.011)
Connecticut	-0.05**	(0.017)	-0.060**	(0.009)
Other New England	-0.050	(0.033)	-0.029	(0.020)
Mid-Atlantic	-0.068**	(0.021)	-0.041*	(0.012)
South	-0.064*	(0.033)	-0.036	(0.018)
Old Northwest	-0.087*	(0.035)	-0.047	(0.017)
Ireland	-0.047*	(0.022)	-0.029	(0.014)
Canada	-0.090**	(0.021)	-0.052*	(0.011)
Britain	-0.053*	(0.026)	-0.032	(0.015)
Germany	-0.043	(0.053)	-0.026	(0.038)
Italy	-0.080**	(0.024)	-0.051	(0.015)
Other Immigrant	-0.065*	(0.031)	-0.037	(0.020)
Constant	0.558**	(0.080)		
Observations	1782		1782	
F-stat / Wald chi sq	4.86**		57.5**	

Notes: Column (1) reports ordinary least squares (OLS) or linear probability regression coefficients in which the dependent variable = Future Recidivist, which equals one if the convicts served a second term in the state prison and zero otherwise. Column (3) reports the estimated marginal effects from a probit regression with Future recidivist as the dependent variable. Columns (2) and (4) report estimated standard errors on the coefficients. Recommended Sentence is the midpoint of the statutory minimum and maximum sentence. The midpoint for larceny, for example, is 54, which is based on a minimum 12 month and maximum 120-month sentence (i.e., 54= (120-12)/2). Standard errors are corrected for heteroskeadsticity using the Huber-White correction. The excluded category in Columns (1) and (3) is Rhode Island nativity.
Sources: authors calculations from data reported in Rhode Island Board of Prison Inspectors (1856-1875) and Rhode Island Board of State Charities (1876-1910).