DOES PRISON HARDEN INMATES?
A DISCONTINUITY-BASED APPROACH

By

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Does Prison Harden Inmates? A Discontinuity-based Approach*

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Abstract

Some two million Americans are currently incarcerated, with roughly six hundred thousand to be released this year. Despite this, little is known about the effects of confinement conditions on the post-release lives of inmates. Focusing on post-release criminal activity, we identify the causal effect of prison conditions on recidivism rates by exploiting a discontinuity in the assignment of federal prisoners to security levels. We find that harsher prison conditions are associated with significantly more post-release crime.

There are similar punishments and crimes called by the same name, but there are no two beings equal in regard to their morals; and every time that convicts are put together, there exists necessarily a fatal influence of some upon others, because, in the association of the wicked, it is not the less guilty who act upon the more criminal, but the more depraved who influence those who are less so.

Gustave de Beaumont and Alexis de Tocqueville, 1833

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America's jails and prisons house roughly two million inmates (Bureau of Justice Statistics, 2002), nearly twice as many as in 1990 and more in per capita terms than any other OECD country (OECD, 2001). Current and former prisoners constitute an increasingly large share of the U.S. population, yet little is known about the effects that imprisonment and prison conditions have on the subsequent lives of inmates.[1] This omission is unfortunate: each year roughly six-hundred thousand people are released from incarceration (Bureau of Justice Statistics, 2002), and roughly two-thirds of those released will be rearrested within three years (Langan and Levin, 2002). Crimes by former inmates alone thus account for a substantial share of current and future crime. Moreover, unlike many determinants of crime, prison conditions are directly under the control of policymakers and the criminal justice system. Understanding the effect of confinement on post-release criminal activity is therefore essential to good crime-control policy.[2]

Theory alone cannot tell us whether an increase in the severity of prison conditions will increase or decrease the propensity of inmates to commit crimes after release. Models of "specific deterrence" (Smith and Gartin, 1989), which posit that criminals learn from their own experiences about the severity of penalties, predict that harsher conditions will decrease the propensity to recidivate. Alternatively, if harsher prison conditions correspond to inferior labor market outcomes (as suggested by Western, Kling, and Weiman, 2001), or if prison life induces a taste for violence (Banister, Smith, Heskin and Bolston, 1973), then harsher conditions may lead to more crime following release. More generally, a growing literature on social interactions highlights

[1] A notable exception is Bayer, Pintoff, and Pozen (2003), which focuses on the effects of social interactions among juvenile on subsequent criminal behavior. Camp and Gaes (2003) study the effects of prison conditions on *in-prison* misconduct.

[2] For example, the literature on prison privatization has recently focused much of its attention on whether private prisons are likely to provide lower quality services than publicly managed prisons (Hart, Shleifer, and Vishny 1997; Camp and Gaes, 2001). If prison conditions affect rates of post-release crime commission, then providing quality-based incentives to private prison managers becomes an even higher priority.

the influence of peer effects on criminal behavior (Glaeser, Sacerdote and Scheinkman, 1996; Bayer, Pintoff, and Pozen, 2003). During incarceration, inmates may acquire skills, learn of new prospects, or develop criminal contacts.

In this paper we exploit a feature of the federal inmate classification system to estimate the effect of moving a prisoner to a higher security level. Prior to incarceration, every federal inmate is assigned a score intended to reflect his need for supervision. Inmates are then assigned to a prison security level depending on where his score falls relative to certain predetermined cutoff values. By comparing inmates on either side of the boundaries between different security levels, we estimate the effect on recidivism of being assigned to a higher security level. Since both the physical and social conditions of confinement vary dramatically with security level, this setting provides a quasi-experiment for identifying the effect of prison conditions on post-release outcomes.

Our approach avoids the obvious confounds inherent in simply comparing rearrest rates of prisoners in different security levels. Even with controls for demographics, such an estimation strategy would ignore the fact that prisoners are assigned to security levels based on characteristics such as crime severity that are themselves likely to predict recidivism. By taking careful account of the assignment mechanism, we can avoid bias introduced by the endogeneity of security level.

We find that moving a prisoner from minimum to low security roughly doubles his probability of rearrest within three years following release. This effect is not present in a control population of prisoners who are assigned scores but are not housed with the general prison population, suggesting that our findings are indeed driven by the effect of prison conditions on inmates. Moreover, predetermined demographic characteristics display no discontinuities at the cutoffs, providing further support for the existence of a treatment effect of security level on recidivism.

The paper is organized as follows. Section 1 discusses the relationship between

security level and conditions of confinement and describes the dataset. Section 2 presents our findings as well as some checks on the plausbility of our identifying assumptions. Section 3 concludes.

1 Background and Data Description

1.1 Inmate Classification and Security Level

Upon entry to the federal prison system, an inmate is processed using an Inmate Load and Security Designation Form (see Figure 1). The Security Designation Data recorded on this form are used to produce the individual's *security custody score*.[3] In the construction of this score, each of seven items contributes points to an overall sum. For example, offenses are grouped into five categories, from lowest severity (such as "counterfeiting, under $2000") to greatest severity (such as homicide), and each inmate receives an associated offense severity score ranging from 0 (least severe) to 7 (most severe). The scoring is done by an Regional Designator at the Bureau of Prisons, and follows a procedure laid out in detail in the Bureau of Prisons Security Designation and Custody Classification Manual (Federal Bureau of Prisons, 1982). Important for our identifying assumption is that no aspect of the score requires the Designator to exercise any personal judgment; all crimes, sentences, and judicial recommendations translate directly into a unique scoring. In the Appendix we discuss in detail how the components of the score are determined, and Appendix Table 2a summarizes how those components sum to the overall score.

Once the score has been computed, it is compared to a set of cutoff values (see Appendix Table 2b) to determine an inmate's security level. This is done mechanically,

[3]The score is intended to predict prisoner misconduct and therefore to measure the supervision needs of individuals. Over time, the score has been refined through continuing research into the predictors of prisoner misconduct (Harer and Langan, 2001).

however certain additional (observable) considerations may intervene to prevent the inmate from being housed in what would otherwise be his security level. For example, deportable aliens may not be housed in minimum security, nor can those who have been convicted of threats to government officials.[4] Such considerations are recorded on the security designation form as public safety factors, and most have the effect of excluding an inmate from minimum security. Finally, inmates who suffer from chronic medical conditions are also scored, but are housed separately in a prison medical facility (latter we will use this subsample as a control group to test the robustness of our primary specification). In some cases security level can be changed at the discretion of a Bureau of Prisons (BOP) official, although such instances appear rare. Once a security level has been assigned to an inmate a BOP employee assigns the inmate to a prison based primarily on location and on the availability of space.[5]

An inmate's assigned security level has an enormous impact on his experiences in prison. As Appendix Table 2a details, prisoners convicted of more severe offenses, prisoners with more serious prior records, and prisoners with histories of violence are all, by design, more likely to be placed in more secure facilities. Thus comparing prisoners in different security levels one would find that those housed in more secure facilities are exposed to more violent individuals with more serious criminal histories. Given the growing literature on peer effects and the intensity of contact co-housed prisoners experience, this alone would suggest large security-level effects on post-prison characteristics.

Unfortunately, very few anthropological or ethnographic studies compare facilities with different security levels.[6] Fortunately, ample inmate survey data provides

[4] Other such considerations include medical and mental health, aggressive sexual behavior, offense severity, organized crime, and gang membership.

[5] An inmate can change facilities or security levels during the course of his incarceration, due, for example, to changes in health or to in-prison misconduct. As changes are endogenous, we will focus on security level upon entry to the federal prison system.

[6] Accounts of life in prison typically focus on one institution, usually maximum security (Sykes,

a reasonable account of how life differs across security levels. Sufficient for our purposes, the Survey of Inmates of Federal Correctional Facilities (U.S. Department of Justice, 1991), contains data on inmate demographics, criminal histories, experiences in prison, and self-reported conditions of confinement for a nationally representative sample of federal inmates.[7]

Table 1 presents some simple comparisons across security levels, both in self-reported conditions of confinement and in-prison misconduct. The data strongly confirm the intuition that more secure facilities allow less contact with the community and less freedom of movement. While 14% of minimum security inmates report having been allowed furloughs during their current period of confinement, only 2.5% of low security inmates have had furloughs; for maximum security inmates the figure is below 1%. Similar trends show up in the percent of respondents who have been seriously injured during confinement. Moving from minimum to low security exposes an additional 2.7% to serious injury; moving from low to medium or medium to maximum increases the rate of injury by 1.2% and 1.8%, respectively.

On the whole then, the available evidence strongly suggests that conditions of imprisonment differ dramatically by security level. Higher security prisons involve less contact with the outside world, allow less freedom, and subject inmates to far more violence.

1.2 Data

Our data are a representative sample of 1,205 inmates released from federal prisons in the first six months of 1987 (Harer, 1994). Data on demographic characteristics and criminal histories were recorded for all inmates in the sample, as were the inmates'

1958; Conover, 2001).

[7] While using self-reported data to compare conditions across security levels does raise some methodological issues, Camp (1999) has found that such surveys do contain information helpful in making comparisons between facilities.

security custody scores and security levels on entry to the system, when available.[8] Following release, the FBI provided records of all re-arrests on either state for federal charges within a three year window of release. Hence even though all inmates in our sample were initially incarcerated for federal crimes, we have records of all subsequent re-arrests within 3 years, even if they took place under state jurisdiction.

Of the original sample of 1,205 inmates, security level data are missing for 16, and 11 served short sentences in halfway houses that do not have a security designation. Another 216 were placed in administrative facilities for special medical needs; we will later use this sub-sample as a control group in our analysis. Finally, 12 inmates have missing data on score, leaving a total sample of 950 with usable data.

Table 2 presents summary statistics for this group. Over half of all of inmates were rearrested within three years of release, a level comparable to most state-level studies of recidivism (Camp and Camp, 1997). Other sample characteristics are less surprising: relative to the U.S. population, the sample contains more males, fewer whites, fewer high school graduates, and more previously convicted offenders. Grouping by security level, Table 2 also demonstrates the large changes in these characteristics across levels. For example, the percent of convicts rearrested within 3 years is 38% in minimum security, but jumps to 55% for low security, and is 60% for all levels higher then low. In these level statistics the most dramatic changes occur when leaving minimum security, leading us to suspect that our strongest results will come from this break.

A crucial requirement for our analysis is that security level vary discontinuously with score. As Figure 2 demonstrates, the data confirm what policy implies: the probability of being placed in low rather than minimum security jumps discretely

[8]In many cases–usually inmates who entered the system prior to the introduction of modern computer records–data from the initial classification form was not available. In these cases score and security level were recorded from the earliest available reclassification form. The components of the score are unlikely to change during confinement, and conditional on time of entry, we find that our conclusions are quite similar (and statistically indistinguishable) across the two groups.

when the score passes the official cutoff of 6. Similar jumps are visible at each cutoff (see Appendix Table 1).

2 Results

Given how drastically prison conditions vary across security levels, it is plausible that the type of an inmate's prison greatly affects his post-prison outcomes. To test this we exploit the fact that the assignment process outlined in Section 1 exhibits discontinuities at several pre-determined cut-off points. Inmates who find themselves at opposite ends of any of these cutoffs are likely to be ex-ante comparable in all underlying attributes, providing us with a quasi-experimental way of testing the effects of security level.

2.1 Regression Discontinuity

In a regression-discontinuity design (Campbell and Stanley, 1963; Rubin, 1977; Berk and De Leeuw, 1999), subjects are assigned a treatment condition based on cutoff values of a known and measured assignment score. For federal inmates the security designation score discussed in Section 1.1 serves this purpose.[9] By conditioning our analysis of recidivism on both an inmate's score (constrained to enter smoothly) and their resulting security level, we obtain unbiased estimates of the treatment effect. This design assumes that all variables (over which ex-post recidivism differs) vary continuously with the assignment score, while the treatment jumps *discontinuously*

[9]Regression discontinuity is not new to the study of crime. Berk and Rauma (1983) investigate the effects of transitional aid to prisoners on recidivism, exploiting a California policy which extends unemployment insurance to prisoners who work a certain number of hours prior to release. Berk and de Leeuw (1999) also study the California prison system, using a regression discontinuity design to predict the effects of various assignment procedures on in-prison misconduct. Economists have use regression discontinuity to estimate the effects of financial aid on college enrollment (van der Klaauw 2001), the effect of incumbency on election results (Lee, 2001), and the effects of class size on school performance (Hoxby, 2000).

at the pre-determined cutoff. In essence then, within a small interval around a cutoff the allocation of prisoners to different security levels amounts to a random assignment procedure.

As a first pass at the data, Table 3 compares rearrest percentages between small groups just above and below the minimum security / low security cutoff. Inmates with scores of 7 or 8 are significantly more likely to be rearrested within one, two, or three years following release than those with scores of 5 or 6. These differences persist (but lose statistical precision) when we restrict the sample by "squeezing in" to inmates with scores of 6 and 7 only.

2.2 Reduced-form Estimates

To analyze the data more formally, we run a probit analysis using as a dependent variable the probability of being rearrested after 1, 2, or 3 years following release. Our independent variables will be polynomial terms in score, demographic controls, and dummies for the three score cutoffs relevant to our data. Since having a score above a certain cutoff does not guarantee placement in a higher security level (see Figure 2 and Appendix Table 1), the results in this section will be reduced-form estimates of the effect of score cutoffs on recidivism. In the next subsection we will present estimates that can be interpreted more directly as the effect of security level on rearrest.

Applying our regression discontinuity design, we assume that recidivism varies continuously with score and model that relationship with a high-order polynomial. To estimate the treatment effect of score cutoffs, we allow dummies for cutoff levels to induce a additive shifts in the latent probit variable. In other words, assuming that the two within-group conditional expectation functions are parallel shifts of a normal CDF gives us our first design:

$$P(R_t) = \Phi(\beta X + \lambda g(score) + \alpha_1 S_6 + \alpha_2 S_9 + \alpha_3 S_{13}) \quad (1)$$

Here R_t is 1 if an inmate has recidivated after t years and 0 if he has not, g is a fourth order polynomial in the security custody score, and S_n are dummies for $score > n$. X is a matrix of covariates that predict recidivism.[10] Table 4 presents the results of this analysis.

Columns (1) through (4) present the results with the dependant variable being the probability of rearrest within a three-, two-, or one-year window following release. Controlling for a polynomial in security custody score, there is a significant effect of prison security level on the probability of post-release rearrest. Focusing on the cutoff between minimum (score of 1-6) and low (7-9) security prisons (the only discontinuity well represented in our sample), we see that assigning an inmate to low security roughly doubles his chances of rearrest in three years when compared to minimum security. This result is supported by positive coefficients on rearrest within a two and one year window.

Because our data include precise information on the date of rearrest, by using only dummies for rearrest within particular time frames we are ignoring some of the variation in recidivism. To check whether our results are sensitive to this decision, we have re-run the reduced-form analysis in Table 4 using a Cox proportional hazard model of time-to-rearrest (not shown). The results are quite similar in direction, magnitude, and statistical significance.[11]

[10] Covariates include age and dummies for high school graduate, prior convictions, married, white, male, and employed prior to arrest.

[11] We have also examined the variation of our results across types of crimes and find that rearrest rates for violent, nonpecuniary crimes seem to be most sensitive to security level (results not shown).

2.3 Two-stage Least Squares Results

The results in the previous section show the effect of exceeding score cutoffs on the probability of rearrest. Because the score cutoffs do not perfectly determine the security level in which an inmate is housed, the coefficients in Table 4 cannot be interpreted as estimates of the effect of security level on the probability of rearrest. To get such an estimate, we need to adjust the coefficients to correct for the imperfect link between security custody score and security level.

The standard tool for making such an adjustment is the two-stage least squares (2SLS) estimator. To estimate a 2SLS model, we restrict attention to inmates housed in either minimum or low security facilities. This allows us to focus on the effects of moving from minimum to low security, the cutoff at which our data are thickest. We estimate a linear probability model[12] using rearrest as a dependent variable:

$$P(R_t) = \beta X + \lambda g(score) + \alpha\,(low) + \varepsilon \tag{2}$$

Here R_t is 1 if an inmate has recidivated after t years and 0 if he has not, g is a fourth order polynomial in the security custody score, and low is a dummy equal to one when the inmate is in a low security facility. X is a matrix of covariates that predict recidivism.[13] In estimating equation (2), we will instrument for low with a dummy equal to one when the score is greater than or equal to six. Thus, our identification will come only from the discontinuity in the recidivism rate around a score of six, and our estimates will be interpretable as the causal effect of security level on rearrest.

Table 5 presents the results of this analysis. Although these results are somewhat less precise than the reduced-form estimates shown in Table 4, in general they show a

[12] Because of the well-known limitations of linear probability models, we have checked our findings with an estimation procedure (Amemiya Generalized Least Squares) that incorporates a probit specification for the probability of rearrest (Newey, 1987). The point estimates and statistical significance are quite similar; we report results from 2SLS here because it is the more familiar tool.

[13] Covariates include age and dummies for high school graduate, prior convictions, married, white, male, and employed prior to arrest.

large, positive and statistically significant effect of low security (relative to minimum security) on the probability of rearrest. For example, our estimates imply that moving an inmate from minimum to low security would increase his probability of being rearrested within three years by roughly 33 percentage points.

2.4 Robustness

The estimates we have presented are consistent under the maintained hypothesis that all correlates of recidivism vary continuously with score. While it is not possible to test all covariates, we can ask whether observed covariates meet this criterion. Table 7 tests for discontinuities in our control variables, regressing demographic characteristics (high school degree status, prior convictions, race, and employment) as of entry to prison on dummies for score cutoffs and a fourth-order polynomial in score. As columns (1) through (4) report, none of these characteristics appears to have a discontinuity at the score cutoffs. Thus it seems unlikely that our results are driven by a pre-existing discontinuity at the score cutoffs.

An alternative check on our assumptions is to examine a population with known scores that is not housed in accordance with the security guidelines of those scores. Inmates housed in "administrative" facilities, which are essentially prison hospitals, constitute just such a population. They are housed apart from the general population and are therefore not exposed to the variation in conditions of confinement that we discussed in Section 1. Our dataset contains 211 inmates with known scores who were housed in administrative facilities. Overall these inmates exhibit similar rates of recidivism to the general inmate population, and we find that similar demographic characteristics predict recidivism in both groups. As Table 8 reports, there is no evidence of a discontinuous relationship between score and recidivism for these inmates. Moving an inmate housed in an administrative facility from minimum to low security

designation has an insignificant negative effect on the probability of rearrest. In some specifications, there is a significant positive effect of being assigned to a medium security facility on rearrest, but the result is not consistent across specifications and should be interpreted with caution given the limited data available to identify such an effect.

A final concern is that our estimates measure the post-prison arrest rate, not necessarily the crime-commission rate. The claim that harsher prison conditions increase the commission of crimes rests on the assumption that the probability of arresting an ex-convict conditional on his having committed a crime does not depend on his former security level. For example, if upon release a low security inmate is subject to more frequent drug tests than his minimum security counterpart, our results may be picking up an increased probability of rearrest that has nothing to do with increased criminal tendencies.

Although the parole system leaves room for individual discretion, most state parole agencies use standardized risk assessment tools to map inmates into supervision levels (Jones et al, 1999). None of the instruments we examined take account of an inmate's former security level, nor look as if their cutoffs coincide with those in the security custody score. Furthermore, the variables these systems do take into account relate primarily to providing the appropriate services (drug users receive drug counselling) and limiting especially newsworthy crimes (convicted sex offenders are monitored very closely). Finally, the effect of security level on recidivism is visible even if we exclude parole violations from our sample. Thus, while we cannot completely rule out a bias, it seems likely that the coefficients we obtain represent a true treatment effect of security level on criminal activity and not just an increased probability of arrest conditional on the amount of crime committed.

3 Conclusion

With over two million inmates currently incarcerated and six hundred thousand inmates released per year, the demographic impact of American prisons can hardly be overstated. In this paper we have attempted to understand the impact that incarceration has on inmates' subsequent lives, focusing on perhaps the most serious and socially costly consequence of that incarceration, recidivism into crime. Our findings suggest that inmates harsher prison conditions cause higher rates of post-release criminal behavior. By exploiting discontinuities in the assignment of inmates to different security levels, we isolate the component of this effect that results directly from prison conditions.

To the degree that as an institution, prisons exist to reduce crime (both through deterrence and incapacitation) our estimates serve as counterpoint. The deterrence effect of harsher sentences has been widely studied, and the incapacitation of criminals clearly reduces the immediate commission of crimes. Our results suggest these reductions may come at the cost of future crimes.

Clearly further research is required to illuminate these effects more fully. A richer understanding of the ways inmates respond to both harsher conditions and exposure to more violent peers would allow prison systems to reduce socially costly recidivism by redesigning their assignment systems, both between and within prisons. Prison sentences and conditions could, in principle, be tailored to minimize the social costs of crime, taking into account both current crime deterrence and future crime recurrence. With the volume of prisoners that move through the American system showing no signs of decline, the potential for social gains through such an exercise is considerable.

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Table 1: Security Level and Prison Conditions

Percent of Inmates	Security Level			
	Minimum	Low	Medium	Maximum
Receiving a furlough	14.20%	2.50%	1.60%	0.78%
In cell for $>$ 8 hours per day	49.01	55.21	55.03	58.22
Seriously injured	16.54	19.21	20.45	22.19
Found guilty of prison rule violation for:				
Possession of drugs	0.45	2.02	3.59	15.78
Possession of alcohol	0.11	0.47	2.63	9.53
Possession of a weapon	0.00	0.12	0.99	7.66
Assaulting an inmate	1.07	3.32	5.05	9.38
Assaulting a correction officer	0.00	0.36	1.04	5.94
Number of observations	1782	843	2315	640

Source: Authors' calculations based on U.S. Department of Justice (1991).

Table 2: Summary Statistics

Security level	All	Minimum	Low	>Low
Mean time to rearrest	2.37	2.53**	2.17	2.16
Percent of inmates who are:				
Rearrested within 3 years	46.84	37.83**	54.55	60.23
High school graduates	55.79	64.64**	46.06	44.02
Previously convicted	68.74	58.37**	80.61	82.24
Married as of arrest	38.42	43.54	36.36	29.34
Employed before arrest	53.79	63.69**	44.85	39.38
White	71.26	76.43**	67.88	62.93
Male	92.21	86.12**	100.00	99.61
Number of observations	950	526	165	259

Source: Authors' calculations.
Notes: ** denotes difference in means between minimum and low security statistically significant at the 5% level

Table 3: Comparison of Proportions

Security custody score range	Number of obs.	Percent rearrested within One year	Two years	Three years
5-6	91	19.78	36.26	48.35
7-8	51	33.33	54.90	62.75
Difference		13.55*	18.64**	14.39*
6	44	22.73	40.91	52.27
7	31	32.26	54.84	61.29
Difference		9.53	13.93	9.02

Source: Authors' calculations.
Notes: * denotes significant at 10%; ** denotes significant at 5%

Table 4: Probit Estimates

	(1)	(2)	(3)	(4)
	Probability of rearrest within			
	Three years	Two years	One year	
Score>6	0.2003	0.2515	0.1826	0.1427
	(0.1155)	(0.1105)	(0.0976)	(0.0909)
Score>9	0.1702	0.1627	0.0424	0.0106
	(0.1337)	(0.1217)	(0.0857)	(0.0709)
Score>13	0.0365	0.2353	-0.1022	-0.0952
	(0.1950)	(0.1960)	(0.0510)	(0.0377)
Security custody score	0.1737	0.1784	0.1417	0.0988
	(0.0417)	(0.0356)	(0.0268)	(0.0254)
$Score^2$	-0.03	-0.0331	-0.0304	-0.0234
	(0.0129)	(0.0107)	(0.0080)	(0.0074)
$Score^3$	0.0017	0.0019	0.0021	0.0017
	(0.0011)	(0.0009)	(0.0007)	(0.0006)
$Score^4$	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Demographic controls?	NO	NO	NO	YES
Observations	948	948	948	948
Pseudo-R^2	0.1163	0.1224	0.1047	0.1643

Source: Authors' calculations.

Notes: Standard errors in parentheses. Demographic controls include age and dummies for high school graduate, prior convictions, married, white, male, and employed prior to arrest. Coefficients reflect marginal effects evaluated at the mean.

Table 5: Two-stage Least Squares Models

	(1)	(2)	(3)	(4)
	Rearrest occurred within			
	Three years	Two years	One year	
Security level > minimum	0.3276	0.6317	0.4649	0.4752
	(0.2699)	(0.2685)	(0.2189)	(0.2359)
Security custody score	0.1681	0.1172	0.0893	0.0312
	(0.0688)	(0.0684)	(0.0558)	(0.0558)
$Score^2$	-0.0466	-0.0300	-0.0206	-0.0045
	(0.0295)	(0.0293)	(0.0239)	(0.0237)
$Score^3$	0.0051	0.0022	0.0009	-0.0010
	(0.0042)	(0.0042)	(0.0034)	(0.0034)
$Score^4$	-0.0002	0.0000	0.0000	0.0001
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Demographic controls?	NO	NO	NO	YES
Observations	690	690	690	690

Source: Authors' calculations.

Notes: Standard errors in parentheses. Demographic controls include age and dummies for high school graduate, prior convictions, married, white, male, and employed prior to arrest. First stage estimates (with standard errors in parentheses) are as follows:

Pr(low)= 0.0792 + 0.5639 (score>6) + 0.0444 (score)
(0.0189) (0.1160) (0.0506)

+ 0.0129 ($score^2$) - 0.0028 ($score^3$) + 0.0001 ($score^4$)
(0.0230) (0.0034) (0.0002)

Table 6: Control Regressions

	(1)	(2)	(3)	(4)
	Dependent variable is dummy for:			
	High school graduate	Prior convictions	White	Employed before arrest
Score>6	-0.0740	0.1037	-0.0389	-0.1866
	(0.1196)	(0.1043)	(0.1033)	(0.1215)
Score>9	-0.1229	-0.1958	-0.0855	-0.2100
	(0.1384)	(0.2035)	(0.1189)	(0.1512)
Score>13	0.2454	-0.5038	-0.0404	-0.3230
	(0.1508)	(0.3187)	(0.1746)	(0.1799)
Security custody score	-0.1161	0.1689	-0.1109	-0.1355
	(0.0438)	(0.0428)	(0.0370)	(0.0465)
$Score^2$	0.0127	-0.0368	0.0167	0.0066
	(0.0138)	(0.0148)	(0.0112)	(0.0150)
$Score^3$	-0.0004	0.0033	-0.0009	0.0007
	(0.0012)	(0.0015)	(0.0009)	(0.0014)
$Score^4$	0.0000	-0.0001	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Observations	948	948	948	948

Source: Authors' calculations.

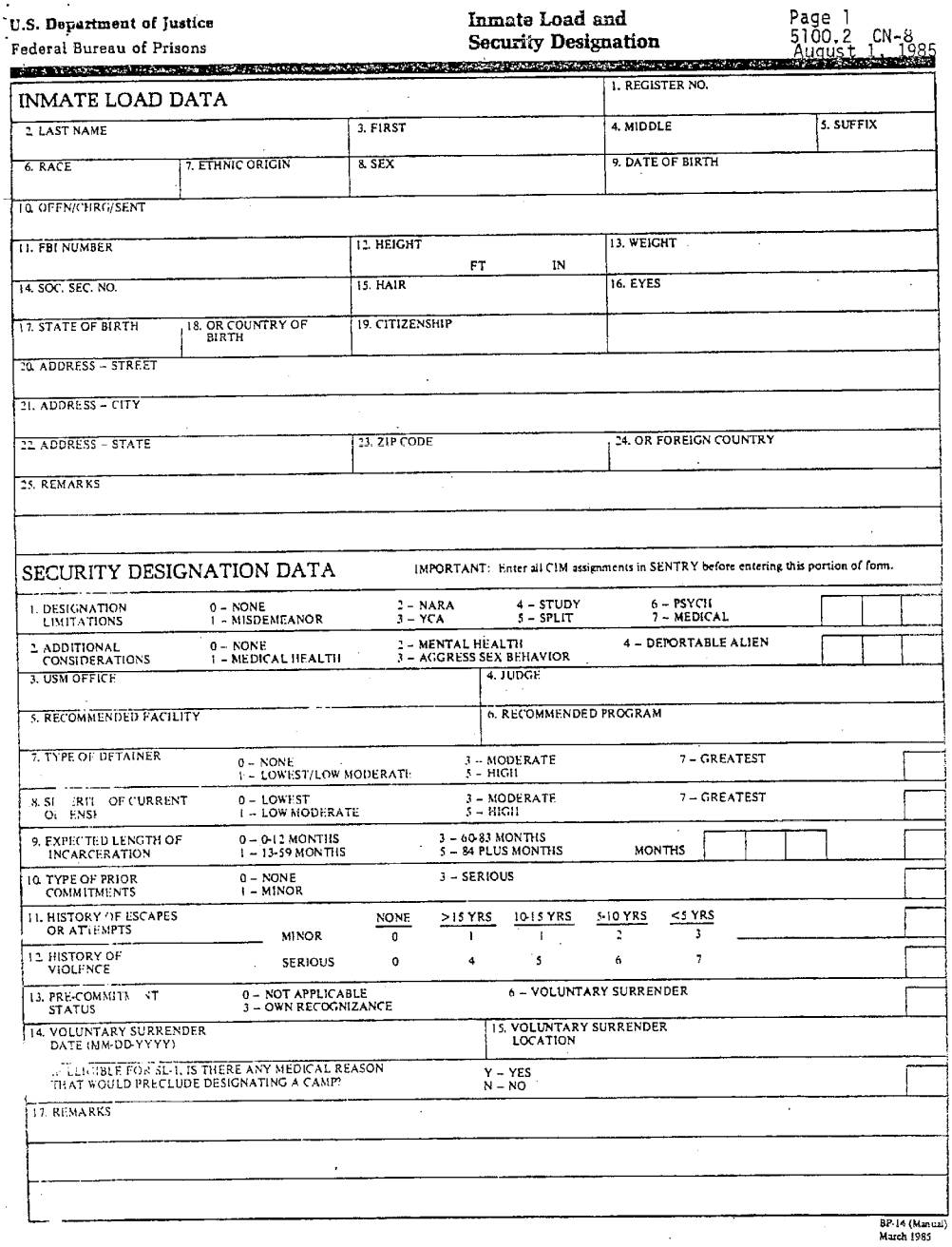
Notes: Standard errors in parentheses. Coefficients reflect marginal effects evaluated at the mean.

Table 7: Administrative Sample

	(1)	(2)	(3)	(4)
	Probability of rearrest within			
	Three years	Two years	One year	
Score>6	-0.0514	-0.1560	-0.0436	-0.0279
	(0.2005)	(0.1775)	(0.1178)	(0.1174)
Score>9	0.1103	-0.1046	0.0822	0.0417
	(0.3270)	(0.2742)	(0.2304)	(0.2036)
Score>13	0.6434	0.7658	0.6010	0.7279
	(0.0461)	(0.0460)	(0.4668)	(0.3578)
Security custody score	0.1786	0.2266	0.0712	0.0458
	(0.1282)	(0.1312)	(0.0760)	(0.0747)
$Score^2$	-0.0498	-0.0790	-0.0081	-0.0043
	(0.0519)	(0.0529)	(0.0243)	(0.0236)
$Score^3$	0.0070	0.0122	0.0006	0.0003
	(0.0070)	(0.0072)	(0.0025)	(0.0024)
$Score^4$	-0.0003	-0.0006	0.0000	0.0000
	(0.0003)	(0.0003)	(0.0001)	(0.0001)
Demographic controls?	NO	NO	NO	YES
Observations	211	211	211	211

Notes: Standard errors in parentheses. Demographic controls include age and dummies for high school graduate, prior convictions, married, white, male, and employed prior to arrest. Coefficients reflect marginal effects evaluated at the mean.

Figure 1: Inmate Load and Security Designation Form



U.S. Department of Justice
Federal Bureau of Prisons

Inmate Load and Security Designation

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INMATE LOAD DATA

1. REGISTER NO.				
2. LAST NAME		3. FIRST	4. MIDDLE	5. SUFFIX
6. RACE	7. ETHNIC ORIGIN	8. SEX	9. DATE OF BIRTH	
10. OFFN/CHRG/SENT				
11. FBI NUMBER		12. HEIGHT FT IN	13. WEIGHT	
14. SOC. SEC. NO.		15. HAIR	16. EYES	
17. STATE OF BIRTH	18. OR COUNTRY OF BIRTH	19. CITIZENSHIP		
20. ADDRESS – STREET				
21. ADDRESS – CITY				
22. ADDRESS – STATE		23. ZIP CODE	24. OR FOREIGN COUNTRY	
25. REMARKS				

SECURITY DESIGNATION DATA IMPORTANT: Enter all CIM assignments in SENTRY before entering this portion of form.

1. DESIGNATION LIMITATIONS	0 – NONE 1 – MISDEMEANOR	2 – NARA 3 – YCA	4 – STUDY 5 – SPLIT	6 – PSYCH 7 – MEDICAL	
2. ADDITIONAL CONSIDERATIONS	0 – NONE 1 – MEDICAL HEALTH	2 – MENTAL HEALTH 3 – AGGRESS SEX BEHAVIOR	4 – DEPORTABLE ALIEN		
3. USM OFFICE		4. JUDGE			
5. RECOMMENDED FACILITY		6. RECOMMENDED PROGRAM			
7. TYPE OF DETAINER	0 – NONE 1 – LOWEST/LOW MODERATE	3 – MODERATE 5 – HIGH	7 – GREATEST		
8. SEVERITY OF CURRENT OFFENSE	0 – LOWEST 1 – LOW MODERATE	3 – MODERATE 5 – HIGH	7 – GREATEST		
9. EXPECTED LENGTH OF INCARCERATION	0 – 0-12 MONTHS 1 – 13-59 MONTHS	3 – 60-83 MONTHS 5 – 84 PLUS MONTHS	MONTHS		
10. TYPE OF PRIOR COMMITMENTS	0 – NONE 1 – MINOR	3 – SERIOUS			

11. HISTORY OF ESCAPES OR ATTEMPTS	NONE	>15 YRS	10-15 YRS	5-10 YRS	<5 YRS
MINOR	0	1	1	2	3
SERIOUS	0	4	5	6	7

12. HISTORY OF VIOLENCE		
13. PRE-COMMITMENT STATUS	0 – NOT APPLICABLE 3 – OWN RECOGNIZANCE	6 – VOLUNTARY SURRENDER
14. VOLUNTARY SURRENDER DATE (MM-DD-YYYY)	15. VOLUNTARY SURRENDER LOCATION	
IF ELIGIBLE FOR SL-1, IS THERE ANY MEDICAL REASON THAT WOULD PRECLUDE DESIGNATING A CAMP?	Y – YES N – NO	
17. REMARKS		

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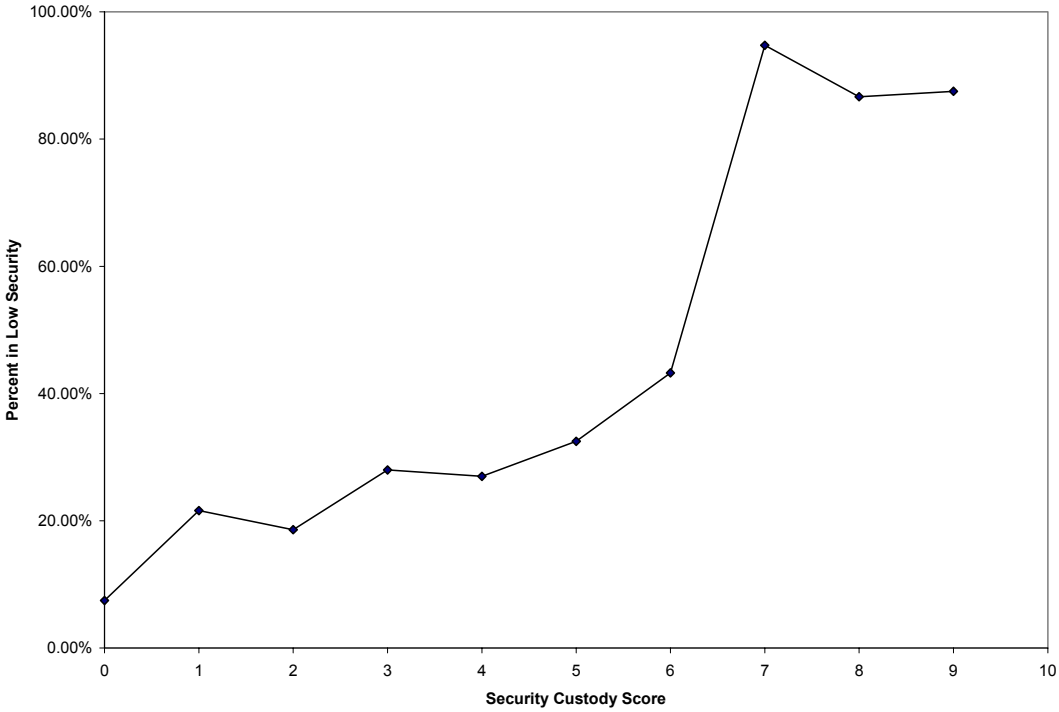
March 1985

Figure 2: Security Level and Score



4 Appendix: Constructing the Security Custody Score

Here, we detail the process by which a prisoner is assigned a security custody score by the bureau of prisons. Upon entry to the federal prison system, an inmate is processed using an Inmate Load and Security Designation Form (see Figure 1). Seven separate items are evaluated by a regional designator for each inmate. Each item is governed by a procedure found in the Bureau of Prisons Security Designation and Custody Classification Manual (Federabl ureau of Prisons, 1982). Discussing each item in the order in which it is addressed on the Designation Form:

4.1 Type of Detainer

This category refers to the severity of chargers for which the inmate has not yet been tried and sentenced. A pending charge under a state statute would fall under this category, for example. The severity of the worst such charge is ranked from 0 to 7 according to the severity of offense scale (discussed below), and this number become the inmates type of detainer score, with the exception that 0 now means no pending charges, and a score of 1 indicates a pending charge with a severity score of either 0 or 1.

4.2 Severity of Current Offense

All offenses are classified according to a Bureau of Prisons Severity of Offense Scale, which exhaustively partitioned penal code into 5 categories corresponding to point values of 0-lowest, 1-low/moderate, 3-moderate, 5-high , and 7-greatest. The severity of current offense score for an inmate is the severity of the *most severe documented behavior* associated with the crime for which the individual is currently serving a period of incarceration. For example, if an individual was involved in an armed robbery of a bank (which scores a 7), but plead down at trial to simple robbery (which scores a 5), they would score a 7.

4.3 Expected Length of Incarceration

To determine this value the regional designator first looks up the reference (standard) sentence length in months for the inmate, based only on the offense for which the inmate is surving time. These are found in the *Expected Length of Incarceration Scale* in the Sentencing Handbook. The minimum of this number and the months to which the inmate was *actually* sentenced is compared to a set of cutoffs, with 0-12

months receiving 0 points, 13-59 receiving 1, 60-83 receiving 3, and 84 or more months receiving 5 points.

4.4 Type of Prior Commitments

If an inmate has never been incarcerated before he receives a 0. Otherwise, the most severe offense he has been incarcerated for (as evaluated by the severity of current offense scale) is used. An inmate receives 1 point if his most serious prior offense is classified as either low or low-moderate. Any more serious offence conviction leads to a score of 3.

4.5 History of Escape Attempts

This measure classifies the escape history of the individual. The history includes a individual's entire background of escapes or attempts to escape from confinement, excluding the current offense. This includes documented flight to escape prosecution, and if multiple escape attempts were made the most severe is used. The severity of the escape attempt is classified as either minor or serious. A minor attempt must have been from an open institution (work camp, work release, furlough, flight to avoid prosecution) and must not have involved a threat of violence. All other attempts are considered serious. As the security designation form details, this severity and the time elapsed since the attempt, combine to form this score component.

4.6 History of Violence

This classifies the violent acts history of the individual. This history comprises a individual's entire background of violent acts, excluding their current offense. Violent acts enter the history even if noted by a prison discipline committee but never prosecuted. If an inmate has multiple such acts, the most severe is used. The severity of each act is classified as either minor or serious. A minor act is a simple assault, fight, or domestic squabble. Aggravated assault or worse, arson, or any act involving a weapon, or explosives is considered serious. As the security designation form details, this severity and the time elapsed since the act combine to form this score component.

4.7 Pre-Commitment Status

An inmate scores 0 if prior to incarceration he was not out on his own recognizance and/or did not voluntarily surrender. He scores -3 if he was released on his own recognizance during his trial without posting bail to ensure appearance, but was

incarcerated post-trial. An inmate scores -6 if he meets the previous criteria and surrendered voluntarily to confinement, i.e. was not escorted by a law official to the place of his confinement.

Appendix Table 1: Score and Security Level

Score	Assigned level	Number of obs.	Percent of inmates in security level: Minimum	Low	Low/Med	Medium
0	1	411	78.35	6.33	2.43	4.87
1		46	63.04	17.39	6.52	8.70
2		45	77.78	17.78	0.00	4.44
3		56	64.29	25.00	1.79	5.36
4		79	58.23	21.52	10.13	5.06
5		47	57.45	27.66	0.00	10.64
6		44	47.73	36.36	6.82	4.55
7	2	32	3.13	56.25	25.00	9.38
8		20	10.00	65.00	25.00	0.00
9		33	9.09	63.64	18.18	6.06
10	3	26	3.85	26.92	53.85	15.38
11		17	11.76	5.88	70.59	5.88
12		31	3.23	3.23	61.29	29.03
13		11	0.00	18.18	18.18	54.55
14	4	10	0.00	0.00	0.00	70.00
15		10	0.00	0.00	10.00	80.00
16		8	0.00	0.00	12.50	62.50
17		7	0.00	0.00	14.29	42.86
18		9	0.00	0.00	22.22	44.44
19		2	0.00	0.00	0.00	50.00
20		2	0.00	0.00	50.00	50.00
21		2	0.00	0.00	0.00	100.00
22		2	0.00	0.00	0.00	50.00
TOTAL		950	55.37	17.37	10.21	10.21

Source: Authors' calculations.

Appendix Table 2a: Computing the Security Custody Score

Inmate characteristic	Score Range	
	From	To
Type of detainer (severity of outstanding charges)	0 (None)	7 (Greatest)
Severity of current offense	0 (Lowest)	7 (Greatest)
Expected length of incarceration	0 (0-12 Months)	5 (84+ Months)
Type of prior commitments	0 (None)	3 (Serious)
History of escapes or attempts	0 (None)	7 (Recent Escape)
History of violence	0 (None)	7 (Recent Serious)
Precommitment status (bail, bond, etc. set in trial)	-6 (Voluntary Surrender)	0 (None)
TOTAL	0	36

Appendix Table 2b: Determining the Appropriate Security Level

Score Range	Assigned Security Level	Description	Example
0-6	1	Minimum	Danbury Camp
7-9	2	Low	La Tuna
10-13	3	Low/Medium	Otisville
14-22	4	Medium	Petersburg
23-29	5	High	Leavenworth
30-36	6	High	Marion

Source: Federal Bureau of Prisons (1985).