

Solitary Confinement and the U.S. Prison Boom

Criminal Justice Policy Review

1–37

© The Author(s) 2019

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/0887403419895315

journals.sagepub.com/home/cjp**Ryan T. Sakoda¹ and Jessica T. Simes²** 

Abstract

Solitary confinement is a harsh form of custody involving isolation from the general prison population and highly restricted access to visitation and programs. Using detailed prison records covering three decades of confinement practices in Kansas, we find solitary confinement is a normal event during imprisonment. Long stays in solitary confinement were rare in the late 1980s with no detectable racial disparities, but a sharp increase in capacity after a new prison opening began an era of long-term isolation most heavily affecting Black young adults. A decomposition analysis indicates that increases in the length of stay in solitary confinement almost entirely explain growth in the proportion of people held in solitary confinement. Our results provide new evidence of increasingly harsh prison conditions and disparities that unfolded during the prison boom.

Keywords

solitary confinement, prison expansion, race and ethnicity, criminal justice policy, prison conditions

A large research literature on mass incarceration identifies longer and more determinant sentencing and historically high rates of imprisonment as examples of the United States' turn toward punitiveness in the latter part of the 20th century (Travis et al., 2014). Empirical evidence has played an important role in understanding the causes and consequences of mass incarceration, and numerous studies measure the increased use of incarceration, disparities in sentencing, and postrelease outcomes. The experience of incarceration itself, however, has received far less attention, in large part, due to the lack of available data. Thus, there are sizable gaps in our understanding of the

¹University of Chicago, IL, USA

²Boston University, MA, USA

Corresponding Author:

Jessica T. Simes, Department of Sociology, Boston University, 100 Cummington Mall, Boston, MA 02215, USA.

Email: simes@bu.edu

internal workings of the prison and how it may have changed during a period when the rate of incarceration rose sharply and the number of prison facilities tripled (Eason, 2016). This gap leaves several important questions unanswered relating to the nature of punishment and social inequality in the United States: Did the experience of punishment change during an era of mass incarceration and the prison boom? If so, did extreme and harsh forms of penal custody such as solitary confinement reflect broader trends of increased reliance on punitive control and racial inequality?

Using a large administrative data set covering 30 years of Kansas prison practices, we study the conditions of penal confinement during an era of mass incarceration and broad prison expansion, focusing on the practice of solitary confinement. A particularly harsh form of captivity, solitary confinement involves confining an individual to a prison cell for 22 to 24 hours a day and isolating them from the prison's general population. Individuals in solitary confinement have highly restricted access to visitation, phone calls, showers, programs, and free movement outdoors. About 7% of the prison population and 3% of the jail population in the United States are held in solitary confinement on a given day (National Institute of Justice, 2016; U.S. Bureau of Justice Statistics, 2015), and the use of solitary confinement has grown over time, particularly during the prison boom of the late 1980s and early 1990s (Haney, 2006; National Institute of Justice, 2016; Shalev, 2009; Travis et al., 2014, Chapter 6).

Our analysis reveals that as the prison boom unfolded, solitary confinement became a normal event during imprisonment, and the harsh conditions of such confinement, especially lengthy periods in isolation, were experienced most often by young and Black prisoners. Our findings reveal new details about the nature of harsh conditions during a period of prison expansion. We find, in the case of Kansas, a hidden criminal justice system within its prisons involving punishments, long periods of isolation, administrative discretion, and disparities by race and age. We show that, during the 1980s and 1990s, when criminal law, policing, and sentencing policy became more punitive, the experience of imprisonment changed significantly as well. Prior studies summarized these changes in prison life with coarse measures such as the total incarceration rate or the average length of prison sentences, treating prison experiences as a black box. Our results provide evidence that the prison boom, which increased the number and size of facilities across the country, resulted in prison officials gaining latitude for greater discretion in the types of confinement they could administer. In particular, this included the use of extreme forms of incarceration such as solitary confinement, having negative consequences for the most marginalized populations. Understanding the use of solitary confinement during the prison boom and mass incarceration is vital to gaining a full picture of the experience and consequences of punishment in the United States.

Solitary Confinement and U.S. Prison Expansion: Capacity, Discretion, and Disparities Over Time

We focus on the use of solitary confinement during a period of prison capacity expansion, beginning in the 1970s until the late 1990s. An explosion in prison building followed rising custodial populations and problems with overcrowding and poor

conditions in existing prisons (Barker, 2009; Eason, 2017; Gilmore, 2007; Lynch, 2009; Page, 2011; Schoenfeld, 2010). In some cases, the opening of new prisons followed litigation addressing these declining prison conditions (Rich, 2001; Schoenfeld, 2010). During the prison boom, the number of federal and state prison facilities tripled from 511 to 1,663 (Eason, 2016). This expansion led to new forms of custody. In particular, the “supermax” or super-maximum unit, the highest level of custody in U.S. prisons, became much more common during this period. Although there is no single definition of supermax, the U.S. Department of Justice’s National Institute of Corrections provides the following definition:

A highly restrictive, high-custody *housing unit* within a secure facility or an *entire secure facility*, that isolates inmates from the general prison population and from each other due to grievous crimes, repetitive assaultive or violent institutional behavior, the threat of escape or actual escape from high-custody facility(s) or inciting or threatening to incite disturbances in a correctional institution. (Riveland, 1999, p. 6)

Supermax facilities were rare prior to 1980 but later became ubiquitous across state jurisdictions. The National Institute of Justice (2016) reports that in the 1980s, there were few (if any) supermax facilities beyond the two federal supermax facilities in Marion, Illinois, and Florence, Arizona. By 2005, as many as 44 states had these facilities (National Institute of Justice, 2016). The proliferation of supermax *facilities*, however, does not account for most of the shifting conditions within prisons. Almost all prisons and jails contain units dedicated to high-level custody (e.g., restrictive housing units, special management units). Today, solitary confinement is common in both prisons and jails (Arthur Liman Public Interest Program & Association of State Correctional Administrators, 2015; National Institute of Justice, 2016).

The ubiquitous use of solitary confinement has come under legal scrutiny in recent years. Since the advent of solitary confinement in the late 18th century, reports have documented the deleterious effects of living in total social isolation (Arrigo & Jennifer, 2008; Grassian, 1983; Reiter, 2012). Field studies and expert witness testimony during prison investigations describe how solitary confinement, sometimes referred to as isolation, the hole, segregation, or restrictive housing, produces significant and lasting psychological harm (Grassian, 2006; Guenther, 2013; Haney, 2003, 2018; Kaba et al., 2014; Kupers, 2017; Reiter, 2016; Rhodes, 2004; Zinger et al., 2001). Long-term periods of isolation have been found to significantly affect neurological and psychological health (Arrigo & Jennifer, 2008; Grassian, 2006; Haney, 2003, 2018), and this is especially harmful for young people as the human brain continues to develop past age 20, specifically in areas of the brain associated with behavioral control, risk assessment, and planning (Johnson et al., 2009; Konrad et al., 2013).

A debate over the harms from solitary confinement, however, has followed recent quantitative studies by O’Keefe and her colleagues (2013), who find small positive changes in reported mental health in a year of follow-up with Colorado prisoners. These findings, however, have come under scrutiny in recent years, after methodological problems were identified (Haney, 2018). Walters (2018) finds that mental health deterioration may have less to do with solitary confinement than the experience of

incarceration generally. These studies notwithstanding, domestic and international organizations have called for restrictions on the length of time a person spends in solitary confinement. The Colorado state correctional system recently placed a 15-day restriction on solitary confinement (Raemisch, 2017), which would bring solitary confinement in Colorado in line with international standards set by the United Nations Special Rapporteur on Torture, calling for a prohibition on solitary confinement in excess of 15 days (United Nations Human Rights Council, 2011).

Prison Capacity

Prison capacity expansion could be an important explanation for the increased use of solitary confinement. Reiter (2016) shows how total capacity for solitary confinement can affect an entire state prison system using Pelican Bay and California state prisons as a case study, and focuses on how total capacity resulted in shifts in the use of administrative power throughout the prison system and the qualitative experience of punishment. Schoenfeld (2018) argues that the political process expanding Florida's prison system emanated from liberal calls for prisoner rights, and asserts that this expanded capacity explains much of the distinctive quality of imprisonment in the United States. Harsh conditions, high rates of imprisonment, and persistent racial disparities, Schoenfeld argues, come from increases in the physical capacity of prison systems across the country, resulting in an increase in governmental power to punish. These two studies notwithstanding, quantitative studies have generally underutilized historical data to explore how system capacity during the prison boom may have affected the use of solitary confinement in later periods, and qualitative studies focused on single supermax facilities miss the important processes affecting the use of solitary confinement across a prison system.

Discretion

Numerous studies have investigated how administrative discretion in prisons plays a significant role in the rise of harsh prison conditions and policies generally (Dolovich, 2009; McLennan, 2008; Rubin, 2018; Rudes, 2012), and solitary confinement specifically (Lobel, 2008; Reiter, 2015; Resnik, 2010; Schlanger, 2013). Taken together, these scholars point to the broad administrative discretion in the enactment of prison policies and practices. McLennan (2008) documents early-20th-century prison administrators and their use of disciplinary activities, and how their broad discretion to do so happened without legislative oversight. Significant for the current study is prison officials' wide discretion to determine who is held in solitary confinement and the length of time an individual is kept in the most extreme form of confinement. This discretion has led to stays in solitary confinement for indefinite periods of time—with prison administrators citing security concerns requiring very long or permanent stays in isolation (Arthur Liman Public Interest Program & Association of State Correctional Administrators, 2015; National Institute of Justice, 2016). In general, policy makers and courts have granted prison administrators broad discretion in their day-to-day

management of security and safety within the prison, and this extends to the design and operations of supermax prisons (Reiter, 2015). Other than instances of egregious overcrowding or unjustified restrictions on Constitutional rights, the courts have largely left prison administrators alone to determine how they will manage prison populations within their facilities (see, for example, *Turner v. Safley*, 1987). Even with this level of discretion, however, the physical capacity of prisons remains a constraint—one that is loosened with the introduction of new facilities during the prison boom. This study establishes a connection between studies of prison capacity and research on discretion by examining how prison expansion led to changes in the use of administrative (vs. disciplinary) custody.

Disparities

Considerable research attention has been paid to racial and social inequality in the criminal justice system broadly (Alexander, 2010; Western, 2006) as well as with solitary confinement specifically (Arthur Liman Public Interest Program & Association of State Correctional Administrators, 2015; Reiter, 2012; Schlanger, 2013). A 2015 Bureau of Justice Statistics report showed a statistically higher proportion of African American respondents to the National Inmate Survey reported any time in “restrictive housing” (U.S. Bureau of Justice Statistics, 2015), but the report found no disparities between Whites and Hispanics in prisons, and no racial or ethnic disparities in self-reports for those in jails. Citing a report from the New York Civil Liberties Union, Schlanger (2013) describes racial disparities in solitary confinement:

In June 2011, black individuals accounted for approximately 62% of the individuals held at Upstate and Southport correctional facilities, where individuals with the longest SHU sentences are generally incarcerated. In contrast, approximately 49% of the general prison population is black. (p. 242)

Reiter’s (2012) examination of 10 years of California parole and solitary confinement data found that Hispanics are disproportionately more likely to have spent time in solitary confinement than other racial and ethnic categories of prisoners, and this disparity is statistically significant across the time period. We build on this evidence to study how racial disparities did or did not change after prison capacity expansion, and how disparities vary depending on the degree of administrative discretion, and further, how the harshest experiences of solitary confinement (i.e., long-term isolation) vary by race and ethnicity.

Alternative Views and Present Study

Alternative views of solitary confinement point to the importance of solitary confinement for responding to disorder and violence among the prison population (Kurki & Morris, 2001). In a survey of more than 500 state prison wardens’ views about the goals of supermax prisons, Mears and Castro (2006) find that 98.4% of wardens believe the goal is to “increase safety throughout the prison system,” whereas only

49.5% believe a goal is to “punish violent and disruptive inmates” (p. 408). Moreover, scholars have argued that solitary confinement is likely not universally harmful, and call for more systematic research and data collection on the effects of prison conditions (Bonta & Gendreau, 1990; National Institute of Justice, 2016; O’Keefe et al., 2013; Walters, 2018). Thus, the increased punitiveness in prison conditions may be the unintended consequence of a limited choice set for responding to violence and chaotic prison conditions. Note that, a limitation in the current analysis is that the data do not allow for a test of the hypothesis that solitary confinement rose due to a sustained increase in misconducts and violence.

We study solitary confinement in the case of Kansas, focusing on a sharp increase in the prison system’s capacity for high-custody confinement after a prison opened in 1991 following litigation and the state legislature’s decision to build more prisons. In the following section, we discuss why Kansas is a useful case study for examining solitary confinement because much of its penal history mirrors national trends (Arthur Liman Public Interest Program & Association of State Correctional Administrators, 2015, 2016; National Institute of Justice, 2016). The increased use of solitary confinement in Kansas parallels many of the characteristics found in the broader criminal justice system surrounding it. In the same way that prosecutorial and judicial discretion led to inequalities in rates of incarceration (Rehavi & Starr, 2014; Yang, 2015), we hypothesize that growth in the use of high-security housing, along with the relatively broad discretion of prison administrators to use solitary confinement, led to greater inequality in experiences of imprisonment.

The Case of Solitary Confinement in Kansas

Kansas is an exemplary case for understanding the growth of solitary confinement in the United States. The timing of prison building in Kansas resembles broader trends in prison proliferation across the country. Using data from the Prison Proliferation Project (Eason, 2016, 2018), Figure 1A displays the proliferation of prisons in the United States, the Midwest, and Kansas, 1970 to 2009. The prison boom occurred across all jurisdictions beginning in the early 1970s and peaking in the late 1980s to early 1990s. Prisons built after 1970 account for approximately 75% of all prisons built in the United States with 78% of state prisons in the Midwest built after 1970.

Like other states across the country, Kansas’ prison system expanded significantly after 1970 during the national prison boom. Six of its nine prisons were built after 1970 and the three existing prisons expanded their capacity during this period. Figure 1A shows Kansas’ similarity to broader national and regional trends in the proliferation of new prisons during the U.S. prison boom. The Kansas Department of Corrections (KDOC), overseeing nine adult prisons, incarcerated nearly 10,000 men and women on an average day in 2018. Figure 1B displays the Kansas state imprisonment rate against the national rate for state prison systems. Despite the lower average level of incarceration after the early 1990s, Kansas followed a similar trend to the national average and other states in the Midwest, Sunbelt, and Plains states regions.

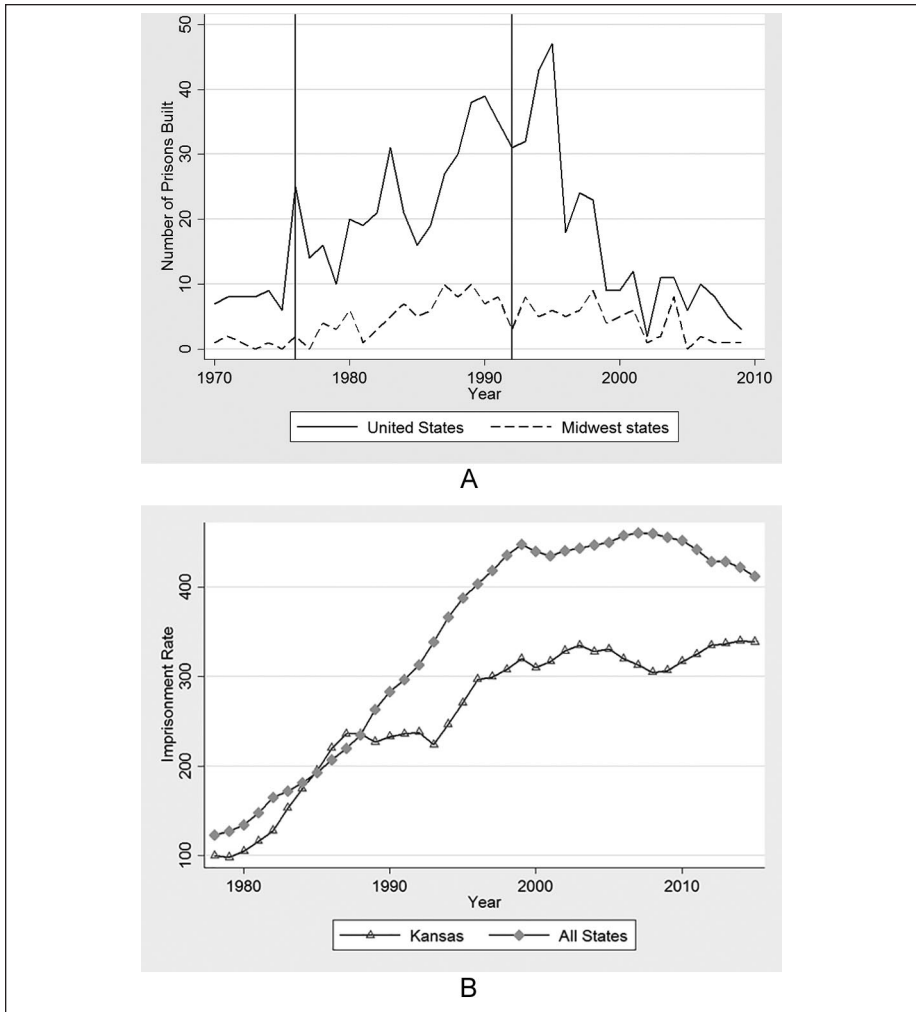


Figure 1. (A) Number of prisons built by year; (B) imprisonment rate per 100,000.

Source. (A) Eason (2018) Prison Proliferation Project (also see Eason, 2016). (B) Carson & Mulako-Wangota (2015), Bureau of Justice Statistics.

Note. (A) The prison boom in the United States and Midwest, 1970–2009. The region between the vertical lines indicates the period when six prisons were built in Kansas during the prison boom. Before 1970, Kansas had three state prisons. (B) Imprisonment rates in state jurisdictions per 100,000 inhabitants, 1978–2015.

Kansas is an appropriate case for studying the increasingly punitive conditions within prisons because the practice of solitary confinement in Kansas is typical of other state prison systems. A national survey of 44 state jurisdictions found Kansas to be similar to other states regarding solitary confinement practices (Arthur Liman

Public Interest Program & Association of State Correctional Administrators, 2015). It involves confining people to their cell for up to 23 hours a day with limited contact with other incarcerated people and correctional staff (Arthur Liman Public Interest Program & Association of State Correctional Administrators, 2015). Policies related to solitary confinement vary between states, but it is common that restrictions on phone use, visitation, and access to prison programming apply to those in segregation. There are a variety of reasons why someone may be placed in solitary confinement, including disciplinary reasons, monitoring a potential security risk, protective custody, pre-hearing detention, clinical observation for self-injury and suicide, as well as purely administrative reasons (e.g., holdovers, temporary transfers), or those who are classified as a higher security risk than their current facility's classification (KDOC, 2011).

As is typical of jails and prisons across the United States, Kansas state prisons define two kinds of solitary confinement: disciplinary segregation and administrative segregation (National Institute of Justice, 2016). The reasons for placement into administrative and disciplinary segregation, as well as the details of these types of solitary confinement, vary between states. In Appendix A, we provide a frequency table showing the reasons individuals were sent to administrative and disciplinary segregation in Kansas. As the tables show, there is a much larger variety of reasons that lead to administrative segregation than disciplinary segregation, demonstrating the discretionary quality of this form of solitary confinement. The category, "Other Security Risk," is by far the most frequently cited reason for a movement to administrative segregation, particularly in the period after capacity expanded. This category is broadly defined as applying to inmates who have "engaged in behavior which has threatened the maintenance of security or control in the correctional facility" (KDOC, 2011, Internal Management Policy and Procedure [IMPP] 20-104).

National statistics indicate the percentage of the Kansas prison population in solitary confinement closely follows the national average of 7% (Arthur Liman Public Interest Program & Association of State Correctional Administrators, 2015; National Institute of Justice, 2016). Among all adults confined in Kansas state prisons at the beginning of 2014, 8.5% were held in some form of segregation of which 6.6% were held in administrative segregation. The time individuals spend in solitary confinement can vary widely in Kansas, ranging from less than 1 week to several years, which is typical of other state prisons (Arthur Liman Public Interest Program & Association of State Correctional Administrators, 2015; National Institute of Justice, 2016).

The analysis presented in this article, though limited to Kansas, has implications for other states that built high-security prisons during the prison boom. Our study of the developments in Kansas offers one of the first examinations of how a state responded to a shift in its capacity constraint at high levels of custody.

Data and Method

For this analysis, we use a detailed administrative data set obtained from the KDOC through a data-sharing agreement that allows us to precisely measure changes in the rate that solitary confinement is imposed and the length of time spent in solitary

confinement. The data include information on every individual incarcerated in the Kansas prison system during the period of our study and consist of a rich compilation of several variables related to these individuals. The data used in this study include demographic information (race, ethnicity, and age), the conviction offense(s), prison release dates, facility transfers, and detailed information on prison cell assignment and movements. These data span 30 years, from 1985 to 2014. We focus most of our analysis on the 10 years between 1987 and 1996, the years surrounding the opening of El Dorado Correctional Facility in December 1991, though we reflect on how practices continued decades later. During this period of time, the total Kansas prison population ranged from around 5,500 in 1987 to around 7,400 in 1996. The opening of the El Dorado Correctional Facility expanded the system's capacity for high-security prison housing, including cells for disciplinary and administrative segregation. Originally constructed to house 640 men in 1991, it currently houses more than 1,600 men and about half of the overall state system's solitary confinement population (KDOC, 2019). We measure the extent to which solitary confinement grew following capacity expansion, which demographic groups were most affected by this growth, and the determinants of this growth.

We identify stays in solitary confinement using prison cell assignment data. The data contain labels for cell assignments designated as administrative segregation and disciplinary segregation. In addition, the cell assignment data include the dates of each cell assignment, which allow us to accurately calculate the number of days spent in solitary confinement. We find many instances where people are transferred to different cells during the course of one stay in solitary confinement. For example, a person may be in disciplinary segregation and then transferred to administrative segregation. In this case, we consider the entire period as one solitary confinement stay, but when distinguishing between administrative and disciplinary segregations, we calculate the length of the disciplinary segregation stay and the administrative segregation stay in accordance with the length of the cell assignment with that designation. There are also instances where someone may be moved out of solitary confinement for 1 day due to, for example, a court date or a short-term medical visit, and then returned to a segregation cell. If there are 2 days or less between the time that a person leaves solitary confinement and is returned, then we consider this all part of one continuous stay in solitary confinement.

During the period directly surrounding the opening of the new prison facility in 1991, there were no substantial changes to the size of the Kansas prison population or the average length of prison terms (date of prison opening indicated by the vertical line in Figure 2).

Furthermore, there were no distinct changes to the age or racial composition at the time the El Dorado prison opened, or any distinct changes to the types of crime leading to incarceration (Figure 3). Prison admissions to the Kansas system for violent crimes and the severity of sentences (measured in sentence length) were particularly stable during this period. Thus, any changes to the use of solitary confinement occurred during a period when the underlying prison population was relatively stable. Of course, we cannot rule out the possibility that unobserved conditions (such as gang affiliation, which

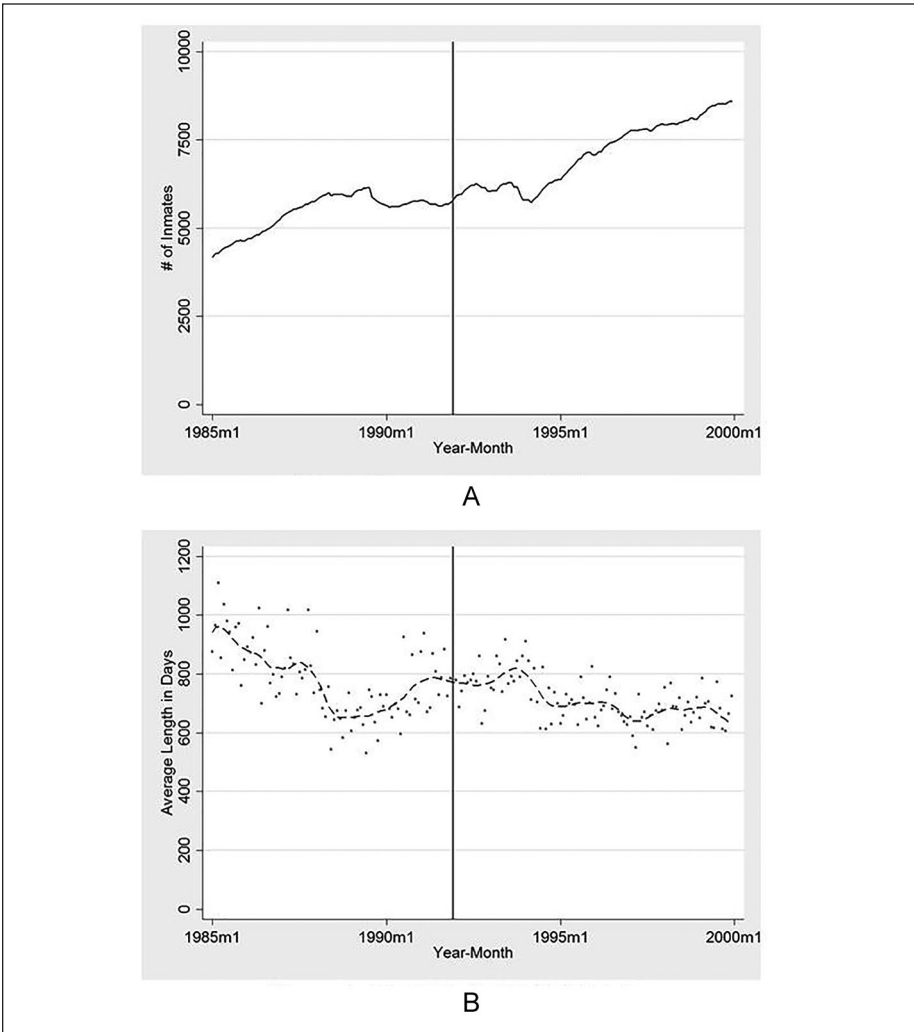


Figure 2. Kansas prison population and average length of prison terms, 1985–1999. (A) Kansas prison population. (B) Average length of prison terms.
 Note. The vertical line indicates December 1991, the month when El Dorado Correctional Facility was opened.

was not provided in prison records) changed during this period. We realize that, in California, prison officials have cited gang affiliation as a reason for racial segregation of incarcerated people (see, *Johnson v. California*, 2005), and we acknowledge the possibility that other unobserved changes in prison violence could contribute to prison officials’ decisions to use solitary confinement in their efforts to maintain security. It seems unlikely, however, that sharp changes in these unobservable characteristics of the prison

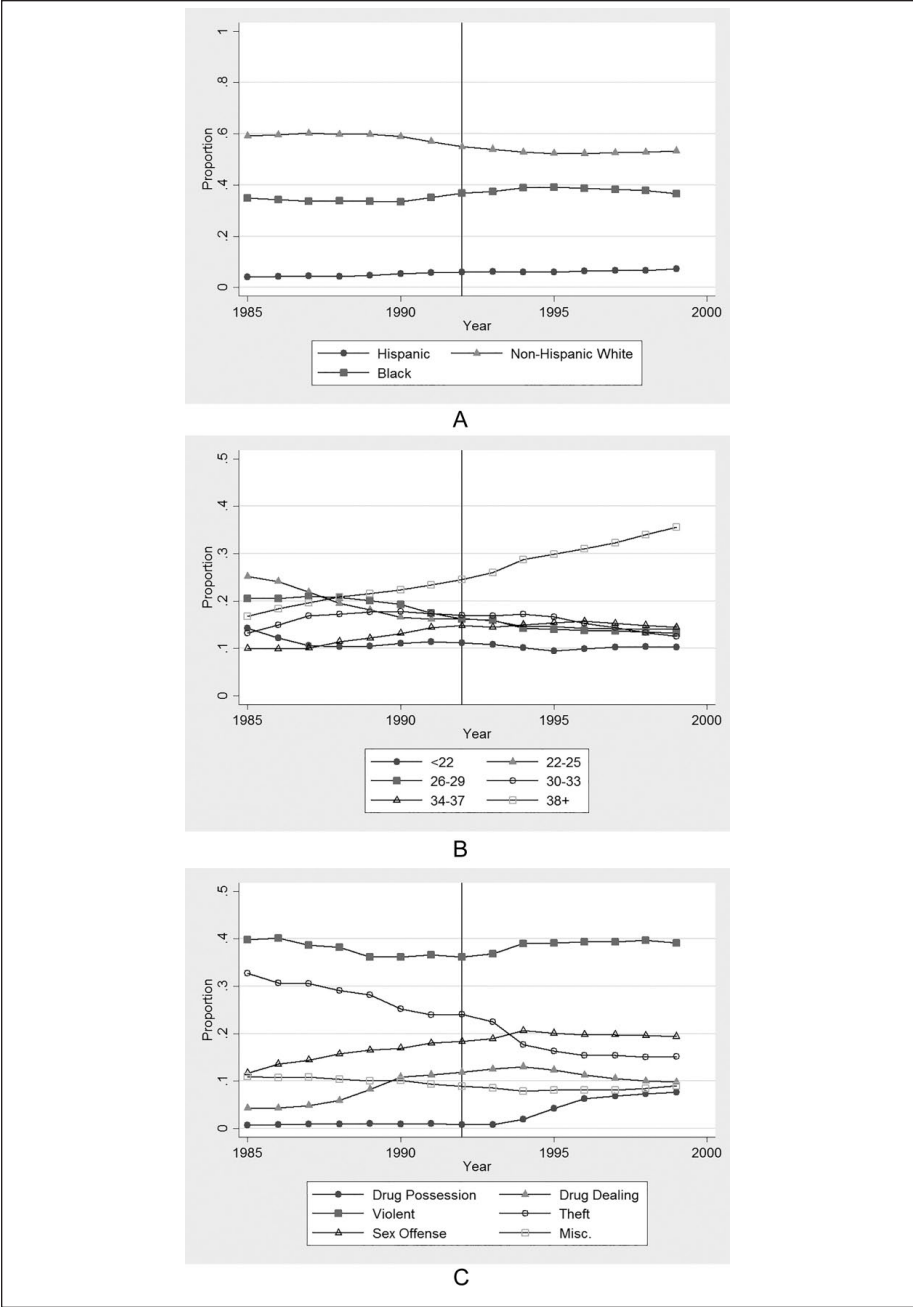


Figure 3. Demographic and criminal composition, 1985–1999. (A) Racial composition. (B) Age distribution. (C) Category of crime.
Note. The vertical line indicates December 1991, the month when El Dorado Correctional Facility was opened.

population would be entirely undetectable in the observable variables shown in Figures 2 and 3.

A year and a half after the opening of El Dorado Correctional Facility, an incident in another prison did cause a sharp change in the use of solitary confinement. On May 22, 1993, a correctional officer was killed by a group of incarcerated people in the Lansing Correctional Facility. Immediately after this event, we observe a spike in the number of people assigned to solitary confinement and an increase in the average length of these commitments. In Appendix B, we explore this event in the context of the overall use of solitary confinement, and show that the spike only accounts for a portion of the increase in the use of solitary confinement during this period. Kansas' increase in the use of solitary confinement began immediately after the opening of El Dorado Correctional Facility (18 months prior to the incident) and continued over two decades after the officer's death in 1993. Furthermore, we find that the spike following the incident is concentrated among young, Black individuals, most of whom could not have been directly involved in the assault.¹ We interpret this sharp increase in the use of solitary confinement among this particular demographic group as an important example of prison officials' use of discretion to determine the severity of prisoner confinement in a context of loosened capacity constraints on high-security prison housing. These findings are consistent with previous research demonstrating institutional backlash to prison uprising (Berger & Losier, 2018; Bissonette, 2008; Reiter, 2016).

Analytic Strategy

In this study, we present descriptive statistics on the use of solitary confinement in Kansas between the years 1987 and 1996. The majority of our results are presented as rates to account for any changes in the total prison population or the relevant subpopulation during the years studied. We divide this 10-year period into the pre-capacity expansion period (1987–1991) and the post-capacity expansion period (1992–1996) and calculate the rates of solitary confinement by race and ethnicity, by age, and by type of segregation (administrative or disciplinary).

In addition to these measures of the proportion of the prison population held in solitary confinement (the extensive margin), we also measure the length of time that individuals are held in solitary confinement (the intensive margin). Like the extensive margin statistics we present, we calculate the intensive margin measures in the pre- and postexpansion periods and break these measures down by race and ethnicity, by age, and by type of segregation. Furthermore, we report the number of individuals discharged from prison within 1 day of a solitary confinement stay and whether the frequency of this practice changed during the prison boom.

Lastly, we employ a decomposition analysis to study whether changes in the use of solitary confinement are due to factors relating to changes in the rate at which solitary confinement is imposed, changes to the length of stay in solitary confinement, or a combination of both. To conduct this analysis, we adapt decomposition methods used in the research literature studying the factors underlying growth in the U.S. incarceration rate over the past four decades (Blumstein & Beck, 1999; Neal & Rick, 2014; Raphael & Stoll, 2013).

Neal and Rick (2014) introduce a simple decomposition model that analyzes the factors leading to a steady-state prison population. We adapt this model to understand changes in solitary confinement populations. The Neal and Rick decomposition accounts for changes in rates of arrest per crime, conviction per arrest, prison admissions per conviction, and sentence length per prison admission (Neal & Rick, 2014). Because there is no similarly distinct path from prison admission to solitary confinement, we simplify the decomposition to two main factors: (a) the average risk of being sent to solitary confinement for each incarceration day and (b) the average length of stay in solitary confinement, both of which we can calculate precisely with our data. We then further refine this model by disaggregating the prison population into six groups corresponding to the category of crime for their most serious charge. These crime categories include drug possession, drug distribution, violent crimes, theft, sex offenses, and miscellaneous crimes.²

Findings

In what follows, we examine shifts in the rate and cumulative risk of going to solitary confinement during a prison term, average time spent in isolation, and the number of people leaving prison directly from solitary confinement before and after the El Dorado Correctional Facility opened.

Experiencing Solitary Confinement Before and After Capacity Expansion

Table 1 displays the percentage of the population in solitary confinement before and after the prison system expanded its capacity for solitary confinement with the opening of El Dorado. Prior to expansion (1987–1991), 2.88% of the Kansas state prison population was held in either administrative or disciplinary segregation. For non-Hispanic Blacks, the number is slightly higher, 3.45%. A lower percentage of non-Hispanic Whites (2.62) and Hispanics (2.09) were in solitary confinement before Kansas expanded its capacity. People below the age of 22 were the most common group to be found in such housing prior to capacity expansion, 3.84%. Across all demographic subgroups, administrative segregation comprised a larger share of those in solitary confinement than disciplinary segregation.

Following the opening of El Dorado prison, a prison that significantly increased solitary confinement capacity in the Kansas prison system, the overall percentage of people in solitary confinement rose rapidly. Table 1 shows the prevalence of solitary confinement after this capacity expansion in December 1991. The percentage of those held in solitary confinement nearly doubles to 5.75. For non-Hispanic Blacks, more than 7% were in solitary confinement on an average day between December 1991 and December 1996. Roughly 4.5% of non-Hispanic Whites and Hispanics were in solitary confinement during this period and almost 10% of people below the age of 22 were in solitary confinement on an average day in the 5 years after the prison expanded its capacity.

Table 1. Solitary Population Before and After Capacity Expansion.

	1987–1991			1992–1996		
	Any	Disciplinary	Administrative	Any	Disciplinary	Administrative
Total	2.88	0.62	2.26	5.75	1.25	4.50
Race and ethnicity						
Non-Hispanic Black	3.45	0.66	2.79	7.55	1.55	6.00
Hispanic	2.09	0.61	1.47	4.26	1.06	3.20
Non-Hispanic White	2.62	0.60	2.02	4.56	1.05	3.51
Age (years)						
<22	3.84	1.65	2.19	9.60	2.52	7.08
22–25	3.53	1.05	2.48	8.52	1.69	6.83
26–29	3.01	0.54	2.48	5.63	1.36	4.27
30–33	2.77	0.37	2.39	5.01	1.12	3.89
34–37	2.45	0.21	2.24	4.40	0.85	3.55
38+	1.92	0.12	1.80	3.90	0.68	3.22

Note. The sample includes all people incarcerated in Kansas prison facilities between January 1, 1987, and December 31, 1996. We calculate the values in this table by finding the percentage of people in each category on each day between January 1, 1987, and December 30, 1996, and then taking the average over all these days. Age is defined as the age of an individual at the beginning of their current cell stint. For example, if a person turned 30 years old 5 days ago, but has been in administrative segregation for 7 days, he would be put in the 26–29 age group.

In Table 2, we show the percentage of people who spent at least 1 day in solitary confinement during their prison term. This measure reveals the widespread use of solitary confinement even prior to prison capacity expansion. Between 1987 and 1991, the percentage of people who experienced solitary confinement—both administrative and disciplinary segregation—was 41%. For non-Hispanic Blacks the percentage is higher, 46%. Hispanics have a higher chance of experiencing solitary confinement than non-Hispanic Whites, 40% versus 38%. Prior to capacity expansion, 13% of all people experienced at least one stay in solitary confinement of longer than 30 days.

During the period after capacity for solitary confinement expanded (1992–1996), 44% of all incarcerated individuals experienced solitary confinement during their prison term (Table 2). For Black and Hispanic incarcerated people, the overall percentage who experienced solitary confinement grew to 48% and 42%, respectively. In the later period, about 15% of all people experienced at least one stay in solitary confinement lasting longer than 30 days—a 2 percentage point increase in the number of people from the pre-expansion period.

This initial descriptive account shows a moderate increase in the proportion of people who experience solitary confinement after the opening of El Dorado and a large increase in the percentage of individuals in solitary confinement on an average day, particularly for younger and Black people. Most of this growth resulted from an

Table 2. Percentage Experienced Solitary Confinement Before and After Capacity Expansion.

	Any	Disciplinary	Administrative	Any \geq 30 days
1987–1991				
Total	40.99	18.79	35.82	12.91
Race and ethnicity				
Non-Hispanic Black	45.84	21.91	40.93	15.45
Hispanic	39.64	20.25	33.50	12.65
Non-Hispanic White	38.14	16.88	32.96	11.31
1992–1996				
Total	43.87	25.06	38.42	15.29
Race and ethnicity				
Non-Hispanic Black	48.22	29.21	42.63	18.17
Hispanic	41.79	23.78	35.73	12.45
Non-Hispanic White	40.90	22.25	35.64	13.40

Note. The sample includes all people incarcerated in Kansas prison facilities between January 1, 1987, and December 31, 1996. The percentages represent the proportion of those who ever spent time in the given category of segregation during their prison term.

increase in the population held in administrative segregation as opposed to disciplinary segregation. A much greater range of discretion is associated with the use of administrative segregation, where people can be held for a variety of reasons. This contrasts with disciplinary segregation, which is a punishment for a specific disciplinary infraction and is governed by a formal hearing process. Thus, the rapid increase in the use of solitary confinement came not from a marked increase in formal disciplinary sanctions, but in the newly expanded use of administrative segregation based on the discretion of prison officials, who may be using their discretion for solitary confinement in their efforts to reduce risk of violence. In the next section, we further examine how the Kansas state prison system used increased solitary confinement capacity by measuring the length of segregation stays before and after the opening of El Dorado.

Time in Solitary Confinement

Research on solitary confinement emphasizes that prolonged periods of isolation have significant negative impacts on well-being and the chance of successful reintegration (National Institute of Justice, 2016). We measure shifts in the length of stays in solitary confinement after the new prison opened. Before capacity expansion, the average length of a stay in solitary confinement was 21 days. For non-Hispanic Whites and Blacks, there is no substantial difference in the average length of stay (21 days) in the years leading up to the opening of El Dorado. Hispanics

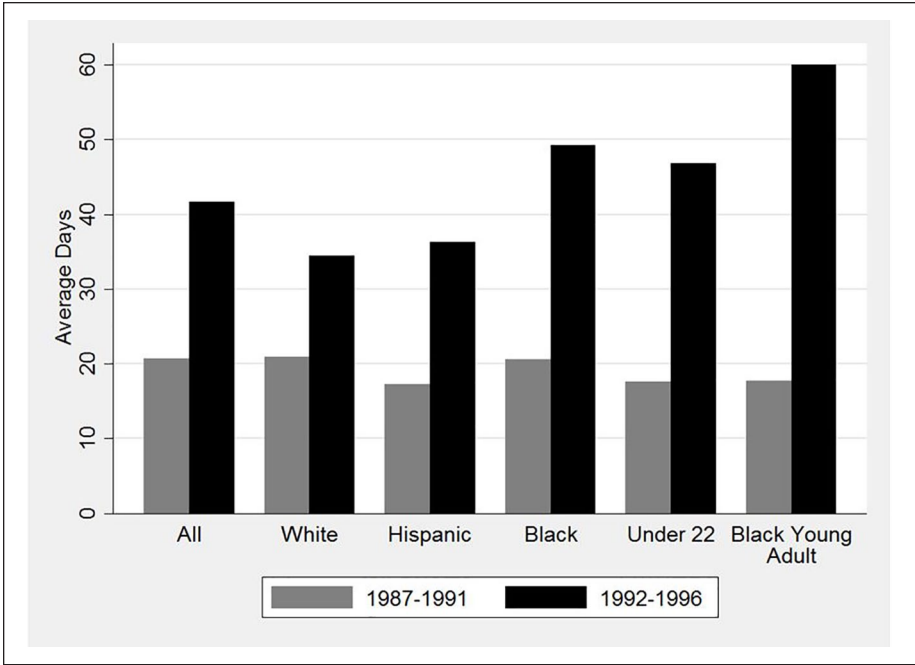


Figure 4. Average length of stay by race, ethnicity, and age before and after the expansion of solitary confinement capacity in December 1991.

experienced average stays of 17 days. Figure 4 shows that, in the 5-year period prior to the expansion of the prison system's capacity for solitary confinement, there are no detectable differences across groups. For those below the age of 22, the length of stay prior to the opening of the new prison was about 17 days, slightly lower than the average for all age groups.

After the expansion of solitary confinement capacity, the average length of stay increased twofold. Individuals incarcerated after the opening of the new prison experienced on average 42 days in isolation. Racial disparities in the length of solitary stays also emerged in the postexpansion period. Figure 4 shows differences by race and ethnicity for the average length of stay in solitary confinement. For non-Hispanic Blacks, the average length of stay in solitary confinement became more than 2 weeks longer than for non-Hispanic Whites, 49 days compared with 34. Hispanics, who had the lowest average length of stay in solitary confinement prior to capacity expansion, experienced an average of 36 days after expansion. Significantly, Black young adults (age 18–25) had the longest average length of stay for any demographic group. After capacity expansion, the average length of a stay in solitary confinement for non-Hispanic Blacks aged 18 to 25 years was 60 days—more than 3 times the average for this group in the prior period (about 18 days).

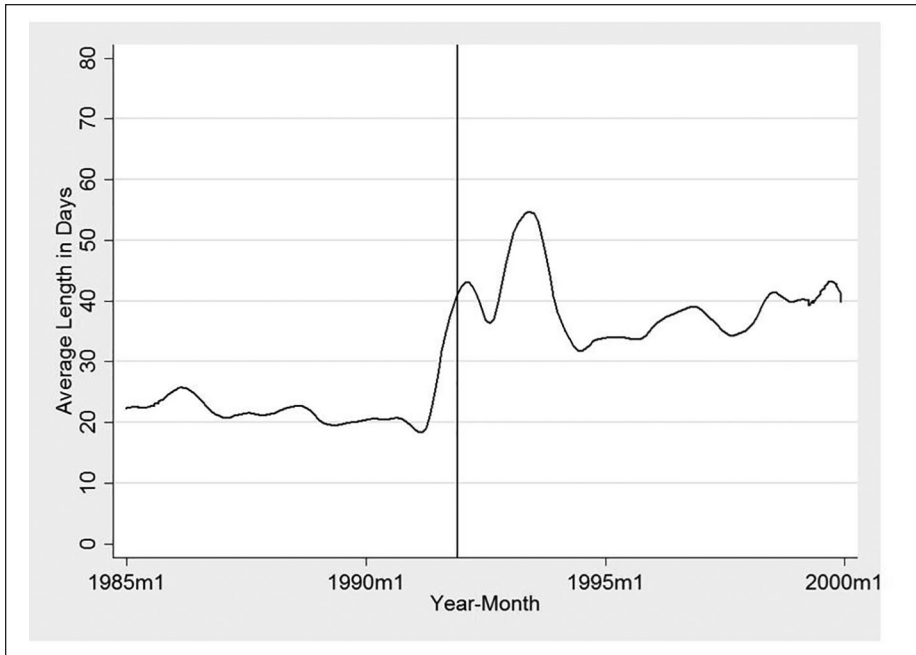


Figure 5. LOWESS (bandwidth = 0.1) of monthly average length of stay in solitary confinement, 1985–1999.

Note. LOWESS = Locally Weighted Scatterplot Smoothing. Vertical line indicates when El Dorado prison opened in December 1991.

Figure 5 displays the average number of days spent in solitary confinement per stay from 1985 to 2001. Prior to the opening of El Dorado (indicated by the vertical line), the average number of days in solitary confinement was quite stable, hovering around 20 days. Average lengths rise immediately upon the opening of El Dorado and then spike at the time the correctional officer was killed in May 1993 at the Lansing prison. The average length then settles to around 40 days, double the average length of time in isolation observed in the pre-El Dorado period.

Decomposition Analysis

Our results show that both the proportion of individuals held in solitary confinement and the length of stay in solitary confinement increased after capacity expanded in Kansas. In this section, we conduct a decomposition analysis to identify which factor (increased rates or increased lengths of stay) drove the increase in the solitary confinement population after the opening of El Dorado. An increase in the proportion of people held in solitary confinement could be the product of a higher rate at which people are sent to solitary confinement (i.e., an increase in the extensive margin), an increase in the length of time that people are held in solitary confinement (i.e., an increase in

the intensive margin), or some combination of both. It is important to understand which of these is the main factor driving the increase in the use of solitary confinement, especially in designing policy reform. Although both sources of growth are worthy of attention, much of the focus of litigation and concern about the lasting effects of solitary confinement revolve around prolonged stays in isolation (Grassian, 2006; Haney, 2003; National Institute of Justice, 2016).

Our decomposition model consists of two main factors: (a) the average risk of being sent to solitary for each incarceration day, ϕ_t , and (b) the average length of stay in solitary confinement l_t . In steady state, the fraction of people held in solitary confinement at time t , σ_t , can be expressed as:

$$\sigma_t = (1 - \sigma_t) \cdot \phi_t \cdot l_t$$

where σ_t is the steady-state fraction of people in solitary confinement in period t ; $(1 - \sigma_t)$ is the steady-state fraction of people who are not in solitary confinement in period t and, therefore, at risk of being sent to solitary confinement; ϕ_t is the probability of being sent to solitary confinement in period t ; and l_t is the expected length of stay in solitary confinement given that one is sent to solitary confinement in period t . This simple model assumes that everyone who is not already in solitary confinement has an equal probability, ϕ_t , of being sent to solitary.

We can refine the model by calculating separate ϕ s and l s for people committed to prison for different types of crimes. Based on the individual's most serious charge, we disaggregate the prison population into six crime categories: drug possession, drug distribution, violent crimes, theft, sex offenses, and miscellaneous crimes. Given these crime categories, our steady-state equation can be expressed as

$$\sigma_t = \sum_{c=1}^C \frac{(i_{t,c} - \sigma_{t,c}) \cdot \phi_{t,c} \cdot l_{t,c}}{i_t}$$

where c indexes the crime category and $i_{t,c}$ is the total number of people in crime category c in period t .

Figure 6 compares the fraction of the prison population in solitary confinement as predicted by our model (dashed line) with the actual fraction of the population in solitary confinement (solid line). As shown, the prediction of the model tracks the actual population in solitary confinement fairly closely.

The proportion of people in solitary confinement increased from 2.88% before El Dorado opened to 5.75% (Table 1). If this increase could be explained by an increase in the probability of being sent to solitary confinement (i.e., an increase in ϕ_t) with no accompanying increase in the length of time in solitary confinement, then our model would imply an increase in ϕ_t from an average of 0.14% per incarceration day in the pre-capacity expansion period to 0.29%. However, if ϕ_t did not change and the increases in the length of solitary stays was the only source of the growth in solitary confinement, our model would imply an increase of l_t from an average of 20.67 days in the preperiod to around 42.52 days. In fact, the average length of time spent in solitary confinement increased to 41.65 days, implying that the increase in the proportion

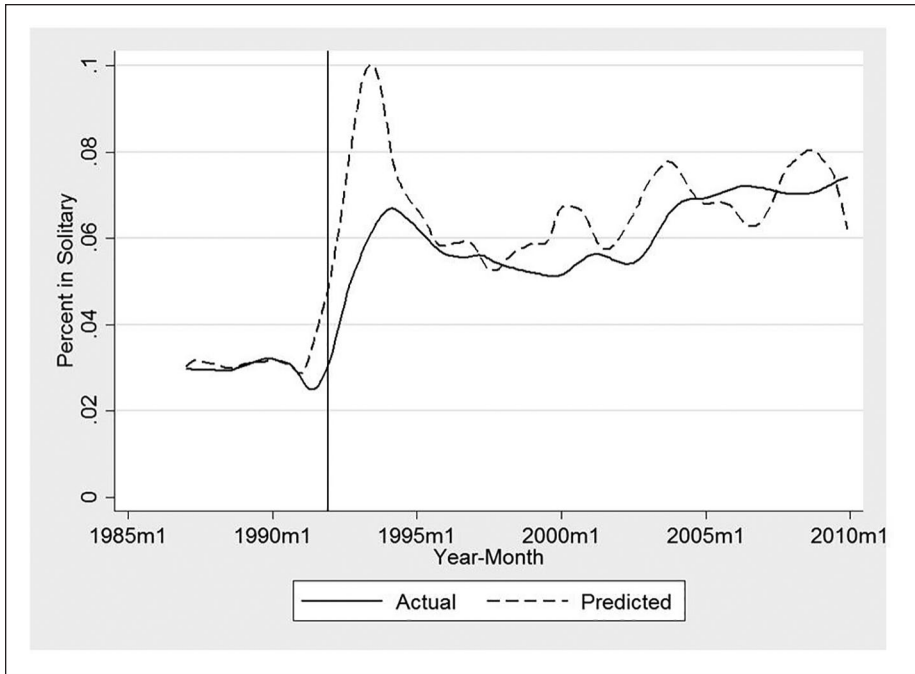


Figure 6. LOWESS (bandwidth = 0.1) of predicted versus actual percentage of the total prison population in solitary confinement.

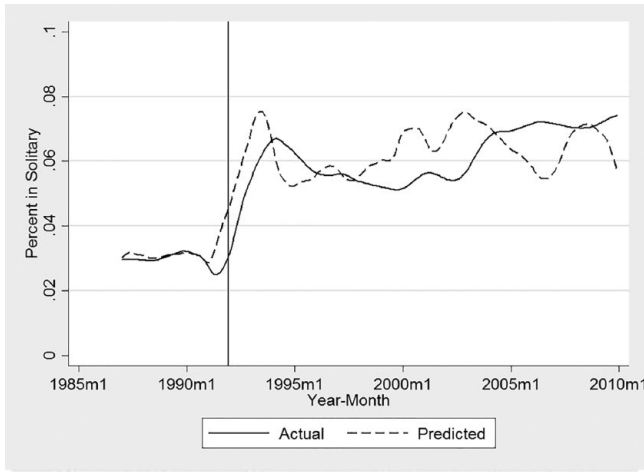
Note. LOWESS = Locally Weighted Scatterplot Smoothing.

of those held in solitary confinement was almost entirely due to an increase in the length of time spent in isolation. In other words, increased harshness in the practice (more days in isolation) led to the growth in the solitary confinement population. We demonstrate this in Figure 7, which displays the actual solitary population alongside counterfactuals of the solitary population, had ϕ_t been held constant at pre-capacity expansion levels and if l_t been held at pre-capacity expansion levels.

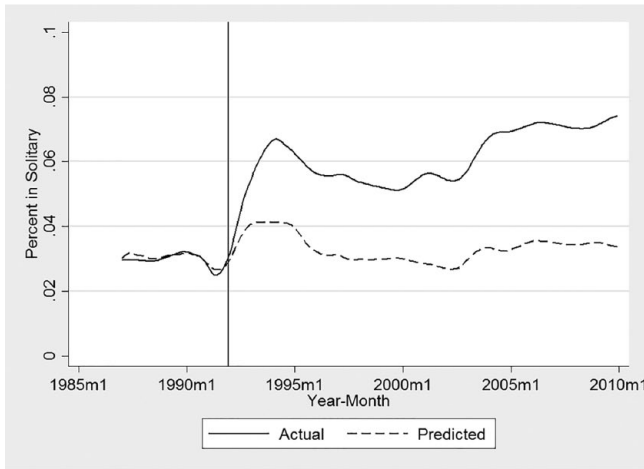
Figure 7A shows that the actual and predicted solitary population levels are very similar when ϕ is fixed at preperiod levels. Figure 7B shows that the actual and predicted levels are very different when l (length of stay) is held at the pre-capacity expansion levels.

The decomposition also allows us to generate counterfactuals by race and age. Figures 8A and 8B show the steady-state proportion of non-Hispanic Blacks that would have been held in solitary confinement had the rate of confinement, $\phi_{t,c}$ and length of confinement, $l_{t,c}$ been at the levels of non-Hispanic Whites.

We see that the proportion of non-Hispanic Blacks in solitary confinement would have been about the same in the pre-expansion period even if White rates of confinement and length of solitary spells had been applied to the Black population. In the postexpansion period, however, we see a clear separation between the actual and



A



B

Figure 7. LOWESS (bandwidth = 0.1) of counterfactual solitary confinement populations. (A) Holding ϕ_c fixed at pre-capacity expansion levels. (B) Holding l_t fixed at pre-capacity expansion levels.

Note. LOWESS = Locally Weighted Scatterplot Smoothing.

counterfactual rates. Under non-Hispanic White rates of confinement, $\phi_{t,c}$, and length of solitary spells, $l_{t,c}$, non-Hispanic Blacks would have been between 1 and 2 percentage points less likely to be in solitary confinement.

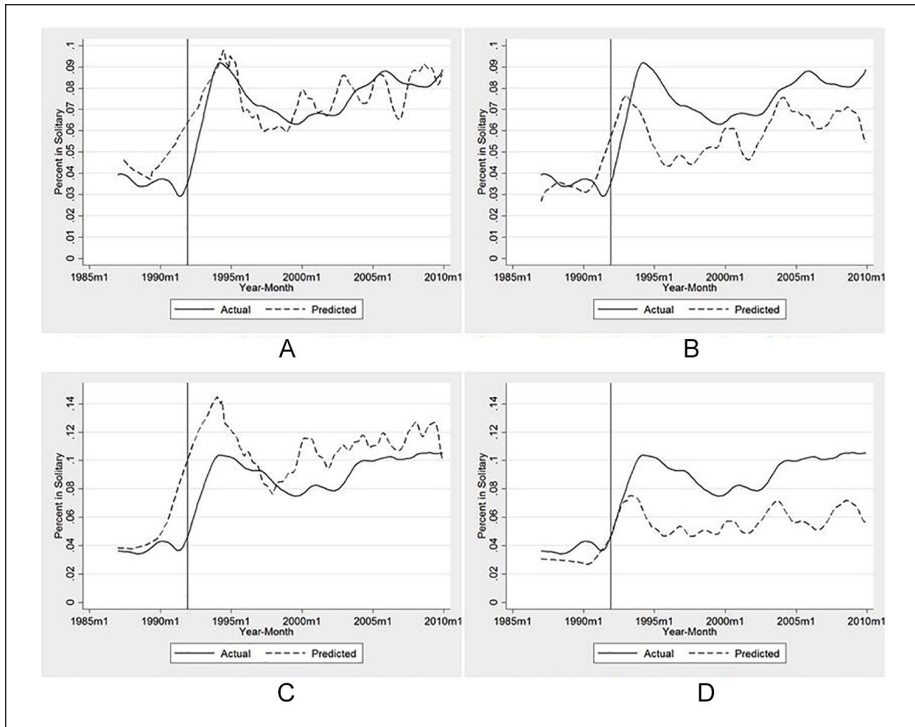


Figure 8. LOWESS (bandwidth = 0.1) of counterfactual solitary confinement population for non-Hispanic Black inmates and young inmates. (A) Using ϕ_t and l_t of non-Hispanic Black inmates. (B) Counterfactual using ϕ_t and l_t of non-Hispanic White inmates. (C) Using ϕ_t and l_t of young inmates. (D) Counterfactual using ϕ_t and l_t of older inmates.

Note. LOWESS = Locally Weighted Scatterplot Smoothing.

We calculate the steady-state proportion of young adults (25 years or younger) who would have been held in solitary confinement had their rate of confinement and length of confinement been at the levels of older people. In Figure 8C and 8D, we see a similar but even more pronounced pattern to the race counterfactual. Under the rate for older incarcerated people, $\phi_{t,c}$ and $l_{t,c}$, the young adult rate of solitary confinement would have been slightly less in the pre-expansion period, but the young adult rate would have been about 4 percentage points lower than the actual rate in the postexpansion period.

Notably, there was no increase in the median length of stay (7 days) despite the average length of stay in solitary driving the overall increase in the solitary confinement population. In fact, the increase in the 75th- and 90th-percentile lengths of stay are relatively modest with the 75th percentile increasing from 17 to 19 days after the capacity expansion and the 90th percentile increasing from 37 to 44 days. A larger separation between the two periods is seen at the 95th and 99th percentiles, which

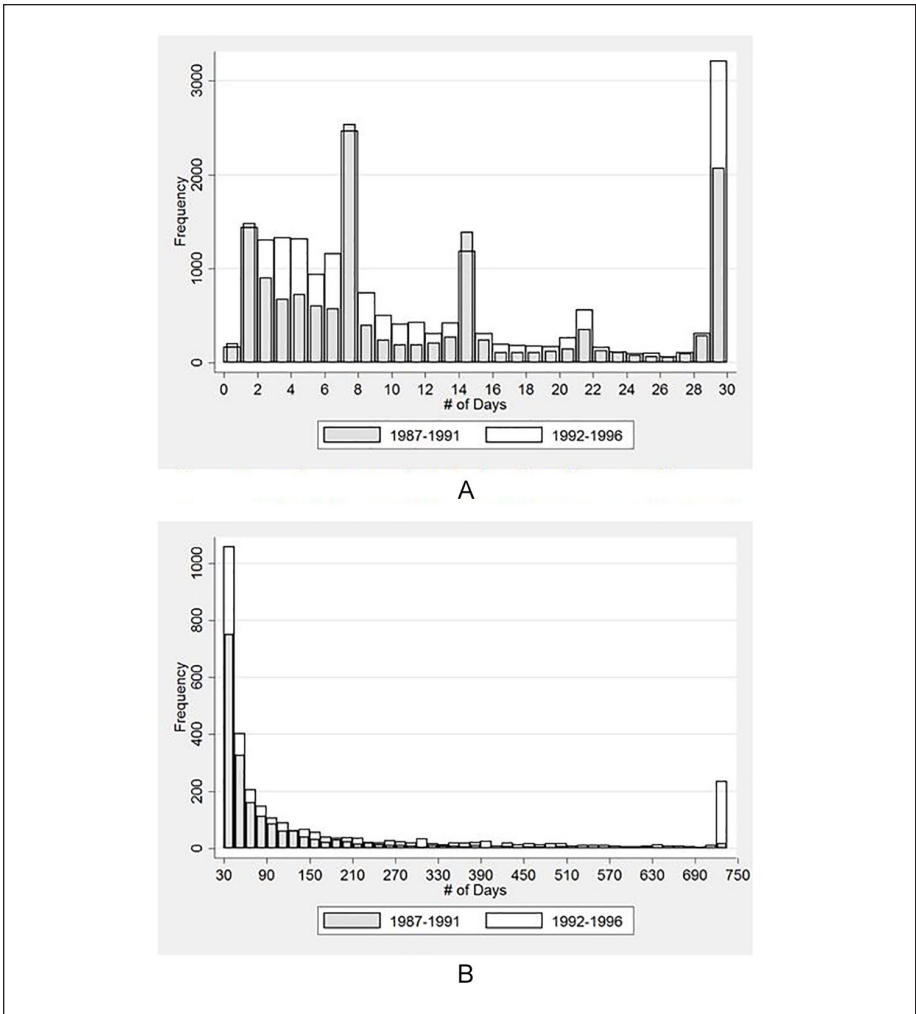


Figure 9. Number of solitary spells by days in solitary confinement before and after the expansion of capacity for solitary confinement in Kansas prisons: (A) less than or equal to 30 days in solitary confinement; (B) 30 days or more in solitary confinement. Note. In panel (A), the length of solitary spells is top coded at 30 days and the bins are 1 day wide. Panel (B) shows all solitary spells greater than or equal to 30 days in 15-day bins with the number of days top coded at 730 days.

increased from 66 to 126 days, and 235 to 829 days, respectively. This distribution in the length of solitary confinement stays is more clearly displayed in Figure 9, which shows the frequency distribution of solitary stays, by length in days.

Figure 9A shows the number of solitary stays of 1 to 29 days, with all solitary stays greater than or equal to 30 included in the 30-day bin. We see that the postexpansion

counts were moderately higher for most bins. There is heaping at the 7-, 14-, and 21-day bins due to the common use of week-long increments in assignment to solitary confinement. Figure 9B shows the number of solitary stays greater than or equal to 30 days in 15-day bins. These stays are top coded at 730 days (2 years), and we find that there was a tremendous increase in the number of these extremely long stays after El Dorado opened. Only 16 solitary confinement stays of 2 years or longer began between January 1987 and November 1991, but we observe 232 stays of 2 years or longer that began in the 5 years after the opening of El Dorado.

Leaving Prison Directly From Solitary Confinement

Conditions of confinement may affect individuals after they leave prison, and solitary confinement in particular can significantly affect postincarceration social integration such as obtaining employment and avoiding reincarceration (National Institute of Justice, 2016). Our analysis in this section considers the prevalence of release from prison directly from solitary confinement. Prior scholarship and policy analysis suggest being released from lower levels of custody improves the chances of social integration after release (Chen & Shapiro, 2007; Gaes & Camp, 2009; National Institute of Justice, 2016). Being released directly from high levels of custody is an additional indication of the harshness of a prison system. In the 5 years prior to the opening of El Dorado, the prison system released an average of nine people each quarter within 1 day of being in solitary confinement. In the 5 years after the expansion of capacity for solitary confinement, the number of these releases nearly quadrupled to 33 per quarter. Figure 10 shows the differences before and after the opening of El Dorado (indicated by vertical line).

In the context of a greater capacity for and use of solitary confinement, people became more likely to complete their prison sentence while in solitary confinement. Thus, we find a significant number of people leaving prison have limited to no social contact, programming, work in prison, or other forms of socialization immediately prior to prison release.

This finding is important for understanding the possible determinants of time in solitary confinement. The average stay length of those released directly from solitary confinement is much longer than the overall average stay during the study period. Prior to the opening of El Dorado Correctional Facility, the average length of a solitary stay that ended with the person's release to the community was 66 days, whereas the average length for all solitary stays was 21 days. After the opening of El Dorado, the average for those released directly from solitary confinement was 146 days, whereas the overall average was 42 days. In each case, stays in solitary confinement that terminate with release from prison are about 3 times longer than the average stay, possibly indicating a practice of keeping some individuals in isolation until the end of their prison sentence. In sum, the expansion of capacity for solitary confinement gave prison administrators a greater number of cells to use for indefinite stays in solitary confinement that often lasted for the remainder of an individual's prison sentence.

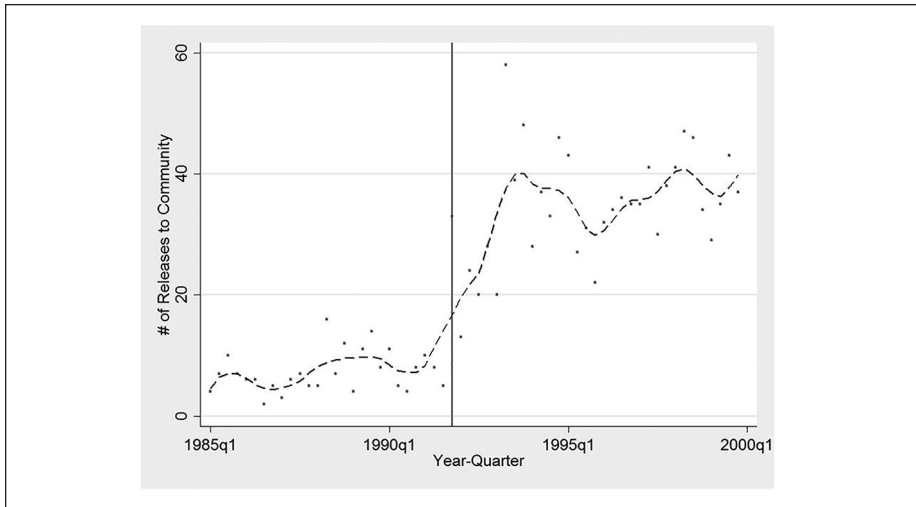


Figure 10. LOWESS (bandwidth = 0.15) of average number of releases from Kansas prison custody within 1 day of solitary confinement, 1985–1999.
 Note. LOWESS = Locally Weighted Scatterplot Smoothing. Vertical line indicates when El Dorado prison opened in December 1991.

Solitary Confinement After the Prison Boom

The prison boom peaked between the late 1980s and 1990s (Eason, 2017), and harsh practices such as solitary confinement that emerged during this period continue into the present day. Figure 11A displays the proportion of people in solitary confinement by quarter from 1985 to 2014, and Figure 11B disaggregates by race and ethnicity. During the years prior to the El Dorado prison opening in 1991, there was a relatively stable rate of solitary confinement. After the opening, we see an intense and lasting growth in the use of solitary confinement, particularly for administrative segregation. By 2014, 8.5% of people were in solitary confinement, nearly 3 times the percentage in 1990. Racial disparities widened after the expansion of capacity for solitary confinement and persisted in later years. One out of every 10 incarcerated non-Hispanic Black individuals and 11% of Hispanics were in solitary confinement, compared with 7% of non-Hispanic Whites.

Figure 12 displays the average length of stay in solitary confinement for all people held in Kansas prisons from 1985 to 2014.

The growth in solitary confinement capacity in the early 1990s led to a sustained practice of lengthy stays in these extreme conditions. Two decades after the increase in capacity, the average length of solitary spells remained well above the pre-El Dorado levels. We find evidence that the forces of punishment and control fueling punitive sentencing, prison growth, and mass incarceration also shaped the ways imprisonment was experienced in Kansas for decades to come.

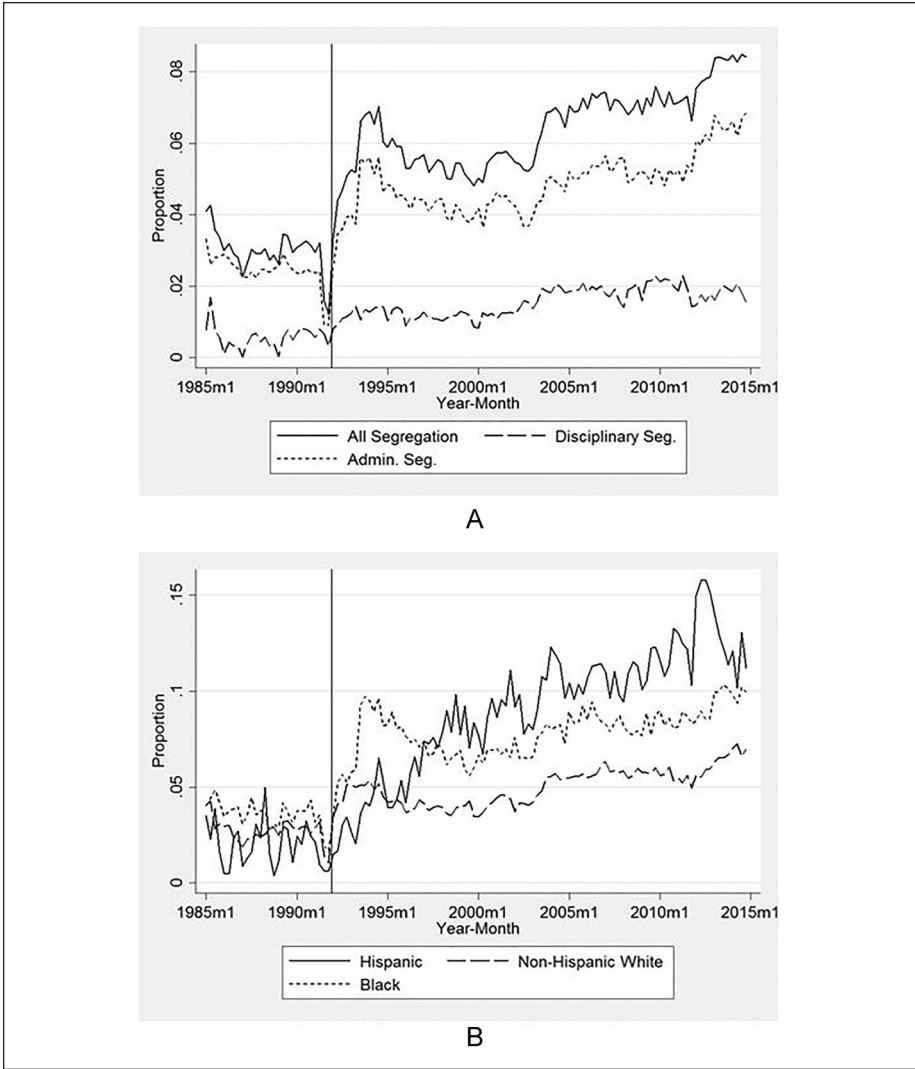


Figure 11. The proportion of people in solitary confinement by month in Kansas state prisons, 1985–2014. (A) Proportion of people in solitary confinement. (B) Proportion of people in solitary confinement by race and ethnicity.

Discussion

Using administrative records with details on prison confinement, we show that the introduction of a new high-security prison led to a sharp increase in the proportion of people held in solitary confinement. This increase was accompanied by widening disparities in

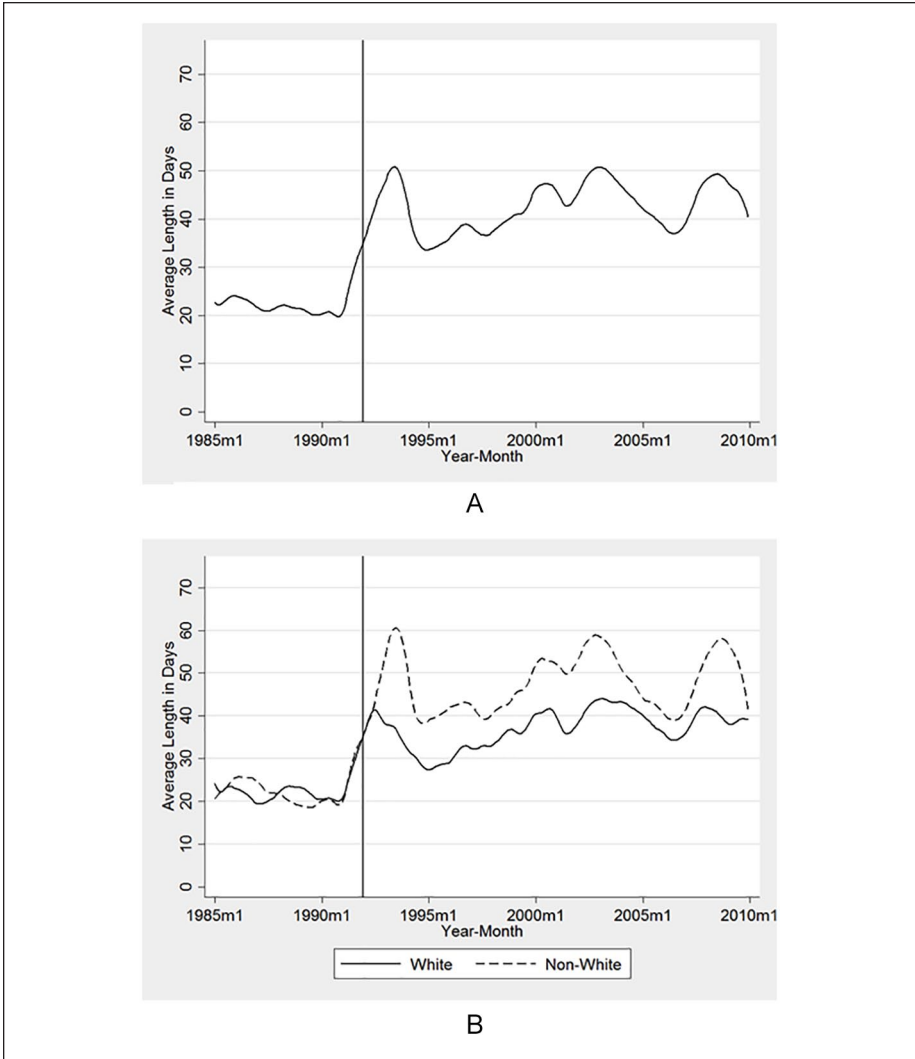


Figure 12. LOWESS (bandwidth = 0.1) of average length of stay (days) in solitary confinement in Kansas state prisons, 1985–2009. (A) Average length of stay in solitary confinement. (B) Average length of stay in solitary confinement by race.
 Note. LOWESS = Locally Weighted Scatterplot Smoothing.

exposure to solitary confinement by race and age, and a doubling of average stays in solitary confinement from 21 to 42 days for all incarcerated people—increasing dramatically to an average of 60 days for Black young adults. We observe a tremendous increase in the number of those who stay in solitary confinement for longer than 2 years (from 16 to more than 230 people), and a near quadrupling of the number of people released to the community within 1 day of solitary confinement, about 130 people annually. Our

decomposition analysis shows that the higher proportion of people held in segregation is almost entirely explained by longer average stays in isolation rather than an increased rate at which people were sent to solitary confinement. Our analysis of Kansas shows solitary confinement became a normal event in the experience of punishment. More than two fifths of all incarcerated people and nearly half of incarcerated non-Hispanic Blacks spent time in solitary confinement during their prison term in the five years after the system expanded its capacity for high custody housing.

The findings presented in this article could usefully inform criminal justice policy. First, we find solitary confinement is a highly common part of the experience of imprisonment in Kansas, particularly after prison expansion. We find that the type of confinement most associated with discretion and long-term isolation (administrative custody) rises in this context of expanded prison capacity. During the 1980s and early 1990s, many high-security prisons such as El Dorado were introduced into prison systems across the country and increased capacity for solitary confinement. With loosened capacity constraints, prison administrators have wide discretion to enact and follow policies pertaining to prison confinement. In this article, we show that an increase of long-term isolation followed the loosening of Kansas' capacity constraint. Given these findings, we recommend that states review the discretion granted in the use of solitary confinement and place more stringent limitations on the administrative reasons allowed for placing individuals in solitary confinement. In addition, longitudinal monitoring of such practices should be developed. For example, a national monitoring system that reports confinement practices such as rates and length of stay in high levels of custody by racial and ethnic subgroups, mental health status, and age would shed light on this largely hidden use of solitary confinement. Such a system would bring more transparency to the practices affecting incarcerated people, and could better inform lawmakers about how solitary confinement is used as more than a tool for managing episodes of serious violence in prison, but for a broad range of misconducts, threats and investigations, and administrative issues for which there are no other policy levers.

Second, our analysis of solitary confinement is a window into increasingly harsh conditions in the U.S. prison system that defy international standards and human rights principles. Conditions associated with long-term isolation have been found by U.S. courts, the United Nations, and prisoner advocates to be an infringement of constitutional and human rights (American Civil Liberties Union of New York, 2014; Haney, 2018; Human Rights Watch, 2012; United Nations Human Rights Council, 2011). In accordance with the 2014 report of the National Research Council committee on high incarceration rates in the United States, we recommend that courts and lawmakers take a more active role in monitoring and creating policies that limit the use of solitary confinement in U.S. prisons and jails, with an emphasis on providing specific criteria for placement, limits on length of stay, and meaningful review for those confined (Travis et al., 2014, Chapter 6).

Third, we demonstrate significant racial inequalities in prison confinement experiences in Kansas, which are unaccounted for in current national data collections and prior research. Static measures of the disparity in the rate at which different racial and ethnic groups are held in solitary confinement mask significant disparities with respect

to the length of time spent in isolation. Self-reports have pointed to this (U.S. Bureau of Justice Statistics, 2015; National Institute of Justice, 2016), but because we directly observe prison practices, we offer new evidence of racial disparities in the length of time spent in solitary confinement during a prison term. Future research and policy could usefully build databases such as the one we use to demonstrate how harsh conditions are most commonly experienced by vulnerable groups, an often-unmeasured way that racial disadvantage accumulates throughout the criminal justice process. Following Mears (2017), we envision a dashboard-style data reporting system in which a central data-gathering effort receives and reports updates from prisons, integrating all forms of data from policies, practices, and programs. Such a monitoring system could consider a variety of metrics relating to safety and human dignity, tracking metrics such as misconduct tickets, confinement hearing decisions, length of stay, violence, health and wellness, among other indicators.

Limitations of the current study warrant further data collection and additional research. The practice of solitary confinement may significantly vary by states and jurisdictions, but a national portrait of solitary confinement is beyond the scope of this article. The current study in one state jurisdiction invites analysis in other states, regions, jails, and the federal prison system, as well as international comparisons, particularly with data across time. A second limitation of the current study is that the analysis is strictly descriptive, and potential confounders such as unobserved differences in misconduct and violence could partially explain the observed growth in solitary confinement. However, misconduct tickets may not solely reflect behavioral differences among racial and ethnic groups. Additional data beyond the scope of administrative records would need to be collected to fully capture the behaviors that potentially lead to solitary confinement. The descriptive nature of the analysis creates obstacles for causal inference, and future studies could usefully examine overtime the relationship between prison misconduct and confinement practices.

Our study describes a parallel between solitary confinement and the broader criminal justice system. The dramatic growth in incarceration, highly stratified by race, during the past four decades was associated with longer prison terms in a variety of offense categories due to new punitive sentencing policies (Travis et al., 2014). Similarly, we find that the increase in the use of solitary confinement is driven by large increases in the length of stay in solitary confinement, which were concentrated among Black young adults. This increase was largely due to an expansion of the more discretionary administrative segregation rather than disciplinary segregation. Like the broader criminal justice system, where most research and reform has focused, an increase in discretion has implications for understanding who is most affected by solitary confinement.³ Yet, solitary confinement as an institution has received far less empirical attention than the expansive criminal justice system surrounding it, possibly due to, as Reiter (2016) points out, the opacity of the “prison within the prison” to researchers and policy makers. Our study provides a window, shedding light on the contemporary conditions and experiences of imprisonment from the mid-1980s to the present day, that may further explain persistent social inequality related to criminal justice contact. To understand the dynamics of punishment that drove mass incarceration, future research should aim to understand the political and legal decisions

producing discretion with respect to solitary confinement, and the administrative decisions and processes that underlie the experience of punishment.

Appendix A

This appendix includes three frequency tables detailing the reasons why individuals were sent to solitary confinement during the study period: Table A1 shows the reasons for an individual's move to solitary confinement during the entire study period (1987–1996); Table A2 covers the pre–capacity expansion period (1987–1991); and Table A3 covers the post–capacity expansion period (1992–1996). Each table reports the total number of days in solitary confinement for all incarcerated people associated with the specified reason for movement to solitary confinement and the percentage that the specified reason makes up of all days for the given time period and type of confinement. The reasons for movement to solitary confinement are drawn from the KDOC cell assignment data.

Table A1. Reason for Move to Solitary Confinement (1987–1996).

Reason	Administrative		Disciplinary		Total	
	Number of days	%	Number of days	%	Number of days	%
Other security risk	367,540	45.1	0	0	367,540	35.6
Disciplinary infraction	0	0	217,594	99.6	217,594	21.1
Prehearing detention	215,929	26.5	0	0	215,929	20.9
Protection from other inmates	68,958	8.5	0	0	68,958	6.7
Pending investigation	41,668	5.1	0	0	41,668	4
Consistent bad behavior	29,565	3.6	0	0	29,565	2.9
Mental health, threat to self/others	29,531	3.6	0	0	29,531	2.9
Emergency situation, violent behavior	16,384	2	0	0	16,384	1.6
Extreme risk of escape	13,366	1.6	0	0	13,366	1.3
Special security	10,801	1.3	0	0	10,801	1
Facilitate recommended program	9,563	1.2	314	0.1	9,877	1
Communicable disease	3,950	0.5	0	0	3,950	0.4
Local detention—security housing	1,518	0.2	0	0	1,518	0.1
Disciplinary adj. unsatisfactory	1,029	0.1	427	0.2	1,456	0.1
Segregation, other	1,104	0.1	0	0	1,104	0.1
Transfer after postsentence evaluation	1,029	0.1	55	0	1,084	0.1
Special security transfer	979	0.1	36	0	1,015	0.1
Treatment medical problem	592	0.1	0	0	592	0.1
Suicidal tendencies	266	0	0	0	266	0
Work program	200	0	0	0	200	0
Treatment psychological problem	196	0	0	0	196	0
Temporary holdover	184	0	0	0	184	0
Self-mutilation/injury	161	0	0	0	161	0
Institutional postsentence evaluation	50	0	4	0	54	0
Guidelines admission	9	0	0	0	9	0
Administrative hold	5	0	0	0	5	0
Admission	2	0	1	0	3	0
Total	814,579	100	218,431	100	1,033,010	100

Table A2. Reason for Move to Solitary Confinement—Preexpansion (1987–1991).

Reason	Administrative		Disciplinary		Total	
	Number of days	%	Number of days	%	Number of days	%
Prehearing detention	148,346	67	0	0	148,346	52
Disciplinary infraction	0	0	63,754	99.5	63,754	22.3
Other security risk	18,951	8.6	0	0	18,951	6.6
Mental health, threat to self/others	15,462	7	0	0	15,462	5.4
Protection from other inmates	14,055	6.4	0	0	14,055	4.9
Emergency situation, violent behavior	13,481	6.1	0	0	13,481	4.7
Pending investigation	4,036	1.8	0	0	4,036	1.4
Local detention—security housing	1,252	0.6	0	0	1,252	0.4
Disciplinary adj. unsatisfactory	712	0.3	270	0.4	982	0.3
Facilitate recommended program	848	0.4	17	0	865	0.3
Special security transfer	686	0.3	0	0	686	0.2
Segregation, other	659	0.3	0	0	659	0.2
Consistent bad behavior	643	0.3	0	0	643	0.2
Treatment medical problem	578	0.3	0	0	578	0.2
Extreme risk of escape	535	0.2	0	0	535	0.2
Transfer after postsentence evaluation	418	0.2	0	0	418	0.1
Special security	340	0.2	0	0	340	0.1
Suicidal tendencies	143	0.1	0	0	143	0.1
Temporary holdover	60	0	0	0	60	0
Institutional postsentence evaluation	49	0	4	0	53	0
Communicable disease	29	0	0	0	29	0
Self-mutilation/injury	25	0	0	0	25	0
Total	221,308	100	64,045	100	285,353	100

Table A3. Reason for Move to Solitary Confinement—Postexpansion (1992–1996).

Reason	Administrative		Disciplinary		Total	
	Number of days	%	Number of days	%	Number of days	%
Other security risk	348,589	58.8	0	0	348,589	46.6
Disciplinary infraction	0	0	153,840	99.6	153,840	20.6
Prehearing detention	67,583	11.4	0	0	67,583	9
Protection from other inmates	54,903	9.3	0	0	54,903	7.3
Pending investigation	37,632	6.3	0	0	37,632	5
Consistent bad behavior	28,922	4.9	0	0	28,922	3.9
Mental health, threat to self/others	14,069	2.4	0	0	14,069	1.9
Extreme risk of escape	12,831	2.2	0	0	12,831	1.7
Special security	10,461	1.8	0	0	10,461	1.4
Facilitate recommended program	8,715	1.5	297	0.2	9,012	1.2
Communicable disease	3,921	0.7	0	0	3,921	0.5
Emergency situation, violent behavior	2,903	0.5	0	0	2,903	0.4
Transfer after postsentence evaluation	611	0.1	55	0	666	0.1
Disciplinary adj. unsatisfactory	317	0.1	157	0.1	474	0.1

(continued)

Table A3. (continued)

Reason	Administrative		Disciplinary		Total	
	Number of days	%	Number of days	%	Number of days	%
Segregation, other	445	0.1	0	0	445	0.1
Special security transfer	293	0	36	0	329	0
Local detention—security housing	266	0	0	0	266	0
Work program	200	0	0	0	200	0
Treatment psychological problem	196	0	0	0	196	0
Self-mutilation/injury	136	0	0	0	136	0
Temporary holdover	124	0	0	0	124	0
Suicidal tendencies	123	0	0	0	123	0
Treatment medical problem	14	0	0	0	14	0
Guidelines admission	9	0	0	0	9	0
Administrative hold	5	0	0	0	5	0
Admission	2	0	1	0	3	0
Institutional postsentence evaluation	1	0	0	0	1	0
Total	593,271	100	154,386	100	747,657	100

Appendix B

On May 22, 1993, a correctional officer was killed by a group of incarcerated people in the Lansing Correctional Facility, the oldest prison in the Kansas system. Twelve people were charged with first-degree murder and aggravated battery against a law enforcement officer (*Kansas v. Mathenia*, 1997). Immediately following this incident, there was a spike in the use of and length of time in solitary confinement across the entire Kansas prison system. We study this event in the context of the broader increase in the use of solitary confinement in Kansas during the prison boom and show that, although this spike contributed to the increase in the use of solitary confinement, it was only a small portion of the overall growth.

In Figure B1, we divide our sample into those individuals who spent any amount of time in the Lansing Correctional Facility in the month leading up to the incident (April 23, 1993, through May 22, 1993) and the rest of the Kansas prison population. We see that there is a spike in the number of individuals committed to solitary confinement immediately after the May 1993 incident. This increase in solitary confinement, however, is present both among individuals who had spent time in Lansing in the month leading up to the incident and those who had not spent any time in Lansing in the month leading up to the incident. This suggests that the spike in the use of solitary confinement following the incident was not confined to only those individuals who were potentially involved in the incident. Furthermore, we see that the number of monthly commitments to solitary confinement continues to increase in the months following the incident among those individuals who did not spend time in Lansing.

Table B1 shows the average number of days per stay in solitary confinement before and after the opening of El Dorado. The third column of the table shows the

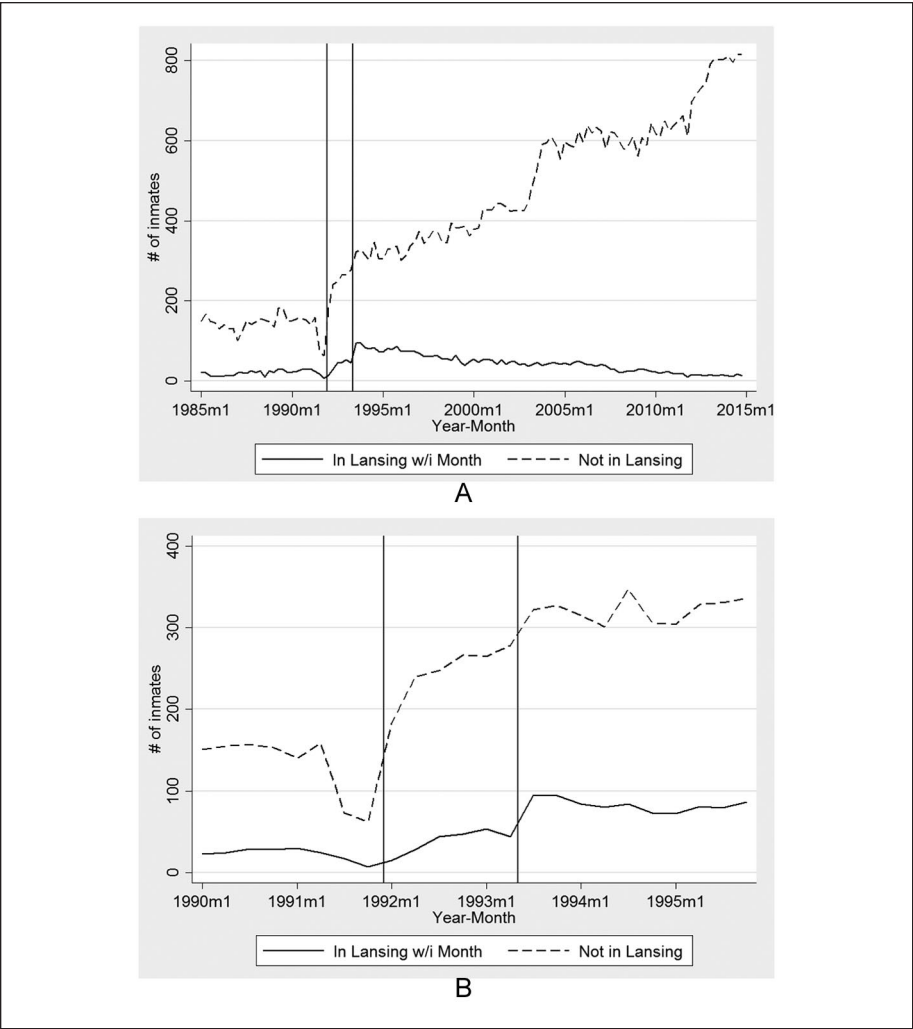


Figure B1. The number of commitments to solitary confinement by month in Kansas state prisons split into those who were in custody in Lansing (the facility where the officer death occurred) at least 1 day between April 23, 1993, and May 22, 1993, inclusive. (A) Number of commitments to solitary confinement (1985–2014). (B) Number of commitments to solitary confinement (1990–1996).
Note. The first vertical line in each figure indicates the month when El Dorado Correctional Institution opened and the second vertical line is placed at May 1993.

average number of days per stay in solitary confinement excluding the commitments to solitary confinement surrounding the correctional officer death. If the period surrounding this incident was particularly turbulent, we may expect to see longer lengths of stay in solitary confinement during this period. Indeed, we find that the

Table B1. Average Number of Days in Solitary Confinement.

	Time period		
	1987–1991	1992–1996	1992–1996 (excluding period around officer death)
All	20.67	41.65	37.56
Non-Hispanic White	20.89	34.49	34.24
Hispanic	17.23	36.33	38.05
Non-Hispanic Black	20.55	49.24	40.18
Below 22	17.58	46.85	39.83
Non-Hispanic Black young adult	17.7	60.01	48.03

Note. The column labeled “1987–1991” shows the average number of days per stay in solitary confinement for all solitary stays between 1987 and 1991 for the indicated demographic group. The column labeled “1992–1996” shows the average number of days per stay in solitary confinement for all solitary stays between 1992 and 1996 for the indicated demographic group. The column labeled “1992–1996 (excluding period around officer death)” shows the average number of days per stay in solitary confinement for all solitary stays between 1992 and 1996 excluding solitary stays beginning between November 22, 1992, and November 21, 1993, for the indicated group.

average length of stay was longer during the period surrounding the correctional officer death; however, even after excluding the commitments to solitary confinement during this period, there is still a substantial increase in the average length of stay after the opening of El Dorado. Furthermore, we find that the increase in the length of solitary confinement during the period surrounding the incident was concentrated among young and Black individuals. Therefore, the Kansas prison system’s response to this incident, to the extent that it resulted in harsher conditions of confinement, was concentrated among those particular groups. This is consistent with existing literature showing the use of discretion in criminal justice settings particularly affects minority individuals (Albonetti, 1991; Bushway & Piehl, 2001; Rehavi & Starr, 2014; Yang, 2015).

Acknowledgments

We would like to thank Lawrence Katz, Claudia Goldin, Roland Fryer, Bruce Western, Judith Resnik, Ana Villarreal, Braxton Jones, Jennifer Page, the anonymous reviewers, and members of the Justice and Inequality Reading Group for thoughtful comments and suggestions. We thank Thomas Barrios for his contributions in obtaining the data and early analyses. We also gratefully acknowledge the Kansas Department of Corrections and John M. Eason for providing data used in this analysis.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by a Harvard Warburg Research Grant.

ORCID iD

Jessica T. Simes  <https://orcid.org/0000-0002-1083-600X>

Notes

1. Only 12 prisoners were charged as a result of the incident (*Kansas v. Mathenia*, 1997).
2. The proportion of people convicted of a violent offense who spent at least 1 day in solitary confinement is about 20 percentage points higher than the rate for other offenses.
3. Researchers have thoroughly examined the implications of discretion in other areas of the criminal justice system. For example, given greater influence over sentencing with the rise of mandatory minimums, prosecutors' charging patterns have been shown to increase racial disparities (Rehavi & Starr, 2014), and the discretion gained by the elimination of mandatory federal sentencing guidelines led to greater racial disparities in sentences imposed by judges (Yang, 2015).

References

- Albonetti, C. A. (1991). An integration of theories to explain judicial discretion. *Social Problems*, 38(2), 247–266. <https://doi.org/10.2307/800532>
- Alexander, M. (2010). *The new Jim Crow: Mass incarceration in the age of colorblindness*. The New Press.
- American Civil Liberties Union of New York. (2014). *The dangerous overuse of solitary confinement in the United States*.
- Arrigo, B. A., & Jennifer, L. B. (2008). The psychological effects of solitary confinement on prisoners in supermax units: Reviewing what we know and recommending what should change. *International Journal of Offender Therapy and Comparative Criminology*, 526(6), 622–640. <https://doi.org/10.1177%2F0306624X07309720>
- Arthur Liman Public Interest Program & Association of State Correctional Administrators. (2015). *Time-in-cell: The ASCA-Liman 2014 National Survey of Administrative Segregation in Prison*. Yale University.
- Arthur Liman Public Interest Program & Association of State Correctional Administrators. (2016). *Aiming to reduce time-in-cell: Reports from correctional systems on the number of prisoners in restrictive housing and on the potential of policy changes to bring about reforms*. Yale University.
- Barker, V. (2009). *The politics of imprisonment: How the democratic process shapes the way Americans punish*. Oxford University Press.
- Berger, D., & Losier, T. (2018). *Rethinking the American prison movement*. Routledge.
- Bissonette, J. (2008). *When the prisoners ran Walpole: A true story in the movement for prison abolition*. South End Press.
- Blumstein, A., & Beck, A. J. (1999). Population growth in U.S. prisons, 1980–1996. *Crime and Justice*, 26, 17–61. <https://doi.org/10.1086/449294>
- Bonta, J., & Gendreau, P. (1990). Reexamining the cruel and unusual punishment of prison life. *Law and Human Behavior*, 14(4), 347–372.

- Bushway, S. D., & Piehl, A. M. (2001). Judging judicial discretion: Legal factors and racial discrimination in sentencing. *Law & Society Review*, 35(4), 733–7764. <https://doi.org/10.2307/3185415>
- Carson, E. A., & Mulako-Wangota, J. (2015). *Imprisonment rates of total jurisdiction population* (Prepared for U.S. Bureau of Justice Statistics Corrections Statistical Analysis Tool). U.S. Department of Justice.
- Chen, M. K., & Shapiro, J. M. (2007). Do harsher prison conditions reduce recidivism? A discontinuity-based approach. *American Law and Economics Review*, 9(1), 1–29. <https://doi.org/10.1093/aler/ahm006>
- Dolovich, S. (2009). Cruelty, prison conditions, and the eighth amendment. *New York University Law Review*, 84(4), 881–979.
- Eason, J. M. (2016). Reclaiming the prison boom: Considering prison proliferation in the era of mass imprisonment. *Sociology Compass*, 10(4), 261–271. <https://doi.org/10.1111/soc4.12357>.
- Eason, J. M. (2017). *Big house on the prairie: Rise of the rural ghetto and prison proliferation*. The University of Chicago Press.
- Eason, J. M. (2018). *Prison proliferation project*. John M. Eason. <http://www.johneason.com/prison-proliferation/>
- Gaes, G. G., & Camp, S. D. (2009). Unintended consequences: Experimental evidence for the criminogenic effect of prison security level placement on post-release recidivism. *Journal of Experimental Criminology*, 5(2), 139–162. <https://doi.org/10.1007/s11292-009-9070-z>
- Gilmore, R. W. (2007). *Golden gulag: Prisons, surplus, crisis, and opposition in globalizing California*. University of California Press.
- Grassian, S. (1983). Psychopathological effects of solitary confinement. *American Journal of Psychiatry*, 140(11), 1450–1454. <https://doi.org/10.1176/ajp.140.11.1450>
- Grassian, S. (2006). Psychiatric effects of solitary confinement. *Washington University Journal of Law & Policy*, 22, 325–384. https://openscholarship.wustl.edu/law_journal_law_policy/vol22/iss1/24
- Guenther, L. (2013). *Solitary confinement: Social death and its afterlives*. University of Minnesota Press.
- Haney, C. (2003). Mental health issues in long-term solitary and “supermax” confinement. *Crime & Delinquency*, 49(1), 124–156. <https://doi.org/10.1177/0011128702239239>
- Haney, C. (2006). *Reforming punishment: Psychological limits to the pains of imprisonment*. American Psychological Association.
- Haney, C. (2018). Restricting the use of solitary confinement. *Annual Review of Criminology*, 1, 285–310.
- Human Rights Watch. (2012). *Look critically at widespread use of solitary confinement* (Written testimony submitted to the U.S. Senate Committee on the Judiciary, Subcommittee on the Constitution, Civil Rights, and Human Rights).
- Johnson, S. B., Blum, R. W., & Giedd, G. N. (2009). Adolescent maturity and the brain: The promise and pitfalls of neuroscience research in adolescent health policy. *Journal of Adolescent Health*, 45(3), 216–221. <https://doi.org/10.1016/j.jadohealth.2009.05.016>
- Johnson v. California, 543 U.S. 499 (2005).
- Kaba, F., Lewis, A., Glowa-Kollisch, S., Hadler, J., Lee, D., Alper, H., . . . Venters, H. (2014). Solitary confinement and risk of self-harm among jail inmates. *American Journal of Public Health*, 104(3), 442–447. <https://doi.org/10.2105/AJPH.2013.301742>
- Kansas Department of Corrections. (2011). *Segregation: Purpose of administrative segregation & appropriate placements* (Internal Management Policy and Procedure No. 20-104).
- Kansas Department of Corrections. (2019). *Fiscal year 2018 annual review*.
- Kansas v. Mathenia, 262 Kan. 890, 892 (1997).

- Konrad, K., Firk, C., & Uhlhaas, P. J. (2013). Brain development during adolescence: Neuroscientific insights into this developmental period. *Deutsches Arzteblatt International*, 110(25), 425–431. <https://doi.org/10.3238/arztebl.2013.0425>
- Kupers, T. A. (2017). *Solitary: The inside story of supermax isolation and how we can abolish it*. University of California Press.
- Kurki, L., & Morris, N. (2001). The purposes, practices, and problems of supermax prisons. *Crime and Justice*, 28, 385–424.
- Lobel, J. (2008). Prolonged solitary confinement and the constitution. *University of Pennsylvania Journal of Constitutional Law*, 11(1), 115–138.
- Lynch, M. (2009). *Sunbelt justice: Arizona and the transformation of American punishment*. Stanford University Press.
- McLennan, R. M. (2008). *The crisis of imprisonment: Protest, politics, and the making of the American penal state, 1776–1941*. Cambridge University Press.
- Mears, D. P. (2017). *Out of control criminal justice: The systems improvement solution for more safety, justice, accountability, and efficiency*. Cambridge University Press.
- Mears, D. P., & Castro, J. L. (2006). Wardens' views on the wisdom of supermax prisons. *Crime & Delinquency*, 52(3), 396–431.
- National Institute of Justice. (2016). *Restrictive housing in the U.S.: Issues, challenges, and future directions* (Publication No. NCJ 250315). U.S. Department of Justice.
- Neal, D., & Rick, A. (2014, July). *The prison boom and the lack of black progress after Smith and Welch* (National Bureau of Economic Research, Working Paper Series Paper No. 20283). National Bureau of Economic Research.
- O'Keefe, M. L., Klebe, K. J., Metzner, J., Dvoskin, J., Fellner, J., & Stucker, A. (2013). One year longitudinal study of the psychological effects of administrative segregation. *Journal of the American Academy of Psychiatry and the Law*, 41(1), 49–60.
- Page, J. (2011). *The toughest beat: Politics, punishment, and the prison officers union in California*. Oxford University Press.
- Raemisch, R. (2017, October 13). Why we ended long-term solitary confinement in Colorado. *The New York Times*. <https://www.nytimes.com/2017/10/12/opinion/solitary-confinement-colorado-prison.html>
- Raphael, S., & Stoll, M. A. (2013). *Why are so many Americans in prison?* Russell Sage Foundation.
- Rehavi, M. M., & Starr, S. B. (2014). Racial disparity in federal criminal sentences. *Journal of Political Economy*, 122(6), 1320–1354. <https://repository.law.umich.edu/articles/1414/>
- Reiter, K. (2012). The most restrictive alternative: A litigation history of solitary confinement in U.S. prisons, 1960–2006. *Studies in Law, Politics, and Society*, 57, 71–124.
- Reiter, K. (2015). Supermax administration and the eighth amendment: Deference, discretion, and double bunking, 1968–2010. *University of California Irvine Law Review*, 89(5), 89–152.
- Reiter, K. (2016). *23/7: Pelican bay prison and the rise of long-term solitary confinement*. Yale University Press.
- Resnik, J. (2010). Detention, the war on terror, and the federal courts. *Columbia Law Review*, 110, 579–685.
- Rhodes, L. A. (2004). *Total confinement: Madness and reason in the maximum security prison*. University of California Press.
- Rich, W. J. (2001). Prison conditions and criminal sentencing in Kansas: A public policy dialogue. *Kansas Journal of Law & Public Policy*, 11(3), 693–721. <https://heinonline-org.ezproxy.bu.edu/HOL/P?h=hein.journals/kjpp11&i=701>

- Riveland, C. (1999). *Supermax prisons: Overview and general considerations*. U.S. Department of Justice.
- Rubin, A. T. (2018). Professionalizing prison: Primitive professionalization and the administrative defense of eastern state penitentiary, 1829–1879. *Law & Social Inquiry: Journal of the American Bar Foundation*, 43(1), 182–211.
- Rudes, D. S. (2012). Framing organizational reform: Misalignments and disputes among parole and union middle managers. *Law & Policy*, 34(1), 1–31.
- Schlanger, M. (2013). Prison segregation: Symposium introduction and preliminary data on racial disparities. *Michigan Journal of Race & Law*, 18(2), 241–250.
- Schoenfeld, H. (2010). Mass incarceration and the paradox of prison conditions litigation. *Law & Society Review*, 44(3/4), 731–768. <http://www.jstor.org/stable/40926316>
- Schoenfeld, H. (2018). *Building the prison state: Race and the politics of mass incarceration*. The University of Chicago Press.
- Shalev, S. (2009). *Supermax: Controlling risk through solitary confinement*. Willan.
- Travis, J., Western, B., & Redburn, S. (Eds.). (2014). *The growth of incarceration in the United States: Exploring causes and consequences*. National Academies Press.
- Turner v. Safley, 482 U.S. 78 (1987).
- United Nations Human Rights Council. (2011). *Interim report of the special rapporteur on torture and other cruel, inhuman or degrading treatment or punishment* (66th sess. Agenda item No. 69(b)). United Nations General Assembly.
- U.S. Bureau of Justice Statistics. (2015). *Use of restrictive housing in U.S. prisons and jails, 2011-12* (BJS Report No. NCJ 249209). U.S. Department of Justice.
- Walters, G. D. (2018). Checking the math: Do restrictive housing and mental health need add up to psychological deterioration? *Criminal Justice and Behavior*, 45(9), 1347–1362.
- Western, B. (2006). *Punishment and inequality in America*. Russell Sage Foundation.
- Yang, C. S. (2015). Free at last? Judicial discretion and racial disparities in federal sentencing. *The Journal of Legal Studies*, 44(1), 75–111. <https://doi.org/10.1086/680989>
- Zinger, I., Wichmann, C., & Andrews, D. A. (2001). Psychological effects of 60 days in administrative segregation. *Canadian Journal of Criminology*, 43(1), 47–83. <https://www.ncjrs.gov/App/publications/abstract.aspx?ID=187145>

Author Biographies

Ryan T. Sakoda is a lecturer in Law and Bigelow Teaching Fellow at the University of Chicago Law School. He holds a J.D. from Yale Law School, a PhD in economics from Harvard University, and formerly practiced law as a public defender in Boston, MA. His research focuses on empirical studies of criminal justice policy.

Jessica T. Simes is an assistant professor of Sociology at Boston University. Current projects examine the spatial context of mass incarceration, racial and mental health disparities in solitary confinement, and a field study of restrictive housing. Her work has appeared in the *Journal of Quantitative Criminology*, *Social Science & Medicine*, and the *Journal of Urban Affairs*.