PSJ Policy Studies Journal

Policy Studies Journal, Vol. 0, No. 0, 2019

Examining the Influence of Representative Bureaucracy in Public and Private Prisons

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Representative bureaucracy theory suggests that demographic representation among street-level bureaucrats will improve outcomes for minority citizens receiving a given public service. Scholars of representation in public bureaucracies argue that the effect of bureaucrats' demographic profile on outcomes for minority citizens becomes particularly salient in contexts where bureaucrats exercise relatively high amounts of discretion. Empirical evidence has documented this relationship in education, policing, and a variety of public programs. We extend this literature to the context of prisons, where street-level corrections staff exercise considerable discretion over inmates' daily lives. Using prison violence and disciplinary actions to proxy for the potential effects of a representative staff on the experiences of prison inmates, we find that prisons with greater representation have fewer assaults and exercise fewer disciplinary actions. We offer evidence that the positive effects of demographic representation may not hold in privately managed prisons. We speculate that differential organizational socialization and managerial incentives may help to explain this result.

KEY WORDS: representative bureaucracy theory, private prisons, government performance

代表性官僚理论认为，街头官僚的人口代表性将为接受指定公共服务的少数民族公民改善结果。研究公共官僚中人口代表性的学者主张，在官僚人员拥有相对较高的自行决定权的情况下，官僚人员的人口统计概况对少数民族公民结果产生的作用尤为突出。实证证据已在教育、监管和一系列公共计划中证明了这一关系。作者将该文献应用到监狱背景，在该背景下，实行街头矫正的工作人员对囚犯的每日生活拥有相当大的决定权。通过将监狱暴力和纪律处分作为典型工作人员对监狱囚犯经历产生的潜在作用指标，作者发现，代表性更突出的监狱出现侵犯事件的情况更少，同时纪律处分也更少。作者证明，人口代表性的积极影响可能不适用于受私人管理的监狱。作者推测，差异化的组织社会化和管理激励可能有助于解释这一结果。

关键词: 代表性官僚理论, 私人监狱, 政府绩效

La teoría de la burocracia representativa sugiere que la representación demográfica entre los burócratas a nivel de calle mejorará los resultados para los ciudadanos minoritarios que reciben un servicio público determinado. Los académicos que estudian la representación en las burocracias públicas argumentan que el efecto del perfil demográfico de los burócratas en los resultados para los ciudadanos minoritarios se vuelve particularmente relevante en contextos donde los burócratas ejercen una discreción relativamente alta. La evidencia empírica ha

doi: 10.1111/psj.12367

documentado esta relación en la educación, vigilancia y una variedad de programas públicos. Extendemos esta literatura al contexto de las cárceles, donde el personal de correcciones a nivel de calle ejerce una considerable discreción sobre la vida cotidiana de los reclusos. Al utilizar la violencia en la prisión y las acciones disciplinarias para identificar los posibles efectos de un personal representativo sobre las experiencias de los reclusos, encontramos que las prisiones con mayor representación tienen menos agresiones y ejercen menos acciones disciplinarias. Ofrecemos evidencia de que los efectos positivos de la representación demográfica pueden no aplicar a las cárceles privadas. Especulamos que la socialización organizacional diferencial y los incentivos gerenciales pueden ayudar a explicar este resultado.

PALABRAS CLAVE: teoría representativa de la burocracia, prisiones privadas, desempeño del gobierno

1. Introduction

Representative bureaucracy is a central concept within the study and practice of public policy and administration in the American democratic system (Cayer & Sigelman, 1980; Grabosky & Rosenbloom, 1975; Grissom, Kern, & Rodriguez, 2015; Kellough, 1990; Meier, 1975; Nachmias & Rosenbloom, 1973; Riccucci, 1987; Wilkins, 2007; Wilkins & Williams, 2008). Representative bureaucracy theory argues that when a public workforce represents—or reflects—its clients in term of race, ethnicity, and gender, democracy may be enhanced. First, symbolic effects of a representative bureaucracy may improve the perceived legitimacy of bureaucratic decisions in the eyes of public agency clients and the public (Krislov, 1974). Second, the concept of passive representation implies that when a bureaucracy is representative—when its demographic and socioeconomic makeup reflects the public at large—public employees will be more likely to share and consider the interests of citizens in demographic subgroups (gender, religion, race/ethnicity, etc.) with whom they identify (Bradbury & Kellough, 2010; Krislov, 1974; Meier, 1975; Mosher, 1968; Selden, 1997).

Mosher (1968) argued that when public organizations employ a passively representative staff, employees may engage in active representation by crafting and implementing public policies that reflect and serve a broader set of subgroups within the public. Empirical research has confirmed a link between increased passive representation in a public organization's workforce and improved policy-related outputs for represented subgroups in a variety of contexts (see Dolan & Rosenbloom, 2003; Grissom et al., 2015; Keiser, 2010, for reviews) including public education, social services, law enforcement, and others.

Our objective in this paper is to examine representative bureaucracy in the context of state prisons. We will assess, first, whether representative bureaucracy plays a role in inmates' prison environments, especially with regard to levels of violence in corrections facilities. Related to this question, we compare—across publicly and privately managed prisons—both the extent of staff representation and facility violence. Violence and related variables offer evidence of overall facility performance.

An important ancillary interest is whether and how the *impact* of representative bureaucracy might differ between public and private prisons: Do facilities with representatively matched staff and inmates perform differently than those without? Moreover, if a representation/performance effect exists, will it vary across management sectors?

Corrections policy has been heavily influenced by New Public Management (NPM) reforms that took hold in the late 1980s and early 1990s. Federal, state, and local governments are increasingly inclined to contract out core governmental functions, including corrections (Alonso & Andrews, 2016). NPM's market-based approach is meant to offer private sector efficiency by creating competition in public service delivery. Under NPM reforms, the nation's private prison population nearly doubled in the last 20 years. In 2014, seven states placed over 20 percent of their convicts in private facilities, and overall, 130,000 state inmates in 30 states were held in private facilities.

While several studies have compared elements of publicly and privately managed prisons, the role of representation in prison management is nascent, and to our knowledge, has not been examined across sectors. Examining the role of representative bureaucracy in prisons, and how it might differ between public and private settings, contributes to scholarship on corrections policy and administration as follows. First, representation may enhance constitutional protections of captive inmates by improving the quality of prison conditions as reflected in levels of violence. This is particularly salient because of the unique incarceration patterns in the United States.[1] Historic law enforcement discrimination patterns and disproportionately high percentages of minority inmates heighten the importance of representation among the staffs that confine these individuals. Second, using the lens of contracting and privatization adds the elements of government reforms and how their potential for enhanced public service quality might interact with representation. Comparing the impact of representative bureaucracy across different governance arrangements could offer insights into the relationship between two key public policy concepts: the democratic promise of representative bureaucracy and the potential for improved policy effectiveness offered by market-based management reforms.

The study proceeds as follows. First, we provide some background, then review research on representative bureaucracy and on corrections contracting, drawing on key elements to construct a conceptual framework that generates a set of testable hypotheses related to our questions. Next, we describe the data, methods, and analysis used for our inquiry. Our results suggest, first, that when compared to publicly managed prisons, privately managed prisons have less representative security staffs, and second, that representative staffs are associated with reduced prison violence. In addition, the interactive effects of representation and prison privatization suggest that the positive benefits of representation in mitigating violence may not hold in private corrections settings. Our discussion of these results includes speculation about why the benefits of representative bureaucracy may differ between public and private prisons.

2. The Contemporary Context of Prisons and Privatization Policy

For a notable portion of prisons in the United States, as for a broad range of public services, managerial values associated with New Public Management government reforms are increasingly influential in policy formulation. These reforms have driven substantial growth in reliance on private sector strategies in a quest to improve or maintain service quality and increase flexibility while reducing costs. For federal and state corrections policymakers confronted with growing convict populations and tight resources, contracting with private firms offers the potential to achieve these objectives. At the same time, a sizeable literature has addressed issues related to differences in public and private prison cultures and administrative infrastructures (Camp & Gaes, 2002; Camp, Gaes, Langan, & Saylor, 2003; Crewe, Liebling, & Hulley, 2011; Price, Carrizales, & Schwester, 2009); results on comparative performance, typically defined by levels of violence and/or disruption, are mixed (Alonso & Andrews, 2016; Perrone & Pratt, 2003). One perspective is that, consistent with managerial values such as efficiency, economy, and effectiveness (Rosenbloom, Kravchuk, & Clerkin, 2008), the "new penology" era (Feeley & Simon, 1992) has led to incarceration policies that focus on "effective control of selected risk groups and efficient system management," as opposed to earlier "traditional objectives of rehabilitation" (Cheliotis, 2006, pp. 313, 314), such as "normalizing offenders [and] . . . producing behavioral change . . . while also facilitating their gradual resettlement into the community" (Morris, 2002, pp. 195–97).

At its height in 2012, the private prison movement housed 9 percent of total (federal and state combined) prisoners in the United States (Bureau of Justice Statistics, 2014). One of the two largest private prison companies in the United States notes that it is "the fifth-largest corrections system in the nation, behind only the federal government and three states" (Porter, 2017). However, an August 2016 report by the Department of Justice's (DOJ) Office of Inspector General (OIG) concluded that "contract prisons had more safety- and security- incidents per capita than the comparable [Bureau of Prisons] BOP institutions" (U.S. Department of Justice Office of the Inspector General, 2016, p. 14). On August 18th, Sally Q. Yates, then DOJ Deputy Attorney General, announced that the federal government would phase out private prison contracts, citing the OIG report. The Trump administration quickly reversed that decision in early 2017.

Against this backdrop, we examine prison management policy and prison environments as they relate to representative corrections staff. We operate from the premise that when prisons are either owned or managed by private sector organizations, they operate with distinct value frameworks that must reconcile both constitutional values implicit in public services, with profit values that motivate private organizations. These value sets may be reconcilable through formal contracts, but other pathways also facilitate private conformity with constitutional and other public values. One potential pathway is a representative bureaucracy theory. Extended to corrections facilities, the representative bureaucracy concept suggests that when facility staff is demographically similar to the inmate population, individual staff may better identify with, understand, and represent the interests of demographically similar

inmates as they carry out their duties, while inmates may be more responsive to the authority of demographically similar staff. Representative bureaucracy therefore offers the potential to moderate discrimination (while enhancing 14th Amendment adherence; see, for example, Meier & Nicholson-Crotty, 2006; Wilkins & Williams, 2008) and possibly, to mitigate violence/disruption and enhance safety and security in U.S. prisons.

2.1. Representative Bureaucracy and Prisons

Empirical research has confirmed a link between increased passive representation in a public organization's workforce and improved policy-related outputs for represented subgroups in a variety of contexts (see Dolan & Rosenbloom, 2003; Grissom et al., 2015; Keiser, 2010, for reviews). Scholars studying representative bureaucracy have also considered the factors that moderate the relationship between passive representation and outcomes for represented subgroups. Meier and Stewart (1992) note that one important factor is discretion over sanctions or rewards directly affecting issues salient among a particular subgroup. They conclude that the proportion of black teachers in a district correlates positively with the proportion of black students tracked into gifted programs, and negatively with the proportion of black students receiving suspensions (see also, Meier, 1993). Similar patterns have been documented with test scores and suspensions in Georgia (Pitts, 2005, 2007) and Texas (Roch, Pitts, & Navarro, 2010) and absenteeism and suspensions in North Carolina (Holt & Gershenson, 2017). Keiser, Wilkins, Meier, and Holland (2002) show that for mathematics, subject to historic gender achievement gaps, a larger number of female math teachers in a given school corresponds with an increase in female student math test scores.

Collectively, this research demonstrates that demographic representation can alter policy performance, outputs, and/or outcomes that affect the interests of a particular subgroup (Selden, 1997; Wilkins & Keiser, 2006). The strongest effects have been consistently observed among the lowest levels of decision makers (Andrews, Ashworth, & Meier, 2014; Pitts, 2007; Resh & Marvel, 2012; Roch et al., 2010), perhaps as a function of street-level bureaucrats' closer contact with affected citizens and their inherent policy discretion (Lipsky, 1980).

More recently, scholars have begun to specify how the symbolic effects of passive representation may shape the relationships among bureaucracies, the public, and public policy. Examining police forces, scholars have shown that higher proportions of female officers correspond with increased trust reported by the public (Riccucci, Van Ryzin, & Lavena, 2014), higher levels of reported sexual assault, and more sexual assault arrests (Meier & Nicholson-Crotty, 2006). Similarly, the presence of a same-race officer during an interaction with law enforcement increases the likelihood that citizens view sanctions as legitimate (Theobald & Haider-Markel, 2009; Wilkins & Williams, 2008, 2009). More generally, black citizens hold more positive views of public services in cities where blacks have more representation in city hall and on school boards (Marschall & Ruhil, 2007). Demographic match between

street-level bureaucrats and clients can affect both sanctioning decisions and clients' coproductive response, and otherwise shapes the bi-lateral relationship forged in these contacts (Holt & Gershenson, 2017).

Put simply, representative bureaucrats "use their discretion to reduce the disparate treatment minority clients have historically received from various public bureaucracies" (Wilkins & Williams, 2008). Criminal justice in the United States has historically meted out "disparate treatment" and there is evidence that it continues to do so. In the context of prisons, "shared values and beliefs" and their potential for increased empathy imply that inmates may be more inclined to satisfy staff that they judge as reasonable and reflective of their own belief systems (Jensen & Pedersen, 2017; Olson, 2016). If staff are better able to communicate with and motivate their demographically similar inmates, they may be positioned to help reduce or contain conflict that affects safety in corrections facilities.[2]

There is also evidence that management influence over organizational values and practices may override the typical expectations of representative bureaucracy. Among police officers, for example, Wilkins and Williams (2008) observed that racial profiling was not necessarily reduced by a representative force; they concluded that "pressure to conform to the organization or to achieve the goals of the organization weighs heavily on black officers and affects their attitudes and ultimately their behaviors" (pp. 660, 661) and presumably, their identification with demographically similar citizens. The potential for similar managerial manipulation of incentives—and consequent impacts on the benefits of representative bureaucracy—seems likely in corrections settings; managers can both support and undermine the positive effects of representation. Representation among higher-level staff has been demonstrated to affect policy outcomes for minority citizens, both directly, and also indirectly through its impact on motivating street-level staff, whether through demographic similarity to or support of representation among staff (Grissom & Keiser, 2011; Grissom, Nicholson-Crotty, & Keiser, 2012; Grissom, Rodriguez, & Kern, 2017; Meier & O'Toole, 2001).

In the context of corrections policy, where street-level bureaucrats hold a high degree of discretion over inmates, we should expect the central tenets of representative bureaucracy—bureaucratic-citizen connection discretion (Maynard-Moody & Musheno, 2003) to hold. Cheliotis (2006), writing about the "new penology," and invoking street-level bureaucratic theory (Lipsky, 1980), notes that the personal values of corrections staff influence the "perpetual negotiation between those placed in positions of dominance and those subordinated" (p. 323). These values, together with other features of inmates, correctional organizations, and their staffs, affect the attitudes of actors in corrections (Lerman & Page, 2015) and are therefore relevant to whether officer–inmate interactions facilitate inmate "quality of life" and positive behavior.

2.2. Prisons and Contracting

In the corrections policy arena, market-based reforms associated with the New Public Management movement's managerial values, typically manifest through

government contracts with private companies to operate and manage jails and prisons. Market incentives associated with private firms—maximizing profit and securing contract renewal—shape administrative practices that emphasize different values from those inherent in public corrections. Public choice theorists have long argued that publicly operated services are inefficient due to bureaucratic self-interest and the absence of competitive pressures for high-quality, cost-effective production (Downs, 1967; Niskanen, 1971). The competition envisioned by these theorists could emerge and improve policy objectives. However, the profit motive, particularly for "captive" population services, might decrease the effectiveness of corrections policies (Camp & Gaes, 2002, Camp et al., 2003) due to management objectives to retain more inmates with longer sentences (Ashton & Petteruti, 2011; Dippel & Poyker, 2018).

Private firms rightly seek to maximize returns to shareholders and do so through cost management in such areas as staff salaries, training, and perhaps amenities (Alonso & Andrews, 2016). In robustly competitive environments, private firms seek also to maximize service quality in order to retain contracts, thereby offering benefits from innovation and service improvement (Cabral, Lazzarini, & de Azevedo, 2010; Hart, 2003; Hart, Shleifer, & Vishny, 1997). If private prison firms do one but not the other—that is, if they reduce costs without improving service quality, then facility conditions may deteriorate (Hart et al., 1997). Government monitoring can mitigate this problem, but fully specified ("complete") contracts for complex public services can be difficult, and "incomplete" contracts leave space for firm discretion or at worst, opportunism (Williamson, 1999).

In fact, competition for corrections contracts is not robust (Girth, Hefetz, Johnston, & Warner, 2012). In the early 2000s, the two largest private prison companies held three-quarters of private prison contracts, and were often the only two bidders, consistent with Donahue's (1989) earlier prediction that state corrections contracting would not generate adequate competition.[3] These two companies tend to buy emerging firms in the business, more or less ensuring their continued dominance in the industry (Girth et al., 2012). In the absence of competition, which many analysts prescribe as a minimal threshold for successful contracting (Donahue, 1989; Pack, 1987), the economic benefits of contracting, including enhanced public service quality, may not materialize, in part because private managers face less pressure to economize.

At the same time, the rate of inmate growth in past decades—that is, government demand for corrections beds—has pushed state corrections mangers to find alternatives to public facilities. Rising demand for beds, combined with few bidders on private contracts, means that some states are subject to a "seller's market," with "too many inmates chasing too few beds," impeding government's capacity to hold contractors to account (Girth, 2014; Girth et al., 2012). Research indicates that political ideology also appears to play a role in legislative decisions on whether to outsource corrections facility management (Nicholson-Crotty, 2004), as does the racial composition of a state's population (Burkhardt, 2015). Hart et al. (1997) note that privatization decisions may be open to corruption, and evidence documents notable lobbying activities by private prison firms that aim to expand contracting opportunities (Price & Riccucci, 2005).[4]

Outsourcing public service delivery implies that management strategies are influenced by systematic differences in public and private sector economic, political, and organizational incentives. Managers face fundamentally different sector-based legal structures, external stakeholder imperatives, flexibility, and management options (Meier & O'Toole, 2012), and respond accordingly. The disparate goals and accountability demands on their organizations (e.g., answering to shareholders vs. citizens, boards of directors vs. legislatures, etc.) in fact require government effort to explicitly align goals through contract design and costly, complicated, and often underfunded performance monitoring (U.S. Department of Justice, Office of Inspector General, 2016). Contract administrators must, in effect, reconcile public policy motives with the profit motives fundamental to private corrections firms, recognizing that managerial objectives in contract firms could in fact thwart the public interest.

The extent to which private prison performance is affected by these sector and management considerations is open to question, and probably highly variable. As noted earlier, studies of private performance on dimensions of prison violence, cost-effectiveness, and others, generate mixed results (Alonso & Andrews, 2016; Camp & Gaes, 2002; Lukemeyer & McCorkle, 2006; Olson, 2016; Perrone & Pratt, 2003; U.S. Department of Justice, Office of Inspector General, 2016). One generally accepted performance measure has to do with whether facilities experience disruptions due to inmate violence or are systematically successful in mitigating disruptive "incidents" (Camp et al., 2003). Regardless of whether a corrections facility is public or private, the attitudes and behaviors of corrections staff are believed to be important determinants of prison culture and performance (Camp & Gaes, 2002; Camp et al., 2003; Crewe et al., 2011; Lerman & Page, 2015). These attitudes and behaviors may be shaped or constrained by management practices—driven by the ultimate policy objectives of their organizations—that systematically vary across sector.

2.3. A Proposed Framework for Examining Prisons, Representative Bureaucracy, Contracting, and Violence

There is comparatively little research on the effects of representative bureaucracy in correctional facilities. Jackson and Ammen (1996) found that "non-Caucasian officers will tend to possess the ability to demonstrate greater identification with inmates resulting from similar or common backgrounds and/or socialization experiences" (p. 154). Olsen (2016) concluded that minority and better-educated correctional workers express more support for rehabilitation policies and less support for punitive policies for dealing with crime than their white and less educated counterparts. Most importantly, prisons with higher proportions of minority correctional officers are less likely to punish inmates with solitary confinement and other comparatively harsh disciplinary actions (Olson, 2016; Wade-Olson, 2016).

These patterns are especially salient in states where the share of minority inmates is disproportionately high, relative both to population and other states' inmate populations. Price et al. (2009) find that states with higher proportions of Latinos, and to some extent, blacks, are more likely to privatize some correctional facilities. They test social control concepts (Myers, 1990), which postulate that as a state's minority

population grows, perceived threats drive increases in the toughness of sentences and the incarceration rate. Yates and Fording (2005) conclude that the influence of race on "state punitiveness," as measured by incarceration rates, is moderated by political conditions, including the strength of minority voting. State fiscal condition is a somewhat less predictable determinant of corrections policy, but more conservative states appear to be more likely to privatize corrections functions.

Publicly managed prisons, charged explicitly with protecting equality and preventing discrimination, might be more likely to build staffs that are demographically reflective of their inmate populations. In contrast, there is also evidence that because private prison officers are compensated at lower levels than their public counterparts, they might in fact be more reflective demographically of inmates. It appears that officer turnover is higher in private facilities (Camp & Gaes, 2002; see also Bauer, 2016), which would imply lower pay, and pay differentials might drive differences in levels of staff representation. Because of these dynamics, we expect that public and private facilities may differ in terms of staff representativeness but can isolate no dominant theoretical reason to suggest the direction of any observed difference. Accordingly, we offer the following hypothesis:

Hypothesis 1: Publicly and privately managed prisons will exhibit different levels of staff representativeness.

We also investigate the relationships among management sector, staff representation, and the number of inmates assigned to a work release program. Most states operate work release programs, primarily available only to low-risk inmates that are nearing their release date. Prisons retain some autonomy in determining whether to offer work release and how the programs are designed. Work release programs may facilitate prisoner reentry into the community and are therefore attractive to inmates (Berk, 2008; Turner & Petersilia, 1996; see also Bauer, 2016). Although still incarcerated, work release inmates have jobs in the community, earn regular wages, and are able to leave prison with fairly stable employment. In many cases, their wages are applied to their prison room/board bills, with the balance available for use in facility retail operations (canteens). These programs are judged as successful in reducing recidivism, though evidence is mixed (Berk, 2008). We view work release programs as a benefit to inmates that might be associated with a facility's propensity to hire a representative staff, and as a benefit that representative staffs may be more likely to support (Olson, 2016; Wade-Olson, 2016). The following hypotheses are suggested:

Hypothesis 2: The assignment of inmates to work release programs will differ between public and private prisons.

Hypothesis 3: More representative prisons staffs will correspond with more inmates assigned to work release programs.

Hypothesis 4: The impact of representation on work release assignment will differ between public and private prisons.

Beyond the assignment to beneficial programming, representation may also influence both the use of punitive measures and the broader safety and security climate of the prison. As noted previously, scholars of representation in public bureaucracies have found linkages between increased representation and punitive measures in schools (e.g., Holt & Gershenson, 2017; Pitts, 2007) and broader cooperation with staff (Holt & Gershenson, 2017; Riccucci et al., 2014). In the context of prisons, disciplinary citations are often used as a punitive response to inmate violations. Further, given the obligatory nature of imprisonment, poor relationships and lack of cooperation with the staff can be measured at the extreme when it manifests in violence, both against other inmates and against staff. We assess the relationship between prison violence and the congruence of staff/inmate demographic characteristics. In other words, we are interested in determining whether levels of violence are lower in prisons with staffs that are more representative of the inmates, when compared to those with less representative staffs. Thus:

Hypothesis 5: When staffs are more representative of inmates, prison violence will be lower and fewer disciplinary citations will be issued.

We are also interested in whether any observed relationship between violence and representativeness differs based on the public/private distinction; that is, we test for interactions between prison management sector and any observed representation/violence effect. The studies referenced above demonstrate the interconnectedness of political and racial factors in the corrections policy arena; those connections also appear to influence corrections outsourcing policy decisions. It seems plausible that the interaction between the management context of the prison (public vs. private) and the extent to which the facility staff represents inmates, could make a difference in prison performance. Specifically, managers in public corrections facilities, operating more frequently under collective bargaining agreements and responding to institutional incentives more commonly aligned with constitutional values such as protecting rights (Meier & O'Toole, 2012), may consequently afford more discretion to staff in their responses to inmate behaviors (Maynard-Moody & Musheno, 2003) and might be more inclined to recognize such discretion as beneficial when staff–inmate demography is similar (Cheliotis, 2006; Grissom et al., 2017).[5] Given the central importance of discretion in linking passive and active representation in representative bureaucracy theory, as discussed previously, we expect that:

Hypothesis 6: The impact of staff representativeness on violence, work release assignment, and disciplinary actions, will be lower in the private sector.

Consistent with other research, we test these hypotheses with models incorporating a series of control variables, by no means comprehensive, but that are accepted determinants of prisoner behavior and prison violence. These include the facility's security level (Camp & Gaes, 2002), its size, and its age (U.S. Department of Justice, Office of Inspector General, 2016). Facility security level is especially critical because of its association with the severity of the convict's crime and his/her

criminal record. We also control for staffing levels (staff-to-inmate ratio), primary function or service mission of the prison, and overcrowding.

3. Data

The empirical analysis uses administrative data from the 2000 and 2005 Census of State and Federal Adult Correctional Facilities to test relationships among management sector, staff demographic representation, and prison performance and programming. The Census of State and Federal Adult Correctional Facilities consists of publicly available data collected by the Bureau of Justice Statistics (BJS) from the complete universe of prisons in the United States on a variety of prison attributes. The data contains prison-level demographic information about prison staff and inmates, lists of programs operated at the prison, and counts of incidents that occur at the prison. The pooled dataset contains 2,121 prisons; however, since potential differences between public and private prisons might be driven by state and year specific trends, we restrict the sample to facilities in states with at least one public and one private prison, creating a final analytic sample of 1,378 unique prisons across 45 states with non-missing data. We take aggregated prison-level data as the unit of analysis.[6]

3.1. Dependent Variables

We focus on four outcome variables; we view these as indicative of facility achievement with regard to safety and confinement quality dimensions: (i) *Assaults on staff*—total number of assaults by inmates on staff that occur during the year; (ii) *assaults on other inmates (inmate-to-inmate)*—count occurring during the year; (iii) *disciplinary citations*—count of citations issued by staff in the year. A fourth outcome has to do with discretionary programmatic benefits: *number of inmates in work release* program provides some indication of how staff use discretion with regard to programmatic benefits, as staff typically make decisions about inmate participation in these programs. These variables allow us to examine whether a demographically representative staff might affect prison safety, discretionary discipline, and programming benefits. Assaults have been used in the corrections literature as an organizational performance indicator (Camp et al., 2003; U.S. Department of Justice, Office of Inspector General, 2016). While there is no perfect measure of prison performance, the level of assaults, both from inmates on staff and between inmates, is certainly one indicator of how well a prison manages the inherent tensions between these groups (Camp et al., 2003). The specifics of mandates for prisons on work release programs vary across states, but the number of inmates receiving the benefits of work release is determined through discretionary decisions made by staff. A similar logic applies to discretionary punishments, which can indicate the quality of staff oversight and capacity to manage conflict.

3.2. Independent Variables

We focus on two primary independent variables, *demographic representation of the staff* and *prison management sector (public or private)*. First, in measuring organization-level demographic representation, we follow Pitts (2005) and construct an index of the demographic alignment of inmates and staff for each prison. We construct the representation index using the formula:

$$R_S = (1 - \sqrt{((W_I - W_S)^2 + (B_I - B_S)^2 + (H_I - H_S)^2 + (A_I - A_S)^2 + (O_I - O_S)^2)}) \times 100, \quad (1)$$

where I represents inmates, S represents staff, and W, B, H, A, and O represent the proportion of inmates and staff who are white, black, Hispanic or Latino, Asian, and other race, respectively. Equation (1) creates an index that theoretically ranges from −100 to 100, where 100 represents a perfectly representative staff and −100 represents a perfectly demographically mismatched staff. We calculate two indices using equation (1): one index measuring the representativeness of all staff in a prison (in sample, ranges from −41 to 100), and another index measuring the representativeness of only the security staff (in sample, ranges from −24 to 95). Since representation often has the strongest effects in discretionary decision making among the lowest level of staff that interacts most frequently and closely with clients, additional insights might be gained from examining security staff separately. Second, we measure prison management sector with a binary indicator equal to 1 for private prisons and 0 for public prisons.[7]

As noted above, we also condition on a variety of prison characteristics that might also influence the prison environment. The *size* of the prison (total inmates, total staff), facility *age*, staffing sufficiency (*staff-to-inmate ratio*), primary service *function*, *security level* of the prison, and *overcrowding* are all accounted for as potential confounders in analyzing the effects of representation and in drawing comparisons between public and private prisons. We measure overcrowding using the difference between the rated capacity of the prison facility and its total number of inmates.[8] The primary function of the prison is reported using a categorical variable with 12 categories, including: general adult, boot camp, reception, medical, mental health, alcohol and drug treatment, youth, community corrections, returning inmates, geriatric, and other. We control for primary service functions using binary indicators for each category.

Table 1 summarizes the prison characteristics of the analytic sample. Column 1 describes the pooled sample and columns 2 and 3 summarize the characteristics of public and private prisons, respectively. The summary statistics provide some indication of the difficulty in identifying direct comparisons between public and private prisons to produce generalizable estimates. For instance, private prisons house, on average, lower security level inmates and target more specialized corrections services, such as alcohol and drug treatment, or lower-level community corrections services. These differences are notable as they suggest private corrections facilities

generally operate in a different context than public corrections facilities, biasing unconditional comparisons.

Table 2 describes the primary independent and outcome variables of the analytic sample, first pooled then separately by management sector. Interestingly, private prisons score significantly higher on the representation index calculated across all prison staff. Much of this difference is driven by black representation; the difference in the proportion of staff who are black and the proportion of inmates who are black is much smaller in private prisons than in public prisons. Private prisons also tend to have higher proportions of Hispanic inmates relative to public facilities. Consistent with the differences in security level and primary function observed in Table 1, public prisons tend to be larger and understaffed relative to private prisons. Relatedly, naïve comparisons of outcomes suggest that relative to private prisons, public prisons more heavily sanction inmates, assign fewer inmates to work release, and operate in a more violent environment. However, as previously noted, unconditional comparisons between public and private corrections facilities are likely biased by the clustering of private corrections facilities in much lower security corrections activities.

4. Empirical Strategy

Our primary interest is in testing (i) the proposition that demographic representation affects discretionary decisions in a manner that influences prison facility

Table 1. Summary Statistics of Organization Type of Analytic Sample, Years 2000 and 2005

	All	Public	Private
	(1)	(2)	(3)
Minimum security	0.51	0.43***	0.82
Medium security	0.29	0.33***	0.16
Maximum security	0.18	0.23***	0.02
Super maximum security	0.01	0.02***	0.00
General adult	0.59	0.69***	0.24
Boot camp	0.03	0.02***	0.05
Reception	0.03	0.03***	0.01
Medical	0.01	0.01***	0.00
Mental health	0.01	0.01	0.01
Alcohol and drugs	0.16	0.09***	0.43
Youth	0.01	0.01**	0.00
Community corrections	0.12	0.10***	0.22
Returning	0.01	0.01	0.01
Geriatric	0.00	0.00**	0.01
Other	0.02	0.02***	0.01
Age	33.25	32.86	35.17
	(60.56)	(50.55)	(96.12)
Overcrowded	0.29	0.34***	0.09
Overcrowding (rated capacity minus population)	−43.82	−63.70***	28.23
	(281.67)	(310.62)	(103.04)
Observations	3,155	2,476	679

Note: For *t*-tests on difference in means between public and private prisons; standard deviations in parentheses.
**$p < 0.05$; ***$p < 0.01$.

Table 2. Summary Statistics of Analytic Sample, Separately by Management Sector, Years 2000 and 2005

	All	Public	Private
	(1)	(2)	(3)
Representation index (all staff)	58.29	56.61***	64.99
	(25.74)	(26.12)	(23.00)
Representation index (only security staff)	60.30	60.43	59.76
	(18.05)	(18.32)	(16.76)
Difference in proportion black (all)	0.18	0.21***	0.04
Difference in proportion Hispanic (all)	0.05	0.05***	0.06
Difference in proportion black (only security)	0.24	0.26***	0.15
Difference in proportion Hispanic (only security)	0.07	0.06***	0.10
Total staff	221.63	258.71***	76.22
	(259.41)	(273.55)	(106.07)
Staff-to-inmate ratio	0.33	0.33**	0.36
	(0.26)	(0.26)	(0.28)
Proportion white inmates	0.42	0.42***	0.40
Proportion black inmates	0.43	0.45***	0.37
Proportion Hispanic inmates	0.11	0.10***	0.18
Total inmates	805.42	943.96***	298.19
	(955.08)	(1,003.56)	(487.37)
Disciplinary actions during year	714.05	820.27***	250.79
	(1,661.50)	(1,798.45)	(656.96)
Disciplinary actions per inmate	0.87	0.91***	0.69
	(1.49)	(1.55)	(1.19)
Inmate on inmate assaults during year	18.42	21.04***	7.11
	(49.04)	(52.84)	(24.13)
Inmate on inmate assaults per inmate	0.02	0.02***	0.01
	(0.04)	(0.05)	(0.02)
Assaults on staff during year	10.61	11.81***	4.1
	(32.50)	(34.80)	(12.83)
Assaults on staff per inmate	0.01	0.01***	0.01
	(0.04)	(0.04)	(0.01)
Proportion of inmates on work release	0.27	0.19***	0.53
Observations	3,155	2,476	679

Note: For *t*-tests on difference in means between public and private prisons; standard deviations in parentheses.
**$p < 0.05$; ***$p < 0.01$.

performance, perhaps through relations with inmates; and (ii) the extent to which the management sector might differ with regard to representative bureaucracy, or affect any policy benefits associated with demographic representation. In order to test these relationships, using the outcomes described previously, we use a reduced form model of performance in prison p of states:

$$Y_{pst} = \beta R_p + \delta M_p + \varphi X_p + \theta_{st} + \varepsilon_{pst}, \quad (2)$$

where R reflects a prisons' staff racial and ethnic representativeness as measured by the index described above; M represents a binary indicator of a prisons'

management (private or public); X represents a vector of controls for prisons' characteristics (e.g., age of facility, size of prison, number of staff, etc.); θ represents a state-by-year fixed-effect (FE) that controls for unobserved state-year specific conditions that might affect staff–inmate relations and prison programs (e.g., state laws, culture, norms, etc.); and ε represents an idiosyncratic error term for inmate–staff relations.

In equation (2), β and δ represent the primary parameters of interest, as they capture the partial effect of increases in staff racial representativeness and management sector, respectively, on prison safety and program benefits. According to representative bureaucracy theory, increased demographic representation on staff should improve relations between bureaucrats and the citizens they work with directly (in this case, inmates). Accordingly, $\beta < 0$ for prison violence and disciplinary citations and $\beta > 0$ for work release assignments would support the importance of demographic representation in prison staffing. That is, demographic representation should be negatively related to the number of assaults (on staff or between inmates) or disciplinary citations that occur and positively related to the number of inmates assigned to work release; we expect this to hold true for both total staff and/or security staff.

We further hypothesize that racial and ethnic representation may have different effects on staff–inmate relations and program offerings across management sector contexts. As noted above, it could be the case that the efficacy of demographic representation is lower in private prisons that may be less sensitive to constitutional values related to affirmative action, discrimination, due process, etc., and may afford their staff less discretion in managing inmates. We relax the constant effects assumption in equation (2) to test for differential effects of demographic representation between public and private prisons. Specifically, we estimate an interacted model of the form:

$$Y_{pst} = \beta R_p + \delta M_p + \alpha(R_p * M_p) + \varphi X_p + \theta_{st} + \varepsilon_{pst}, \tag{3}$$

In equation (3), α is the parameter of interest, as it captures the differential effects of demographic representation between public and private prisons, holding all else constant. Intuitively, α will provide some insights into (i) whether there is a systematic difference in the effects of demographic representation between public and private prisons; and (ii) the nature of that difference. For instance, considering physical and sexual assaults, a positive estimate of α would indicate that private management moderates the effect of demographic representation on staff–inmate relations while a negative estimate would indicate private managerial ownership enhances the effects of demographic representation.

We estimate equations (2) and (3) using both negative binomial regressions and ordinary least squares (OLS) to account for the non-negative, count nature of the outcomes of interest (Wooldridge, 2010, pp. 724–27). Negative binomial regressions employ maximum likelihood estimation to account for the non-negative nature of count data, overdispersion of the data, and allow for the estimation of average

partial effects (APE) for intuitive interpretation comparable to OLS. As Sturman (1999) demonstrates, even when examining a count-based outcome, OLS performs comparably to negative binomial estimators in reducing type I errors in statistical inference. In Appendix Table A13, we show the data are characterized by overdispersion in all outcomes examined except the number of inmates assigned to work release.[9] Consequently, we present the most conservative estimates in taking OLS estimates as our preferred estimates for the number of inmates on work release and negative binomial estimates as our preferred estimates for the rest of the outcomes examined.[10] In order to ensure comparability across estimates, we present the estimated APE from all negative binomial regressions. Appendix Tables A1–A3 offer robustness checks with models presenting the unconverted coefficients from the negative binomial models.

5. Results

5.1. Descriptive Regressions of Representation in Prisons

We begin our analysis examining the extent to which racial and ethnic representation among the prison staff differs across publicly and privately managed prisons. While the unconditional representation means are suggestive of some differences, they may be attributable to something other than management sector. Table 3 presents OLS regression estimates of staff representation as a function of a range of prison-level characteristics, such as size, age of the facility, and security level.

Column 1 presents unconditional estimates of the difference between public and private prison staff representativeness and shows that, looking at all employees, private prisons hire more representative staff, on average, and this difference is statistically significant at conventional levels. As shown in column 2, the point estimate of the difference in representation between public and private prisons shrinks after accounting for prison characteristics and becomes statistically insignificant. The change in the estimated difference between public and private prisons in terms of demographic representation among all staff indicates that the observed difference in naïve comparisons are largely attributable to systematic differences between public and private corrections facilities in purpose and inmates housed.

Columns 3 and 4 present estimates of descriptive OLS regressions on demographic representation among only security staff. The estimated differences in representation among security staff show the reverse pattern. While the unconditional estimates suggest that representation among security staff does not significantly differ by ownership, after accounting for differences in prison characteristics, the negative point estimate for private prisons in Column 4 becomes larger and significant, suggesting that private prison security staffs are less representative relative to comparable public prisons. Table 3 provides support for our hypothesis that representation will differ across sectors, but holds in a fully specified model only for security staff; representation is higher in publicly managed prisons, relative to privately managed facilities.

Table 3. OLS Estimates of Effects of Prison Management Sector on Staff Representativeness

	All Staff		Security Staff	
	(1)	(2)	(3)	(4)
Private	8.38	2.40	−0.67	−3.17
	(2.87)***	(1.99)	(2.10)	(1.44)**
Minimum security	(Omitted)			
Medium security	–	1.26	–	1.74
		(2.00)		(1.47)
Maximum security	–	−1.14	–	0.35
		(1.93)		(1.66)
Super maximum security	–	−4.39	–	−0.99
		(5.50)		(4.33)
Age of facilities	–	0.01	–	0.01
		(0.05)		(0.04)
Age of facilities squared	–	0.00	–	0.00
		(0.00)		(0.00)
Overcrowding	–	0.01	–	0.01
		(0.00)***		(0.00)**
Staff-to-inmate ratio	–	2.91	–	−0.37
		(1.33)**		(1.32)
Total staff	–	−0.00	–	0.00
		(0.00)		(0.00)
Controls for primary purpose of prison	No	Yes	No	Yes
State-by-year FE	No	Yes	No	Yes
Adjusted R	0.02	0.05	0.00	0.01
Observations	2,318	2,198	2,178	2,078

Note: Standard errors clustered at state-year level in parentheses.
**$p < 0.05$; ***$p < 0.01$.

5.2. Effect of Representation on Outcomes

Table 4 presents the negative binomial baseline estimates of equation (2) described previously. Each column presents the estimated effects of both representation among *all* staff and management sector on outcomes of interest. The estimates of representation on all measures of staff–inmate relations are consistent with hypotheses derived from propositions of representative bureaucracy theory, as previously described. The results show that, holding all else constant, a one-point increase in demographic representation corresponds with a decrease of about 2.79 disciplinary citations per year, 0.13 inmate-to-inmate assaults, and 0.06 assaults on staff; all three estimates are statistically significant at conventional levels. While these point estimates seem small, the relationships are practically significant. For instance, using the standard deviation of the analytic sample, the results suggest that an increase in one standard deviation in representation among all staff corresponds with about 72 fewer disciplinary citations, 3.35 fewer inmate-to-inmate assaults, and 1.5 fewer assaults on staff; a one standard deviation above the sample mean of prison staff representation is associated with an 18 percent reduction in inmate-to-inmate assaults and 14 percent reduction in assaults on staff per year. While the results highlight real benefits from increasing demographic representation in prison workforces, consistent

Table 4. Negative Binomial and OLS Regression Estimates of Effect of Management Sector and Representation Among All Staff on Outcomes of Interest (APE)

	Inmates Work Release†	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.04	−2.79*	−0.13**	−0.06**
	(0.12)	(1.67)	(0.05)	(0.03)
Private	−2.17	306.13*	2.64	5.83***
	(6.42)	(178.98)	(9.62)	(2.17)
Minimum security	(Omitted)			
Medium security	−7.47**	953.00***	35.88***	15.33***
	(3.22)	(209.49)	(8.07)	(2.60)
Maximum security	−10.58***	1,298.40***	41.93***	25.46***
	(3.92)	(271.92)	(8.25)	(3.60)
Super maximum security	−6.94	1,248.60***	18.98	31.52***
	(4.66)	(391.65)	(18.60)	(7.32)
Age of facilities	0.08	−0.93	−0.35**	−0.06
	(0.15)	(2.58)	(0.14)	(0.05)
Age of facilities squared	0.00	−0.00	0.00*	0.00
	(0.00)	(0.02)	(0.00)	(0.00)
Overcrowding	0.01*	0.50	0.00	0.01**
	(0.01)	(0.34)	(0.01)	(0.00)
Staff-to-inmate ratio	−14.70***	−1,348.51***	−22.10**	−2.19
	(5.46)	(365.07)	(9.72)	(4.22)
Total staff	0.01	3.05***	0.12***	0.05***
	(0.02)	(0.88)	(0.04)	(0.01)
Total inmates	−0.00	0.24	0.00	−0.00
	(0.00)	(0.16)	(0.00)	(0.00)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503

Note: Standard errors clustered at state-year level in parentheses and estimated using the Delta method. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$. †Estimated using OLS regressions, as the data are not overdispersed for this outcome.

with theoretical predictions, the results suggest representation alone has limits as a strategy, as a one standard deviation increase reflects a sizable shift in workforce demographics.

Taken together, these results imply that prisons with more representative staffs are less violent, on average, consistent with representative bureaucracy theory. Notably, the effect of representation on the provision of benefits, such as assignments to work release, is small and only marginally significant. Note also that these effects emerge in a model with widely accepted facility level control variables.

The results in row 2 indicate that assignments to work release or inmate-to-inmate violence do not differ significantly across management sectors, although the estimates for each are consistent with the hypothesized directions. However, as the estimates in column 4 suggest, holding all else constant, there were substantially higher numbers of disciplinary actions and roughly six more assaults on staff during

the year in privately managed facilities, as compared to public facilities, while controlling for the impact of staff representation. These differences are statistically significant and consistent with some prior research on differing levels of violence in public and private prisons (Camp & Gaes, 2002; Camp et al., 2003; U.S. Department of Justice, Office of Inspector General, 2016).

Focusing only on security staff, Table 5 contains negative binomial estimates of equation (2). The estimated effects of representation are broadly consistent with the effects observed when considering representation among all staff. The point estimates are a similar size and direction; however, they are less precisely estimated, due in part to fewer prisons reporting separate demographic information about security staff. Estimates of disciplinary and assault differences across management sector resemble those for all staff.

Tables 4 and 5 indicate support for our hypothesis that representative bureaucracy can enhance organizational performance, in the case of corrections, by reducing assaults and disciplinary actions; however, this relationship is clear for total facility staff, and less so for dedicated security staff.

5.3. Interaction of Representation and Management Sector

Table 6 contains negative binomial regression estimates of equation (3) as described previously. Columns 1 through 4 examine the role of all facility staff on performance, while columns 5 through 8 restricts the representation index to security staff. When considering all facility staff (columns 1 through 4), representation reduces both staff use of disciplinary sanctions and general violence, consistent with the baseline results in Table 4. The third row of the table presents the primary estimates of interest, as they test the extent to which, comparing public and privately managed facilities, representation's impact on outcomes differs. These interaction estimates are generally positive, but not statistically significant, which suggests that when examining all facility staff, representation's impact on performance does not differ significantly between public and private prisons.

Columns 5 through 8 examine *security* staff and facility performance. Estimates in the first row indicate that security staff representation is associated with decreased violence. Column 6, 7, and 8 estimates are all negative, statistically significant, and consistent with theoretical expectations: a more demographically representative security staff is associated with fewer disciplinary citations, inmate on inmate assaults, and assaults on staff. But as the third row of estimates imply, the interaction of private management and representative security staff is associated with statistically *higher* levels of disciplinary actions and assaults, relative to publicly managed prisons. While only one of this row's estimates are significant, they are consistently positive. The implication is that while demographic representation decreases violence in prisons overall, this advantageous relationship diminishes when considering the interaction of private management and representation. Privately managed facilities seem to benefit less from the performance and bureaucrat-client relations gains associated with demographic representation.

Table 5. Negative Binomial and OLS Regression Estimates of Effect of Management Sector and Representation Among Security Staff on Outcomes of Interest (APE)

	Inmates Work Release[†]	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.07	−3.63	−0.13	−0.05
	(0.16)	(2.49)	(0.09)	(0.05)
Private	−0.72	360.52**	5.05	6.50***
	(6.67)	(182.05)	(10.49)	(2.31)
Minimum security	(Omitted)			
Medium security	−7.34**	932.29***	35.03***	15.71***
	(3.47)	(205.18)	(7.87)	(2.70)
Maximum security	−10.47**	1,305.05***	43.94***	25.69***
	(4.28)	(271.97)	(8.69)	(3.64)
Super maximum security	−6.45	1,294.88***	19.36	32.57***
	(4.53)	(397.32)	(19.24)	(7.39)
Age of facilities	0.07	0.42	−0.41***	−0.05
	(0.16)	(2.46)	(0.15)	(0.05)
Age of facilities squared	0.00	−0.01	0.00**	0.00
	(0.00)	(0.02)	(0.00)	(0.00)
Overcrowding	0.01*	0.39	0.00	0.01**
	(0.01)	(0.30)	(0.01)	(0.00)
Staff-to-inmate ratio	−12.33**	−1,449.63***	−21.16**	0.54
	(5.39)	(394.33)	(10.13)	(4.02)
Total staff	0.01	3.03***	0.11***	0.05***
	(0.02)	(0.86)	(0.03)	(0.01)
Total inmates	−0.00	0.24	0.01	−0.00
	(0.00)	(0.15)	(0.00)	(0.00)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level in parentheses and estimated using the Delta method. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.[†]Estimated using OLS regressions, as the data are not overdispersed for this outcome.

Together, the results in Table 6 indicate that representation matters through its association with improved prison performance through reduced disciplinary actions and assaults. At the street level of prison organizations (security staff), where the exercise of discretion may have the largest effects on prison climate, demographic representation is associated with improved performance as measured by lower assaults on staff when we control for the interaction of representation and management sector. Most interestingly, the estimates for the interaction terms—representing the differential impacts of representation across management sector—indicate that when considered in tandem with management sector, representation in privately managed settings is associated with significantly higher levels of disciplinary citations and assaults. In other words, accounting for other prison characteristics, increased representation at the street level in publicly managed prisons reduces prison violence as measured by assaults on staff, but increased representation in

Table 6. Negative Binomial and OLS Regression Estimates of Interaction of Management Sector and Representation on Outcomes of Interest (APE)

	All Staff				Security Staff			
	Inmates Work Release†	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff	Inmates Work Release†	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Representation index	–0.08	–3.45*	–0.13**	–0.08**	–0.11	–5.48*	–0.19**	–0.08*
	(0.14)	(1.94)	(0.06)	(0.04)	(0.20)	(2.83)	(0.09)	(0.05)
Private	–16.32	37.59	3.44	–0.95	–12.99	–390.12	–14.40	–10.23*
	(10.88)	(261.55)	(14.18)	(5.12)	(14.76)	(415.16)	(16.94)	(5.93)
Representation index × Private	0.22	4.27	–0.01	0.11	0.20	12.29*	0.32	0.27***
	(0.15)	(4.40)	(0.15)	(0.08)	(0.21)	(7.10)	(0.19)	(0.09)
Controls for prison characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level in parentheses and estimated using the Delta method.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$. †Estimated using OLS regressions, as the data are not overdispersed for this outcome.

security staff at privately managed prisons moves in the opposite direction. The differential effects across management sector suggests that perhaps differences in organizational socialization (Wilkins & Williams, 2008), staff training, managerial practices, or prison conditions lead to situations in the prisons that overwhelm any potential security staff identification with demographically similar inmates. Indeed, the stress related to prison guard work (Bauer, 2016; Schaufeli & Peeters, 2000) may also impede the normal representative bureaucratic dynamic. Notably, underreporting of violent incidents may be more prevalent in private facilities; if so, the differences we observe may understate the differential effect of representation across sector.

6. Discussion

Together, our results suggest that type of management, and racial/ethnic representation, both affect prison performance. They offer support for representative bureaucracy theory's expectation that relationships between demographically similar staffs and citizen–client–inmates may enhance organizational outcomes. First, representation among prison staff corresponds with decreases in prison violence as measured by assaults, both between inmates and on staff. Second, after accounting for systematic differences in corrections facility type and level, private prison management corresponds with an increase in assaults on staff; this difference has been observed in past studies of prison privatization in the United States (Camp & Gaes, 2002; Camp et al., 2003).

We contribute to scholarship on representative bureaucracy, government contracting, and corrections policy as follows. We demonstrate that the analysis of safety and security differences between public and private prison facilities needs to account for the demographic representation of staffs. In view of the role of race in American corrections policy, attention to staff demography is critical to achieving policy objectives. Next, we observe that private management may moderate the positive effects of representative bureaucracy in corrections. The advantages of representation among prison security staffs, as measured by reduced prison violence, are statistically supported for public, but not private, prisons. The implication is that the benefits of representation could be affected by prison management sector. This result may be explained by the effects of organizational socialization, which can reduce the propensity of minority street-level bureaucrats to engage in passive or active representation. Wilkins and Williams (2008) remind us that for the sake of consistency with operative goals and values, a public manager "attempts to instill in employees a common set of assumptions and way of looking at the world.… Employees may be willing to adopt the organization's values to increase the chance of promotion and career success." They further theorize that in the area of policing, "organizational socialization may actually strip away the racial identity of black police officers and replace it with an organizational identity" (p. 656). It seems plausible that similar management dynamics, potentially motivated by the incentives embedded in private prisons, may explain our results.

To the extent that privately run organizations reduce the discretion of street-level employees, perhaps to disrupt the link between passive and active representation and/or maximize profit, our results provide an additional insight into the potential benefits of street-level discretion in stressful service contexts. Discretion at the street level may provide more tools for security staff in public prisons to appeal to common identities in managing the inmates under their care; allowing for these discretionary responses might aid in pre-emptively defusing potentially violent situations. If, however, street-level staff are not afforded sufficient discretion in responding to daily situations, this may strain their ability to improve relationships with their clients. In high-pressure and punitive contexts, such as corrections, the strains on relations may make this lack of discretion particularly influential in shaping outcomes.

7. Conclusion

Representative bureaucracy theory suggests that policy outcomes can be improved and more evenly distributed across a wider range of citizens when public employees more closely resemble citizens in terms of race, gender, and other characteristics. This analysis addresses two related questions: first, does representative bureaucracy play a role in prison performance, especially regarding violence? Does it in fact improve public corrections policy? Second, in view of the evolution of prison management under New Public Management reforms, we also question whether and how any representative bureaucracy effect differs between publicly and privately managed prisons. Do facilities with staffs that are more demographically similar to inmates perform differently than those that do not, and does this dynamic vary across sectors?

Our results suggest that, consistent with research on the impact of representative bureaucracy in other public policy and administrative settings such as education and client-based social services, staffs that are demographically representative of the individuals they serve may improve public policy by facilitating the effectiveness of public service delivery. Through values and norms that they share with those they serve or govern, representative bureaucracies can help to reduce the transaction costs of the civil servant–client relationship and enhance the quality of public services by tailoring them to the individuals that they are best equipped to understand—individuals that may have traditionally received disparate treatment in obtaining services. While we may not think of corrections staff as providing services, they do in fact play a critical role in institutions designed to "correct," or at least safely house, those who have been convicted of crimes. Moreover, a great deal of bureaucratic discretion, a key link between representation and performance effects, characterizes staff and inmate interactions in corrections facilities.

One of the key motivations for this study is to compare both representation, and its effects, across public and private corrections facilities. The constitutional protections that, by law, must be provided in public prisons, are not inherent in the private for-profit value set. The disparate values and motives of public and private prison leadership and staffs imply that there may be systematic differences across the two

modes in terms of representativeness of corrections staff vis-à-vis inmates, prison performance with regard to violence, and how the relationship between representation and performance manifests.

Our findings indicate that all else equal, representativeness of total corrections facility staff is not statistically different across public and private prisons, but security (street-level) staffs are more demographically representative in public facilities. The primary contribution from this analysis of representative bureaucracy, prison management, and performance, provides evidence that representative bureaucracies *are* associated with lower levels of facility violence, thereby enhancing corrections facility performance. We also offer some evidence that private management appears to moderate the benefits of demographic representation with regard to corrections policy outcomes. The dynamics associated with private prison administration may dilute the policy benefits engendered by a representative bureaucracy.

We suggest that further research on public and private prisons should explore in greater depth the effects of demographic representation among staffs, and why those effects might differ across management sectors. It could be instructive to disentangle management and corrections staff, to consider their independent roles as a function of their demographic similarities or differences. Finally, qualitative research, designed to capture the nuances and details of staff–inmate interactions, their differences across sectors, and the perspectives of managers from both sectors, could also help to shed light on how we might improve corrections policy in the United States, whether public or private.

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Notes

1. The U.S. imprisons over 700 individuals per 100,000 population; by contrast, incarcerations rates in most of the rest of the world are below 150 per 100,000 population (Walmsley, 2013). On many measures, the United States is an outlier when it comes to incarceration; e.g., when comparing the United States and Western Europe, victimization rates are similar but U.S. incarceration rates are far higher. While incarceration rates are disproportionately high for racial minorities in many countries, the long and unique history of slavery and racial injustice in the United States sets it apart on this dimension as well.
2. Corrections officers might reduce conflict through firmer, more consistent expectations of inmates, which might be a more effective strategy than personal interactions with demographically similar inmates (Crewe et al., 2011). On the contrary, inmates may be more likely to perceive rules that are promulgated and enforced by demographically similar staff as legitimate and reasonable.
3. The companies have changed names several times; more or less current names are Corrections Corporation of America (CCA) and GEO (formerly Wackenhut).

4. The two largest companies, both headquartered in Tennessee, have in the past lobbied that state legislature for tougher criminal penalties, a practice that clearly raises conflict of interest concerns (Girth et al., 2012; Price & Riccucci, 2005).
5. Most cynically, one could argue that in private prisons, incentives exist to lengthen sentences; this could be accomplished through more "by the book" punitive measures that might incite more violent reactions. See Ashton and Petteruti (2011) and Dippel and Poyker (2018).
6. We recognize that within-prison heterogeneity cannot be fully captured in our analysis, which relies on facility-level data; controls of the type described here, such as security level, are standard practice and account for some of this concern.
7. We operationalize this using a Census item that asks, "Who operates this facility?" Consequently, the "private prison" category may include both private prisons and public prisons operated by private management firms.
8. When summarizing the sample, we include indicators for whether a prison is overcrowded. A prison is overcrowded if our measure for overcrowding is negative (i.e., if the number of inmates exceeds rated capacity for the facility). We include overcrowded indicators in the summary statistics to document descriptive differences in the proportion of prisons that are overcrowded across sectors.
9. We test for overdispersion using a formal, regression-based test developed by Cameron and Trivedi (2010, p. 575).
10. The results are robust to a variety of assumptions about the distribution of y in equations (2) and (3). We replicate the primary results presented here in the Appendix using OLS and Poisson regressions for all outcomes. Appendix Table A14 also demonstrates a substantial "pile-up" of zeroes across most outcomes examined, potentially biasing our estimates. As a result, we also estimate Tobit models which aim to mitigate bias driven by excess zero outcomes (for comparability across models, we present the average partial effects of both Tobit and Poisson regressions in the Appendix). The results are strikingly similar across estimators.

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APPENDIX

Table A1. Negative Binomial Regression Estimates of Effect of Management Sector and Representation Among All Staff on Outcomes of Interest (Coefficients)

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	0.0008	−0.0024*	−0.0036**	−0.0047*
	(0.0065)	(0.0013)	(0.0015)	(0.0025)
Private	0.6433	0.2645*	0.0700	0.4211***
	(0.7313)	(0.1422)	(0.2517)	(0.1419)
Minimum security	(Omitted)			
Medium security	−0.9988*	0.8233***	0.9494***	1.1074***
	(0.5295)	(0.1290)	(0.1341)	(0.1515)
Maximum security	−2.4145***	1.1217***	1.1094***	1.8384***
	(0.5234)	(0.1639)	(0.1574)	(0.1739)
Super maximum security	−42.1409***	1.0787***	0.5023	2.2767***
	(0.6937)	(0.2796)	(0.4905)	(0.3813)
Age of facilities	0.0251*	−0.0008	−0.0092***	−0.0043
	(0.0137)	(0.0022)	(0.0035)	(0.0036)
Age of facilities squared	−0.0001	−0.0000	0.0000*	0.0000
	(0.0001)	(0.0000)	(0.0000)	(0.0000)
Overcrowding	0.0016	0.0004*	0.0001	0.0005**
	(0.0012)	(0.0002)	(0.0002)	(0.0002)
Staff-to-inmate ratio	−2.1431***	−1.1650***	−0.5846**	−0.1585
	(0.5947)	(0.1673)	(0.2685)	(0.3047)
Total staff	0.0013	0.0026***	0.0032***	0.0035***
	(0.0015)	(0.0004)	(0.0005)	(0.0005)
Total inmates	−0.0001	0.0002*	0.0001	−0.0001
	(0.0004)	(0.0001)	(0.0001)	(0.0001)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503

Note: Standard errors clustered at state-year level in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A2. Negative Binomial Regression Estimates of Effect of Management Sector and Representation Among Security Staff on Outcomes of Interest (Coefficients)

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.0085	−0.0031	−0.0035	−0.0039
	(0.0102)	(0.0020)	(0.0024)	(0.0033)
Private	0.7258	0.3045**	0.1307	0.4587***
	(0.6602)	(0.1383)	(0.2652)	(0.1441)
Minimum security	(Omitted)			
Medium security	−1.0249*	0.7873***	0.9071***	1.1088***
	(0.6045)	(0.1356)	(0.1469)	(0.1600)
Maximum security	−2.4401***	1.1021***	1.1380***	1.8127***
	(0.5506)	(0.1676)	(0.1616)	(0.1817)
Super maximum security	−45.0721***	1.0935***	0.5014	2.2981***
	(0.8079)	(0.2847)	(0.5021)	(0.3784)
Age of facilities	0.0245*	0.0004	−0.0106***	−0.0037
	(0.0137)	(0.0021)	(0.0037)	(0.0039)
Age of facilities squared	−0.0001	−0.0000	0.0001**	0.0000
	(0.0001)	(0.0000)	(0.0000)	(0.0000)
Overcrowding	0.0015	0.0003	0.0001	0.0005**
	(0.0013)	(0.0002)	(0.0003)	(0.0002)
Staff-to-inmate ratio	−2.2335***	−1.2242***	−0.5481**	0.0381
	(0.7540)	(0.1904)	(0.2759)	(0.2830)
Total staff	0.0018	0.0026***	0.0029***	0.0032***
	(0.0016)	(0.0004)	(0.0005)	(0.0005)
Total inmates	−0.0002	0.0002*	0.0002	−0.0000
	(0.0005)	(0.0001)	(0.0001)	(0.0001)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A3. Negative Binomial Regression Estimates of Interaction of Management Sector and Representation on Outcomes of Interest (Coefficients)

	All Staff				Security Staff			
	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Representation index	−0.0031	−0.0030*	−0.0035**	−0.0055**	−0.0037	−0.0046**	−0.0048*	−0.0058
	(0.0074)	(0.0015)	(0.0017)	(0.0027)	(0.0128)	(0.0021)	(0.0026)	(0.0036)
Private	−1.0783	0.0323	0.0910	−0.0687	1.7891	−0.3273	−0.3710	−0.7177*
	(0.9000)	(0.2246)	(0.3708)	(0.3728)	(1.2052)	(0.3225)	(0.4575)	(0.4184)
Representation index × Private	0.0255**	0.0037	−0.0003	0.0080	−0.0186	0.0103**	0.0082	0.0190***
	(0.0126)	(0.0037)	(0.0038)	(0.0059)	(0.0182)	(0.0049)	(0.0053)	(0.0063)
Controls for prison characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A4. OLS Regression Estimates of Effect of Management Sector and Representation Among All Staff on Outcomes of Interest

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.04	−1.19	−0.02	−0.07**
	(0.12)	(0.95)	(0.04)	(0.03)
Private	−2.17	34.00	1.04	1.96
	(6.42)	(148.62)	(5.99)	(2.34)
Minimum security	(Omitted)			
Medium security	−7.47**	50.65	2.72	−1.63
	(3.22)	(91.76)	(2.96)	(2.22)
Maximum security	−10.58***	581.03***	6.15	7.39**
	(3.92)	(149.32)	(4.14)	(3.15)
Super maximum security	−6.94	842.98	−6.51	49.11
	(4.66)	(760.71)	(7.85)	(29.48)
Age of facilities	0.08	1.89	0.03	0.04
	(0.15)	(1.95)	(0.08)	(0.08)
Age of facilities squared	0.00	−0.01	−0.00	−0.00
	(0.00)	(0.02)	(0.00)	(0.00)
Overcrowding	0.01*	−0.46	0.02	0.02***
	(0.01)	(0.65)	(0.02)	(0.01)
Staff-to-inmate ratio	−14.70***	−144.12*	1.78	−4.97
	(5.46)	(83.53)	(4.98)	(4.25)
Total staff	0.01	1.22	0.06**	0.08***
	(0.02)	(0.89)	(0.03)	(0.02)
Total inmates	−0.00	0.50**	0.02*	−0.01
	(0.00)	(0.24)	(0.01)	(0.01)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.23	0.22	0.24	0.25
Observations	1,480	2,183	2,190	1,503

Note: Standard errors clustered at state-year level in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A5. OLS Regression Estimates of Effect of Management Sector and Representation Among Security Staff on Outcomes of Interest

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.07	−0.50	−0.00	−0.11**
	(0.16)	(1.53)	(0.06)	(0.05)
Private	−0.72	94.95	2.50	2.54
	(6.67)	(153.89)	(6.27)	(2.36)
Minimum security	(Omitted)			
Medium security	−7.34**	46.47	2.33	−1.85
	(3.47)	(93.33)	(2.85)	(2.28)
Maximum security	−10.47**	581.38***	5.46	6.84**
	(4.28)	(149.87)	(4.58)	(3.34)
Super maximum security	−6.45	770.98	−8.63	48.70
	(4.53)	(725.68)	(7.82)	(29.53)
Age of facilities	0.07	1.84	0.02	0.04
	(0.16)	(2.17)	(0.09)	(0.08)
Age of facilities squared	0.00	−0.01	−0.00	−0.00
	(0.00)	(0.02)	(0.00)	(0.00)
Overcrowding	0.01*	−0.67	0.02	0.02**
	(0.01)	(0.64)	(0.02)	(0.01)
Staff-to-inmate ratio	−12.33**	−133.31	2.57	−4.57
	(5.39)	(90.05)	(5.66)	(4.69)
Total staff	0.01	1.41	0.06**	0.08***
	(0.02)	(0.95)	(0.03)	(0.02)
Total inmates	−0.00	0.49*	0.02*	−0.01
	(0.00)	(0.25)	(0.01)	(0.01)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.23	0.22	0.24	0.25
Observations	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A6. OLS Regression Estimates of Interaction of Management Sector and Representation on Outcomes of Interest

	All Staff				Security Staff			
	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Representation index	−0.08	−2.01*	−0.05	−0.09**	−0.11	−1.78	−0.05	−0.15**
	(0.14)	(1.14)	(0.05)	(0.04)	(0.20)	(1.97)	(0.07)	(0.06)
Private	−16.32	−272.69	−10.80	−5.10	−12.99	−352.58	−15.59	−13.23***
	(10.88)	(203.06)	(10.64)	(4.11)	(14.76)	(341.09)	(11.61)	(4.79)
Representation index × Private	0.22	4.78**	0.18	0.11*	0.20	7.36*	0.30**	0.26***
	(0.15)	(1.85)	(0.11)	(0.06)	(0.21)	(3.94)	(0.13)	(0.08)
Controls for prison characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.23	0.22	0.24	0.25	0.23	0.22	0.24	0.25
Observations	1,480	2,183	2,190	1,503	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A7. Poisson Regression Estimates of Effect of Management Sector and Representation Among All Staff on Outcomes of Interest (APE)

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.03	−2.04**	−0.09**	−0.07***
	(0.09)	(0.89)	(0.04)	(0.03)
Private	1.50	−35.88	−0.01	5.97**
	(8.06)	(86.19)	(4.46)	(2.41)
Minimum security	(Omitted)			
Medium security	−18.55**	585.86***	25.77***	13.24***
	(8.38)	(116.17)	(2.50)	(2.04)
Maximum security	−29.48***	835.19***	31.73***	22.21***
	(8.87)	(122.26)	(3.98)	(1.93)
Super maximum security	−467.68***	889.11***	19.15**	28.75***
	(10.60)	(301.60)	(8.36)	(4.45)
Age of facilities	0.09	−3.58**	−0.11*	0.01
	(0.13)	(1.62)	(0.06)	(0.05)
Age of facilities squared	0.00	0.02*	0.00	0.00
	(0.00)	(0.01)	(0.00)	(0.00)
Overcrowding	0.03*	−0.25*	0.00	0.01***
	(0.02)	(0.14)	(0.01)	(0.00)
Staff-to-inmate ratio	−42.57***	−557.50***	−0.62	0.45
	(14.15)	(135.75)	(8.90)	(2.38)
Total staff	0.04**	1.03***	0.02*	0.03***
	(0.02)	(0.36)	(0.01)	(0.01)
Total inmates	−0.01	0.10	0.00	−0.00
	(0.01)	(0.07)	(0.00)	(0.00)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503

Note: Standard errors clustered at state-year level and estimated using the Delta method in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A8. Poisson Regression Estimates of Effect of Management Sector and Representation Among Security Staff on Outcomes of Interest (APE)

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.11	−2.13	−0.10	−0.10***
	(0.14)	(1.43)	(0.06)	(0.03)
Private	4.12	−16.26	0.33	6.34**
	(8.76)	(89.12)	(4.80)	(2.55)
Minimum security	(Omitted)			
Medium security	−18.27*	578.05***	26.33***	14.04***
	(9.47)	(136.99)	(3.02)	(2.26)
Maximum security	−29.16***	842.22***	32.67***	22.96***
	(9.33)	(147.93)	(4.64)	(2.13)
Super maximum security	−485.51***	885.69***	19.25**	29.89***
	(10.97)	(322.39)	(9.51)	(4.54)
Age of facilities	0.07	−3.56**	−0.12*	0.01
	(0.13)	(1.71)	(0.07)	(0.05)
Age of facilities squared	0.00	0.02	0.00	−0.00
	(0.00)	(0.01)	(0.00)	(0.00)
Overcrowding	0.03*	−0.29*	0.00	0.01***
	(0.02)	(0.15)	(0.01)	(0.00)
Staff-to-inmate ratio	−37.45***	−602.02***	0.00	2.34
	(14.36)	(146.11)	(10.60)	(2.70)
Total staff	0.04**	1.11***	0.02*	0.03***
	(0.02)	(0.39)	(0.01)	(0.01)
Total inmates	−0.01	0.11	0.00	−0.00
	(0.01)	(0.08)	(0.00)	(0.00)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level and estimated using the Delta method in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A9. Poisson Regression Estimates of Interaction of Management Sector and Representation on Outcomes of Interest (APE)

	All Staff				Security Staff			
	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff	Inmates work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Representation index	−0.08	−2.19**	−0.11***	−0.09***	−0.12	−2.73*	−0.14**	−0.14***
	(0.10)	(1.01)	(0.04)	(0.03)	(0.16)	(1.62)	(0.07)	(0.05)
Private	−17.68	−108.78	−14.39**	−2.21	1.54	−322.70	−21.47***	−10.87**
	(10.87)	(145.81)	(6.81)	(4.19)	(12.29)	(254.43)	(7.98)	(4.46)
Representation index × Private	0.29**	1.27	0.25***	0.14***	0.04	5.18	0.36***	0.28***
	(0.12)	(2.91)	(0.08)	(0.05)	(0.18)	(4.59)	(0.14)	(0.06)
Controls for prison characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level and estimated using the Delta method in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A10. Tobit Regression Estimates of Effect of Management Sector and Representation Among All Staff on Outcomes of Interest (APE)

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.01	−0.80	−0.04	−0.06***
	(0.08)	(0.66)	(0.02)	(0.02)
Private	0.56	45.39	−2.51	3.35*
	(5.88)	(94.90)	(3.82)	(1.80)
Minimum security	(Omitted)			
Medium security	−14.28***	48.40	8.44***	5.51***
	(5.11)	(63.77)	(1.82)	(1.69)
Maximum security	−21.66***	390.21***	10.22***	10.90***
	(4.59)	(90.07)	(3.01)	(1.62)
Super maximum security	−135.02***	572.10	3.76	28.75**
	(5.65)	(473.22)	(5.06)	(12.61)
Age of facilities	0.19**	2.08	−0.07	−0.01
	(0.10)	(1.27)	(0.06)	(0.04)
Age of facilities squared	−0.00	−0.01	0.00	0.00
	(0.00)	(0.01)	(0.00)	(0.00)
Overcrowding	0.02*	−0.28	0.01	0.01***
	(0.01)	(0.40)	(0.01)	(0.00)
Staff-to-inmate ratio	−19.25***	−218.93**	−5.39	−4.89
	(6.96)	(90.64)	(5.30)	(3.61)
Total staff	0.03*	0.91	0.04***	0.04***
	(0.02)	(0.56)	(0.01)	(0.01)
Total inmates	−0.01	0.29*	0.01	−0.00*
	(0.00)	(0.16)	(0.00)	(0.00)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503

Note: Standard errors clustered at state-year level and estimated using the Delta method in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A11. Tobit Regression Estimates of Effect of Sector and Representation Among Security Staff on Outcomes of Interest (APE)

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
Representation index	−0.07	−0.26	−0.02	−0.07**
	(0.12)	(1.01)	(0.03)	(0.03)
Private	2.15	79.57	−2.54	3.45*
	(6.08)	(97.11)	(4.31)	(1.83)
Minimum security	(Omitted)			
Medium security	−13.88**	39.46	8.43***	5.65***
	(5.67)	(67.50)	(2.02)	(1.83)
Maximum security	−21.18***	391.74***	10.71***	11.07***
	(5.12)	(91.71)	(3.42)	(1.72)
Super maximum security	−132.99***	536.13	3.15	29.57**
	(5.53)	(456.14)	(5.49)	(12.89)
Age of facilities	0.19*	1.86	−0.07	−0.00
	(0.10)	(1.44)	(0.07)	(0.05)
Age of facilities squared	−0.00	−0.01	0.00	0.00
	(0.00)	(0.01)	(0.00)	(0.00)
Overcrowding	0.02*	−0.41	0.01	0.01***
	(0.01)	(0.39)	(0.01)	(0.00)
Staff-to-inmate ratio	−20.34**	−239.69**	−4.74	−4.15
	(8.50)	(100.33)	(5.99)	(4.20)
Total staff	0.03*	1.03*	0.04***	0.04***
	(0.02)	(0.59)	(0.01)	(0.01)
Total inmates	−0.01	0.29*	0.01	−0.00
	(0.00)	(0.17)	(0.00)	(0.00)
Controls for primary purpose of prison	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes
Observations	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level and estimated using the Delta method in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A12. Tobit Regression Estimates of Interaction of Management Sector and Representation on Outcomes of Interest (APE)

	All Staff				Security Staff			
	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Representation index	−0.05	−1.44*	−0.05*	−0.08***	−0.08	−1.14	−0.04	−0.10***
	(0.10)	(0.74)	(0.03)	(0.03)	(0.14)	(1.31)	(0.04)	(0.04)
Private	−12.03	−199.36	−7.82	−6.73**	1.20	−234.37	−14.05*	−11.05***
	(8.64)	(137.18)	(6.15)	(3.05)	(10.44)	(231.71)	(8.39)	(3.89)
Representation index × Private	0.19	3.82***	0.08	0.16***	0.02	5.16*	0.19*	0.24***
	(0.12)	(1.33)	(0.07)	(0.05)	(0.16)	(2.85)	(0.10)	(0.06)
Controls for prison characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-by-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,480	2,183	2,190	1,503	1,419	2,065	2,071	1,458

Note: Standard errors clustered at state-year level and estimated using the Delta method in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table A13. Test for Overdispersion in the Sample

	Var(Inmates Work Release | X)	Var(Disciplinary Citations | X)	Var(Assaults on Other Inmates | X)	Var(Assaults on Staff | X)
	(1)	(2)	(3)	(4)
$E(y \mid x)$	0.65	0.82***	0.77***	0.63***
	(5,533.26)	(0.14)	(0.10)	(0.07)

Note: For hypothesis tests against the null hypothesis of equidispersion of the data.
***$p < 0.01$.

Table A14. Tabulations of Zero Values in the Dependent Variables for Each Discrete Count Outcome of Interest

	Inmates Work Release	Disciplinary Citations	Assaults on Other Inmates	Assaults on Staff
	(1)	(2)	(3)	(4)
$Y = 0$ (N)	1,031	279	1,230	738
	[56.03]	[9.36]	[40.59]	[39.34]

Note: Percent of sample in brackets.

Table A15. Correlation Matrix of Outcomes Examined and Primary Factors of Interest

	Work Release	Citations	Inmate Assaults	Assaults on Staff	Rep. Index All Staff	Rep. Index Sec. Staff	Private
Work release	1						
Citations	−0.08	1					
Inmate assaults	−0.11	0.28	1				
Assaults on staff	−0.14	0.35	0.45	1			
Rep. index all staff	0.08	−0.06	−0.05	−0.08	1		
Rep. index sec. staff	0.06	−0.04	−0.02	−0.05	0.9	1	
Private	0.05	−0.08	−0.08	−0.08	0.12	0.06	1

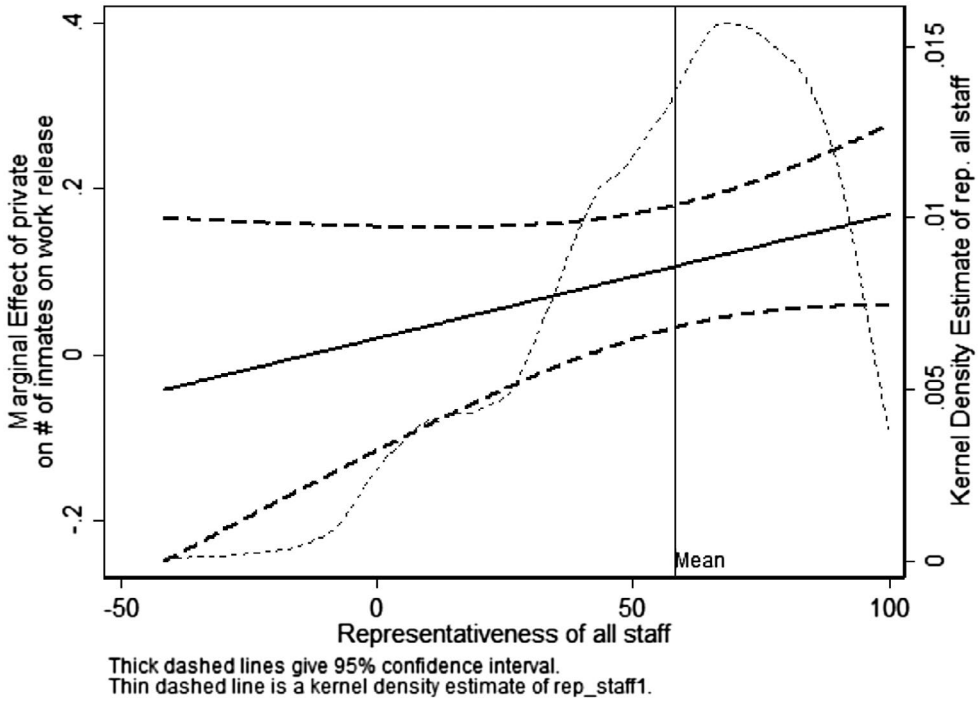

Figure A1. Marginal Effects of Interaction Between Representation and Private Management on Number of Inmates on Work Release.

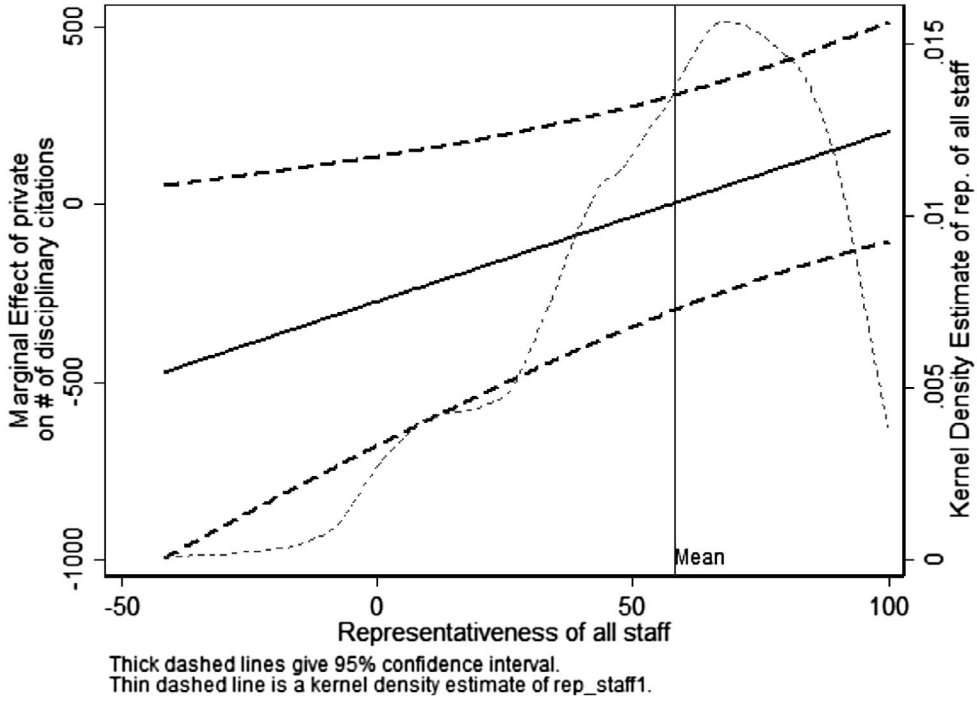

Figure A2. Marginal Effects of Interaction Between Representation and Private Management on Number of Disciplinary Citations.

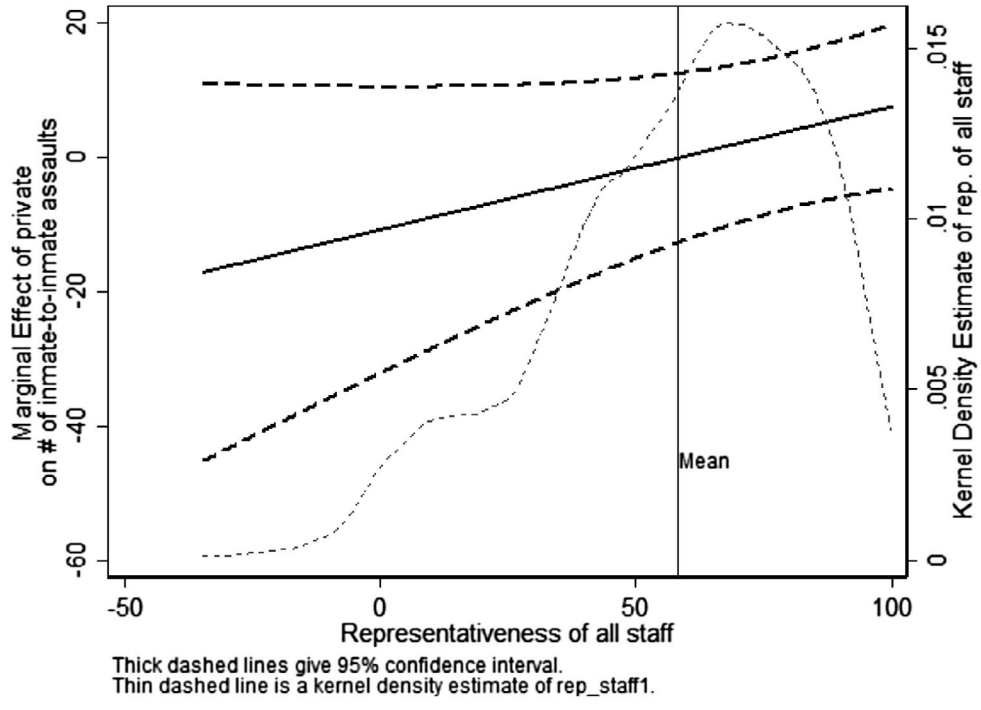

Figure A3. Marginal Effects of Interaction Between Representation and Private Management on Number of Inmate-to-Inmate Assaults.

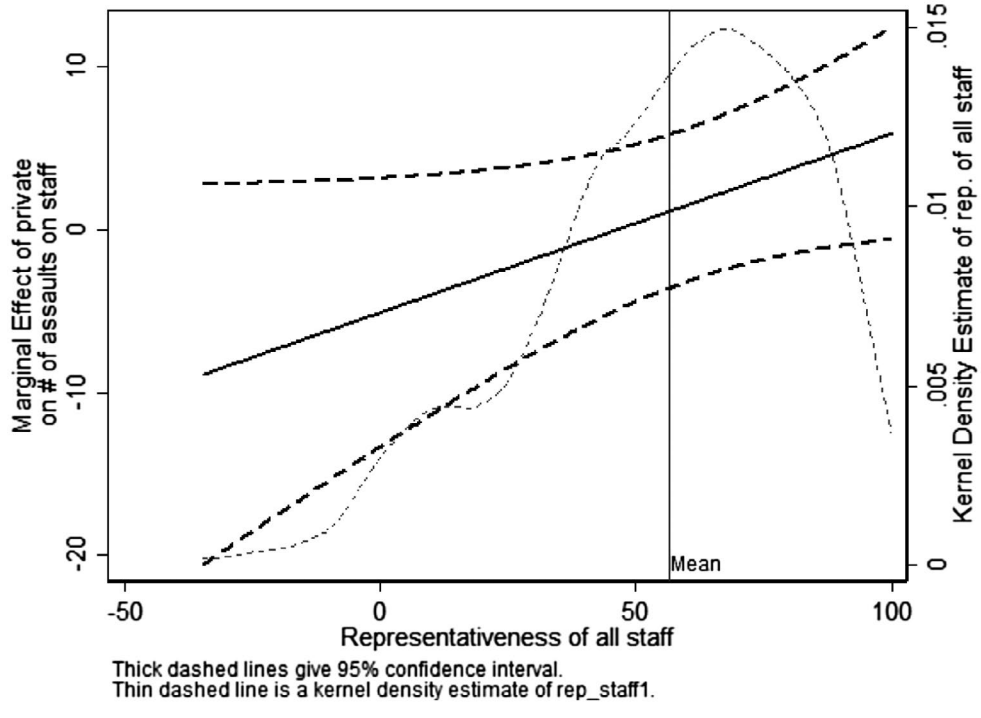

Figure A4. Marginal Effects of Interaction Between Representation and Private Management on Number of Assaults on Staff.

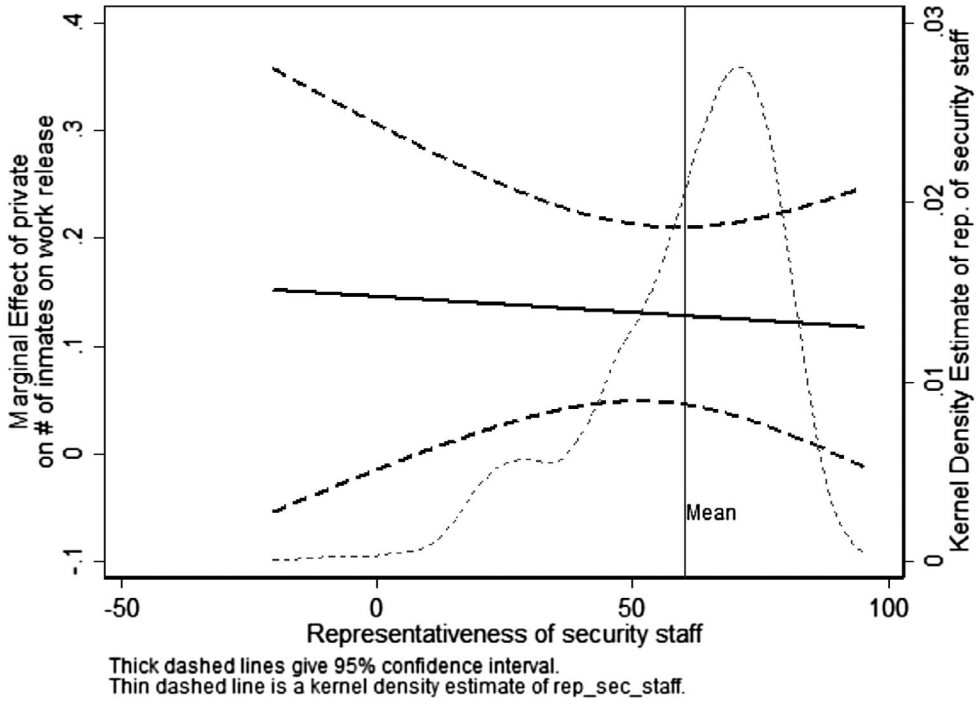

Figure A5. Marginal Effects of Interaction Between Representation on Security Staff and Private Management on Number of Inmates on Work Release.

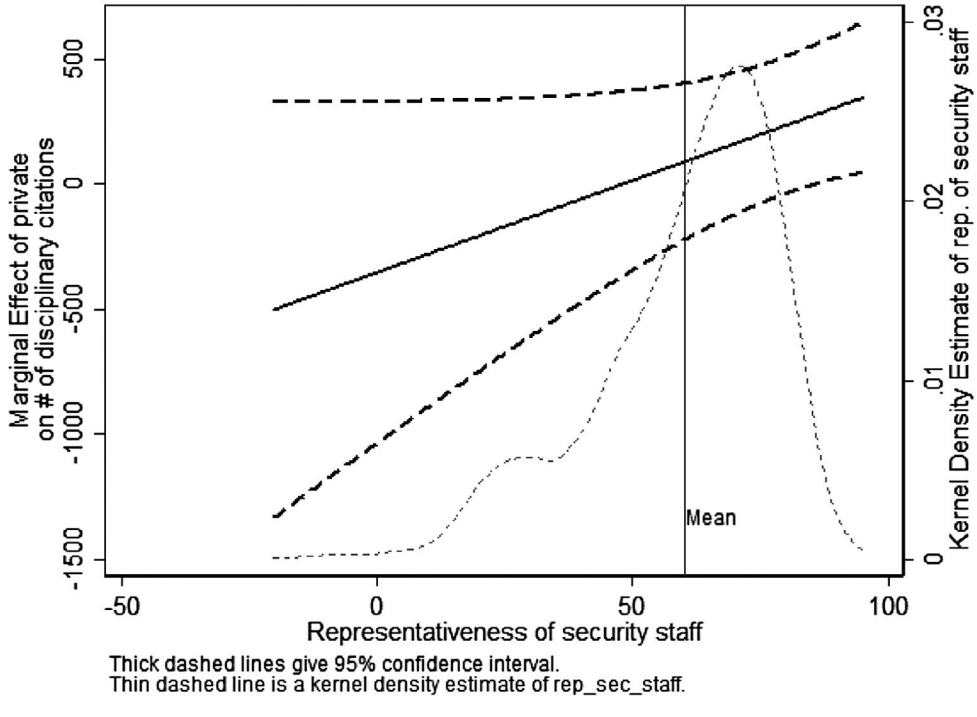

Figure A6. Marginal Effects of Interaction Between Representation on Security Staff and Private Management on Number of Disciplinary Citations.

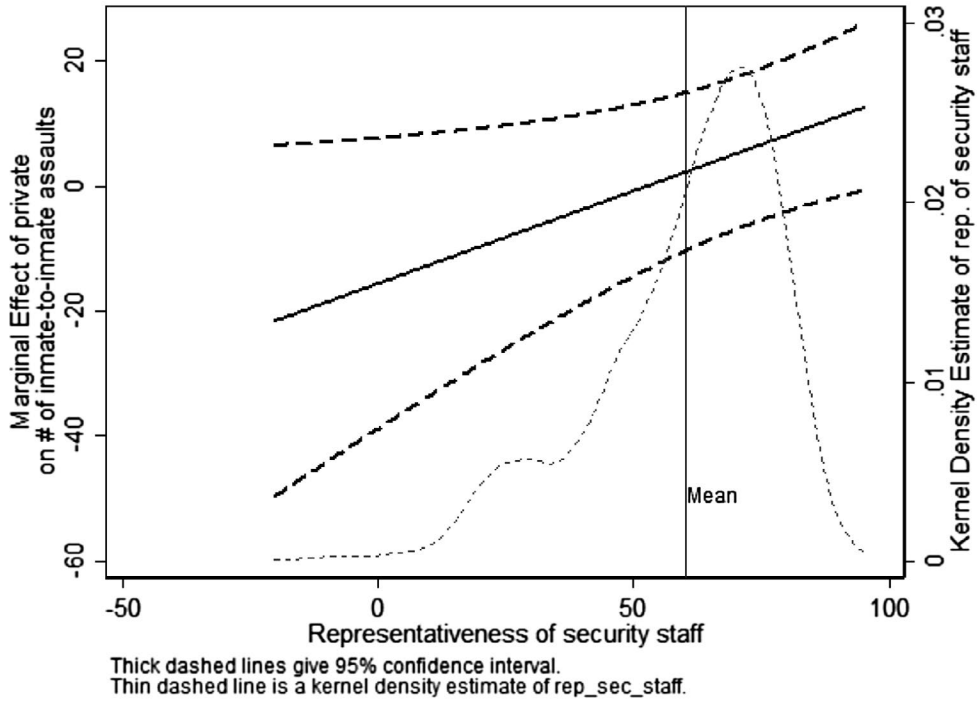

Figure A7. Marginal Effects of Interaction Between Representation on Security Staff and Private Management on Number of Inmate-to-Inmate Assaults.

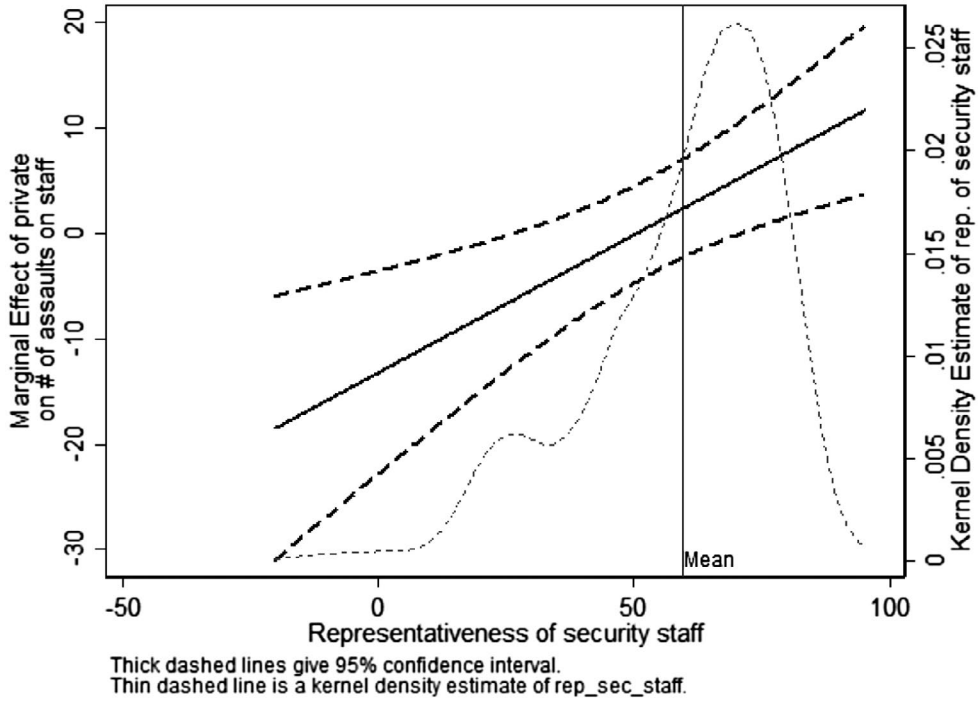

Figure A8. Marginal Effects of Interaction Between Representation on Security Staff and Private Management on Number of Assaults on Staff.