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Prison Violence in Latin America: Criminal Governance and an Absent State

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Abstract
Using a survey applied to incarcerated populations in Latin American countries, this study aims to examine the factors that determine the existence of violence in prisons and explain why some penitentiaries are more violent than others by studying variables such as inmate age, sentence length, and crime type. A quantitative examination is used to determine the effect of these variables on prison violence (property theft and beatings), and whether it is a result of the living conditions within the prisons. The results indicate that the most overpopulated prisons, with the worst living conditions, have the lowest levels of violence (in Brazil and El Salvador). The lower rates of violence observed in certain Latin American prisons appear to be explained by the existence of criminal governments within penitentiary systems, organized and run by a dominant prison gang.

Keywords Violence in prison · Latin America · Prison conditions · Prison gangs

Introduction

In recent years, the issue of violence in prisons has received increasing attention in Latin America. This is possibly due to the rise in the prison population (and prison violence): for example, in 2000, Brazil registered 232,755 prisoners, while by 2019 this had reached 773,151 (National Prison Administration). This growth is the result of the mass incarceration policies of the past decades (Muller, 2012), and is accompanied by various challenges for the region's penitentiary systems (Trajtenberg and Sanchez de Ribera, 2019): (a) concentration of individuals with violent antecedents; (b) deficiencies in basic infrastructure; (c) inadequate security services; (d) poorly trained human resources; (e) weak supervision and evaluation systems; and (f) problems regarding transparency, visibility and accountability. However, despite the commonality of these conditions across almost all Latin American countries, the increase in prison violence is not homogeneously distributed: some penitentiary systems are violent, while others are relatively peaceful.

What determines the existence of violence in Latin American prisons? Why are some prisons more violent than others? This paper attempts to answer these questions with new empirical evidence, within the regional context, from a survey of the incarcerated population in multiple countries. This survey generated statistical data which offered a different approach to an old question in prison studies, and may be used to determine whether some of the correlates posited in existing international literature can be applied to Latin America as explanations for prison violence in the region's penitentiaries. The novelty of this study resides in its use of empirical data exogenous to the penitentiary system, enabling an analytical strategy based on a contrast between administrative records (institutional factors such as prison population rate, overpopulation, and inmate-guard ratio; and individual factors such as demographic composition -inmates' age and criminal profile-, including crimes committed and sentences received) and empirical evidence from prison surveys (objective elements such as standards of living; victimizations such as violence, theft, sexual assault;

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and elements of subject perception, including insecurity) as discussed below.

In this study, we seek to statistically show that (H1) overpopulation is positively correlated with prison violence and (H2) better access to services (such as clean restrooms or quality food) is negatively correlated with prison violence (the better the services, the less violence suffered by inmates). Results appear to show that the most overpopulated prisons with the worst living conditions have the lowest levels of violence (in terms of property theft and beatings). The results contradict some of the more accepted and traditional correlates to violence as the prisons with the worst conditions in the region are the most peaceful (Brazil and El Salvador). Those penitentiary systems are distinguished from others by the existence of highly complex and sophisticated criminal organizations: gangs that have achieved internal control in their respective prisons. The paper explores the role of gangs in explaining prison violence in self-governed prisons of Latin America.

Literature

In recent years, prison violence has been studied in depth, largely focusing on critical incidents such as fights, homicides, injuries, rapes and assaults on guards. The latest and most important systematizations of the literature on this subject (Gadon et al., 2006; Gonçalves et al., 2014; Schenk & Fremow, 2012; Steiner et al., 2014) are divided into two broad groups: (1) explanations based on individual factors, and (2) explanations that point to situational factors.

The individual factors are further divided into (a) demographics as predictors of violence, such as (i) age: lower ages correspond to a greater proclivity for violence (Cunningham & Sorensen, 2007); (ii) race/ethnicity: certain ethnic groups demonstrate a greater inclination for using violent methods to solve conflicts (Griffin & Hepburn, 2006; Harer & Steffensmeier, 1996); and (iii) education: a lower level of education is a predictor of violent behavior (Hawkins et al., 2000). A second individual factor is b) seeing criminals as predictors of violence, such as (i) the type of crime for which he/she was convicted plays a fundamental role in determining the level of violence, since the worse the crime committed, the greater the chances of violent conduct (Cunningham, 2008); (ii) the sentence received: longer sentences are related to greater levels of violence within prisons (Cunningham & Sorensen, 2007); as well as (iii) conditions of the arrest (Cooper & Werner, 1990); (iv) the convictions (DeLisi, 2003); (v) previous violence (Drury and DeLisi, 2011); and (vi) gang membership (Camp & Camp, 1985; Gaes et al., 2003; Hagedorn, 1998). Nowadays, the study of gang membership constitutes its own chapter within the research on violence in prisons and has gained momentum in the last few years. The first studies to report a positive and consistent relationship between gangs and violence date back to the 1990's when Fong et al. (1992) studied the increase in homicides in the Texan prison system, which experienced a surge in gang presence in 1984. Later Fischer (2001) analyzed a 6-year historical series of Arizona's Department of Corrections, presenting results that showed that gang members had a greater predisposition to participate in violent activities than other inmates (+74%). Thereafter, gang membership became a common prison violence correlate with the works of Cunningham and Sorensen (2007), Gaes et al. (2003), Griffin and Hepburn (2006) and Dininny (2009). These explanations of inmate violence based on gang affiliation as an individual predictor were later joined by observations of gang dynamics and violence in prisons derived from studies on the violent behavior of gangs at large, based on conflict groups (Thrasher & Short, 1963), status threats (Short & Strodtbeck, 1965), reputation (Miller, 1969), honor (Horowitz & Schwartz, 1974), etc. Traditionally, these studies of gang dynamics have focused on two main areas: 1) gang prevalence within prisons (Croush & Marquart, 1989; Iwin, 1980; Jacobs, 2015), and 2) gang membership within prisons (Ralph & Marquart, 1991; Fong et al., 1992; Huff & Meyer, 1997; Shelden, 1991; Gaes et al. 2003).

The last individual factor is (c) psychological, and explains violence as a result of (i) aggression: a relationship between inmates' aggressive personality and disposition to violent behaviors (Lahm, 2008); (ii) depression: self-destructive behaviors linked with aggression towards third parties (Sommers & Baskin, 1991); (iii) self-esteem: based on theories that relate high but unstable levels of self-esteem to certain tendencies to react aggressively and defend a self-image (Gillespie, 2005); (iv) social support: the suggestion of a correlation between violent behavior and a lack of community ties (DeLisi & Scherer, 2006); and (v) the criminal mentality: this includes the majority of violent psychopathologies (Walters, 2011).

In contrast, situational factors focus on the penitentiary system's infrastructural problems as a reasonable predictor of violence: for example, (i) the characteristics of the building: the distribution and size of its spaces (Atlas, 1982); (ii) the personnel, with studies that establish a relationship between inmate attacks and the inexperience of penitentiary services staff (Davies & Burguess, 1988; Kratcoski, 1988); (iii) time, since there appear to be certain temporal regularities in specific types of violence, such as prison homicides, etc. (Bidna, 1975; Steinke, 1991); and (iv) the internal management and administration of the space: certain prison locations are prone to more crime and violence than others, such as bathrooms, cafeterias, etc. (Doherty 1983; Porporino et al., 1987). Furthermore, (v) overpopulation is one of the most extensively studied predictors of prison

violence (Clayton & Carr, 1981; Franklin et al., 2006; Lester, 1990): the worsening of living standards is directly related to an increase in institutional violence. Additionally, (vi) an (efficient and supportive) administration can play an important role in lowering levels of violence (Huebner, 2003). Lastly, there are studies that link the existence of (vii) rehabilitation programs—educational, vocational, and occupational—to a low incidence of fights and aggressions between inmates (McCorkle et al., 1995; Walrath, 2011). Beyond this classification and presentation, the literature reveals an investigative trend of studies of violence within prisons with criteria of importation. In essence, this refers to the transferal of violent street codes to the penitentiary system (Worrall & Morris, 2012).

The data and techniques used to determine the correlates mentioned above have been varied, ranging from theoretical models (Thomas, 1977), analyses of managerial practices (Reisig, 1998), risk models (Harer & Langan, 2001), hierarchical models with multilevel data (Woolredge et al., 2001), self-reported data (Hewitt et al., 1984), situational models (Jiang and Fisher-Giorlando, 2002), cross-sectional analyses of patterns of inmate adjustment (Wright, 1991), actuarial models (Cunningham & Sorensen, 2007), to qualitative methods like participant observation -full participation—(Marquart, 1986), focus groups (Pollack, 2003), in-depth interviews (Trammell, 2012), ethnographic studies (Morgan, 1999), multilevel psychological models (Lahm, 2008), models of violence risk assessment (Douglas et al., 2003), behavioral analyses (McCorkle et al., 1995), and more.

Latin America

In the context of this summary of the enormous quantity of information and studies completed on this subject, in the Latin American context, the issue of violence within prisons is an understudied problem, though in the last few years an incipient literature has begun to appear. Much of it focuses on specific countries (with little comparative work) and on specific subjects related to violence within prisons. An important part of the literature addresses the issue of human rights violations in prisons: from the works of Posada and Díaz-Tremarias (2008), Posada and Salazar (2004), Padrón (2008), and Morais (2009) in Venezuela, to Álvarez (2011) in Argentina. In the past few years, more specific work has gained greater importance, for example, in Venezuela, subculture and violence (Crespo, 2009), violence and territory (Antillano et al., 2020), and prison order (Sepúlveda & Pojomovsky, 2021). It is also worth noting studies on the political economy of violence in women's prisons (Gentile & Tabush, 2010), institutionalized violence (Gual & Andersen, 2010), language, sexuality, and violence (Regueyra, 2011), governability and violence (Malacalza, 2015) in Argentina, the problems of ethnicity (Le Bonniec, 2014), violence and exclusion in the prison gangs of Honduras (Rivera, 2012), and more. There have also been some comparative attempts on a regional level in certain areas: human rights (Briceño León, 2002; Vilches, 2009), and violence in women's prisons (Antony, 2007), etc. And, of course, the work of Skarbek (2016), who developed a governance theory of prison social order using comparative empirical data from Brazil, Bolivia, England, Scandinavia, and California in the United States. In recent years, there has been a growing interest in the region in prison surveys. In Chile, for example, Sanhueza conducted a survey on perceptions of quality of life in prisons (2021 and 2023), and Larroulet et al. (2020) analyzed the needs of released female offenders.

Discussions around the notion of "criminal governance" by inmates are contained in the work of Peirce, who conducted an inmate survey (2022) regarding prison governance arrangements in the Dominican Republic, as well as that of Ariza and Iturralde (2022), who looked at the social order imposed by gangs in Colombian prisons (in addition to that of Doyle-2021-who analyzed the social bases of crime organized from prisons). However, the most important literature probably comes from Brazil, where there is an extensive tradition of analyzing prison gangs, as evidenced in the work of Darke (2013); Butler et al., (2018) on self-governing prisons; Dias et al. (2022) on governance and legitimacy, and Dal Santo (2022) on the emergence, empowerment, recruitment, and organization of gangs. Most of these studies approach the issue of criminal governance in a similar manner to the current study, supported by official and secondary data on prisons.

Hypotheses This study focuses on the situational factors that might explain prison violence. As such, two hypotheses will be tested:

H1: Overpopulation is positively correlated with prison violence.

H2: Better access to services (such as clean restrooms or quality food) is negatively correlated with prison violence (the better the services, the less violence suffered by inmates).

As explained in the introduction, there are several individual factors that have been correlated with prison violence and as such, the following secondary hypotheses will be included in the analysis to control for inmates' individual characteristics:

Inmates' age is negatively correlated with prison violence: younger prisoners suffer from more violence than older ones.

Table 1 Statistics by country and enrollment process

Country	Prison Population Total	Number of prisons	Prison Population Rate	Occupancy Level (%)	Survey sample size	Number of prisons surveyed
Argentina	72 693	285	167	106.2	516	9
Brazil	668 914	1 449	322	162.9	751	9
Chile	42 226	103	232	110.9	805	9
El Salvador	39 110	25	598	348.2	1 160	9
Mexico	208 689	379	169	97.9	1 263	14
Peru	85 175	69	266	230.5	1 205	14

Source (except those relative to the survey): http://www.prisonstudies.org/

Close ties with acquaintances are negatively correlated with prison violence: those who talk more often on the phone or are visited more regularly suffer less violence than inmates who do not.
Risk factors during infancy are positively correlated with prison violence: those who had contact with robberies, drugs, gangs, or were incarcerated in a minor's institution suffer more violence than those who did not.
Participation in community activities (such as cleaning activities, academic programs and sports) is negatively correlated to prison violence: the more programs an inmate has access to, the less prison violence he/she suffers.
Severity of the sentence (measured in years) is positively correlated with prison violence: those with a longer sentence are subject to more prison violence.
Severity of the crime is positively correlated with prison violence: those sentenced for more serious crimes (intentional homicide, kidnapping) suffer from more violence than those sentenced for lesser crimes (simple robbery, aggravated robbery).

Methodology

This section is divided into two parts: data and variables.

Data

As was noted earlier, the data in this paper comes from the Survey of Incarcerated Populations in Latin America applied in 2013/2014 in Argentina, Brazil, Chile, El Salvador, Mexico, and Peru. The sample acquired in the six national survey implementations comprises a total of 5,700 surveyed inmates. This survey is a scientific instrument aimed at measuring factual events and opinions.[1] The sample design in all cases followed a random selection process of units of observation and information. This was a complex, multistage sample process, stratified by conglomerates, with systematic selection of observations and with a gender quota.[2] Two sampling frames were used: (1) selection of prison centers (and number) based on budget and distance between them; (2) selection of volunteer inmates in each center from the official list, using a systematic jump procedure, with a random starting point, in three steps: (1) proportional allotment of the number of applicable interviews in each center based on its percentage of the total; (2) generating the jump number (total number of inmates divided by the number of inmates surveyed in each center); (3) generating the random number to choose the inmates. In case of rejection, the inmates next on the list were chosen using the systematic jump procedure. Each sampling frame was used in different stages of the selection process (of the prison and of the survey respondent) (see Table 1).

The effects of survey design and the response rates of the incarcerated population are relatively variable between countries and regions. For the calculation of size-effective samples in countries and regions, the maximum variability possible was assigned with a confidence level of 95% and a maximum theoretical precision level of + 5%.[3]

The sample of incarcerated population was stratified by inmate gender. It was necessary to over-represent women numerically in the surveys given their low proportion within the total incarcerated population, with the goal of counting on a number of women that offered sufficient variability and achieved an adequate statistical significance in later hypothesis tests between strata.

[1] The questionnaires, methodologies, and databases are available at United Nations Development Programme. http://www.undp.org/

[2] Only the national samples follow a criterion for detention center conglomerates. The regional samples do not use this type of conglomerate.

[3] The results of the survey offer higher or lower levels of precision to calculate the confidence intervals depending on the questions and the effects of the specific design of the same. The standard error is not constant across all the questions.

The survey was completed through personal interviews with volunteers from a random and systematic selection of inmates. The interviews were conducted by a team of professional interviewers hired by the UNDP in each country via private pollsters. The majority of the interviewers were undergraduate students with majors in sociology, anthropology, and social psychology. On average, every country had between 12–15 interviewers who were trained by the author in two 4-h sessions. Training consisted of an explanation of the questionnaire and the personal interviewing methodology. Due to restrictions within the penitentiary system, computer-assisted personal interviewing (CAPI) or computer-assisted self-interviewing (CASI) could not be used, thus leaving paper-and-pencil interviewing (PAPI) as the only alternative, with paper questionnaires applied individually and face-to-face. No incentives were offered to inmates and all human subject protection issues related to large sample surveys (U.S. Department of Justice Bureau of Justice Statistics) were respected.

The questionnaire has 310 (closed) questions that delve into socio-demographic, criminal, institutional, living standards, and other variables. The questionnaire was inspired by the National Inmate Survey (NIS) of the Bureau of Justice Statistics (BJS), but the foundational study that reports the methods of this survey is the 'Regional Human Development Report 2013–2014. Citizen Security with a human face: Evidence and Proposals for Latin America.' In all countries, a 1-day pilot was applied in order to verify interview duration and the capabilities of the interviewing team, and to adapt the questions to local customs and habits.

The interviews lasted approximately 45 min (each) and took place in a specifically designated guard-free location—with explicit permission from the authorities. Each country's interviewing team spent no more than two days in each penitentiary and had an average rejection rate of 0.4% of inmates summoned for the interview (during the second day, the rejection rate increased considerably to 2%).

As mentioned above, the specific estimates have a theoretical precision level of 5.0%, with a confidence level of 95%. Lastly, it is important to note that the descriptive presentation of the data does not consider the response 'do not know/no response' (DNK/NR) as an option, due to its low frequency (i.e. less than 2% of the total reports). As a result, this response was omitted from the proportions in the frequency charts and graphics.

Challenges of Conducting Research in Prisons

Because prisons are self-contained environments, all inmate activity is systematically controlled and monitored, depriving them of privacy, contact, and liberty. Due to the isolation, and numerous other factors, research studies frequently classify inmates as a vulnerable population (Bulman et al., 2012). In this context, it is unsurprising that the interviewee's perceptions and responses changed depending on the length of time spent in prison and whether the interviewee was held in minimum, medium, or maximum security. As a result, it was difficult to complete a thorough evaluation of the effects of imprisonment factors in isolation. Furthermore, a comparative study between incarcerated individuals is complicated due to the inconsistencies in the experience of each inmate (prison has varied effects). With this in mind, it is suggested that studies of prisons develop a (weak) quasi-experimental methodology to compare groups and explain their differences.

Variables

The dependent variable in this study is the violence within the prison as reported by the inmates in the survey. Specifically, the answers to the following questions: 'Have your personal possessions ever been stolen here?' and 'In the last six months, have you been beaten?' These questions were made to both female and male inmates in relation to their life in prison (and not to their detention, police interrogation or judicial process). The possible answers are 'Yes' or 'No' with the possibility of not answering (NR) or not knowing (NS). One possible limitation of these variables is that they do not register unobserved violence: although there were certain types of violence in the prisons controlled by gangs that were not identified in the study (observable violence—physical and against property), it is important to recognise that there are also other forms of less direct violence that may be present (subtle or indirect damage) but that remain unexplored.

The independent variables are based on the abovementioned existing empirical studies. These include individual factors such as age; sentence (severity-years); type of crime (intentional homicide, manslaughter, kidnapping, assault, sexual crimes, theft, drug trafficking, illegal arms possession, aggravated theft, extortion, obstruction of justice, other); years of school attendance; risk factors during infancy (commission of robberies, drug consumption, stay in a minor's institution, contact with gangs); ties with outside acquaintances, and participation in community activities (cleaning, school and sports). Situational factors (independent variables) include overpopulation and prison conditions (such as access to drinking water, medical attention, food quantity, food quality, bathroom cleanliness, public phone, access to newspaper and books, among others).

Index of Living Standards in the Prison

An index of living standards in the prison was created for each respondent. The value ranges from zero to one in order

to reflect the percentage of listed services to which the respondent has access. 19 items selected from the survey were integrated into the index, and only respondents that answered at least 10 of the items were considered:

Has access to a television
Has enough water to drink
Toilets are clean
Has access to books
The institution provides medical attention
Family members receive good treatment
Has access to newspapers
Has access to magazines
Has access to radio
The institution provides medications
Has access to public telephone
Food quantity is enough
Medical care is good
Food quality is good
Has access to cell phone
The institution provides toilet paper
The institution provides toothpaste
The institution provides soap
The institution provides toothbrush

The Kuder-Richardson (KR20) value to assess the internal consistency of the 19 items was 0.646 (moderate reliability).

Results

Descriptive Statistics

In the broad array of literature regarding prison violence, there are five correlates that regularly present a positive relationship with prison violence and that can be compared with the empirical evidence of the surveys in Latin America: age, type of crime, severity of sentence, overpopulation and living conditions in prison.

The most consistent explanations correlate violence within prisons with the age of inmates (Cunningham & Sorensen, 2007). The countries with the highest percentage of young people (up to 35 years old) in prison are El Salvador (68.5%), Brazil (65.8%), and Argentina (61.2%) compared with Mexico (55.6%), Chile (60.8%) and Peru (45.1%). If this hypothesis were correct, we would expect to see more violence in countries such as El Salvador and Brazil, as they have the highest proportion of youth in prisons. Nonetheless, the proportion of inmates that suffer violence in these countries is the lowest among the six: 3.5% of inmates in El Salvador and 4.5% in Brazil were beaten within the six months prior to the survey.

A second strong correlation that is regularly established with violence is the type of crime committed by inmates (Cunningham, 2008): more severe crimes presuppose a proclivity for violence. El Salvador stands out as the country with the highest percentage of inmates sentenced for the worst crimes (intentional homicide). Argentina places second, followed by Mexico. The severity of the sentence is another important correlate of prison violence: inmates with longer sentences generally show a greater proclivity for using violence to resolve conflicts (Cunningham & Sorensen, 2007). Mexico stands out (11.2%) compared to the other countries for having the longest sentences (more than 40 years), followed by El Salvador (6.6%) and Brazil (2.6%). Even when the group of sentences is reduced to sentences of more than 21 years, again the countries with the highest percentages are Mexico (30.1%), El Salvador (28%) and Brazil (11.1%).

Lastly, along with age, the strongest and overall most studied correlates are overpopulation and living conditions. Regarding the first, it has been shown that greater overpopulation corresponds to higher levels of violence and conflict in order to obtain scarce resources (Lester, 1990). El Salvador (320) has the highest rates of overpopulation,[4] followed by Mexico (219) and Brazil (161) (2014),[5] and then Peru (127), Chile (111) and Argentina (102). While some countries have maintained a stable rate of overpopulation in the last decade (Brazil: 167 in 2005 to 161 in 2014) others have managed to decrease the rate (Argentina: 141 in 2005 to 102 in 2014, Chile: 160 in 2006 to 111 in 2014, and Peru: 151 in 2005 to 127 in 2014). El Salvador, on the other hand, has doubled its overpopulation, increasing from 161 in 2005 to 320 in 2014, and Mexico has increased from 131 in 2005 to 219 in 2014. Furthermore, high levels of overpopulation correspond to worsening standards of living within prisons, the formation of black markets to fulfill needs that are not satisfied by the penitentiary system, and the appearance of violence to control those markets (Skarbek, 2016). Table 2 shows that the prisons with the worst conditions are in El Salvador and Brazil, given the high proportions of respondents who indicated that their prisons lacked certain basic services.

In El Salvador and Brazil, the highest risk factors correlated with prison violence (mostly young inmates; a high proportion of convicts sentenced for serious crimes and with long sentences; overpopulation, and poor living standards) can be observed. Evidence from the literature would suggest that both countries should have the highest rates of internal

[4] The occupancy rate is determined by calculating the ratio of the number of prisoners to the number of places of a prison.

[5] International Centre for Prison Studies http://www.prisonstudies.org/

Table 2 Measurements of the key study and control variables

	Argentina	Brazil	Chile	El Salvador	Mexico	Peru
Valid N*	265	387	478	580	628	621
Prison conditions index						
Mean	0.509	0.385	0.468	0.333	0.372	0.477
Std. Dev	0.175	0.175	0.142	0.136	0.146	0.131
Q1	0.389	0.235	0.368	0.222	0.267	0.389
Q2 (median)	0.500	0.368	0.474	0.333	0.375	0.474
Q3	0.618	0.526	0.579	0.421	0.465	0.579
Prison conditions (% who answered Yes)						
Has access to a television	39.7	43.7	53.4	48.4	36.8	43.3
Has enough water to drink	40.7	30.9	56.0	35.3	37.4	39.5
Toilets are clean	43.4	39.4	38.1	29.6	39.4	42.2
Has access to books	45.0	19.7	42.2	28.7	41.5	41.2
The institution provides medical attention	25.8	21.6	47.7	24.7	35.6	41.2
Family members receive good treatment	61.2	26.5	23.0	35.1	20.2	29.5
Has access to newspapers	36.0	18.5	40.5	24.3	21.0	42.3
Has access to magazines	37.8	34.0	38.1	15.9	26.5	34.1
Has access to radio	39.3	30.6	45.8	12.8	0.0	32.0
The institution provides medications	21.3	21.3	42.6	12.5	17.9	28.5
Has access to public telephone	50.2	0.4	17.8	18.3	0.0	47.6
Food quantity is enough	12.0	19.8	31.4	8.3	4.8	23.5
Medical care is good	12.2	6.9	16.3	5.9	8.7	10.7
Food quality is good	11.0	6.1	15.5	3.4	5.2	8.5
Has access to cell phone	7.0	1.5	14.2	6.4	0.0	3.5
The institution provides toilet paper	6.4	18.1	1.0	4.4	0.7	0.7
The institution provides toothpaste	7.6	12.9	0.7	4.1	1.4	0.6
The institution provides soap	7.2	13.7	0.7	4.4	0.8	0.6
The institution provides toothbrush	7.0	8.3	0.9	3.5	1.8	0.7
Overpopulation (% who answered No)						
Each inmate has a bed	9.3	89.4	24.6	92.9	77.9	52.6
Violence inside the prison (% who answered Yes)						
Beaten within the last six months	18.2	4.5	26.1	3.5	15.1	14.4
Theft of personal items	31.8	30.1	38.3	31.8	66.9	47.0
Individual factors						
Proportion of men	79.1	86.3	86.1	81.9	80.7	87.0
Proportion that receives a visit at least once a week	20.7	21.6	52.2	15.6	42.0	32.7
Proportion that calls family at least once a week	91.3	3.9	40.1	25.5	79.3	74.9
Proportion that was in a minor's institution	19.4	18.8	40.2	11.9	9.0	6.9
Proportion that had contact with gangs during infancy	68.4	46.2	63.9	46.0	66.9	40.4
Proportion that robbed or sold drugs as a minor	44.4	35.9	59.0	12.6	11.8	15.8
Proportion that participates in sport activities	33.7	22.2	28.4	31.7	35.8	36.8
Proportion that participates in academic activities	29.7	9.6	30.3	26.9	37.0	20.0
Proportion that participates in cleaning activities	22.3	17.0	31.3	30.6	31.2	34.9
Proportion that has a job	29.3	24.9	34.2	24.2	29.4	36.2
Respondent age						
Proportion of inmates who are 35 years of age or less	61.2	65.8	60.8	68.5	55.6	45.1
Average	34.6	33.5	35.1	33.5	35.6	38.9
Standard Deviation	10.3	10.6	11.2	10.3	9.9	11.0
Years attended school						
Average	15.5	17.5	15.6	15.7	15.8	16.6
Standard Deviation	3.9	5.5	5.1	5.2	4.3	5.4

Table 2 (continued)

	Argentina	Brazil	Chile	El Salvador	Mexico	Peru
Years of imprisonment (sentence)						
Average	9.3	10.8	7.9	18.5	17.4	12.3
Standard Deviation	11.9	11.6	9.4	17.9	16.6	8.1
Proportion of inmates accused of each crime						
Intentional homicide	13.2	8.9	5.8	31.4	13.1	3.3
Manslaughter	7.6	1.2	2.0	4.8	3.0	1.0
Kidnapping	1.9	1.9	0.7	4.0	7.3	0.7
Assault	1.2	1.3	1.5	1.0	3.0	6.5
Sexual crimes	7.9	14.1	7.2	10.9	8.7	2.9
Theft	50.8	30.7	55.9	11.7	50.3	48.0
Drug trafficking	14.0	32.8	19.6	9.4	1.7	14.1
Illegal arms possession	1.0	0.4	1.0	1.9	6.7	2.3
Aggravated theft	0.2	6.0	2.4	1.1	n.d	16.0
Extortion	0.2	0.3	0.0	19.3	n.d	0.3
Obstruction of justice	0.1	0.0	0.0	n.d	n.d	0.0
Other crimes	2.0	2.4	3.9	4.5	6.2	4.9

*Only observations with 10 or more valid answers to the 19 questions of prison conditions were considered for analysis

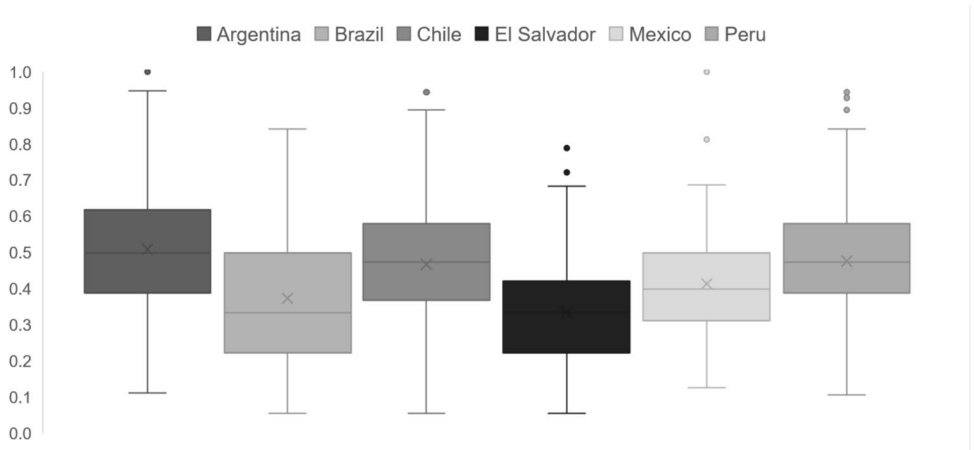

Fig. 1 Boxplot of prison conditions index by country. Source: Survey of the prison population in Latin America

violence. Nevertheless, the data of theft of belongings and beatings in El Salvador and Brazil are the lowest among the countries studied (this will be tested further in the following section).

Comparison of Quartiles of Prison Condition Indexes

The objective of this section is to assess differences in the violence suffered by respondents in each country while controlling for prison conditions. Considering that there are important differences between the six countries studied, it would be incorrect to equate all their living standards. For instance, in El Salvador, the country with the worst prison conditions (followed by Brazil), half of the respondents only have access to around 30% of the surveyed services, while in Argentina half of the respondents have access to at least 50% of the services. Also, in El Salvador none of the respondents claimed to have access to 80% of the items, while in Argentina 5% of the top respondents alleged to have access to 80% or more of the surveyed services.

For this reason, in this analysis we compare quartiles of respondents based on their prison conditions instead of groups above and below a given threshold. Thus, we compare how the 25% of respondents with worst prison conditions compare with the 25% with the best prison conditions within a country, and how the bottom 50% of respondents with the worst prison conditions compare with the highest 50%. Figure 1 shows the distribution of quartiles for respondents in each studied country (see Fig. 2).

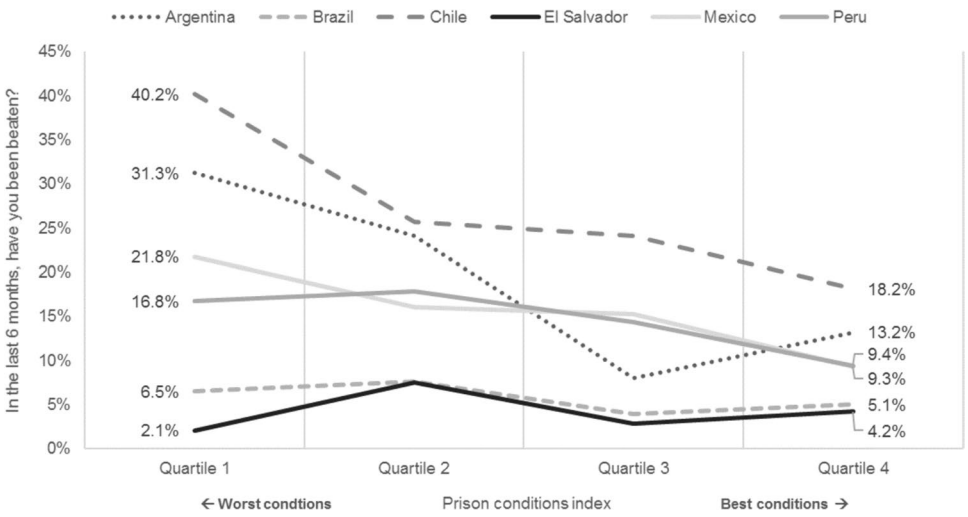

Fig. 2 Affirmative responses to the question 'In the last 6 months, have you been beaten?' by quartiles of prison condition index per country. Source: Survey of the prison population in Latin America

Table 3 Proportional differences for affirmative responses to the question "In the last 6 months, have you been beaten?" by quartiles of prison condition index per country

Country	Argentina	Brazil	Chile	El Salvador	Mexico	Peru	Total
N	265	387	478	580	628	621	2959
Quartile 1	31.3%	6.5%	40.2%	2.1%	21.8%	16.8%	18.5%
Quartile 2	24.1%	7.6%	25.7%	7.5%	16.1%	17.9%	15.9%
Quartile 3	8.0%	4.0%	24.1%	2.9%	15.3%	14.4%	12.4%
Quartile 4	13.2%	5.1%	18.2%	4.2%	9.3%	9.4%	9.4%
Z (Q1 vs Q4)	2.498	0.436	3.706	– 0.337	3.035	1.902	5.064
Sign	0.0062	0.3314	0.0001	0.3681	0.0012	0.0286	0.0001
Z ([Q1&Q2] vs [Q3&Q4])	3.632	1.068	2.91	0.659	2.272	1.941	4.925
Sign	0.0001	0.1428	0.0018	0.2549	0.0115	0.0261	0.0001

Physical Violence and Prison Conditions

On average, the 18.5% of inmates with the worst prison conditions (quartile 1) suffered physical violence. Nonetheless, the per country average varies widely: in Chile the percentage was as high as 40.2%, followed by Argentina with 31.3%, Mexico with 21.8% and Peru with 16.8%. Brazil and El Salvador had small violence percentages, 6.5% and 2.1% respectively. When comparing these percentages with the fourth quartile (best prison conditions), physical violence is reduced with statistical significance in most countries: Chile has a reduction of 22% (40.2% to 18.2%; $n=475$; $z=3.706$; $p<0.001$); Argentina has a reduction of 18% (31.3% to 13.2%; $n=265$; $z=2.498$; $p=0.006$); Mexico has a reduction of 12.5% (21.8% to 9.3%; $n=623$; $z=3.035$; $p=0.002$), and Peru has a reduction of 7.3% (16.8% to 9.4%; $n=617$; $z=1.902$; $p=0.028$). Only Brazil and El Salvador do not have statistically lower violence in the highest quartile than in the first one, but the levels of violence remain low among all quartiles. When comparing the first two quartiles vs. the third and fourth, the differences in violence among inmates remain statistically significant for Argentina, Chile, Mexico and Peru, but not for Brazil and El Salvador. Table 3 summarizes the tests' results (see Fig. 3).

Property Violence and Prison Conditions

On average, the 49.9% of inmates with the worst prison conditions (quartile 1) have suffered the theft of their belongings, with Mexico at the top (81.6%), followed by Peru with 57.4%, Chile with 50.9% and Argentina with 40.6%. Again, just as with physical violence, Brazil and El Salvador have the lowest incidence of property violence, with 27.2% and 28% respectively.

When comparing the percentages of the first quartile (worst prison conditions) with the fourth quartile (best prison conditions), property violence is reduced with statistical significance in most countries: Mexico with 31.3% (81.6% to 50.3%; $n=413$; $z=5.766$; $p<0.001$); Peru with 23.9% (57.4% to 33.5%; $n=613$; $z=4.149$; $p<0.001$); Argentina with 20% (from 40.6 to 20.6%; $n=265$; $z=2.5$; $p=0.006$), and Chile with 15.9% (50.9% to 35%; $n=476$; $z=2.446$; $p=0.007$). Only Brazil and El Salvador do not have statistically lower property violence in the highest

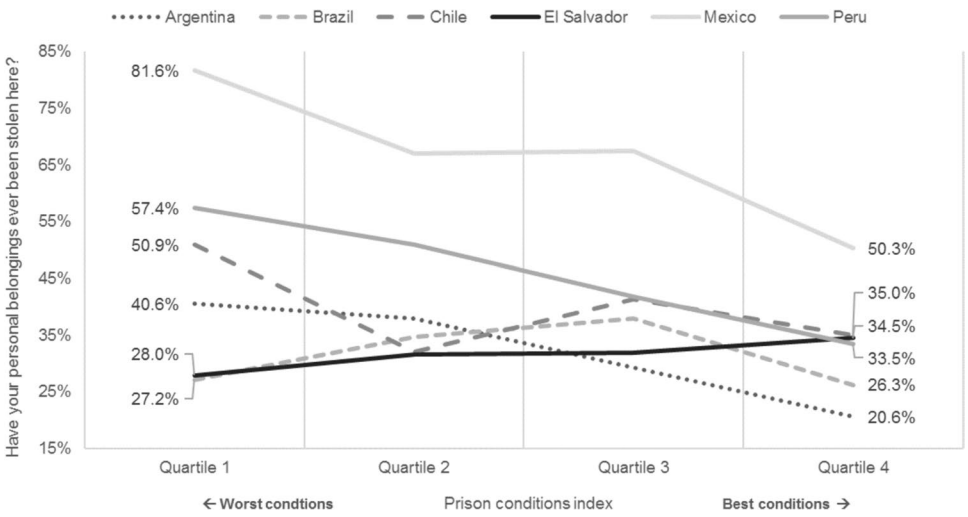

Fig. 3 Affirmative responses to the question 'Have your personal belongings ever been stolen here?' by quartiles of prison condition index per country. Source: Survey of the prison population in Latin America

Table 4 Proportional differences for affirmative responses to the question "Have your personal belongings ever been stolen here?" by quartiles of prison condition index per country

Country	Argentina	Brazil	Chile	El Salvador	Mexico	Peru	Total
N	265	387	478	580	628	621	2959
Quartile 1	40.6%	27.2%	50.9%	28.0%	81.6%	57.4%	49.9%
Quartile 2	37.9%	34.8%	32.1%	31.6%	67.0%	50.9%	43.4%
Quartile 3	29.3%	38.0%	41.3%	31.9%	67.5%	41.8%	44.9%
Quartile 4	20.6%	26.3%	35.0%	34.5%	50.3%	33.5%	35.4%
Z (Q1 vs Q4)	2.503	0.142	2.446	− 1.239	5.766	4.149	5.627
Sign	0.0062	0.4435	0.0072	0.1077	0.0001	0.0001	0.0001
Z ([Q1&Q2] vs [Q3&Q4])	2.471	− 0.249	0.748	− 0.937	4.007	4.064	3.541
Sign	0.0067	0.4017	0.2272	0.1744	0.0001	0.0001	0.0002

quartile, and actually, violence increases for El Salvador from 28% to 34.5%, although it is not statistically significant.

When comparing the first two quartiles vs. the third and fourth, the differences in property violence remain statistically significant for Argentina, Mexico and Peru, but not for Brazil, Chile, and El Salvador. Table 4 summarizes the tests' results.

Regressions

Two logit models were created, one with the dependent variable of physical violence, and another for the dependent variable of proprietary violence. For both models, the same explicative and control variables were included, as follows:

- For situational conditions: a prison conditions index and a dummy variable for overpopulation (1 = the respondent sleeps in a place where not all inmates have a bed).
- For personal characteristics: a dummy variable for inmates up to 35 years old, a dummy variable for gender (man = 1), number of years the respondent attended school, and two dummy variables indicating if the respondent receives a visit at least once a week and a phone call at least once a week.
- For risk factors during infancy: three dummy variables indicating if he/she had contact with gangs during infancy, if he/she robbed or sold drugs when a minor, and if he/she was incarcerated in a minor's institution.
- For community activities: four dummy variables indicating if the respondent participates in sports activities, in academic activities, in cleaning activities and if he/she has a job inside the institution.
- For sentence: a numerical variable for the length of the sentence (in years). As a person can be imprisoned for more than one crime, 12 dummy variables were included to indicate the crimes the respondent was sentenced for: Intentional Homicide, Manslaughter, Kidnapping, Assault, Sexual crimes, Aggravated robbery, Crimes against health (drug trafficking), Breaking and entering, Illegal arms possession, Simple robbery, Fraud/Embezzlement, or Extortion.

Table 5 Summary of Logistic Regression Analysis for the violence reported by the respondent (0 = did not suffer violence; 1 = suffered violence)

	Model 1 (physical violence)			Model 2 (proprietary violence)		
	B	SE B	eB	B	SE B	eB
Situational conditions						
Prison conditions index	− 2.227***	.426	.11	− 1.809***	.300	.16
Overpopulation	.155	.152	1.17	.333**	.111	1.39
Personal characteristics						
Age up to 35 years old	.274*	.135	1.32	− .174	.094	.84
Man	.133	.208	1.14	− 1.048***	.132	.35
Years that attended school	− .001	.013	1.00	.032***	.009	1.03
Receives a visit at least once a week	− .291*	.132	.75	− .261**	.097	.77
Calls family at least once a week	.237	.150	1.27	.432***	.109	1.54
Infancy						
Had contact with gangs during infancy	.444***	.137	1.56	.453***	.094	1.57
Robbed or sold drugs when was a minor	.382*	.153	1.47	.251*	.117	1.29
Was in a minor's institution	.270	.155	1.31	− .127	.125	.88
Community activities						
Participates in sport activities	− .260	.403	.77	− .060	.356	.94
Participates in academic activities	− .290	.470	.75	.531	.408	1.70
Participates in cleaning activities	− .427	.444	.65	.262	.390	1.30
Has a job	1.007*	.451	2.74	− .299	.390	.74
Sentence						
Sentence length	− .009	.006	.99	− .005	.004	.99
Sentence for Intentional Homicide	.472	.259	1.60	.293	.183	1.34
Sentence for Manslaughter	.903**	.323	2.47	.316	.257	1.37
Sentence for Kidnapping	.160	.347	1.17	.130	.236	1.14
Sentence for Assault	.028	.410	1.03	− .279	.302	.76
Sentence for Sexual crimes	.463	.269	1.59	.604***	.185	1.83
Sentence for Aggravated robbery	.380	.228	1.46	.209	.167	1.23
Sentence for Crimes against health	− .075	.268	.93	.006	.177	1.01
Sentence for Breaking and entering	.540	.694	1.72	.942	.628	2.56
Sentence for Illegal arms possession	.180	.247	1.20	.177	.189	1.19
Sentence for Simple robbery	.566*	.222	1.76	.155	.159	1.17
Sentence for Fraud, embezzlement	.575	.584	1.78	.467	.412	1.60
Sentence for Extortion	.500	.476	1.65	.036	.267	1.04
Country (base = Argentina)						
Brazil	− 1.250***	.351	.29	.087	.235	1.09
Chile	.558*	.240	1.75	.654***	.198	1.92
El Salvador	− 1.598***	.359	.20	− .158	.228	.85
Mexico	− .124	.263	.88	1.274***	.202	3.58
Peru	.213	.256	1.24	.723***	.191	2.06
Constant	− 1.928***	.464	.15	− .376	.322	.69
$\chi 2$		238.73			364.46	
df		32			32	
N		2 619			2 615	
Pseudo r2		0.117			0.101	

*p < .05; **p < .01; ***p < .001

Finally, a dummy variable for each country was added, taking Argentina as base value. Results of the regressions are reported in Table 5.

By jointly taking into consideration both models, we can analyze differences in the impact of a given factor on physical violence and proprietary violence. Overpopulation

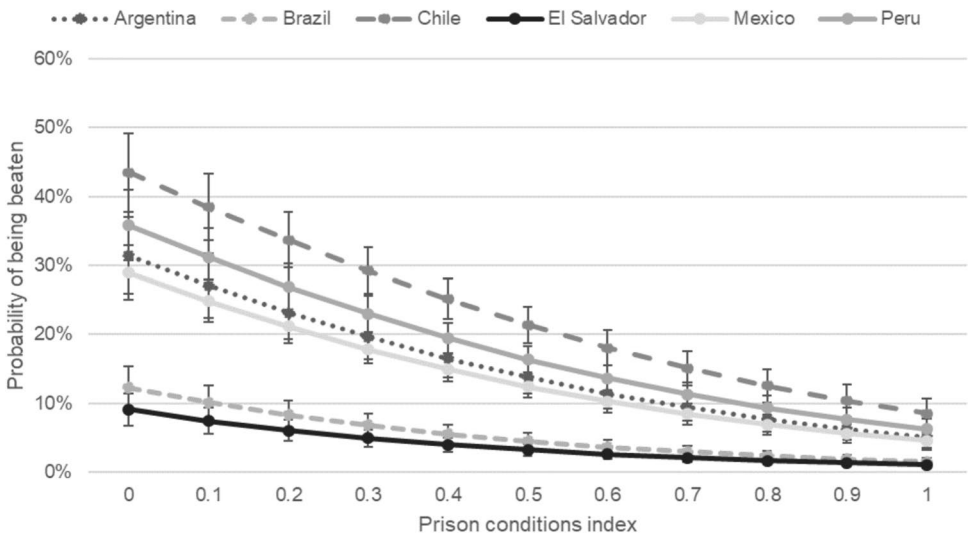

Fig. 4 Predictive margins from Model 1, for the question 'In the last 6 months, have you been beaten?' by prison condition index per country, 95% confidence intervals. Source: Model 1

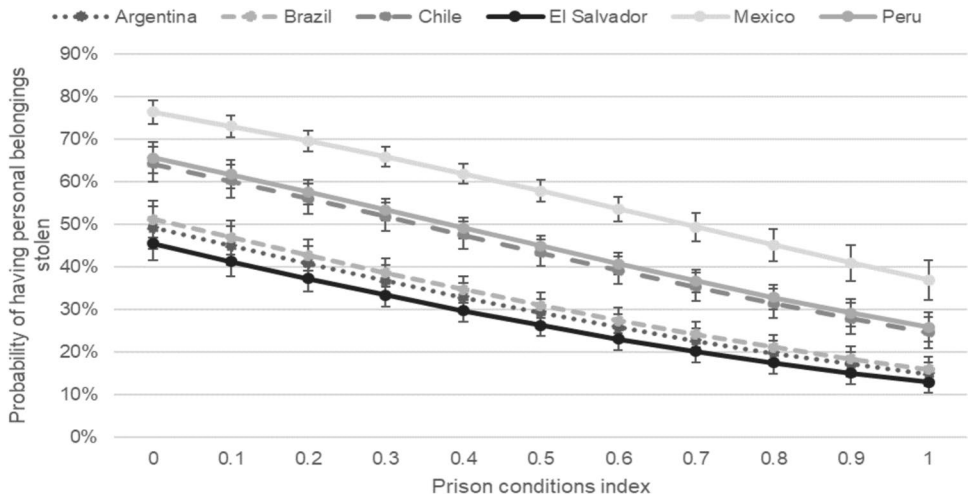

Fig. 5 Predictive margins from Model 2, for the question 'Have your personal belongings ever been stolen here?' by prison condition index per country, 95% confidence intervals. Source: Model 2

(Hypothesis 1) increases proprietary but not physical violence, and having better prison conditions (H2) reduces the incidence of both types of violence, although in El Salvador and Brazil this effect is quite small for physical violence. In both countries, violence is low in any given prison condition (see Figs. 4 and 5).

Regarding personal characteristics, younger inmates -up to 35 years old—are subjected to more physical violence but not more proprietary violence. Woman and more educated inmates suffer more from proprietary violence but not physical aggressions.

Close ties with acquaintances reduce both physical and proprietary violence if the inmate receives a visit at least once a week, but the effect is not the same with phone calls—they seem not to be substitutes.

Factor risks during infancy increase levels of violence suffered by an inmate, either if the inmate had contact with gangs during infancy or if he/she committed robberies or sold drugs before 18 years of age. Being incarcerated in a minors' institution did not yield any effect over the inmate's violence level.

Participation in community activities did not have much effect on the violence suffered by an inmate, as there is no significant difference regarding either physical or proprietary violence if an inmate participates in sport activities, attends academic programs or helps with cleaning. Nonetheless, having a job inside the prison increases considerably the probability of suffering physical violence.

Regarding sentence length, this showed no effect on violence, and severity of the crime had mixed results, as inmates sentenced for manslaughter and simple robbery suffer more physical violence, while those sentenced for sexual crimes suffer from proprietary violence. More serious crimes (such as intentional homicide or kidnapping) are not significant factors to explain differences in the violence suffered by an inmate.

As described above, both in El Salvador and Brazil, inmates have significantly lower probability of suffering physical violence than in the other four countries (as much as one fifth). Furthermore, regarding proprietary violence, inmates in El Salvador and Brazil have a lower probability of having their belongings stolen than in Chile, Mexico and Peru.

Discussion

The various tests performed indicate that prison conditions are determinant for explaining violence within prisons in four of the six studied countries. This coincides, in general terms, with the existing literature, but not exactly in the same sense (Cunningham, 2008; Cunningham & Sorensen, 2007; Lester, 1990). Overpopulation has also shown to be a predictor of violence, at least of the proprietary kind (Clayton & Carr, 1981; Franklin et al., 2006; Lester, 1990). Individual factors, such as a lower age correspond to a greater proclivity for physical violence (Cunningham & Sorensen, 2007), but contrary to literature (Hawkins et al., 2000), a higher level of education is associated with more proprietary violence, perhaps as this might be correlated with a higher income and thus more belongings that could be stolen inside the prison.

Community ties have shown to be correlated with violent behavior: the more the inmate has contact with outside acquaintances, the less violence he/she is subjected to. This finding is consistent with previous studies (DeLisi & Scherer, 2006). Nonetheless, participation in community activities inside the prison is not correlated with lower violence, contrary to what has been previously concluded (McCorkle et al., 1995; Walrath, 2011).

Results related to types of crime and length of sentence did not show an influence on levels of violence in the prison, contrary to earlier studies (Cunningham, 2008; Cunningham & Sorensen, 2007). Nonetheless, a record of violence did have an effect on the current risk of suffering violence in the prison, which is consistent with previous findings (Drury and DeLisi 2011; Hagedorn, 1998; Camp & Camp, 1985; Gaes et al., 2003).

The survey data in Latin America contradicts some of the more accepted and traditional correlates to violence, as the models cannot explain why some of the prisons with the worst conditions are the most peaceful (Brazil and El Salvador). When running models 1 and 2 independently for respondents only from Brazil and El Salvador, none of the explicative variables described above yield significance to explain differences in violence suffered by the inmates. Consequently, another factor needs to be identified that can explain this counterintuitive finding.

What Explains this Finding?

We seek to explain these results within the context of Latin American prisons, as what seems to distinguish these penitentiary units from others is the existence of highly complex and sophisticated criminal organizations: gangs (PCC in Sao Paulo and various gangs in El Salvador) that have achieved internal control in their respective prisons (Darke, 2013); Butleret al., 2018). Although it is an unstable control, they monopolize access to the prison's internal market. In Argentina, Chile, Mexico and Peru, gang activity follows patterns described in previous studies (Cunningham & Sorensen, 2007; DeLisi et al., 2004; Dininny, 2009; Gaes et al., 2003Moore 1978;) that consider gangs a strong correlate to a proclivity for the use of violence, as gangs tend to 'import' violent street codes into prisons (Jacobs, 1974), increase threats to guards (Wilkingson and Delgado 2006; Winterdyk, 2009), engage in illegal activities (Reuters, 2009) and the drug market (Santos, 2007), increase racial tensions (Clear, 1996; Ross & Richards, 2002), undermine rehabilitation programs (Colon, 2004) and radicalize prison inmates (Hamm, 2008; Marchese, 2009). But all of these studies focus—on an individual level—on gang membership and not on a prevalence phenomenon. Even studies oriented to gang prevalence within prisons (Crouch et al., 2010; Fong et al., 1992; Gaes et al. 2003; Griffin & Hepburn's, 2006 Huff & Meyer, 1997; Irwin, 1980; Jacobs, 2015; Ralph & Marquart, 1991; Shelden, 1991) are primarily concerned with the effect of inmate gang affiliation on violent misconduct on an individual level while the dominant role of a gang within a prison in relation to other criminal groups has received meager attention. This is likely due to the fact that most mainstream studies focus on prisons in the United States (for example, DeLisi et al., 2004).

However, the experience in Latin America is different because since their creation, some gangs appear to have evolved from a mechanism of protection against the dangers of prison (or the threat of other groups: gangs, ethnic groups, etc.) to the management of both legal activities (private administration of public goods in a context of State institution absenteeism (Ostrom, 1990; Stewart, 2009) and illegal ones (dealing drugs, alcohol, prostitution, organized crime such as phone extortion, etc.). In this sense, this text coincides with the relatively new literature on the role of gangs in explaining prison violence in self-governed prisons (Ariza & Iturralde, 2022; Dias & Salla, 2013; Doyle, 2021; Lessing, 2015; Peirce, 2022).

In contexts of minimal State presence, such as in Brazil and El Salvador, gangs not only administer the distribution of goods, but also aim to facilitate their exchange, supporting themselves on strong social ties of reciprocity and cooperation in a community of scarce resources (Costa & Kahn, 2007). In these prisons, gangs become de facto

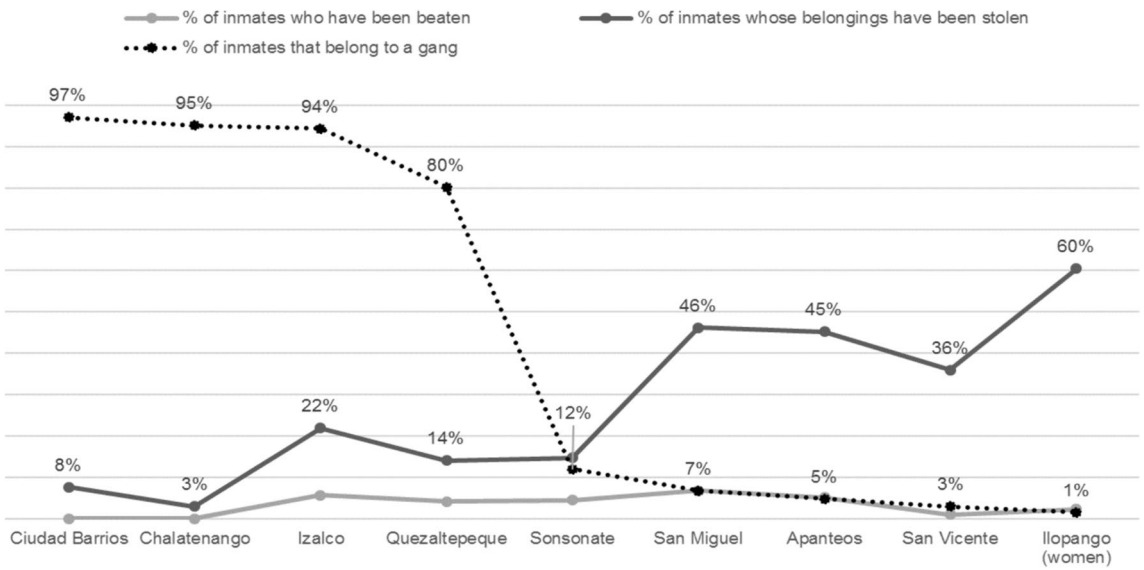

Fig. 6 Prison violence and percentage of inmates who belong to a gang in El Salvador, by prison. Source: Survey of the prison population in Latin America. *Question: Do you belong to a gang?—n: 1.158

extralegal governance institutions (Skarbek, 2016) and another structure for coordinating social and individual action (Dias & Álvarez, 2013; Dal Santo (2022). Although further research and more empirical evidence is necessary, in such situations, gangs seem to abandon their predatory nature and establish procedures to 'manage' conflicts and 'regulate' the operation of the internal markets, protecting the involved groups from non-authorized vendettas (precisely as in the hypotheses of Gambetta, 1993 and Varese, 2005).

This can be observed in the prisons of El Salvador where physical violence is practically non-existent, especially in the four prisons massively controlled either by M-13 or by Barrio 18, in which rates of violence are particularly low (see Fig. 6). In Brazil, low violence is explained by the dominance of the PCC in the prisons (Hanson, 2006)).

Despite being an unstable equilibrium, the criminal government appears to have developed the capacity to reduce levels of violence (Dias, 2011; Skarbek, 2011). These types of authorities ultimately replace the complex system of norms that regulate the social life of inmates based on honor codes, prestige, reputations, customs, and so on, (Irwin, 1980) with the self-organization of groups that establish new honor codes and loyalties based on gang obedience. The unwritten codes of behavior in prisons that forbid demonstrations of weakness, betrayals, and collaboration with personnel, among others, establish an authority scale where usually violent tools for conflict resolution simply disappear or are substantially reduced (although sometimes, only temporarily). The gang "government" becomes a kind of energetic, resolute, and dynamic authority, that, to a certain degree, can guarantee, or creates the perception that it can guarantee, the safety and property rights of inmates for a time (Darke, 2013; Skarbek, 2012).

What Can be Done?

Various intervention strategies aimed at prison gangs exist, although due to the heterogeneous nature of gangs, their jurisdictions, the commitment of their members, whether they have a local or national presence, their organizational structure and so on, it is difficult to generalize experiences (Worral & Morris, 2012). Even when all strategies are focused on staff training, intelligence gathering and specialized interventions (Wells et al., 2002), profiling (Nadel, 1997), sharing information with law enforcement institutions (Thomas & Thomas, 2007) and social networking (Schwartz & Rouselle, 2009), in many cases, gang containment strategies fail to give the expected results (Petersilia, 2006).

Following Lessing (2015), who established the dynamics of gang growth (the consolidation of control in prison life, its propagation through the penitentiary system, and the projection of coercive power outside of the jail), solutions implemented to decrease the power of gangs in Brazil (mass incarceration, leader transfers, isolation, segregation by gang, etc.) have in fact resulted in an increased capacity among of criminal organizations. The strategy of isolating gang members to minimize their influence (Fischer, 2001; Hill, 2009) and transferring gang leaders in order to reduce recruitment capacity (Riveraet

al., 2003) have also failed in the U.S., whilst some long-term rehabilitation programs have shown positive results (Placido et al., 2006).

Facing similar issues, the only positive experience in Latin America is that of Nicaragua, where, according to Cruz (2010) no 'hard handed' policies were implemented and consequently, incarceration did not dramatically increase, and prisons did not become a base of operations for criminal groups. The anti-gang policies focused on a preventive approach to destigmatize (instead of criminalize) gangs, and concentrated police repression (and incarceration) only on the most violent groups.

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Data availability The data utilized in this study is available in the following link belonging to the Interamerican Development Bank (IADB). https://www.iadb.org/es/recursos-de-conocimiento/datos.

Declarations

Ethical Approval Ethical approval was waived by the local Ethics Committee of Center for Economic Research and Teaching (CIDE) in view of the retrospective nature of the study and all the procedures being performed were part of the routine care.

Consent to Participate Consent to participate Informed consent was obtained from all individual participants included in the study.

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References

Álvarez P (2011) *Retroceso de los derechos humanos en las cárceles de Argentina*. Retrieved 20, June, 2020, from http://suite101.net/article/situacion-de-derechos-humanos-en-crceles-empeoro-en-argentina-a37648

Antillano, A., Arias, E. D., & Zubillaga, V. (2020). Violence and territorial order in Caracas, Venezuela. *Political Geography, 82*, 102221.

Antony, C. (2007). Mujeres invisibles, las cárceles femeninas en América Latina. *Revista Nueva Sociedad, 208*, 73–85.

Ariza, L., & Iturralde, M. (2022). Tales from La Catedral: The narco and the reconfiguration of prison social order in Colombia. *Prisons, Inmates and Governance in Latin America* (pp. 63–92). Springer International Publishing.

Atlas R (1982) *Violence in Prison: Architectural Determinants*. University Microfilms International. (Unpublished doctoral dissertation)

Bidna, H. (1975). Effects of increased security on prison violence. *Journal of Criminal Justice, 3*, 33–46.

Briceño-León, R. (2002). La nueva violencia urbana de América Latina. *Sociologias, 4*(8), 34–51.

Bulman, P., García, M., & Hernon, J. (2012). Study raises questions about psychological effects of solitary confinement. *NIJ Journal, 269*, 4–7.

Butler, M., Slade, G., & Dias, C. N. (2018). Self-governing prisons: Prison gangs in an international perspective. *Trends in Organized Crime, 25*, 1–16.

Camp, G., & Camp, C. G. (1985). *Prison gangs: Their extent, nature, and impact on prisons*. Government Printing Office.

Clayton, O., & Carr, T. (1981). The effects of prison crowding upon infraction rates. *Criminal Justice Review, 17*, 69–77.

Clear, T. (1996). Backfire: When incarceration increases crime. *Journal of the Oklahoma Criminal Justice Research Consortium, 3*(2), 1–10.

Colon, T. (2004). *Gang members in juvenile detention: A California story*. California State University.

Cooper, R., & Werner, P. (1990). Predicting violence in newly admitted inmates. A lens model analysis of staff decision making. *Criminal Justice and Behavior, 17*(4), 431–447.

Costa, D., & Kahn, M. (2007). Surviving andersonville: The benefits of social networks in POW camps. *American Economic Review, 97*(4), 1467–1487.

Crespo, F. (2009). Cárceles: Subcultura y violencia entre internos. *CENIPEC, 28*, 125–150.

Crouch, B., Marquart, J. R., & Marquart, J. W. (2010). *An appeal to justice: Litigated reform of Texas prisons*. University of Texas Press.

Cruz, J. M. (2010). Central American maras: From youth street gangs to transnational protection rackets. *Global Crime, 11*(4), 379–398.

Cunningham, M. (2008). Institutional Misconduct among Capital Murderers. In M. DeLisi & P. Conis (Eds.), *Violent offenders: Theory, research, public policy, and practice*. Jones and Bartlett.

Cunningham, M., & Sorensen, J. (2007). Capital offenders in Texas prisons: Rates, correlates, and an actuarial analysis of violent misconduct. *Law and Human Behaviour, 31*, 553–571.

Dal Santo, L. (2022). Brazilian prisons in times of mass incarceration: Ambivalent transformations. *The Howard Journal of Crime and Justice, 61*(4), 502–518.

Darke, S. (2013). Inmate governance in B razilian prisons. *The Howard Journal of Criminal Justice, 52*(3), 272–284.

Davies, W., & Burguess, P. (1988). Prison officers' experience as predictor of risk attack: An analysis within the british prison system. *Medicine, Science and the Law, 28*, 135–138.

DeLisi, M. (2003). Criminal careers behind bars. *Behavioral Sciences and the Law, 21*(5), 653–669.

DeLisi, M., Berg, M., & Hochstetler, A. (2004). Gang members, career criminals and prison violence: Further specification of the importation model of inmate behaviour. *Criminal Justice Studies, 17*(4), 369–383.

DeLisi, M., & Scherer, A. (2006). Multiple homicide offenders: offense characteristics, social correlates, and criminal careers. *Criminal Justice and Behavior, 33*, 367–391.

Di Placido, C., Simon, T., Witte, T., et al. (2006). Treatment of gang members can reduce recidivism and institutional misconduct. *Law and Human Behavior, 30*(1), 93–114.

Dias, C. (2011). Estado e PCC em meio às tramas do poder arbitrário nas prisões. *Tempo Social, 23*(2), 213–233.

Dias, C., & Salla, F. (2013). Organized crime in Brazilian prisons: The example of the PCC. *International Journal of Criminology and Sociology, 2*, 397–408.

Dias, C. N., Salla, F., & Alvarez, M. C. (2022). Governance and legitimacy in Brazilian prison: From solidarity committees to the primeiro comando da capital (PCC) in São Paulo. *Prisons, inmates and governance in Latin America* (pp. 35–62). Springer.

Dininny S (2009) New prison gang unit touted by Washington State. The *Seattle Times*. Retrieved 20, June, 2020, from http://seattletimes.nwsource.com/html/nationworld/2008710046_apprisong angs.html

Doherty, P. (1983). *Homicides in Canadian penitentiaries, 1967–1981*. University of Ottawa.

Douglas, K., Ogloff, J., & Hart, S. (2003). Examination of a model of violence risk assessment among forensic psychiatric patients. *Psychiatric Services, 54*, 1372–1379.

Doyle, C. (2021). The criminal actors have a social base in their communities: Gangs and service provision in Medellín Colombia. *Latin American Politics and Society, 63*(1), 27–47.

Drury, A., & DeLisi, M. (2011). Gangkill: An exploratory empirical assessment of gang membership, homicide offending, and prison misconduct. *Crime and Delinquency, 57*, 130–146.

Fischer D (2001) Arizona Department of Corrections: *Security Threat Group (STG) Program Evaluation, Final Report Washington DC US Department of Justice, Office of Justice Programs*. National Institute of Justice, Washington.

Fong, R., Vogel, R., & Buentello, S. (1992). Prison gang dynamics: A look inside the Texas department of corrections. In P. J. Benejos & A. V. Merlo (Eds.), *Corrections: Dilemmas and directions.* Anderson.

Franklin, T., Franklin, C., & Pratt, T. (2006). Examining the empirical relationship between prison crowding and inmate misconduct: A meta-analysis of conflicting research results. *Journal of Criminal Justice, 34*, 401–412.

Gadon, L., Johnstone, L., & Cooke, D. (2006). Situational variables and institutional violence: A systematic review of the literature. *Clinical Psychological Review, 26*(5), 515–534.

Gaes, G., Camp, S., Langan, N., et al. (2003). the influence of prisons on inmate misconduct: A multilevel investigation. *Justice Quarterly, 20*(3), 501–533.

Gambetta, D. (1993). *The sicilian maffia: The business protection*. Harvard University Press.

Gentile, M., & Tabbush, C. (2010). *Una economía política de la violencia en las cárceles para mujeres en Argentina*. Universidad Federal de Santa Catarina.

Gillespie, W. (2005). Racial differences in violence and self-esteem among prison inmates. *American Journal of Criminal Justice, 29*(2), 161–185.

Gonçalves, L., Gonçalves, R., Martins, C., et al. (2014). Predicting infractions and health care utilization in prison a meta-analysis. *Criminal Justice and Behavior, 41*(8), 921–942.

Griffin, M., & Hepburn, J. (2006). the effect of gang affiliation on violent misconduct among inmates during the early years of confinement. *Criminal Justice and Behavior, 33*(4), 419–466.

Gual R and Andersen M J (2010) *Golpes, agresiones y tortura en las cárceles federales.* Retrieved 20, June, 2020, from http://conti.derhuman.jus.gov.ar/2010/10/mesa-12/gual_andersen_mesa_12.pdf

Hagedorn, J. (1998). Gang violence in the postindustrial era. *Crime and Justice, 24*, 365–419.

Hamm, M. S. (2008). Prisoner radicalization: Assessing the threat in US correctional institutions. *NIJ Journal, 261*, 14–19.

Hanson S (2006) Brazil's Powerful Prison Gang. *Council on Foreign Relations*. Retrieved 26, September, from, www.cfr.org/publication

Harer, M., & Langan, N. (2001). Gender differences in predictors of prison violence: Assessing the predictive validity of a risk classification system. *Crime and Delinquency, 47*, 513–536.

Harer, M., & Steffensmeier, D. (1996). Race and prison violence. *Criminology, 34*(3), 323–355.

Hawkins D, Herrenkohl T, Farrington D et al (2000) Predictors of Youth Violence. *Juvenile Justice Bulletin* 2--13.

Hewitt, J., Poole, E., & Regoli, R. (1984). Self-reported and Observed Rule-Breaking in Prison: A Look at Disciplinary Response. *Justice Quarterly, 3*, 437–447.

Hill, C. (2009). Gangs/security threat groups. *Corrections Compendium, 34*(1), 23–37.

Horowitz, R., & Schwartz, G. (1974). Honor, normative ambiguity and gang violence. *American Sociological Review, 39*(2), 238–251.

Huebner, B. (2003). Administrative Determinants of Inmate Violence: A Multilevel Analysis. *Journal of Criminal Justice, 31*(2), 107–117.

Huff, R., & Meyer, M. (1997). Managing prison gangs and other security threat groups. *Corrections Management Quarterly, 1*(4), 10–18.

Irwin, J. (1980). *Prisons in Turmoil*. Brown and Co.

Jacobs, J. (1974). Street gangs behind bars. *Social Problems, 21*(3), 395–409.

Jacobs, J. (2015). *Stateville: The penitentiary in mass society*. The University of Chicago Press.

Jiang, S., & Fisher-Giorlando, M. (2002). Inmate Misconduct: A Test of the Deprivation, Importation, and Situational Models. *The Prison Journal, 82*, 335–358.

Kratcoski, P. (1988). The Implications of Research Explaining Prison Violence and Disruption. *Federal Probation, 52*, 27–32.

Lahm, K. (2008). Inmate-On-Inmate Assault: A Multilevel Examination of Prison Violence. *Criminal Justice and Behavior, 35*(1), 120–137.

Larroulet, P., Droppelmann, C., Del Villar, P., Daza, S., Figueroa, A., & Osorio, V. (2020). Who is transitioning out of prison?: Characterising female offenders and their needs in Chile. *International Journal for Crime, Justice and Social Democracy, 9*(1), 112–125.

Le Bonniec, F. (2014). Las cárceles de la etnicidad´ (2000–2010). *Oñati Socio-Legal Series, 4*(1), 104–121.

Lessing, B. (2015). Counterproductive Punishment: How Prison Gangs Undermine State Authority. *Rationality and Society, 29*(3), 257–297.

Lester, D. (1990). Overcrowding in Prison and Suicide and Homicide Rates. *Perceptual and Motor Skills, 71*(1), 274–278.

Malacalza, L. (2015). Gobernabilidad y violencia: Acerca del ejercicio de la maternidad en las cárceles bonaerenses. *Derecho y Ciencias Sociales, 12*, 154–168.

Marchese, J. (2009). Managing gangs in a correctional facility: What wardens and superintendents need to know. *Corrections Today, 71*, 44–47.

Marquart, J. (1986). Doing Research in Prison: The Strengths and Weaknesses of Full Participation as a Guard. *Justice Quarterly, 3*(1), 15–32.

McCorkle, R., Miethe, T., & Drass, K. (1995). Roots of Prison Violence: A Test of the Deprivation, Management, and Not-So-Total Institution Models. *Crime and Delinquency, 41*(3), 317–331.

Miller W (1969) Violent crime in city gangsIn D Cressey and D Ward (eds) *Delinquency, crime, and social process* 124–156. Harper and Row.

Morais M (2009) *Situación actual de los derechos humanos en las cárceles de Venezuela*. ILDIS, Caracas.

Morgan E (1999) The Violence of Women's Imprisonment: A View from the Inside. In S Cook and S Davies (eds) *Harsh punishment: International experiences of women's imprisonment* 32–46. Northeastern University Press.

Müller, M. M. (2012). The rise of the penal state in Latin America. *Contemporary Justice Review, 15*(1), 57–76.

Nadel, B. (1997). Slashing gang violence, not victims: New York City Department of Corrections reduces violent jail incidents through computerized gang tracking data base. *Corrections Compendium, 22*(10), 20–22.

Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press.

Padrón, M. (2008). Violencia carcelaria II. *Revista De Psicología-Escuela De Psicología, 27*(2), 76–88.

Peirce, J. (2022). Provós, Representantes, Agentes: The Evolution of Prison Governance Arrangements in the Dominican Republic's Prison Reform Process. *Prisons, Inmates and Governance in Latin America* (pp. 93–126). Springer International Publishing.

Petersilia J (2006) *Understanding California Corrections*: A policy research program report California Policy Research Center, California.

Pollack, S. (2003). Focus-group Methodology in Research with Incarcerated Women: Race, Power, and Collective Experience. *Affilia, 18*(4), 461–472.

Porporino, F., Doherty, P., & Sawatsky, T. (1987). Characteristics of Homicide Victims and Victimizations in Prisons: A Canadian Historical Perspective. *International Journal of Offender Therapy and Comparative Criminology, 31*(2), 125–136.

Posada A and Salazar E (2004) *Las cárceles… Una visión*. Ediciones del Rectorado, Caracas.

Posada, A., & Díaz-Tremarias, M. (2008). Las cárceles y población reclusa en Venezuela. *Revista Española De Sanidad Penitenciaria, 10*, 22–27.

Ralph, P., & Marquart, J. W. (1991). Gang violence in Texas prisons. *The Prison Journal, 71*(2), 38–49.

Regueyra M (2011) La palabra hiere. Lenguaje, sexualidad y violencia en la vida cotidiana en una cárcel de hombres. *Diálogos* 2/4.

Reisig, M. (1998). Rates of Disorder in Higher-Custody State Prisons: A Comparative Analysis of Managerial Practices. *Crime and Delinquency, 44*, 229–244.

Reuters (2009, Feb. 13) San Diego street gang members charged with racketeering conspiracy, firearms offenses http://www.reuters.com/article/pressRelease/idUS288714+13-Feb-2009+PRN20090213. Cited 20 June 2020.

Rivera, B., Cowles, E., & Dorman, L. (2003). An exploratory study of institutional change: Personal control and environmental satisfaction in a gang-free prison. *The Prison Journal, 83*(2), 149–170.

Rivera, L. (2012). Geografías de violencia y exclusión: Pandillas encarceladas en Honduras. *Latin American Research Review, 47*(2), 167–179.

Ross, J. I., & Richards, S. (2002). *Behind bars: Surviving prison*. Penguin.

Santos, M. (2007). *Inside: Life behind bars in America*. Macmillan.

Schenk, A., & Fremouw, W. (2012). Individual Characteristics Related to Prison Violence: A Critical Review of the Literature. *Aggression and Violent Behavior, 17*, 430–442.

Schwartz, D., & Rouselle, T. (2009). Using social network analysis to target criminal networks. *Trends in Organized Crime, 12*(2), 188–207.

Sepúlveda C, & Pojomovsky I (2021). Carceral order, mediation, and representation: Fiction and ethnography in a Venezuelan prison. *Carceral Communities in Latin America: Troubling Prison Worlds in the 21st Century*, 339–355.

Shelden, R. (1991). A comparison of gang members and non-gang members in a prison setting. *The Prison Journal, 71*(2), 50–60.

Short, J., & Strodtbeck, F. (1965). *Group process and gang delinquency*. University of Chicago Press.

Skarbek, D. (2011). Governance and Prison Gangs. *American Political Science Review, 105*(4), 702–716.

Skarbek, D. (2012). Prison gangs, norms, and organizations. *Journal of Economic Behavior and Organization, 82*(1), 96–109.

Skarbek, D. (2016). Covenants without the Sword? Comparing Prison Self-Governance Globally. *American Political Science Review, 110*(4), 845–862.

Sommers, I., & Baskin, D. (1991). Assessing the Appropriateness of the Prescription of Psychiatric Medications in Prison. *The Journal of Nervous and Mental Disease, 179*(5), 267–273.

Steiner B, Butler D and Ellison J (2014) Causes and Correlates of Prison Inmate Misconduct: A Systematic Review of the Evidence. *Journal of Criminal Justice*42/6: 462–470.

Steinke, P. (1991). Using Situational Factors to Predict Types of Prison Violence. *Journal of Offender Rehabilitation, 17*(2), 119–132.

Stewart, J. (2009). Cooperation when *N* is large: Evidence from the mining camps of the American West. *Journal of Economic Behavior and Organization, 69*(3), 213–225.

Thomas, C. (1977). Theoretical Perspectives on Prisonization: A Comparison of the Importation and Deprivation Models. *Journal of Criminal Law and Criminology, 68*, 135–145.

Thomas R and Thomas L (2007, October) *Juvenile gangs behind fences*. Paper presented at the Correctional Security Network Conference, Cincinnati. Correctional Security Network Conference.

Thrasher F M and Short J F (1963) *The Gang. A Study of 1,313 Gangs in Chicago*. University of Chicago Press, Chicago.

Trajtenberg N and Sánchez de Ribera O (2019) Violencia en instituciones penitenciarias. Definición, la medición y la explicación del fenómeno. *Revista de Ciencias Sociales*, *32*(45), 147–175.

Trammell R (2012) *Enforcing the Convict Code: Violence and Prison Culture*. Lynne Rienner, Boulder.

Varese, F. (2005). *The Russian Mafia: Private Protection in a New Market Economy*. Oxford University Press.

Vilches L (2009) *Confrontando las violaciones a los DDHH en las cárceles de Argentina, Chile y Venezuela: ¿Una batalla perdida?*. Grin, Caracas.

Walrath, C. (2011). Evaluation of an Inmate-Run Alternatives to Violence Project. *Journal of Interpersonal Violence, 16*(7), 697–711.

Walters, G. (2011). The Latent Structure of Life-Course-Persistent Antisocial Behavior: Is Moffitt's Developmental Taxonomy a True Taxonomy? *Journal of Consulting and Clinical Psychology, 79*, 96–105.

Wells, J., Minor, K., & Angel, E. (2002). *A study of gangs and security threat groups in America's adult prisons and jails*. National Major Gang Task Force.

Winterdyk, J. (2009). *Prison gangs: A review and survey of strategies*. Correctional Service of Canada.

Woolredge, J., Griffin, T., & Pratt, T. (2001). Considering hierarchical models for research on inmate behavior: Predicting misconduct with multilevel data. *Justice Quarterly, 18*, 203–231.

Worrall, J., & Morris, R. (2012). Prison gang integration and inmate violence. *Journal of Criminal Justice, 40*(5), 425–432.

Wright, K. (1991). The violent and victimized in the male prison. *Journal of Offender Rehabilitation, 16*(3–4), 1–26.