A Hole at the Center of the State:
Prison Gangs and the Limits to Punitive Power

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Abstract

The state's central function is to establish authority through its monopoly on violence; the very attempt, however, can be counterproductive. Punishment incapacitates and deters individuals, but can empower destructive collective forces. Prison gangs, their ranks swelled by mass incarceration, transform the core of the coercive apparatus into a headquarters for organizing and taxing street-level criminal activity, supplanting state authority in communities, and orchestrating mass violence and protest. Drawing on a formal model, fieldwork, and case studies from the US and Latin America, I show how gangs use control over prison life, plus the state-provided threat of incarceration, to project power. The model predicts that common state responses—crackdowns and harsher sentencing—can strengthen prison gangs' leverage over outside actors, consistent with the observed expansion of prison gangs during mass-incarceration initiatives. These gang-strengthening effects of incarceration can have increasing returns, implying a point beyond which additional punishment erodes state authority.

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> Before [El Salvador's Mano Dura mass-incarceration policy] began it was different. We hadn't gotten to seeing things collectively. The system has united us… like it or not, we cannot look at things individually, because they haven't treated us individually, nor have they pursued or locked us up individually. — "El Viejo Lin," imprisoned *mara* gang leader in El Salvador.[1]

Of the dilemmas that face the state in asserting its monopoly on the legitimate use of force, administering punishment might seem, at first, a minor one. If crime is an affront to or violation of the state's authority, then punishment is what restores that authority. It does so, in part, instrumentally, by incapacitating captured lawbreakers and deterring potential ones, presumably reducing crime and reinforcing the rule of law. On the other hand, the experience of incarceration can have crimogenic and other negative effects on inmates, their families, and communities. Research tends to focus on these individual-level, instrumental effects,[2] and debates over carceral policy generally center on how much increased incarceration reduces crime and whether that outweighs the attendant costs.

But incarceration, I claim, also has *collective* effects that, as the quote above suggests, can strengthen prison-based organizations at the expense of the state. Outnumbered prison managers have long ceded partial authority to inmate groups;[3] overcrowding and larger recruitment pools can further consolidate gang control over aspects of prison life. Increasingly, though, well-structured prison gangs are leveraging that control to project power onto the streets. From Los Angeles and El Paso to El Salvador and Brazil, they have established authority over local drug traffickers and street gangs, organizing them into extensive and lucrative prison-based criminal networks. The most powerful prison gangs have established non-state authority over vast tracts of urban periphery, and even orchestrated mass violence against state and society.

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[1] Quoted in Cruz 2010, 393.
[2] E.g. Levitt 1997; Raphael and Stoll 2009; Weaver and Lerman 2010; but see Tyler 2003, 2006 on normative effects.
[3] E.g. Jacobs 1978; Sykes 1958

This paper makes three interrelated claims. First and foremost, since projection of power depends on outside actors anticipating future incarceration, common state responses of mass arrests and harsher sentences can *increase* prison gangs' leverage on the street. I formally model this logic and show that its predictions are consistent with the available empirical evidence. Secondly, the ends to which prison gangs put their coercive power also matter: if they merely used it to predate on outside criminal activity, they would remain primarily a law-enforcement and corrections issue. I find, however, that projection of power can have ambiguous effects on crime and especially violence, but always erodes state authority in key ways. Finally, I take seriously the implication of these first two claims: mass incarceration can inadvertently undo state authority by empowering non-state actors, even *if* it reduces crime rates. Throughout the paper, I highlight the lacunae, both empirical and conceptual, in our understanding of prison gangs and provide a framework for further study.

The second section empirically examines prison-gang projection of power and the uses to which it is put. Bolstering a comparative review of extant sources with original field work, I find that prison gangs now 'govern' street gangs and drug dealers—organizing and pacifying criminal activity, then taxing the surplus—not only in California,[4] but in Brazil and Central America as well. Moreover, prison-based authority can extend beyond core criminal membership, constituting state-like 'parallel power'[5] over extensive peripheral regions and populations. Most ominously, prison gangs use their coercive capacity to orchestrate, or strategically withhold, organized protest and violence, yielding immense political leverage over the state.[6]

Brazil offers the starkest examples. In May 2006, São Paulo, the world's third-largest city, was held hostage by a prison gang. The Primeiro Comando da Capital (PCC) instigated synchronized riots in some 90 prisons, then launched street-level attacks on hundreds of civilian and police targets, bringing the city to a standstill for days. Backed into a corner, the government made a series of concessions, and the attacks and riots abruptly ceased.[7] Such parlaying of control over prison life into tactical power on the streets was not unprecedented: the PCC modeled itself on the Comando Vermelho (CV), which

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[4]As Skarbek 2011 shows.
[5]Leeds 1996
[6]Bailey and Taylor 2009, 17.
[7]Penteado et al. 2006.

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30 years earlier arose within and took control of Rio de Janeiro's prisons, before expanding outward to physically dominate the city's *favelas* (slums) and organize the drug trade that operates out of them. Besides orchestrating occasional city-wide attacks, the CV has maintained de facto rule over hundreds of thousands of Rio's residents for more than a generation,[8] in the face of escalating militarized crackdowns and increasingly harsh carceral policies. Meanwhile, a new prison gang in wealthy southern Brazil, modeled on the PCC and CV, came to light in 2013, protesting abusive guards with a month-long wave of attacks on busses and police stations.

How do prison gangs control and coordinate outside criminal activity? Skarbek, invoking Olson, argues that prison gangs act as 'stationary' rather than 'roving bandits'[9] because they are in a unique position to meet 'demand for criminal governance' and reap the resulting surplus. As such, prison gangs would seem to take their place in the pantheon of self-organizing, surplus-maximizing, non-state sources of authority, including merchant guilds,[10] pirate constitutions,[11] and embryonic versions of the state itself.[12]

But unlike these now-familiar examples, prison gangs arise and operate not beyond the reach of the state's coercive apparatus, but at its very core. They cannot be adequately analyzed in isolation, because their ability to project power depends not on the state's absence or weakness but rather its active presence. If affiliates on the street comply because they anticipate future incarceration, then the harsher, longer, and more likely a prison sentence, the more incentives to stay in good with imprisoned leaders. This quite simply turns the logic of punishment on its head, and presents the state with a very serious dilemma indeed: how to punish gang members without strengthening the gang? As a soberingly candid FBI agent said of her 10-year investigation of a Texas prison gang that led to life sentences for three leaders, "I think I've made them stronger."[13]

The third section tests this intuition with a formal model. The central finding is that state crackdowns increase prison-gang leverage on the street unless they are sufficiently 'targeted' at precisely those

[8]E.g. Amorim 2003.
[9]Olson 1993.
[10]E.g. Greif 1989; Milgrom et al. 1990.
[11]Leeson 2012.
[12]Bates et al. 2002; Skaperdas and Syropoulos 1997; Tilly 1985.
[13]Sherman 2010.

outside actors who obey prison-gang demands. Typically, anti-gang sweeps do not carefully distinguish non-criminals from street-gang members, let alone those street-gang members who obey vs. defy prison-gang orders; such indiscriminate crackdowns are predicted to facilitate prison-gang expansion. Moreover, if prison gangs can ameliorate the pain of imprisonment, then longer or harsher sentences also make membership more valuable. Thus even a well-targeted crackdown, if it inadvertently worsens conditions through overcrowding, can be gang-strengthening.

The model's predictions are consistent with the broader empirical record. Across cases, the transformation of prison gangs—into what I call 'prison-based criminal networks'—coincided with unprecedented expansions of the 'carceral state'.[14] Mass incarceration, "the great public works project of our time",[15] was driven in part by indiscriminate anti-gang policies like Honduras and El Salvador's Mano Dura, Guatemala's Plan Escoba, and California's STEP, which facilitated imprisonment of anyone with even tenuous gang links.[16] Punishment also grew more severe, due to longer sentences,[17] harsher custodial practices—such as US Supermax prisons and Brazil's Special Disciplinary Regimes,[18] and acute overcrowding as prison booms failed to keep pace with "carceral hyperinflation".[19]

The model also addresses recruitment, incorporating elements of Becker's seminal model of crime and punishment.[20] Though Becker's approach still undergirds much research, it takes no account of inmate groups' impact (for better or worse) on the experience of incarceration. Incorporating prison-gang dynamics both enriches the Beckerian framework and provides analytic purchase on the tension between individual and collective effects of incarceration: the same policies that aid prison-gang recruitment can reduce crime overall.

Indeed, prison gangs sometimes intentionally *curtail* violent crime, to maximize criminal profits or gain bargaining leverage. 'Crime reduction', therefore, must be conceptually distinguished from

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[14] Gottschalk 2008.
[15] Donohue 2007, 385.
[16] E.g. Cruz 2011, 143; Gilmore 2007, 217; Ranum 2011, 79.
[17] Zimring et al. 2001. Pfaff 2011 finds that median sentences did not increase in the 1990s, but notes that in California this is driven by incarceration of increasingly marginal criminals, and that his results "understate time served by the young and by the Hispanic" as well as violent offenders.
[18] Caldeira 2004; Salla 2007.
[19] Wacquant 2009, 120.
[20] Becker 1968.

'restoring state authority.' This is all too clear to Salvadoran officials, who are enjoying a halving of the homicide rate, due to a tenuous gang truce, at the price of openly negotiating with demonized criminal groups. In the penultimate section, I argue that the authority-restoring individual effects of punishment—incapacitation and deterrence—must be weighed not only against the administrative and social costs of a burgeoning prison system, but against the gang-strengthening, authority-eroding collective effects of punishment itself. The latter, I argue, may have increasing returns, due to positive feedback and the 'focal' nature of (gang) authority.[21] This implies an inflection point beyond which additional punishment, even if it reduces crime, ultimately undermines state authority, constituting a fundamental limit to punitive power. In the conclusion, I conjecture that this limit has shifted, due to both an accumulation of technologies of coordination, including cell phones and gang constitutions; and the expansion of drug trafficking and its prohibition, creating countless potential recruits and nearly limitless rents for groups able to control retail markets.

To case specialists, some of this paper's findings may seem uncontroversial or even familiar. Indeed, in extant scholarly, official, and journalistic sources, the phenomena I group under the term 'prison-gang projection' are widely acknowledged. My own interviews and prison visits contribute nuance, but mostly serve to confirm that for officials and inmates, projection is a fact of life. Yet, probably due to the demands of prison- and street-gang research, there has been little comparative analysis, and virtually no recognition that the dynamics of projection of power are similar across cases. This paper's most important contributions are bringing this disparate evidence under a single analytic lens; specifying a causal mechanism linking state action to prison-gang expansion; and distilling a conceptual and theoretical framework that can guide future research and critical thinking about an obscure but fundamental challenge to one of the state's core functions.

Uses of Prison-Gang Power

Elsewhere, I analyze the growth of prison-gang power as a sequence of mutually reinforcing dynamics: *consolidation* of control over prison life; *propagation* throughout a prison system; and *projection* of

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[21]Myerson 2009; Schelling 1960.

coercive power beyond the prison walls.[22] Here I focus on projection and the uses to which prison gangs put it, since this constitutes the graver threat to state authority. Nonetheless, I briefly discuss consolidation—in particular the common state response of segregating incoming prisoners by gang affiliation—and propagation because together they define a prison gang's 'coercive jurisdiction': the set of outside actors to whom it can credibly promise rewards and punishments. Moreover, the two main descriptive findings—that prison-gang authority can extend beyond core criminal membership to larger constituencies; and that prison gangs' use of coercive power includes not only 'criminal governance' but the orchestration and/or strategic suppression of violence—apply both inside and outside prison.

CONSOLIDATION AND PROPAGATION

Successful gangs consolidate power by eliminating or subjugating rivals, taking control of key aspects of prison life (including contraband flows), and winning the capacity to mete out rewards and punishments to other inmates. While the early stages may witness brutal violence among fledgling groups,[23] once a gang achieves primacy it can impose rules that reduce violence or make it more predictable, in ways that benefit members and non-members alike.[24] Welfare and public-good provision can further increase a gang's prestige and the loyalty it commands.[25] An inmate in a PCC-dominated facility explains:

> "Thanks to the PCC, the number of deaths fell.... Nobody kills anybody without authorization. […] There's a steady supply of cell phones and drugs, nobody has to get them from the outside… and the PCC helps the guys who are hard up. It hands out *cesta básica*,[26] sometimes there are buses for visitors coming from far away, they raffle bicycles on Children's Day… Who does all this? Just the PCC."[27]

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[22]Citation suppressed.
[23]E.g. Amorim 1993, 35; Andino Mencía 2006, 56; Blatchford 2008, 6; Salla 2007, 82.
[24]Dias 2011.
[25]Author interviews, four former CV and Terceiro Comando members, Rio de Janeiro, August 2009. All interviews and translations of source material are the author's.
[26]A standardized basket of food staples provided to the needy by charities or government agencies.
[27] de Barros 2006, 8.

Like all aspects of prison-gang growth, consolidation does not occur in a vacuum, but in dynamic relationship with state actions. Clearly, corruption is critical to gang power,[28] and guards on the take may well benefit from the stability of gang governance just as inmates do.But prison gangs' ability to maintain order wins them influence with non-corrupt administrators as well:[29]

> So we got some advice from—guess where?—the [prison gangs] themselves. [...] Some of their ideas were better than ours. (California Department of Corrections official, quoted in DiIulio 1987, 134)

Conversely, organized violence against rivals has led administrators, in all the cases discussed here, to segregate inmates by gang affiliation. While this may save lives (and officials' prestige)[30] it also solidifies gangs' control over their designated areas, facilitating consolidation.[31] Segregation also implies sorting incoming prisoners; since gang affiliation can be hard to observe, proxies like race, self-reports, and gang-turf geography are often used. This has the perverse effects of expanding gangs' 'coercive jurisdictions', and putting weakly or un-affiliated first-time offenders under gang custody and tutelage.[32]

Propagation—the spread of a gang to multiple facilities within a prison system—seems to occur mainly via the transfer of members to new facilities, often as part of a misguided "diesel therapy" strategy of breaking up the gang and isolating leaders.[33] In the case of the CV, those distributed throughout the system replicated their organizational behavior[34] and "preached collective disobedience,"[35] while new leaders arose to maintain CV control of 'home' prisons.[36] A distinct mechanism—deportation and subsequent incarceration—brought *maras* from the US where they were founded to Central America's prisons. In all cases, the reliance on norms, codes, and sometimes written statutes[37] permit a decen-

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[28]Hunt et al. 1993, 400.

[29]E.g. Biondi 2010, 74; Interviews, Directors of Guatemalan and Salvadoran penitentiary systems, San Salvador, May 21-22, 2013.

[30]Interview, former Director of Rio de Janeiro State's penitentiary system, July 8, 2009.

[31]Knox 2012.

[32]Skolnick et al. 1990, 24; Human Rights Watch 2004, 33; USAID 2006, 15; Author's visit to and interview with the director of Neves Jail, Rio de Janeiro, August 29, 2009.

[33]Boyd 2009, 997.

[34]Paixão 1987, 74.

[35] Lima 1991, 62-63.

[36]Interview, former Director of Rio de Janeiro State's penitentiary system, July 8, 2009.

[37]Skarbek 2011, 712-714.

tralized structure that is robust to the isolation or elimination of individual leaders,[38] one reason that gang-abatement policies have not had decisive impacts.[39]

Related but distinct is the *replication* of tactics, norms, and organizational structure of extant groups by newly emergent prison gangs. The CV's founders gleaned techniques of collective action and protest—critical to victory over predatory rivals—from the leftist militants they were housed with during Brazil's military dictatorship.[40] The PCC, whose founders had spent time in CV-controlled prisons, copied and improved upon these techniques.[41] Inmates from Santa Catarina state that had served with PCC leaders in a federal prison, in turn, founded the Primeiro Grupo Catarinense (PGC) prison gang that came to public attention in 2013 with a wave of bus-burnings reminiscent of the PCC's 2006 attacks.[42] In California, early dominance and predation by the Mexican Mafia ('Eme') prison gang led victimized groups to create similar organizations like La Nuestra Familia and the Black Guerrilla Family. At the same time, many founding members of Central America's *maras* were deportees from Los Angeles, where they had been subjected to the Eme's prison-based governance before building a similar system in Salvadoran, Honduran and Guatemalan prisons. Across cases, organizational know-how seems to have catalytic effects on extant or nascent groups, suggesting a replicable but non-obvious technology. I return to this idea in the conclusion.

Projection of Power: From Prison Gangs to Prison-based Criminal Networks

Once prison gangs can credibly promise rewards and punishments to inmates throughout a prison system, the state-provided threat of incarceration permits them to project power onto the streets. In the next section, I model this mechanism. Here, I discuss three main uses to which projection of power has been put: organization of local criminal activity, particularly the drug trade; establishment of 'parallel power', i.e. state-like authority over peripheral areas and marginalized populations, beyond core criminal membership; and orchestration of mass violence and/or its strategic suspension as a bargaining

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[38] Biondi 2010; Lima 1991.
[39] Cáceres 2009; Fleisher and Decker 2001.
[40] Lima 1991, 45-49.
[41] Amorim 2003; Jozino 2004, 31.
[42] Puff et al. 2013.

chip vis-a-vis the state. Skarbek documents the first of these—organization of criminal activity—in California. The comparative perspective provided here reveals that such 'criminal governance'[43] is but one facet of prison gangs' capacity to establish authority at the expense of the state's.

ORGANIZATION OF LOCAL CRIMINAL ACTIVITY

Local illicit markets, especially retail drug markets, tend to be fragmented and unstable. Street gangs and small operators rarely establish thoroughgoing control beyond small pieces of home turf,[44] despite significant investments in arms and soldiers.[45] In the cases considered here, projection of power by prison gangs has fundamentally altered this market structure. Local criminal actors—often street gangs—are brought into region-wide franchise systems; they pay taxes and follow the dictates of imprisoned leaders, receiving, in return, mutual aid, dispute-resolution, and protection should they be imprisoned. Beyond the quid pro quo, as prison-gang edicts become 'focal', more stable and pacific markets emerge, generating surpluses that can leave both outside groups and imprisoned leaders better off. Such gains from social order are central to the self-reinforcing quality of (non-state) authority, and, as the model will show, a potential source of positive feedback, as prison gangs reinvest the surplus to consolidate their position.

Skarbek details the projection of coercive power by the Eme to organize the retail drug trade in Los Angeles.[46] In 1993, Eme leaders convoked mass gatherings of southern California's Sureño street gangs to announce a new system of "complete vertical integration": restrictions on inter-gang violence, loyalty to the Eme, and a tax on drug profits.[47] The Eme's primary rival, La Nuestra Familia (NF), has imposed a similar system,[48] controlling, "through top-down leadership... most of the Norteños gangs who operate in central California".[49] In Texas, the Barrio Azteca has successfully imposed a system of turf, prices and taxes on the street gangs of the El Paso region.[50] Federal officials report that Hispanic

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[43]Skarbek 2011.
[44]Dorn et al. 1992; Hagedorn 1994; Skolnick et al. 1990.
[45]Levitt and Venkatesh 2000.
[46]Skarbek 2011.
[47]Rafael 2007, 36-39.
[48]Fuentes 2006.
[49]California Department of Justice 2010.
[50]Borunda 2011; Burton and West 2008; *United States of America v. Herrera et al.* 2012.

prison gangs are now buying drugs wholesale from Mexican cartels, and "controlling most street gangs in areas along the Southwest Border."[51]

Rio de Janeiro's CV employed a code of mutual-aid among its members to systematically oust or subdue incumbent drug retailers from a majority of the city's favelas in the 1980s,[52] then hold that territory in the face of decades of extreme police repression.[53] Reporting field visits in 2005 to retail drug markets in four Brazilian cities, Lessing found Rio's anomalously stable and concentrated.[54] Elsewhere, rising drug lords sometimes amassed turf for a time, but were subject to centrifugal forces—including attention from authorities, rivals, or usurpers—that led markets to re-fragment. Lessing hypothesized that the then-unique prison-based nature of Rio's criminal networks counteracted the centrifugal forces that brought down larger drug operations in other cities.

Subsequent developments bear out this claim: the PCC, since its 2006 attacks in São Paulo, has established a hegemonic position in drug markets, operating as sole distributor, tax collector, and arbiter of disputes among myriad small-scale retailers throughout the urban periphery.[55] It has imposed a violence-limiting '*lei do crime*' (criminal code of behavior)[56] through an astonishing system of trials, via cell-phone conferencing, before a jury of jailed PCC elders.[57] The organization of São Paulo's retail drug markets into a prison-based criminal network took place decades after Rio's, but at quite similar moments in 'analytic time':[58] about 12 years after the hegemonic gang's founding inside the respective prison systems.

In Central America, the arrival in the 1990s of *mara* members deported mostly from California—where they were themselves taxed and governed by the Eme prison gang[59]—turned a vast collection of local, turf-based youth gangs into *clikas* ('cliques') of the Mara Salvatrucha (MS) and 18th

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[51]US Department of Justice 2010.

[52]Amorim 1993; Lima 1991

[53]Rio's police, by their own account, have killed over 10,000 alleged criminals in armed confrontations in the last decade alone; ISP-RJ 2013.

[54]Lessing 2008.

[55]Interview, former São Paulo Special DA for Organized Crime, September 1, 2009; Feltran 2010; Hirata 2010, 289.

[56]Telles and Hirata 2009, 53.

[57]Caramante 2008; Feltran 2010. These "*debates*" began within prison; their democratic aspect seems central to the PCC's style of governance and, perhaps, its hegemony; see Biondi 2010; Dias 2011; Marques 2010.

[58]Collier 1993, 3.

[59]Valdez 2011, 28-29.

St. *mara* franchises.[60] In the early 2000s, region-wide anti-gang initiatives put thousands of gang members behind bars, which led officials to segregate prisons by gang affiliation,[61] giving each *mara* a safe base of operations. The result has been professionalization: formal hierarchies, stricter and savvier codes of outside behavior (e.g. prohibiting gang tattoos that made members easy targets for anti-gang enforcement) and the transformation of prisons into nerve centers of territorially extensive networks.[62] Street gangs began paying taxes to imprisoned leaders and participating in a system of prison-coordinated extortion[63] of businesses and public transportation known as *la renta* (the rent).[64] For Savenije, the organization of extortion rackets was both driven by increased demands for contributions by imprisoned *mara* leaders, and made possible by the hierarchical structure that prison-based control fomented.[65]

In places as diverse as Texas, Honduras, and São Paulo, projection of power by prison gangs over street gangs led to an efficiency-enhancing reorganization of outside criminal activity. Why did such gains previously go uncaptured? Street gangs also reward loyalty, punish defection, and by requiring members to lower their outside options through tattoos and non-attendance of school, can induce loyalty and self-sacrifice.[66] Yet street gangs apparently lacked the necessary 'reach' to coerce members across large regions.[67] The state, by physically bringing incarcerated criminals together, then segregating them by presumed gang affiliation, inadvertently helps prison gangs make credible promises to punish defection and reward loyalty throughout large coercive jurisdictions.

Parallel Power

A comparative perspective reveals that prison-gang authority can extend to entire peripheral regions and populations, providing order, justice, and other public goods, and effectively supplanting state authority. The most striking example is Rio de Janeiro: an entire generation of favela residents has

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[60]Cruz 2010.
[61]Cruz 2010, 391.
[62]Cruz 2010, 390-392; Mateo 2011, 98; Ranum 2011, 81; Savenije 2009; Wolf 2012, 86-87.
[63]Fogelbach 2010, 439.
[64]Aguilar and Carranza 2008, 23.
[65]Savenije 2009, 150-152.
[66]Berman 2000.
[67]Skarbek 2011, 712.

been born and raised under the armed dominion of prison-coordinated drug syndicates,[68] while the state's presence was largely limited to intermittent, corrupt, and highly lethal police invasions.[69] As a founding CV member explained,

> "We catechize the favela residents and show them that the government cannot help them or see their side of things. So we give food, medicine, clothes, textbooks.... We pay for doctors, funerals... We even resolve domestic disputes; there can't be trouble or else the police will enter."[70]

Such overt territorial control remains unique to Rio. However, *maras* play a dominant role in neighborhoods throughout El Salvador, Guatemala, and Honduras,[71] while in São Paulo's urban periphery the PCC's governance activities—particularly dispute-resolution and order-provision—have expanded from the hardcore criminal underworld to broader informal economic and social spheres poorly served by state institutions.[72] As one detective noted: "[T]he PCC is now judging small-claims cases, even domestic disputes. It's clogging up our wiretaps, which capture fewer and fewer [serious crimes]."[73]

The causes and consequences of parallel power—an issue with enormous substantive and normative implications for citizens and states—go well beyond the scope of this paper. In particular, prison gangs are hardly the only groups that seek to control peripheral areas. That said, parallel power is often part of a larger profit-maximizing strategy.[74] As such, it is likely to become more thoroughgoing and entrenched wherever prison gangs begin to project power and organize local criminal activity. This is a key mechanism by which prison-gang expansion directly erodes state authority without increasing—and potentially reducing—crime rates.

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[68]E.g. Arias 2006; Dowdney 2003; Gay 1993; Leeds 1996.
[69]Alston 2007; Cano 1997.
[70]Amorim 1993, 162.
[71]E.g. Aguilar and Miranda 2006; Mateo 2011; Ranum 2006.
[72]Feltran 2008, 2010; Hirata 2010.
[73]*Redação Terra* 2008.
[74]Akerlof and Yellen 1994.

Prison gangs can use their coercive capacity over members and potential recruits to orchestrate disruptive and violent actions. Some of this violence is 'competitive', targeting rivals—generally groups beyond a gang's coercive jurisdiction—both within and outside prison. Examples include the CV's systematic takeover of Rio's favelas from incumbent traffickers, as well as prison-coordinated offensives by Eme-affiliated Sureño gangs against black gangs and residents in Los Angeles[75] and Norteño gangs governed by Eme rival La Nuestra Familia in central California.[76]

However, prison gangs can also use orchestrated violence and protest to extract concessions from officials. Even without projecting power, this can significantly threaten state authority. In California, prison gangs have organized and, according to officials, forced inmates to participate in mass hunger strikes to protest solitary confinement practices.[77] In Brazil, the CV—whose founding members watched while the leftist militants they were housed with successfully protested their way to amnesty—regularly organized hunger strikes and petitions,[78] often coercing the larger inmate population into adherence.[79] The CV has also instigated prison riots, often in multiple prisons simultaneously, as a means of pressuring or punishing officials,[80] a technique the PCC perfected in its 2001 and 2006 "mega-rebellions." In Guatemala, *maras* organized simultaneous riots in 2005 that led to the segregation of prisons there.[81]

Projection of power can vastly increase prison-gang leverage by bringing orchestrated violence and protest to the streets. In September 2010, El Salvador's *maras* joined forces to induce—via threats of mass violence—a transportation strike that shut down the capital for three days, demanding improved prison conditions and the veto of an anti-gang law.[82] The CV has frequently induced its foot soldiers in favelas to carry out city-wide shutdowns of businesses, burn busses, and machine-gun public buildings

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[75] Mock 2006; *United States of America v. Rios et al.* 2011.
[76] Reynolds and Sánchez 2003; Valdez 2011, 32.
[77] Medina 2013.
[78] Lima 1991
[79] Interview, former Director of Rio de Janeiro State's penitentiary system, July 8 2009.
[80] Interviews, former imprisoned CV and Terceiro Comando leaders, August 2009.
[81] USAID 2006.
[82] Wolf 2012, 86.

and police stations,[83] usually to pressure officials to slacken carceral policies. The PCC strategically synthesized these tactics in 2006, launching riots at some 90 prisons, which drew São Paulo's police out to far-flung facilities, before its street-level cells attacked the unguarded capital.[84] The attacks, more than just a destructive affront to state authority, proved an effective political cudgel: they not only forced concessions in carceral policy, but helped defeat PCC antagonist Gerardo Alckmin, then-governor of São Paulo and architect of its mass incarceration policies, in his 2006 bid to unseat President Lula da Silva.[85]

The flip side of prison gangs' ability to orchestrate violence is the capacity to strategically withhold or minimize it. Asked what the PCC ultimately gained with their attacks, São Paulo's former DA for Organized Crime said, "Power, in the political arena. Now they must always be taken into consideration; everyone is afraid."[86] In El Salvador, a March 2012 truce among imprisoned *mara* leaders produced an immediate 60 percent drop in the national homicide rate—testifying to their control over outside criminal behavior. Though the government initially denied any role in the pact, top *mara* leaders were returned from isolation to low-security prisons and given access to cell phones, among other concessions.[87] Once the homicide drop became undeniable, the government took partial credit for the truce, inviting security ministers from Guatemala and Honduras to discuss exporting the Salvadorean 'experiment'.[88] The efficacy of the truce gives *maras* important political leverage, since relapsing into violence could be disastrous for incumbents. Such leverage may even outweigh short-term criminal rents: once the truce won public praise, *mara* leaders 'deepened' it with a temporary ban on *renta* extortion; the government later announced a reduction in police patrols.[89]

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[83]E.g. Penglase 2005.

[84]Interview, Head Researcher, São Paulo Office of the Public Prosecutor, August 2006.

[85]Critical questions for future research are why and when prison gangs engage in this sort of 'violent lobbying', and why US gangs thus far have not.

[86]Interview, September 1, 2009.

[87]*Economist* 2012; Farah 2012.

[88]Membreño 2012*a*. The truce's impact extends, ironically, to Brazil: Rossi 2012 asks whether an overt pact like El Salvador's with "its PCC" (i.e. the *maras*) would be worth trying with the actual PCC in São Paulo.

[89]Membreño 2012*b*. Farah 2012 claims the truce is part of a larger transformation of the *maras* into political actors, reporting gang leaders' intention to broker votes to candidates in exchange for policy concessions.

Modeling Projection of Power

Why do people on the streets obey the orders of prison-gang leaders who may spend the rest of their lives behind bars? Asked a similar question at an Eme murder trial, an LA Sheriff's Department sergeant explained that "the Eme controls the prisons and the [street] gangsters know that eventually they'll end up in prison and be subject to sanctions and retribution if they don't obey the Eme while they're on the street."[90] A former drug boss in Rio put it even more simply: "Whatever you do on the outside, on the inside you'll have to answer for it."[91]

To rigorously explore this logic, the model formalizes prison gangs' capacity to project coercive power onto the street, 'coercive power' for short, as the largest burden that can be imposed on outside actors in exchange for good standing. Depending on the substantive situation, this can include both outright tax payments and increased risk of incarceration; for clarity, I analyze these as outcome variables of separate iterations of the model. The first asks how large a tax can be imposed on established street gangs and/or drug retailers; since payment is difficult for authorities to observe, I assume it does not significantly increase risk of incarceration. The second focuses on recruitment of low-level criminals for risky actions that *do* increase the chance of incarceration; here I assume, conversely, that recruits are paid only with the promise of good standing, or "prison insurance"[92] as were the youth who carried out the PCC's terror attacks in 2006,[93] and abstract away from gang payment / taxation and reprisals.

Both outcome variables capture a direct coercive capacity, but also—because prison gangs use such capacity to organize outside criminal activity—a broader ability to establish authority, induce cooperative criminal equilibria, and pursue ambitious strategies of expansion and negotiation with the state. Comparative statics thus offer insight into the 'collective effects' of punishment on prison gangs' coercive power. State policy is formalized in terms of two classic dimensions of punishment: 'severity' (length of sentences, prison conditions, etc.) and 'certainty' (likelihood of incarceration—essentially law enforcement). I first examine policies that affect these dimensions independently, then turn to

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[90]Rafael 2007, 326.
[91]Author interview, August 17, 2009
[92]Phillips 2006.
[93]Interview, Head Researcher, São Paulo Office of the Public Prosecutor, August 2006.

more realistic scenarios where increases in certainty result, through overcrowding and related channels, in concomitant increases severity.

Summarizing the results, higher severity increases prison gangs' ability to tax whenever they can sufficiently mitigate the pain of incarceration. Crackdowns increase prison gangs' coercive power unless they are sufficiently 'targeted' at those who follow, as opposed to disobey, prison-gang edicts. If crackdowns lead to overcrowding and harsher prison conditions, an even higher level of targeting is needed to avoid inadvertently strengthening the gang. Finally, addressing the long-standing 'certainty vs. severity' debate,[94] the model supplements Kleiman's case for 'swift and certain' sentences[95] by showing that the gang-strengthening effects of increased certainty can be offset by shorter sentences.

The recruitment extension incorporates Becker's classic model of crime by giving potential recruits a non-criminal outside option, since actors with little or no criminal history might realistically 'go straight.' This allows me to distinguish the individual effects of policies on the overall crime rate from the collective effects on prison-gang coercive power. Harsher punishment and insufficiently targeted crackdowns are found to simultaneously aid gang recruiting while lowering the expected utility of all criminals, thus reducing overall crime.

The model's aims are modest—making transparent and tractable the mechanism by which increased punishment strengthens projection of power—and thus leaves unanswered many interesting questions about the preferences and strategies of prison-gang leaders and state decision-makers. The goal here is to provide a firm basis for future exploration of these and related topics.

Taxation

The players are the imprisoned gang leadership PG and an outside street-gang leader / drug dealer S. PG moves first, setting a membership tax of τ. Then, S chooses whether to comply (C) and pay τ or defect (D) and "go it alone". 'Certainty' of punishment—S's probability of imprisonment—is π if he has defected and $\tilde{\pi}$ if he has cooperated. The model itself remains agnostic about the relative size of π and $\tilde{\pi}$, but the analysis focuses on parameter values relevant to each substantive situation. Here,

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[94]E.g. Beccaria 1819; Donohue 2007.
[95]Kleiman 2009.

since S is already a criminal actor (with a substantial π) and since payment of τ may not constitute an observable or actionable offense, the expectation is $\tilde{\pi} \simeq \pi$.[96] Finally, PG rewards or punishes S depending on whether he has cooperated or not, and payoffs are realized.

Figure 1. Game Tree: Taxation
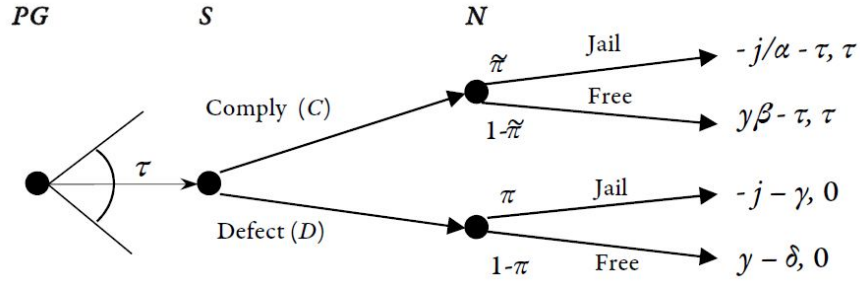
Let $j > 0$ measure severity of punishment, including sentence length and prison conditions. If jailed, S forfeits his earnings and suffers $-j$ in full if he defected, but only $-\frac{j}{\alpha}$ if he complied, where $\alpha > 1$ measures PG's capacity to ameliorate the pain of imprisonment.[97] This formalization captures the idea that membership improves total welfare more when sentences are long and conditions harsh.[98]

Let y represent the baseline level of profits from illicit activity that S can earn by "going it alone". Since membership may permit efficiency gains from criminal cooperation, a collaborator receives βy where $\beta \geq 1$. Finally, assume that the gang punishes defectors, and that it is capable of exacting a punishment of $\gamma \geq 0$ within prison and $\delta \geq 0$ on the outside. To simplify analysis, assume PG's costs from rewarding or punishing S are negligible, so that its utility is given by τ. Since S represents a street-gang leader or drug trafficker, an outside option of "going straight" is not modeled here.[99]

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[96] It is possible that prison-gang membership *lowers* the risk of incarceration ($\tilde{\pi} < \pi$), perhaps by reducing gang violence. However, assuming so would 'stack the deck' in favor of prison-gang projection of power, making for a less compelling analysis. In the next section, compliance involves risky actions by recruits, so the natural expectation is $\tilde{\pi} \gg \pi$.

[97] Benefits include not only protection within prison, but support to family members while incarcerated. Interviews, four former CV and Terceiro Comando members, Rio de Janeiro, August 2009; Directors of Guatemalan and Salvadoran Penitentiary Systems, May 21-22, 2013.

[98] Modeling α as additive, so that jailed member suffer $-(j - \alpha)$, would imply, implausibly, that inmates serving get the same total relief from gang membership regardless of sentence length. Moreover, many gang services seem especially welfare-improving when conditions are bad, e.g., providing food and medicine when the administration does not, or passing messages to and from prisoners in solitary.

[99] In practice, this kind of criminal actor generally only goes straight when offered amnesty (lowering π) and/or protection (lowering δ). The case of low-level criminal participation in gangs, where going straight is a real option, is considered below.

The gang leadership (PG) will charge the highest positive tax rate that does not induce defection:[100]

Lemma 1. *There is a unique sub-game perfect equilibrium in which the gang demands, and S pays,*

$$\tau^* \equiv j\left(\pi - \tilde{\pi}/\alpha\right) + y\left[\beta(1-\tilde{\pi}) - (1-\pi)\right] + \gamma\pi + \delta(1-\pi) \tag{1}$$

whenever τ^* is positive. This is guaranteed whenever $\tilde{\pi}$ is sufficiently close to π, and for all $\tilde{\pi} < \pi$.[101]

Conversely, if $\tilde{\pi}$ is high enough relative to π, τ^* is negative, PG can make any positive demand knowing that S will not pay, and no projection of power is possible. Given the expectation that $\tilde{\pi} \simeq \pi$ and the fact that taxation occurs in real cases, I focus on parameter values such that τ^* is positive. Comparative statics on τ^* thus reveal how changes in aspects of gang strength as well as state policy affect gangs' coercive power over outside members.

Differentiating Equation 1, it is clear that increases in α, β, γ and δ will all raise τ^*. This is a source of positive feedback: if the gang uses τ^* to increase any of these parameters, its future coercive power will be even greater. Exogenous increases in outside profits (y) will also raise τ^* whenever there is sufficient surplus from collective criminal activity relative to the increase in the likelihood of imprisonment it entails ($\beta > \frac{1-\pi}{1-\tilde{\pi}}$). If $\tilde{\pi} \simeq \pi$, this is easily satisfied, since $\beta \geq 1$.

As for policy effects, it would be specious to assume that j, π, and $\tilde{\pi}$ can be directly and independently set by the state. Rather, I conceive of policy choices as affecting these parameters, and through them, prison-gang coercive power. A given policy ρ is defined, for present purposes, by $j'(\rho)$, $\pi'(\rho)$, and $\tilde{\pi}'(\rho)$. I examine four policy experiments; comparative statics for each are presented as parts of Proposition 1.

'Hardenings' (ρ_S) are any policy changes—longer sentences, solitary confinement, reduced privileges, or simply neglect and overcrowding—that increase the pain of prison (j). but have no affect on

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[100]Real-world gangs frequently punish defectors. An information asymmetry, say a distribution over types of S, can generate this kind of result, with the leadership choosing a τ^* which S rejects with positive probability. None of the substantive findings would be affected by such a modification.

[101]Proofs appear in the online Appendix.

<div align="center">**Table 1. Policy Experiments**</div>

Policy	Description	Effect on Severity: $j'(\rho)$	Effect on Certainty: $\pi'(\rho)$ and $\widetilde{\pi}'(\rho)$
ρ_S	Hardening	+	0
ρ_C	Pure Crackdown	0	+
ρ_C^O	Crackdown + Overcrowding	+	+
ρ_C^K	'Swift and Certain' Crackdown	−	+

S's chances of incarceration. Such increases in severity strengthen the gang as long as it is sufficiently strong within prison:

Proposition 1a (Severity strengthens gangs). *The effect of ρ_S on τ^* is positive whenever:*

$$\alpha > \frac{\widetilde{\pi}}{\pi} \qquad (C_S)$$

C_S has a natural interpretation. Complying makes an outside actor $\frac{\widetilde{\pi}}{\pi}$ times likelier to be imprisoned; call this the *risk differential*. Whenever PG can ameliorate the pain of prison by a factor larger than the risk differential, harsher punishment will increase its leverage over outside actors. Since we expect $\widetilde{\pi} \simeq \pi$ in this setting, $\frac{\widetilde{\pi}}{\pi} \approx 1$ and C_S is easily satisfied; I assume it holds throughout.

What about 'crackdowns' (ρ_C and variants)—policies like anti-gang laws, increased arrests and prosecutions, and mandatory sentencing that increase the likelihood of imprisonment? I first assume, somewhat unrealistically, that crackdowns have no collateral effect on prison conditions (ρ_C); I then relax this assumption and allow crackdowns to result in harsher conditions, perhaps inadvertently, through overcrowding and related channels (ρ_C^O). Finally, I consider 'swift and certain' policies (ρ_C^K) that aim to increase certainty while reducing severity, usually through shorter sentences.

A critical issue for all crackdowns is how well they target those outside actors who comply with prison-gang edicts (in this case, paying τ) vs. those who defect. Formally, define ρ's *degree of targeting* as its effect on $\widetilde{\pi}$ relative to π: $\varphi(\rho) \equiv \frac{\widetilde{\pi}'(\rho)}{\pi'(\rho)}$. With the intuition that states cannot perfectly target repression (i.e. directly set $\widetilde{\pi}$ and π), assume that any ρ with $\widetilde{\pi}'(\rho) > 0$ must also have $\pi'(\rho) > 0$ and thus $\varphi(\rho) \in \mathbb{R}^+$.[102] Beyond this, the model remains agnostic as to the set of feasible policies, with

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[102] Policies with no effect on severity have no degree of targeting: $\varphi(\rho_S)$ is undefined.

their respective φ; the point is only to determine the effect a given policy will have on PG's coercive power. That said, typical anti-gang sweeps that poorly discriminate street-gang membership, much less compliance with prison-gang edicts, would have $\varphi \approx 1$.[103] With that in mind, consider first the limiting case of a totally untargeted, 'pure' crackdown with no effect on severity (ρ_C):

Proposition 1b (Untargeted crackdowns strengthen consolidated gangs). *Any policy ρ_C with $\varphi(\rho_C) = 1$ increases τ^* whenever*

$$j - \frac{j}{\alpha} - (\beta y - y) + \gamma - \delta > 0. \tag{2}$$

In words, untargeted crackdowns increase PG's coercive power whenever it is stronger within prison than on the street. Intuitively, if the benefits of membership have more to do with 'prison insurance' ($j - \frac{j}{\alpha}$) than outside profits ($\beta y - y$), and if retribution is more likely inside prison than outside ($\gamma - \delta$), then a higher chance of incarceration makes membership more valuable.

Though gangs' self-identity tends to be defined by whether they originated in the street or in prison, the analytic line between the two can blur as members of the former are incarcerated and those of the latter are released but remain loyal.[104] Equation 2 suggests a useful criterion for differentiating gangs conceptually by whether their total power to punish and reward is greater inside than outside prison. In other words, a prison-based criminal network can be *defined* as a gang whose outside coercive power is increased by an untargeted crackdown, like point (*a*) in Figure 2. A street gang, even if its imprisoned leaders charge membership taxes, would be weakened by such a crackdown, and the shaded region would lie below point (*a*).

How targeted does a crackdown need to be in order to avoid increasing a prison gang's coercive power? We can derive a *critical level of targeting*; any crackdown whose level of targeting is below this threshold will strengthen PG. Formally, define $\varphi^*(\rho)$ such that $\varphi(\rho) < \varphi^*(\rho) \Rightarrow \frac{d\tau^*}{d\rho} > 0$.

Proposition 1c (Better-consolidated gangs require more targeting). *The critical level of targeting for crackdowns with no effect on severity is $\varphi^*(\rho_C) = \frac{j + y + \gamma - \delta}{j/\alpha + \beta y}$, which is increasing in the 'inside' parameters α*

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[103]$\varphi < 1$ is possible if a crackdown systematically targets non-members over members. Naturally, such crackdowns tend to strengthen incentives to join the gang.

[104]E.g. Hunt et al. 1993.

Figure 2. Results of Policy Experiments

Degree of Targeting:
$$\varphi(\rho) = \frac{\tilde{\pi}'}{\pi'}$$

Critical Degree of Targeting:
$\varphi^*(\rho)$

Weakens Gang
$\tau^{*'}(\rho) < 0$

$\alpha \uparrow$

(b) (c)

C_K

(e) (d)

Strengthens Gang
$\tau^{*'}(\rho) > 0$

k

(a) $\tilde{\pi}'/\pi' = 1$

Effect on Severity:
$j'(\rho)$

$j' < 0$ $j' = 0$ $j' > 0$

ρ_C^K : Offsetting ρ_C ρ_C^O : Overcrowding
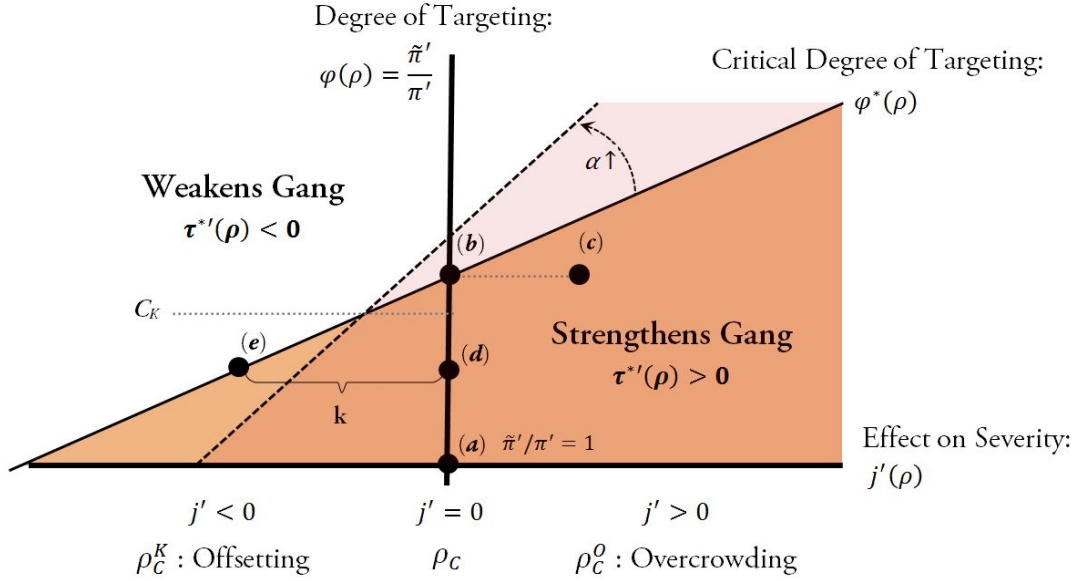
and γ, and decreasing in the 'outside' parameters β, δ and y.

The model's main finding is that insufficiently targeted crackdowns increase a gang's coercive power. Proposition 1c pins down "insufficiently targeted", and says that the larger a gang's capacity to reward and punish inside relative to outside prison, the more targeted crackdowns must be to avoid strengthening the gang.

Thus far, the analysis has assumed that crackdowns only increase certainty; ρ_C^O relaxes this assumption, allowing j to rise along with π and $\tilde{\pi}$. Concretely, say the state implements what it thinks is a 'just-sufficiently targeted' crackdown (with $\varphi = \varphi^*(\rho_C)$), not realizing that this will increase severity, because of overcrowding or by introducing violent individuals into the prison system. The total effect will be to increase PG's coercive power, in spite of the targeted nature of the crackdown. Formally:

Proposition 1d (Overcrowding increases the critical level of targeting). *For any set of parameter values, $\varphi^*(\rho_C^O) > \varphi^*(\rho_C)$ and any ρ_C^O with the same degree of targeting as a just-sufficiently targeted ρ_C will increase τ^*.*

In terms of Figure 2, the state believes it is at point (b), but the overcrowding effect means it is at (c), below φ^* and inside the gang-strengthening region.

Finally, consider ρ_C^K, a deliberate policy of offsetting crackdowns with less severe punishments. Kleiman (2009) offers important behavioral and game-theoretic arguments why 'swift and certain' punishment is a better deterrent than the status quo of long sentences for a small fraction of offenders. The present model suggests another advantage: if C_S holds and the gang is strengthened by increases in j, then by the same token, a decrease in severity *weakens* the gang. For example, if outside actors face shorter sentences, the value of gang membership conditional on incarceration is lower.[105] This can be used to offset the gang-strengthening effects of an insufficiently targeted crackdown:

Proposition 1e (**Offsetting more certainty with less severity**)**.** *For any set of parameter values, $\varphi^*\left(\rho_C^K\right) < \varphi^*\left(\rho_C\right)$. For any insufficiently targeted ρ_C, there exists $k \in \mathbb{R}^+$ such that any ρ_C^K with the same degree of targeting but $j'\left(\rho_C^K\right) < -k$ lowers τ^*.*

k *is increasing in π', decreasing in $\tilde{\pi}'$, and decreasing in α whenever*

$$\varphi\left(\rho_C^K\right) < \frac{j + y + \gamma - \delta}{j\frac{\pi}{\tilde{\pi}} + \beta y} \tag{C_K}$$

The term k indicates how large a reduction in severity is needed to offset an insufficiently targeted crackdown; in Figure 2, it is the distance from (d) to (e). Holding the impact on non-members (π') constant, better-targeted crackdowns require smaller offsets.[106] As for α, the more consolidated the gang, the larger the targeting gap, but, counterintuitively, the more efficacious any reduction in severity. Condition C_K holds whenever the latter effect predominates. Graphically, a rise in α increases the slope of φ^*, reducing k for points below C_K. Overall, the result suggests that Kleiman's approach is particularly apt when prison gangs are strong and targeting is difficult.

RECRUITMENT

I now turn to the question of recruiting outside actors to take risky actions. The players are the imprisoned gang leadership PG and a continuum of potential recruits, indexed by their expected income from 'go it alone' criminal activity $[\underline{y}, \bar{y}]$; assuming y measures 'criminal talent', PG is better off recruiting

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[105]Shorter sentences could also weaken gangs by giving them less time to learn incoming inmates' type, or to socialize new recruits (e.g. Biondi 2010, 98), channels beyond the scope of this model.

[106]But note that two crackdowns with the same φ can have different values for k. The slope of φ^* in Figure 2 depends on $\pi'(\rho)$.

higher types. *PG* charges no tax, but requires recruits to carry out a risky action (C), raising their chances of imprisonment from π to $\tilde{\pi}$, where $\tilde{\pi} \gg \pi$. In exchange, *PG* gives collaborators in-prison benefits, captured by α. To focus on the prison-insurance channel, assume that non-imprisoned collaborators receive no cash or additional criminal rents: $\beta = 1$. Moreover, since there are many potential recruits, assume that the gang does not punish defection (D): $\gamma = \delta = 0$. Finally, since potential recruits have low criminal profiles, assume all y have an outside option to 'go straight' (O) worth y_o, with $\pi_o = 0$. The choice between non-gang crime (D) and legality (O) is thus equivalent to Glaeser's simplified version of Becker's model.[107]

Figure 3. Game Tree: Recruitment
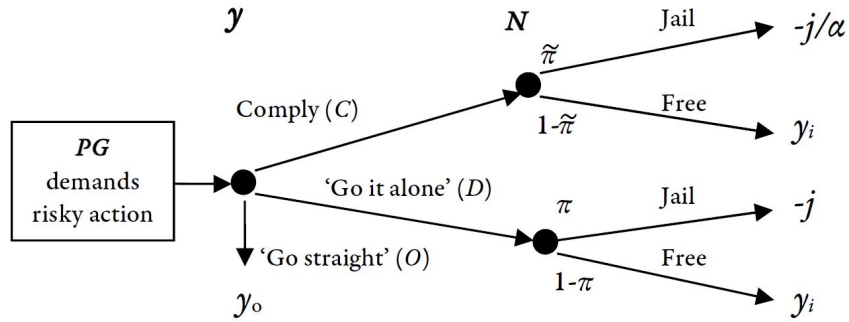
An individual y_i is *recruitable* if he prefers C to both D and O; the relevant cutpoints are:

$$y^* = j \frac{\pi - \tilde{\pi}/\alpha}{\tilde{\pi} - \pi} \quad : \quad y_i < y^* \Leftrightarrow C \succ D$$

$$y^C = \frac{y_o + j\tilde{\pi}/\alpha}{1 - \tilde{\pi}} \quad : \quad y_i < y^C \Leftrightarrow O \succ C$$

$$y^D = \frac{y_o + j\pi}{1 - \pi} \quad : \quad y_i < y^D \Leftrightarrow O \succ D$$

For y^* to be positive, condition C_S must hold: $\alpha > \frac{\tilde{\pi}}{\pi}$. Since the risk differential $\frac{\tilde{\pi}}{\pi}$ is now substantial, C_S is now more restrictive: substantively, prison-insurance is only a viable recruitment strategy for well-consolidated gangs.

I make two further assumptions. First, since all three actions are observed empirically, I focus on regions of the parameter space where each is taken along some portion of the interval $[\underline{y}, \overline{y}]$. Algebra reveals that $y^* > y^C \Leftrightarrow y^C < y^D$, so a sufficient and necessary condition for all three actions being

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[107] Glaeser 1999 simplifies Becker's 'intensive' choice (how many crimes to commit) to a binary choice (crime or legal activity). Glaeser has a distribution over individuals' legal wages and a constant criminal wage; I reverse the formalization, allowing the model to say something about the quality of criminals the gang can recruit; comparative statics are unaffected.

taken is $\underline{y} < y^D < y^* < \bar{y}$.[108] Thus all $y \in [y^C, y^*]$ are recruitable, and y^* represents the highest recruitable type. Second, I assume that the number of people PG seeks to recruit, N_R, is small compared to the total pool of recruitable actors:

$$N_R < \int_{y^D}^{y^*} F(\cdot)\, d y \qquad\qquad (C_R)$$

In words, PG does not recruit low types (below y^D) who would not otherwise be involved in crime.[109] This implies that y^D measures, inversely, overall participation in criminal activity (i.e. the crime rate), as in Becker/Glaeser,[110] while y^* measures PG's effective recruiting strength. Thus comparative statics on y^D and y^* capture, respectively and roughly, the individual vs. collective effects of carceral policy.

ANALYSIS

First note that gang control over prison life aids recruiting ($\frac{\partial y^*}{\partial \alpha} > 0$) but has no effect on overall crime ($\frac{\partial y^D}{\partial \alpha} = 0$), while increases in the outside option reduce the crime rate ($\frac{\partial y^D}{\partial y_o} > 0$) but have no effect on recruiting strength ($\frac{\partial y^*}{\partial y_o} = 0$), a consequence of C_R. Turning to the effects of policy experiments listed in Table 1:

Proposition 2a (Severity reduce crime but aids recruitment). *All policies ρ_S increase y^D and, assuming C_S holds, raise y^*.*

Harsher sentences unambiguously make criminals worse off with respect to non-criminals, lowering the overall crime rate; at the same time, they increase the gang's ability to recruit as long as it is sufficiently consolidated to make prison-insurance recruitment viable.

Proposition 2b (Crackdowns reduce crime). *Any policy with $\pi'(\rho) > 0$ raises y^D.*

As long as crackdowns are not exclusively targeted at gang collaborators, they will always reduce overall crime. However, they also aid recruiting if not sufficiently targeted.

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[108] This implies $\alpha > \frac{\tilde{\pi}}{\pi}$.

[109] This is more empirically and theoretically sound than the alternatives $C_R' : \int_{y^D}^{y^*} F(\cdot)d y < N_R < \int_{y^C}^{y^*} F(\cdot)d y$ or $C_R'' : \int_{y^C}^{y^*} F(\cdot)d y < N_R$: empirically, prison gangs generally only recruit actors with some criminal experience, while theoretically it is not clear how the gang could observe y_i for someone who, absent recruitment, would take the outside option. In any case, most results hold under these alternative assumptions, though their interpretation is less clear.

[110] An increase in y^D means a reduction in the crime rate.

Proposition 2c (Untargeted crackdowns always aid gang recruitment). *For policies ρ_C with no effect on severity, the critical level of targeting is $\varphi^*(\rho_C) = \frac{\tilde{\pi}}{\pi}$.*

Since $\frac{\tilde{\pi}}{\pi} > 1$, it immediately follows that *any* untargeted policy aids recruiting. Moreover, a crackdown that affects the risk differential by a factor less than the differential itself will increase the gang's ability to recruit. This suggests rapidly diminishing returns to the targeting approach: the effect is to raise the risk differential, which in turn makes further crackdowns more likely to be counterproductive.

As for overcrowding, the result from Proposition 1d holds here as well: a seemingly sufficiently targeted policy, with $\varphi(\rho) = \varphi^*(\rho_C)$, will end up strengthening gangs if it leads inadvertently to a worsening of prison conditions. However, overcrowding will also intensify the policy's positive effect on deterrence, since $\frac{\partial y^D}{\partial j} > 0$.

As before, the gang-strengthening effect of an insufficiently targeted crackdown can be offset with a reduction in severity:

Proposition 2d (Offsetting 'more certainty' with 'less severity'). *For any set of parameter values, $\varphi^*\left(\rho_C^K\right) < \varphi^*\left(\rho_C\right)$. For any insufficiently targeted ρ_C, there exists $k \in \mathbb{R}^+$ such that any ρ_C^K with the same degree of targeting but $j'\left(\rho_C^K\right) < -k$ lowers y^*. k is increasing in π', decreasing in $\tilde{\pi}'$, and decreasing in α.*

Again, more targeted crackdowns generally require smaller reductions in severity.[111] In this case, increases in α do not affect the 'targeting gap', and so unambiguously reduce the size of the offset needed. Such an offset will necessarily produce less deterrence, but crime will still fall if the targeting gap is not too large:

Corollary (Offsetting reduces deterrence). *For any ρ_C^K such that $\varphi\left(\rho_C^K\right) = \varphi\left(\rho_C\right)$, $\frac{dy^D}{d\rho_C^K} < \frac{dy^D}{d\rho_C}$; however, $\frac{dy^D}{d\rho_C^K} > 0$ as long as $k < \pi'\left(\rho_C\right)\frac{y_o+j}{\pi(1-\pi)}$.*

This says that if the targeting gap is small enough, or, ironically, if α is high enough, the policy will still increase deterrence over the baseline. This suggests that when prison gangs are very strong, taking a 'swift and certain' approach to punishment is a particularly appropriate strategy.

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[111]The caveat of note 106 still applies, however.

Discussion

The model's core results are borne out by the available evidence. Across cases, the model's operative conditions are met: prison gangs can punish defection and reward loyalty within prison[112] while recidivism rates indicate that outside criminal actors anticipate future incarceration (Table 2). In line with the model's predictions, qualitative leaps in prison-gang projection of power—witnessed by changes in street-level criminal markets, control over peripheral areas, and orchestrated violence / protest—occurred during periods[113] of rapid growth in incarceration and, presumably, worsening conditions due in part to overcrowding (Figure 4). Most crucially, much of this carceral growth was driven by anti-gang crackdowns that consistently failed to distinguish street-gang members from non-members, much less specifically target those street criminals who obey prison-gang dictates.[114]

Table 2. Recidivism Rates

USA	California	Brazil	El Salvador	Guatemala
51.8%	67.5%	70%	> 50% > 90% (*mara* members)*	58.5%

Sources: Langan and Levin 2002; CDCR 2011; *Agência Brasil* 2011; Aguilar and Miranda 2006, 62; Ranum 2006, 9. *Author interview, Director General of Salvadoran penitentiary system, May 22, 2013.

Critical comparative evidence comes from the case of Nicaragua, which shares with its neighbors many factors often blamed for the rise of the *maras*: a history of civil war, easy availability of firearms, widespread poverty and unemployment, and a long-standing presence of neighborhood street gangs.[115] Yet the *maras* have made no inroads into Nicaragua, its native gangs never developed into prison-based criminal networks, and its homicide rate is far lower than its northern neighbors.[116] For Rocha, one

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[112] E.g. **Brazil:** Amorim 1993, 100; Dias 2011, 165-181; Rosa 2011; Interviews, former CV and Terceiro Comando members, Rio de Janeiro, August 2009. **Central America:** Fogelbach 2010, 430; Visit to Quetzaltepeque Prison and interview with imprisoned *mara* leaders, El Salvador, May 24; Interviews, Directors of Guatemalan and Salvadoran penitentiary systems, May 22-23. **USA:** Skarbek 2011; Sykes 1958, 127-128.

[113] For California's Eme, the 1990s; for São Paulo's PCC, 2001-10; for El Salvador's *maras*, 2004-11; for Rio's CV, data is unavailable for the critical period: 1979-1985.

[114] **Brazil:** Arias 2006; Cano and Alvadia 2008; IBA 2010. **Central America:** Andino Mencía 2006, 13-14; Cruz 2010, 390-391; Mateo 2011, 97; Ranum 2011, 79-80; Wolf 2011, 59. **USA:** Bjerregaard 2003; Boyd 2009, 972-983; Curry 2000, 1270; Gilmore 2007, 214-225.

[115] Rocha and Rodgers 2008.

[116] Cruz 2011; Yashar 2012.

Figure 4. Mass Incarceration and Overcrowding

| Occupancy $\left(\frac{\text{inmates}}{\text{beds}} \times 100\right)$ in 2012: | California:[†] 196% | São Paulo: 179% | El Salvador: 299% |
| | USA: 106% | Brazil: 163% | Nicaragua: 128% |

Sources: BJS 2012; CDCR 1997, 2008, 2011; INFOPEN 2012; Cáceres 2009; DGCP 2013; Paredes 1997; ICPS 2013; OAS 2012. *Excludes local jails. [†]Data for 2007.
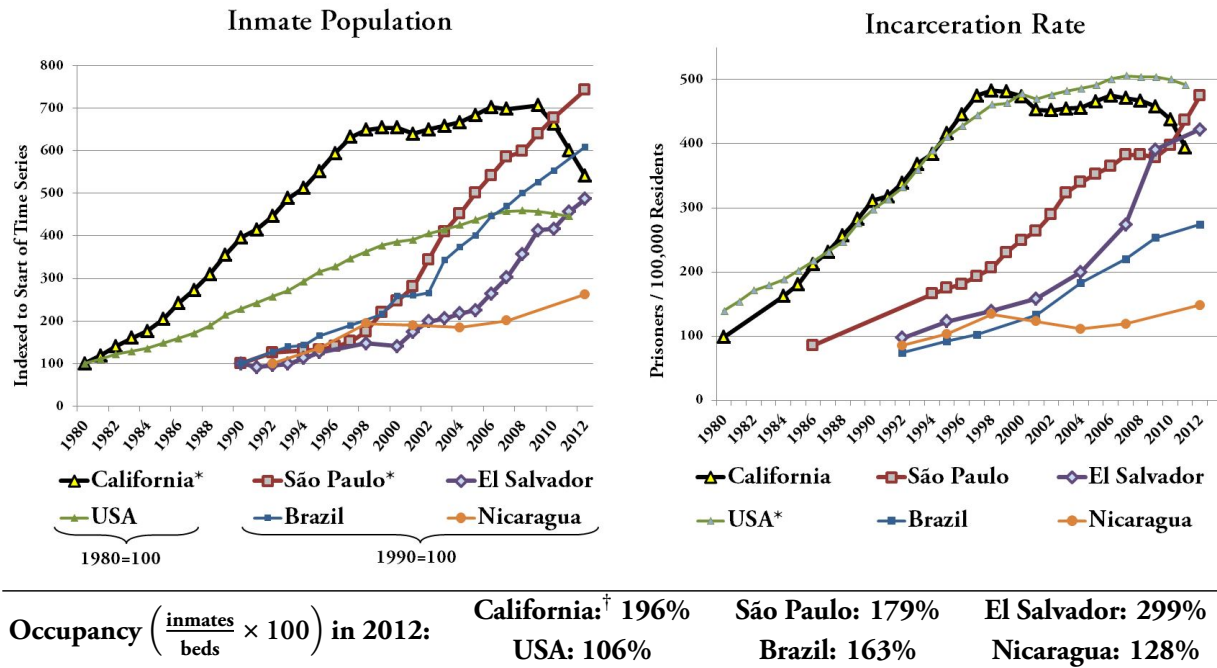
key reason is the unique, "sociological" approach to the gang problem taken by authorities, focusing on re-integration through participation in social programs rather than criminalization of gang membership and mass arrests.[117] Cruz, comparing in-depth studies of Nicaragua with El Salvador, Guatemala, and Honduras, finds such policy differences decisive, concluding that "the mechanism that perhaps most facilitated gang organization and recruitment" in the latter three cases "was the simultaneous incarceration of thousands of youth gang members and wannabes."[118]

Unfortunately, such comparative leverage is rare. There is little reliable information for high-incarceration authoritarian regimes like Russia and China, and in general negative cases cannot be distinguished from missing data: authorities have incentives to deny prison gangs' power, and even honest measurement is biased downward. Even in the US, prison-gang secrecy and official "gang denial" severely hamper detection and assessment;[119] in Latin America production of reliable information

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[117]Rocha 2010, 33.
[118] Cruz 2011, 155.
[119]Fleisher and Decker 2001, 3; Fong and Buentello 1991, 66-7; Knox 2012.

is probably worse.[120]

Under these conditions, naïve empirical testing can generate spurious results, as repeated intelligence failures surrounding the PCC illustrate. Officials denied the existence of the PCC prior to the 2001 'mega-rebelion',[121] then only a year later declared that crackdowns and harsher prison policies had rendered it "a failed and dismantled organization."[122] Even scholars and specialists that acknowledged the PCC's strength within prison vastly underestimated its power on the streets.[123] In fact, from 2002-2006, while São Paulo's prison population doubled, the PCC was consolidating internal control,[124] and building a network of outside cells whose efficacy the 2006 attacks would soon make frighteningly evident. Yet just prior to those attacks, regressing the best available measures of prison-gang power projection on incarceration rates would have yielded powerful evidence *against* my theory.

In data-poor environments, models can help advance a 'modeling dialogue',[125] clarifying concepts and focusing empirical research on relevant phenomena. In particular, crime rates, even when accurate, are no measure of prison-gang power: the same policies that incapacitate and deter individuals may simultaneously strengthen prison gangs by increasing their coercive power on the street. Moreover, prison gangs sometimes use this power to deliberately reduce criminal violence, as with the 1993 Eme-imposed ban on drive-by shootings,[126] the 2012 prison-brokered *mara* truce, or the PCC's prohibition of unauthorized homicide. Obviously, public attacks and protests reveal prison-gang strength, often intentionally, but in the interim, researchers can only triangulate among observations suggestive of prison-gang projection: changes in the structure of local criminal markets, sudden decreases in street-gang violence (or its concentration into large-scale battles between consolidated networks), and targeted violence against officials in response to changes in carceral policy. Ethnographic work in marginalized and incarceration-affected communities has been critical in detecting parallel power and even criminal governance; moving forward, replicated ethnographies could help produce more

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[120] Macaulay 2007, 630.
[121] Salla 2007, 81.
[122] Simas Filho and Rodrigues 2003, 2.
[123] Adorno and Salla 2007, 9; interview, Head Researcher, São Paulo Office of the Public Prosecutor, May 9, 2005.
[124] Dias 2009.
[125] Myerson 1992, 64.
[126] Parenti 2000, 198.

systematic assessments.

The foregoing raises a conceptual problem, thus far treated only cursorily. In these cases, increased punishment may have led, through the channel of strengthening prison-based criminal coordination, to a reduction in crime. Surely, though, this constitutes some kind of erosion, not restoration, of state authority.[127] This implies that 'reducing crime' and 'restoring state authority' are conceptually distinct. Below, I flesh out this distinction, then consider the consequences: any analysis of the capacity of punishment to restore state authority must take into account not only its deterrent and incapacitating effects on crime, but also its collective authority-eroding effects, via the strengthening of prison gangs' coercive, coordinating power.

Authority, Crime, and Punishment

Canonical conceptualizations of authority center on the ability to lay down rules that 'subjects' ultimately submit to willingly. The idea that order produces a welcome social surplus goes back to Hobbes. Weber describes authority as involving, more than just physical or coercive force, a degree of "voluntary submission"[128] to and internalization of rulers' commands by subjects, due, in modern states, to the 'rationality' and efficiency of the rules chosen. Tilly argues that protection rackets only obtained the legitimacy of states when they imposed non-rapacious social orders that produced enough surplus to leave subjects willing to cooperate.[129] Similarly, Olson finds that armed actors choose 'stationary' over 'roving banditry' when they can extract the surplus from social order.[130] Myerson identifies authority with Schelling's notion of 'focality': the ability to get people to focus on and select one out of a multiplicity of potential equilibria.[131] It is the essence of Nash equilibria that once one is selected, i.e., once we all believe that everyone else will play according to it, nobody has an incentive to defect—an apt game-theoretic translation of Weber's 'voluntary submission.' Across conceptions, coercive force may

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[127]Precisely the same can be said about reductions in prison violence due to ceding control over prison life to gang leaders, albeit in a less salient sphere.

[128]Weber 1947, 325.

[129]Tilly 1985.

[130]Olson 1993. Skarbek invokes this to explain criminal governance by prison gangs.

[131]Myerson 2009; Schelling 1960.

be necessary to establish authority and impose order, but this order, once imposed, is self-sustaining and surplus-producing.[132]

A distinction can now be drawn between individual and collective challenges to authority. Individuals may simply break rules or laws, defecting, in Myerson's terms, from the social equilibrium selected by the state. Atomistic property crime is a good example: that it is in some sense 'out of equilibrium' is evidenced by the fact that it often catches us unaware. Of course, as more individuals defect, new equilibria arise: we become suspicious, take additional precautions, avoid crime-ridden areas (making them more crime-prone), and thieves must take more drastic actions to surprise us. At the extreme—think of widespread looting—state-induced social order simply dissolves into an 'every-man-for-himself' logic that is nonetheless an equilibrium. In this view, catching and punishing thieves re-establishes a common expectation that others will follow the rules or pay the consequences, 'restoring state authority' by pushing citizens back toward the state-selected equilibrium of respect for private property,

Such individual affronts to state authority, even in aggregate, are conceptually different from collective threats. Of course, non-state actors may also engage in crime and chaos-causing. But they also lay down their own rules, impose social order, induce equilibria among their 'subjects'—in short, they establish their own form of authority, with the same self-reinforcing qualities. "Collaboration is voluntary," a Salvadoran *mara* leader explained, echoing Weber, when I asked how they got street members to observe the prison-negotiated truce: "Backed up by disciplinary action, but voluntary."[133] As violence recedes into off-the-equilibrium-path threats, a gang (or warlord, or insurgent group) can become a 'focal point' that subjects look toward to select equilibria in other domains.[134] Focality, by establishing an authority figure, helps all players avoid costly conflict, coordinate strategies, and reap the gains of collective action.[135]

Focal point effects help explain how prison-gangs expand their authority from core members to

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[132]Tyler 2003, 2006 agrees that subjects do not obey authorities solely out of fear of punishment, but emphasizes normative over instrumental explanations of compliance. These can be complementary; concretely, inhuman prison conditions can erode state authority by violating shared notions of justice *and* by facilitating prison gangs' establishment of non-state authority.

[133]Interview, Quetzaltepeque Prison, May 24, 2013.

[134]Schelling 1960.

[135]Myerson 2009, 103.

larger constituencies, particularly when they are able to do so quickly and bloodlessly.[136] The resulting regions of intermittent state penetration and overlapping authority are surely detrimental to the rule of law:[137] even if some forms of non-state authority—perhaps religion?— need not come at the expense of state authority, it is hard to see how this could be the case for *criminal* groups, particularly ones the state has deliberately demonized.

COUNTERPRODUCTIVE PUNISHMENT

The individual / collective distinction carries over into the role of punishment in restoring state authority. The 'individual effects of punishment'—incapacitation and deterrence—are authority-restoring to the extent that people who might otherwise break the law no longer can or do. Estimating the size of these effects is subject to problems of identification, resulting in an ongoing empirical debate. But the very existence of this debate underlines the relative 'visibility' of individual effects: clear causal mechanisms point to observable effects, which, when plausible sources of exogenous variation in punishment crop up, can be estimated with publicly available data on arrests, inmate profiles, recidivism, and so on.

What are the collective effects of punishment on state authority? For groups like insurgencies, mafias, and street gangs, increases in punishment probably reduce the ability to impose non-state authority.[138] The model above shows how this logic is inverted when prison gangs are strong: crackdowns increase gangs' coercive power on the street, reinforcing criminal authority at the expense of the states', apart from any effect on crime rates. However, these collective, authority-eroding effects are far less visible than individual effects. The causal pathway is neither obvious—it is modeled here for the first time, to the best of my knowledge—nor immediate: both consolidation within prison and projection of power onto the street occur over years or decades. Moreover, the aforementioned obstacles to measurement may worsen as gangs grow powerful, accumulate corrupting illicit rents, and become an ever-greater motive for even honest officials to prevent accurate assessments.

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[136]E.g. Amorim 1993; Cruz 2010; Hirata 2010.

[137]See O'Donnell 1993, 2004 for the canonical argument. Feltran 2010 documents and analyzes the overlapping authority of the PCC in São Paulo's periphery.

[138]Above I suggest defining 'street gang' as those whose leverage is reduced by untargeted crackdowns.

Another asymmetry concerns 'returns to scale.' Theory predicts, and empirical results mostly confirm, that the marginal crime-reducing effect of punishment is decreasing,[139] and may even become negative beyond some point.[140] In contrast, the collective, authority-eroding effects of punishment may display increasing returns over the relevant range. For one thing, as prison becomes a common part of the life course for targeted demographic groups,[141] prison-gang initiation may become a rite of passage, and obtaining 'prison insurance' a widespread community norm. But the model suggests additional complementary dynamics: the strengthening effects of crackdowns on prison gangs' power outside prison are directly increasing in their power within prison; there will be positive feedback if gangs use the ensuing surpluses to further consolidate. Moreover, if prison-gang authority is focal, even modest increases in coercive power can have decisive effects on their outside authority. For example, in Los Angeles, the MS first brazenly opposed Eme taxation, then, as reprisals escalated, not only relented but amended its name to proudly proclaim its Eme affiliation,[142] suggesting a tipping-point effect. Focality implies shared expectations of obedience, captured in this once-imprisoned Rio drug lord's explanation of loyalty to imprisoned leaders:

> [A rebellious lieutenant] could try a 'coup d'état'... but it's very rare. In an established CV drug operation with great firepower... out of 30 employees, half would kill [him], you can be sure... and you only need one.[143]

Figure 5 synthesizes the foregoing conjectures: the marginal, 'individual effects' of incapacitation and deterrence on state authority are positive and high at low levels of incarceration, where basic social order is established, but decreasing as the worst offenders are captured. These effects are (roughly) measurable via the crime rate, though debate exists as to whether and where they become negative. The marginal effect of prison-gang growth on state authority is negative, small at low levels of incarceration, but larger at higher levels, once gangs have consolidated and begun to project power. The
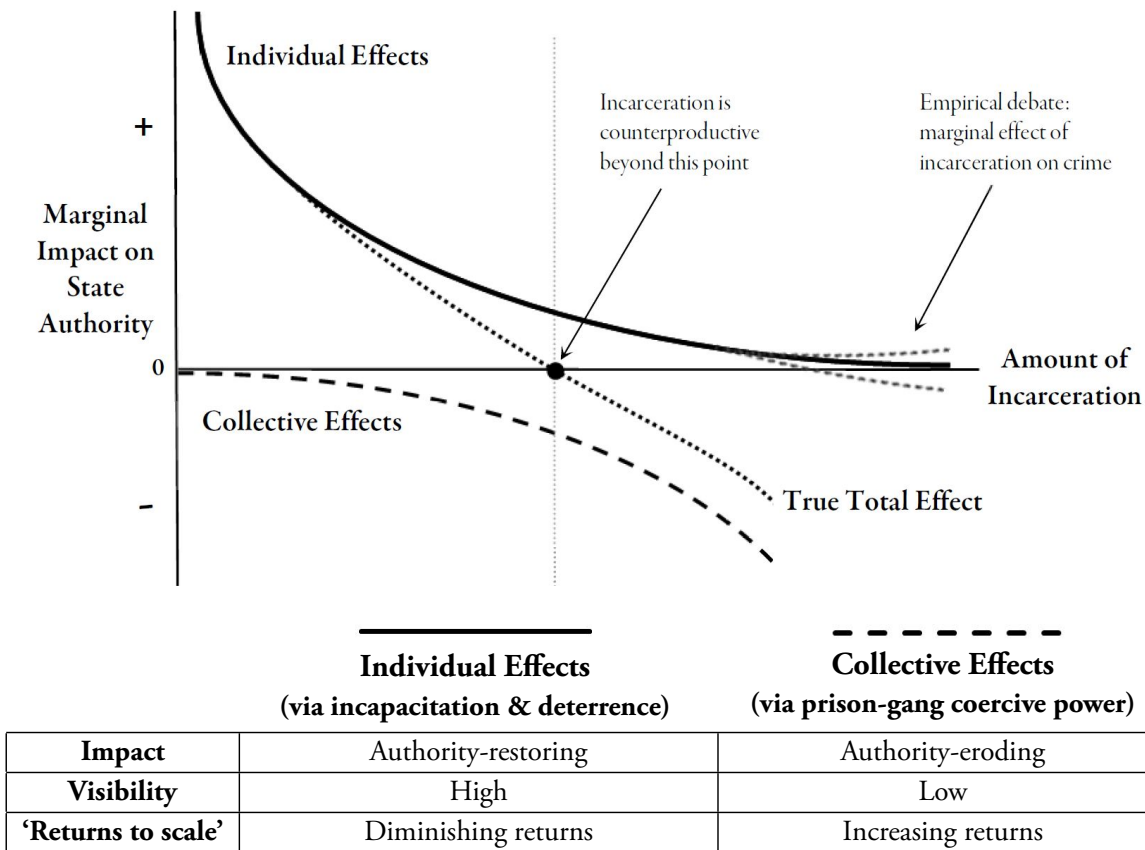
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[139]Kleiman 2009; Useem and Piehl 2008.
[140]Chen and Shapiro 2007; Gaes and Camp 2009; Liedka et al. 2006. Kleiman 2009 emphasizes, however, that well-planned 'dynamic concentration' policing may have tipping-point effects, and hence increasing returns.
[141]Pettit and Western 2004.
[142]Valdez 2011, 28-29.
[143]Author interview, Rio de Janeiro, August 17, 2009.

Figure 5. Individual and Collective Effects of Incarceration on State Authority

	Individual Effects (via incapacitation & deterrence)	Collective Effects (via prison-gang coercive power)
Impact	Authority-restoring	Authority-eroding
Visibility	High	Low
'Returns to scale'	Diminishing returns	Increasing returns

curve is downward-sloping to show these 'increasing returns' and dashed because the effects are not easily observed. The 'true' marginal effect of incarceration on state authority—the vertical sum of these two curves—becomes negative at some inflection point, beyond which additional incarceration may continue to visibly reduce crime, but in reality undermines overall state authority.

In this view, prison gangs do not merely produce hidden costs or externalities that lead policymakers to incarcerate more than socially optimal. Rather, they present a fundamental limit to the amount of 'restoration of authority' that states can accomplish *at any price*. This may sound fanciful, but consider the radical (and expensive) experiments in mass incarceration carried out in places like California, Texas, El Salvador, and São Paulo. How much legitimate authority have these experiments really produced? Prison gangs use the threat of debilitating violence to force authorities into open negotiation in Brazil and El Salvador, where they have long surpassed insurgency as the direst threat to state authority. Even in the US, crime may be 'under control', but the drug trade abides, prison riots and protests are frequent,

and in both prison and street-level criminal markets, if not the broader communities where many inmates come from, order is determined as much by prison-based criminal networks as by the state. For officials everywhere, these may be attractive trade-offs, in effect subcontracting the state function of establishing order to illegal groups, who work 'cheap.' Ultimately, though, such abdication by the state of its defining role must erode its legitimacy and constitute a net loss for society.

Conclusion: Punishment Technologies and Historical Change

Wherever our societies lie along Figure 5, it is surely due in part to unprecedented expansion in incarceration. But historical developments have likely exacerbated the collective effects of incarceration, in effect shifting the dashed line down and the inflection point, beyond which additional incarceration undoes state authority, leftward. Ironically, it was a similar shift that drove western societies to adopt incarceration as their primary form of punishment in the 18th century.

Foucault argues that public execution and torture, then the primary forms of punishment, became problematic for the state when they began to generate civic unrest and disorder. The underlying logic of punishment had not changed: bodily destruction still (literally) incapacitated culprits while terrifying onlookers. Nor had punishment become more expensive per se. Instead, contradictions latent in the punishment technology (e.g. public spectacles require crowds, which generate rowdiness) were amplified by changes in the wider social context (shifting class relations and ideological ferment) such that increased punishment eroded more than it restored the king's authority.[144] To modern leaders, publicly brutalizing citizens in the hopes of re-establishing state legitimacy might seem self-defeating. Yet this was far from obvious at the time, and in any case to *not* publicly torture lawbreakers might well have seemed "soft on crime."[145]

Eventually, public torture gave way to incarceration—whose attractiveness to the modern state Foucault dissects. Yet incarceration has its own latent contradictions: by bringing criminals together, it aligns their interests and encourages criminal networking, makes the state responsible for their well-

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[144]Foucault 1977, 63.

[145]Prison was, at the time, understood not as punishment but rather a place to *await* punishment.

being (at significant expense), and leaves inevitably outnumbered guards dependent on the cooperation of inmates. Historically, these contradictions have been manageable as 'corrections' problems, never seriously threatening the efficacy of incarceration as a means of restoring state authority.

This has changed, as I have argued throughout. In 18th-century Europe, social agitation transformed rowdy public executions into dangerous citizen-state confrontations. In the contemporary globalized economy, prison gangs, once a mere headache for wardens, have been "potentialized" by two factors. First, technological advances have facilitated communication and cooperation. Cell phones have proven both transformational in impact—as with the PCC's synchronized attacks and multi-juror 'trials'—and impossible to control, even in maximum-security US prisons.[146] Equally important, however, is the accumulation and diffusion of organizational know-how, such as techniques of collective action and protest transmitted through personal contact,[147] or the rules and norms codified in statutes and constitutions that have facilitated the survival of Californian, Texan and Brazilian prison gangs.[148] The transformative effect that collectivization has had on extant prison gangs echoes a feature of many military technologies, fundamentally altering strategic interactions in an irreversible way.[149]

The other key factor is the illicit drug trade and states' repression of it, both of which have expanded rapidly over the last 40 years. Demand has proven extremely inelastic, giving states two bad options: turn a blind eye to the very activities they demonize, or fill their prisons with drug offenders. Choosing the latter has given prison gangs an enormous talent pool to recruit from, both among those already incarcerated and those who expect to be at some point. But prison gangs' capacity to project power is only as valuable as the uses to which it can be put. Prohibition's other effect is to generate immense illicit rents,[150] the vast majority of which accrue to the usually-fragmented retail segment.[151] Prohibition thus creates massive potential returns to precisely those criminal activities prison gangs are uniquely positioned to organize. The history of the CV illustrates the point: its first collective criminal actions

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[146]California Department of Justice 2010.
[147]Lima 1991, 45-49; Amorim 2003; Jozino 2004, 31.
[148]Respectively, Skarbek 2011; Fong 1990; and Amorim 2003, 166-177, 388-390.
[149]The point was made eloquently by Mr. Dryden, speaking of nationalist insurgents, in *Lawrence of Arabia*: "You give them artillery and you've made them independent."
[150]Miron 2003 estimates, conservatively, that prohibition raises cocaine and heroin prices by 2-4 and 6-19 times. The US market for cocaine is about $50 billion/year; see Reuter et al. 2009.
[151]Reuter and Greenfield 2001.

were armed robberies, but profits were meager, and it stagnated. Only when leaders switched to a strategy of cornering retail drug markets did the CV grew into a citywide criminal network.[152] The PCC also moved from property crime into the drug trade in the last decade, and it appears that the Central American *maras* are pursuing a similar strategy.[153]

These changes have transformed the prison system—in theory the core of the coercive apparatus—into a space that can spawn, nurture, and serve as operational headquarters' for organized criminal defiance of state authority. The logic of incapacitation and deterrence has not changed. But when prison gangs largely control inmate life, incarceration, rather than restore the state's legitimate authority, merely draws attention to its absence.[154] And when prison gangs use that control to coordinate outside illicit activity, further increases in incarceration rates may only strengthen criminal authority at the expense of the state.

The problem is not principally one of low state capacity: US prison gangs, while subject to some of the strictest and costliest custodial regimes anywhere, have continued to administer extensive criminal networks with ties to international drug cartels. Perhaps a silver-bullet anti-gang program will come along; thus far they have had only marginal impact.[155] Nor is the problem limited to prison gangs per se: groups like Peru's Shining Path, Colombia's paramilitaries, and the Irish Resistance Army have all used incarceration to their advantage, transforming prisons into organizational assets.[156] And since incarceration has become, in the modern era, the sole form of punishment upon which all state coercion ultimately rests, what these cases expose is a fundamental limit to state power.

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[152]Amorim 2003.
[153]Christino et al. 2006; Dudley 2011.
[154]Dias 2011; Tyler 2003.
[155]E.g. Dias 2011, 173-174; Fleisher and Decker 2001; Knox 2012; Salla et al. 2012.
[156]Respectively, Rénique 2003; *BBC* 2007; and English 2005, 187-205.

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A Hole at the Center of the State: Prison Gangs and the Limits to Punitive Power

Appendix: Derivations and Proofs of Lemma and Propositions

Taxation

Lemma 1. *There is a unique sub-game perfect equilibrium in which the gang demands, and S pays,*

$$\tau^* \equiv j\left(\pi - \tilde{\pi}/\alpha\right) + y\left[\beta(1-\tilde{\pi}) - (1-\pi)\right] + \gamma\pi + \delta(1-\pi) \tag{1}$$

whenever τ^* is positive. This is guaranteed whenever $\tilde{\pi}$ is sufficiently close to π, and for all $\tilde{\pi} < \pi$.

Proof. **Existence:** Assume τ^* is positive. S's strategy is to play C whenever it leaves him weakly better off than D, and D otherwise; PG sets $\tau = \tau^*$. At τ^*, $C \succeq_S D$, so S plays C and cannot profitably deviate. PG's payoff is increasing in τ, but if $\tau > \tau^*$ the gang gets 0, so PG cannot profitably deviate.

Uniqueness: Assume an equilibrium exists in which PG plays $\hat{\tau} \neq \tau^*$. Sub-game perfection requires S to accept any $\tau \in (0, \tau^*)$ and reject any $\tau > \tau^*$. If $\hat{\tau} > \tau^*$, PG gets 0 and could profitably defect to $\tau \in (0, \tau^*)$. If $\hat{\tau} < \tau^*$, the gang could profitably defect by offering $\hat{\tau} + \varepsilon$. Contradiction.

Positive τ^*: Note that $\lim_{\tilde{\pi} \to \pi} \tau^* = j\pi(1 - 1/\alpha) + y(\beta - 1)(1 - \pi) + \gamma\pi + \delta(1 - \pi)$. By assumption, the first term is strictly positive, and the others weakly so. If $\tilde{\pi} < \pi$ then all terms in Equation 1 are positive. □

Formal definition of policy experiments: Assume π, $\tilde{\pi}$, and j are all continuous, differentiable functions of a vector of background conditions ξ and the vector of all policy variables ρ. Allowing that policies may affect elements of ξ, for any policy ρ write $j'(\rho)$, $\pi'(\rho)$, and $\tilde{\pi}'(\rho)$ for, respectively, $\frac{dj}{d\rho}$, $\frac{d\pi}{d\rho}$, and $\frac{d\tilde{\pi}}{d\rho}$. Now define ρ_S as the subset of ρ such that $j'(\rho) > 0$ and $\pi'(\rho) = \tilde{\pi}'(\rho) = 0$. ρ_C and variants are defined in similar fashion, according to Table 1.

The total effect of policy ρ on τ^* is given by:

$$\frac{d\tau^*}{d\rho} = \pi'(\rho)[j + y + \gamma - \delta] - \tilde{\pi}'(\rho)\left[\frac{j}{\alpha} + \beta y\right] + j'(\rho)\left[\pi - \frac{\tilde{\pi}}{\alpha}\right] \tag{TE_{τ^*}}$$

Table 1. Policy Experiments

Policy	Description	Effect on Severity: $j'(\rho)$	Effect on Certainty: $\pi'(\rho)$ and $\widetilde{\pi}'(\rho)$
ρ_S	Hardening	$+$	0
ρ_C	Pure Crackdown	0	$+$
ρ_C^O	Crackdown + Overcrowding	$+$	$+$
ρ_C^K	'Swift and Certain' Crackdown	$-$	$+$

Proposition 1a (Severity strengthens gangs). *The effect of ρ_S on τ^* is positive whenever:*

$$\alpha > \frac{\widetilde{\pi}}{\pi} \tag{C_S}$$

Proof. Follows from Equation TE_{τ^*}. $\qquad\square$

Proposition 1b (Untargeted crackdowns strengthen consolidated gangs). *Any policy ρ_C with $\varphi(\rho_C) = 1$ increases τ^* whenever*

$$j - \frac{j}{\alpha} - (\beta y - y) + \gamma - \delta > 0. \tag{2}$$

Proof. By assumption, $\pi'(\rho) = \widetilde{\pi}'(\rho)$; substituting into Equation TE_{τ^*} and rearranging gives:

$$\frac{d\tau^*}{d\rho_C} = \pi'(\rho)\left[j - j/\alpha - y(\beta - 1) + \gamma - \delta\right]$$

This is positive if the expression in brackets is positive. $\qquad\square$

Proposition 1c (Better-consolidated gangs require more targeting). *The critical level of targeting for crackdowns with no effect on severity is $\varphi^*(\rho_C) = \frac{j + y + \gamma - \delta}{j/\alpha + \beta y}$, which is increasing in the 'inside' parameters α and γ, and decreasing in the 'outside' parameters β, δ and y.*

Proof. Substituting into Equation TE_{τ^*}:

$$\frac{d\tau^*}{d\rho_C} = \pi'(\rho)\left[j + y + \gamma - \delta\right] - \widetilde{\pi}'(\rho)\left[j/\alpha + \beta y\right]$$

which is positive whenever $\frac{\pi'(\rho)}{\widetilde{\pi}'(\rho)} < \frac{j+y+\gamma-\delta}{j/\alpha+\beta y}$. Comparative statics for α, β, γ, and δ are obvious; $\frac{\partial\varphi^*(\rho_C)}{\partial y} = \alpha\frac{j(1-\alpha\beta)-\alpha\beta(\gamma-\delta)}{(j+\alpha\beta y)^2}$, which is certain to be negative if $\gamma > \delta$. $\qquad\square$

Proposition 1d (Overcrowding increases the critical level of targeting). *For any set of parameter values,* $\varphi^*(\rho_C^O) > \varphi^*(\rho_C)$ *and any* ρ_C^O *with the same degree of targeting as a just-sufficiently targeted* ρ_C *will increase* τ^*.

Proof. $\frac{d\tau^*}{d\rho_C} = 0$, so $\frac{d\tau^*}{d\rho_C^O} = 0 + j'(\rho)\left[\pi - \frac{\tilde{\pi}}{\alpha}\right]$. Since $\alpha > \frac{\tilde{\pi}}{\pi}$ and $j'(\rho) > 0$, it follows that $\frac{d\tau^*}{d\rho_C^O} > 0$. □

Proposition 1e (Offsetting more certainty with less severity). *For any set of parameter values,* $\varphi^*\left(\rho_C^K\right) < \varphi^*\left(\rho_C\right)$. *For any insufficiently targeted* ρ_C, *there exists* $k \in \mathbb{R}^+$ *such that any* ρ_C^K *with the same degree of targeting but* $j'\left(\rho_C^K\right) < -k$ *lowers* τ^*.

k *is increasing in* π', *decreasing in* $\tilde{\pi}'$, *and decreasing in* α *whenever*

$$\varphi\left(\rho_C^K\right) < \frac{j + y + \gamma - \delta}{j\frac{\pi}{\tilde{\pi}} + \beta y} \tag{C_K}$$

Proof. Manipulation of Equation TE_{τ^*} reveals that:

$$\varphi^*\left(\rho_C^K\right) = \frac{j + y + \gamma - \delta}{j/\alpha + \beta y} + j'(\rho)\left[\frac{\pi - \tilde{\pi}/\alpha}{\pi'(\rho)(j/\alpha + \beta y)}\right]$$
$$= \varphi^*\left(\rho_C\right) + j'(\rho)\left[\frac{\pi - \tilde{\pi}/\alpha}{\pi'(\rho)(j/\alpha + \beta y)}\right]$$

The expression in brackets is positive, and since $j'\left(\rho_C^K\right) < 0$, $\varphi^*\left(\rho_C^K\right) < \varphi^*\left(\rho_C\right)$.

Derivation of k: $\frac{d\tau^*}{d\rho_C^K} = \pi'(\rho)[j + y + \gamma - \delta] - \tilde{\pi}'(\rho)[j/\alpha + \beta y] + j'(\rho)\left[\pi - \frac{\tilde{\pi}}{\alpha}\right]$. This is negative if $j'(\rho) < k \equiv \frac{\pi'(\rho)[j+y+\gamma-\delta]-\tilde{\pi}'(\rho)[j/\alpha+\beta y]}{\pi - \tilde{\pi}/\alpha}$. By assumption, the nominator is positive, and the denominator is positive, so k is positive.

Comparative statics on k: k is clearly increasing in $\pi'(\rho)$ and decreasing in $\tilde{\pi}'(\rho)$. As for α,

$$\frac{\partial k}{\partial \alpha} = \frac{\tilde{\pi}}{(a\pi - \tilde{\pi})^2}\left[\tilde{\pi}'(\rho)\left(j\frac{\pi}{\tilde{\pi}} + \beta y\right) - \pi'(\rho)(j + y + \gamma - \delta)\right]$$

. The first term is positive; the term in brackets is negative whenever condition C_K holds. □

RECRUITMENT

First note that:

$$\frac{d\,y^*}{d\rho} = \pi'(\rho)\left[\frac{\widetilde{\pi}\,j\left(1-\frac{1}{\alpha}\right)}{(\pi-\widetilde{\pi})^2}\right] + \widetilde{\pi}'(\rho)\left[-\frac{\pi\,j\left(1-\frac{1}{\alpha}\right)}{(\pi-\widetilde{\pi})^2}\right] + j'(\rho)\left[\frac{\pi-\frac{\widetilde{\pi}}{\alpha}}{\widetilde{\pi}-\pi}\right] \qquad (TE_{y^*})$$

$$\frac{d\,y^D}{d\rho} = \pi'(\rho)\left[\frac{y_o+j}{(1-\pi)^2}\right] + \widetilde{\pi}'(\rho)\,[0] + j'(\rho)\left[\frac{\pi}{1-\pi}\right] \qquad (TE_{y^D})$$

Proposition 2a (Severity reduce crime but aids recruitment). *All policies ρ_S increase y^D and, assuming C_S holds, raise y^*.*

Proof. Follows from Equations TE_{y^*} and TE_{y^D}. □

Proposition 2b (Crackdowns reduce crime). *Any policy with $\pi'(\rho)>0$ raises y^D.*

Proof. Follows from Equation TE_{y^D}. □

Proposition 2c (Untargeted crackdowns always aid gang recruitment). *For policies ρ_C with no effect on severity, the critical level of targeting is $\varphi^*(\rho_C) = \frac{\widetilde{\pi}}{\pi}$.*

Proof. From Equation TE_{y^*}, $\frac{d\,y^*}{d\rho_C} > 0$ whenever $\frac{\widetilde{\pi}'(\rho)}{\pi'(\rho)} > \frac{\widetilde{\pi}}{\pi}$. □

Proposition 2d (Offsetting 'more certainty' with 'less severity'). *For any set of parameter values, $\varphi^*\left(\rho_C^K\right) < \varphi^*\left(\rho_C\right)$. For any insufficiently targeted ρ_C, there exists $k \in \mathbb{R}^+$ such that any ρ_C^K with the same degree of targeting but $j'\left(\rho_C^K\right) < -k$ lowers y^*. k is decreasing in both $\varphi\left(\rho_C^K\right)$, and α.*

Proof. Manipulation of Equation TE_{y^*} reveals that:

$$\varphi^*\left(\rho_C^K\right) = \frac{\widetilde{\pi}}{\pi} + j'(\rho)\left[\frac{\widetilde{\pi}-\pi}{\pi'(\rho)\pi} \cdot \frac{\alpha\pi-\widetilde{\pi}}{j(\alpha-1)}\right]$$

Given C_S, the expression in brackets is positive, and since $j'\left(\rho_C^K\right) < 0$, $\varphi^*\left(\rho_C^K\right) < \varphi^*\left(\rho_C\right)$.

Derivation of k: From Equation TE_{y^*}, $\frac{d\,y^*}{d\rho_C^K}$ is negative if

$$j'(\rho) < k \equiv \frac{\widetilde{\pi}-\pi}{\pi-\widetilde{\pi}/\alpha}\frac{j(1-1/\alpha)}{(\pi-\widetilde{\pi})^2}\left[\widetilde{\pi}\pi'(\rho) - \pi\widetilde{\pi}'(\rho)\right]$$

A4

The terms outside the brackets are all positive, and since $\frac{\tilde{\pi}'(\rho)}{\pi'(\rho)} < \frac{\tilde{\pi}}{\pi}$ by assumption, the expression inside the brackets is positive, so k is positive.

Comparative statics: $\frac{\partial k}{\partial \pi} = \frac{j(\alpha-1)}{(\tilde{\pi}-\pi)(\alpha\pi-\tilde{\pi})}\left[\tilde{\pi} - \pi\frac{\tilde{\pi}'(\rho)}{\pi'(\rho)}\right]$. By C_S, the expression outside the brackets is positive; since $\frac{\tilde{\pi}'(\rho)}{\pi'(\rho)} < \frac{\tilde{\pi}}{\pi}$ by assumption, the expression inside the brackets is positive. A similar analysis shows that $\frac{\partial k}{\partial \tilde{\pi}} < 0$. As for α, $\frac{\partial k}{\partial \alpha} = \frac{j\left[\tilde{\pi}\pi'(\rho)-\pi\tilde{\pi}'(\rho)\right]}{(\tilde{\pi}-\alpha\pi)^2}$ which is positive by the same assumptions. $\qquad \square$

Corollary (Offsetting reduces deterrence). *For any ρ_C^K such that $\varphi(\rho_C^K) = \varphi(\rho_C)$, $\frac{dy^D}{d\rho_C^K} < \frac{dy^D}{d\rho_C}$; however, $\frac{dy^D}{d\rho_C^K} > 0$ as long as $k < \pi'(\rho_C)\frac{y_o+j}{\pi(1-\pi)}$.*

Proof. $\frac{dy^D}{d\rho_C^K} = \pi'(\rho)\left[\frac{y_o+j}{(1-\pi)^2}\right] + j'(\rho)\left[\frac{\pi}{1-\pi}\right]$, which is less than $\frac{dy^D}{d\rho_C}$ since $j'(\rho_C^K) < 0$. $\frac{dy^D}{d\rho_C^K} > 0$ implies $-j'(\rho_C^K) = k < \pi'(\rho)\left[\frac{y_o+j}{(1-\pi)^2}\right]\frac{1-\pi}{\pi} = \pi'(\rho)\frac{y_o+j}{\pi(1-\pi)}$. $\qquad \square$