



Universidad de
San Andrés

Universidad de San Andrés

Departamento de Economía

Maestría en Economía

**Crime and Punishment; an Economic
Approach, Reconsidered**

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Buenos Aires

20 de febrero, 2020

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“Crimen y Castigo; una Perspectiva desde la Economía, reconsiderada”

Resumen

El presente trabajo tiene por objeto vincular diversas teorías penales, para tener una perspectiva macro más amplia sobre los principales alineamientos que estas políticas deben obedecer en diferentes contextos institucionales. En particular, introduce una ampliación del modelo económico tradicional de crimen y castigo (Gary Becker 1974), que proporciona un marco matemático simple para pensar en las premisas de la política criminal. La adición de variables y externalidades específicas para captar enfoques intuitivos alternativos, como la teoría ecológica y el triángulo negro del crimen, nos ayuda a ilustrar nuestro punto, y a integrarlo en una lógica popular e intuitiva. Entre estas variables, adoptamos un enfoque distintivo del capital social, que podría considerarse útil en futuras investigaciones.

Además, elaboramos un modelo econométrico para apoyar nuestra afirmación de partida: que las políticas de "Mano Dura", condicionales a entornos institucionales bajos, empeoran la situación en materia de violencia. Para cumplir con esta pretensión se utilizan datos de panel de las provincias argentinas, junto con un novedoso índice que da cuenta de los efectos de las políticas de "Mano Dura" (aumento de las políticas punitivas violentas), captando los efectos secundarios no convencionales de dichas medidas. Se adjunta un breve estudio de la literatura para discutir los posibles mecanismos que operan para que esta relación funcione.

Palabras clave: *teoría del crimen, barrios marginales, América Latina*

“Crime and Punishment; an Economic Approach, Reconsidered”

Abstract

This paper intends to bind diverse criminal theories to have a more ample macro perspective about the main alignments these policies should obey in different institutional contexts. In particular, it introduces an extension on the traditional crime and punishment economic model (Gary Becker 1974), which provides a simple mathematical frame to think about criminal policy's premises. Adding specific variables and externalities to capture alternative intuitive approaches, such as the ecologic theory of crime, helps us illustrate our claim and integrate it into a popular and intuitive logic. Between these variables, we adopt a distinctive approach to social capital, which could be considered useful in future research.

Empirical evidence is further provided to support our claim: that “Mano Dura” policies, conditional on low institutional environments, worsen the violence situation. Panel data from the Argentine provinces are used to fulfill this pretention, together with a novel index which proxies to the “Mano Dura” (increase in violent punitive policies) policy effects, capturing non-conventional side effects of such measures. A brief literature survey is appended to discuss the possible mechanisms that operate for this relation to function.

Keywords: *crime and punishment theory, Latin America, marginal neighbourhoods*

JEL: K420, H110, A140, A130, H560, B520

Introduction

“Es preciso meter, en el barro los pies, y mancharte tus lindos mocasines.

Si del hombre querés hablar. Si querés que te crean.

Es preciso sentir, en el lomo el bastón, de los tipos azules que te cuidan.

Si tus papos de libertad, no son papos y nada más”

Arbolito, La Arveja Esperanza (2002)

How can we explain the fact that the amount of violent crimes in Argentina has been rising for the last 20 years (same as most of Latin America) when punitive policies increased steadily to catch up? (figures 1 and 2). Moreover, how can this relate to the fact that the vast majority of violent crimes and murders, for instance in the city of Buenos Aires, occur inside marginal neighborhoods (figure 3), when inequality among its inhabitants isn't that big?

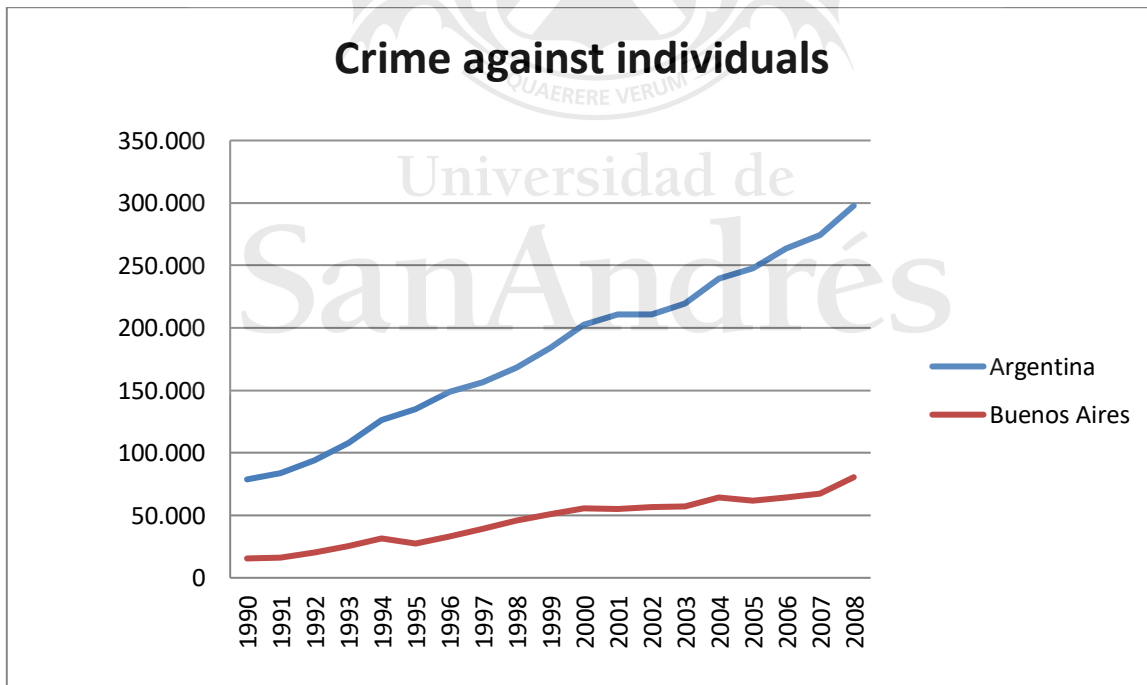


Figure 1

Source: Ministerio de Justicia (SNIC)



Figure 2
Source: Ministerio de Justicia (SNEEP)

Total homicides per commune in 2012, Buenos Aires city.
Bottom right: concentration of marginal neighborhoods

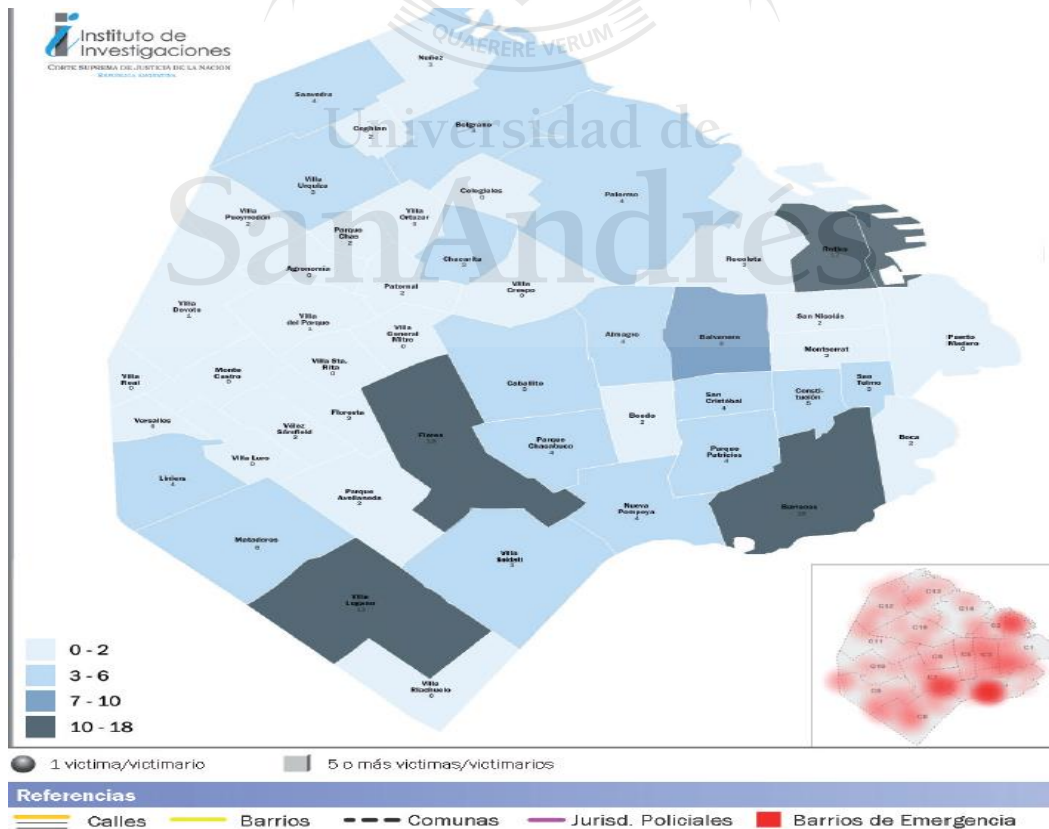


Figure 3
Source: Supreme Court of justice

Security policy in Latin America has come into a dead-end road in the last 20 years, with spirally increasing perverse results. On the one hand, criminal violence increased as a consequence of several macro-factors; such as the increased structural unemployment and social exclusion after the liberal reforms of the '90 with its subsequent state retreat (Wacquant 2008), or the expansion of the drug trafficking business as a consequence of globalization and geographical diversification of the industry (Fohrig (2013)). On the other hand, institutionally weak governments have instrumented (only) visible attempts to solve this issue by increasing their punitive practices; inspired in policies that appeared to work in the northern hemisphere, and in political pressure to find a short run "solution" (Flom and Post 2014). According to Wacquant (2008), these actions have exacerbated the criminal violence instead of mitigating it, since they activated underlying mechanisms which will be explored in this paper, hence returning to the first instance in a worse position.

Indeed, fear of crime is the main public opinion issue of concern in Argentina, as reflected in the data collected by the Lationobarometer survey (Vanderbilt University (2014)). Alarms are raised regarding the incremental resources focused on the subject, and the lack of results. *Prima facie*, a misleading pathway has been undertaken by our policymakers. The question now is how to cut the spiral into this dead-end road. To add to the answering, this paper intends to bring together both traditional and recent views, and reconcile them together. For this purpose, we make use of Gary Becker's (1974) mathematical framework, to illustrate the amplified point of view. Consistent empirical evidence is also provided to support our arguments.

Several iconic aspects ring a bell on *where* we should pay more careful attention. Recently, media exposure of the state's punitive apparatus corruption has become quite popular; shedding some light on which punishing efforts become wasted. An iconic case was uncovered; the "Caso Candela" revealed the tip of the iceberg involving misaligned punitive resources. A large number of police agents, together with judges and provincial deputies were exposed as involved in a drug trafficking network, responsible for the murder of the little girl Candela (Martello (2012)). And this is just one of the many contemporary cases that involve the police taking part in organized crime¹.

These aspects could be said to be influencing the law enforcement "supply". Need not be said that to fulfill a careful analysis, "demand" should be taken as well into consideration. With "demand" we refer to those who are affected by the policy measures; individuals or constituencies. For instance, an insight that recent econometric analysis for the region has

¹ Carabajal, G. (25/6/2015) "Cayeron cinco policías bonaerenses acusados de darle protección a los Narcos",

revealed is that classical disincentives for crime (proxied by the probability of arrest and conviction, and the severity of the punishment) do have a negative effect, but only on property crimes, not on crime against individuals (Cerro & Rodriguez (2014)). This suggests that there could be other motivations for the second type of offenders, rather than material ones.

Another salient issue related to the “demand” side, reveals itself in several ethnographies of marginal sectors of society, where an extremely high level of violence stands over other noticeable features (Cesar Pinheiro Teixeira (2011) for Brazilian “favelas”, Chávez, L. M. (2009) for “barrios” in Chile). Auyero and Berti (2012) observe violence as part of its inhabitant’s *repertoire*; authors observe how a prototypical sample of this social stratum is already familiarized to its extreme levels, and make use of it to solve any problem of their daily life. So extreme is the case, that they can distinguish the violence that permeated in elementary children’s schoolwork, which develops around gangs, guns, killings, jail, and other aspects to which they are habituated. This particular feature, together with the above-mentioned inquiries, brings us to try and figure out which factors are influencing this repeated scenario with such low social welfare, and how it relates to the government’s intervention.

Our principal claim points out that, conditional on a low institutional environment, augmenting punitive practices² increase violent offenses. This stands in opposition to the traditionally monotonous negative relationship between punitive resources and the number of offenses, though it is focused solely on violent offenses. The new relation becomes true through two main mechanisms that set in motion traditionally unconsidered dynamics: giving more power to corrupt forces (the supply side), and destroying inclusive identity (demand side), and hence, social capital. Including these two mechanisms in Becker’s model, in the shape of externalities both to the aggregate damage and to the individual decision level, exerts influence in the equilibrium resources a society

² By punitive practices we stay with what Becker (1974) calls “Activity”: police, court and punishing efforts, between other resources destined to reduce “offenses”. These practices, however, may take a particular shape under low institutional environments, becoming what Wacquant (2008) calls “punitive containment” (not contradictory, though, with Becker’s definition). The author postulates, using Brazil as a case study, that state anti-crime policies evolve into more proactive and aggressive militarized action against poor neighborhoods (favelas), replacing their original reactive function (punishing only after the offense was committed). This occurs under the presumption that marginal populations are all potential offenders, in response to the raised public fear of crime, amongst other factors. Examples of abuses would be discrimination in judicial processing, unchecked police brutality, amongst others. Of course, the particular shape of abuses varies across regions. In the literature review section, we expand on different forms they take for the Argentine case, under the same domain of “punitive practices” in a low institutional environment.

should spend on combating crime. At the same time, including the alternative notion of building up inclusive social capital as a way of combating crime, delivers intuitive results that can help build on new lineaments for the crime and punishment policy. We believe that it is critical for a model that represents in general terms the rationality of criminal policy, to include a way of altering the benefits of not-offending, together to the costs of offending, in an endogenous way for criminal policymakers. Empirical consistent evidence from Argentinean provinces panel data is provided to give testimony of the relationship from which we depart.

Overview

In section I, we discuss the relationship we are presenting, together with the intuition behind the mechanisms that set it in motion. This is done only after a subject literature review, from where we obtain the guidelines for our research. We then present the traditional model with its implicit assumptions and expand on the nature of the modification we are setting.

Section II contains both a mathematical and intuitive extension on the traditional crime and punishment model. We emphasize the creation and destruction of inclusive social capital, which works alongside the model's original elements. This concept (which we explain further in this section) combines in one variable diverse notions from literature related to cumulative social experiences, to operate in a mathematical framework. Including it as endogenous to crime policymaker's decision, together with the consideration of an exogenous parameter that captures institutional quality, derives in intuitive changes in the equilibrium outcome of the model.

In section III we present the econometric model we use to shed consistent empirical evidence to our claim. We disclose as well on the novel index we've constructed to realize this evaluation; about its advantages and disadvantages, and the nature of the information it contains. This is done in light of specific literature on the "Mano Dura" policies subject. Results are exhibited in the last sub-section, together with their interpretation.

Section IV concludes. In this section we discuss some specific policy correlates that are consistent with the scheme we've presented. We also treat possible lines for future research in this subject, since a high profundity can be met when focusing attention on many of the aspects that this paper skims through.

Literature Review & Background Information

In this sub-section, we present a short review of the literature from which we depart to build up our theory. In the first place, we group those authors related to the supply side mechanisms: research that tries to figure out and evidence reasons why the punitive forces incentives could be misaligned. In second place we focus on scholars associated with the demand side mechanisms: concerning the individual's decision and how it becomes affected by the punitive interaction. Here we will concentrate on social exclusion as a principal factor of crime motivation.

Flom and Post (2014) explain, using the Buenos Aires province as an example, how in low institutional environments a perverse self-reinforcing equilibrium appears to *avoid the blame* of the insecurity problem. In this equilibrium, punitive practices tend to increase, as both politicians and judges have incentives to implement them to avoid the blame of the bad and worsening insecurity. Police reform is instead repeatedly eroded or blocked, argue the authors, as strong and organized interests stand in the way of the force modernization, taking advantage of the vulnerability of political institutions. These interests are portrayed not only by criminal organizations, but by police officers, and local politicians in many cases (Eaton (2008)), amongst other actors who benefit from police malfunctioning. In this sense, all the punitive efforts are wasted on punishing (in inhuman conditions) petty criminals, while the real and organized lot is given green light to prosper.

Fohrig (2014), Sain (2002, 2009) and Tokatlian (2007) have emphasized the attention on a compact concept, named the black triangle, and its proliferation in Argentina's urban conglomerates. The *black triangle* (figure 4) is used to refer to the cooptation of both the police and the political powers by organized crime, to facilitate the operability of the business. Criminal organizations produce illegal money, with which they buy police and politician's cooperation and protection.³ These actors, in turn, use this money to perpetuate their power by informal means (i.e.: clientelist spending to manipulate constituencies in order to win an election). In this way, they manage to not be held

³ The system works similarly to what Baysinger, Ekelund & Tollison (2008) explain as rent-seeking through monopoly granting, but in the realm of the illegal. In this sense, illegal businesses pay a portion of their rent to the police, that in return, grants "protection" in certain territory. The police, at the same time, has to pay a portion of this illegal rent to the stages directly above, usually local politicians and judicial officials, in order to not be withdrawn from their office. These, in turn, have to do as well with the politicians above them; so on until it reaches high spheres of the incumbent bureaucracy. For this reason, whenever one link of the chain is uncovered, a big amount of government and police officials from a wide variety of ranks get caught together (Martello (2012), about the Caso Candela). The ethnography "Elite da Tropa" (2006) shows a very clear picture of the mechanisms underlying this system, spoken from the perspective and experience of two Brazilian military police officers. Even though it is based in Brazil, parallelisms with other authors reveal a prototypical south American scenario of illegal rent-seeking.

accountable for the proliferation of crime in their territory. This machinery stands in opposition to the traditional *white triangle*; where constituencies are independent enough from political manipulation, so that they enter into the equation to balance police and political power. When they perceive that crime is prevailing through the state, they enforce their legitimacy through institutional means. In this way, as incumbents respond to constituency's accountability, they do check upon police forces, so they don't become coopted by crime.

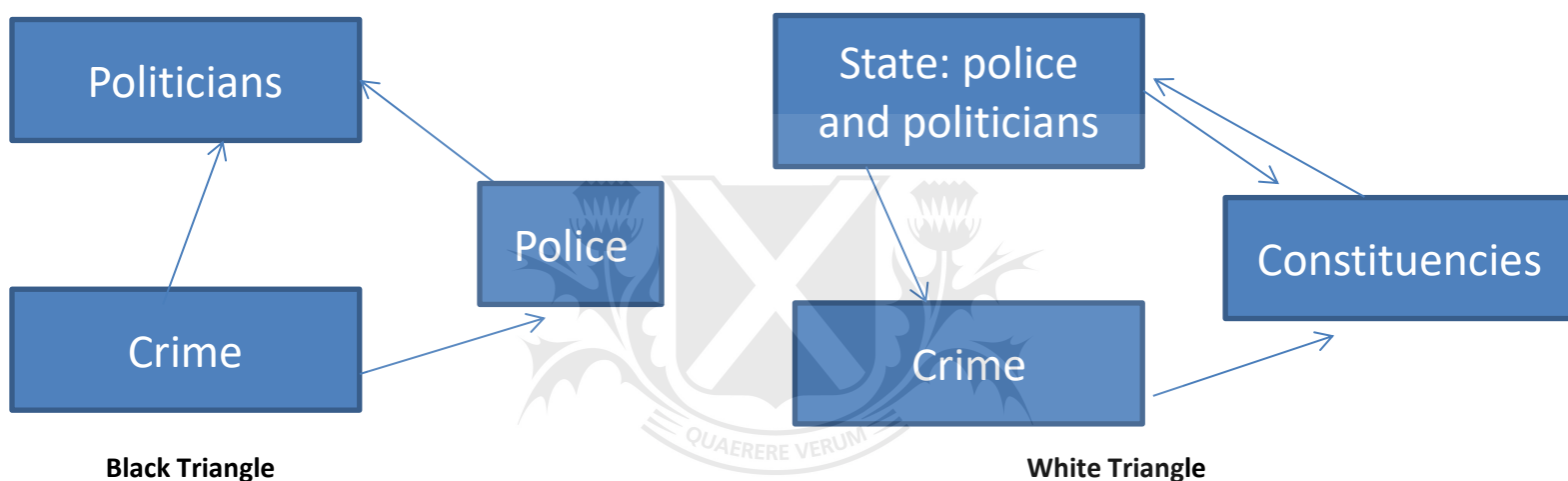


Figure 4

The Black Triangle is the result, paraphrasing Fohrig (2014), on the one hand, of the radical change of the crime situation, taking into consideration Argentina's new position in the international drug traffic scheme as a producing and exporting country. On the other hand, this factor is combined with police that resists change very efficiently (Martello (2012)). Both lead to one of the potential equilibriums that involve a state protection racket for illegal organizations. These are described by Snyder and Duran Martinez (2009), who categorize them according to how much violence they entail. However, the protection racket strategy isn't feasible for every state; as there are certain institutional and organizational features that, when strong enough, prove infertile soil for these dynamics (Fohrig 2013). This meaning that the institutional quality plays a fundamental role in the working out of this dynamic.

Auyero and Berti (2012), using ethnographical methodology, have described the *modus operandi* of the police force in the marginal neighborhoods as intermittent, selective and

contradictory. They observe that the police is not present at all times, but enters into these areas every once in a while, just to punish those whom they choose arbitrarily (noisily and violently, to build up a reputation)⁴. At the same time, the police protect silently also whom they choose; organized gangs, that in return for “protection” pay a piece of the rent they obtain from criminal activities and trade. In this sense, the state adopts the role of the typical organized “mafia”, asserting the contradictory role awarded by the authors.

Finally, Walter Martello (2013) provides journalistic evidence, with specific names and quantities. Not only about the cyclical dynamic of police reform and counter-reform, in the iconic province of Buenos Aires, but also of the explicit ways in which the politicians (both at the local as in the high sphere) act as criminal rent-seekers⁵, channeled indirectly through the provincial police force. In his research, the author unmaskes how this “industry” is proved to involve not only drug production and dealing but also illegal prostitution with slave traffic, car theft and consequential dismantling and part distribution, among other illegal businesses that operate mostly inside marginal neighborhoods.

The second piece of literature, as mentioned before, unfolds around the effect of social exclusion on criminal activity, and its link with punitive policies. The point of departure for this intuition could be the ecologic theory of crime (Chavez (2009)), which provides a completely alternative way to think crime. This theory states that when a society observes crime and violence it is because there is an ecological disorder in the community. Such is translated into an identity disorder inside the individuals, which is what makes them commit offenses against other individuals. The main issue which brings disorder to a community, according to the theory, is social exclusion. It can be geographical (i.e.: when some individuals aren't allowed into certain area), economic (i.e.: when only some individuals can afford certain things), social (i.e.: when some individuals are excluded of the lot) or cultural (i.e.: when individuals are excluded because of their traditions). When individuals feel excluded from the organization, they see themselves as outsiders, so they build their identity over that principle and don't care about damaging the community if this brings them any benefit. This vision focuses on crime as a symptom of exclusion, in opposition to the traditional theory that postulates that crime as a rational decision by

⁴ This feature can also be well distinguished in Trapero's film “Elefante Blanco” (2012), which provides a good picture of how the rules of the game operate in a specific “villa” or “barrio”.

⁵ The “rent-seeker” concept is from Baysinger, Ekelund, and Tollison (2008), and is applied to this case to represent an entity that obtains a rent (portion of the other's profit) for not denying the proliferation of business

individuals who consider costs and benefits of such activity. The former proposes only socially inclusive policies as the way to combat crime, whilst the latter focuses on material disincentives (punitive policies).

In this same line, Akerlof and Kranton (2005) model the effect of identity on the alignment of the individual's incentives with the organization's ones. They state that individuals can see themselves as either insiders or outsiders of an organization. Former individuals' utility function considers the whole organization's benefits as part of theirs, while the latter has a utility function that generates disutility for every effort they do for the organization. In this sense, if we can consider society as an organization, the same would apply: people who feel insiders would do every possible effort for society to go better, whilst those outsiders will do the least possible for others, and try to extract anything if viable. Following Chavez (2009), the latter individuals would probably be driven into crime willingly and will become violent to other individuals self-comforting themselves in the outsider identity.

In consonance with this view, Wacquant (2008) explains the increasing spiral of violence that derives from an initial social exclusion shock in Latin America. The shock he considers derives from the liberal reform that took place in the '90, which left on balance a big amount of structural unemployment. Punitive policies –which he calls by the name “punitive containment” – came as an answer to the increase in crime and violence that resulted from the first shock. These, at the same time, acted as the second shock to social exclusion, as they treated favelas as the public enemy which society had to combat. This, in turn, shifted even more crime and violence, as it polarized relations with the poor, further excluding them from any alternative of inclusion. More and increasing violence called for stronger punitive measures and enveloped society in this perverse spiral.

Cesar Pinheiro Teixeira(2012) also adheres to the vision of crime as an issue that unpins from identity, as well as the way out of crime.⁶ He points out that individuals start on the criminal path because they consider it an as a plausible alternative to survive in a hostile environment, but they go mixing up this role they start to play with, with their idea of whom they really are⁷. All of the interviews he displays show how these individuals end up

⁶ Using ethnographical analysis, he reveals that "Bandidos" (drug criminals from Brazilian favelas) go transiting a certain pathway which is part of a social equilibrium (referenced as "the scenario"), and in which they go "breaking lines" in the severity of crimes they commit; the last of which would be murder. To become a real "Bandido", they have to acquire a reputation of "disposition to kill", which is the willingness to punish by death. These are the rules of the prototypical character, which individuals have to fulfill to play its role.

⁷ In all of the cases, interviewed ex-gangsters say they were not violent before they were immersed in crime

caught up in the criminal identity (which he refers to as the idea of themselves as outsiders). The only alternatives that appear as plausible for these characters (and consequent identities) are: continuing on the path until they get killed or imprisoned, or converting to the evangelist church. The latter provides them with a whole new character (in the same “scenario”), with its specific vocabulary, dressing, and way of behavior. With enough time, they all reflect how their identity changed, and they started being happier as they felt as “insiders”.

This goes together with Akerlof's (2005) observations, that organizations should put an eye on the identity employees are building. When employees feel insiders they not only work better for the organization in every non-observable dimension but become happier people.

Other ethnographers of criminal gang members reveal a similar picture, placing social exclusion and identity issues as the focal point to understand why young men fit there. Contreras (2012) explains (in the first person) the entrance of young men into crime as a way to find some refuge from a world that excludes them. This occurs through what he calls “capitalismo de botín” (loot capitalism). It consists of living the adrenaline of crime, drug consumption, buying luxurious things with the loot, being respected and feared, and other items that provide the illusion of being someone important –not feeling marginal.– Baird (2012) follows the same argument, focusing on the building up of the masculinity “macho” ideal, to have something to be able to be proud of.

Empirical evidence consistent with criminal trajectories, with an accumulation of specific human capital, is available for the Argentine provinces. Cerro (2014) evidences the persistence of changes in criminal activity. She does so by proving significant and robust to many controls the lagged variable when running a regression with crime as the dependent variable. This would suggest that the motivation of many criminals, when socioeconomic variables and disincentives are checked upon, would be simply to continue on a path they chose the period before, for which they have already accumulated specific human and social capital.

Last, we mention two ethnographic papers that elucidate how an internal (marginal) identity conceals as opposition to formal institutions; as “outsiders”. Alarcón (2012) discloses how some petty thieves are considered heroes in their “barrios”, as they fight back a system that excludes the whole marginal population from opportunities to which they are exposed every day. He further points out that the main identity bondage these people have is their hate for the police. Likewise, Auyero and Berti (2012) discover little kid's admiration for the “pibe chorro”, as a figure who protects himself with his gun from

the hostile environment in which they live in, and who can get his way through with the crime. This last situation is also visible on many popular music lyrics, some of which are exhibited in these two ethnographies.

A good example to illustrate the opposite (i.e. the re-building of an inclusive identity) would be that of a popular NGO in Venezuela which teaches music in marginal populations⁸. The interviewed director mentions that children who enter the program drop their guns in about a month, average time. Connecting this with the ecological theory (Chavez (2009)) as soon as individuals are provided with any means of belonging, such as the respected activity of playing an instrument in a band (both by society and by one's self), they'll choose willingly to drop their "defenses" together with their view of themselves as excluded.

I: Hypotheses:

We sustain that augmenting punitive practices in low institutional environments leads to an *increase* in violent crimes, which can be proxied by crimes against individuals. This relation contrasts with that of Becker's model, in which the institutional level was supposed to be such that increasing punishment would always (monotonously) decrease the number of offenses. The intuitive explanation for it is based on the literature referenced, which we condense in two mechanisms expressed below.

Intuition/ Mechanisms

The first can be considered the *direct effect*: increasing anti-crime "Activity" (referring to Becker's (1974) terminology) given that the institutional level of the state's apparatus is low, would be analogous to giving more power to a corrupt force. This only helps to perpetuate the perverse equilibrium: the black triangle (Fohrig (2013), Saín (2008), Martello(2012)). Bad results can be hidden temporarily for a political election through this method (following Flom and Post (2014); avoiding the blame), but violence will rise steadily while the state feeds crime. The more power you give to the actors that perpetrate this equilibrium, the more difficult to get off this pathway. This mechanism refers principally to the literature which we grouped in the "supply" side of policies

The second mechanism set in motion is an *indirect effect* on the identity of the marginal population. It consists basically of the destruction of social inclusion, hence augmenting

⁸ Wakin, Daniel J. (16/02/2012) "Fighting poverty armed with Violins", <https://www.nytimes.com>

the amount of “outsider” individuals or their depth of exclusion. Conversely, this mechanism is associated with the literature grouped in the “demand” side. In line with this literature, we divide this mechanism in three possible ways in which it can operate.⁹

In the first place, the gap that separates the marginal poor from the rest of society widens, as Wacquant (2009) explains, when the state apparatus exercises preventive violence over the poor “favelas” as a whole, as opposed to protecting their rights (like a high institutional environment would observe). Poor individuals become segregated in what Wacquant (2004) calls an urban ghetto, as society starts treating them as public enemies. The image of the poor as criminals and guilty for the insecurity gets installed in the collective unconscious, which increases the gap even further. The upward violent spiral takes advantage of this impression to entrench the increasing punitive practice; an example is how Brazilian police became militarized. The effect this produces in the identity of marginal individuals is easy to elucidate: they develop an increasing sense of social exclusion and assimilate the outsider identity.

In the second place, increasing punitive “activity” under low institutional environments, would add to conceal the pathways of those individuals who are already outsiders (i.e. experienced criminals). This is consistent with the data from which Wacquant (2008) departs: violent crimes increased steadily in Brazil from 1990 onwards, together with the amount of violence exercised by the state. Data from Argentina cast similar results, as shown later in this paper; the number of crimes against individuals increased steadily, not responding to the shocks of “mano dura” (increased use of violence by the punitive apparatus). Cerro and Ortega (2014) arrive at similar conclusions, by comparing the persistence of crimes against property to those against individuals, and observing the latter has a stronger persistence (remain significant after controlling by socioeconomic and punitive disincentives). Furthermore, the effect of punitive “activity” is comparatively much smaller on crimes against individuals. In this sense, the authors suggest that once criminals have “crossed the line”, it is much harder for policy to affect them. They mention that these individuals may have accumulated enough illegal human capital, and their legal human capital has depreciated during their time in crime.¹⁰ For this kind of individual,

⁹ This doesn't imply that there are no more possible sub-mechanisms.

¹⁰ This could also be one of the reasons why Brazilian “Bandidos” that do quit crime, pursue it looking for shelter in the evangelical church, instead of just searching for a standard job. In this way, society forgives them because they are “repented”, and gives them a place where they can belong to and get “cured of the devils” (Cesar Pinheiro Teixeira(2012)). An indication of this could be the huge amount of evangelical churches in “favelas”, concerning “non-favelas”: since they prove a way for social inclusion (human necessity) both to that particular organization, as to *society*.

raising the stake of punishment through violence proves to be inefficient; at least when the punishment comes from a weak institutional apparatus. Such is the argument of Jorge Nanclares, Supreme Court judge of Mendoza, who refers to Argentina's prisons as "universities of crime", as observed in the high rate of criminal re-incidence.¹¹

For the third and last sub-mechanism, we take as a point of departure Auyero & Berti's (2012) observation that corrupt (low institutional) police fulfills a contradictory role. This, following the author's work, operates in individuals by making them search for justice and security (police's nominal role) through other means. These could be either their own or through private patronage with criminal gangs. Either way, as violence becomes decentralized, its aggregate level rises. This becomes true because every individual is obliged to learn how to use it (survival human capital) for the simple reason of living inside the marginal neighborhood. This equilibrium level of violence demonstrated to be much higher than that of non-marginal neighborhoods; since everybody utilizes violence to solve daily issues. Consequently, the community enters into what Auyero & Berti (2012) call "enchainments" of violence: where independent violent acts are connected beyond normal reprisal violence. Extremely high levels of violence as everyday language produce an increase in the gap that separates marginal inhabitants from the rest of society, generating social exclusion. However, more important than the social links with the outside of the neighborhood are those inside (Auyero & Berti (2012)). Because extreme violence permeates every type of relation, social exclusion arises in between its individuals. Social cohesion and inclusion diminish when violence is present in most interpersonal communications, according to the authors.

II: The Model

In this section, we explore a possible extension to Becker's traditional crime and punishment model (1974), to include the perspectives we've presented. This exercise is done mainly with the preliminary purpose of *illustrating* the rationality underlying our claims. That is to say, by showing a possible way in which they could fit in a mathematical known and accepted structure, we enable a clearer picture of our point of view, as well as a better understanding of its coherence and correspondence with other theories. Therefore, after we include a few variables, we follow Becker's procedure into deriving the optimality conditions and observing a few intuitive interactions¹².

¹¹ Fernández Rojas (2017) "La reincidencia confirma el fracaso de las políticas de reinserción"

¹² It is important to highlight that the purpose of this section is not to build up a new mathematical model and fend for its precision and consistency, but simply to elucidate possible lines for an extensión to the existing model, to illustrate the merging of the different perspectives. We believe that in this way, the

In the first place, we present a few features of the traditional model, to understand the nature of our modifications. The model departs from a monotonous relationship between punitive resources and the number of offenses: the more crime is punished, the fewer offenses will aggravate society. From this trade-off, Becker intends to explain the number of resources a state dedicates to combat crime, like those that determine the "p" and "f" (probability of conviction and size of punishment, respectively) that minimize the social loss equation:

$$L = D(O) + C(p, O) + bpfO$$

Where $O = O(p, f, u)$ represents the aggregate level of offenses; met assembling the offenses committed by prototypical individuals. These are a function of "p" and "f", as mentioned before, but also of "u": other factors that induce someone to commit crime (education, social context, in between others). These factors are fixed and exogenous to the traditional model.

The first term of the equation, $D(O)$, represents net damages to society by offenses (disutility of victims minus the benefit of offenders). This should always be positive, otherwise, law enforcement wouldn't have a place. In this sense, feasibility restriction is incorporated. The second term stands for the costs to arrest and convict criminals (police force, judiciary power, etc.). These costs depend on the amount of "activity" that the states perform in this ground, which Becker proxies to the number of offenses that were arrested and convicted ($A \cong pO$). The third term represents the social cost of punishing convicted criminals. "b" is a parameter of conversion; i.e. =0 for fines, >1 for imprisonment).

As far as it concerns us, this traditional model makes two implicit base assumptions, which will be addressed below. In the first place, a certain level of institutional quality is tacitly assumed; which was plausibly the case of the time and environment in which the author wrote the paper. This assumption occurs for the monotonous relationship between punitive resources and the number of offenses to stand. The second assumption is that anti-offense policies and resources can only affect an individual's choice through the probability of getting caught and the magnitude of the punishment; negative feedback mechanisms. These are the only two endogenous

reader can understand better how we propose the different theories interact since we fit them together in an enclosed mathematical structure. It is also worth noting that for a better understanding of our extension, it is of use to be familiar with Becker's model, since, for the sake of simplicity, we use its terminology, but disclose principally on what we are adding to the benchmark.

variables that the model proposes, to determine the optimal resources destined to reduce offenses.

i. Adaptation

The essence of our modification lies in widening the two assumptions mentioned above. About the first one, we add a variable that represents institutional quality (particularly punitive forces institutional quality), to capture the effects explained in our hypotheses. A negative externality is included in the loss equation, conditional on low institutions. In this way, the monotonous relationship is sustained only in those cases with sufficiently high institutional quality.

For the modification of the second assumption, we propose that individuals respond to a wider conception of rationality: their decision rule includes also indirect incentives that should be endogenous to crime policy, such as how included they perceive themselves (their identity) concerning the organization/society. In this way, we go for an alternative with a broader perspective on criminal policy, moving forwards the benchmark view, that the decision to offend responds solely to immediate negative feedback, all the rest exogenous to criminal policy.

Our approach in this instance stands close to that of Akerlof (2005), who models the difference in the functional form of the preferences of an individual that feels an insider to that who feels an outsider. We propose, in a like manner, the possibility of affecting both positively and negatively the *inclusiveness* of the individual, through state "Action". In this sense, inclusiveness would be a continuum, instead of a discrete alternative, as postulated by Akerlof. This is modeled by turning into an endogenous part of the benchmark exogenous parameter " u "¹³.

For this purpose, we make use of the concept of social capital (Luncke & Ruiz 2012, Bourdieu 1985), which we re-interpret. Its original (sociological) meaning refers to that which allows people to relate (socialize and cooperate) to each other; common values, trust and networks¹⁴. In this paper, we utilize it slightly differently, as its traditional definition allows for "negative" contact between people: i.e. mafias, gangs, etc. We make use of what we call *inclusive social capital*: capital that enables an individual to socialize with society as a whole, shaped as an organization. This capital can be created when

¹³ All the other items apart from the punishment and the probability of conviction that influence the individual's decision of offending.

¹⁴ The aggregation of actual or potential resources corresponding to an individual or group, in virtue that they have a network of more or less institutionalized durable relations, knowledge, and mutual recognition; understanding social networks as constructions from the process of socializing (Bourdieu, 1985)

individuals, for example: learn a profession, receive education and a common language, become a member of a sports club, or any other instance through which they recognize themselves as valuable members of society, by cooperating with other members inside society's rules. An illustrating example of how a criminal policy can adopt this shape is revealed in the efficiency of the university education program in Jails: only 15% of ex-convicts who studied in Jail get back into crime¹⁵, compared to 46% of the total amount¹⁶. "Studying is the only thing that can save you" is a translated quote of an interviewed ex-convict¹⁷. Another useful example is that of the *Espartanos* project (Marco del Pont (2008)), which was focused in creating a rugby team for the inmates of San Martín's prison, and transmitting social values and capital in diverse forms (yoga classes, praying sessions, spiritual knowledge, food sharing, ...), through continual interaction with volunteers (social capital transmitters). Observable results in terms of much lower criminal re-incidence were as well obtained, confirming the intuition behind this type of policy.¹⁸

In both cases, the criminal policy functioning is focused on building up social capital, instead of punishing the individuals for their past decisions.

At the same time, social capital can be destroyed (analogous to the creation of *exclusive* social capital) when individuals participate in activities that don't comply with the rules of society; a crime for instance. This becomes true as it increasingly (it is cumulative) inhibits individuals from socializing and cooperating with the whole of society. A clear example would be the segregation that results from the violent disposition that criminals develop, which leaves them few choices but to continue in crime. Munyo (2015) develops a model and provides empirical proof to shed light on the issue of individuals capturing illegal "endowments" in jail and hence augmenting the probability of choosing criminal instead of legal activities. With "endowments" he makes reference to specific human capital (in his model, compounded to either crime or legal work), which is shaped by the individual's history of past choices.

Consistent with Munyo, we take a stand to propose a parameter that can represent this type of social capital in a static model like Becker's. We interpret that humans, as social beings, continually generate social capital that allows improving their identitarian condition (feeling safer, more accepted and included). Ergo, it can be deduced that an

¹⁵ Dillon A. (2015) "Presos que estudian, el 85% no vuelve a la cárcel"

¹⁶ Di Lodovico (2017) "El 43% de los presos liberados reinciden y vuelven a la cárcel" (data from the Justice Ministry of the Buenos Aires province)

¹⁷ Fernandez M. (6/10/2019) "Estudiaron en la cárcel y cambiaron sus vidas: estudiar es lo único que te salva"

¹⁸ Jara, F. (15/10/2015) "Los Espartanos; historia de un equipo de rugby que nació en la cárcel"

individual that can't generate inclusive social capital because of the lack of opportunities, will automatically use this same energy and time to generate exclusive social capital. They will try to feel accepted in any organization that reinforces their belonging, even if this implies exclusion from other networks (rest of society). Consequently, the mere outcome of blocking opportunities for inclusive social capital formation is enough to induce individuals to become increasingly *outsiders*, using Akerlof's definition.

With this parameter available, we propose that the state can endogenously create *inclusiveness* as a way of criminal policy. Destruction though doesn't take place as a direct decision in our model, as no state would willingly destroy social capital. Thus, it acquires the shape of an externality of punitive action at the individual level, only when institutional quality is low.

In this sense, two negative externalities are generated by punitive policies in low institutional environments: the first one has its effect on the aggregate loss and captures the direct effect described above. The second one seizes the indirect effect previously detailed (destruction of inclusive social capital), and so it operates at the individual decision level. Thus, the new objective equation acquires the following shape:

$$\min_{p,f,k} L = D(O) + C(p, O) + bfpO + A \left[\frac{1}{\tau} - 1 \right] + \tilde{C}(k)$$

$$\text{Where } O = O[p, f, u(A(\frac{1}{\tau} - 1), k, K)]$$

Bold terms are added to the benchmark model. The expression $A(\frac{1}{\tau} - 1)$ stands for the negative externality; where $\tau \in (0,1]$ is an exogenous parameter that represents the institutional quality of punitive forces: it can be interpreted as the percentage of resources assigned which are not embezzled by them. $A \approx pO$ is the state's punitive action, the same as the original model. Note that when $\tau = 1$ the externality disappears. " k " is the amount of inclusive social capital that criminal policy endogenously enables to be generated. $\tilde{C}(k)$ is the cost implied in allowing this social capital to be generated: building adult schools, public spaces, teaching offices to adults, social programs to insert convicts in the labor market, amongst other examples of possible social programs aimed at reducing crime. Of course, the efficiency of these resources in reducing crime depends on whom they are aimed: more vulnerable to exclusion sectors will be more fertile to this type of policy. We assume that these resources are used with priority given to the more excluded individuals. This is a reasonable assumption considering that they are specifically aimed at crime reduction. In this sense, the marginal returns of " k " are decreasing.

As mentioned before, we transform traditionally exogenous parameter “u” into endogenous. It becomes a function that depends negatively on the social exclusion externality derived from punitive practices in low institutional environments (or punitive containment, as referred to in Wacquant (2008)), and positively of the inclusive social capital generated as part of the criminal policy. It further depends positively of “K”, which can be interpreted either in an original manner as “all the other things that affect an individual's choice of offending”, such as the level of education, social background, etc, or else as the aggregate stock of inclusive social capital. For both cases, we stay with the original interpretation that regards this information as exogenous, since we don’t depart from the static nature of the model. Independence between K and k remains as an assumption.

ii. **F.O.C.:**

$$\begin{aligned}
 \text{A. } \frac{\partial L}{\partial f}: D' O_f + C' O_f + bfp O_f + bpO &= 0 \\
 \text{B. } \frac{\partial L}{\partial p}: D' O_p^* + C' O_p^* + C_p + bfO + bpfO_p^* + pO_p^* \left(\frac{1}{\tau} - 1\right) + O_p^* \left(\frac{1}{\tau} - 1\right) &= 0 \\
 \text{C. } \frac{\partial L}{\partial k}: D' O_k + C' O_k + bpfO_k + pO_k \left(\frac{1}{\tau} - 1\right) + \tilde{C}_k &= 0
 \end{aligned}$$

Dividing by O_f , O_p^* and O_k respectively, one can get expressions (3), (4) and (5):

Traditional

$$\begin{aligned}
 1. \quad \frac{\partial L}{\partial f}: D' + C' &= -bfp(1 - 1/\varepsilon_f) \\
 2. \quad \frac{\partial L}{\partial p}: D' + C' + C_p \cdot \frac{1}{O_p^*} &= -bfp(1 - 1/\varepsilon_p)
 \end{aligned}$$

New

$$\begin{aligned}
 3. \quad \frac{\partial L}{\partial f}: D' + C' &= -bfp(1 - 1/\varepsilon_f) \\
 4. \quad \frac{\partial L}{\partial p}: D' + C' + C_p \cdot \frac{1}{O_p^*} &= -(bfp + p\left(\frac{1}{\tau} - 1\right))(1 - 1/\varepsilon_p)
 \end{aligned}$$

$$5. \frac{\partial L}{\partial k} : D' + C' + \tilde{C}_k \cdot \frac{1}{O_k} = - \left(bfp + p \left(\frac{1}{\tau} - 1 \right) \right) \left(1 - \frac{1}{\varepsilon_k} \right)$$

Where: $O_p^* = O_p + O_u u_p$ and $O_k = O_u u_k$

$$\varepsilon_f = - \frac{f}{O} O_f \quad , \quad \varepsilon_p = - \frac{p}{O} O_p \quad \text{and} \quad \varepsilon_k = - \frac{k}{O} O_k$$

Equations 1 and 2 present the first-order conditions of the benchmark model, as a way of comparison. The left-hand side of each equation represents the marginal costs of augmenting the offenses by diminishing "f" and "p" respectively, just as Becker did in his paper. The right-hand side of these equations stands for marginal revenue of augmenting offenses by reducing each endogenous variable. Equations 3, 4 and 5 represent the FCO of the modified model and are presented analogously.

Since we preserve the same assumptions from Becker's model, it can be observed that D' and C' are both positive. Because C_p (costs of combating crime are reduced when "p" diminishes) is negative, the whole left side of the equation could become negative if C_p was sufficiently large. The same occurs with \tilde{C}_k . Focusing attention on the right-hand side of the equations, average revenue (captured by $-bfp$ plus the externality, when it corresponds) is always negative. However, marginal revenue is not necessarily negative and could be positive when the elasticity is inferior to one. For ε_f this is compulsory, but ε_p and ε_k could exceed unity if C_p and \tilde{C}_k , respectively, were sufficiently large; in view that equilibrium marginal revenue should pair marginal cost. As Becker mentions, this is a reversal to the firm income maximizing condition: elasticity of demand must exceed unity because average revenue is assumed to be positive.

iii. Results

In the modified version of the model two possible scenarios arise from the FCO, versus the only possible outcome of the benchmark. It depends on the value of " τ " to know in which we stand. In both of them, there is a clear differentiation in the observable results, relative to the original version. The first scenario is that in which the "white triangle" is more powerful than the "black triangle" (referring to the concepts displayed in the introduction, about criminal enforcement in high and low institutional environments respectively). The resulting outcome translates in a higher amount of offenses allowed

than in the benchmark model, and consequently a lower level of punitive “Action”, using the benchmark’s terminology. The second scenario consists of the “black triangle” overweighting the white one. In this case, optimal offenses aren’t necessarily more, but the main instrument to counteract them (the more efficient one) is social capital construction, instead of.

The first scenario works very similarly to Becker’s equilibrium, but with an extra policy instrument. This means that the white triangle described above is predominant over the black one; the effect of the externality on offenses (captured by $O_u U_p$) is smaller than the direct effect of the dissuasive incentives (captured by O_p). This requires for $\tau > \check{\tau}$, where $\check{\tau}$ is the threshold such that:

$$O_p^* > 0 \quad \Leftrightarrow \quad O_p + O_u U_p > 0 \quad \Leftrightarrow \quad O_p > -O_u U_p$$

At first sight, a reduction in “p” has a positive effect in “u” of higher magnitude when $\tau \rightarrow 0$. Since “O” is reduced when “u” increases, $O_u U_p$ is increasingly negative as $\tau \rightarrow 0$. However, in this scenario, this τ is sufficiently big such that this effect doesn’t outweigh that of the direct disincentives of the punitive practices (O_p).

As we mentioned before, in this scenario a higher amount of offenses are optimal, which can also be read as a lower amount of punitive action. This can be deduced simply by comparing equation 4 with equation 2: marginal costs are lower, and marginal benefits are higher than the benchmark results when $\tau < 1$. For the marginal costs, it can be figured out since $O_p^* < O_p$ accentuates when τ is smaller, as $O_u u_p$ becomes increasingly negative. This, in turn, increases the magnitude of the term $C_p \cdot \frac{1}{O_p^*}$ on the left-hand side of equation 4, which is negative. For marginal benefits, it is easier to elucidate, as the term $p \left(\frac{1}{\tau} - 1 \right)$ appears directly in the right-hand side of equation 4, increasing its magnitude in relation to equation 2, whenever $\tau < 1$. Note that when $\tau = 1$, both sides of the equation stay the same as in the original version. This result is displayed in the graph in figure 5.

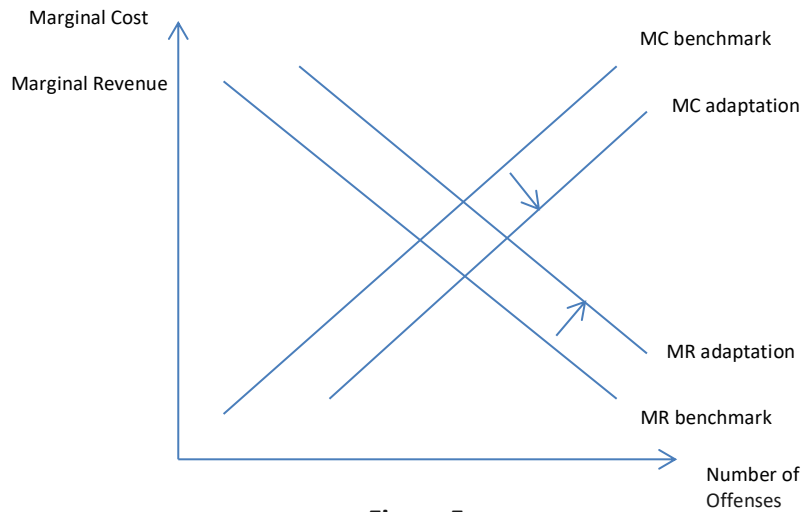


Figure 5

In this scenario $\varepsilon_p > \varepsilon_f$ (which reflects the efficiency of each policy instrument) is sustained and intensified, same as the initial model; which indicates that "crime does not pay" (aggressors are only risk-lovers). This can be induced by comparing the relation between equations 3 and 4, relative to 1 and 2. The marginal benefit of augmenting offenses by reducing "f" must be higher than the marginal benefit of reducing "p", for the equilibrium offenses to be the same in both 3 and 4. For this to happen, the only variables that can compensate are ε_p and ε_f : ε_f should be enough smaller than ε_p . The resulting graph appears in figure 6.

On the other hand, the relationship $\varepsilon_p \leq \varepsilon_k$ depends on certain other factors. These are if $\tilde{C}_k \cdot \frac{1}{O_k} > C_p \cdot \frac{1}{O_p^*}$ or vice-versa. In this sense, marginal costs of reducing k (left side of equation 5) could either be smaller or larger than those of reducing p; depending on marginal costs of implementing each policy (\tilde{C}_k and C_p), and of its marginal effect on offenses (O_k and O_p^*). Figure 6 displays higher marginal costs and revenues of diminishing "k" than those of diminishing "p", but it could be either way.

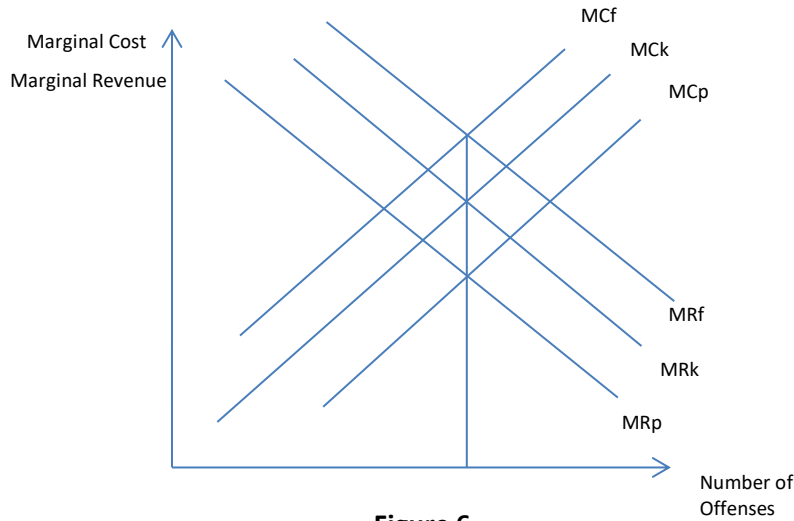


Figure 6

The second scenario brings together new perspectives, which go together with our line of thought. This situation arises whenever the effect of the negative externality, caused by corrupt punitive institutions, has a bigger magnitude than the effect of the direct disincentives meant by them. In this sense, the “black triangle” can be said to preponderate. This occurs when the institutional parameter “ τ ” is sufficiently small (below the threshold):

$$\tau < \check{\tau} \Rightarrow O_p^* \neq 0 \Leftrightarrow O_p + O_u U_p < 0 \Leftrightarrow O_p < -O_u U_p$$

Since O_p^* is negative in this case, $C_p \cdot \frac{1}{O_p^*}$ becomes positive, which results in the marginal cost of augmenting the offenses by reducing “p” (left-hand side of equation 4) being larger than those of reducing “f” and reducing “k”. Consequently, the marginal benefit of increasing offenses by reducing “p” should also be higher than that of reducing “f” and “k”. The resulting graph appears in figure 7.

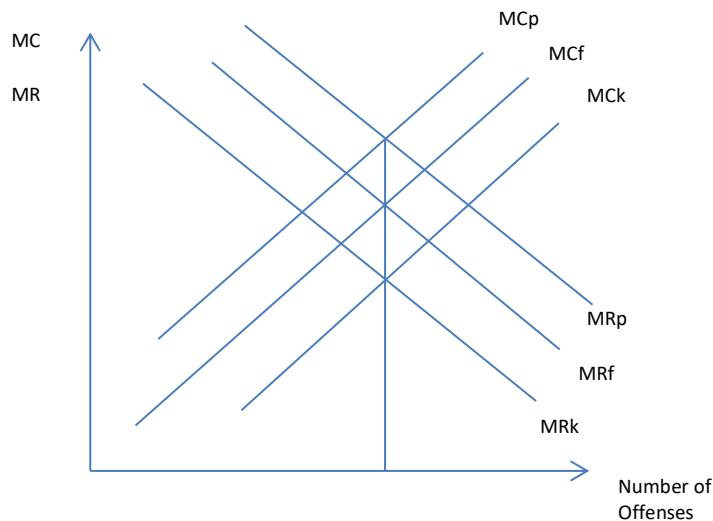


Figure 7

A very important insight is revealed when comparing the right-hand side of equations 4 and 5 (marginal benefits of reducing "p" and "k" respectively). Since the only difference between them is lies in ε_p & ε_k , the sole way that marginal benefits of reducing "p" can be higher than those of reducing "k" is when $\varepsilon_p < \varepsilon_k$. This, in turn, reflects that the efficiency of creating social capital ("k") is higher than that of arresting aggressors ("p"), conditional on the low level of institutions. This result goes intuitively hand in hand with the theoretical framework presented above. It is particularly interesting since it appears to represent quite accurately what many authors (like Chavez (2009)) argument would be the correct focus of policy in marginal neighborhoods.

III: Empirical Strategy

In this section, we present our empirical estimations, which intend to shed consistent empirical evidence on our departure relation¹⁹. This would be that, conditional on low institutional quality, augmenting the state's punitive practice increases the number of violent offenses instead of discouraging them. As this becomes true, we can support our theory, which includes alternative perspectives to the traditionally unilateral crime and punishment mind frame.

We present in the first place the econometric model, together with a description of the variables it includes. Here we emphasize the construction of a novel index to capture the effects of "mano dura" policies and the meaning of its components. We also debate on its advantages and disadvantages. In the second place, we report our data sources, debate on their accuracy, and briefly reveal descriptively the behavior of the variables. We compare the behavior of our index's components to qualitative sources of evidence, for robustness sake. Third and last we present the results for our estimations.

i. The Model

To fulfill our purpose, we exploit the institutional variability between argentine provinces, together with within (and between) variability for the rate of crimes against persons and

¹⁹ It is important to note that we perform this empirical exercise not aiming towards strong internal validity but to provide support from a different angle and employing a different technology, to a theory that arises mainly from qualitative literature. Of course, we perform as good as we can with the data we had available, but since our topic was already set by the theory, we had to adapt to the imperfect data sets we could get access to.

the rate of “mano dura”. We utilize crimes against persons to proxy violent interpersonal offenses, for the reason that most of these involve physical violence from an individual to another²⁰, and it was arguably the best variable amongst the data we could gather. A good alternative could have been murders rate, which is part of the index, but since the disaggregation of our source wasn’t so fine, we leave the call to future research.

Specifically, we calculate the effect of the rate of “mano dura” interacted with the quality of institutions, on the crime rate against persons. To do so, we make use of a panel of data from 2003 – 2007, which includes data from all provinces except Buenos Aires Capital City (C.A.B.A.). Year and province fixed effects are incorporated, together with weights for population size. The latter carries the purpose of assigning more importance to more populated provinces; seeing that a Province like Catamarca has little above 300000 inhabitants, while 16 million live in Buenos Aires. The regression is the following:

$$Y_{it} = \alpha X_{it} + \beta MD_{it} + \gamma(I_i * MD_{it}) + \varphi_t + \delta_i + \varepsilon_{it}$$

The X_{it} variable stands for the controls: unemployment rate, GINI coefficient, geographical GDP, urban population and sentence rate. These are observable variables that influence the rate of crime against persons. Y_{it} depicts the rate of crime against people (or the rate of crime against property, in a second estimation), MD_{it} the rate of “mano dura” (which is explored below), and I_i the institutional level of each province. This last variable is a cross-section, for the reason that precise data of the level of institutionalism of the punitive forces in each province was out of our reach. To provide a solution for this essential part of our regression, we constructed a proxy of this type of institutionalism by collapsing several years of an existing index of state capacity in one. We take an average of several years instead of the existing panel, to improve the proxy. Because original data has a high within variability, (which could have a relation to its source; presented in the next sub-section) together with the fact that it doesn’t capture the exact type of institutionalism we refer to, we argue that its average fits better our purpose. Precision is increased in this way.

- **Rate of “Mano Dura” index:**

When we refer to the rate of “mano dura”, it is to an index we constructed to capture a more ample perspective of the actions undertaken by the state during such emergency episodes. It stands as an alternative to traditional punitive indexes –rates of arrest and

²⁰ According to the Argentine criminal procedural code of law, crimes against persons comprise the following categories of crime: killing, physically harming another individual, shooting or attacking another individual with a firearm (even without hitting the target) and abandoning another individual who is not capable of fending by itself and can become injured by this. (Creus (1993))

conviction— since it takes into account observable variables that present a shift during these policy periods, and intuitively affect the crime equilibrium in accordance to the theories presented above. This is, in particular, due to their relation to the abuse of power by the punitive authorities. Such variables would be the casualties generated by the punitive apparatus, and the illegal imprisonments - without a previous fair trial. These side actions -when seen from a traditional perspective- could be argued to be (or proxy) principal components of a “mano dura” policy. Following Ayos et Al. (2010), the spontaneous reaction to the public’s complaint about insecurity tends to follow two axes: police empowerment to act deliberately without consequence, and sporadic increases in imprisonment (and decreases in excarcerations), conditional on a rigid capacity to produce judicial sentences. This last is accompanied by reforms in the criminal procedural code of law, widening the criteria with which judges can imprison criminals without previous judgment.

The difference in the number of prisoners from one year to the other is included as the third component of our index. This item is more closely related to the traditional indexes, yet we included it since we argue it is a direct indicator of the “effort” or resources the state is employing to fight crime. A similar observable measure would be the total number of policemen or the police's budget, but we couldn't manage to find any of them. We argue that there may exist variability in this element which is not found in the traditional "sentence rate"; since the latter may be focused on the judicial process of punishment²¹. The first two items are specifically: the number of deaths in hands of the police forces and inside prisons²², and the difference with the previous year in the amount of non-convicted prisoners. The three items are normalized and aggregated, only after they were converted into a rate per 100000 persons.

A big advantage of our index would be the relative relevance it acquires as a proxy of punitive action in low institutional environments, which are our focus of study. In such places, police empowerment to act arbitrarily could be used much more as an excuse to abuse power, when compared to high institutional environments. This becomes true considering, for instance, the lack of intermediate empowered actors to balance power against punitive forces: i.e.: human rights organizations, empowered citizens, etc. In this

²¹At first sight, there is a correlation between two of the components of our index and the traditional "sentence rate". It would be useful for future research to test the performance of the index concerning the traditional one, to confirm its usefulness. We argue each one of the components captures some variability that was not gathered in the traditional one and suits well our purpose.

²² Even if these two types of casualties are of big difference and would optimally not be collapsed, they are part of the same data set, which we could only manage to disaggregate by province and year, given the complexity of its format.

sense, the only actors that can fulfill this role are politicians, but since they receive illegal resources necessary to perpetuate their rule, they stay on the side (Fohrig (2013), Sain (2009), Tokatlian (2007)). This view of the black triangle works similarly for illegal imprisonments. Petty criminals are imprisoned as a result of the need to augment punitivity to avoid the public blame (Flom and Post (2014)), and since neither they nor any other intermediate stakeholder involved has any power to balance, all sort of abuses occur unnoticed. Imprisonment without a trial would be just one of these abuses. In this line, our index captures the direct impact of these abuses, which contains valuable variability in terms of how society and crime are affected by policy; variability that wasn't being portrayed by traditional indexes.

A noticeable disadvantage of our index comes to light with the trustworthiness of the data, which will be discussed in the next sub-section. Furthermore, each of its components could be used separately, and in this way reveal different information, possibly with more precision. This option we leave for future research, since to suit our theoretical framework, we sought for a clustered variable that could capture all together direct and side effects of an increase in the state's punishing effort.

ii. Data

Table 1 presents the data sources of the variables we regress, together with the years for which data is available in each case, and the range of values they fit into.

Variable	Range	Period	Source
Institutionalism	0 - 9.5	Cross Section	Moskovich (2015)
Rate of "Mano Dura": Rate of deaths by the state	0 - 4.593461	1994-2014	Correpi; http://www.correpi.lahaine.org/
Rate of "MD": Rate of new prisoners	-232.13 260.45	2003-2014	Ministerio de Justicia (SNEEP)

Rate of "MD": Rate of new processed prisoners	-68.852 - 47.063	1996-2014	Ministerio de Justicia (SNEEP)
Crime rate against individuals	102.5 - 1449.6	1990-2008	Ministerio de Justicia (SNIC)
Crime rate against property	514.5 - 10112	1990-2007	Ministerio de Justicia (SNIC)
Unemployment rate	1.25 - 23	1983-2007	INDEC, EPH
GINI coefficient	0.35443 - 0.52943	2003-2009	IELDE, en base a INDEC, EPHC.
Geografic GDP per cápita	2534 - 43662	1980-2007	UNLP
Sentence Rate	0.001392 - 0.3004115	1980-2008	Ministerio de Justicia
Urban Population	67433 - 14889800	1991-2010	INDEC: Total Population * %urban

Table 1

Data on crime rate (both against persons and property) are obtained from the ministry of justice (SNIC informs). They are available for the years 1990-2008. It is important to note that incentives exist for the underestimation of crime data since it is reported by police stations. Fleitas, Lodola & Flom (2014) compare murder data with that of the health ministry (reported by hospitals), to evidence this under report. In this paper, we will assume that the bias is constant for every year and province since this data is the only one available that is enough disaggregated to produce viable estimations. Figures 8 and 9 below, exhibit descriptively the behavior of these variables, both at the national and the Buenos Aires province level.

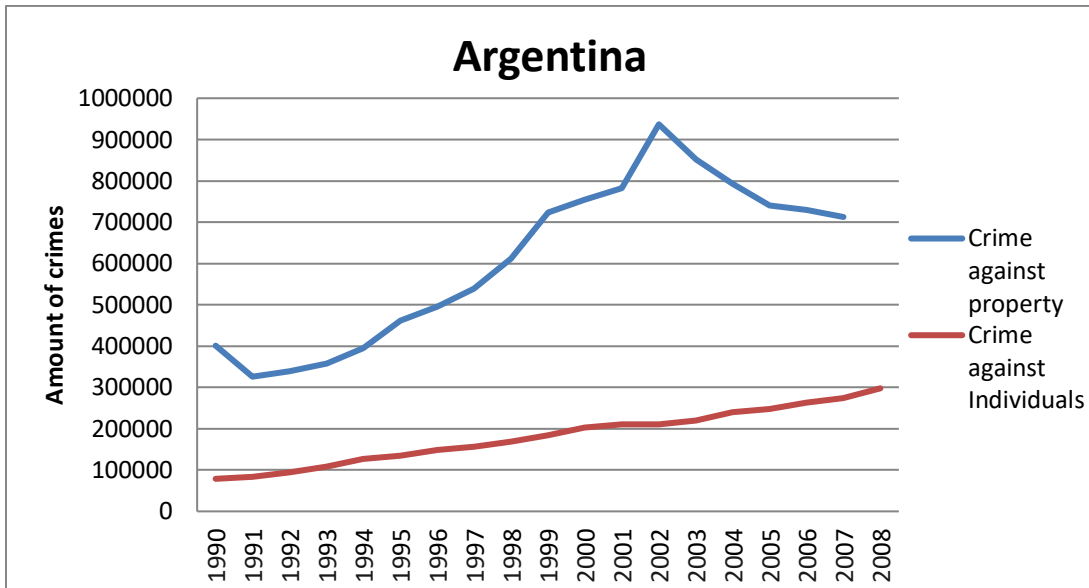


Figure 8

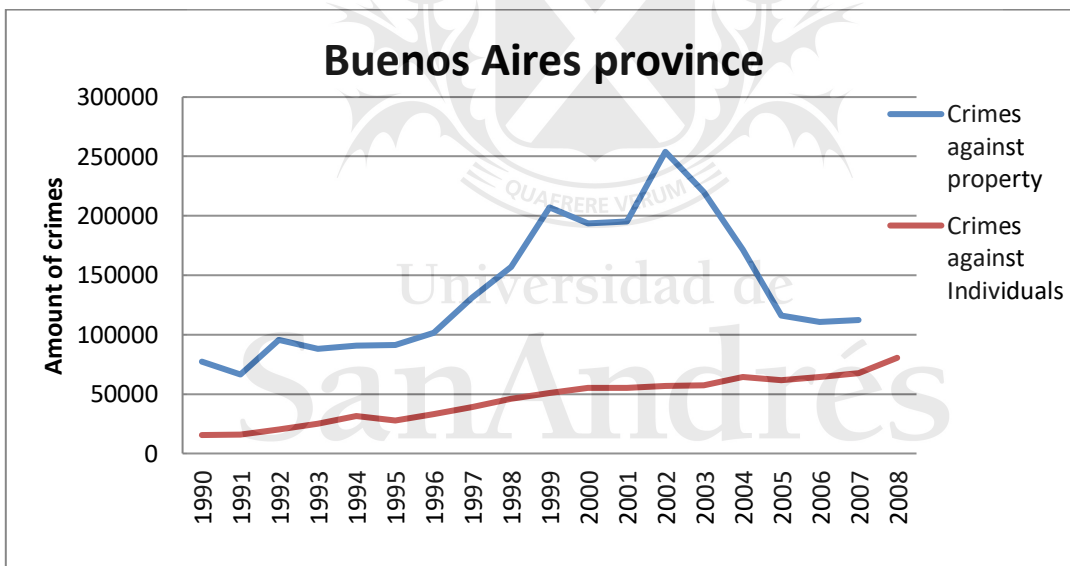


Figure 9

Prison data is further obtained from the justice ministry (SNEEP informs). Sentence rate is available between 1980 and 2008, the number of prisoners per province between 1996 and 2014, and the number of processed prisoners (prisoners without a trial) between 2002 and 2014. For Buenos Aires city we calculate the number of prisoners and processed prisoners by multiplying the percentage of federal prisoners with jurisdiction in CABA each year, times the total amount of federal prisoners (both available in SNEEP informs). This is done since Buenos Aires city (CABA) doesn't have its provincial jails. Nevertheless, in our

main regression, we discard this geographical unit, since institutional data doesn't include it. Figures 10 and 11 display graphically the behavior of these variables, both at the national and the Buenos Aires province level.

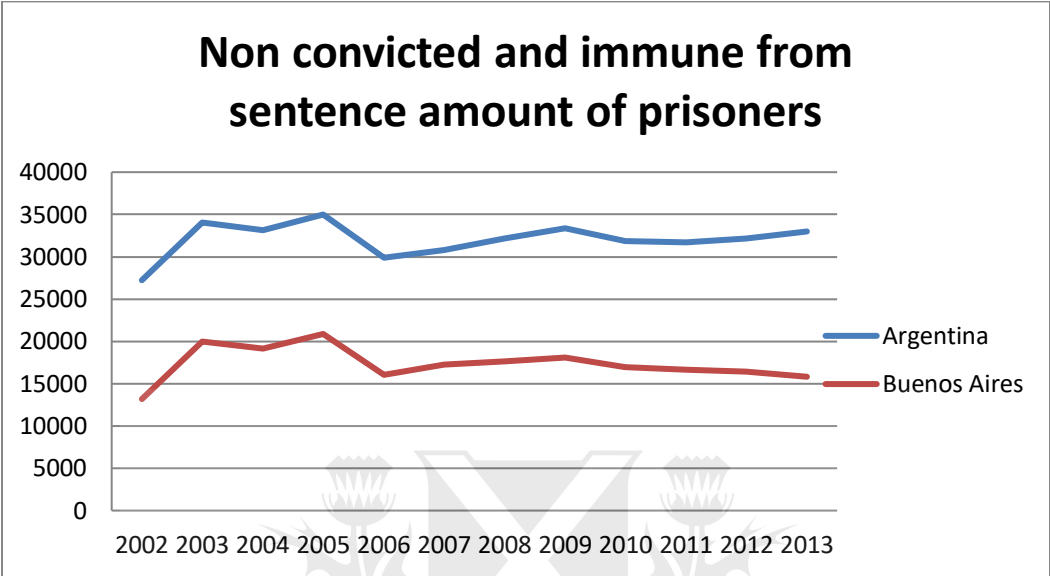


Figure 10

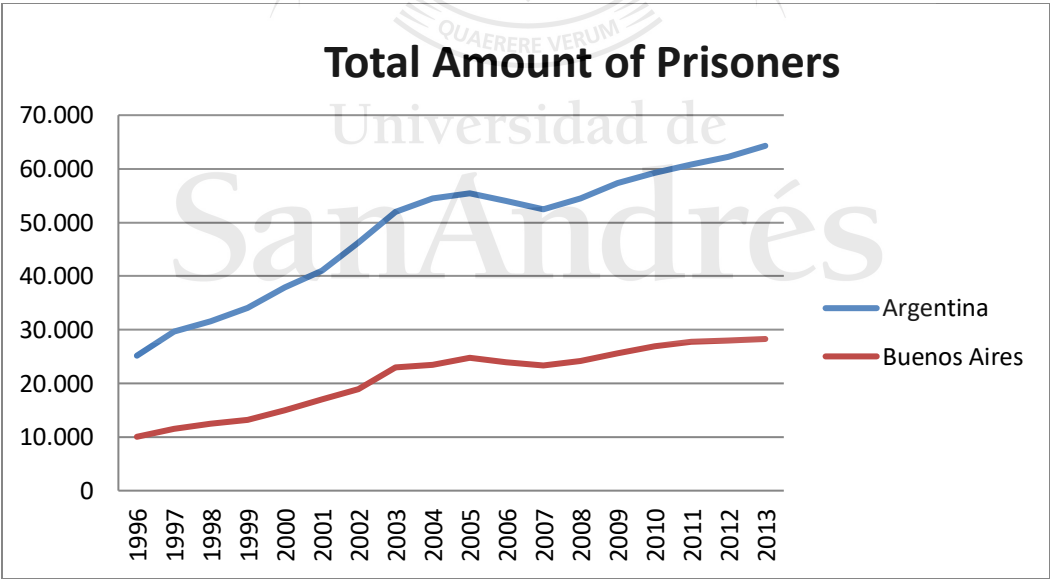


Figure 11

Similarly, as it occurs with crime data, prison data might be suspected of under report. Figure 12 (Source: Flom & Post (2014)) reveals a comparison between this source and CELS: human rights NGO. In it, we can appreciate the difference in measurement, but we

can also think (and assume) that the under-measurement bias tends to have a similar magnitude in every period. The reason for this might be that prisoners that are kept in police stations are not included in the SNEEP informs. But it could as well be caused by a variety of factors.

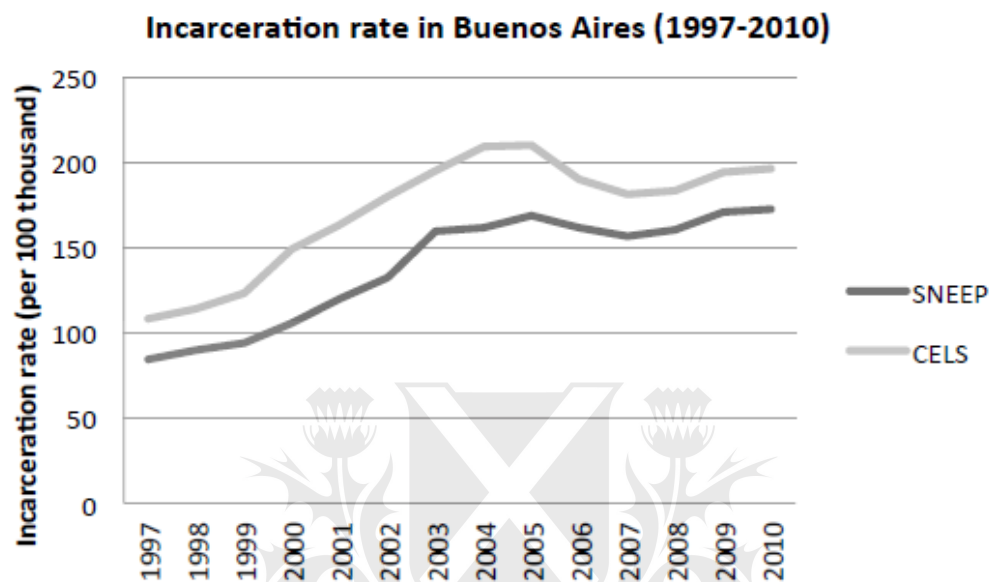


Figure 12

To build the "mano dura" index, as we explained before, we implement the two imprisonment variables just mentioned, plus the data set elaborated by Correpí ("Coordinadora contra la represión Policial e Institucional"). This organization is a human rights NGO, coordinated against state punitive abuses. They started collecting data on fatal victims by the state apparatus in 1994, to build a solid background for their protest.²³ Their sources of information are the victim's family members who find out about the organization and report their case. This doesn't make the data set very reliable since it depends on the visibility of the organization, whose popularity increased in time. However, to justify its implementation, we test its consistency with political reactions involving sporadic shocks of "mano dura" policies that reveals a reasonable impression about its performance.

Figure 13 reproduces how the behavior of "casualties by the punitive apparatus" coincides with the three big "mano dura" episodes of the last twenty years. These are: in 1999, in

²³ This source is a private one and provided us with the data upon request. Their database is not publicly available

2004, and 2009²⁴. In all of them, criteria to imprison criminals without a trial were expanded, the number of prisoners increased, and police were allowed more autonomy to act deliberately. It is noticeable, both from this graph as from those presenting data on prisoners (figures 8 and 9), a similar trend followed by national and Buenos Aires province data. Because national data's slope is more pronounced, it reveals that the changes in Argentina outside the Buenos Aires province echo those inside in many cases.

For the sake of illustrating their relevance, we briefly describe the three episodes. Taking a glimpse at the descriptive statistics of most of the variables we present, reveals how much they relate. The first episode occurred in 1999²⁵, when the economic crisis was starting to appear, and crime had become a main public opinion issue. Buenos Aires governor Ruckauf announced: “criminals have to be shot”²⁶. He further denounced that Argentina should quit the human rights pact "Pacto San Jose de Costa Rica" to fulfill its mission of increasing security²⁷. The implementation of monetary incentive for police officers who killed criminals in armed encounters²⁸ can be viewed as an epic symbol of his policy regime.

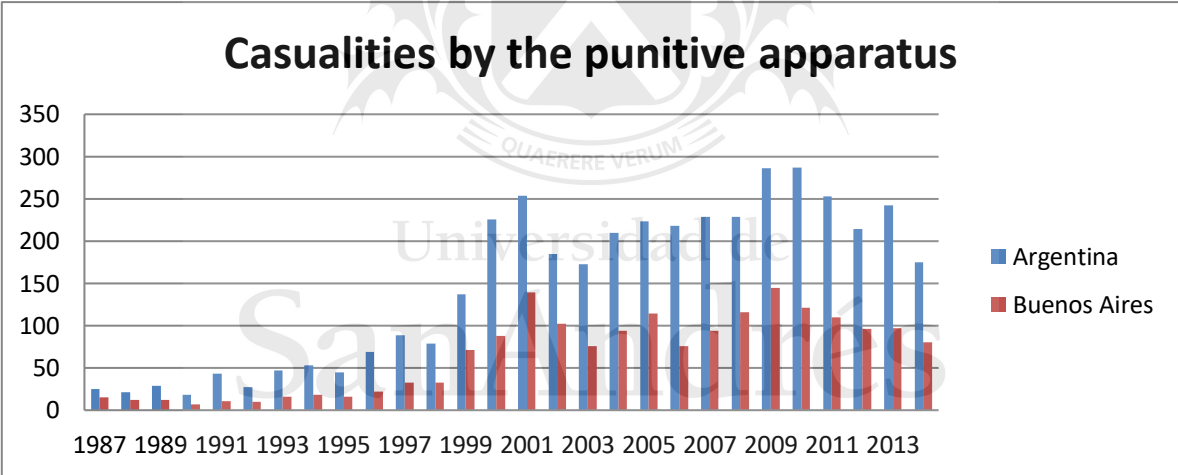


Figure 13

In 2004 came the second wave of sporadic increase in “mano dura”. The criminal procedure code was again reformed to harden conditions for law offenders. Police forces

²⁴ periodismo.com (14/04/2014) “Historia de los fracasos de las políticas de “mano dura””
²⁵ CELS (2000), "Ruckauf pidió mayores penas para Los delitos" (29/12/99) La Prensa — "Le darían más facultades a la policía bonaerense". (22/12/99) La Prensa
²⁶ Diario Clarin (04.08.1999) “Hay que meterle bala a los ladrones”
²⁷ CELS (2000), “No veo que sea un agravio decir que son marxistas”, (17/10/99) Página/12
²⁸ Flom and post (2014): Ruckauf promised police who killed criminals in action a six-month salary bonus (making reference to López Echagüe (2000), page 174)

were again released to act more arbitrarily²⁹. This was achieved as a response to the mass mobilization brought upon by the kidnapping and murdering of the son Blumberg. Excarcerations were reduced, and any sign of *garantism* (permissive punishment conditions on lower crimes) was eradicated. Prisoners were stocked in police stations, in inhuman conditions, for indeterminate time³⁰.

The third episode occurred in 2009 as a political reaction to the increases in crime, which were empowered by mediatised attention. The case of the “Masacre de Campana”, where a whole family was murdered by an ex-convict with electronic monitoring, was one of the most popular (Martello (2012)). Buenos Aires governor, Daniel Scioli (in line with the national government), took several measures with the argument that “mano dura”³¹ had to be applied. Verbitsky's verdict was evaded³², which can be seen in the reversion of the falling trend in prisoners and non-convicted prisoners that it precipitated in 2006. Police was entitled more autonomy (counter-reform of the Arslanian modernization) and resources³³, and the criminal procedure code was re-reformed, to harden again conditions (Martello 2012). Some reforms include lowering the legal age of imprisonment to 16³⁴ and the limits to excarcerations established by the law 13.954³⁵. No more crime statistics appear from this date on, as part of the reform of the ministry of security.

The last data set we mention in this section is the one we use to proxy “institutionalism”. In her paper, Moskovich (2015) employs data from the EPH (regular random sample household survey) in order to construct an index that captures state capacity at the subnational level. She filters the sample of the survey in each province by diverse types of public employees, and considers information such as “education, income, career, qualification, permanence, the use of technology, hours worked, exclusivity, hierarchy and turnover” to “map the distance between bureaucratic bodies in the provinces”. She develops two dimensions, which she ex-post uses to map each bureaucracy: job stability and employee qualification. In our paper, we implement the information captured to construct the latter. We argue that the level of the human capital of each province’s bureaucracy can be used to proxy its level of punitive institutionalism. This is because corruption and malfunctioning of

²⁹ periodismo.com (14/04/2014) “Historia de los fracasos de las políticas de “mano dura””

³⁰ CELS (2007). In these extreme conditions the human rights organization CELS managed to obtain supreme court’s legislation to enforce minimum prison standards; this was called Verbitsky's verdict.

³¹ *Diario Clarín* (20.29.2009) “Ante las críticas, Scioli se defiende y asegura que hay mano dura”

³² *Diario Perfil* (02.02,2009) “Scioli: “Las políticas garantistas alteran el orden público””

³³ Periodismo.com (14/04/2014) “Historia de los fracasos de las políticas de “mano dura””

³⁴ *Diario Clarin* (23/10/2008), “Scioli quiere bajar la edad para imputar a los menores”

³⁵ Periodismo.com (14/04/2014) “Historia de los fracasos de las políticas de “mano dura””

political institutions can be said to have a negative correlation on state capacity (Spiller and Tommasi (2003)).

Descriptive statistics on this variable are presented below, in table 2. A linear transformation was applied to the original data, in order to have all positive values. At a first sight, figures reflected correlate with popular perceptions, in which, for example, Tierra del Fuego’s police department has a reputation for relative respectability³⁶. Another possible data source to relate to, in search for robustness, would be the index built by CIPPEC on provincial budget transparency (CIPPEC (2017)). This may be useful information if we can assume budget transparency and punitive corruption are correlated; which in fact is not far away from the assumption we made about bureaucratic qualifications. In this index, the province of Cordoba received the highest average score for 5 years, and San Luis by far the lowest.

Province	Bureaucratic Qualifications
Córdoba	9,4364
Tierra del fuego	9,3988
Santa Cruz	7,9698
Santa Fé	7,6799
Buenos Aires	7,5497
Salta	7,4678
Chubut	6,5299
La Pampa	6,2347
Neuquén	6,0912
Mendoza	5,9801
Tucumán	5,6070
Río Negro	5,5930
Misiones	5,4682
Chaco	5,4663
Catamarca	5,1653
Entre Ríos	4,9897
Formosa	4,8221
Corrientes	4,7436
La Rioja	3,9206
San Juan	3,8794
Santiago del Estero	3,5857
Jujuy	3,4640
San Luis	0,0000
Capital Federal	-

³⁶ Diario Prensa (13/5/2018), “Bertone: la policía fueguina es la más honesta de la Argentina”

Table 2

We consider this as the weakest item of our empirical exercise, and the easiest to fix when data that adjusts better appears. As far as we reach, we couldn't get hold of a more accurate data set of institutionalism of the punitive apparatus, which is quite specific. Nonetheless, as we mentioned before, we stand that it was relevant to perform this exercise and show its design, even if the goal it serves is only to illustrate or to motivate future research with better data.

iii. Results

Table 3 presents the results of the equations regressed. Columns (1) and (5) show the regressions of crimes against persons and property respectively, versus the sentencing rate. The results of Cerro & Rodriguez (2014) which we mentioned before, can be observed in these columns; by which "material" disincentives to offend (legal punishment) is efficient mainly to disincentive property crimes (initial crimes, as we mentioned before), but not so many crimes against people since they are more often undertaken by advanced criminals that respond to different incentives. In column (2), the "mano dura" rate index is included in the regressors, and although its coefficient isn't significant, the rate of sentences displays a negative effect on crime against people. This can be interpreted in the sense that it uses to capture both a negative and a positive effect over crimes against people: the effect of dissuasion, and the effect of being the correlate of an augment in corrupt forces. When the "mano dura" rate index is included, the variability of the perverse effect on crime is thus captured by it, leaving the coefficient of sentence rate as the sole capturer of the dissuasion effect. This result would be important to test the performance of the MD index, since it responds as we intended³⁷.

Our main results are revealed in columns (3) and (4). When the interaction term is included, the effect of "Mano Dura" on crime against persons becomes positive where institutionalism is zero (lowest value). With higher institutionalism, the positive effect decreases, since the coefficient of the interaction term is negative. For sufficiently high levels of institutionalism, the effect on crime against people of increasing "mano dura" is negative, which follows the logic disclosed in Becker's model adaptation: for sufficiently high institutionalism, the "white triangle" preponderates over the "black triangle". If the institutionalism of the punitive apparatus would be perfect, then there would be no "black triangle" or any perverse effect; just the direct dissuasive effect of

³⁷ It is very important to note that the difference in the coefficients between columns could be driven by our choice of including all the years that each panel had available, instead of the same amount of years for every equation; which would be those of column 4. In this way, we utilize all valuable variability (data from 1990 to 2002 for columns 1 and 5), but also, we lose the possibility of comparing robustly coefficients between columns 1 and 5 and the rest.

punishment. According to our empirical estimations, the case of the preponderant dissuasive effect only happens for the few provinces with sufficiently high institutional quality. If we follow results on equation 3, then the institutional threshold would be 7.3, whilst for the coefficients in equation 4, it is 7.1³⁸, which are quite similar. The reading would be that around the threshold, the effect of MD on crimes against people would be neutral (the perverse and the dissuasive effect cancel out). For provinces like Salta, Buenos Aires, and Santa Fe, with institutional values just above the threshold, the dissuasive effect of criminal policy would only a bit stronger than the perverse one, resulting in a low negative effect on crime against people of augmenting MD. For Santa Cruz, and mainly for Córdoba a Tierra del Fuego, the dissuasive effect is clearly predominant. Capital Federal would probably enter amongst the latter if it were included in the sample since empirical evidence suggests that its own police forces are both less corrupt and higher qualified (BID 2013). Including the GINI coefficient and the amount of urban population as controls (column 4) reinforces our result, since the coefficients increase in magnitude and precision.

It is noticeable that the effect of “mano dura” and its interaction with institutionalism are not significantly different from zero when regressed against property crimes. The reason for this could be that the perverse effect of an increase in punitivity is not big enough to compensate its dissuasive effect (which could be more correlated with sentence rate, when considering property crimes). This is consistent with our theory since, as we mentioned above, these types of crimes are mainly committed by crime newcomers, who are more sensitive to traditional punishing disincentives. In other words, punitive practices are efficient to disincentive petty crimes, but their perverse effects are only visible on crimes against persons; relatively more violent, and perpetrated by actors who are deeper into their criminal career. The latter are also sensitive to different types of incentives, as we discussed in the first section of this work.

Dependent Variable (for each 100000 hab.)						
	Crimes against persons				Crimes against property	
	(1)	(2)	(3)	(4)	(5)	(6)
Sentences/Delitos	-1,215	-5,639***	-6,401***	-5,629**	-36,776***	-24,279***
	(1,494)	(1,637)	(1,832)	(2,531)	(6,6)	(5,172)
Mano Dura Rate Index		1.230	31.20*	38.88**		17.08

³⁸ To obtain the institutional threshold from our estimations, we apply simple algebra to the coefficients. For the case of equation 3, we read that the effect of MD on crimes against people is

$$\beta = 31.2 - 4.273 * Instit$$

The threshold would be the institutional level where the negative and the positive effect on crime cancel each other; where $\beta = 0$. In this case, the resulting threshold is 7.3

		(1.593)	(16.89)	(16.79)		(20.23)
Rate MD*Institutionalism			-4.273*	-5.513**		-2.802
			(2.482)	(2.372)		(12.03)
Urban Population				-0.000119		
				(0.000152)		
GINI				173.9		
				(426.8)		
Unemployment Rate	-6.685	-11.07	-8.842	-7.726	-44.51*	-29.54
	(5.142)	(7.263)	(7.140)	(8.061)	(25.80)	(23.41)
Geographical GDP/capita	0.0463***	0.0195***	0.0357	0.0424*	0.145***	0.0594
	(0.00648)	(0.00525)	(0.0216)	(0.0205)	(0.0480)	(0.0425)
Constant	84.54	816.0***	724.1***	1,363	1,960***	2,967***
	(97.39)	(163.6)	(186.5)	(939.2)	(528.8)	(425.0)
Observaciones	431	119	114	112	431	114
R-squared	0.669	0.556	0.496	0.515	0.609	0.632
Cant de Provincias	24	24	23	23	24	23

Note: All specifications include year and province fixed effects. Robust standard errors are between parentheses. *** p<0.01, ** p<0.05, * p<0.1. Columns (1) and (5) take into consideration years between 1990-2007, whilst the rest utilize the panel 2003-2007, given the data availability for MD index. Columns (3), (4) and (6) don't include "Capital Federal" as a geographic unit since the Institutionalism index was constructed for the other 23 provinces only.

Table 3

IV. Conclusion

This paper documents a distinctive approach to the economic theory of crime: a global theory that encloses a variety of visions, initially conceived as opposed to each other. The base for the construction isn't a monotonous relationship and its consequent unquestionable unilateral result. Our theory emphasizes a particular aspect that the relationship between punitive resources and violent offenses was turning a blind eye upon the quality of the institutions that deploy these resources. We sustain and provide consistent empirical evidence for it, that augmenting punitive resources, conditional on low institutional quality of bureaucracies in charge of implementing them, actually increment violence in society, which we proxy by crimes against people. We limit our scope to violent offenses since we depart from a social context in which violence has

become one of the (if not *the one*) main issues of public salience. Furthermore, we explore theoretically the mechanisms that are activated in order for this relationship to work; both the ones generated directly by the crime creation of the corrupt forces, like those generated indirectly through social exclusion.

Considering this widened perspective, we build over Becker's traditional crime and punishment mathematical model. Through the incorporation of negative externalities of state coercion, and the possibility of social capital creation as an alternative criminal policy, we're able to arrive at new results that are consistent with our more ample point of view. These are mainly that in lower institutional environments, punitive crime policies should soften up instead of tightening, and socially inclusive policies should rise instead.

A leading correlate of the framework we present would be that the social equilibrium of marginal societies is quite vulnerable to state intervention. It requires a high amount of cautiousness and a previous study of the social mechanisms operating in order for policy to be effective. Traditional policymaking has already proved ineffective: instead of healing society from violence, it simply displaced it geographically to marginal areas and worsened the structural problem as a by-product.

A new social phenomenon can't be targeted through traditional means, or through foreign antidotes developed for apparently similar situations. New and specific medicine should be applied if any positive result is expected to arise. In this paper, we intend to bring together different versions of the same problem and combine them with formal framework in order to increase their operability. Many of these are based on direct ethnographical information, gathered from the specific marginal environments that proliferate in L.A. It isn't a close-up theory, but a step in the way of combining methodologies of diverse disciplines in order to treat a recent and urgent problematic. Moreover, we do not try to claim strong internal validity with our econometric model, or high mathematical precision and technology with the extension to Becker's model, but to inspire specialists of each field to take over and improve upon these axes of research. We do believe it is fertile ground for sound research: the opinion which spurs mainly from the intuition and experience of the surrounding reality, together with a multidisciplinary exploration in the search for some understanding of the social and economic phenomena at work in marginal neighborhoods.

Given the fragility of the social equilibrium in these environments, there exist specific insights that unpin from our outline, which could influence policymaking. First, the police force's arbitrariness can provoke huge harm to social welfare. This arises since a huge power of decision resides in the hands of coercive forces, and if no actor is available to

counterweigh this power, it can easily turn into an abuse of the worse kind. Thenceforward, policy shouldn't tend to release coercive forces from control in order for them to *be able to act*. If a rapid response is required from politicians regarding the security emergency, conscious possible alternatives should be available. A possibility could be to increase *preventive* police forces: troops with lower power of coercion. Another viable alternative could be to introduce competing police forces, such that it complicates the cooptation of the coercive apparatus by criminal organizations, and hence their rent becomes reduced and subject to disappear (similarly as it occurred in England in the XVIII century with rent-seeking mercantilism via monopoly granting: Baysinger, Ekelund & Tollison (2008)). These options are a second-best, since they are not targeting the social exclusion problem, but they satisfy the electoral requisite of higher police intervention (Flom & Post (2014)) without worsening the direct externality of police corruption.

The recent experience proved successful certain punctual interventions, which increased punitive resources in a focused manner: targeted at a specific activity, area and time frame, rather than as a general rule. An example was the 2002 program directed towards eradicating car-theft and dismantling, in the Buenos Aires province (Palmieri (2009)). Results became visible in only a few months from its start. Palmieri (2009) explains that this initiative was successful even whilst co-existing with corruption, since it was built over a matter with high public opinion salience and media visibility, and it compromised government officials from many different spheres.

Second: the focus should be placed on institutional improvement of the punitive forces, instead of augmenting its strength. For example, police forces should modernize for the civil power to have control over them. Judicial powers should be independent of the executive, in order not to be influenced by political pressure to strengthen the law's severity (Flom and Post (2014))

Third: social inclusion policies can diminish structural violence without the risk of perverse byproducts arising. Of course, their efficiency in smoothing indexes in the short run isn't what makes them popular, since their aim is at the structural social fracture. But considering the lack of results of their counterpart when the target is violence, instead of simply crime, these policies uncover themselves more appealingly.

Finally, we propose some plausible guidelines for future research, in order to elaborate further on this scheme, allowing it to adapt better to reality. We do believe though that a specialized reader would know better how to improve the technologies we have presented, nevertheless, we proceed to suggest. In order to improve the model, a dynamic approach could help improve its precision. In this sense, policy optimization

could depend on the stock of social capital in a similar fashion as the level of institutional quality. This stock should be a dynamic variable, related to its creation and destruction since the distinctive feature of capital is its cumulativeness. Furthermore, the level of cumulated social capital should interfere in the efficiency of the policy instruments: principally in that of social capital creation. This arises since the efficiency of building schools, for instance, isn't the same in environments with high or low levels of cumulated capital.

On the other hand, to improve the empirical strategy a variety of options stand up at a first glimpse. In the first place, utilizing our exercise as an inspiration, and doing it with proper data sources and more complete panels. A simple yet very valuable modification would come in hand with employing a better proxy for the institutionalism of the punitive apparatus. It is not strange to believe that in time, new and more precise data sources will be made available. In the second place, small reforms that could add useful information could be done. For example, lagged variables could be considered in order to evaluate the long run effects of "mano dura" in violence indicators. Also, alternative indicators of violence could be used to check for robustness.



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