

Moving Frontiers: “Ordering” Drug Violence in the Americas

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Since the end of the Cold War, violence in the Americas can be traced almost exclusively to criminal activities that are devoid of a political agenda. A perverse but nonetheless thorough “conflict transformation” appears to have taken place. The study of violence is belatedly following its object along this new path, with theories of insurgencies now being joined by theories of crime on the violent conflict research agenda (Bergman, 2006).¹ This shift was late in coming, though, which is difficult to reconcile with the fact that, in most countries of the region, the number of victims of criminal violence has long been much larger than that of political insurgencies or their repression. Brazil is an extreme case, but with 40% of the population of South America, it is nonetheless significant: while 383 men and women were killed or disappeared by the government during the 21-year-long dictatorship (1964-1985),² 536,000 were murdered since the beginning of this Century (UNODC 2011). The problem is not confined to Brazil: at current rates, in a few years, more people will have died from gang-related violence in Central America than were killed in the political slaughters of the 1980s civil wars. Venezuela, one of the very few countries of the region that did not suffer from a prolonged military dictatorship in the 1970s and 1980s, now has South America’s highest murder rate, and one of the highest in the world. Overall, since the year 2000, about 1.6 million people have been murdered in the region.

The picture is complex however: in recent years, the distribution of homicides, both within and between countries and regions, has changed significantly. National homicides rates are declining in a few major countries (United States, Brazil, Colombia), but at the increasing rapidly in Mexico and in some parts of Brazil, as well as in Venezuela, Central America, and the Caribbean.

Policy and academic debates about the determinants of that violence and its evolution are rife and feed on a wide variety of disciplinary and theoretical perspectives. After an overview of the challenges posed by the spatial and temporal distribution of violence, this paper proposes an approach inspired by the work of property rights theorists on conflict. More specifically, the model used in this paper is an extension of Lee Alston, Gary Libecap and Bernardo Mueller’s theory of land conflict on the agricultural frontier (Libecap-1989; Libecap-2003; Alston, Libecap and Mueller-1999). According to that theory, land frontiers are violent when the value of land is high enough for actors to engage in intense competition over it, while 1) the state is unable or unwilling to manage that competition and 2) competitors themselves are unable to reach agreements among themselves about a given allocation of the land. I have built their basic model into a general model of “frontier violence” which I use here to make sense of the current spatial distribution of homicides in the Americas, and of the recent evolution of that distribution.

This model tells a two-part story: first, high levels of violence are concentrated in zones that suffer from a deficit or both public and private ordering, i.e. in areas that have the following characteristics: 1) there is intense competition over illegal assets, i.e. the rent linked to informal markets is large relative to the size of the local economy; 2) state capabilities are relatively limited in these areas, because governments’ incentive or capacities are weak, as the relevant country, state or city is poor or just small, i.e. *public ordering* is no match for the intensity of prevailing competition; and 3) *private ordering* is also deficient, i.e. competition over illegal assets is poorly *self-regulated*, because authorities disrupt the informal arrangements that govern the market, constantly

¹ This transformation reaches well beyond the study of violence in the Americas. The most influential recent contribution to the study of civil war, Paul Collier’s, argues bluntly that there is no difference between insurgents and criminal gangs (Collier-1999; Collier and Hoeffler-2000)

² Centro de Documentação Eremias Delizoicov [Eremias Delizoicov Documentation Centre] Comissão de Familiares dos Mortos e Desaparecidos Políticos [Commission of family members of the people killed and disappeared] http://www.desaparecidospoliticos.org.br/quem_somos.php?m=2 (consulted 09 10 05)

changing the equilibria that underlie mutual agreements, because of the peculiar characteristics of the informal firms or because stable relations among competitors or between them and state authorities have not yet been established. Second, these dysfunctional frontiers move around, as 1) the value of informal market rents in particular areas changes, inducing changes of the intensity of competition in illegal market varies, as new ones are established, or as positive price shocks bring new actors in the market, or take them out; 2) public ordering's incentives, capabilities and/or effectiveness change over time, increasing the effectiveness of the regulation of illegal markets in particular areas, and decreasing it in others; and 3) the quality of the private ordering, i.e. the self-regulation of local competition, over the illegal rent gets better over time in some places, and worse in others.

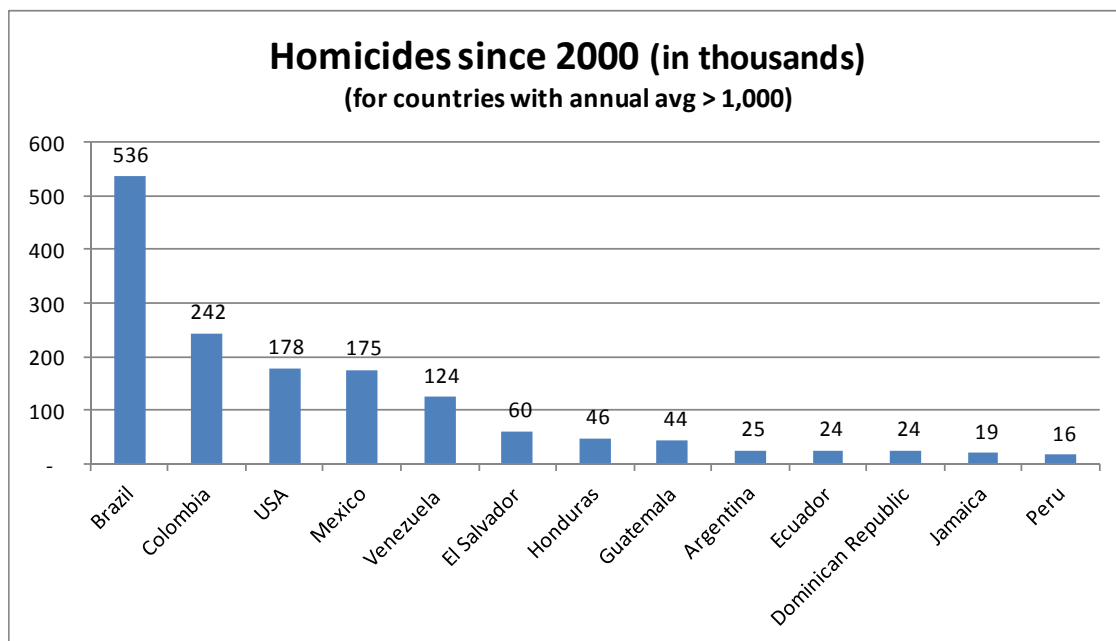
The argument and the evidence presented here strongly support the contention that conjunctural factors such as US policy, specific decisions of political authorities (for instance to confront drug traffickers or to make deals with them), local governments' policing strategies, and gangs' "constitutions" (Skarbek, 2010) have a stronger effect on homicide rates and their evolution than structural factors like poverty, inequality, or peculiar modalities of gender construction –e.g. violent masculinities (Messerschmidt, 2005).

The paper is divided in three sections. The first presents data on the scale and evolution of homicides and homicide rates in the Americas since the end of the XXth Century. The second outlines the "frontier violence" model. The third uses that model to build a cogent though still highly tentative story of the changes that have been taking place in the distribution of homicides in the Americas over the last decade.

1- A diverse and changing landscape

The Americas are exceedingly violent. Figure 1 presents the list of countries in the region that had at least a thousand homicide deaths per year since 2000.

Figure 1 The Americas' top graveyards (UNODC, 2011)



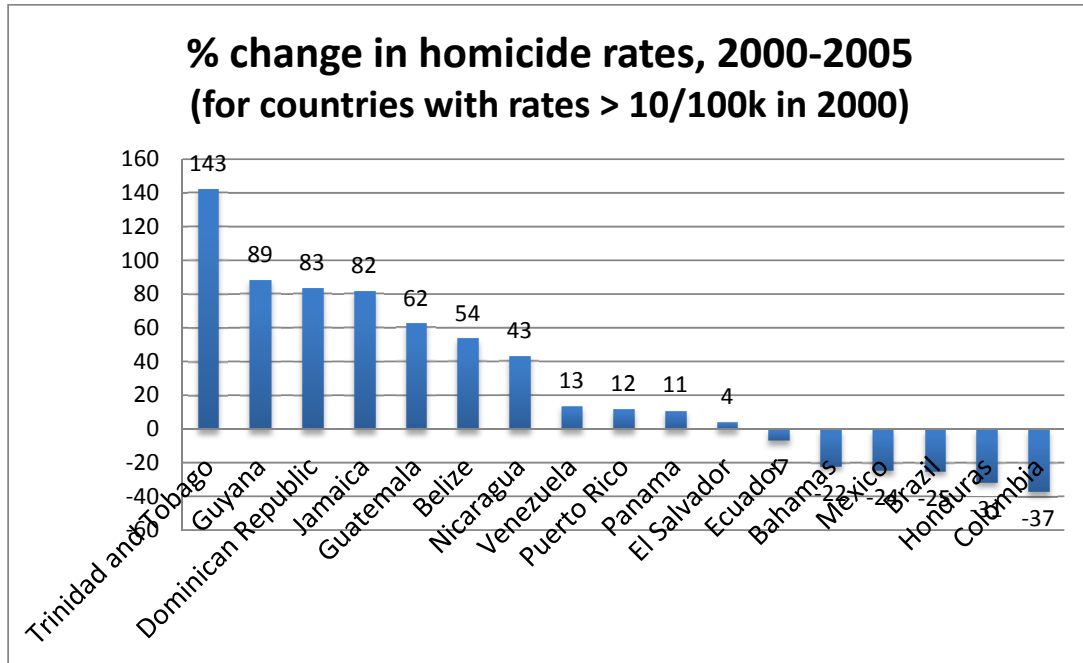
While the first places in this ranking should come as no surprise, except perhaps regarding the scale of the problem (Brazil had 165 homicides *per day* in 2003), the presence in this relatively short list of a large contingent of rather small countries is more disturbing. A look at the region's homicide rates for the ten years for which broad series are available (table 1)—with the US rate as a reference—shows indeed that while Colombia, Brazil, and Venezuela are in good place, the list is dominated by small countries from Central America and the Caribbean. Interestingly, this ranking also points to the complexity of the problem, as dirt poor and unequal Haiti joins Cuba, Bermuda and the United States around 5 per 100,000 while a number of much richer and equal British Caribbean countries, as well as middle-income but unequal Brazil, Colombia and Mexico register rates that are at least twice as large.

Table 1 Homicide rates (per 100,000) in the Americas, average over 2001-10 (UNODC 2011)

	avg. 01-10
El Salvador	59.96
Jamaica	51.94
Honduras	51.43
Colombia	46.79
Venezuela	42.77
Guatemala	39.43
Belize	31.33
Saint Kitts and Nevis	28.44
Trinidad and Tobago	26.97
Brazil	26.08
Saint Lucia	23.02
Dom Rep	21.74
Puerto Rico	21.29
St Vincent & Grenadines	20.49
Bahamas	19.58
Guyana	18.67
Paraguay	17.44
Ecuador	16.88
Panama	14.32
Nicaragua	12.52
Mexico	12.51
Dominica	11.82
Suriname	11.46
Grenada	9.90
Barbados	9.71
Costa Rica	8.47
Peru	7.38
Bolivia	7.19
Uruguay	6.24
Argentina	6.22
Haiti	5.77
Cuba	5.73
Bermuda	5.59
USA	5.46
Chile	4.24
Canada	1.83

Looking at these ten-years averages, however, can be extremely misleading, for two reasons: sub-national dynamics also appear to be extremely diverse, at least in the largest countries, and quite astonishing changes have been happening over the decade covered by those numbers. One of those changes has been the decline in Colombia's homicide rates, which reached a peak of 70 per 100k in 2002, before falling to 33 in 2010.

Figure 2a Evolution of homicide rates (2000-2005)³

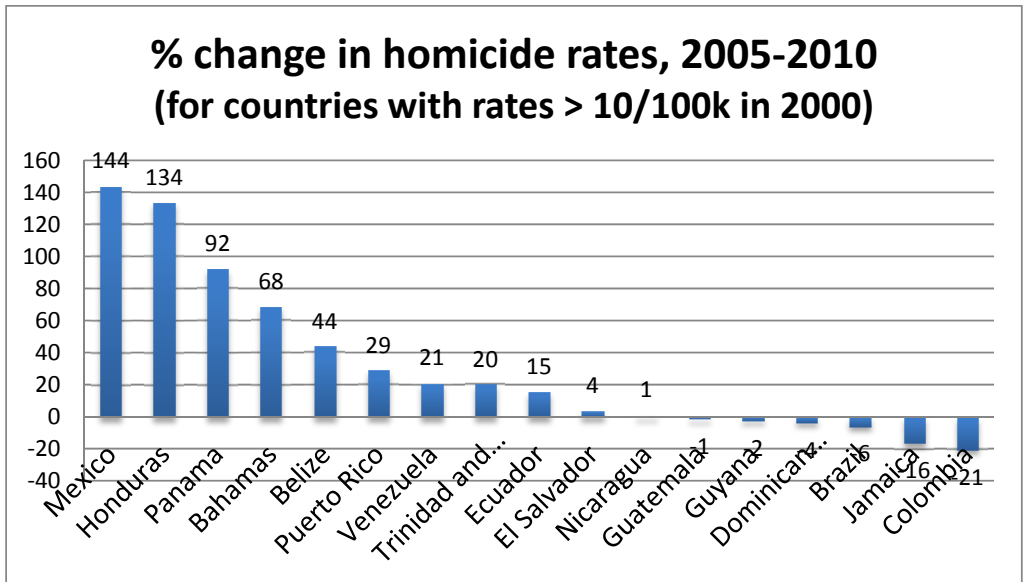


Very significant variation over the decade, and in fact over much shorter periods of time, was not circumscribed to Colombia. Figure 2a and 2b show that Mexico, which by regional standards had a relatively low murder rate (12.3/100k) at the beginning of the period, nonetheless saw it go down precipitously (-24%) over the following five years, and then jump by 144% by 2010.

Figure 2b Evolution of homicide rates (2005-2010)⁴

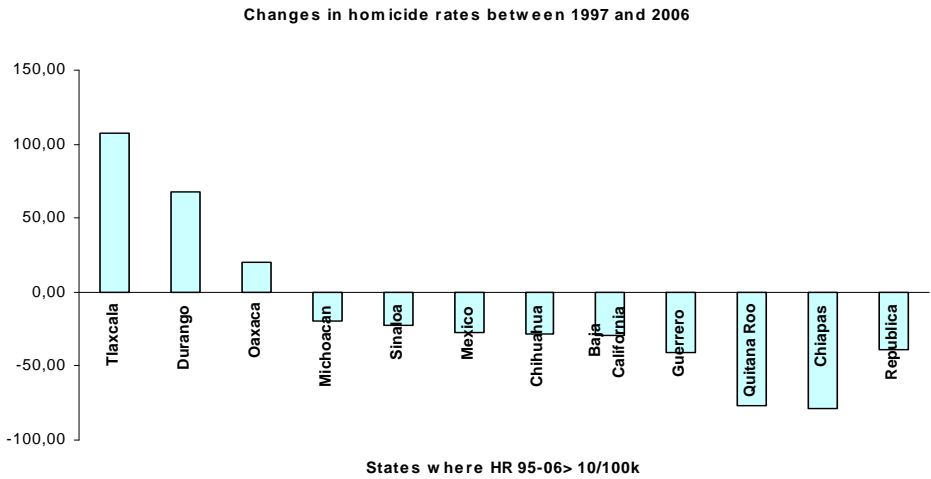
³UNODC 2011.

⁴UNODC 2011.



National data, at least for large countries, appears to be just as misleading as ten-year averages. Figure 3 looks at the evolution of homicide rates in Mexico between 1997 and 2006, for states whose average rate during the period was higher than 10 per 100,000.

Figure 3 Changes in state murder rates in Mexico, 1997-2006⁵



As can be seen, the national average, at -38.64% does not very well convey the situation of a country where Chiapas' murder rate has declined by 78.49%, while Tlaxcala's has more than doubled (107.14%), and where Chihuahua, where Ciudad

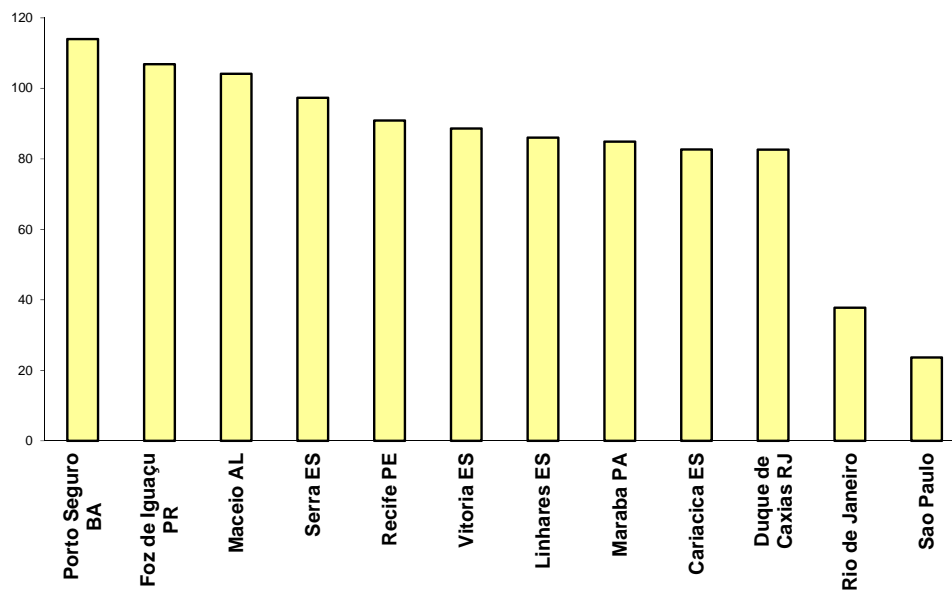
⁵Instituto Ciudadano de Estudios sobre la Inseguridad. Registro ante agencias del Ministerio Publico de las entidades federativas. Fuente: Sistema Nacional de Seguridad Publica y CONAPO. http://www.icesi.org.mx/documentos/estadisticas/estadisticas/denuncias_homicidio_doloso_1997_2006.pdf (consulted 090224)

Juarez is located, was to become over the following three years, one of the most violent place on earth.

Indeed, much has changed in the last few years in Mexico, with reports of a murderous war among traffickers and between them and the government. Once again, the picture varies a lot within the country, however. For 2008, more than three-quarters of the drug-related murders (4359/5639) have been concentrated in five states --Chihuahua, Sinaloa, Baja California, Durango and Guerrero-- that represent less than 13% of the country's total population (El Universal, 2009). Greater Mexico City (i.e. the Federal District and the state of Mexico), with its 23 million people, had a total of 232 drug-related murders in 2000, i.e. less than a typical weekly count in the similarly sized greater São Paulo of the year 2000.

Brazil also shows how misleading national averages can be. While the country's overall homicide rate was slightly under 30 per 100k in 2006, Figure 4 shows that many of its large cities (>100 thousand) were significantly more violent than the national average.

Figure 4 Highest homicide rates (per 100k in 2006) in Brazil (cities >100,000)⁶



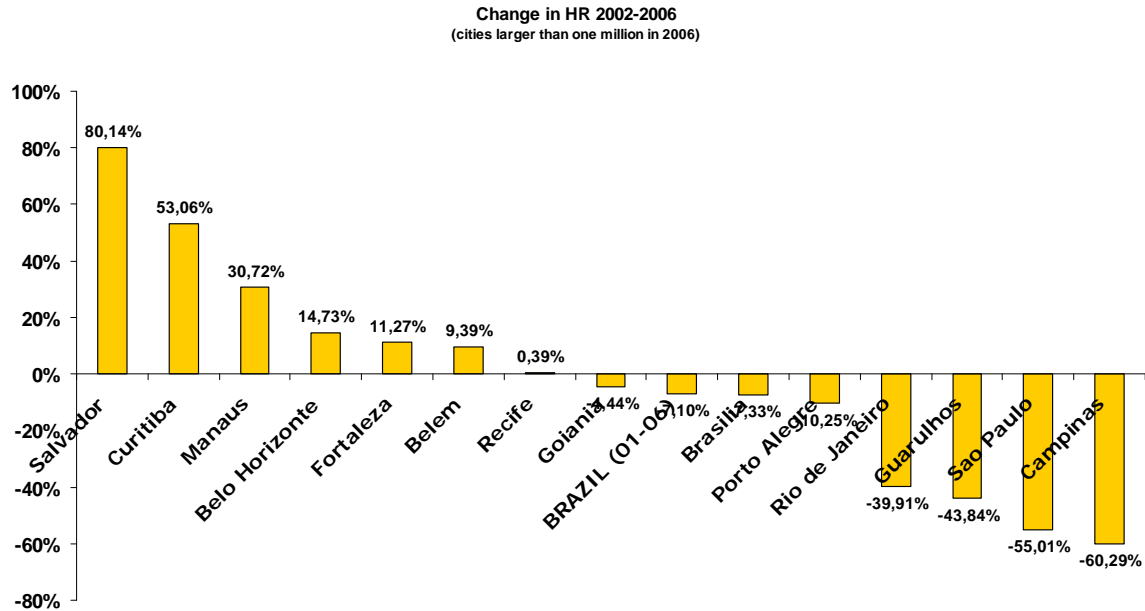
As shown in Figure 5, what Brazilian numbers underline, however, is how quickly situations can change. Among Brazilian municipalities with more than 1 million inhabitants, São Paulo and two others of São Paulo state's largest cities (Campinas and Guarulhos) saw homicide rates decline, in five years, by 40% or more. Rio did almost as well, while Brazil as a whole also saw average murder rates decline. This was little comfort to the citizens of Salvador (+80%), Curitiba (+53%) and Manaus (+31%), whose rates were exploding, or for Recife's which stayed close to the top of the country's homicide ranking, at 91 homicides per 100k.

This brief overview has definite methodological implications. National averages or single year rates can be exceedingly misleading, especially for large countries. The situation in one region, say Northern Mexico or Northeastern Brazil, may be quickly deteriorating while the rest of the country remains stable or even sees a radical decline of insecurity. Similarly, levels of violence in smaller countries can also change very quickly. Unless one dismisses as irrelevant short term variations such as the spectacular ones that were

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observed over the last decade in the greater São Paulo and Rio areas, as well as in Medellín and Bogotá, this probably implies that nothing can be inferred directly from national-level data at least in large countries, or from structural variables (poverty, inequality, “youth bulges” etc.) that cannot change significantly over a five year period.

Figure 5 Changes in homicide rates between 2001 and 2006 (cities > 1 million)



The two most quoted studies of the determinants of homicides in the region (Fanzylber et al. 1998 and Fanzylber et al. 2002b) do factor in variations over time but use national level data for the variety of factors they consider as independent variables. A recent and extremely interesting UNICEF-sponsored "mapping" of violence in the region (Waisenzilz-2008b: 36-43) can be faulted mostly for considering, in its assessment of the determinants of homicides, only one yearly value for homicides (the "latest") and only national-level data as potential risk factors (HDI, Gini, poverty rates, etc.). The fact that these three studies identify inequality as the most significant correlate of homicide rates, in other words, should possibly be taken with a grain of salt.

The flip side of this problem is that a successful model needs to consider variables or combinations thereof that will enable us to make sense of short-term changes in relatively small areas. It is the determinants of these local/conjunctural dynamics that need to be elucidated. This does not imply that the mechanics are different in each time-space conjuncture. In fact this paper holds precisely that a general model of those conjunctures is possible. The next section is devoted to a basic presentation of that model.

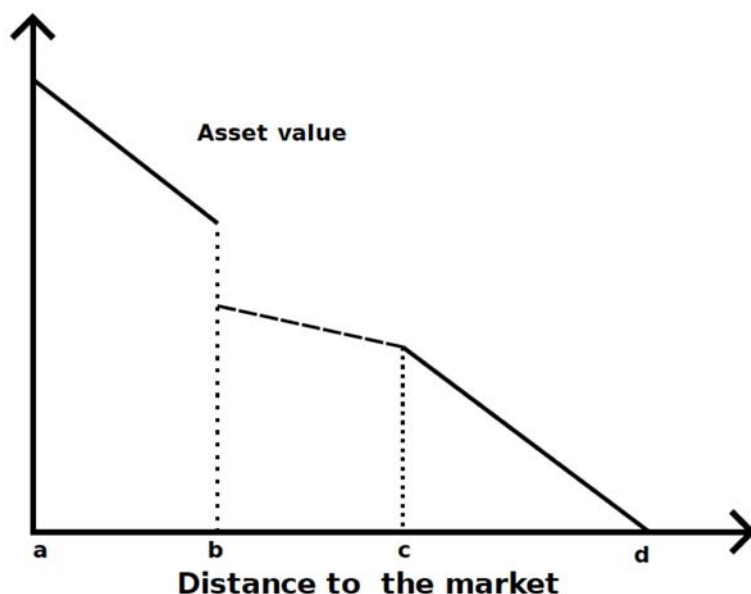
2- Frontier violence

A small group of institutional economists have developed a model of frontier violence that they have used to make sense of conflict in the Brazilian Amazon (Schneider-1995; Alston, Libecap and Schneider, 1996; Alston, Libecap and Mueller 1999a; Alston, Libecap and Mueller, 1999b; Alston and Mueller, 2003). They argue that there are spaces where competition for land becomes so intense that it overwhelms the ability of competitors to allocate land through mutual agreements. When that happens, violence results if state authorities are not there to authoritatively define and enforce rights over land. The model

combines more or less explicitly a theory of the economic frontier, a theory of distributive conflict and cooperation in the absence of property rights, and a theory of property rights provision.

The central theoretical argument of this paper is that this local model can be turned into a general theory of distributive conflict and used as such to understand the distribution over space and time of homicidal violence in the Americas. The three component theories will now be briefly outlined, and the ways in which the general model will be applied here will be specified.

Figure 6 Alston, Libecap and Mueller's model



The economic frontier ("d" on Figure 6) is the point at which the net present value of the capture of a given asset reaches zero. It is easiest to understand in terms of distance to the market, although any factor that impacts asset value has implications for the location of the frontier. The intuition is simply that at some point, it makes no economic sense to capture a good because the costs involved in doing so are larger than the benefits. As one gets close to the frontier, competition for the asset diminishes because its net worth may be less than what the efforts of most people, if invested elsewhere, would yield; in other words, only people with extremely low opportunity cost will find it worthwhile to capture assets that are worth so little. As one moves away from the frontier, however, i.e. as the value of the asset increases, a much larger group of people will be interested in capturing it. Competition, as a result, will become more intense.

Close to the frontiers, the few poor individuals interested will likely find it easy to accommodate each other. Land, to take ALM's example, will be plentiful and competition light. People will simply distribute themselves around and put up rough indications to demarcate their respective plots. Given the low net returns, even fencing may be prohibitive. Similarly, they also do not have a strong incentive to rob their equally poor neighbours or, for that matter, the time and resources needed to do so. In addition, the "price" of violence and of its consequences, relative to the return on land, will be

extremely high. Competition for land, in such areas, will be easily and non-violently managed by the competitors themselves.

Farther away from the frontier, however, the situation changes. There are more people, and they are wealthier because net returns are higher. It starts to make sense to fence, raid and defend property, and people have the means to do so. Obviously, it is still sensible to make informal agreements instead of devoting resources to defending plots or raiding one another. But those agreements are also more difficult to reach, among other reasons because the higher value of the land has made delimitation more critical, and because higher demand for land means that a market develops whereby the local population changes and becomes more diverse. Altogether, this implies that, as one moves away from the frontier, the costs of reaching informal agreements ("private ordering") also increase. At some point and in some places, those costs may be so high that no agreement can be reached and when that happens, violence becomes likely, especially where the rent at stake is significant. Clearly violence is also costly, and this is part of the equation, i.e. there is always an incentive to reach some kind of agreement with one's neighbours. Yet, that incentive may not be strong enough and a point in space may exist beyond which no informal arrangements are possible. This point, which corresponds to "c" on figure 6, will be called the "private ordering frontier"

Obviously, there is another path. When mutual arrangements cannot be reached, some third party, say a government or a customary authority, can move in, adjudicate the dispute, and effectively enforce a given allocation of the asset, thereby "specifying" property rights (PR). That third-party or "public authority,"⁷ however, is not a charity and its specifying the rights involves costs. The provision of property rights, in other words, depends on the incentive structure of the public authority, i.e. on the net value to that party of PR specification. A number of factors can affect that value, but most can be subsumed under three basic categories: the administrative costs of definition and enforcement; the direct benefits involved, i.e. the fee or "tax" collected in exchange; and the indirect benefits, i.e. the gains to the authority of avoiding conflict at the frontier, i.e. of limiting negative externalities. Together, these factors combine to determine when and where property rights will be provided and, to the extent that they may not be provided everywhere, these factors also determine the existence and "location" of a property rights frontier.

Finally, while the third party may not have an incentive to define and enforce property rights, it may still want to avoid conflict and violence close to the market. In the case of illegal assets such as drugs, for instance, many—though not all states—will not provide property rights over "turf," but they may well "police" the competition and try to limit the use of violence in it. Third-party deterrence, in other words, can discipline competition over assets without defining rights over them and, as a result, informal competition over valuable assets even with high transaction costs and in the absence of property rights, does not have to be violent (Reuter, ???). Most drugs markets in developed countries—think of your university's dormitories—conform in fact to this model: high rent, no property rights, and yet little or no violence. Deterrence, however, is also costly and third parties will make their sums, which may lead to "under-provision" of property rights or of deterrence. As public deterrence typically reaches farther than property rights provision, the point at which deterrence becomes ineffective (point "b" on figure 6) will be termed the "public ordering frontier."

⁷While the use of "public authority" makes for a less abstract and general model than "third party," it also introduces a degree of simplicity to the discussion, which can focus on two types of ordering: public, and private.

The key insight of the frontier violence model is that there is no reason for a public authority's incentives to favour PR provision or deterrence precisely where and when competitors are unable to reach agreements. In other words, the demand for public ordering that is implied in the growing tensions on the frontier is often not met by sufficient supply of either the rights or the deterrence that would prevent the use of violence in the competition over the asset. Violence occurs in that gap.

The model can be summarized in the following system of propositions:

- 1 Violence happens when the value of an asset generates a level of competition that can be "ordered" neither through agreements among competitors nor the provision of property rights or the threat of sanctions by public authorities. It happens in other words when a gap develops between the public and private ordering frontiers.
- 2 The private ordering frontier is a negative function of (1) the costs involved in reaching agreements among competitors (information, monitoring, control), (2) the relative efficiency of the techniques they deploy to reduce those costs (modalities of cooperation and conflict resolution) and (3) the net benefit of the use of violence in the competition.
- 2 The public ordering frontier is a positive function of (1) the administrative and repressive capacity of the public authority, (2) the net revenue generated by the provision of PR, and (3) the negative externalities of conflict beyond the frontier. It is a negative function of the cost of deterrence.

N.B.: public and private ordering overlap in most markets, generating resilience to shocks in asset value or to disruptions in public or private capabilities or incentives: even in the most developed country, most distributive conflicts and tensions are managed without the police or tribunals' getting involved.

On the basis of this model, one can quite easily construct ideal-types of violent situations. In general terms, dysfunctional competition and a large gap between the private and public enforcement frontiers will be associated with violent conflict. A large gap between the private and public enforcement is most likely to develop where the market value of a good is extremely high (increasing the rent at stake in the competition) but where the institutional capabilities of public authorities are limited or where its net benefit—either direct through taxes or indirect through diminished negative externalities—are low (contracting the public ordering frontier). The specific issues that come to the fore are thus high value goods, which affect the intensity of the competition, and weak states which determine the location of the private ordering frontier, as they imply a limited ability to intervene in the competition for the asset and, for illegal goods, the impossibility for the authority to cover at least part of its costs through taxation.

Dysfunctional competition in the absence of property rights is most likely to occur in unstable environments where informal rules and conventions are difficult to establish and enforce, where interaction is often disrupted, where competitors change all the time, or where it is very difficult to get to know or trust your potential partners. The ability of competitors to build reliable channels of information and exchange as well as effective mechanisms of monitoring and enforcement are critical. Family, clan and clientelistic structures in land frontiers, and gangs and cartels in the case of illegal goods, can thus critically affect the "quality" and functionality of the private ordering of "un-regulated" competition.

The model does not imply that structural factors such as violent masculinities, inequality or poverty may not play a role. But that role is a priori indeterminate, i.e. these factors will only play a role through their impact on the intensity of the competition over assets and on the size of the gap between the public and private enforcement frontiers. Moreover, the nature of the effect may also be ambiguous. Poverty, for instance, by lowering the opportunity costs of a large part of the population, will increase competition over a given asset. At the same time, the rent at stake may be so low that very few of those competitors will be willing and able to use violence to settle disputes. In such cases, even an extremely deficient state might still be able and willing to enforce rights or deter violence where it matters, namely where violent conflict can happen. In such circumstances, the gap between the implied demand for public ordering, and government capacity to provide it may be much smaller than it appears.

Inequality is another case in point. As mentioned above, it has been repeatedly identified as an important predictor of homicide rates. For methodological reasons that we have discussed, I consider that the basis of that contention is somewhat dubious. In addition, it is difficult to reconcile it with low homicide rates in high inequality countries such as Peru or Bolivia, with the rapid decline in homicide rates in consistently unequal countries like Colombia and Brazil or with the massive increase in homicides in increasingly equal Northeastern Brazil. Through a frontier violence lens, however, inequality may matter where it proxies a poor territorial distribution of policing capacity, which it often does: competition over land or any number of assets in many poor urban or rural peripheries are typically left in the hands of the locals. When the assets at stake, say the control of the drug traffic in a Rio favela, are valuable, a huge gap results between the public and private ordering frontiers. Where no such high value good is present and where as a result competition is less intense, or where the net cost of violence is simply too high, inequality will not lead to violence. One needs to check, in other words, which is precisely what I intend to do, albeit in a very tentative manner in the next section.

3- Moving drug frontiers in the Americas

Using the framework just outlined to generate hypotheses and organize the data available, I will try to make sense of 1) the distribution of homicide rates in the continent, i.e. who is low and who is high, and 2) the volatility of those rates over the last ten years, and 3) the direction of the changes that have been taking place. More specifically, I will provide elements of answer to the following three questions:

- 1) Why are most Latin American countries so violent?
- 2) Why has most violence been concentrated in Central American countries, in the Caribbean, in Colombia and Venezuela, and in Brazil?
- 3) What explains the increasing concentration of violence in Central America and the Caribbean, in a few states in North-Central Mexico, in Venezuela, and outside of the Rio-São Paulo pocket in Brazil?

The frontier violence model would predict homicide rates will be highest in countries where a) there is intense competition for a high value asset, b) state capacity or incentives to regulate that competition—through PR provision or deterrence—are low, and where c) in the absence of state intervention in the allocation of, or competition over, the asset, competitors have difficulty reaching agreements among themselves. Homicide rates will be lower when one or more of these conditions goes missing or when they are less acute, and low where they are absent. Changing distribution of homicide rates will follow changing configurations and locations of these three broad variables.

Using this as a point of reference, I will now try to document and briefly outline a series coherent stories that answer the foregoing questions. It must be emphasized that these stories could not possibly be read as “tests” of the model outlined above. I just intend them to suggest that the model’s core intuitions make intuitive sense. Testing will have to wait.

3.1 Why are most Latin American countries so violent?

Latin America is violent first of all because of drugs. Cocaine, marijuana and heroin remain highly valuable, although their price has declined recently, in the case of cocaine dramatically.⁸ These drugs are produced in Mexico, Guatemala, Bolivia, Peru, and Colombia, and trafficked through Brazil, Venezuela, Ecuador, Central America and the Caribbean. The most important markets are the United States, Western Europe and increasingly the region’s largest and wealthiest cities (Mexico, Caracas, São Paulo and Rio). There are debates about the value of the traffic, but the UN Office on Drugs and Crime (UNODC) estimated that, in 2003, the retail value of cocaine, all of which originates in South America, was \$70 billion dollars, out of a total of \$320 billion for all illicit drugs. Most of that rent is captured by retailers in North-America and Europe, however. In 2005, the UNODC estimated that the value of production and traffic in Latin America was closer to \$6.1bn, broken down as follows: producers get 527m, wholesales into both regional and foreign market is worth 2.6bn and retail sales in local markets 3bn (UNODC, 2005, v. 1: 128-130). It must be noted that while substantial, this amount is far from overwhelming, especially when compared with the GDP or government budget of the region’s largest countries: to take an extreme case, the budget of the State of São Paulo for 2009 is \$R116bn or approximately US\$55bn.⁹

In other words, there is possibly an economic frontier for drugs in the region, especially in the largest and wealthiest countries, i.e. areas where it may be more costly to get involved in drug production or trafficking than in other economic activities, even for relatively poor people. Still, in these countries, and certainly in smaller and poorer ones, the returns may be sufficiently high for a significant number of individuals to get involved, however far they can physically be from markets. Competition is thus intense and the rent at stake is high enough to make resorting to violence, even on a large scale and in spite of cost and consequences, both feasible and often appealing.

The ability of states to regulate drug production and trafficking varies but it is often relatively limited. The central issue here is illegality. Prohibition implies that the only allocation of property rights that is sought involves the capture by the state itself, for destruction purposes, of all the assets. The exclusion inherent to any property rights specification (“it is yours, not theirs”) is taken here to the extreme (“it is nobody’s”). The bar, in other words, and as a result the costs involved, are much higher than for legal goods. The problem is especially bad for the small states of Central America and the Caribbean, as the rent at stake, which is typically linked to export to the US, is extremely large, while their own tax base, which largely defines the limits of their capacity, is small.

This is only part of the problem however, as illegality also severely weakens state incentives to regulate competition over drugs: no tax can be imposed to finance state intervention, which reduces the whole incentive structure to costs (which are high), and

⁸ From \$284 in 1990 to \$94 in 2006, and rising to \$119 in 2007. World Drug Report 2008 (United Nations Office for Drugs and Crime), June: p. 255 (retail prices, opiates) and 260 (retail prices cocaine). Prices inflation adjusted in 2006 US\$/gram.

http://www.unodc.org/documents/wdr/WDR_2008/WDR2008_Statistical_Annex_Prices.pdf

⁹ From the website of the Legislative assembly of the State of São Paulo.

<http://www.al.sp.gov.br/portal/site/Internet/menuitem.b2f99ba872cfb7ab19b47628160041ca/?vgnextoid=27a5a6ad6388d110VgnVCM100000600014acRCRD> (consulted 2009 04 04).

negative externalities, i.e. to the consequences for the state of not intervening.¹⁰ Sometimes, as in the case of Colombia once the FARC started to draw on drug rent to finance its insurgency, these externalities can be very substantial. This is exceptional however. In Brazil, for years, gang wars in urban peripheries had a marginal impact on the lives of most middle-class dwellers, and none at all on the political prospects of political elites. Given the cost implications of seriously tackling the problem it comes as no surprise that action was undertaken in the largest and richest states only when the impact on middle-class citizens ("a bala perdida" or "the stray bullet") reached extremes, and when violence became the driver of massive political mobilizations.

Even extremely high externalities, however, cannot create state capacity or enlarge a country's tax base. Intervening on that basis alone is the preserve of the wealthiest states. At first, even Colombia could only confront drug trafficking organizations with support from the United States. And the same has been happening in recent years with Mexico. But US intervention responds to a similar set of incentives, and for the US government too, the only drivers are the negative externalities of drug violence for the US itself. This is why they intervened so forcefully in strategically important Colombia and why they are willing to invest in critically important Mexico, but also why they are largely indifferent to today's drug wars in Central America, the Caribbean, or Venezuela, and couldn't care less about the violence that was taking place in Brazil in the 1990s.

Now, even a large gap between the public and private ordering frontiers can be "filled" in some way through informal agreements among competitors. In the context of poor state regulation of drug competition, violence in much of the region can be traced to the inability of the traffickers to reach informal agreements with one another. Most of the dysfunctionality of the competition, however, can probably be traced to government interventions that prevent traffickers from establishing stable arrangements.

The largest culprit here has to be the US-led "War on Drugs" (Jensen et al. 2004; Caulkins et al., 2005) The US has been using a carrot and stick strategy, providing assistance on the one hand, and threatening countries with a "decertification" that could have consequences not only for aid flows, but also, through increased security measures, for trade. Given the limited amount of resources made available, and given the scale of the problem, government-enacted anti-drug programs have not proven effective at "eradicating" production, trafficking or consumption. However, their typically haphazard and tentative efforts have created uncertain environments for the traffickers, and made their own informal mutual arrangements extremely unstable, as the underlying distribution of capabilities is constantly disrupted.

Even in countries where the US war on drugs has had little effect on governments, drug policy has been equally damaging from the standpoint of violence containment. The policy adopted until recently in most Brazilian states, for instance, has proven to be for the most part counter-productive. The policing of the areas controlled by traffickers has only recently become more consistent. The language traditionally used by officials to describe police operations in favelas testifies to the circumstantial quality of their policy: the entry of the police in a favela was called an "invasion," and their staying for any amount of time an "occupation." By contrast, Ipanema in Rio or the Jardins in São Paulo, although large drug markets, were never said to be "invaded" or "occupied" by the police, even though police presence there, in addition to huge levels of private security,

¹⁰Corruption can be understood as a tax. Unless rent collection is highly centralized, which it may have been in Mexico under the PRI, however, this only means that competition over the rent involves state actors, i.e. the latter do not play the role of third-party in the competition. In other words, except in the case of fully institutionalized narco-states, corruption cannot be likened to a tax and the incentive structure of states as third parties can indeed be conceived as limited to the negative externalities of the competition for assets beyond the enforcement frontier.

has always been very significant. "Decapitation" strategies have had a similar effect in Mexico, with cartel fragmentation (Guerrero ????) and succession dynamics (Reuters ????) creating massive uncertainties and limiting drastically the capacity of these organizations to reach agreements with one another.

What matters here may not be enforcement effectiveness per se, but consistency, because it creates a predictable environment that facilitates informal deals. Enrique Desmond Arias (2006) has indeed shown that, in a number of Rio shanty-towns, consistent policing, meaning either effective enforcement of drug prohibition or informal agreements between the local police and traffickers, brings levels of violence down. In the cases he examines, up and until those agreements held, stability prevailed.

To sum up, heavy competition over valuable drugs rents, inadequate public ordering, and an unstable environment for private arrangements have given Latin America the highest murder rates in the world.

2) Why has most violence been concentrated in Central American countries, in the Caribbean, in Colombia and Venezuela, and in Brazil?

The dire situation of Central America and the Caribbean is easiest to explain (UNODC, 2007; UNODC/WB, 2007; UNODC, 2008a; UNODC, 2008c; INCB 2009:56-63, 90). The rent over which competition takes place in these countries is significant because it regards the control of the large flows destined to the United States market. The problem of relative state capacity is thus particularly acute: some Colombian and Mexican drug cartels control more resources than most of the governments of the region can devote to law enforcement and security. Central American and Caribbean states are also least able to sustain consistent policing strategies because they are most vulnerable to US pressures to periodically "do something" about drugs, while their capacity deficit is not filled by limited US assistance. Prevented from establishing a *modus vivendi* with the traffickers, they are just as unable to effectively eliminate the traffic. Their policies at best contribute to a climate of uncertainty in the competition over drug turf, in which informal arrangements are difficult to establish or sustain.

Colombia found itself in a similar predicament, except on a much larger scale. It has long been a large producer of cocaine and a significant one of marijuana and heroin, and its cartels have until the end of the last century controlled much of the traffic of cocaine from the Andean region towards both North-America and Europe. The rent at stake, in other words, is very large. In absolute or relative terms, drug enforcement capabilities or even the sheer ability of the government to effectively control the national territory have long been limited, although this has started to change in recent years. Finally, US and domestic pressures, but also the linkages between traffickers and the FARC guerrilla have led to a strong effort on the part of the government to "do something" about the problem. Until recently, however, those actions, far from succeeding in eliminating production and traffic, only contributed to disrupting whatever arrangements traffickers could reach among themselves, or with local or even national political elites.

Venezuela has long been a conduit for Colombian drugs, but also, thanks to the relatively high living standards of its urban middle-class, a sizable market in itself. Beginning in 2002, it has become "one of the main departure areas for illicit drug consignments leaving ... South America" (INCB, 2009: 72). In spite of a large public sector, government has traditionally been ineffective, a problem that the decade of Chavismo has only made worse. The territorial "coverage" of state enforcement, moreover, has never been very extensive, with largely open areas at the Colombian, Brazilian and Guyanese frontiers, as well as in the shantytowns of Caracas. Relatively large drug rents and a limited effective state capacity have created a huge space in which competition for those rents to take

place: huge pressure was put on private ordering. Violence appears to have three main sources. One can be understood as proxy wars or the local ripples of the fights among Colombian drug cartels. The second one is related to the local market for drugs. While bulk markets, by definition, involve relatively few players, facilitating negotiations and agreements, retail drug markets are noticeably less predictable. They involve a much larger group of people, and are sensitive to very small changes, with whole local equilibria changing as a result of a single police operation, or following the death of the head of one little gang. Finally, a fragmented and corrupt security apparatus has increased the unpredictability of both the functioning of the transit and local markets and of its regulation. Significant amounts of drug rent (strong competition), limited state capability and an environment that complicates informal arrangements (large gap between the ordering frontiers) have conspired to sustain high homicide rates in Venezuela.

Brazil's situation is similar to Venezuela's. The rent at stake is huge and largely though not exclusively derived from domestic drug sales. The local market is fragmented not only nationally, which would be understandable given the size of the country, but also within states and especially, until recently at least, within the country's largest and wealthiest cities, Rio and São Paulo. The peculiar segregation of these cities and of their policing (Caldeira, 2000; Ventura, 2000) has created a very specific environment that is highly conducive to violence. In both cities, shantytowns and middle-class or even upper-class neighbourhoods stand side by side, while consistent policing –as distinct from "invasions" or death-squads operations (Barcelos-1993)- did not reach significantly into poorer areas, at least until very recently. As a result of this conjunction of factors, the control of those "strategic" shantytowns and, through them, of access to extremely profitable markets, have become major stakes in traffickers' wars. In addition, relatively easy access to downtown areas from poorly policed favelas, has also made the latter valuable, and consequently coveted, sanctuaries for traffickers. The proximity to wealthy areas also contributed to sporadic police interventions, in response to complaints when stray bullets reached beyond the shantytown's limits. The sheer size of the unpoliced areas, and the resources on which traffickers can draw to get guns and protection, make their long term consistent policing extremely expensive. A typical pattern has thus emerged, with the police intervening and staying after a particularly violent or shocking episode has rippled through society, the traffickers moving elsewhere, sometimes in the immediate neighbourhood, and then moving back a few years later when the police is taken out as the political pressure regarding that particular case diminishes or as it grows around another area (Desmond Arias, 2006, chap. 3,4,5).

A second focal point of violence in Brazil is linked to international trafficking, into Brazil from neighbouring areas (Colombia, Bolivia, Peru), and out of it towards Paraguay, Europe, Africa, and the United States (Desmond Arias, 2006: 269 sq). This has led to significant violence in places like Foz de Iguaçu, a huge contraband hub at the border with Paraguay and very close to Argentina, as well as Vitoria (Espírito Santo), Porto Seguro, Salvador, Recife and Santos/Cubatão, all major sea ports and as such critically placed to control the traffic in and out. Together with the domestic market, these activities imply that a very large amount of money is at stake and consequently that there is intense competition to control the traffic.

On the other side, enforcement capabilities have until recently been relatively limited. Nobody would suggest that Brazil lacks state capacity. However, the size of the country, as well as the length and extremely permeable character of all its borders have made the effective policing of the whole territory an extremely challenging endeavour. The situation is made worse by the structure of police organization in the country. International trafficking is the responsibility of the federal police, but the latter does not have the means, nor the responsibility, to enforce order within the country. That

responsibility lies with the military police, a state-level institution, which implies that the resources available vary enormously according to the relative size and wealth of the states. The state of São Paulo has about 180,000 military policemen, which make it larger than the military force of every state in the Americas except the United States and Mexico. Other Brazilian states do not have comparable capacities, although Minas Gerais, Rio de Janeiro and Rio Grande do Sul have sizable police forces. The consequence of this type of organization is that policing capacity varies a lot between states but also that gangs interested in the large market of Rio, for instance, may set up operation in tiny Espírito Santo, right by, which has much more limited policing capacity. The problem of Brazil's small federated states, in other words, is similar to that of Central America and the Caribbean: the drug rent at stake, whose size is determined by a much larger market nearby, dwarfs the resources available locally to enforce prohibition. As long as the large wealthy states were just as ineffective as the smaller ones, this did not matter much: traffickers could find space very close to their main market. Once that changed, however, violent competition moved out (cf. the next sub-section).

The Brazilian cocktail is thus similar to the others we have examined: large drug rent (intense competition), ineffective and inconsistent policy, and a highly volatile environment that was not favourable to informal agreements among gangs (large gap between public and private ordering).

3) What explains the increasing concentration of violence in Central America and the Caribbean, in a few states in Mexico, in Venezuela, and outside of the Rio-São Paulo pocket in Brazil?

Even more than for the previous sub-section, the answers that will be proposed here remain tentative. Still, there are sufficient indicators to suggest that the changes we are seeing derive from a small number of changes in some the key variables of the frontier violence model.

The first of those changes has to do with effective enforcement of prohibition. Clearly, a much stronger military and/or police efforts in the war against traffickers appears to have had an effect on violence in Colombia and part of Brazil. The determinants of that stronger effort are distinct, though. In Colombia, a key motivation lied in the real political danger that drug trafficking came to represent for the state, a factor that was never significant in Brazil. Other negative externalities were at play in Colombia however, and in São Paulo and Rio, too: it is the threat of mobilized citizens that pushed governments to increase their policing effort. In fact, one could argue that the extension of the public ordering frontiers in Colombia and South-Eastern Brazil can be traced to the democratic consolidation, because it implied that the fate of poor people in shantytowns or peripheries became relevant to the political fate of elected officials. Probably for the first time ever, "balas perdidas" (stray bullets) started to matter even when they killed poor people.

These political dynamics have been at play elsewhere in the region and within Brazil, but as mentioned, strong incentives for effective and consistent policing do not in themselves generate the resources needed to implement it. Only large and wealthy Rio, São Paulo and Minas Gerais could really afford the investment, and only Colombia got significant amounts of money from outside to do it. The effect appears to have been a redeployment of the traffic, away from Colombia and from the São Paulo/Rio area.

North-Central Mexico is a peculiar case. Right by the largest drug market in the world and with a huge migration and transportation channel into it, the region is highly coveted and the use of violence in such cases would make sense. The fact that it has reached its height in recent years, however, cannot be explained by the size of a rent that has long

been huge. The current violence, in other words, is easiest to understand as the expression of a competition that is very heavily disrupted by an aggressive government effort: under pressure from federal authorities heavily supported by the US, gangs were forced to fight very hard to keep whatever share of the market they had (Guerrero Gutierrez, 2009, 2010, 2011). The cost of the violence, however, are extremely high and it is far from clear that they can sustain it for long. Assuming government pressure is maintained, violence in the region could subside relatively quickly, as part of the traffic moves elsewhere but especially as government policy becomes more predictable and as trafficking organizations adapt to the much better disciplined environment. The fact that the same organizations have been functioning very smoothly in the US, just across the border, testifies to the potential for the establishment of a smoothly-functioning drug market. As table 2 demonstrates, it is indeed striking how violence does NOT follow drugs as the latter cross the border into the United States.

Table 2: Homicide rates (per 100ki) in sister cities of the US and Mexican border, (2009 and 2010)

San Diego	Tucson	El Paso	Laredo	McAllen	Brownsville
2.20	8.00	3.70	4.50	4.60	2.70
39.37	55.38	158.39	36.46	19.71	21.67
Tijuana	Nogales	Ciudad Juarez	Nuevo Laredo	Reynosa	Matamoros

The redeployment of the traffic from São Paulo and Rio, and from Colombia and Mexico to their peripheries is the best explanation of the rising homicide rates in Central America, the Caribbean, Venezuela, Minas Gerais, Espirito Santo, and Brazil's Northeastern capitals. Most of these areas have limited effective policing capabilities, either because of corruption and organizational ineffectiveness (Venezuela), or because of sheer lack of resources (Central America, the Caribbean, and Brazil's Espirito Santo and Northeast). Moreover, neither the United States nor Brazil's richest states have much of an incentive to support enforcement efforts on their peripheries.

While the drug rent as a whole may not be growing, the displacement of the main locus of competition to areas where states have limited capabilities could explain much of the change in homicide rates. As we saw before, however, one still needs to show why informal arrangements among competitors could not be reached in those areas, or how such arrangements may explain at least in part why violence diminished in other areas. The dynamics of private ordering, in sum, also need to be considered.

Here, the evidence is more patchy but an interesting picture can nonetheless be outlined. In Colombia and South-Eastern Brazil, it appears that the traffic and its management has seen very substantial modifications in recent years, all of which are consistent with a decline in violence. In São Paulo and Rio, specific gangs have essentially monopolized the traffic, in both cases, through a clever use of the prison system (de Souza, 2006; Amorim, 2007; Souza, 2006).¹¹ The Primeiro Comando da Capital or PCC (in São Paulo) and the Comando Vermelho or CV (in Rio) have taken over state prisons, fully in São Paulo and partially in Rio. Originally, like all prison gangs, the PCC and CV were set up as mutual defense arrangements within jails. Their progressive and often extremely violent take-over of their respective state's prison system, however, also enabled them to efficiently control criminal activities outside prisons, thanks to the high turnover that

¹¹ Burton and West (2008) propose a general model of prison gangs, based on Mexican gangs. While a detailed comparison remains to be done, their model I would argue, works much better in Brazil than in Mexico.

characterizes Brazil's criminal justice system. Once they controlled the jails, the gangs could literally "tax" most free criminals, by threatening retribution once, almost inevitably, those would spend time in prison. This enabled those prison gangs to effectively control crime over a huge area. The system appears to have been most functional in São Paulo, as the CV still appears to be struggling to fully control Rio's prisons. Still, this could well have been a very important factor in the dramatic decline of violence in both cities, although it is clearly difficult to get a precise idea of the scale of its impact. Similar innovations in informal regulation appear to also have been at play in Colombia. Here, the arrangements may have involved governments and traffickers at the local level, through the recycling of para-militaries into peace enforcers in the urban peripheries of Bogotá and Medellín.

By contrast, increased violence in Central America and the Caribbean can be traced to the deficient private ordering or the poor organization of informal cooperation. Many factors are at play: the local competition is very intense with a significant number of local groups as well as the involvement of external players, all of which seriously complicate the negotiation, monitoring and enforcement of agreements. The somewhat haphazard and US-driven police actions have only made things worse.

All in all, one can make sense of the relocation of homicidal violence in the Americas by focusing on different evolution of enforcement capabilities and on the emergence, in a few areas, of effective "technologies" of cooperation or in the particular change in the size of the gap between the ordering frontiers.

Conclusion

This paper has a number of limitations. To start with, the whole demonstration assumes that drug trafficking is tied to both the scale and distribution of homicides in the hemisphere. Lots suggest that this assumption is not farfetched, but it is impossible to rigorously trace those thousands of homicides to drugs and drug trafficking. My intent is to propose a coherent interpretation of the recent evolution of homicide rates in the region, not to provide a test of the validity of the mechanisms implied to be at work. The paper should thus be read as an honest and informed essay, not as a full-fledged demonstration.

The stories it tells are a bit patchy and they are based on limited information, especially about the value of the drug traffic and the dynamics of competition among traffickers and their relations with governments. Moreover, by looking at the whole region, it is doomed to consider only superficially the specific cases on which the broad argument is built. The problem is made worse by a key methodological assumption of its approach: averages and national-level data for large countries give a misleading picture of the dynamics of violence and of its determinants. Even broad comparative analysis must thus get close to the ground and as a result, the risks of selective indicator selection are greatly increased.

I make no apology for these problems. I simply cannot see how one could leave aside the issue of the value of the drug rent, or dismiss as irrelevant gangs relations with one another and with governments, only because data about them are patchy. The same holds about the reliability and comparability of homicide statistics. By giving more analytical weight to larger cities in larger countries, and by considering existing numbers as rough indication of scale for smaller constituencies, I see little reason why their use should be misleading. Finally, once it is clear that national-level level data give a twisted picture of the situation in large countries, and unless we drop the very idea of looking at the whole regional picture, there is not way to avoid selecting indicators in some cases that will not find their way into the analysis of others.

The limitations introduced by those choices are significant, but the stories presented here are certainly no more tentative than those based on the statistical analysis of a national-level statistics, however inflated the samples can be by using panel data. They are in fact strengthened considerably by the use of a relatively parsimonious theoretical framework: the indicators used to locate frontiers or the relative functionality of competition for assets may not be the same in each case, but their choice can all be justified (or challenged, for that matter) in a systematic way, by looking at the extent to which they provide or not good parameters for our general variables. Ultimately, moreover, there are only three explanatory variables in the model which, given the set of countries considered, leaves a large number of "degrees of freedom" to work with.

One last note about the model. When a paper is relatively explicit about assumptions, mechanisms, variables and indicators, the poor man's Popper raises his head, which for some reason it never does for papers that are confused or obscure about assumptions, mechanisms, variables and indicators. On a first reading, the model proposed here cannot be falsified directly, as the impact on levels of violence of each of the variables (e.g. the location of the enforcement frontier) can be sterilized by the effect of one or both the other two (location of the economic frontier and functionality of the competition). In other words, dysfunctional cooperation can still produce violence in the absence of a large space between the enforcement and economic frontier. Even an assessment of the three together, however, would possibly not enable one to question the general validity of the model. Indeed, while one could argue that if levels of homicides were high in a given space, while smuggling and drug trafficking there were insignificant, while gangs have perfectly smooth relations, and government policing is effective, the model would be falsified. But such a combination is almost blindingly impossible to imagine and the "test" of falsifiability would be missed. Does that mean that we may not learn something about the homicide dynamics by looking at it in this way? I doubt it.

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