The Costs of Crime and Violence

New Evidence and Insights in Latin America and the Caribbean

Laura Jaitman, Editor

IDB
Inter-American
Development Bank

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Institutions for Development

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TABLE OF CONTENTS

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PREFACE

The Latin America and Caribbean region has made progress in many socioeconomic areas over the past decade. Between 2004 and 2014, the majority of the countries had annual growth rates of nearly 4 percent, poverty rates fell, and citizens in the region became healthier and better-educated. In fact, the Millennium Development Goal of halving, between 1990 and 2015, the proportion of people living on less than US$1.25 a day was attained in 2008, seven years ahead of time.

Crime, however, increased. Latin America and the Caribbean remains the most violent region in the world, with a homicide rate of 24 per 100,000 population in 2015 – four times the global average. Despite the seriousness of the problem, the costs of crime and violence in the region have only recently received systematic attention. The costs of these high crime rates are significant: people change their behavior to avoid crime or engage in criminal activity, households spend to protect themselves from crime, firms reduce their investment and incur productivity losses, and governments shift the allocation of resources.

How large are the costs of crime and violence in Latin America and the Caribbean? How can they be measured? How can they be reduced? Estimations of the costs of crime are useful to raise awareness about the magnitude of the problem, position the topic on national and international agendas, identify areas for improvement in private and public resource allocation, and design better crime prevention and crime control policies.

Lack of security in Latin America and the Caribbean is a challenge for development. This is why the Inter-American Development Bank (IDB) is helping countries in the region to tackle the scourge of crime. Building a knowledge base is essential for assessing and tackling this challenge. The IDB has developed a citizen security research agenda aimed at advancing the frontiers of knowledge and producing valuable data and research that can be translated into better policy in the sector. Building on the work begun in 2012, the Bank published *The Welfare Costs of Crime and Violence in Latin America and the Caribbean* in 2015. This was the first step in developing a conceptual framework to estimate the costs of crime and provide systematic estimates of direct costs for five countries in the region, as well as indirect costs for some specific cases.

This new volume advances our knowledge in several key ways, responding in many cases to the demands of policymakers throughout the region. First, in contrast to the previous volume, the costs are calculated in a comparable manner for 17 countries (and in six developed countries used to benchmark the region for 2010-2014). Second, the calculations in this volume contain methodological advances in the measurement of all the components of direct costs to ensure cross-country comparability and obtain more accurate estimates of the three components of the costs of crime analyzed: social costs (lethal and non-lethal victimization and foregone income of the prison

population), private spending on security by businesses and households, and public spending (including the costs to the justice system, spending on police services, and spending on prison administration).

The overall estimates reveal that crime costs Latin American and the Caribbean countries 3 percent of GDP, on average, with a lower bound of 2.41 percent and an upper bound of 3.55 percent, and a wide range of variation that illustrates the heterogeneity of the region with respect to crime. The costs of crime in some countries (especially in Central America) are double the regional average, while in others, they are less than half. This represents a cost of up to US$236 billion (adjusted for purchasing power parity) or US$165 billion (at 2014 exchange rates) for the region considering the 17 countries analyzed, with an average cost of around US$300 per capita for each country. These costs are broken down as 42 percent in public spending (mostly police services), 37 percent in private spending, and 21 percent in social costs of crime, mainly victimization.

These estimates are conservative to allow for comparability among countries, and they only include a set of direct costs. Even so, the cost of crime in Latin America and the Caribbean is twice the average cost in developed countries. The region has higher social costs and double the private spending on security as a share of GDP. Public expenditure on security in Latin America and the Caribbean as a percentage of GDP is similar to that of the United Kingdom and the United States. However, as a share of total public spending, at 5 percent, the percentage of crime-related public spending in the region is almost twice the average for developed countries, demonstrating the priority that governments assign to providing citizen security in Latin America and the Caribbean. The efficiency of this expenditure is nevertheless questionable. While spending on education and health appears to be positively correlated with improved outcomes in those sectors, spending on citizen security has not been associated with improved security and lower crime rates. In fact, countries with similar spending levels may have completely different homicide rates, suggesting the presence of potential inefficiencies in public spending. The study also shows that private expenditure in the region correlates more than government expenditure with each country's crime situation, suggesting that the private sector has been able to adjust its security spending to the crime context more swiftly than the public sector.

This volume takes an in-depth look at specific geographic areas with high welfare costs stemming from crime. Brazil, with subnational estimates of the costs of crime for every state, exhibits as much internal heterogeneity as Latin America and the Caribbean as a whole. This volume also focuses on the subregion with the highest costs of crime in the region: the Northern Triangle in Central America (consisting of El Salvador, Honduras, and Guatemala). It then analyzes the subregion with the second-highest costs of crime, the Caribbean, highlighting its similarities and differences with Latin America. Other "old" and "new" security challenges are also discussed, including violence against women and cybersecurity. The region is behind in its readiness to tackle these serious issues. Finally the volume outlines the various forms of what is usually referred to as "organized crime," a phenomenon that operates in the region and could be exacerbating violence in some countries.

It is clear from this volume that crime in Latin America and the Caribbean is costly and

engenders multiple distortions for all economic stakeholders. The results highlight the fact that different policies, such as increases in public spending, may have different effects on crime. Robust impact evaluations of crime prevention and crime control policies must therefore be promoted and conducted to facilitate sound cost-benefit and cost-effectiveness analysis.

The region urgently needs to develop the knowledge to implement evidence-based public policies on citizen security. These cost estimates would provide a clear picture of the impact of crime and violence in the region and foster improvements in public policies that can ultimately reduce them.

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I. WHY IS THE ESTIMATION OF THE COSTS OF CRIME IMPORTANT? A RESEARCH AGENDA TO SUPPORT CRIME PREVENTION POLICIES IN THE REGION

Laura Jaitman and Philip Keefer

1.1 The Context

Latin America and the Caribbean (LAC) has shown progress in many socioeconomic areas in the last decade. Between 2004 and 2014, most countries in the region experienced annual growth rates close to 4 percent, poverty rates decreased, and LAC citizens became healthier and better educated. In fact, the Millennium Development Goal of halving, between 1990 and 2015, the proportion of people living on less than US$1.25 a day was attained in LAC in 2008, seven years early.

In contrast to these positive developments, however, crime in the region has increased. LAC continues to be the most violent region on earth, and the World Health Organization has deemed crime and violence in the region to be at epidemic levels. Despite the seriousness of the problem, though, the costs that crime and violence impose on the region have only recently received systematic attention. The contributions to this volume respond to this concern, presenting consistent evidence on the costs of crime and violence across 17 of the region's countries.

With a homicide rate reaching 24 homicides per 100,000 population in 2015, the region accounts for 33 percent of the world's homicides, despite being home to only 9 percent of the world's population. Robberies are on the rise in the region, and 6 out of 10 of them are violent. The LAC region is not an outlier with respect to crime because of its income and levels of income inequality relative to the rest of the world. Even when these are accounted for, the level of insecurity in the region is unusually high. One explanation for this is that

criminal justice systems fall short on standard measures of effectiveness: fewer than 10 percent of homicides in the region are resolved. Incarceration rates have soared and, as a result, LAC prisons have become the most overcrowded in the world, with inmate populations more than double the prisons' designated capacity. Given these statistics, it is not surprising that the LAC population's main concern is crime, even more so than unemployment or their countries' economic situations (Jaitman and Guerrero Compean 2015).

In the face of high crime rates, the costs of crime can be sizable: individuals change their behavior to avoid (or engage in) criminal activity, households and businesses spend to protect themselves from crime, firms reduce their levels of investment and incur productivity losses, and governments shift the allocation of resources to tackle the associated problems. The volume therefore asks: How large are the costs of crime and violence in LAC? Estimations of the costs of crime are useful for visualizing the problem, for identifying areas for improvement in the allocation of private and public resources, and for designing better crime prevention and crime control policies.

The Inter-American Development Bank, building on work started in 2012, first published estimates of the costs of crime in the region in 2015, in *The Welfare Costs of Crime in Latin America and the Caribbean* (Jaitman 2015). This first step constituted a systematic and rigorous analysis of the costs of crime and violence in LAC for five countries.

The current volume advances the discussion in several key ways, responding in many cases to the de-

mands of policymakers throughout the region. First, compared to the estimates in the 2015 volume, the costs are calculated here for many more countries, always following a comparable methodology. Second, the calculations in this volume incorporate methodological advances. Private cost estimations rely on a single international source, and the figures are adjusted for informality in national data to provide consistency across countries. Third, in order to estimate the social costs of crime, a rich data set has been constructed on the age and gender profile of homicide victims and the prison population; this permits more precise estimation of victims' and prisoners' foregone income and opportunity cost than was possible in previous work. Fourth, for public spending, national and subnational budgets have been analyzed in detail and systematic decisions made on accrued budget items, in order to include in data for every country the same expenditures. Fifth, evidence is presented related to specific geographic areas that account for a large part of the costs of crime in the region: Brazil (with state-level estimations), the Northern Triangle in Central America, and the Caribbean. Finally, the volume offers new insights into particular challenges the region faces, including the growing number of youth homicides, the penitentiary crisis, violence against women, and cybersecurity.

This chapter outlines a conceptual framework for interpreting the costs of crime that can be measured: what do they mean for citizen welfare? Past estimations of the costs of crime are then reviewed. Finally, the chapter presents the main contributions of the volume and outlines avenues for future research.

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1.2 A Conceptual Framework for Interpreting the Welfare Costs of Crime

In all domains of public policy, the objective is to improve citizen welfare, and public policy regarding crime is no different. When one speaks of the costs of crime, therefore, the concern is specifically with its welfare costs: how much does crime reduce the welfare of citizens? Unfortunately, it is difficult to measure citizen welfare directly. However, available data help us at least to approximate the welfare costs that crime

imposes on the public.

Nevertheless, the translation of cost data on crime into the welfare costs of crime is fraught with challenges. There is no unified methodology capable of incorporating all social losses simultaneously, and different methodologies produce different types of estimates. As a consequence, estimates of the welfare costs of crime vary widely and are rarely consistent from country to country. To ensure consistency, and to make transparent the connection between the crime costs that can be measured and the welfare costs that are of greatest concern, this section explains how the costs of crime measured in this volume contribute to the deterioration of citizen welfare.

Victims and criminals experience the costs of crime differently. Becker (1968), Stigler (1970), and Ehrlich (1973) depict the welfare consequences of crime for potential victims as a function of the probability of victimization, the amount of goods lost, and expenditures on public or private security and the justice system. The welfare losses for criminals, in contrast, are a function of the effort criminals devote to their criminal acts, the likelihood and severity of potential punishment, the loss and opportunity costs incurred (monetary or otherwise) due to capture, and expenditures on police and the justice system. These researchers then calculate the aggregate social welfare losses associated with crime as the difference in the total expected welfare of potential victims and criminals in the "no-crime" versus "crime" scenarios. In this context, the typical problem facing a government is how to allocate spending on crime prevention and punishment in a way that will minimize social loss. Appendix 1.1 provides a simplified theoretical framework, following Soares (2015), for understanding all the aspects involved in the comparison of the "no-crime" and "crime" scenarios.

There are several approaches to measuring crime costs. The most common is the accounting methodology, which most of the chapters in this volume adopt. Two additional methodologies, contingent valuation and hedonic prices, estimate the costs of crime as a whole (see Soares, 2015 and Jaitman, 2015, for a discussion of these).

The accounting methodology is very demanding in terms of its requirements to produce comparable data but captures a portion of the total costs of crime

(direct costs and, to an extent, indirect ones), so the results can be interpreted as lower-bound or conservative estimates. It quantifies the costs incurred by and losses experienced in economies that would not be observed in the absence of crime and then uses these to represent the direct welfare losses to citizens.

Examples of the accounting methodology abound in the literature. The long list includes Miller, Cohen, and Rossman (1993) for the United States; Londoño and Guerrero (1999) for Latin America (selected countries and cities, such as Caracas, urban Colombia, El Salvador, Lima, Mexico City, and Rio de Janeiro); Brand and Price (2000) for England and Wales; Mayhew (2003) for Australia; ISER (1998) and Rondon and Andrade (2003) for Brazilian cities (Rio de Janeiro and Belo Horizonte, respectively); World Bank (2003) for Jamaica; Altbeker (2005) for South Africa; and Bundhamcharoen et al. (2008) for Thailand. The costs of crime, as estimated by these studies, tend to range from 3 to 15 percent of annual gross domestic product (GDP). Olavarria Gambi (2015) presents estimates for five Latin American countries (Costa Rica, Chile, Honduras, Paraguay and Uruguay), finding an average cost of crime of 3 percent.

Studies using the accounting methodology vary widely in the data they consider and the specific approach they use. For example, most use a subset, but not always the same subset, of the following costs: expenditures on security (public and private); medical expenditures on treating injuries; wages lost by people incarcerated, incapacitated, or killed; value of property stolen or destroyed; and subjective costs related to pain and suffering. In addition, they vary in the degree to which they avoid double-counting (for instance, victimization costs in some studies include the cost of the police response, but this expenditure is usually also counted separately as part of public spending on police). Finally, they sometimes attribute welfare losses to costs that do not in fact reduce welfare (for example, they consider the total value of stolen goods as a welfare cost, even though these goods do not disappear and someone, if not the original owner, continues to derive utility from them).

This volume employs the accounting methodology in a systematic way for 17 countries, applying the methodology in a comparable way for the first time across multiple countries. By letting an economic model of welfare costs guide the measurement strategy, the volume is able to use theoretically grounded criteria to avoid double-counting and to identify the key costs that affect welfare. For example, the model takes into account government expenditures on citizen security, the average losses of victims and the probability of victimization, the probability of punishment, and the average duration of and opportunity costs associated with incarceration. Previous accounting-based estimates of crime do not take all of these into account (e.g., the opportunity costs of incarceration); moreover, the model excludes some costs that should not have been included in previous work (e.g., value of stolen goods).

Other strategies more directly measure citizen welfare but are more costly to implement and have their own ambiguities. The contingent valuation methodology uses subjective surveys of perceptions to try to uncover the value that individuals place on a particular public good. Since it theoretically reveals the value that individuals attach to a certain public policy outcome, the contingent valuation method does not require aggregation of different dimensions of the welfare costs of crime. Instead, it summarizes in a single number all dimensions that are relevant from individuals' perspectives, be they related to ex ante fear of victimization and change in behavior or to ex post losses due to injury or trauma. This method does not require knowledge of the specificities of a particular context in order to provide estimates and so yields comparable information across countries or over time.

However, hypothetical questions about how individuals would react under certain conditions, or how much they would value certain interventions, do not perfectly mirror real decision-making situations; for a variety of reasons, including the cognitive burden of answering these types of questions, respondents' answers may not correspond to their behavior when actually confronted with similar real-world events. However, it is worth noting that, for the United States, recent estimates from the contingent valuation method indicate that costs of crime are from two to seven times the magnitude of the estimates of the costs of crime based solely on the accounting methodology (see, for example, Cohen et al. 2004).

Hedonic price methods are a third strategy for assessing the welfare costs of crime, this time based

on people's actual willingness to pay for lower crime. Hedonic price models decompose the price of a good into its attributes, so that a value can be attached to each specific attribute. Researchers have applied these methods to estimate how much individuals are willing to pay to avoid a neighborhood with a certain level of crime. If individuals are willing to pay a certain value to avoid the level of crime associated with a specific area, it means that the welfare gain they experience from such a reduction in crime is at least as large as the additional value they are paying. Thus, hedonic price models provide an indirect estimate of the willingness to pay for reductions in crime rates or, in other words, the welfare loss associated with a certain level of crime.

One other advantage of the willingness-to-pay methods, whether contingent valuation or hedonic price, is that they can capture the indirect and intangible costs of crime more effectively than accounting methods. Typically, indirect costs include foregone income, opportunity costs, investments to reduce the risk of victimization, and other costs that can reasonably be considered to be the effects of criminal activity. In addition, crime and violence generate intangible costs: those that are not directly visible or measurable but that nevertheless have a large impact on the well-being and quality of life of persons and communities. Among the intangible costs frequently cited in the literature are pain, fear and suffering, the alteration of routines, personal and community underdevelopment, and lack of confidence in the institutions in charge of providing security.

Numerous studies show that the indirect or intangible costs of crime and violence are significant and tend to be concentrated in the most vulnerable population groups, exacerbating these groups' conditions of poverty and social marginalization. Jaitman (2015) reviews studies for developed and developing countries using willingness-to-pay methods.[1]

Owing to significant data limitations, the accounting estimates for the 17 countries evaluated in

this volume take only some indirect costs into account (e.g., the labor effort foregone of incarcerated criminals) and none of the intangible ones. The information collected herein on costs of crime is, however, in and of itself, of great interest to policymakers; it has been assembled for the first time for 17 countries, with rigorous controls for comparability. In addition, though, it provides a reasonably robust means for comparing the welfare costs of crime across countries and over time. That is, when the costs of crime are reported here as higher in one country than another, it can be asserted with some confidence that the welfare costs of crime are also higher in that country than in the other. However, there are certain caveats to this conclusion.

One caveat is that government expenditures to reduce crime are not optimally set in any country: they are either too high or too low and either more or less efficient. As a consequence, the measured welfare costs of crime may be high not because of crime itself, but because the government response to crime is suboptimal. Hence, countries with equal measured welfare costs of crime need not be countries where government performance in improving citizen security is identical.

On the other hand, governments might, for reasons unrelated to the threat of crime in their societies, lavish resources on the security sector far beyond what the crime situation demands. Drops in spending would in such cases have little impact on crime rates, and it is the excess spending, rather than crime itself, that reduces citizen welfare. Alternatively, governments might devote too few resources to citizen security, such that small increases in spending might have large negative effects on crime. Again, in such cases, one could argue that welfare losses are due to policy failures rather than crime itself. Finally, government spending might be more efficient in some countries relative to others. In countries where spending is inefficient, increases in efficiency could reduce both spending and crime. Therefore, to assess their effect on welfare, it is important to measure the marginal costs and effects of policies that aim at reducing crime.

A second caveat is that there are potentially large distributional effects that vary in observed ways from country to country. For example, the assumption that only those who make private expenditures bear their

(1) A number of studies examine indirect and intangible costs for LAC. For instance, Robles, Calderón, and Magaloni (2013) analyze the impact of drug violence on municipal economic performance and employment in Mexico. Ajzenman, Galiani, and Seira (2015) use hedonic prices to assess the impact of homicides in Mexico. Finally, Foureaux Koppensteiner and Manacorda (2013) examine the effect of violence on infant health in rural areas in Brazil.

welfare costs may be invalid. When some citizens invest significantly in crime protection, they make other citizens relatively more attractive targets for criminals. Government expenditures may be tilted toward one population group or another and may be financed by distinct tax systems with significantly different welfare implications. Although the scope of this volume is not to explore distributional effects, it is important to consider these potential effects in future work.

The data and the scope of this volume is not sufficient to address these two caveats, but it is important to keep the caveats in mind when interpreting measures of the direct costs of crime as measures of welfare or of the efficacy of government policies toward crime.

A third caveat, true for all measures of the direct costs of any public policy or social phenomenon, is that the exclusion of indirect and intangible costs may skew the measured welfare costs differently in some countries relative to others. For example, crime may have a larger economic impact in countries that rely on tourism compared to countries that depend on heavy manufacturing. The estimates in this chapter cannot take these differences into account.

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1.3 About This Volume

This volume addresses the costs of crime from numerous points of view. In Chapter 2, Jaitman and Torre use the accounting methodology described in the preceding section to estimate the costs of crime for 17 LAC countries over the period 2010-2014. They focus on three types of costs: government spending, household and business spending, and costs to victims and criminals.

The first component of the cost estimations in Chapter 2 is the social cost of crime, which is comprised of victimization costs due to actual crimes (homicides, robberies, assaults) and the income foregone by those imprisoned for engaging in these crimes. Victimization costs are the tangible and direct economic costs of crime, but not the indirect costs (of quitting a job because transport is too dangerous, for example, or of income lost by the victim's family) or the intangible costs (such as fear and anxiety). They amount,

on average, to 0.48 percent of GDP in the chapter's sample of 17 countries, but that sample shows a great degree of heterogeneity: Honduras, for instance, has victimization costs that exceed 2 percent of GDP, whereas Chile has figures below 0.10 percent of GDP. In terms of the imprisoned population's foregone income, the average figure for LAC is about 0.19 percent of GDP.

The second component studied is private spending on security. Firms and households spend between 0.82 percent and 1.42 percent of GDP on crime prevention each year, on average, in LAC. Private costs are 0.69 percent and 0.70 percent of GDP, by comparison, in the United Kingdom and United States. The magnitude of spending on crime prevention suggests that private expenditures may impose costs, as well, on households and firms that do not purchase private security.

The third component examined involves government expenditure: how much do governments spend on citizen security, taking into account expenditures on administering justice, providing police services, and building and managing prisons? On average, the authors estimate that countries in LAC spend about 1.45 percent of their GDPs on crime-related public expenditure, of which 1.08 percent goes to police services, while crime-related justice costs and prison administration costs represent about 0.20 percent of GDP on average. A country's private costs correlate more than its government costs with its crime environment, suggesting that the private sector's behavior is more flexible in adapting to changes in the countries' crime situation than the public sector.

The earlier discussion suggests that interpreting the estimated welfare costs of crime depends significantly on the optimality of government policy whit respect to both the magnitude and the efficiency of spending. In fact, as noted previously, LAC's public expenditure, in terms of percentage of GDP, is similar to that of the United Kingdom or the United States. However, expressed as a share of total public spending, the percentage of crime-related public spending in LAC—at 5 percent—is almost twice the average for developed countries, showing the priority that LAC governments attach to the provision of citizen security. The efficiency of such expenditure is, however, questionable. Whereas spending on education and health appears to be positively correlated with improved out-

comes in those sectors, spending on citizen security has not been associated with better crime outcomes: in fact, countries with similar levels of spending may experience completely different homicide rates, suggesting the presence of potential inefficiencies in public spending.

The overall cost estimates reveal that crime costs LAC countries, on average, between 2.41 percent and 3.55 percent of their GDPs. This is equal to an amount for LAC between US$115 billion and US$170 billion (at 2014 exchange rates) or between US$175 billion and US$261 billion (adjusted for purchasing power parity). The size of crime-related costs in LAC is similar to what those countries spend on infrastructure and is roughly equal to the share of the region's income that goes to the poorest 30 percent of the population. These cost estimations provide a clear picture of the impact of crime and violence in LAC and should foster improvements in public policies that can ultimately reduce them.

One of the underlying drivers of high crime costs is homicide rates, which are the focus of Chapter 3, by Jaitman and Torre. Every time a homicide is committed, the immediate consequence is the irreversible loss of human life it entails. But as mentioned previously, estimates of the welfare costs for the society as a whole also have to consider the associated economic cost: the foregone productivity of homicide victims.

Who are the victims of homicide? Overall, in the 17 countries studied, about 90.5 percent of the victims are males and 9.5 percent are women. Regarding age groups, 50 percent are between 15 and 30 years old. In particular, 46 percent are males in that same age bracket.

Homicides therefore disproportionally affect males between the ages of 15 and 30, the population group with the highest labor productivity: those of young, working age. This makes their murder particularly costly for the society as a whole and has implications for the future in terms of human capital development and growth, particularly in those countries where homicide rates have been described as epidemic.

The costs of incarceration also receive special attention in Chapter 4, by Jaitman and Torre. Many governments have responded to high crime rates with tougher sentences and more incarceration. However, incarceration is costly and is not necessarily cost-ef-

fective in combating crime compared to other policies (see, for example, Nagin, 2015, and White House Council of Economic Advisers, 2016). If incarceration policies and practices are not properly implemented, the impact on society over time could be even greater in terms of crime and violence.

In Chapter 4, the authors conclude that in the 17 countries included in the study, the sharp increase in the number of inmates in the region in recent years has increased the costs incurred by society: on the one hand, more money has been assigned out of the public budget to the administration of penitentiary systems in the region; on the other hand, the increase in incarceration of working-age people has deprived society of the income these people would have otherwise earned. Additionally, it is not clear that incarceration policies have had a significant effect on crime, since neither are they particularly directed toward "career criminals," who would with high probability commit further crimes once released, nor are they particularly successful in reintegrating the incarcerated back into society upon their release from imprisonment. As a consequence, the high costs of incarceration, including the foregone income of the imprisoned, raise questions regarding the efficiency of penitentiary policy in various countries across the region. There seems to be space, however, to think of reforms that simultaneously reduce the levels of violence and incarceration costs in many of the countries in Latin America and the Caribbean.

In Chapter 5, Caprirolo, Jaitman, and Mello focus on the costs of crime in Brazil, the LAC country with the highest costs of crime in nominal terms. Violence accounted for US$76,068 million in losses to the country in 2014 in a conservative scenario, representing 53 percent of the total cost of crime in Latin America and Caribbean and 78 percent in the Southern Cone. This high figure can be partly explained by the country's continental dimensions, since about half of the population of the region lives in Brazil and the country accounts for 43 percent of the region's GDP and 39.5 percent of its homicides. In relative terms, crime costs an amount equivalent to 3.14 percent of Brazilian GDP, a rate slightly above the Latin American and Caribbean average (3.06 percent) and much higher than the Southern Cone average (2.47 percent). The costs of crime across Brazilian states and regions show the

same heterogeneity as those in Latin America and the Caribbean as a whole. Some states show a cost close to 2 percent of their GDP and, in others, crime costs three times as much. The heterogeneity shows up not only in terms of the share of GDP the costs represent, but also in terms of their composition: in some states social costs, mainly homicides, represent a relatively large share, while in other states it is public or private spending on security that dominates expenditure.

Discussions of crime in the region have often focused a spotlight on the Northern Triangle countries (El Salvador, Guatemala, and Honduras); notably, crime in the area has triggered significant immigration of Central Americans into the United States. Honduras and El Salvador, in particular, have homicide rates (60 and 103.3 per 100,000 population in 2015, respectively) significantly above the regional average (26). This delicate situation has a negative effect on the economies of the three countries, with crime and violence imposing direct welfare costs of 3 percent of GDP in Guatemala, 6.1 percent in El Salvador, and 6.5 percent in Honduras, according to the estimates of Chapter 2 (though these estimates do not include the indirect costs of emigration).

Granguillhome analyzes in Chapter 6 what is behind these high costs of crime in the Northern Triangle. The chapter also highlights the cross-country and intracountry variations among the three Northern Triangle countries with regard to homicides, assaults, and victimization rates. While Honduras, once the most violent country in the world, has shown significant decreases in homicides, El Salvador's homicide rate has gained momentum since the gang truce that went into effect in 2012 and has surpassed Honduras's homicide rate. Guatemala's homicide rate, in contrast, has remained fairly consistent in the past couple of years.

The careful allocation of crime prevention resources to where they are most needed is a key attribute of efficient government spending. As Chapter 6 points out, even though all three Northern Triangle countries have homicide rates well above the regional average, the distribution of homicide incidence differs significantly across municipalities. The concentration of crime in specific geographical regions is a well-known phenomenon; the information in the chapter about intermunicipality differences argues for more-targeted crime prevention policies in the region.

Finally, the chapter sheds light on the overall situation of each country's penitentiary system, providing evidence of the lack of institutional capacity to cope with the surging numbers of inmates, and as a result, high levels of expenditure and costs incurred by society and the economy, as explained in the remaining chapters.

In recent years, citizen security in the Caribbean has also deteriorated and, as Chapter 2 demonstrates, the highest costs of crime in the LAC region are generally found among the Central American and Caribbean countries. In Chapter 7, Sutton explores the composition of the estimates of social costs, private costs, and government costs in the Caribbean. Homicide data from official police records, as well as survey data on victimization of individuals and businesses, are used to diagnose recent crime trends and their impact on society and the economy. Several conclusions can be drawn from this analysis: (1) high social costs are driven specifically by high levels of violent crime, which is in turn related to the easy availability of handguns in Caribbean countries; (2) crime affects a large portion of the private sector, in terms of both direct losses and the costs of private security; and (3) relatively high government expenditure on combating crime is focused overwhelmingly on police, with comparatively small budget allocations going to the justice sector and prevention.

As the Latin American and Caribbean region progresses into the future, new forms of crime (in particular, violence against women and cybercrime) intertwine with the old to create new obstacles to development. The final chapters of the volume address these new forms of crime.

Violence against women takes many forms, from psychological abuse to femicide, and includes a wide range of criminal offenses, from domestic violence to sexual assault. According to the World Health Organization (2013), 29.8 percent of women in LAC have experienced physical or sexual intimate-partner violence or both during their lifetime, 11.9 percent have experienced violence at the hands of someone other than an intimate partner, and about 10 percent of the homicide victims in the region are women. These high figures illustrate the seriousness of the problem, which also generates high welfare costs. Violence against women has innumerable intangible and indirect costs that are difficult to measure, including negative im-

pacts on women's and children's health outcomes. Even the direct costs, though, are substantial. In Chapter 8, Jaitman reports the results of a simple exercise that estimates the direct social costs of violence against women. Since female homicide rates in the region are almost twice the world average of 2.3 female homicides per 100,000 women, they yield direct costs amounting to 0.31 percent of GDP for the region vis-à-vis the world total cost of 0.12 percent of GDP. The chapter also presents the results of studies that calculate the costs of violence against women worldwide.

In Chapter 9, Lewis indicates that the region lags significantly in its readiness to confront violence against women, a phenomenon that has long plagued the region. The region is also behind in addressing another emerging crime threat: cybercrime. In recent decades, the Internet has assumed a prominent role in the economies of both developed and developing countries. However, cyberspace has also created a unique opportunity for criminals, who take advantage of the Internet's speed, convenience, and anonymity to commit criminal activities that know no borders, either physical or virtual. Though not violent, these crimes cause serious harm and pose significant threats to victims worldwide (Interpol 2016). According to the Center for Strategic and International Studies and McAfee (2014), the cost of cybercrime ranges between US$375 billion and US$575 billion annually worldwide and is about US$90 billion a year in LAC (Prandini et al. 2011). Although estimating the costs of cybercrime is beyond the scope of this volume, given these high figures, the growing importance of this issue, and the vulnerable situation of Latin America and the Caribbean in terms of cybersecurity, Lewis offers a brief introduction on the topic and directions for future research. The chapter focuses on defining cybercrime and cybersecurity and presenting methodologies to measure their costs. It concludes with an analysis of the situation in LAC regard to cybersecurity and what could be done to improve it.

Finally, organized crime and in particular drug trafficking are often related to the high level of homicides in the region. However, this relationship is not straightforward or causal, according to the existing literature. In Chapter 10, Leggett, Jaitman and Mejía Guerra describe some features of the broad concept of "organized crime" to show that in LAC, a wide range of groups with diverse motives may be underlying the upward trend of homicides in some countries. The chapter illustrates the various types of groups that exist in the region through case studies that reinforce the idea of the complexity and heterogeneity of this crime phenomenon.

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1.4 Avenues for Future Research

A single volume of this size cannot possibly touch on all of the ways in which the costs of crime undermine economic development and social welfare. Still, it is clear that some emerging areas will demand significant analytical attention in the near future. One is the effect of crime on productivity. Crime can affect firms in numerous ways. The usual focus is on firm investments in security, whether in the form of guards or of capital investments such as cameras and secure buildings. In addition, though, crime can drive down demand, as customers fear that they themselves will be victimized if they patronize a particular business. It can also raise labor costs, if workers demand extra compensation to offset the security risks they assume in trying to get to work. And it can increase innovation and investment costs as well, if firms are concerned that their investments will be expropriated by extortionists. Moreover, as this list makes clear, the costs of crime for firms depend on the type of crime. Research on each of these questions is incipient.

One particular type of crime has received significant attention from development economists, public administration specialists, and political scientists, but little from experts in citizen security: corruption. In particular, corruption has not been assessed using any of the methodologies aimed at quantifying the costs of crime. The rationale for making such assessments is straightforward: law enforcement and crime prevention efforts should be directed where the costs of crime are greatest, unless those efforts are particularly ineffective for some reason. Without a calculation of the costs of corruption that follows the same systematic approach as that for the costs of other types of crime, it is not possible to make these kinds of comparisons. The importance of making them is heightened by the fact that security policies in every country tend

to focus security resources on street crimes, generally committed by poorer people, and less on corruption, generally the domain of citizens from the upper strata of society.

It is clear from this volume that crime in LAC is costly and engenders multiple distortions for all agents in the economy. The volume also highlights that various policies, such as increases in public spending, may have diverse effects on crime across countries and regions. Therefore, for future research it is important to promote and implement impact evaluations of crime prevention and crime control policies to perform robust cost-benefit and cost-effectiveness analysis (see Nagin, 2015, and Dhaliwal et al., 2013). It is urgent to build the required knowledge to apply evidence-based public policies in the region, especially in the area of citizen security, where demands are pressing and research has been scarce.

Finally, theory regarding costs of crime and more generally regarding crime economics still exhibits important gaps. In general, crime issues are studied in partial-equilibrium settings, but the interconnectedness of agents' decisions requires general-equilibrium approaches. There are many open questions as to how to measure the difference in terms of welfare of a crime versus a no-crime scenario. Along these lines, Galiani, Jaitman, and Weinschelbaum (2016) show that crime produces market and nonmarket externalities that affect the social optimum level of welfare.

Although the crime economics literature has advanced in studying both theoretically and empirically how potential criminals respond to incentives (threat of tougher sanctions, experience of incarceration, education and employment), very little is known with regard to the other side of the market: the supply of stolen goods, mainly the stolen goods market. The degree of informality in a particular economy may play an important role in this regard, even more so in LAC.

These are some important dimensions to develop further in future empirical and theoretical research to promote a better understanding of the welfare costs of crime, in LAC and elsewhere, and the effect of policies aimed at reducing it.

Appendix 1.1.
A Conceptual Framework for the Costs of Crime

Soares (2015) develops a very simple economic model of crime in the tradition of Becker (1968), Stigler (1970), and Ehrlich (1973) to shed light on the conceptual content underlying the estimates of the costs of crime usually calculated in the empirical literature. This model encompasses both direct and indirect costs of crime and therefore offers a general framework for interpreting the welfare costs of crime. This appendix focuses only on those costs that are direct.

Consider an agent with preferences defined over two goods, c and y, that can be represented by the following utility function:

$$V_n(c, y) = \alpha \ln c + y, \tag{1.1}$$

where α is a constant and the subscript n denotes the no-crime scenario. The individual's objective is to maximize utility function (1.1) subject to the budget constraint

$$pc + y = m, \tag{1.2}$$

where p is the price of good c, m is income, and the price of y is normalized to 1. Given the quasi-linearity of the utility function, y can be interpreted as income spent on all other goods apart from c, or, alternatively, as the utility of the money that is not used in purchasing good c. In an interior solution within this formulation, there is no income effect in the demand for c.

Therefore, any loss of income is reflected exclusively in a reduced demand for y.

From the first-order conditions for the optimal individual choice in this problem, it is easy to see that the Marshallian demands for these two goods in the no-crime scenario are given by

$$c_n = \alpha/p, \tag{1.3}$$

and

$$y_n = m - \alpha. \tag{1.4}$$

Now consider the scenario with positive incidence of crime.

Victims
Suppose that there is, potentially, some positive incidence of crime in this economy. To simplify the discussion, assume that good c can be stolen and good y cannot. This may seem reasonably appealing if one thinks of c as corresponding to conspicuous goods that can be physically seized—such as jewelry, cars, money, and cell phones— and of y as representing real estate, financial investments, and other fixed assets. In this spirit, suppose that c is the good that is targeted by criminals. We assume that the probability of being victimized, $\pi(c)$, is an increasing function of c. If victimized,

the individual has an amount x of good c stolen and, in addition, experiences a subjective welfare loss of σ (measured in monetary units). Assuming that the individual takes x as given, the expected utility of a potential victim is given by

$$V_c(c, y) = \pi(c)[\alpha\ln(c - x) + y - \sigma] + (1 - \pi(c))[\alpha\ln c + y]. \tag{1.5}$$

First-order conditions for the individual's problem determine optimal consumption c_c implicitly from

$$\frac{\alpha}{c_c} - p + \pi(c_c)\frac{\alpha x}{c_c(c_c - x)} + \pi'(c_c)\left[\alpha \ln\left(\frac{c_c - x}{c_c}\right) - \sigma\right] = 0. \tag{1.6}$$

The first two terms in this equation are identical to the solution in the no-crime scenario discussed previously, and the last two terms represent the responses of the optimal choice of c to the possibility of victimization. The third term, which is positive since $c_c > x$, indicates that the equilibrium consumption of c must take into account the loss of utility in the event that c is stolen. The fourth term, which is positive because $\pi(c)$ increases with c, accounts for the fact that the optimal choice of c also directly affects the probability of victimization, which is in turn associated with a reduction in consumption and with the utility loss σ.

The third and fourth terms in equation (1.6) represent the direct welfare losses from crime to a potential victim. Their relative importance is likely to vary across different types of crime.

There are other costs of crime that would, in a model such as this, also reduce the consumption of y. This would be the case, for example, with expenditures on public and private security, which would enter the budget constraint as taxes or additional personal expenditures. Given the quasi-linear preferences, these would again be reflected entirely in reduced demand for y.

Criminals

Consider now the problem of a criminal. Suppose that criminals choose the amount x to be stolen, but that x has to be "produced" with an effort e that reduces utility. The negative effect of effort on utility may derive from actual work or from moral or social norms that attach stigma to criminal activities. Suppose that a criminal's preferences over x and e can be represented by the instantaneous utility function

$$u(x, e) = \beta x - e, \tag{1.7}$$

where β is a constant. Suppose, in addition, that criminals can generate gain x according to the production function

$$x = \ln e. \tag{1.8}$$

Assume now that criminals may be caught with probability $\theta(e, s)$, which is increasing in e and s, the latter being defined as expenditures on some public safety tech-

nology (e.g., a police force). If criminals are caught, they lose whatever they might have stolen and face a punishment corresponding to a utility loss δ. Generally, δ would also be produced by some technology associated with the public justice system (and some corresponding expenditure j). In this setting, a criminal's expected utility is given by

$$P(x, e) = \theta(e, s)(-e - \delta) + (1 - \theta(e, s))(\beta x - e). \qquad (1.9)$$

If criminals take s, j, and the individuals' choices of c as given, the first-order condition characterizing the optimal choice of e, represented by e^*, is

$$.P(x,e) = (1 - \theta(e^*,s)) \frac{\beta}{e^*} - 1 - \frac{\partial\theta(e^*, s)}{\partial e}(\delta+\beta\ln e^*)=0. \qquad (1.10)$$

Costs of crime typically analyzed in the literature include expenditures on police and the criminal justice system (s and j) and sometimes the losses associated with the punishment of criminals (δ) and the value of goods stolen or lost (x). Since the focus here is exclusively on direct costs of crime, the following analysis ignores δ.

The analysis abstracts from some nontrivial issues here. First, it does not allow for extensive margin choices, so the number of criminals and potential victims is fixed (with the former smaller than the latter). Second, it ignores the issue of matching between victims and criminals. In order to make this compatible with the assumption that π is increasing on c, one may assume that there is a unit interval of potential victims who are randomly drawn by criminals with probability proportional to c. Finally, the analysis assumes that s affects the probability that a criminal gets caught but not the probability of victimization. This comes immediately from the fact that the analysis does not allow for extensive margin adjustments. So s affects x, but not the number of crimes committed. This is certainly the most limiting of the simplifying hypotheses. Still, the framework presented here is able to highlight the main issues in the discussion of the content of estimates of the welfare costs of crime.

Welfare Costs of Crime

Taking the public expenditures on security s and j as given and incorporating them into the victim's budget constraint, an equilibrium in this economy can be defined as a vector (c_c, y_c, e^*), such that

i.   (c_c, y_c) maximize $V_c(c, y)$, given e^*, subject to $pc + y + s + j = m$; and

ii.   (e^*, x^*) maximize $P(x, e)$, given c_c, subject to the production function $x = \ln e$.

One of the most commonly used measures of the welfare costs of crime can be interpreted as trying to assess the difference in the welfare of potential victims across the no-crime and crime scenarios. In terms of the model employed in this appendix, this concept, which is equivalent to the aggregate social loss due to crime, can be expressed as

$$L_V = s + j + \pi(c_c)(\sigma + px) + p(c_n - c_c), \qquad (1.11)$$

with the subscript *V* representing victims. The components of this aggregate cost are (1) expenditures on the criminal justice system associated with prevention and punishment of crimes, represented by the variables *s* and *j*; (2) direct utility losses from victimization, including psychological costs due to trauma and fear and physical costs due to injury and death, captured by σ (which occur with probability $\pi(c_c)$); (3) the value of goods lost or destroyed, represented by *px* (which also occur with probability $\pi(c_c)$); and (4) the change in behavior to try to reduce the risk of victimization, corresponding to a reduction in the consumption of *c* from c_n to c_c and representing a welfare loss of $p(c_n - c_c)$. Most estimates available in the literature try to get at the first three terms in this expression.

Whether *x* should be counted as a social loss or a transfer of resources within the economy depends on the weight attributed to the welfare of criminals. As argued by Glaeser (1999), part of *x* certainly represents a net social loss, since consumers—who purchase the good in the market—typically value it more than criminals. The analysis here follows the most common approach and does not consider the benefit that criminals derive from the stolen property, so *x* is considered entirely as a social loss.

More generally, the discussion related to criminals in the applied literature does not follow what theory would suggest. From a conceptual perspective, social costs of crime should include the effort allocated to crime *e* and the punishment δ imposed on criminals. Some estimates try to assess certain dimensions of δ, such as the opportunity cost of individuals incarcerated or incapacitated as a consequence of involvement with crime. But in addition, δ also captures direct utility losses from incarceration and other types of punishment. As for *e*, it is best understood as reflecting the goods that could have been produced with the time and effort that criminals allocate to the planning and execution of crime had they allocated this time and effort instead to production, generating value added. The theoretical counterpart of the welfare loss associated with criminals is

$$L_c = e + \theta(s, e)\delta, \qquad\qquad (1.12)$$

where the subscript *C* represents criminals. The vast majority of estimates of the costs of crime in the literature can be mapped into some of the concepts discussed earlier and rely basically on the comparison between a no-crime and a crime scenario. This is indeed an intuitively appealing comparison that highlights the aggregate social cost associated with the existence of crime.

The problem facing a government in relation to any dimension of public policy is how to allocate resources in order to maximize social welfare. Optimal allocation of resources can usually be characterized by the equality between marginal benefits from expanding a certain policy and marginal costs associated with this expansion. As it relates to the model outlined in this appendix, this logic would imply that governments should choose *s* and *j* by weighing their marginal benefits (from reduced criminal activity) against their marginal costs (from reduced consumption due to increased taxes). This would be equivalent to choosing *s* and *j* in order to minimize the aggregate social loss as represented by $L_v + L_c$.

A key issue in interpreting the empirical evidence regarding the costs of crime, including government expenditures to combat crime, is the degree to which these expenditures are optimal. In countries where governments neglect law enforcement and crime prevention, the observed costs of crime may appear to be low, but in fact citizen welfare would rise if government expenditures increased. In contrast, where governments shower security institutions with resources even when crime threats are low, the measured costs of crime will be high, but they are the product of government decision-making, rather than of criminal activity.

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Part I

Estimation of the Direct Costs of Crime and Violence

Laura Jaitman and Iván Torre

ESTIMATION OF THE DIRECT COSTS OF CRIME AND VIOLENCE

2   A Systematic Approach to Measuring the Costs of Crime in 17 Latin American and Caribbean Countries

Laura Jaitman and Iván Torre[2]

What exactly are the social costs of crime and how can we measure them? These costs certainly include the direct costs as a result of crime: injury, damage, and loss. There are also costs in anticipation of crime, such as public and private expenditure on security. And there are costs in response to crime, such as the cost of the criminal justice system. We should also take into account other indirect or intangible costs such as changes in behavior due to the fear of crime or the costs to the families of victims. Indeed, there are probably many other consequences of crime that are costly and should be considered, including the possibility that what people are willing to pay to reduce crime may sometimes even be much higher than what the aggregate costs of crime to society actually turn out to be.

The incidence of crime, as well as the fear of crime and violence, thus induces many distortions in the economy (Jaitman 2015). The focus of this chapter

is on the costs, valued monetarily, that crime and violence impose on society. More specifically, this analytical perspective encompasses the costs, expenditures, losses, and investments incurred by households, firms, and the State in relation to crime. The crimes analyzed are those committed against persons and property, with a particular focus on homicides, rapes, robberies, and assaults.

The aim of this chapter is to provide comparable estimates of the welfare costs of crime and violence in 17 countries of Latin America and the Caribbean (LAC) using the accounting method, also known as the method of losses and expenditures. The countries included are Argentina, The Bahamas, Barbados, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Paraguay, Peru, El Salvador, Trinidad and Tobago, and Uruguay. The countries were selected for having comparable information that would allow us to pursue this research project. All the subregions of the continent are represented and the sample includes countries with high, medium, and low crime levels.

The analysis does not aim to establish exact amounts, but rather to identify orders of magnitude of crime and violence in a given country or community. This is because, on the one hand, crime in practice is an evolving and dynamic phenomenon, which makes the task of identifying monetary measures and their consequences more difficult. On the other hand, it is important to note that the information necessary to estimate the cost of crime is complex and difficult to obtain, often leading to the use of indirect estimation methods. In this chapter we use public information from the 17

countries and the same methodology. Therefore the estimates provided can differ from other estimates for the same countries and the same years as other sources of information and other assumptions may be used, so comparisons with other estimates of costs of crime should consider these differences.

This is the first attempt to systematically study the costs of crime for so many countries in Latin America, and it is the first study to include a group of Caribbean countries. We obtain an average cost of crime per country in 2014 of 3 percent of GDP, with a lower bound of 2.41 percent and an upper bound of 3.55 percent. There is wide variation between countries, illustrating the region's heterogeneity in terms of crime. In some countries the costs of crime are double the regional average (especially in Central America), while in other countries the costs are less than half that average. The cost of crime represents, for the region as a whole, a total of US$174 billion in purchasing power parity (PPP), which is approximately US$300 per capita on average. This cost is comprised of 37 percent in private costs, 42 percent in public spending, and 21 percent in social costs, with the latter due mainly to victimization.

This is a conservative estimate that is comparable across countries and provides a lower bound of the direct welfare costs of crime and violence in the region. We hope this conservative estimate serves as a benchmark to raise awareness about the severity of this problem and as a baseline to measure changes in the costs of crime in order to shape future crime prevention and control interventions.

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2.1 An Accounting Classification of Crime-related Costs

Accounting is the most commonly used strategy to estimate the welfare costs of crime (see Soares 2015 and the first chapter in this volume). It is, in short, a straightforward application of the logic of comparison between the "no-crime" and "crime" scenarios. Its basic justification can be summarized in two points: (1) there are costs incurred by economies or losses experienced by them that would not be observed in the absence of crime; and (2) these costs represent direct welfare losses that should not occur and resources that potentially could be used for other purposes. The specific dimensions considered in each study using the accounting methodology vary widely. In this study, we will classify the costs of crime in three different categories that will provide a conservative estimate given the available information:

- *Social costs of crime*, which include the costs of victimization in terms of quality of life loss due to homicides and other violent crimes and the foregone income of the prison population.
- *Costs incurred by the private sector*, which include the expenditure of firms and households on crime prevention, namely spending on security services.
- *Costs incurred by the government*, which include public spending on the judiciary system, police services, and the administration of prisons.

Other costs usually included in the estimates of the accounting methodology are the value of stolen goods. It is important to point out that in this analysis we do not include the value of stolen goods because they represent a transfer of the good from the legal to the illegal owner. Although there are necessarily efficiency losses involved – the stolen good does not have the same value in the hands of the illegitimate owner that it does in the hands of the legitimate one – we do not have sufficient information to estimate these costs or the difference between the value of the goods in the legal and stolen good markets.

Previous literature that estimated the costs of crime in Latin America includes Olavarria Gambí (2015), who provides estimates for 2010 for Chile, Costa Rica, Honduras, Paraguay, and Uruguay using a methodology similar to the one we employ here and obtains comparable results of an average burden of around 3 percent of GDP for those countries. Unlike that study, our analysis does not include the value of stolen goods, which is generally very imprecisely estimated and conceptually inaccurate, as there is a partial loss to the economy of this transfer from the legal to the illegal owner. Our study also improves the actual estimation of social costs by using richer data on the characteristics of victims and more compara-

ble data on victimization and the prison population. In addition, we expand the list of countries studied from five to 17, including countries in the Caribbean. Other studies with a similar methodology were conducted almost a decade ago or more, including Londoño and Guerrero (2000) and Acevedo (2008). The estimates by Londoño and Guerrero, which date to the late 1990s, are very heterogeneous and put Colombia as having the highest cost of crime at about 11 percent of GDP. This corresponds to a period in Colombian history when guerrilla- and paramilitary-fueled violence was very high. Acevedo focuses on Central America and estimates an average direct cost of crime of 5.5 percent for the region in 2006. This figure is in line with our estimates, considering that Acevedo includes the value of stolen goods in the estimation.

2.2   Estimate of the Direct Costs of Crime in 17 Countries of the Region

2.2.1 Social Costs

In this chapter, the social costs of crime refer to a variety of costs that affect the overall economy as a consequence of crime. The most important of these are victimization costs, and they are interpreted as the income foregone by individuals who were victims of crimes. Another set of social costs corresponds to the income foregone by imprisoned individuals who are not doing productive activities for the economy.

The estimation of income foregone due to victimization uses the human capital methodology and health burden studies. These studies make it possible to identify the years of healthy life lost (DALYs) due to premature death (YLLs) or to becoming disabled (YLDs) (World Bank 1993). Of course, lost income 10 years from now is less valuable than lost income tomorrow. However, the estimates of DALYs already include a social discount rate that takes this into account and is necessary to calculate the present value of future losses. Dolan et al. (2005) estimate the loss in terms of healthy years of life – the DALYs – for a series of crime events that include murder, rape, robbery, and assault. These are the four types of crimes we will take into

account in our analysis. In order to produce a monetary value for these estimates, we value a healthy year of life as the average annual income of a person with the same age and gender as the victim. For the case of nonfatal events like rape, robbery, and assault this is straightforward. For the case of homicide victims, given the life cycle of income, this calculation may overestimate the income foregone by older victims (whose annual income at the moment of their premature death is probably higher than what they would have earned in the following years) and may underestimate the income foregone by younger victims (whose annual income at the moment of their premature death is probably lower than what they would have earned in the following years). The methodology is explained in detail and the caveats of the estimations are stated in Chapter 3.

We combine three different sources for the estimation of foregone income due to victimization. The first consists of the victimization figures reported by the Caribbean Crime Victimization Survey (CCVS) for the four Caribbean countries in our sample and the Latin American Public Opinion Project's (LAPOP) Americas Barometer for the remaining Latin American countries. The CCVS reports victimization rates in Caribbean countries by age and gender for a series of crimes that include robbery and assault, two of the four crimes analyzed here. LAPOP's data provide similar figures, but with limited representation for age and gender, for most Latin American countries. For the cases of homicides and rapes we use official administrative data, which represent our second source of data. Finally, to give a monetary value to the DALYs for these four crimes, we estimate the annual income by age and gender using our third source, the labor force surveys of the countries under analysis (see the Part 1 Appendix for sources of information)

The annual foregone income of imprisoned individuals, the other set of social costs we analyze in this chapter, is estimated in a manner similar to that used to measure victimization costs. We assign to every prisoner the average annual income of a person of the same age and gender estimated from the labor force surveys of each country. We take into account the entire prison population of all countries under analysis, since according to the U.S. Department of State Country Human Rights Reports there are no political prisoners in any

of them. (Political prisoners would have to be excluded from our analysis because their imprisonment is not crime-related.)

Figure 2.1 shows that the biggest contributor to victimization costs are, not unexpectedly, homicides. Of the US$16.5 billion in victimization costs incurred in Latin America and the Caribbean in 2014, US$10.6 billion were due to homicides. Central America's social costs of crime total more than 1 percent of GDP, and for homicides that subregion has the highest cost (almost 0.7 percent of GDP) among the regions in the figure. The Caribbean and the Andean Region have similar social costs of crime of between 0.4 and 0.5 percent of the regional GDPs. The Southern Cone has the lowest social costs, at slightly above 0.4 percent of GDP.

On average, foregone income related to homicides represents 0.32 percent of GDP. However, this average hides enormous variability across countries. In Honduras, the country with the highest homicide rate in the region and the world in 2014, homicides cost about 1.6 percent of GDP. El Salvador, which has the second highest homicide rate in the world, follows with a cost of homicides that is about half that of Honduras – 0.86 percent of GDP. Still, that figure is almost three times the regional average. The Bahamas

has the third highest homicide cost, at 0.48 percent of GDP. On the other end of the spectrum, Chile has the lowest cost: foregone income due to homicides there is only 0.05 percent of GDP. The next two countries with the least foregone incomes from homicides are Barbados, at 0.06 percent of GDP and Argentina, at 0.07 percent of GDP.

Victimization costs of other non-lethal crimes – assaults, rapes, and robberies – are approximately 0.12 percent of GDP, which on average is about a third of the costs related to homicides. In Honduras, however, the costs of non-lethal crimes represent almost triple that figure, at about 0.30 percent of GDP. El Salvador and Peru have the second-highest victimization costs for assaults, rapes, and robberies, at 0.19 percent of GDP. The countries with the lowest costs due to these crimes are Barbados and Trinidad and Tobago, at 0.02 percent of GDP, followed by Chile at 0.04 percent of GDP.

Regarding the foregone income of the prison population, the 17 countries in this study lost a total of about US$8.4 billion in 2014. El Salvador, which has one of the highest incarceration rates in the region, lost about 0.40 percent of GDP due to imprisonment of people of working age (see Chapter 4 for more details). The Bahamas lost a slightly smaller amount at 0.36 percent of GDP, followed by Colombia at 0.30 percent. Guatemala, at 0.07 percent of GDP, and Jamaica, at 0.09 percent of GDP, lost the smallest amount of GDP due to the foregone income of the prison population.

Overall, social costs of crime are lowest in Chile, at 0.28 percent of GDP, followed by Argentina and Barbados, both at 0.30 percent. Countries with the highest costs are Honduras, at 2.19 percent of GDP, El Salvador, at 1.44 percent, and The Bahamas, at 0.94 percent. We discuss these costs in more detail in Chapter 3.

Figure 2.1. Social Costs of Crime by Subregion, 2014 (percent of GDP)
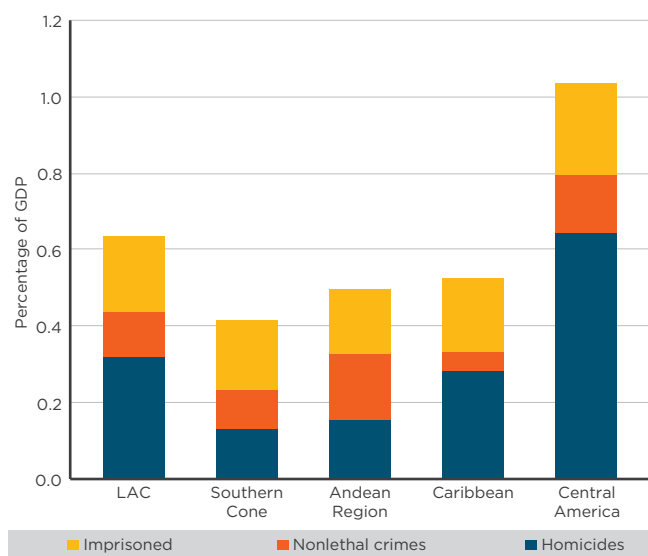
Source: Authors' estimates based on administrative data, the Latin American Public Opinion Project, and labor force surveys.
Note: LAC: Latin America and the Caribbean.

2.2.2 Private Expenditure on Security

Estimates of crime-related spending by the private sector are limited here to crime prevention costs due to the limited information available. In particular, firm data are mainly used, and when possible household data on crime-related expenditures are included. Direct and indirect costs of crime for firms resulting from criminal activities are not taken into account for two reasons. First, as mentioned previously, we are not including the value of stolen goods in our analysis. Second, we have no satisfactory way of estimating the productivity or efficiency loss for private firms of robberies, extortion, and other crimes. Obtaining such estimates would require precise information on each firm's activities and responses to crime, which exceeds the scope of this work.

The main source of information on crime prevention costs incurred by private firms is the Business Environment and Enterprise Performance Survey (BEEPS) carried out by the World Bank across many countries in the world, including several in Latin America and the Caribbean. In particular, the survey asks firms how much money they spend on security, expressed as a percentage of their annual sales.[3] This percentage, estimated at the firm level, can be aggregated to the sector level by using gross output as a proxy for sales. This will be the measure of crime prevention costs incurred by the private sector employed in this study.

The BEEPS is intended to provide representative figures for the entire private sector of every country. However, not all economic sectors are included in the survey sample: agriculture, mining, utilities, and financial services are excluded. In this sense, we present two estimates of private sector crime prevention costs: the first, as a lower bound, includes only estimates of those costs for the economic sectors included in the BEEPS. The second, an upper bound, extrapolates those figures to the entire private sector economy, including those sectors not surveyed in the BEEPS. In both cases we take into account the size only of the formal economy: BEEPS numbers are not representative of the informal sector, and we are thus not able to estimate the figures for informal firms.[4]

For the countries in our sample, the lower-bound estimate averages 0.81 percent of GDP and the upper bound averages 1.37 percent of GDP. Figure 2.2 presents the values for each subregion. Central America has by far the highest costs expressed as a percentage of GDP: the lower bound is well above 1 percent of GDP and the upper bound is almost 2 percent pf GDP. The Southern Cone has the lowest private sector costs: the lower bound is 0.60 percent of GDP and the upper bound just above 1 percent of GDP.

The high amount of private spending on citizen security is driven by Honduras and El Salvador. In Honduras, private spending is almost 2 percent of GDP – more than twice the regional average – and the higher bound is above 3 percent. El Salvador follows with costs incurred by the private sector hovering between 1.6 and 2.7 percent of GDP. The Bahamas and Brazil also show high private costs, with estimates varying between 1 and

(4) This analysis uses the percentage of the GDP corresponding to formal activities as estimated by Vuletin (2008).

Figure 2.2. Private Costs of Crime by Subregion, 2014 (percent of GDP)
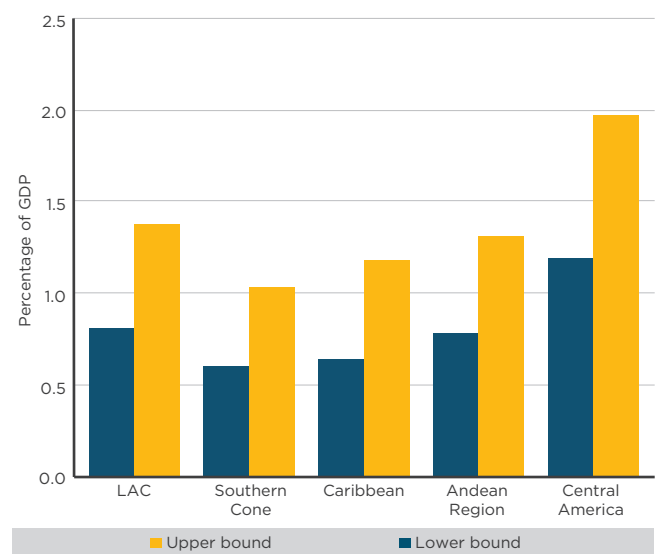
Source: Authors' estimates based on the Business Environment and Enterprise Performance Survey and on national accounts data.
Note: LAC: Latin America and the Caribbean.

(3) Since firm-level figures reported by BEEPS correspond to 2010, we assume for this study that patterns of security-related costs of firms did not change between 2010 and 2014. Although this might be arguable, there does not seem to be a wide variation in these figures over time, and making this assumption is the only possible way to compare the 17 countries in a systematic manner.

1.9 percent. Barbados has the lowest private sector costs followed by Uruguay and Paraguay.

In order to complement this information we also collected data on the size of the private security sector in each country. This figure allows us to check for the robustness of the BEEPS-based estimations. The main data sources for the size of the private security sector are national censuses (for the number of employed persons), annual labor force surveys (for the wages of people employed in that sector), and national accounts (for the sector's output). We report two estimates for the private security sector's wage bill: the first is the annual wage bill of people employed as security guards, and the second is the annual wage bill of those reporting to work in private security companies. The difference between these two figures comes from the fact that many security guards are not employed by a private security company but by the company for which they provide their security services. We also report, when available, the gross output of the private security sector as provided by national accounts. For simplicity, in none of the three cases do we take into account the provision of unmanned security services such as remote monitoring of alarm systems.

The activity-based estimate of the sector's wage bill is the one for which we are able to provide figures for most countries: the regional average for this figure is about 0.44 percent of GDP. Guatemala appears to have the largest wage bill at about 1 percent of GDP, closely followed by Costa Rica with 0.92 percent. Mexico's private security sector wage bill appears to be the smallest at 0.09 percent of GDP, with Ecuador being the second-lowest at 0.21 percent. In terms of gross output, Colombia's private security sector is the largest, at almost 1 percent of GDP. If we compare these figures to the estimates of total costs incurred by the private sector, which hover between 0.8 and 1.4 percent of GDP on average across the region, we can establish that between a third and a half of those costs can be attributed to expenditures by firms on private security services.

2.2.3 Crime-related Expenditure by Government

Concerning crime-related costs incurred by the government, as a first step we collected data from official government budgets on three different expenditure items: administration of justice, police services, and prison administration.[5]

The second step consisted of attributing a portion of this budget to estimating the costs of crime. The administration of justice, for instance, includes many activities that are not in anticipation, as a consequence, or in response to any crime, such as costs associated with commercial, family, labor, and other non-criminal disputes. To exclude other justice-oriented spending not related to crime, we built a proxy variable: the percentage of cases filed in courts that correspond to criminal justice cases. On average the share of criminal justice cases to all cases was about 30 percent for the entire sample of countries included in the analysis.

Similarly, we had to examine the share of the budget of police services to be included in the costs of crime. A priori, one would think that there are many activities carried out by the police that are not necessarily related to criminal cases, the most important of them being traffic control. However, many operations related to traffic control also have an impact on crime rates, either by deterring crime simply through a police presence or by way of arrests during routine traffic stops. In this sense, it is difficult to separate the costs associated with crime from other costs incurred by the police, and most studies therefore consider all public spending on security as costs of crime. However, in this study, we provide two estimates of the costs of crime related to public spending on the police.

The first estimate, considered as a lower bound, uses as a proxy indicator for the share of crime-related costs in police expenditures the percentage of persons detained by the police as a result of crimes under analysis in this study (violent crimes, particularly homicides, sexual attacks, robberies, and assaults) as a share of the total number of persons detained by the police for all crimes. Information on police detainees is not widely available across the region. The figure could

(5) We used the executed amounts, not the approved amounts, which are generally modified during the fiscal year.

only be estimated for Chile, Colombia, Costa Rica, and Peru. For these countries the average share of detainees for the selected violent crimes is around 50 percent. Thus, the lower-bound estimate of crime-related spending by the police employed here will be 50 percent of total police expenditure for all countries.

The 50 percent figure is most probably an underestimate for many countries, particularly the most violent ones in Central America. For instance, statistics from the Guatemala National Police indicate that more than 90 percent of police operations were related to crime prevention and repression. We take this into account in order to produce the second estimate of police crime-related costs, which will simply be total expenditure on police services. This is our upper-bound estimate, which is the one recommended in policing literature given the deterrence effect of police even when officers are performing non-violent-crime-related duties.

Finally, in the case of prison administration we include 100 percent of the budget in our estimations. The number of non-criminal cases resulting in imprisonment across the region is very limited and, according to the U.S. State Department Country Human Rights Reports, there are no political prisoners in any of the countries under analysis.

It is important to note that for federal countries such as Argentina, Brazil, and Mexico, these figures represent consolidated spending taking into account both central administration and federal units.

In the countries studied, government citizen security costs range between 0.5 and 2.1 percent of GDP in the lower-bound estimates and between 0.6 and 2.4 percent in the upper-bound scenario (Figure 2.3). The averages are, respectively, 0.95 percent and 1.51 percent of GDP. In nominal figures, crime-related costs incurred by the governments of Latin America and the Caribbean added up to between US$44 billion and US$70 billion in 2014. Government costs related to crime prevention and control are highest in the Caribbean. The government of Jamaica spends between 1.42 and 2.44 percent of GDP on crime-related matters, followed by Barbados and The Bahamas, which spend between 1.36 and 2 percent and 1.15 and 1.94 percent, respectively (see Chapter 7 on crime in the Caribbean for more details). The next-highest spending level on crime-related matters is for the

Southern Cone countries, which spend a lot on the police in relative terms even though they are not very insecure in terms of homicide rates (their rates are the lowest among all the subregions).

Security-related expenditures on the administration of justice are on average 0.17 percent of GDP. The Caribbean countries of The Bahamas, Barbados, and Jamaica spend the least (about 0.06 percent of GDP), and Costa Rica, Paraguay, and El Salvador spend the most (above 0.30 percent of GDP).

If we compare public spending on security in the 17 countries studied to other sectors, government expenditures due to crime on average represent about a third of the amounts spent on education and health. In an international comparison, spending on security represents a higher share of total spending than in developed countries (two or three times higher).[6]

(6) Authors' calculations based on data from United Nations Educational Scientific, and Cultural Organization and the World Health Organization.

Figure 2.3. Government Costs of Crime, by Subregion, 2014 (percent of GDP)
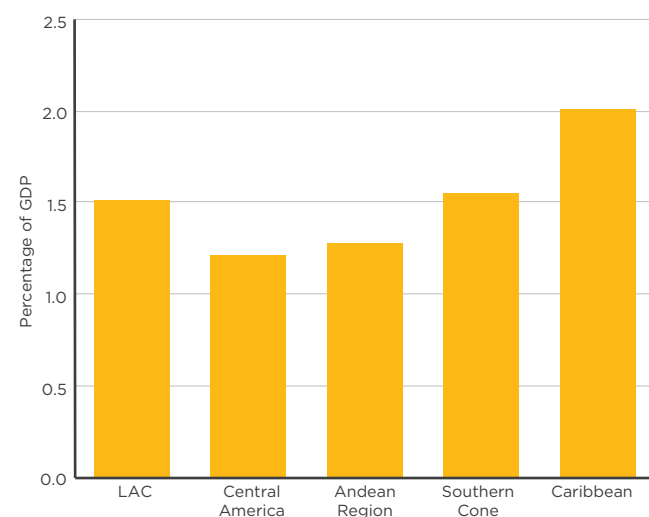
Source: Authors' estimates based on sources listed in the Part I Appendix.
Note: LAC = Latin America and the Caribbean.

2.2.4 Overall Costs of Expenditures on Crime

Figure 2.4 presents the main results with regard to estimates of the overall costs of crime. The lower-bound estimate indicates that about US$114.5 billion is lost to crime in the 17 countries in the sample, with an upper-bound estimate of about US$170.4 billion. On average, crime costs Latin American and Caribbean economies almost 3 percentage points of GDP, with the lower bound average estimate being 2.41 percent of GDP and the upper bound average estimate being 3.55 percent of GDP. This is based on a conservative estimate that only includes some direct costs of crime.

Central America has the highest costs of crime, followed by the Caribbean (each subregion represents the simple average of the upper-bound total costs of each country). Honduras emerges as the country having the highest amount of crime-related costs, with costs that can go as high as 6.5 percent of GDP. El Salvador follows, with an upper-bound estimate of 5.94 percent. Chapter 4 explains what is behind the high costs of crime in these countries and in Guatemala.

Are these costs large from an international perspective? Figure 2.5 presents a comparison of the costs of crime in LAC with those of a set of developed countries for which we applied the same methodology detailed before – Australia, Canada, France, Germany, the United Kingdom, and the United States. Average costs in the 17 countries in this study are above those of all the developed countries in every component. With respect to government costs, the figures of the United Kingdom are similar to those of the average country in our study, while those of the United States exceed them. Private and victimization costs are considerably lower in developed countries. Victimization costs are below even the lowest costs of our 17-country sample in LAC. Only in the social costs of imprisonment do some developed countries approach LAC figures – basically because of the relatively high incarceration rates of Australia and the United Kingdom. The United States is the clear exception, with considerably high imprisonment costs around 0.45 percent of GDP. Overall, this comparison illustrates, once again, the exceptionally high costs of crime in LAC.

One way to express the costs of crime for the countries considered in this study is as a share of GDP. Other ways to express the costs include the costs per capita and the nominal costs in U.S. dollars, which reflect a different order in terms of higher and lower

Figure 2.4. Overall Crime-related Costs, by Subregion, 2014 (percent of GDP)
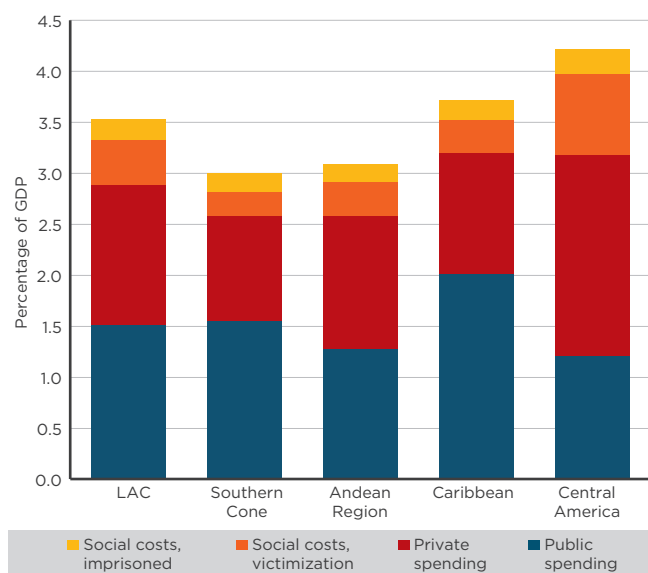
Source: Authors' estimates based on sources listed in Part I Appendix.
Note: LAC = Latin America and the Caribbean.

Figure 2.5. Mean Crime-related Costs, International Comparison
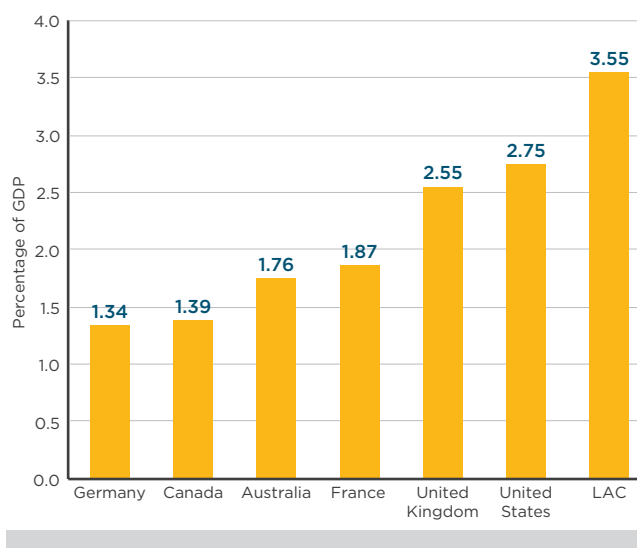
Source: Authors' estimates based on sources listed in Part I Appendix.
Note: Data are for 2014 or for the latest year for which data were available. LAC: Latin America and the Caribbean.

costs of crimes.

Figure 2.6 presents the results for each country expressed as a share of GDP. It can be seen that the composition of crime-related costs varies across countries. In most countries, victimization costs represent a small amount of total costs, except for Honduras and El Salvador, where their share is large, as mentioned earlier. Substitution between costs incurred by government and those incurred by the private sector does not appear to follow a consistent pattern. Some countries, such as Barbados and Jamaica, have high government costs and low private costs; others, such as Guatemala and Peru, appear to have low government costs and high private ones. Lastly, it is interesting to note that the correlation between victimization costs and private costs is 0.85, while the correlation between victimization costs and government costs is 0.01. In this sense, private sector costs seem to more closely follow patterns of victimization than do government costs.

Figure 2.7 shows crime-related costs expressed in international U.S. dollars (that is, adjusting for the purchasing power parity of each country) in per capita terms. Trinidad and Tobago and The Bahamas have the highest costs at well over US$1,000 per capita in international U.S. dollars. Argentina is a relatively distant third, with per capita costs slightly below US$700 in international U.S. dollars. Guatemala, Paraguay, and Honduras, in that order, have the lowest per capita costs at or below US$300 in international U.S. dollars. Note that this is the case despite the high homicide rates of Guatemala and especially Honduras, which reflects the fact that low per capita costs demonstrate the relative poverty of these economies.
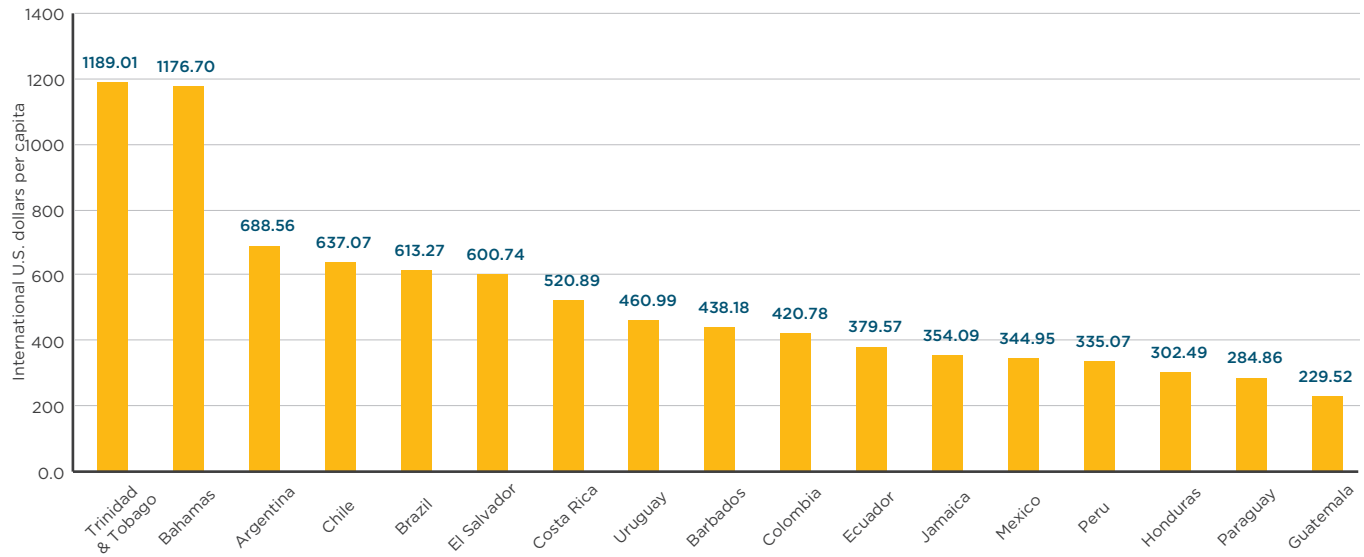
Lastly, Figure 2.8 presents costs expressed in nominal terms in international U.S. dollars. Brazil tops the list with costs above US$120 billion in international U.S. dollars, followed by Mexico at a third of that value (slightly above US$40 billion) and Argentina (at US$30 billion). This ordering is clearly determined by the size of each country's economy. Not surprisingly, the lowest nominal costs are found in Barbados, The Bahamas, and Jamaica, small-size economies in the Caribbean.

Figure 2.6. Crime-related Costs (Upper Bound) as a Percentage of GDP in Latin America and the Caribbean, 2014
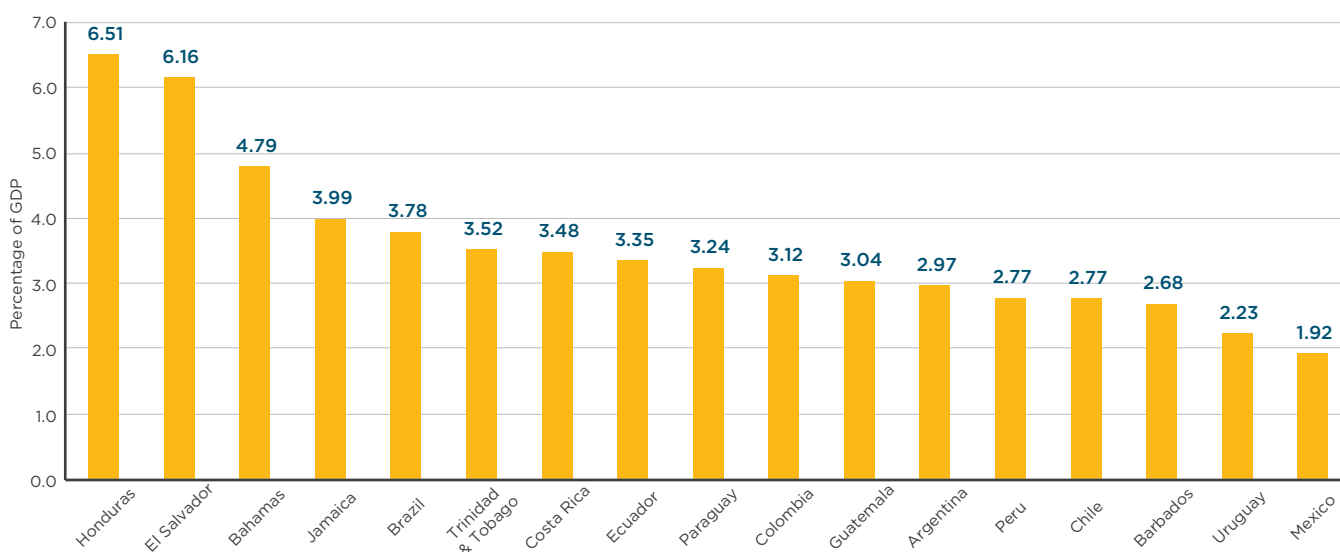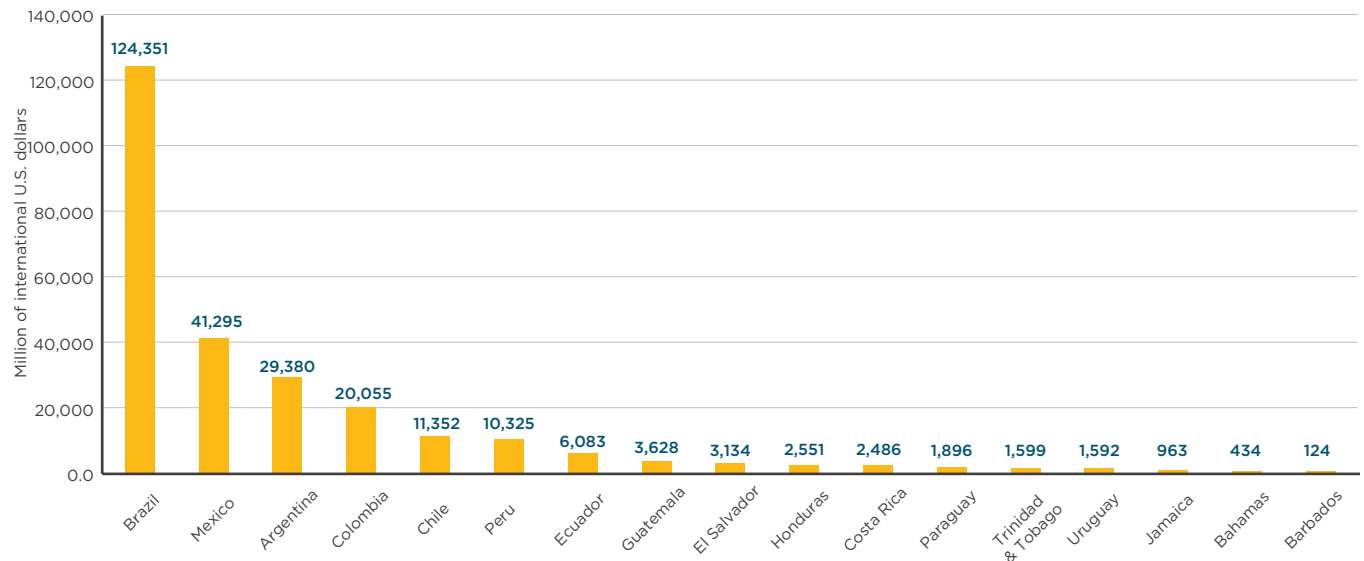

Source: Authors' estimates based on sources listed in Part I Appendix.

Figure 2.7. Crime-related Costs (Upper Bound) in International U.S. Dollars Per Capita in Latin America and the Caribbean, 2014

International U.S. dollars per capita

Country	Value
Trinidad & Tobago	1189.01
Bahamas	1176.70
Argentina	688.56
Chile	637.07
Brazil	613.27
El Salvador	600.74
Costa Rica	520.89
Uruguay	460.99
Barbados	438.18
Colombia	420.78
Ecuador	379.57
Jamaica	354.09
Mexico	344.95
Peru	335.07
Honduras	302.49
Paraguay	284.86
Guatemala	229.52

Source: Authors' estimates based on sources listed in Part I Appendix.

Figure 2.8. Crime-related Costs (Upper Bound) in International U.S. Dollars in Nominal Terms in Latin America and the Caribbean, 2014

Million of international U.S. dollars

Country	Value
Brazil	124,351
Mexico	41,295
Argentina	29,380
Colombia	20,055
Chile	11,352
Peru	10,325
Ecuador	6,083
Guatemala	3,628
El Salvador	3,134
Honduras	2,551
Costa Rica	2,486
Paraguay	1,896
Trinidad & Tobago	1,599
Uruguay	1,592
Jamaica	963
Bahamas	434
Barbados	124

Source: Authors' estimates based on sources listed in Part I Appendix.

2.3   Conclusion

This chapter has provided the first estimates of the cost of crime in Latin America and the Caribbean in a systematic way that allows for comparisons between countries. By using an accounting method, we have estimated the welfare costs of crime and violence to be at least 3 to 3.55 percent, including certain countries (mainly in Central America) that almost double the regional average. This is a conservative estimate, as it does not include other direct and indirect costs such as violence prevention programs, health expenses due to violence, or the impact of crime on other outcomes like property prices. Costs incurred by the government and the private sector appear to be mostly similar: government costs vary on average between 1 and 1.5 percent of GDP, and private sector costs vary between 0.8 and 1.4 percent of GDP. However, there is a great deal of variation across countries. Victimization costs, although small on average, can be substantial in the most violent countries: estimates for Honduras and El Salvador are around 2 percent and 1 percent, respectively. An interesting fact emerging from the analysis is that private expenditure on security seems to be more correlated with victimization than is public spending on citizen security. This suggests that private agents may be more flexible in adapting to changes in the crime environment, or that the private sector is crowding out public investments to prevent crime. This implies that there is space for more cost-effective policies led by the government.

To put the 3.5 percent in context, it is comparable to what the region spends annually on infrastructure, or is roughly equal to the income share of the poorest 20 percent of the population in Latin America and the Caribbean, according to the World Bank's World Development Indicators. For example, the costs of crime are six times more than what is spent on social programs in Brazil (*Bolsa Familia*) or Mexico (*Progresa*), each of which account for approximately 0.5 percent of GDP. The cost of crime in the region is also higher than the global cost of terrorism (which is less than 1 percent of global GDP, according to the Institute for Peace), the cost of climate change (around 1 percent of global GDP, according to Nordhaus 2010), and less than the estimated cost of Brexit (1 percent of UK GDP for 2017, according to Dhingra et al. 2016).

In institutional terms, it is important to enhance the capacity of governments of the region to work together with the private sector, civil society, and academia to improve the production, development, and improvement of official indicators to track the costs of crime and evaluate the benefits of crime prevention and control interventions. These efforts would help identify priority areas for intervention and promote better allocation of resources.

The next two chapters analyze in detail certain relevant aspects of the costs of crime in Latin America and the Caribbean. We are mainly interested in the profile of the victims of crimes, particularly homicides, and how this age and gender profile differs across countries. The characteristics of those murdered have important implications for future development. In light of recent changes in many countries of the region that shift to tougher sentences and more incarceration in response to the increase in crime, we also estimate the social costs of the penitentiary crisis by addressing the opportunity costs of the growing prison population and the increase in public spending for prison administration.

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3 The Direct Costs of Homicides

Laura Jaitman and Iván Torre

The main component of social costs of crime in Latin America and the Caribbean (LAC) is the cost of homicides, as Chapter 2 has shown. This comes as no surprise, since the region is a disproportionately violent one in terms of homicide violence, accounting in 2014 for nearly twice as many of the world's homicides as sub-Saharan Africa, the region with the next-highest homicide rate (UNODC 2016). Figure 3.1 shows the trends in homicide rates since 2000 by region.

However, even though LAC as a region has the world's highest homicide rate, there is great heterogeneity across countries in the incidence of violence. Among the 26 countries included in this study representing LAC,[7] there are countries with rates below 5 homicides per 100,000 population and others with rates of almost 90 homicides per 100,000 population

(7) LAC includes the 26 borrowing countries of the Inter-American Development Bank.

## Figure 3.1. Intentional Homicides by World Region, 2000–2014
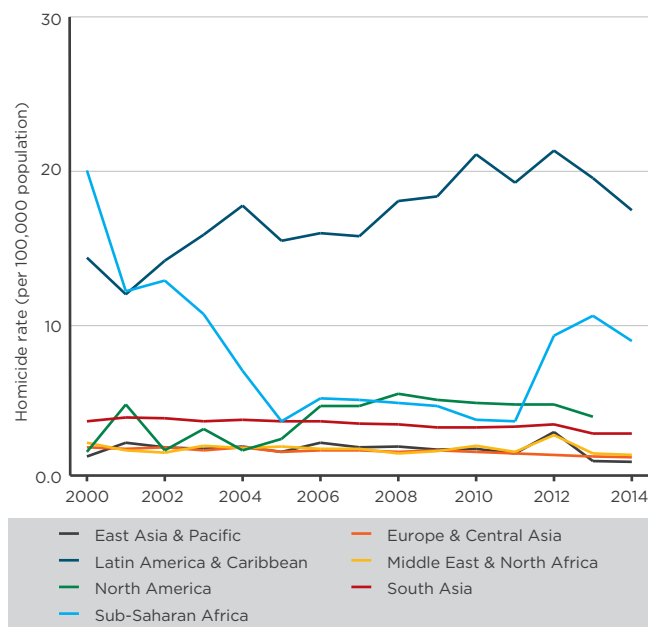
Source: United Nations Office on Drugs and Crime.
Note: Regional rates are the average rates per 100,000 population.

(Figure 3.2). Within the region, El Salvador, Honduras, and Guatemala have the highest rates. In particular, Honduras and El Salvador have rates of 74.6 and 64.2 homicides per 100,000 inhabitants, well above the regional average.

Jaitman (2015) presented evidence about the anomaly represented by homicide rates in LAC. It is usually accepted that the higher the income of a country, the lower the incidence of violence. Cross-country data from all over the world correlating homicide rates to GDP per capita confirm this negative relation even after controlling for poverty and inequality levels. LAC countries, however, are an outlier: their homicide rates are higher than they should be given their income levels – something that is not explained by the fact that LAC countries might be poorer or more unequal. In

Figure 3.2. Intentional Homicides per 100,000 Population by Latin American and Caribbean Country, 2014
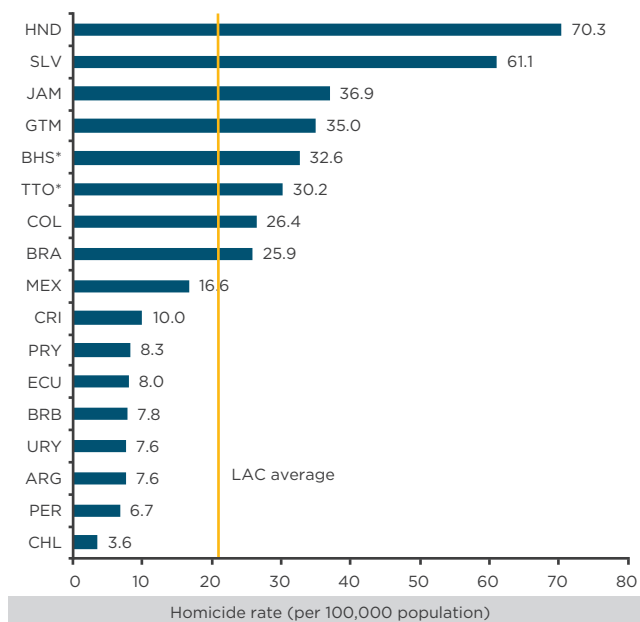
Source: See Appendix with Sources of Part I.
Note: Data for countries with an asterisk are for 2013. Country code: HND (Honduras), VEN (Venezuela), BLZ (Belize), SLV (El Salvador), GTM (Guatemala), JAM (Jamaica), COL (Colombia), BHS (The Bahamas), TTO (Trinidad and Tobago), BRA (Brazil), DOM (Dominican Republic), MEX (Mexico), PAN (Panama), GUY (Guyana), ECU (Ecuador), BOL (Bolivia), NIC (Nicaragua), HTI (Haiti), PRY (Paraguay), PER (Peru), CRI (Costa Rica), URY (Uruguay), BRB (Barbados), SUR (Suriname), ARG (Argentina), CUB (Cuba), and CHL (Chile). LAC = Latin America and the Caribbean.

fact, similar correlation analysis with poverty rates and inequality indices show the same results: LAC countries are more violent than what their poverty or inequality rates would imply. The anomalous position of the region is also observed in other dimensions of security, such as the relationship between police personnel, income, and the homicide rate (Jaitman and Guerrero Compeán 2015). Another interesting aspect of the LAC anomaly is that trust in the police by the general population in the region is considerably lower than would be expected given the countries' income levels. In fact, this anomaly in trust associated with the region's overtly high homicide rates has been illustrated before, and the literature on the region's high level of violence has pointed to other causes, such as weak institutions that are a consequence and a cause of violence, rapid urbanization, and unequal access to public services (ActionAid 2013; Chatterjee and Ray 2013; Clinard 1942; Galvin 2002; Glaeser and Sacerdote 1996; Gumus 2004; Lochner and Moretti 2004; Machin, Marie, and Vujić 2011; Peterson, Krivo, and Harris 2000; Shelley 1981; Soh 2012; WHO 2010). Certainly the link between high homicides, organized crime, and development also underlies the chronic violent situation of the region (see Chapter 10 for a thorough exploration of organized crime).

However, there is another aspect of the homicide anomaly that affects the region that will be emphasized in the next section of this chapter. Every time a homicide occurs, the immediate consequence is the irreversible loss of human life. But for the society as a whole there is also an additional associated economic cost – the foregone productivity of homicide victims. This social cost can be very high in cases of armed conflicts and wars, for example. In the region, however, the scale of the truly "epidemic" characteristics of intentional homicides makes this cost also relevant, and it is an essential cost when we estimate the welfare costs of violence and crime in the region. This chapter presents an estimate of the social cost of homicides for a set of 17 countries in LAC for the period 2010–2014. These social costs are included in the estimates of the direct costs of crime explained earlier.

3.1 Who Are the Homicide Victims in Latin America and the Caribbean?

Massive losses of human life caused by natural disasters usually affect the entire population. Young and old, men and women, all inhabitants of the region hit by a disaster are generally affected in an equal way. In this sense, the characteristics of the victims do not differ very much from the characteristics of the overall population of the country or region affected. Different is the case when the loss of human life is intentional. In these cases, victims tend to be a particular group of the population, either through genocides where all victims belong to a specific ethnic or political group, armed conflicts where targeted victims are men capable of carrying arms, or, in peace time, intentional homicides where victims have some characteristics that differentiate them from the overall population. Such is the case of homicide victims in LAC, as the data below will show.

Figure 3.3 presents the age and gender profile of homicide victims of the countries with the lowest homicide rate in the region (Chile and Peru) and the countries with the highest homicide rate (El Salvador and Honduras). At first sight there is a striking feature common to the four countries: the overwhelming majority of victims are male. Women represent only a small share. However, the share of women is higher in Chile and Peru, at 19 percent and 16 percent respectively, than in Honduras and El Salvador, where it is 8 percent and 11 percent, respectively. The second striking feature is that victims are mostly young males between 15 and 30 years of age. This age-gender group represents about 50 percent of the homicide victims in Honduras and El Salvador. In Chile and Peru, that group makes up a smaller share of 30 percent. The next most affected age groups are males between 30 and 45 years old, who represent between 20 and 30 percent of homicide victims in the four countries, and males between 45 and 65, who represent about 10 percent in all countries except in El Salvador, where that figure is lower.

The broad patterns shown in Figure 3.3 are representative of what can be seen in the corresponding figures for the remaining 13 countries in our analysis, which can be found in Appendix 3.1. What emerges

from this descriptive analysis is that young males between 15 and 30 years old constitute the majority of homicide victims in LAC, particularly in countries with high homicide rates like El Salvador, Guatemala, and Honduras. The most probable cause for this pattern is gang violence, which is examined more carefully for this violent subregion in Chapter 4. Victims in countries in the region with low homicide rates, though still overwhelmingly male, have an age profile slightly closer to the overall population. Overall, in the 17 countries considered around 90.5 percent of the victims are males and 9.5 percent are women. Regarding age groups, 46 percent of the homicide victims are between 15 and 30 years old. That means that the victims of homicides in all countries come from the highest labor productivity group of the population – young, working-age males. This makes their murder particularly costly for the society as a whole, and it has implications in terms of human capital development and growth for the future. The next section describes the methodology we use to obtain an estimate of this social cost.

There are other important characteristics of the victims that are not considered in this systematic study of 17 countries. For example, the race or ethnic profile of those killed can also show disproportionalities in comparison to the composition of the overall population. In Brazil, 70 percent of homicide victims in 2012 were Afro-descendants (people with black or brown skin) compared to 26 percent Caucasians. A similar pattern emerges with homicide victims in Trinidad and Tobago. In 2013, adjusting the homicide rate by ethnicity, the rate of victims of African descent was more than double the national average, and more than triple that of other minorities such as East Indians. More information on racial disparities, as well as other disparities such as the educational background of victims, can be found in the section in Chapter 5 that looks at the costs of crime in Brazil.

3.2   Estimating the Social Cost of Homicides

Chapter 2 briefly introduced the methodology to estimate the social costs of victimization, of which homicides are one component. The social cost of homicides can be understood as the foregone income of each victim. Ideally, we would like to estimate the overall income of victims if they had continued living. However, this would require that we have a reasonable prediction about future values of wages, which is beyond the

Figure 3.3. Age and Gender of Homicide Victims, 2010–2014 (percent)

Source: Authors' estimates.

THE COSTS OF CRIME AND VIOLENCE
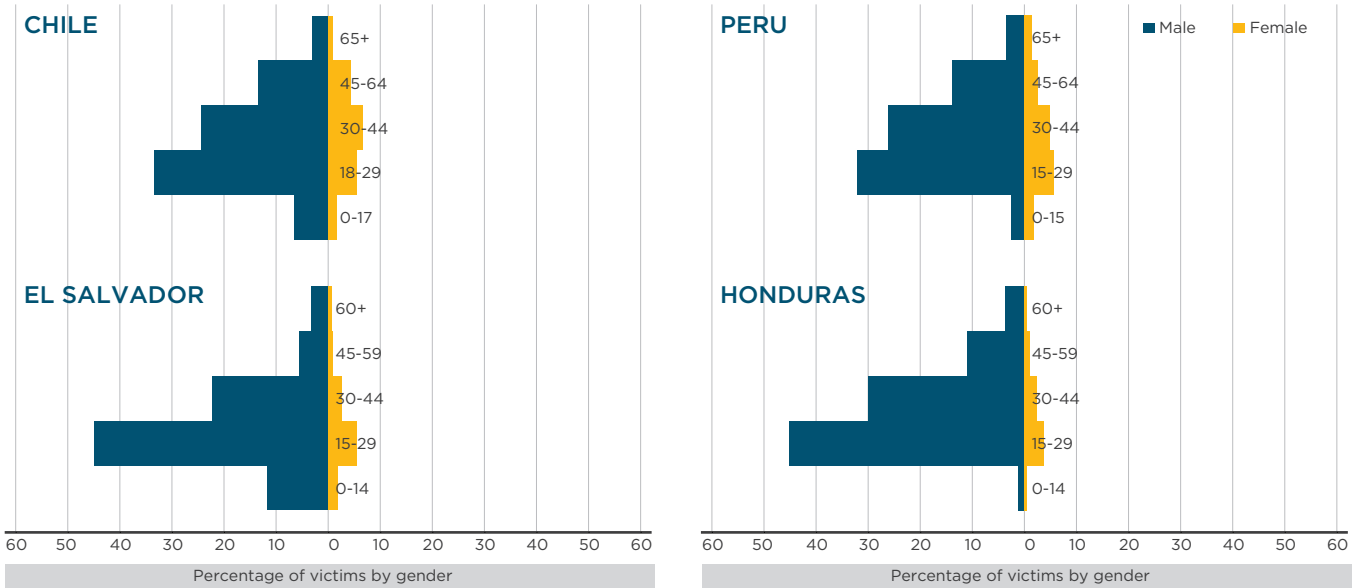
scope of this study. We use an alternative approach by valuating the foregone income from homicides as the number of healthy years of life lost due to murder. Using data from the United Kingdom, Dolan et al. (2005) estimate the number of healthy years of life lost to a series of crime events. In particular, they estimate that each murder represents a discounted loss of 17.79 healthy years of life.

We value a healthy year of life as the annual income of a person of the same age and gender of the victim, and we obtain this information from each country's labor force survey.[8] Due to the nature of the life cycle of wages, this may lead to overestimation of the income foregone by older victims and underestimation of the income foregone by younger victims. Nevertheless, when adding up the total costs of all homicides in a given country, these biases should offset one another. As mentioned earlier, the figure provided by Dolan et al. (2005) for healthy years of life lost due to murder is taken as an average for all murders happening in the United Kingdom.

To the point that the age-gender structure of homicide victims may not be similar across the world, the figure reported by Dolan et al. could be inaccurate for the Latin American context. In order to verify the extent of this inaccuracy, we carried out an alternative estimation for countries for which we have the most precise age-gender data on homicides – Brazil, Colombia, Mexico, and Trinidad and Tobago. In these cases, instead of applying the figure of 17.79 healthy years of life lost to all victims regardless of their age and gender, we applied an age-gender-specific value using the same methodology as Dolan et al. We used data from Argentina, the only Latin American country for which EQ-5D age-gender tables are available. EQ-5D is a generic health state classification system widely used in the evaluation of health technologies. Appendix 3.1 shows alternative values for age groups and gender. As in Dolan et al. (2005), a 3.5 percent discount rate was used.

In the four cases for which we carried out this sensitivity analysis, the results show that the overall cost of all homicides, applying a figure of 17.79 healthy years of life lost to all victims regardless of their age

(8) See the Part 1 Appendix for the complete list of sources used in this estimation.

and gender, is between 5 and 7 percent higher than the same figure calculated applying the numbers of healthy years of life lost indicated in Table 3.1. This difference is small and suggests that using the value estimated by Dolan et al. (2005) for a generic murder generates only a slight positive bias in our estimations, with the inaccuracy being relatively small. Taking this into account, and for the sake of consistency across countries for which we do not have information disaggregated into similar age groups, we will use the generic figure from Dolan et al. (2005) for our main estimations.

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3.3   Cost Estimates

Table 3.1 presents the results of our estimates of the social cost of homicides for 2010–2014. The costs of homicides are the main component of the social costs of crime, as was shown in Figure 2.1 in Chapter 2. In absolute terms, the total cost for the region ranged between US$9.8 billion and US$11.4 billion per year over 2010–2014. In relative terms, the cost of homicides declined slightly in the same period. The average for the 17 countries in our sample was 0.40 percent of GDP in 2010, while in 2014 it was 0.32 percent.

We can classify countries in three groups: first are those with a low social cost of homicides, below 0.10 percent of GDP. From lowest to highest cost, Chile, Argentina, Peru, Uruguay, and Barbados fit in this group. In these countries, the cost from homicides remained mostly stable across our period of analysis, except for Barbados, where the cost decreased from 0.13 percent of GDP in 2010 to less than half that (0.06 percent) in 2014. The country with the lowest cost, Chile, had an average loss of 0.04 percent of GDP. Argentina had the next lowest cost at 0.06 percent, followed by Peru at 0.07 percent.

The second group of countries includes those whose average cost from homicides was between 0.10 and 0.50 percent of GDP over 2010–2014. From lowest to highest cost, these countries are Ecuador, Mexico, Costa Rica, Brazil, Paraguay, Colombia, Guatemala, and Jamaica. The cost decreased substantially during the period of analysis in Colombia, declining from 0.44 percent of GDP in 2010 to 0.28 percent in 2014, and in

Jamaica, where it decreased from 0.61 to 0.36 percent over the same period. Costa Rica also saw a decrease from 0.21 to 0.16 percent over 2010–2014. The cost in the rest of the countries in this group remained mostly stable.

The last group is made up of the countries with the highest homicide cost, above 0.50 percent of GDP. A single country stands out: Honduras had a cost from homicides in 2014 of 1.62 percent of GDP, more than five times the regional average. And this is actually the lowest figure for that country during the period. In 2011, the cost of homicides in Honduras was about 2.63 percent of GDP – more than six times the regional average for that year. El Salvador had the second highest homicide cost, with a record high of 0.94 percent of GDP in 2014. The trend of costs in this country allows us to estimate the social benefit of the 2012–2013 truce between two gangs (known as *maras*), Barrio 18 and MS-13 (*Salvatrucha*). Homicide costs in El Salvador were 0.82 percent of GDP in 2011, then dropped to 0.48 percent in 2012, a negative vari-

ation 0.34 percent of GDP. In 2013, the truce started to falter and the cost went up to 0.61 percent of GDP – an increase of 0.13 percent. In 2014, with the truce fully broken, homicide costs increased by 0.33 percent of GDP. Thus, we can say that the truce had a social benefit of between 0.34 and 0.46 percent of GDP, a substantial sum, since it is even higher than the average social cost of homicides for LAC. The third country classified as having a high social cost of homicides is The Bahamas, with an average cost from homicides of 0.53 percent of GDP during the sample period. The Bahamas had a peak cost of 0.64 percent in 2011 and the lowest value in 2010 at 0.47 percent.

Figure 3.4 shows how much each country contributes to the overall homicide cost of the region. The largest contributor is Brazil: more than 50 percent of the social cost of homicides in LAC comes from that country. This is due to Brazil's relatively high homicide rate, but mainly due to the size of the country's population. Mexico is the second largest contributor, with 19 percent of the overall cost of the region, followed by

Table 3.1. Social Cost of Homicides (percent of GDP)

	2010	2011	2012	2013	2014	Average
Argentina	0.05	0.05	0.06	0.06	0.07	**0.06**
Bahamas	0.47	0.64	0.52	0.48		**0.53**
Barbados	0.13	0.11	0.09	0.09	0.06	**0.10**
Brazil	0.22	0.18	0.25	0.24	0.24	**0.23**
Chile	0.04	0.05	0.04	0.04	0.05	**0.04**
Colombia	0.44	0.39	0.36	0.33	0.28	**0.36**
Costa Rica	0.21	0.20	0.16	0.17	0.16	**0.18**
Ecuador	0.23	0.20	0.16	0.15	0.10	**0.17**
El Salvador	0.80	0.82	0.48	0.61	0.94	**0.73**
Guatemala	0.39	0.38	0.35	0.34	0.36	**0.36**
Honduras	2.24	2.63	2.31	1.89	1.62	**2.14**
Jamaica	0.61	0.42	0.38	0.45	0.36	**0.44**
Mexico	0.20	0.19	0.17	0.16	0.13	**0.17**
Paraguay	0.25	0.25	0.22	0.21	0.21	**0.23**
Peru	0.06	0.06	0.07	0.08	0.08	**0.07**
Trinidad & Tobago	0.31	0.22	0.21	0.24		**0.24**
Uruguay	0.07	0.07	0.09	0.09	0.09	**0.08**
Average for Latin America and Caribbean	0.40	0.40	0.35	0.33	0.32	**0.36**
Total cost (in millions of U.S. dollars)	9,776.3	10,026.6	11,433.0	11,012.1	10,480.9	10,545.8

Source: Authors' estimates based on administrative data.

Colombia with roughly 12 percent. The fourth biggest contributor is Honduras, with 4 percent of the average total homicide cost in LAC. The fact that a country with about 1.5 percent of the population of the 17 countries in the study had a share of homicide costs more than double its size clearly demonstrates the seriousness of violence in this country.
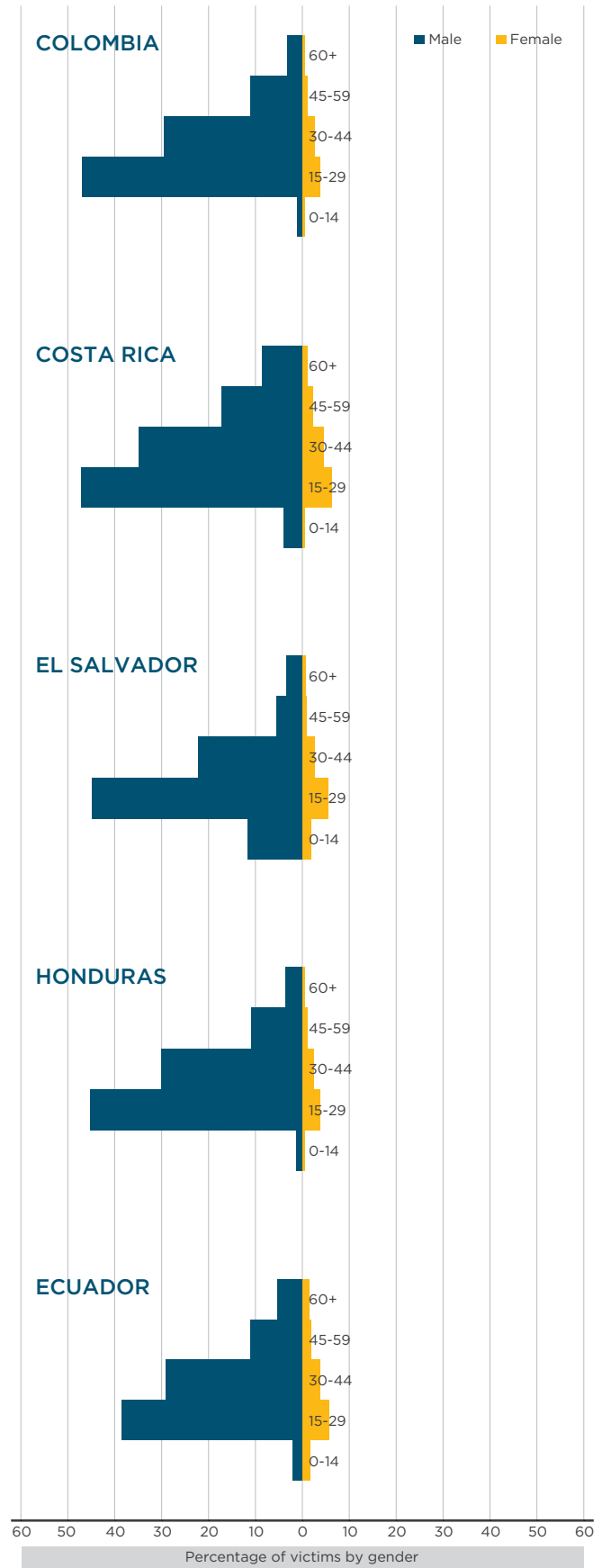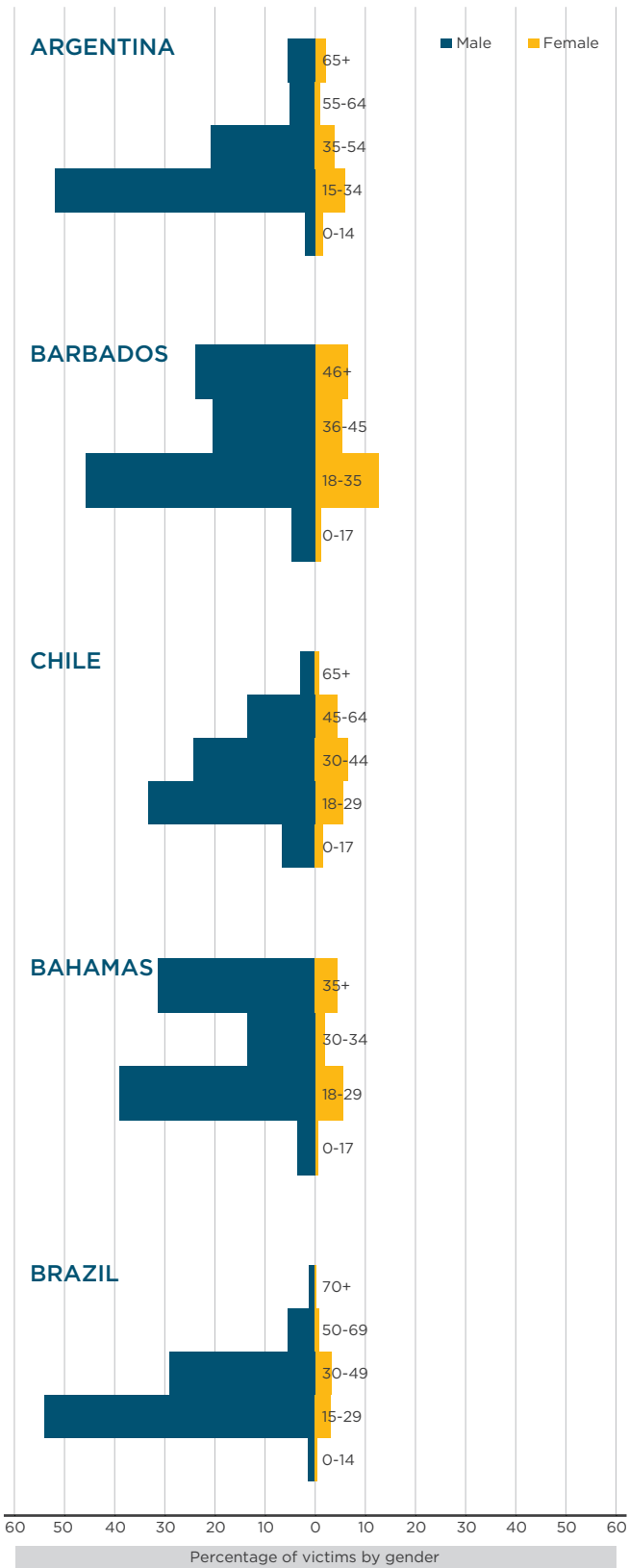
A word of caution needs to be added regarding our estimates. Using alternative methods, Cerqueira et al. (2007) and Aboal et al. (2013) estimated that homicide costs for Brazil and Paraguay were 0.61 percent and 0.52 percent of GDP, respectively, while our estimates were about 0.23 percent for both countries. This shows that homicide costs can be considerably higher than our estimates. In this sense, our estimates should be understood as a lower bound for actual homicide costs. The advantage of our estimation is that it is comparable across 17 countries and is the only such comparison possible given the data available. However, regardless of the lives lost to violence, the fact that even a conservative estimate indicates that about US$10 billion is lost annually in LAC due to homicides should prompt the region's main political actors to make effective crime prevention a fundamental part of their policy agenda.
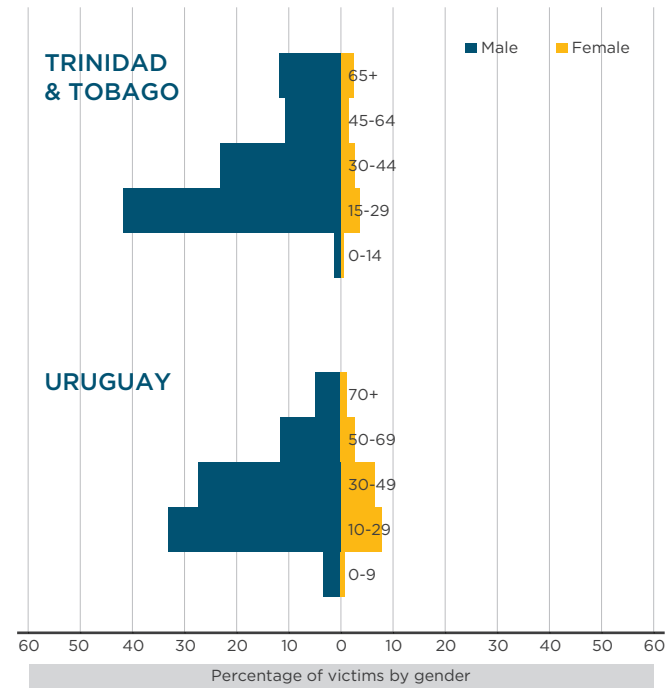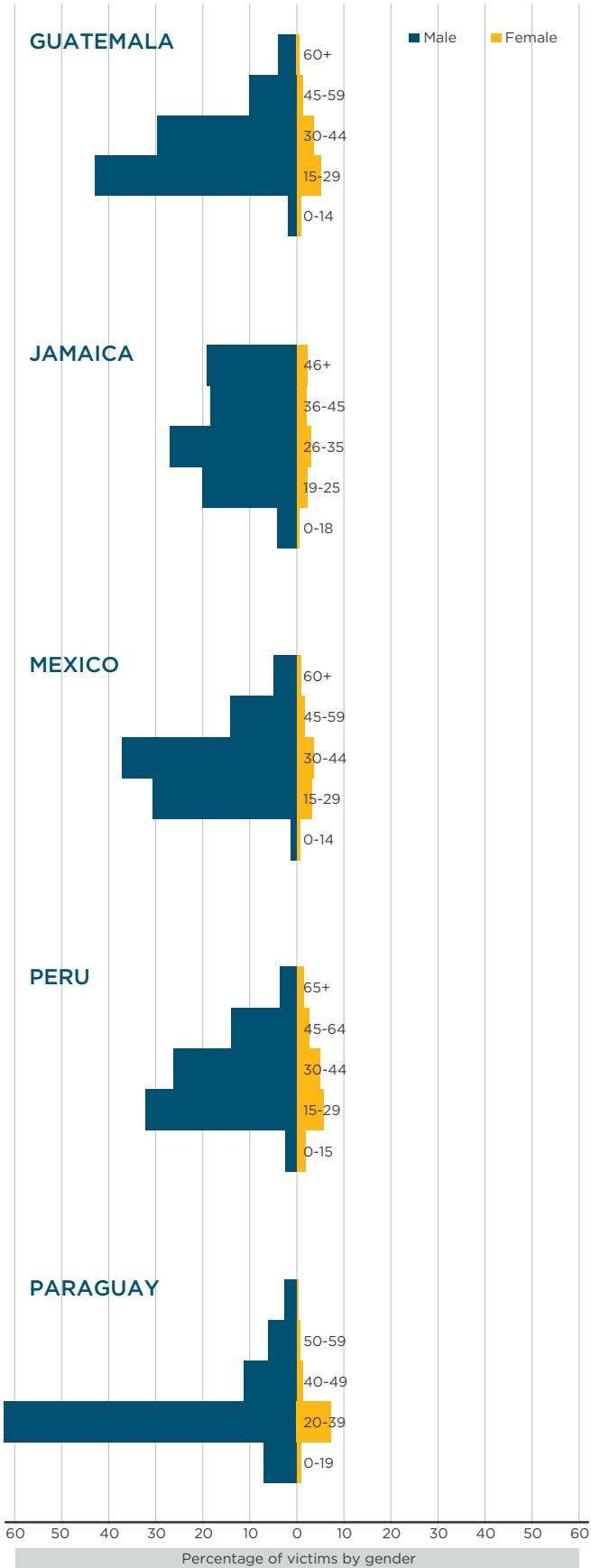
Figure 3.4. Country Shares of Total Homicide Costs of Latin America and the Caribbean, Average for 2010–2014 (percent)
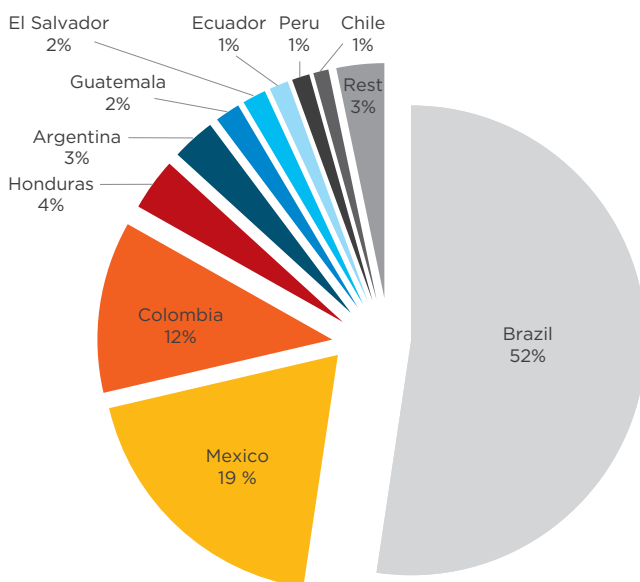
Source: Authors' estimates based on administrative data.

Appendix 3.1. Age and Gender Characteristics of Homicide Victims, Average from 2010–2014 (percent)

Percentage of victims by gender

THE COSTS OF CRIME AND VIOLENCE

GUATEMALA

Male Female

60+
45-59
30-44
15-29
0-14

JAMAICA

46+
36-45
26-35
19-25
0-18

MEXICO

60+
45-59
30-44
15-29
0-14

PERU

65+
45-64
30-44
15-29
0-15

PARAGUAY

50-59
40-49
20-39
0-19

60 50 40 30 20 10 0 10 20 30 40 50 60

Percentage of victims by gender

TRINIDAD & TOBAGO

Male Female

65+
45-64
30-44
15-29
0-14

URUGUAY

70+
50-69
30-49
10-29
0-9

60 50 40 30 20 10 0 10 20 30 40 50 60

Percentage of victims by gender

Source: Authors' estimates.

Note: Age classification may vary across countries.

4 The Costs of Imprisonment

Laura Jaitman and Iván Torre

Given the magnitude of crime and violence in Latin America and the Caribbean (LAC), it is important to take into account the institutional capacity of penitentiary systems to house the criminal population and reinsert criminals into society. Incarceration is costly, and it is not cost-effective in combating crime compared to other policies. If penitentiary systems are not operated properly, the impact of incarceration on society over time can actually increase crime and violence over the long run.

As the numbers in this chapter will show, many LAC countries have experienced a recent increase in the prison population due to the high level of crime and the increased use of tougher approaches to the problem (referred to in Spanish as *mano dura*). From the perspective of the costs of crime, incarceration

entails two type of costs, as analyzed in Chapter 2: public spending on prison administration, and the social cost of the foregone income of the prison population. This chapter provides estimates of the costs of what can be deemed as a penitentiary crisis in LAC, using as inputs the results from Chapter 2 for these two sub-components. The chapter then discusses the policy implications of this situation.

According to the most recent data, there are approximately 10.35 million people held in prisons throughout the world, representing a rate of 144 inmates per 100,000 population (ICPR 2015). As can be seen in Figure 4.1, North America is the region of the world with the highest rate of prisoners. This is mainly due to the United States, which has the highest incarceration rate in the world. In the case of Latin America and the Caribbean, the prison rate is on the rise.

Comparing the trend in LAC with that of the United States, it can be observed that in the United States imprisonment increased 19 percent between

Figure 4.1. Regional Trend in Prison Rates by Region

Incarceration rate (per 100,000 population)
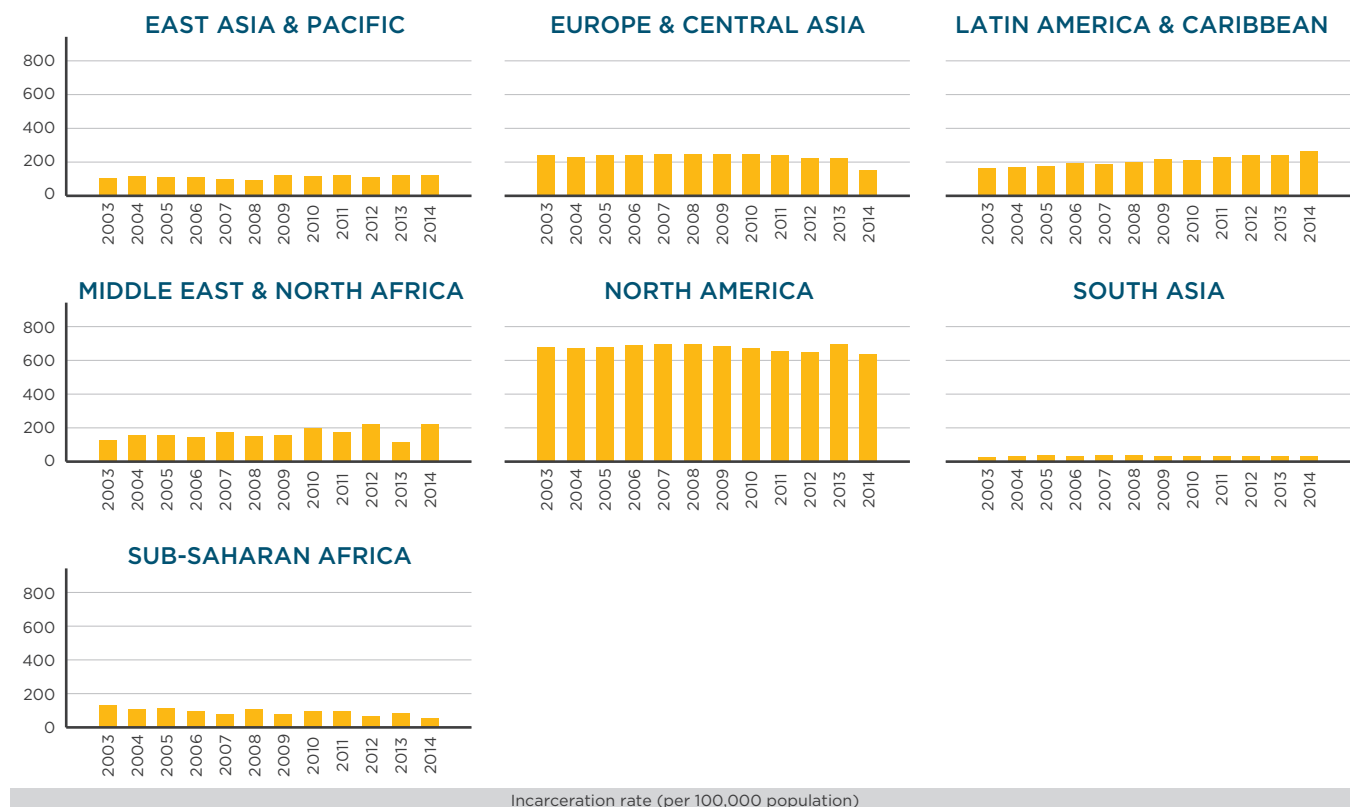
Source: Institute for Criminal Policy Research World Prison Brief database.

1995 and 2012, from 595 to 709 inmates per 100,000 population (Figure 4.2). In the same period, crime was significantly reduced in terms of both crimes against property and against people. The homicide rate fell from 8 per 100,000 population to 5 per 100,000 population. In LAC, the opposite occurred. The prison population increased exponentially between 1995 and 2012, rising from 101.2 to 218.5 inmates per 100,000 population, an increase of 116 percent. However, crime increased further during this period, with regional homicide rates doubling from 13 to 26 homicides per 100,000 inhabitants.

The possible anti-crime effect of incarceration acts in two concrete ways: it can deter crime by making it less attractive because of the harsher sanctions, and it can reduce crime through the "incapacitation" effect, since (in theory) incarcerated criminals are isolated from the illegal labor market. The fact that both homicide and incarceration rates in the region have increased raises serious doubts about the proper functioning of these anti-crime effects. Moreover, we find certain factors that favor the criminogenic effects of prisons: high overcrowding rates (occupancy on average is almost double the availability of places), deficiencies in rehabilitation services and reinsertion of prisoners (including the inability to analyze the level of

risk posed by prisoners and treat them accordingly), and high rates of prisoners without conviction (reaching 80 percent in some countries) (Figure 4.3).

Given the delicate security situation in LAC, it is important to examine the marginal benefits and marginal costs of the different alternatives in order to better allocate scarce resources. On the benefit side, we have already mentioned the main anti-criminal effects of incarceration. With regard to the deterrent effect, studies analyzing changes in the marginal probability of going to jail or of tougher sentences in the United States reveal a low effect of incarceration on reducing aggregate crime.[9] There is no consensus in the literature on the magnitude of that effect for LAC, but international evidence seems to indicate that what fosters deterrence is an increased likelihood of apprehension and subsequent conviction, rather than an increase in the severity of long sentences. In addition, when there is a large prison population, the marginal deterrent effect of more imprisonment is lower. This raises a warning signal for Latin American and Caribbean countries given the significant increase in the number of prisoners. The effect of incarceration is

(9) Some studies outside the United States find greater effects. See Bell, Jaitman, and Machin (2014) on Great Britain; see also Nagin (2013).

Figure 4.2. Comparison of Homicide and Incarceration Rates in Latin America and the Caribbean and the United States

a. Incarceration and Homicide Rates in Latin America and the Caribbean per 100,000 Population
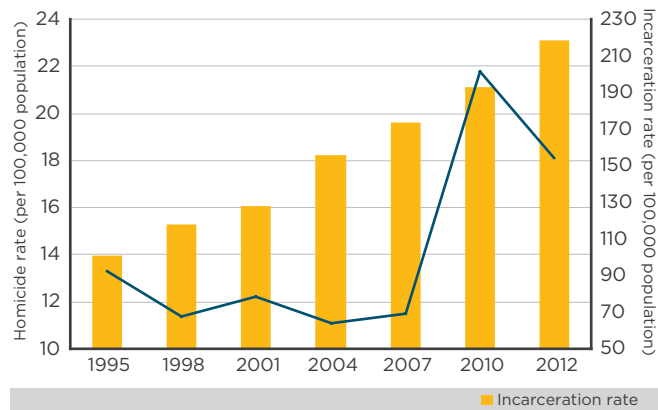
b. Incarceration and Homicide Rates in the United States per 100,000 Population

Incarceration rate   Homicide rate
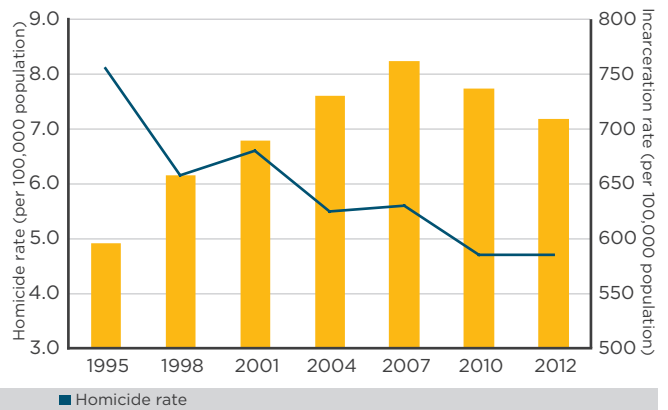
Source: Authors' estimates based on data from the United Nations Office on Drugs and Crime, and the Institute for Criminal Policy Research World Prison Brief database.

also relativized if there are high levels of violence inside the prison and if prisons themselves are enablers of crimes. According to data from nongovernmental organizations and in the regional local press, in some countries 70 percent of extortions come from prison.

When we think about the cost of incarceration, we must consider indirect as well as direct costs. So while we must consider public sector spending on the penitentiary system, there are also social costs that come from having an inactive population (if the prison does not carry out productive activities), costs in terms of welfare for prisoners' families, and the consequences of the release of prisoners for the labor market. This chapter aims to estimate a portion of these costs. In particular, we will focus on spending on the administration of the penitentiary system and on the loss of income caused by the inactivity of persons deprived of their liberty. The lack of more accurate data precludes estimates of the costs to families of prisoners and the labor consequences of release from prison, so our overall estimates of the cost of imprisonment should be understood as conservative estimates, since we will not be taking into account certain relevant components of those costs.

4.1 Public Spending on Prison Administration

This section analyzes public expenditure on citizen security in detail. We are interested in particular in separating out one component: spending on prison administration. Table 4.1 shows that administrative expenditure of the region's prison systems almost doubled from US$4,318 million in 2010 to US$7,832 million in 2014. Expressed as a percentage of GDP, the average for the 17 countries in our study went from 0.19 percent in 2010 to 0.23 percent in 2014. The heterogeneity within the region is important, however. Brazil has the lowest expenditure share, with only 0.06 percent of GDP spent on the administration of prisons during 2010–2014. Barbados has the highest average spending on prison administration at 0.47 percent of GDP, followed by Jamaica at 0.34 percent and Trinidad and Tobago at 0.33 percent. As these are all relatively small economies, the high percentages are likely to express the large fixed costs of administering a penitentiary system. Chile, with an average expenditure of 0.33 percent of GDP, represents a different case: because it is a relatively large economy, high spending is not the result of high fixed costs but rather a larger penitentiary system. As we will see in the next subsection, this policy has its correlation in terms

Figure 4.3. Rates of Prison Overcrowding and Prisoners Being Held but Not Convicted, by World Region

a. Overcrowding Rates (percent)
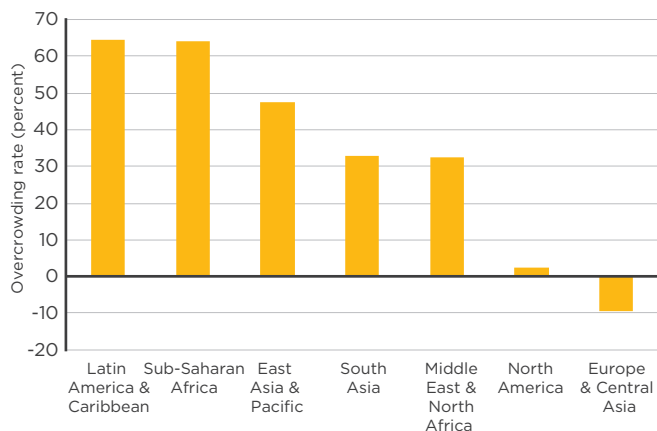
b. Percentage of Inmates Held but Not Convicted
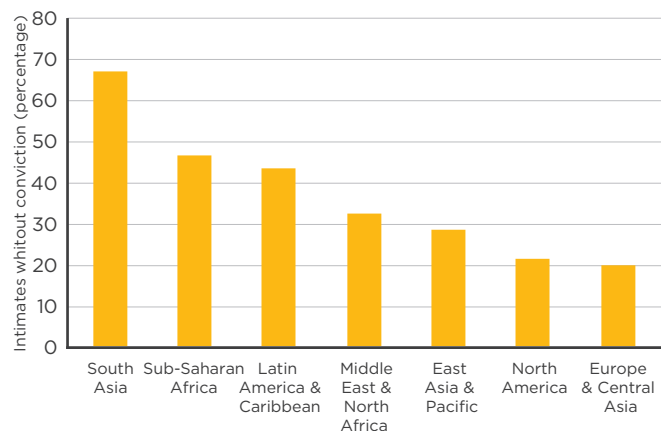
of greater loss of income from deprivation of liberty.

To put the spending numbers in perspective, on average LAC spends about 0.2 percent of GDP, less than half of the U.S. prison administration expenditure share of GDP, which in that country represents 0.5 percent of GDP. On the other hand, the average figure for the 17 countries in our study is almost three times higher than the cost of fully financing the main government programs to combat poverty in Mexico (*Prospera*) and Brazil (*Bolsa Familia*).

4.2 Income Losses Due to Incarceration

The incapacitation effect of incarceration is not limited to criminal activity. It also generally includes produc-

Table 4.1. Public Spending on Prison Administration (percent of GDP)

	Average over 2010–2014
Argentina	0.25
Bahamas	0.30
Barbados	0.47
Brazil	0.06
Chile	0.33
Colombia	0.16
Costa Rica	0.27
Ecuador	0.09
El Salvador	0.20
Guatemala	0.08
Honduras	0.10
Jamaica	0.34
Mexico	0.12
Paraguay	0.09
Peru	0.09
Trinidad and Tobago	0.33
Uruguay	0.25
Average for Latin America and the Caribbean	0.20
Total spending (in millions of U.S. dollars)	6,504.8

Source: Authors' estimates based on administrative data.

tive activity. Although in many cases persons deprived of their liberty carry out productive activities while in prison, most prisons in LAC lack programs that stimulate the productivity of inmates. In this way, the suppression of criminal activity also consists of suppressing a source of income for the economy. This chapter provides estimates of the cost inflicted on society as a whole in that regard. The methodology is simple: to each person deprived of their liberty we attribute the average labor-based income of their gender and age bracket. This information is gathered through labor surveys from each country.[10] In this way, our estimation method assumes that had a person not been incarcerated, that person would have generated income equivalent to the average for his/her age and gender group. Circumstances exist in which this assumption is not reasonable; in particular, if inmates have characteristics that differentiate them from their peers of the same gender who are free. Some of these characteristics could be educational level or specific labor skills that undoubtedly affect people's productivity levels. The lack of homogenous information regarding the characteristics of the inmate population for the 17 countries included in this study precludes us from taking into account those differences, so in that regard our estimates need to be analyzed with caution. In this analysis we favored the methodology in order to be able to estimate numbers that are comparable between countries.

Table 4.2 presents our estimates of the income loss due to incarceration for the 17 countries included in our study for 2010–2014. In total, the region has lost on average more than US$7 billion due to the inactivity of inmates. However, this number has increased substantially during the period of study, from US$5.8 billion in 2010 to more than US$8.4 billion in 2014. This represents an increase of almost 45 percent in four years. Figure 4.4 shows how this amount was distributed on average throughout the region. Brazil, given its population size, represents 47 percent of the losses incurred by the region, followed by Mexico with 16 percent and Chile with 8 percent. We examine the high

(10) Calculations are annually based. The data on inmates (their quantity and their characteristics by age and gender) are annual averages, hence we use annual labor-based income for each age bracket and gender from labor surveys.

level of Chilean losses later in the chapter.

Expressed as a percentage of GDP, the increase in losses has been less spectacular but nonetheless significant, increasing on average from 0.18 percent of GDP in 2010 to 0.20 percent of GDP in 2014. Among the countries, three groups can be distinguished. First are those countries with a relatively low loss of 0.1 percent of GDP or less. Guatemala, Jamaica, and Mexico are found within this group. These countries have relatively high homicide rates, so in this sense the relatively low income loss rate due to imprisonment helps to offset higher social costs. Jamaica merits special attention given the reduction in loss from 0.13 percent of GDP in 2010 to 0.09 percent of GDP in 2014.

The second group of countries has medium-size losses of between 0.10 and 0.20 percent of GDP. This group includes countries with both high homicide rates (Colombia and Brazil) and low homicide rates (Argen-

tina, Peru, and Uruguay). Between 2010 and 2014, losses increased in almost all of these countries, particularly Paraguay and Peru, where losses increased from 0.13 to 0.25 percent and from 0.14 to 0.20 percent of GDP, respectively.

Finally, the third group includes six countries where losses due to incarceration are particularly high at greater than 0.20 percent of GDP on average: The Bahamas, Barbados, Chile, Costa Rica, Honduras, and El Salvador. The last country has the greatest income loss in the region, losing on average 0.41 percent of GDP each year as a result of incarcerating a considerable portion of the working-age population. Similar to the case of Honduras, one of the most violent countries in the region, the high losses due to incarceration in El Salvador do nothing but exacerbate the cost that crime inflicts on society. In Honduras, while losses have been on average 0.27 percent of GDP, they decreased somewhat from 0.29 percent of GDP in 2010 to 0.26 percent in 2014. The country with the second highest loss is The Bahamas, where losses on average have been 0.35 percent of GDP, with noticeable volatility during the years of the study that included reaching 0.44 percent in 2012. Chile deserves special attention, as it is the country with the lowest homicide rate in the

Table 4.2. Income Loss Due to Incarceration (percent of GDP)

	Average for 2010–2014
Argentina	0.11
Bahamas	0.35
Barbados	0.24
Brazil	0.14
Chile	0.24
Colombia	0.16
Costa Rica	0.28
Ecuador	0.12
El Salvador	0.41
Guatemala	0.05
Honduras	0.27
Jamaica	0.10
Mexico	0.10
Paraguay	0.18
Peru	0.17
Trinidad & Tobago	0.14
Uruguay	0.18
Average for Latin America and the Caribbean	0.19
Total losses (in millions of U.S. dollars)	7,336.6

Source: Authors' estimates based on administrative data.

Figure 4.4. Income Loss Due to Incarceration by Regional Share (percent of GDP)

Source: Authors' estimates based on administrative data.

THE COSTS OF CRIME AND VIOLENCE
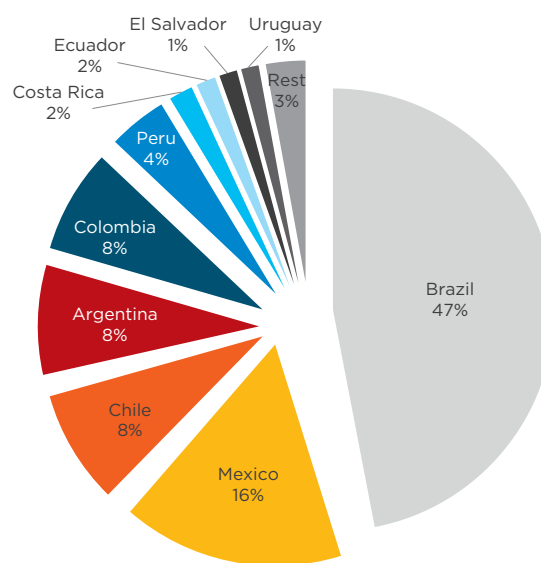
region, yet income losses there due to incarceration are relatively high, on average 0.24 percent of GDP. The fact that the least violent country in the region has one of the highest losses due to high incarceration rates opens up the debate on the efficiency of penitentiary policy in Chile.

4.3   Overall Costs Due to Incarceration

Table 4.3 presents our cost estimates on incarceration for the 17 countries included in this analysis, which adds together public expenditure on prison administration and the losses caused by the deprivation of liberty of inmates. On average, between 2010 and

Table 4.3. Incarceration Cost, Average for 2010–2014 (percent of GDP)

	Expenditure on Prison Administration	Losses Due to Incarceration	Global Cost
Argentina	0.25	0.11	0.36
Bahamas	0.30	0.35	0.65
Barbados	0.47	0.24	0.71
Brazil	0.06	0.14	0.20
Chile	0.33	0.24	0.57
Colombia	0.16	0.16	0.32
Costa Rica	0.27	0.28	0.55
Ecuador	0.09	0.12	0.21
El Salvador	0.20	0.41	0.61
Guatemala	0.08	0.05	0.13
Honduras	0.10	0.27	0.37
Jamaica	0.34	0.10	0.44
Mexico	0.12	0.10	0.22
Paraguay	0.09	0.18	0.27
Peru	0.09	0.17	0.26
Trinidad & Tobago	0.33	0.14	0.47
Uruguay	0.25	0.18	0.43
Average for Latin America and the Caribbean	0.20	0.19	0.39
Total cost (in millions of U.S. dollars)	6,504.8	7,336.6	13,841.4

Source: Authors' estimates based on administrative data.

2014, the overall cost of incarceration was more than US$13,800 million, or 0.39 percent of GDP, distributed in equal parts between both cost components.

The situation in each country is different. In some (Argentina, Barbados, Chile, Jamaica, Trinidad and Tobago, and Uruguay), the cost of prison administration is higher than the losses incurred due to incarceration, while in others (Brazil, Ecuador, Honduras, Paraguay, Peru, and El Salvador), income losses are greater than public expenditure on the penitentiary system. In global terms, the lowest cost incurred was by Guatemala, where total cost of incarcerations represents 0.13 percent of GDP. The highest cost incurred was by Barbados, representing 0.71 percent of GDP. The comparison between Chile and Peru is interesting: both countries have the lowest homicide rates in the region while also incurring considerably different costs of incarceration. Chile, with an overall cost of 0.57 percent of GDP, has the fourth highest cost in the region. Peru, with a cost of 0.26 percent of GDP, is among the countries with the lowest cost. A similar comparison can be made between Honduras and El Salvador, the most violent countries in Latin America and the world. While El Salvador has a global cost of incarceration of 0.61 percent of GDP, the cost in Honduras is 0.37 percent of GDP. These comparisons show that differences in penitentiary policy are not in line with levels of violence.

4.4   Conclusions

This chapter has analyzed the cost of incarceration in the 17 countries of Latin America and the Caribbean included in our study. The sharp increase in the number of inmates in the region in recent years has been reflected in higher costs incurred by society to incarcerate them. On the one hand, more money has been spent on the administration of penitentiary systems in the region from the public budget, approximately 0.20 percent of GDP. On the other hand, the increased incarceration of working-age people has deprived society of income that we estimate on average is equal to 0.19 percent of GDP. There is no clear corollary between the two cost components, as there are countries that have high public administration expenditure

and low income losses, and others where the opposite is observed. The same holds true for homicide rates: low levels of violence are not necessarily associated either with high or low costs of incarceration. In sum, these numbers raise serious questions regarding the efficiency of penitentiary policy in various countries across the region. There seems to be an opportunity to consider reforms that simultaneously reduce levels of violence and incarceration costs in many countries in Latin America and the Caribbean.

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Part I Appendix:
Sources of Information

Argentina
Budget: Executed budget for the nation, 23 provinces and City of Buenos Aires; National General Accountancy (*Contaduría General de la Nación*) and provincial governments
Private security: Observatory of Employment and Business Dynamics of the Ministry of Labor
Homicides: Ministry of Security and estimates based on Ministry of Health data
Prison system: National System of Penitentiary Statistics (SNEEP)

Bahamas, The
Budget: Executed budget, Ministry of Finance
Private security: Estimates based on annual labor force survey
Homicides: Royal Bahamas Police Force
Prison system: Institute for Criminal Policy Research, World Prison Brief; and Minnis et al. (2011)

Barbados
Budget: Approved estimates, Barbados Parliament
Private security: 2010 Population Census and Labor Force Survey
Homicides: Royal Barbados Police Force
Prison system: Annual Report of the Barbados Prison Service

Brazil
Budget: Accrued budget of central government and federal states, National Treasury
Private security: Brazilian Household Survey (PNAD/IBGE)
Homicides: Mortality Database (*Sistema de Informaçoes sobre Mortalidade* - SIM) of the Ministry of Health
Prison system: Yearbook of Public Security

Chile
Budget: Approved budget, Budget Directorate
Private security: Structural Survey of Retail and Services (*Encuesta estructural de comercio y servicios*) carried out by the Institute of Statistics (INE)
Homicides: Crime Prevention Undersecretary's Office (*Subsecretaría de Prevención del Delito*) of the Ministry of Interior
Prison system: Statistical Report of the Prison Police (*Compendio estadístico penitenciario de la Gendarmería de Chile*)

Colombia
Budget: Executed budget, Ministry of Finance
Private security: Annual Reports of the Superintendence of Surveillance and Private Security (*Superintendencia de vigilancia y seguridad privada*)
Homicides: Legal Medicine Institute (*Instituto de Medicina Legal*) of Colombia, Di-

rectorate of Criminal Investigation (*Dirección de investigación criminal*) of the National Police of Colombia

Prison system: Annual Statistical Reports of the National Penitentiary and Prison Institute (INPEC)

Costa Rica
Budget: Approved budget, Ministry of Finance

Private security: National Accounts report for 2012 and 2013 of the Central Bank of Costa Rica

Homicides: SISVI (*Sistema Nacional de Información sobre la Violencia y el Delito*), 2013 Statistical Report of the Judicial Investigations Agency (*Organismo de Investigaciones Judiciales*)

Prison system: Quarterly Penitentiary Population Reports of the National Criminology Institute (INC)

Ecuador
Budget: Executed budget, Ministry of Finance.

Private security: The Survey of Hotels, Restaurants and Retail (*Encuesta de hoteles, restaurants y comercios*) of the Institute of Statistics and Census (INEC) provides estimates of revenues

Homicides: Ministry of Interior

Prison system: Institute for Criminal Policy Research, World Prison Brief

El Salvador
Budget: Executed budget, Ministry of Finance

Private security: Annual Income Survey (*Encuesta de ingresos*)

Homicides: Legal Medicine Institute (*Instituto de Medicina Legal*) of El Salvador

Prison system: Annual Statistical Reports of the General Directorate of Penitentiary Centers (*Dirección General de Centros Penales*)

Guatemala
Budget: Accrued budget, BOOST project

Private security: Annual Employment and Income Survey (*Encuesta de empleo e ingresos*)

Homicides: Legal Medicine Institute (*Instituto de Medicina Legal*) of Guatemala

Prison system: General Directorate of the Guatemala Penitentiary System

Honduras
Budget: Approved budget, Ministry of Finance

Private security: No data useful enough to estimate the size of the private security sector were found for Honduras

Homicides: SEPOL, National Police of Honduras

Prison system: Institute for Criminal Policy Research, World Prison Brief

Jamaica
Budget: Executed budget, Ministry of Finance

Private security: 2011 Population Census and Labor Force Survey

Homicides: Jamaica Constabulary Force
Prison system: Institute for Criminal Policy Research, World Prison Brief

Mexico
Budget: Accrued federal budget, BOOST project, and state budgets from state governments
Private security: 2014 Economic Census, Institute of Statistics and Geography (INEGI)
Homicides: INEGI, Federal Health Secretariat
Prison system: Government, Public Security and Penitentiary Annual Census, INEGI

Paraguay
Budget: Accrued budget, BOOST project
Private security: 2011 Economic Census, Statistics and Census Directorate (DGEEC)
Homicides: Statistics and Census Directorate (DGEEC)
Prison system: 2013 Penitentiary Census, Ministry of Justice

Peru
Budget: Executed budget, BOOST project
Private security: Annual Economic Survey (*Encuesta Económica Anual*), Institute of Statistics (INEI)
Homicides: Institute of Statistics and Informatics (INEI)
Prison system: Annual Statistical Reports of the National Penitentiary Institute (INPE)

Trinidad and Tobago
Budget: Executed budget, Ministry of Finance
Private security: No data useful enough to estimate the size of the private security sector were found for Trinidad and Tobago
Homicides: Trinidad and Tobago Police Service
Prison system: Institute for Criminal Policy Research, World Prison Brief

Uruguay
Budget: Executed budget, BOOST project
Private security: Annual Economic Activity Survey (*Encuesta de actividad económica*), Institute of Statistics (INE)
Homicides: Ministry of Interior, Institute of Statistics (INE)
Prison system: National Rehabilitation Institute (INR), 2010 Penitentiary Population Census

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Part II

The Costs of Crime: Selected Regions in Detail

THE COSTS OF CRIME:
SELECTED REGIONS IN DETAIL

5 The Welfare Costs of Crime in Brazil: A Country of Contrasts

Dino Caprirolo, Laura Jaitman, and Marcela Mello[11]

Brazil has among the highest costs of crime in nominal terms in the region: violence there in 2014 accounted for US$75,894 million in costs (or US$103,269 million at purchasing power parity) (Figure 5.1a). This is a conservative estimate that only considers the direct costs of crime, using the accounting methodology presented in Chapter 2. This value represents 53 percent of the total cost of crime in Latin America and the Caribbean (LAC),[12] and 78 percent of crime costs in the Southern Cone (Argentina, Brazil, Chile, Paraguay, and Uruguay). The high level of the costs of crime in Brazil can be partially explained by its continental dimensions. The country has about half of the region's population (49.8 percent), generates 43 percent of regional GDP, and accounts for 39.5 percent of the region's homicides. As a share of the Southern Cone, Brazil accounts for 79.2 percent of the population and 95.1 percent of homicides.

In relative terms, crime costs an amount equivalent to 3.14 percent of Brazilian GDP, a rate slightly above the LAC average (3 percent) and much higher than the Southern Cone average (2.5 percent) (Figure 5.1b). Among LAC countries, only Honduras (5.67 percent), El Salvador (5.28 percent), The Bahamas (3.94 percent), and Jamaica (3.49 percent) have higher costs of crime than Brazil. In the Southern Cone, Brazil is followed by Paraguay (2.74 percent) in terms of the costs of crime.

Given the size of Brazil and its federal system, it is important to analyze differences within its regions and states. Thus, the objective of this chapter is to understand in detail the costs of crime across and within Brazilian regions. To the best of our knowledge, this is the first attempt to systematically study the costs of crime in Brazil in an international and regional context, and also to assess the costs of crime within Brazil considering the heterogeneity of its states. Other previous studies estimated the costs of crime in Brazil using diverse methodologies. Studies by Cerqueira (2014a, 2014b), for example, only provide estimates at the national level. Those studies estimated the costs of crime for Brazil in 2004 at 5.1 percent. The author included in his estimate the costs associated with the public sector and the private sector, as well as social costs, in addition to the costs of the public health system. Cerqueira (2014b) estimates the welfare costs of homicides, accounting for regional, educational, and gender differences. According to this estimate, the loss of welfare associated with homicides in 2010 was 2.4 percent. In our estimations, we will use a method-

ology that is less demanding in terms of homicide data disaggregation and that can be applied to the rest of the countries of the region. This leads to a lower (more conservative) estimate of the social costs of crime in comparison to Cerqueira (2014b).

The first section of this chapter shows trends in crimes in the different regions in order to illustrate the heterogeneity across the country. The section that follows shows the different realities of Brazilian states in terms of crime. We then discuss what can explain these differences, particularly the role of GDP, poverty, and inequality. Finally, we present our estimates of the costs of crime by region and states, separately for each component of those costs.

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5.1 The Different Realities of Brazilian Regions

As in Latin America and the Caribbean as a whole, crime rates in Brazil vary widely across and within its regions at the state and municipal level. Figure 5.2 shows trends in homicide rates per 100,000 population between 2000 and 2014. Although Brazil's average homicide rate has been relatively constant over the last 15 years, reaching 29.8 homicides per 100,000 population in 2014, there were wide variations across

regions. The Southeast, the most violent region of the country until the early 2000s, experienced a decreasing trend and eventually became one of the least violent regions in terms of its homicide rate, along with the South. The Northeast, North, and Midwest regions experienced consistent increases in their homicide rates in recent years.

The aim of this chapter is not to explain the causes of the variation, but rather to assess how these trends translate in terms of the costs of crime and violence per region and state. Few studies investigate the main determinants of the regional trends of homicide rates in the 2000s in Brazil. Cerqueira (2014c) analyzes the effect of seven factors that affected homicide trends between 2001 and 2007: income, inequality, share of young men in the total population, number of police officers, incarceration rate, guns, and consumption of illegal drugs. He finds that, in states where there was an increase in the homicide rate, there was also an accentuated increase in the share of young people, drugs, and guns. He argues that this fact is consistent with what other studies found in the United States (Blumstein 1995; Cork 1999). The crack epidemic boosted the use of guns by young people, leading to an increase of victimization among this age group. This hypothesis is also consistent with the findings of De Mello (2010), who argues that the increase and then subsequent decrease in homicides in São Paulo

Figure 5.1. Cost of Crime and Violence

a. In millions international purchasing power parity U.S. dollars
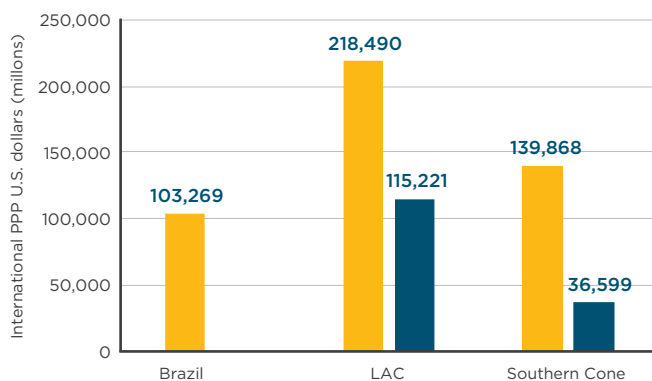
b. As a percent of GDP
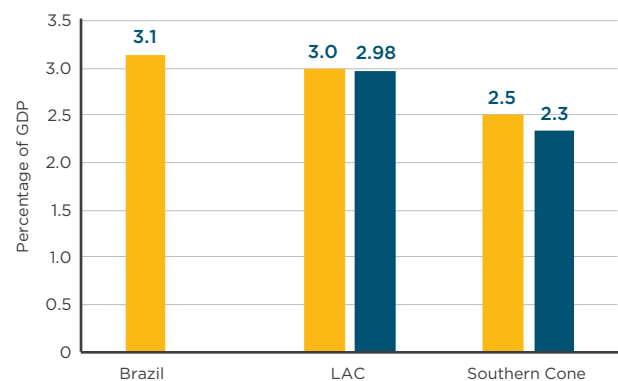
Without Brazil

Source: Authors' estimates using the methodology outlined in Chapter 2. **Note:** LAC = Latin America and the Caribbean.

can be partially explained by the increase and subsequent decrease in the demand for crack.

Although homicide is the main crime indicator, and usually the most comparable across countries and within a country, it is important to note that other types of violent crime have been increasing in some regions of Brazil. For example, Figure 5.3 shows the trend in robberies per 100,000 population from 2008 to 2013. All the regions show an increasing trend except for the Northeast. It is important to note that, although the Southeast has the lowest homicide rate, the region has the highest rate of robberies. The overall robbery rate country-wide is 495 per 100,000 population, about half the rate of Argentina (around 1,000 for 2015) and similar to Chile (598 in 2014).[13]

Map 5.1a shows the regional distribution of the level of crime among states. Light colors represent lower homicide rates per 100,000 population while the darker colors identify the states with the higher rates.

(13) The source for the other countries is the United Nations Office on Drugs and Crime. Note that the divergence in homicide and robbery rates can be due to different levels of reporting in the case of robberies.

As a general pattern, the South and Southeast regions experience much lower levels of violence (measured by the homicide rate) compared to the other regions. The Northeast region stands out for its high level of violence. The states of Alagoas (62.42 homicides per 100,000 population), Ceará (40 homicides), and Sergipe (48.72 homicides) have the highest rates in the country. In the Southeast, São Paulo (11.6 homicides per 100,000 population) stands out for lowest homicide rate, almost twice lower than Minas Gerais (20.44 homicides), the second state with the lowest level of violence in the region. In the South, Paraná (23.95 homicides per 100,000 population) is the most violent state, with a rate of homicides more than twice that of Santa Catarina (10.49 homicides). In the North, Pará (38.19 homicides per 100,000 population) has the highest level of violence, while Tocantins (21.99 homicides) has the lowest rate. Finally, in the Midwest region, Goiás has the highest rate of violence (41.24 homicides per 100,000 population) while Mato Grosso do Sul has the lowest (25.42 homicides).
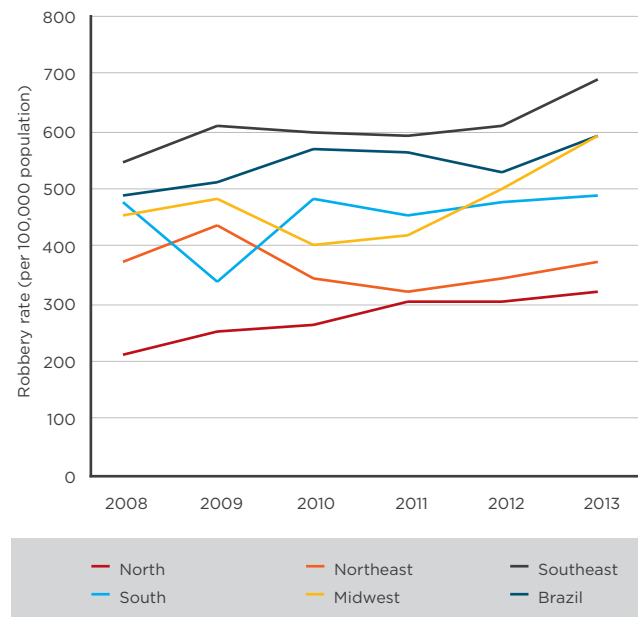
Besides the regional variation, there is also wide variability of violence among municipalities within the same state. Map 5.1b illustrates the homicides rate by

Figure 5.2. Homicide Rate per 100,000 Population by Region
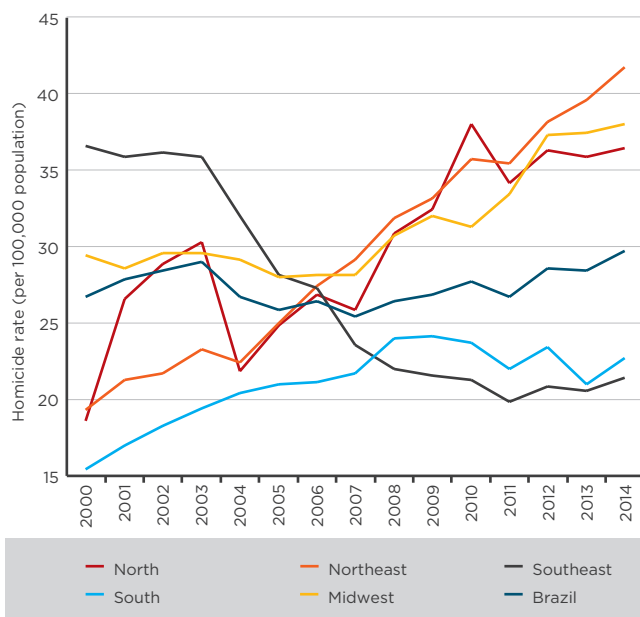
Source: Authors' estimates based on administrative data.

Figure 5.3. Robbery Rate per 100,000 Population by Region

Source: Authors' estimates based on administrative data.

deciles of the distribution of homicides. While in some municipalities there were no homicides registered, in others the homicide rate exceeded 100 homicides per 100,000 population (this rate is comparable to that of the most dangerous cities in Central America). The coastline of the Northeast stands out for its high level of violence, much higher than the interior of the region.

Regarding the variation of violence between 2000 and 2014, the Map 5.2 shows that there was a marked increase in violence especially in the Northeast, with the exception of Pernambuco state. The colors in shades of green indicate a reduction of violence, while the colors in shades of red indicate increases. In the Southeast, only in Minas Gerais was there an increase in the homicide rate during this period. São Paulo and Rio de Janeiro presented a marked decrease in their homicide rates (-67 percent and -32 percent, respectively), while in Espírito Santo there was a modest decrease (-12 percent). The South was the only region where there was no decrease in homicide rates.

Overall, the three states that reduced their homicide rates the most between 2000 and 2014 were São Paulo (-67 percent), Pernambuco (-33 percent), and Rio de Janeiro (-32 percent). Some recent studies offer explanations for the causes of these sizable

declines, though there is not a consensus on the main underlying causes. In São Paulo, the literature discusses three main drivers of the homicide reduction: public policy, demography, and organized crime. Over the past few years, the state has adopted a series of public policies to improve citizen security,[14] such as the Dry Law. Between 2001 and 2004, municipalities in the São Paulo metropolitan region gradually regulated recreational alcohol consumption. Biderman, De Mello, and Schneider (2010) associate this law with a 10 percent reduction in homicides in the metropolitan area. However, De Mello and Schneider (2010) argue that these policies cannot explain the change in dynamics, since they were not widely implemented in the state as a whole. They argue that changes in the demographic dynamics played a key role in reducing the homicide rate in São Paulo during this period. The authors estimate that there is great elasticity between the share of young people between 15 and 24 years of age and homicides, even after controlling for municipality and time fixed effects. Finally, the literature also discusses the role that the crime faction known as First Command of the Capital (PCC) had in the crime
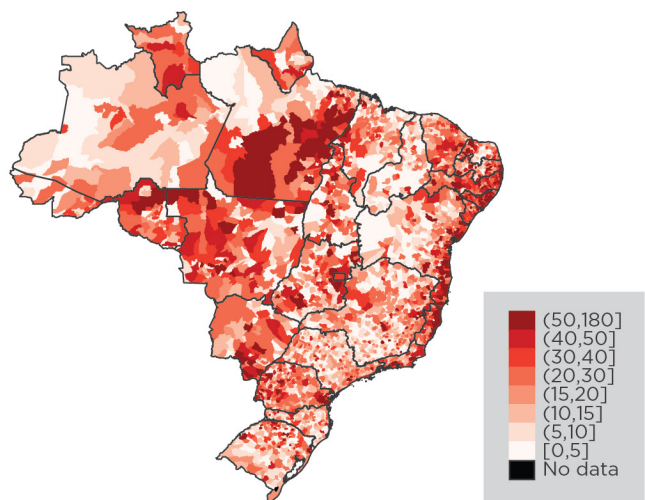
(14) See De Mello and Schneider (2010) for a deeper discussion.

Map 5.1. Homicide Rate per 100,000 Population by State and Municipality

a. By State
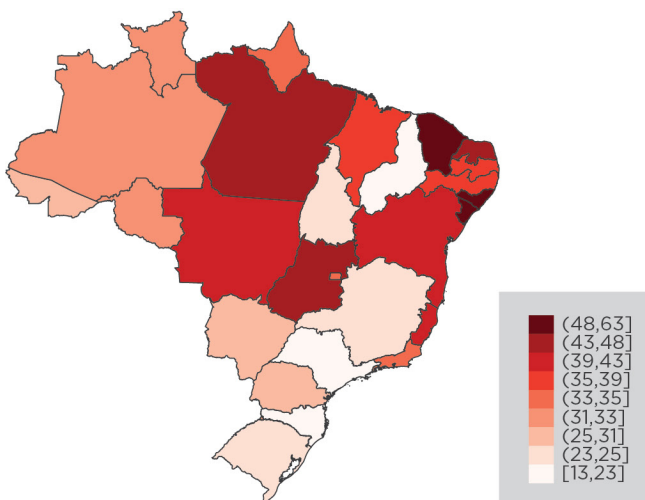
b. By Municipality

Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS); the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (I*nstituto Brasileiro de Geografia e Estatística* – IBGE); and the IBGE Census.

drop in São Paulo. After this faction came to dominate the drug market, there was a decrease in conflicts between groups. Biderman et al. (2014) estimate that the presence of PCC is associated with a 13 percent reduction in violent crimes.

In Rio de Janeiro's case, although the state had already been showing declines in crime, there was a greater reduction after the beginning of the pacification of the favelas, mainly through the operations of police pacification units known as UPPs. According to an analysis by the Institute of Public Security (2016), the number of homicides in pacified favelas fell by 76 percent between 2007 and 2014. Other authors claim that the UPPs had little impact on homicides but could have affected other outcomes such as police killings (Magaloni, Melo, and Franco 2015). Finally, Neto et al. (2014) attribute part of the crime reduction in Pernambuco to the Pacto pela Vida Program implemented in 2007. The main objective of the program was to reduce homicides, and it consists of a series of policing and crime prevention strategies. The authors estimate that this program led to a reduction of 17.3 percent in the homicide rate between 2007 and 2011,

which corresponds to 2,213 lives saved. However, the state still has high homicides rates.

5.2 What Explains the Heterogeneity in Crime across States?

Once regional heterogeneities have been identified, it is important to try to understand what may be driving these differences. It is fairly well accepted in the literature that higher income is correlated with lower crime. Figure 5.4 confirms this relationship. The red line shows the negative partial correlation between the homicide rate and GDP per capita, controlling for inequality and poverty. Some states in the Northeast region (Alagoas and Ceará) are outliers, with a very high level of homicides even for their low GDP. On the other hand, the states of the South and Southeast show generally show higher levels of homicides considering that their GDPs per capita are the highest.

However, it is hard to establish a clear correlation between poverty or inequality and homicides. Figure 5.5 shows the partial correlation between poverty and homicide, controlling for GDP and inequality. There is a clear polarization between the states with the highest and lowest poverty rates, and there is high homicide rate variability in each group. In the poor states, the homicide rate ranges from 19.2 to 65.4 homicides per 100,000 population, while in the rich states this rate is between 11.8 and 45.1 per 100,000 population. Figure 5.6 shows the partial correlation between inequality and the homicide rate controlling for GDP and poverty. Although Brazil is a very unequal country, it seems that there is no correlation between inequality and the homicide rate among the states. Possibly, a correlation might appear at a more disaggregated level.[15]
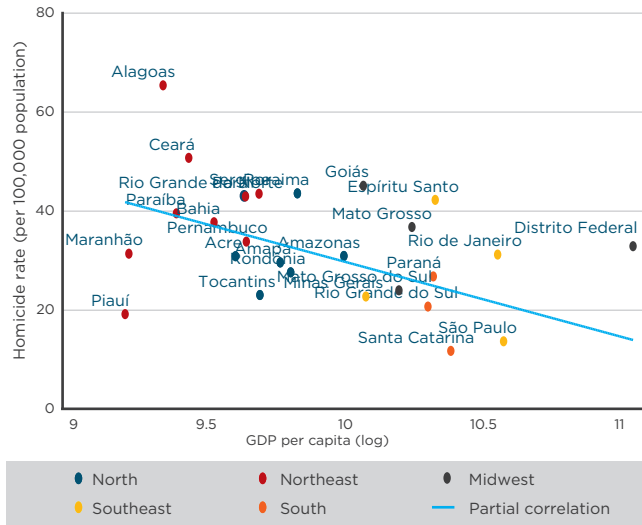
Map 5.2. Variation in the Homicide Rate between 2000 and 2014
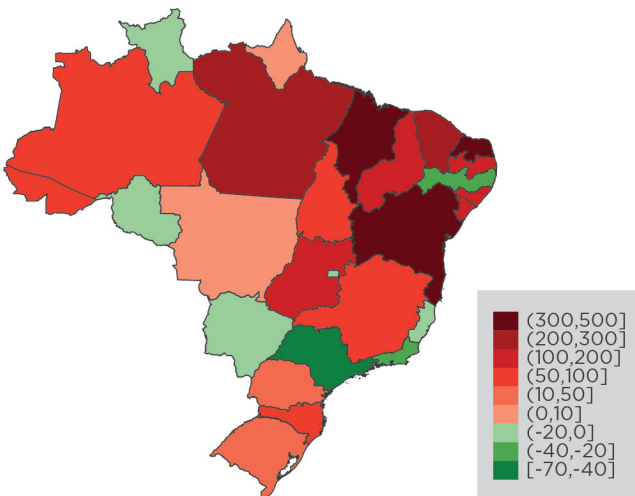
(300,500]
(200,300]
(100,200]
(50,100]
(10,50]
(0,10]
(-20,0]
(-40,-20]
[-70,-40]

Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS); the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (I*nstituto Brasileiro de Geografia e Estatística* – IBGE); and the IBGE Census.
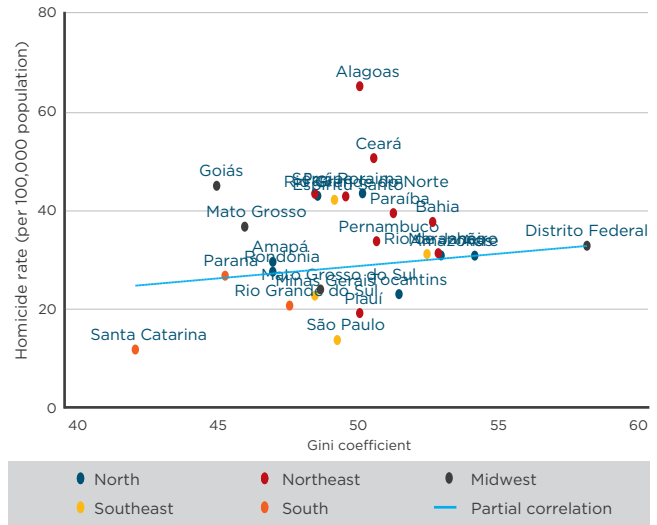
(15) World Bank (2013) analyzes this relationship at the municipal level and finds that in areas where inequality is high, crime is likely to be high.

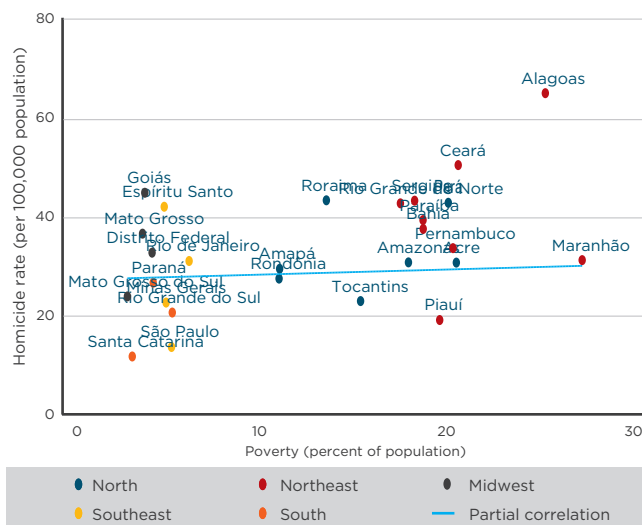## Figure 5.4. Homicide Rate and GDP Per Capita by State and Region, 2014

Homicide rate (per 100,000 population)

Alagoas
Ceará
Rio Grande Sergipe Roraima
Paraíba
Goiás
Espíritu Santo
Bahia
Mato Grosso
Pernambuco
Maranhão
Acre Amapá Amazonas
Rondônia
Rio de Janeiro
Distrito Federal
Paraná
Piauí
Tocantins Minas Gerais
Mato Grosso do Sul
Rio Grande do Sul
Santa Catarina
São Paulo

GDP per capita (log)

- North
- Northeast
- Midwest
- Southeast
- South
- Partial correlation

Source: Authors' estiamtes based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS); the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); and the IBGE Regional Accounts.

Figure 5.6. Homicide Rate and Inequality Per Capita by State and Region, 2014

Homicide rate (per 100,000 population)

Alagoas
Ceará
Goiás
Rio Grande Norte
Mato Grosso
Paraíba
Bahia
Amapá
Pernambuco
Paraná Rondônia
Mato Grosso do Sul Tocantins
Minas Gerais
Rio Grande do Sul Piauí
São Paulo
Santa Catarina
Distrito Federal

Gini coefficient

- North
- Northeast
- Midwest
- Southeast
- South
- Partial correlation

Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS); the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); and data from the Institute for Applied Economic Research (*Instituto de Pesquisa Econômica Aplicada* – IPEA).

Figure 5.5. Homicide Rate and Poverty by State and Region, 2014

Homicide rate (per 100,000 population)

Alagoas
Ceará
Goiás
Espíritu Santo
Roraima Rio Grande Sergipe Ceará Norte
Mato Grosso
Paraíba
Bahia
Distrito Federal
Pernambuco
Rio de Janeiro
Amazonas Acre
Amapá
Maranhão
Paraná Rondônia
Mato Grosso do Sul
Tocantins
Minas Gerais
Rio Grande do Sul
Piauí
São Paulo
Santa Catarina

Poverty (percent of population)

- North
- Northeast
- Midwest
- Southeast
- South
- Partial correlation

Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS); the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); and data from the Institute for Applied Economic Research (*Instituto de Pesquisa Econômica Aplicada* – IPEA).

5.3 The Cost of Crime in Brazil

How can we translate these high crime levels in terms of costs in social welfare? There are different methodologies to estimate the welfare costs of violence, such as the accounting methodology, hedonic prices, and willingness to pay, among others (for a detailed description see Jaitman 2015). This section estimates the direct costs of crime in Brazil for each state using the accounting methodology described in Chapter 2.[16] The idea is to compare Brazil with the Southern Cone (Argentina, Brazil, Chile, Paraguay, and Uruguay) and provide estimates for each component by Brazilian region and state. Figure 5.7 reports the composition of the costs of crime in Brazil, LAC, and the Southern Cone taking into account the costs of crime: public spending on security (police, prison administration, and justice), private spending on security, and social costs (foregone income of prisoners and losses due to violent crime). Brazil stands out for its high expenditure on private security, which might be indicative of the feeling of the population that there is an underprovision of security services by the government. In 2014, 48 percent of the total cost of crime was due to

private spending on security, higher than the averages for LAC and the Southern Cone (both at 43 percent) (Figure 5.7a). There are a few studies analyzing the large size of private spending on security in Brazil. For example, Zanetic (2010) analyzed the proportion of public versus private security workers between 2003 and 2005 in Brazil and found that the country has more private than public security workers per 100,000 population, in contrast to the rest of South America.[17]

Public expenditure is the second largest component of Brazil's cost of crime at 36 percent. Compared to other countries, this expenditure makes up a relatively small share of the total cost. Brazilian public spending per capita (US$183.6 at purchasing power parity - PPP) is similar to the LAC average (PPP US$194.5) but lower than that of the Southern Cone (PPP US$226.5) (Figure 5.7b). Note that in citing the LAC average we give the same weight to every country, thus the average is highly affected by small countries that have high per capita spending on crime, particularly Trinidad and Tobago (PPP US$460.6), The Bahamas (PPP US$382.7), and Barbados (PPP US$271.4).

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(16) For some components, it was not possible to directly apply the same methodology. In these cases, we developed alternative methodologies, which are described in the text.

(17) According to the author, the process of expansion of Brazil's private security market was driven by the increase of open private spaces such as shopping centers, the fleet of cars, and residential condominiums, especially during the 2000s.

Figure 5.7. Cost of Crime in 2014

a. Share of the Components of Crime Costs in Percent
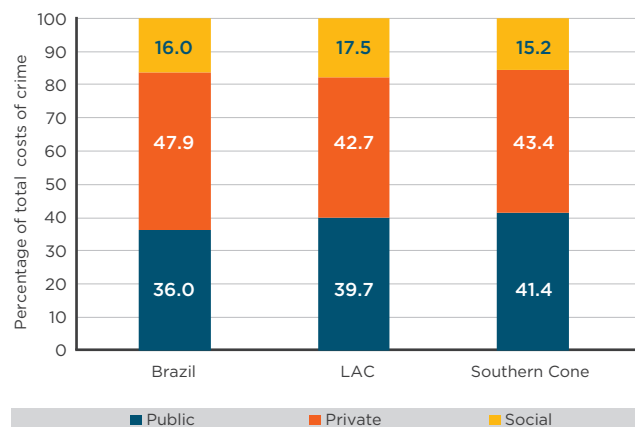
b. Share of the Components of Crime Costs in Per Capita PPP U.S. Dollars
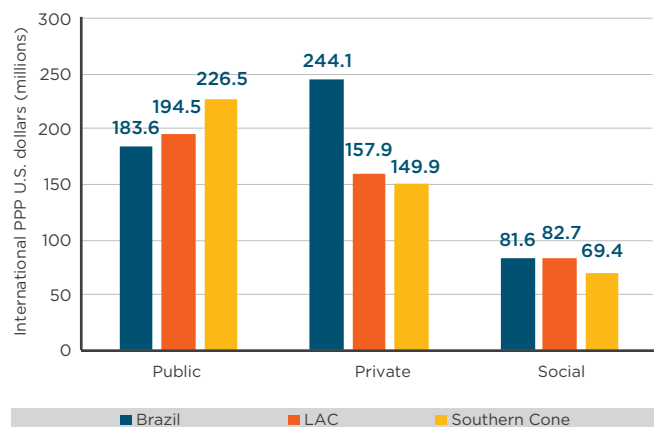
Source: Authors' estimates using the methodology outlined in Chapter 2.
Note: LAC = Latin America and the Caribbean; PPP = purchasing power parity.

Finally, social costs in Brazil (16 percent) represent a share of costs of crime comparable to that of LAC and the Southern Cone (17.5 percent and 15.2 percent, respectively). In absolute terms, Brazil accounts for 43 percent of the total social cost of crime in LAC and 78 percent in the Southern Cone.

5.3.1 Public Spending, Social Costs, and Private Spending by Region and State

5.3.1.1 Public Spending on Security

Public spending on security consists of three components: the police, the judicial system, and prison administration.[18] Figure 5.8 shows public spending by region and the Brazilian average. There is huge variability in public spending on security across regions and states that is comparable to the variability among other LAC countries (as noted in Chapter 2, public spending ranges from 0.7 percent to more than 2 percent of GDP). Among Brazilian regions, the range is between 0.9 percent (South) and 2 percent (North). Inside the same region, there is also large heterogeneity, with the exception of the South. The state of Acre spends the higher share of its GDP on public safety (3.9 percent) while Distrito Federal allocates the lowest share (0.37 percent) (see Appendix 5.1).

Regarding the composition of public spending, all regions have a similar profile, with expenditure on the police accounting for more than 80 percent of public spending (Figure 5.9). According to the *Yearbook of Public Security*, Brazil had 425,248 police officers in 2014. Figure 5.10 reports the number of officers per 100,000 population in each state. Distrito Federal had the highest concentration of police officers (501 police

officers per 100,000 population), followed by Amapá and Acre (490 and 342 police officers per 100,000 population, respectively). Most states have a police rate of around 200 police officers per 100,000 popu-

Figure 5.8. Public Expenditure on Security by Region, 2014 (percent of GDP)
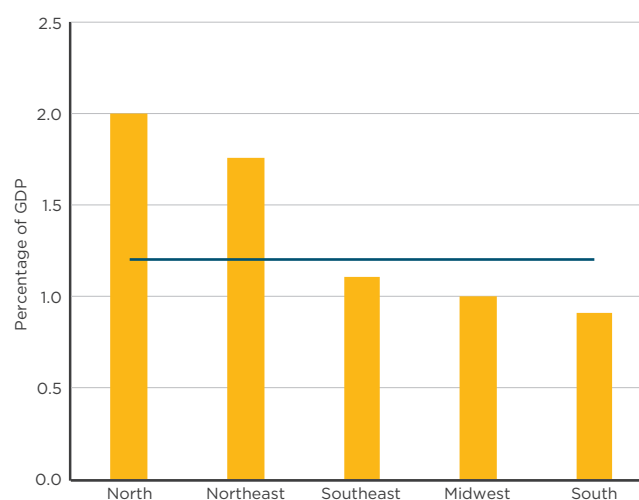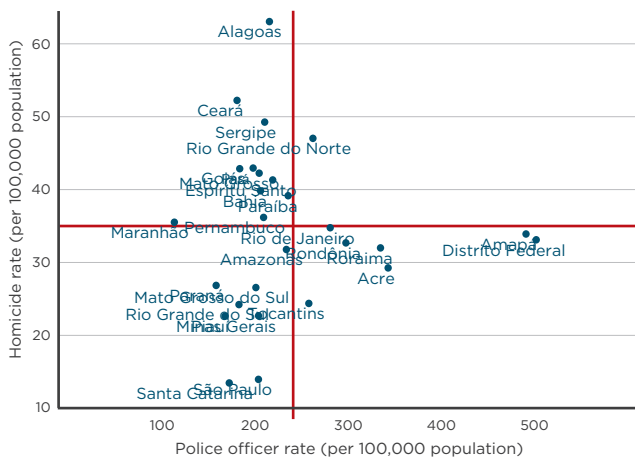

Source: Authors' estimates based on National Treasury data and on the Regional Accounts of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE).

Figure 5.9. Composition of Public Expenditure on Security by Region, 2014 (percent of GDP)
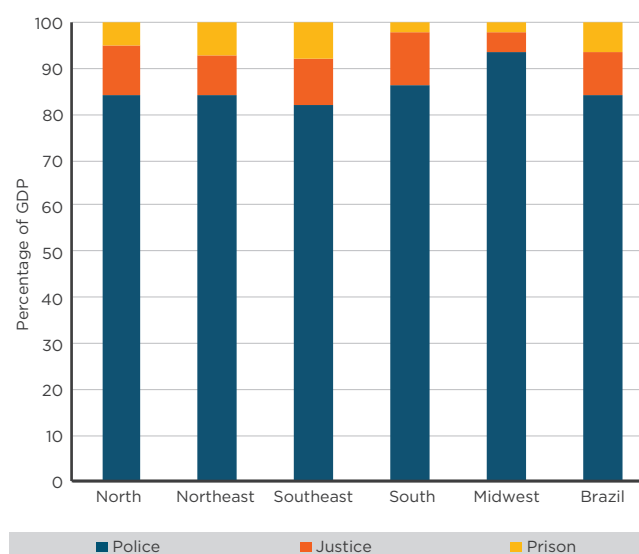
Source: Authors' estimates based on National Treasury data and on the Regional Accounts of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE).

(18) Expenditure on policing is contained in the government function titled Public Security. We consider as expenditure on prisons the sub-function of Custody and Social Reintegration. To construct expenditure on criminal justice, we take the share of total judicial expenses corresponding to the share of criminal processes among new cases entered into the justice system in 2014 using information from the Ministry of Justice. For more information on the construction of these variables, see Chapter 2 on the methodology used for the 17 countries studied in this volume.

lation. Maranhão has the lowest rate (112 police officers per 100,000 population).

The way that the number of police officers relates to the crime rate is not very clear. Figure 5.10 shows

Figure 5.10. Number of Police Officers and Homicide Rate by State, 2014

Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS) and on *Yearbook of Public Security* data.

Figure 5.11. Foregone Income from Crime by Region and Nationwide, 2014 (in percent)
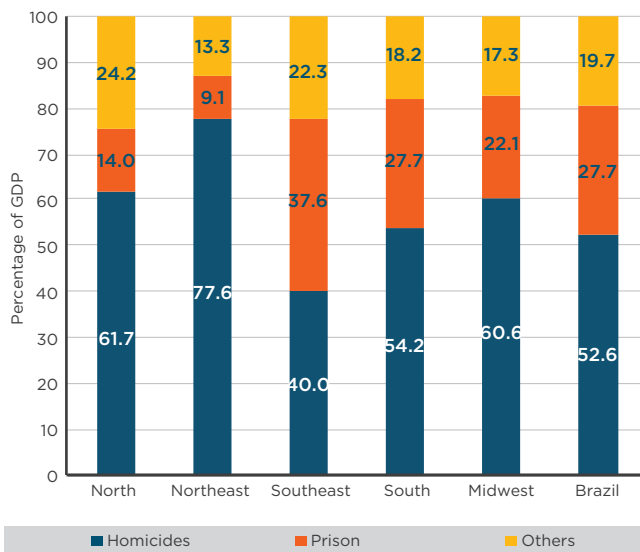
Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATA-SUS); Yearbook of Public Security data; and the Regional Accounts of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE).

the homicide rate versus police presence. Around the average (240 police officers per 100,000 population), there is a wide variation in homicide rates.

5.3.1.2 Social Costs of Crime

We divide the social costs of crime into three types of foregone income. The first is due to homicides; the second comes from the foregone income of the prison population; and the third is due to the quality of life loss due to other crimes (rapes, robbery, and assault). We calculate these costs using the same methodology as in Chapter 2.[19] Figure 5.11 shows that homicides constitute the main source of social costs of crime in all regions, with the exception of the Southeast, where the foregone income of the prison population also accounts for a large share of social costs. The subsections that follow explore the two first components.

Foregone Income from Homicides

Brazil concentrates around 10 percent of total world homicides and half of total homicides in LAC. Its homicide rate is substantially higher than the averages for LAC and the Southern Cone, as Figure 5.12 shows. However, this high rate of homicides does not affect all population groups equally. Understanding how violence affects each one of these groups is fundamental to designing policies focused on the most vulnerable groups.

According to 2014 data from the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE), 45.5 percent of the population is white, 45 percent brown, 8.6 percent black, 0.5 percent oriental, and 0.4 percent indigenous. However, analyzing homicide victim data, there is an overrepresentation of the black/brown population in homicides. The data show that 74.58 percent of victims in 2014 were black/brown, while only 25 percent were white. Figure 5.13 shows that the mortality rate among the black/brown population is about two to three times

(19) We use the LAPOP Survey for victimization figures. As this survey does not provide information at the state level, we use state-level information from the *Yearbook of Public Security*.
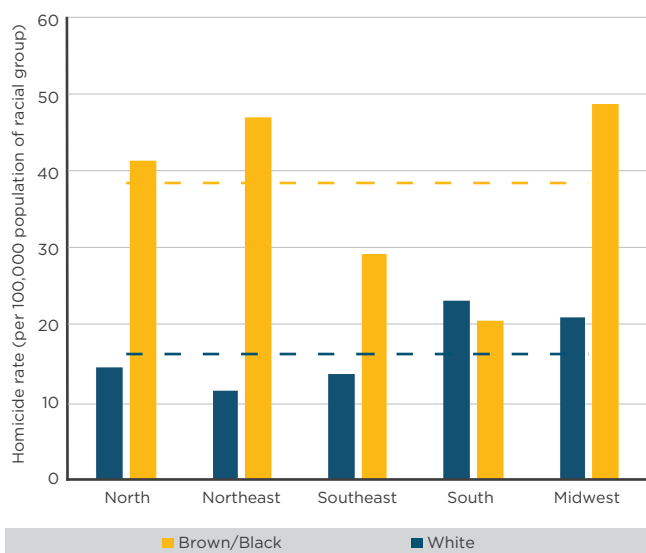
higher than among whites. The South is the only region where there is no disparity between the rate of

homicides among black/brown and white populations. In the North, Northeast, and Midwest, the homicide

Figure 5.12. Homicide Rates per 100,000 Population: Brazil, Latin America and the Caribbean, and the Southern Cone, 2014
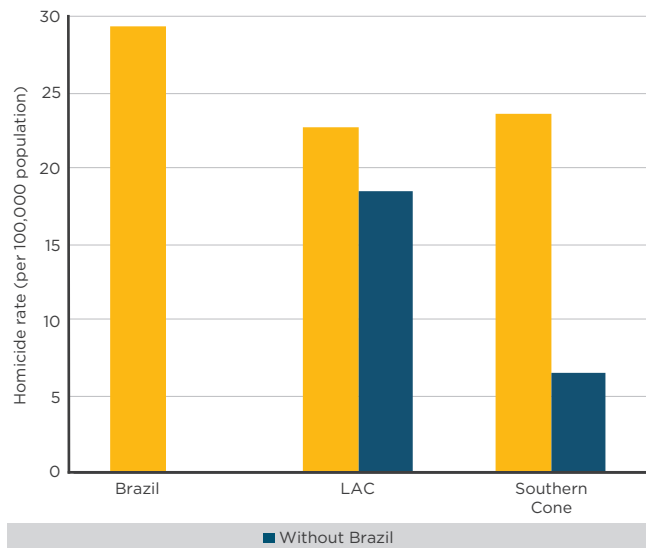
Source: Authors' estimates based on administrative data.
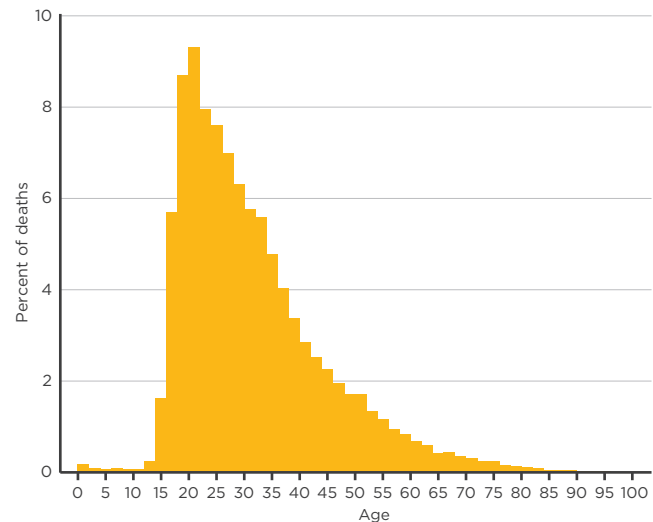**Note:** LAC = Latin America and the Caribbean.

Figure 5.14. Age Distribution of Homicide Victims, 2014 (percent)

Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS).

Figure 5.13. Homicide Rate per 100,000 Population by Race and Region, 2014

Source: Authors' estimates based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATA-SUS) and the Regional Accounts of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE).
Note: The dashed lines represent Brazil's average for each racial subgroup.

Figure 5.15. Homicide Rate by Age Groups and Region, 2014 (per 100,000 population)
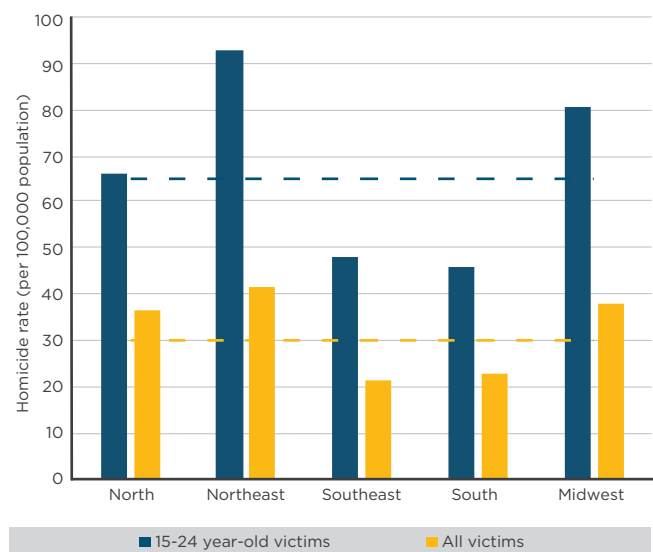
Source: Prepared by the authors based on the Ministry of Health's Mortality Database (*Sistema de informação sobre mortalidade* – SIM/DATASUS) and the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE).
Note: The dashed lines represent Brazil's average for each age subgroup.

THE COSTS OF CRIME AND VIOLENCE

rates among the black/brown population are comparable to the most violent countries in the world.

It is well documented in the literature that homicides disproportionally affect young people. Brazil is no different. In 2014, 15-24 year-olds made up 16.3 percent of the total population but accounted for 35.7 percent of homicide victims. Figure 5.14 shows the age distribution of victims. Most were concentrated around 20 years of age. The homicide rate in this age bracket is at least twice the general rate in all regions, and it is even more disproportional in the Northeast, as Figure 5.15 shows. Finally, regarding educational distribution, almost half of homicide victims had between four and seven years of education, i.e., they did not complete elementary school.[20]

Foregone Income of the Prison Population

Another important component of the social costs of crime is the foregone income of the prison population. According to World Prison Brief data from the Institute for Criminal Policy Research, Brazil is the fourth largest prison population in the world after the United States, China, and Russia, and it ranks 30th in terms of its incarceration rate per 100,000 population.

More than half of Brazil's incarcerated population is in the Southeast region. The Northeast has 16.6 percent of prisoners while the South, North and Midwest account for 11.3 percent, 6.66 percent, and 8.81 percent, respectively. Figure 5.16 shows the incarceration rate between 2003 and 2014. In all regions, the average incarceration rate increased. The highest increase was in the Southeast (121 percent), followed by the Northeast (102 percent). In the states in these regions the incarceration rate doubled during the period, as did Brazil's overall average (111 percent). The Midwest, South, and North also had large prison population increases of 94 percent, 66 percent, and 66 percent, respectively.

This high incarceration rate generates costs to the country not only because of the spending on prison administration but also due to the foregone income of people in prison who do not contribute to generating income to the country. Table 5.1 reports this cost as a proportion of GDP for 2014 by region. The Southeast is where this amount reaches its highest value (0.17 per-

cent), pulling up the national average (0.15 percent), since that region holds more than half of prisoners of the country.

Figure 5.16. Incarceration Rate per 100,000 Population by Region, 2003–2014
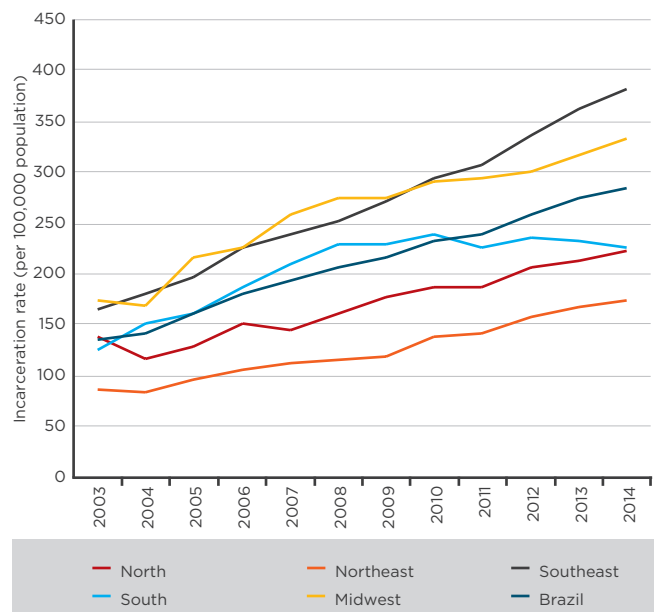
Source: Authors' estimates based on *Yearbook of Public Security* data; the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); and the IBGE Census.

Table 5.1. Social Cost by Region in 2014

Region	Prison Population	Prison Population Share	Foregone Income Prison Population Share
North	38,593	6.7	3.8
Northeast	97,639	16.9	5.7
Southeast	326,634	56.4	67.1
South	65,484	11.3	14.4
Midwest	51,073	8.8	9.0
Brazil	579,423	100.0	100.0

Source: Authors' estimates based on *Yearbook of Public Security* data; the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); and IBGE Regional Accounts.

(20) In the database, 26.16 percent of the observations did not have any educational information.
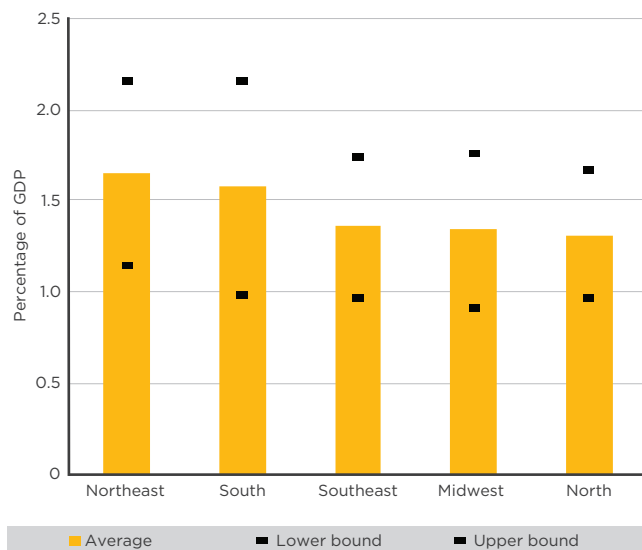
5.3.1.3   Private Spending on Security

To estimate the private costs of crime we follow the methodology of Cerqueira (2014a).[21] First, we divide this cost in two: formal and informal sectors. In the formal sector, we consider expenditure on insurance and on formal security workers. Estimates of expenditure on insurance include the premiums paid for car insurance, insurance against home theft and burglaries, and insurance for businesses and condominiums.[22] To compute the cost of formal security workers, we use data from the National Household Survey Sample (Pesquisa Nacional por Amostra de Domicílios – PNAD) and the

National Census. In the informal sector, we only consider the expenditure with informal security workers.[23] The sum of these three components gives a lower bound. To better consider how much firms spend on crime, we also use the World Bank's Enterprise Survey (see Chapter 2 for more information on this survey).[24] Adding the four components, we produce an upper bound.

Figure 5.17 reports the upper and lower bounds of private costs by region. The Northeast spends the most on private security, followed by the South and Southeast. However, there is not a large variation in private expenditure among regions and states. The cost ranges from 1.1 to 1.8 percent of the GDP.

## 5.3.2 The Welfare Costs of Crime and Violence in Brazil, by Region and State

Finally, we present the total cost of crime by region and state. Figure 5.18a reports the average, lower, and upper bounds of the total cost by region. There are two groups of regions: the North and Northeast, with higher average costs; and the Midwest, South, and Southeast, with lower costs. The cost of crime in the first group increased mainly due to public spending, while in the second group the main component is private spending, as shown in Figure 5.18b. At the state level, there is a huge variation in the cost of crime. Figure 5.19 shows that the cost of crime ranges by state from 2 to 6.2 percent.

(21) We use a different methodology in this chapter from the one used in Chapter 2 to calculate private costs. We are not able to use the same approach because the data required are not available at the state level.
(22) According to the Superintendency of Private Insurance of the Ministry of Finance.

Figure 5.17. Average Cost of Private Sector Expenditure on Security by Region, 2014 (percent of GDP)

Source: Authors' estimates based on the Superintendency of Private Insurance of the Ministry of Finance; the World Bank Enterprise Survey; the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); and IBGE Regional Accounts.
Note: The dashes represent the lower and upper bound estimations of the private cost.

(23) For formal workers, we multiplied their yearly income by 2.5, the average cost of one formal worker to the employer. We compute the income of informal workers as we do for formal workers, but without the multiplier.
(24) The Enterprise Survey does not provide information at the state level. We use the information from this survey as an extra measure to examine how much firms spend to prevent crime. From the total cost estimated using the Enterprise Survey, we subtracted the value we estimated that firms spend on formal workers. We divide this residual among the states in proportion to their expenditure on formal workers.

Figure 5.18. Average Cost of Crime by Region in 2014 and Its Composition (percent GDP)

a. Cost by Region
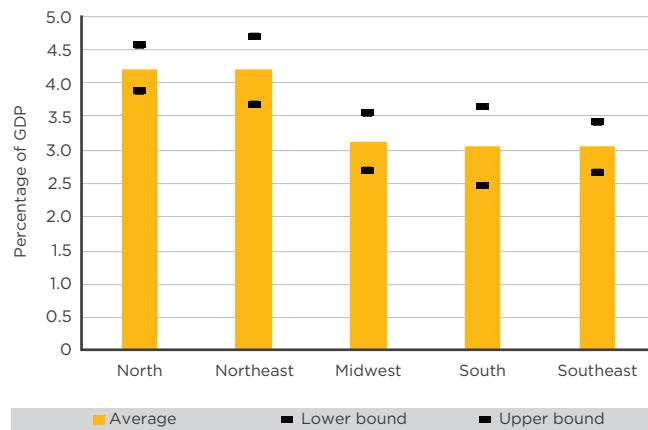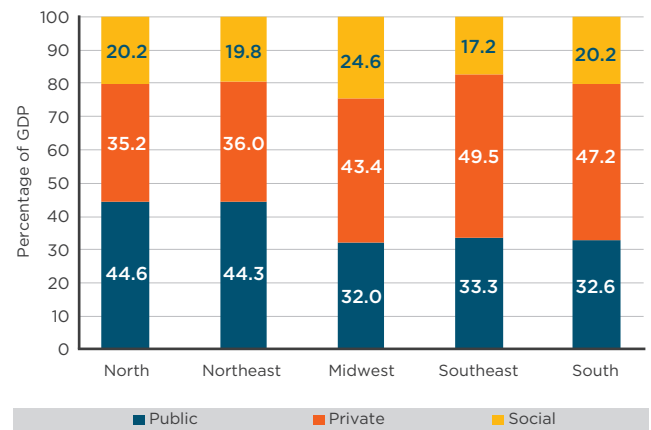
Legend: Average — Lower bound — Upper bound

b. Composition by Region

Legend: Public — Private — Social

Source: Authors' estimates based on the Superintendency of Private Insurance of the Ministry of Finance; the World Bank Enterprise Survey; the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); IBGE Regional Accounts; the Ministry of Health Mortality Database; the Yearbook of Public Security Data; and the National Treasury.

**Note:** The dashes represent the lower and upper bound estimations of the total cost.

5.4 Conclusion

As seen in Figure 5.19, Brazil is indeed a nation of contrasts. The costs of crime across states and regions show the same heterogeneity that is seen in Latin America and the Caribbean as a whole. There are states with costs close to 2 percent of their GDP and others where the costs of crime represent three times as much. This heterogeneity is not only in terms of the share of GDP, but also in terms of the composition of the costs. In some states social costs (mainly homicides) represent a relatively large share, while in other states public or private spending on security represent a relatively large share.

Having estimates of the costs of crime by component and by state is useful not only to determine the magnitude of the problem, but also to detect inefficiencies and identify areas for improvement. For future research, it is important to study not only the cost but also the marginal cost and benefit of crime prevention and crime control interventions. As shown in this chapter, some states and regions experienced an improvement in their citizen security situation. It is worth revisiting the interventions in those states to draw on lessons learned so that they might contribute to the design of interventions in other places in Brazil and the region.

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Figure 5.19. Average Cost of Crime by State in 2014 (percent of GDP)
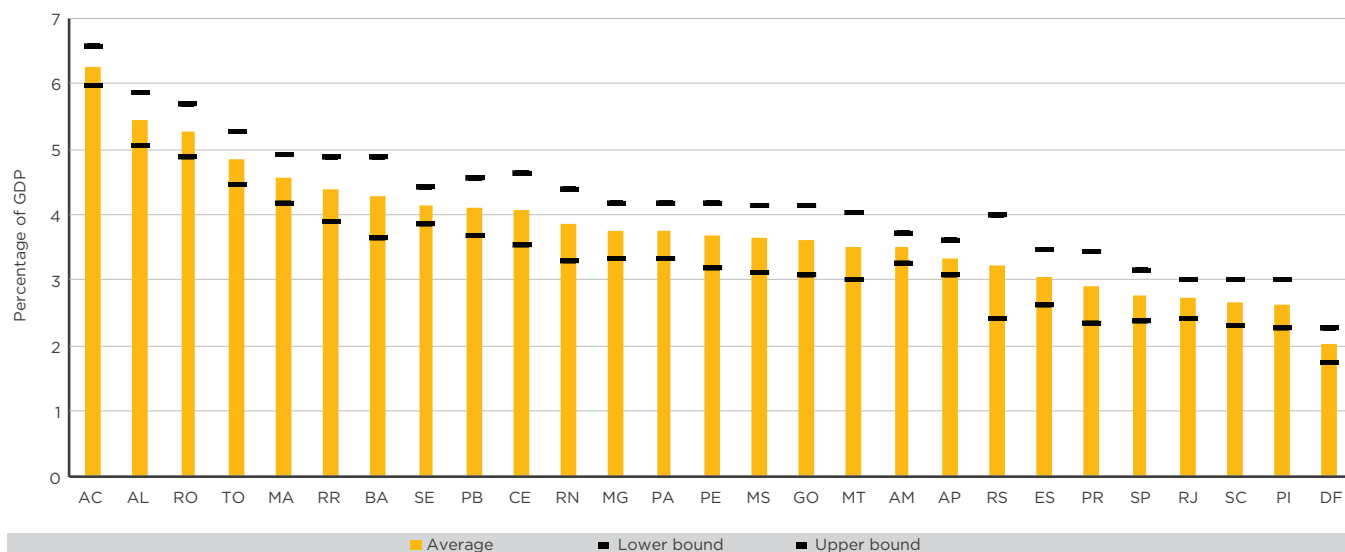
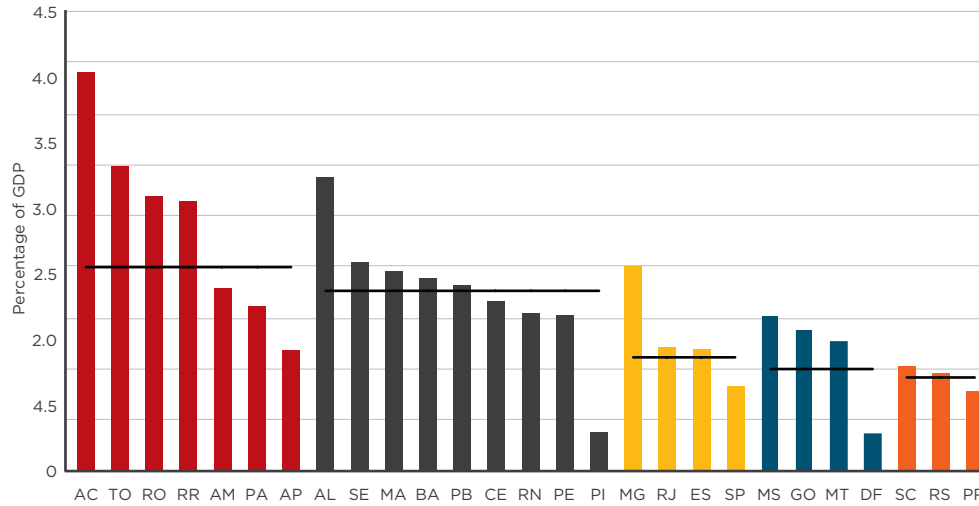■ Average   ■ Lower bound   ■ Upper bound

Source: Authors' estimates based on the Superintendency of Private Insurance of the Ministry of Finance; the World Bank Enterprise Survey; the National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios* – PNAD) of the Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE); IBGE Regional Accounts; the Ministry of Health Mortality Database; the Yearbook of Public Security Data; and the National Treasury.
Note: The dashes represent the lower and upper bound estimations of the total cost. Brazilian States: AC (Acre), AL (Alagoas), AM (Amazonas), AP (Amapá), BA (Bahia), CE (Ceará), DF (Distrito Federal), ES (Espírito Santo), GO (Goiás), MA (Maranhão), MG (Minas Gerais), MS (Mato Grosso do Sul), MT (Mato Grosso), PA (Pará), PB (Paraíba), PE (Pernambuco), PI (Piauí), PR (Paraná), RJ (Rio de Janeiro), RN (Rio Grande do Norte), RO (Rondônia), RR (Roraima), RS (Rio Grande do Sul), SC (Santa Catarina), SE (Sergipe), SP (São Paulo), and TO (Tocantins).
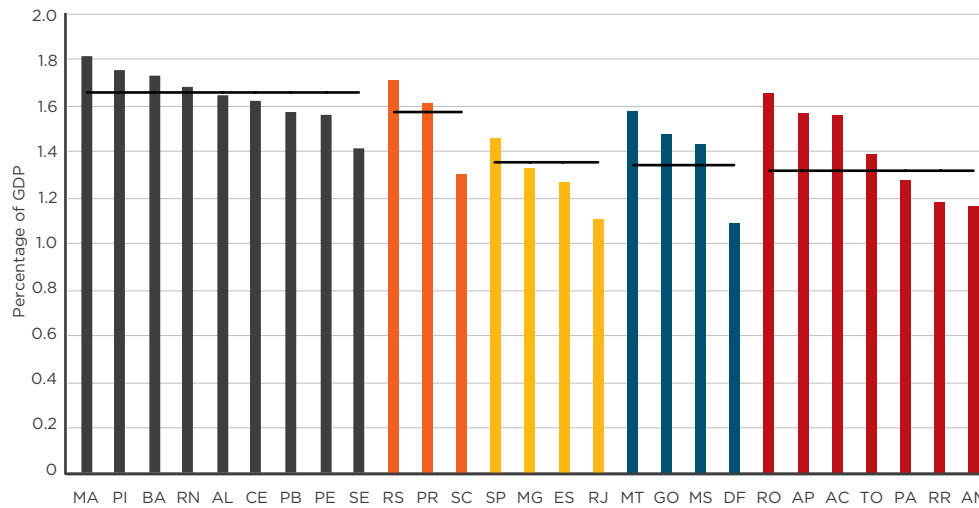
Appendix 5.1

Figure A5.1. Public Expenditure by State in 2014 (percent of GDP)

Source: Authors' calculations based on National Treasury data and Regional Accounts/IBGE.

Figure A5.2. Average Cost of Private Sector by State in 2014 (percent of GDP)

Source: Authors' estimates based on the Superintendency of Private Insurance of the Ministry of Finance; the World Bank Enterprise Survey; the National Household Survey Sample (Pesquisa Nacional por Amostra de Domicílios – PNAD) of the Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística – IBGE); IBGE Regional Accounts; the Ministry of Health Mortality Database; the Yearbook of Public Security Data; and the National Treasury.

Figure A5.3. Average Social Cost by State in 2014 (percent of GDP)
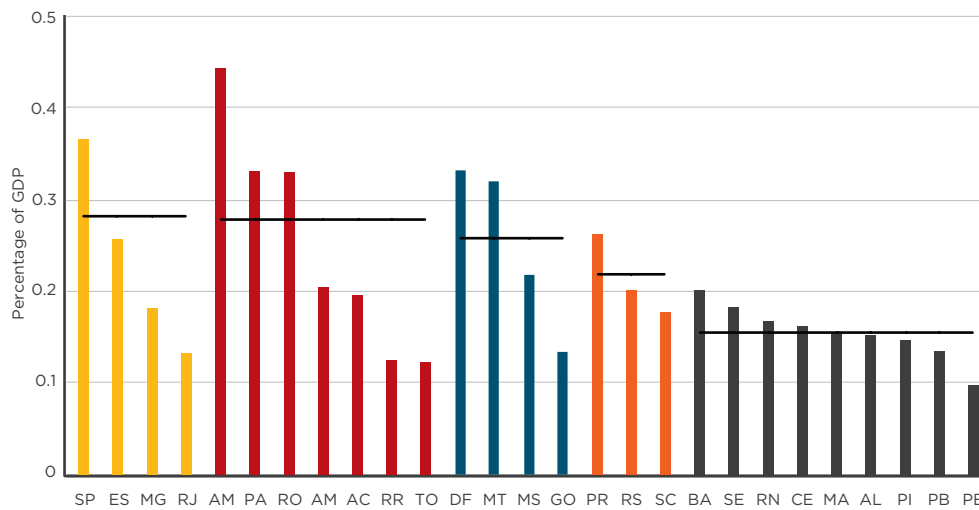
Source: Authors' estimates based on the Ministry of Health's Mortality Database (Sistema de informação sobre mortalidade – SIM/DATASUS); Yearbook of Public Security data; and the Regional Accounts of the Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística – IBGE).

Note: Brazil has 27 states: AC (Acre), AL (Alagoas), AM (Amazonas), AP (Amapá), BA (Bahia), CE (Ceará), DF (Distrito Federal), ES (Espírito Santo), GO (Goiás), MA (Maranhão), MG (Minas Gerais), MS (Mato Grosso do Sul), MT (Mato Grosso), PA (Pará), PB (Paraíba), PE (Pernambuco), PI (Piauí), PR (Paraná), RJ (Rio de Janeiro), RN (Rio Grande do Norte), RO (Rondônia), RR (Roraima), RS (Rio Grande do Sul), SC (Santa Catarina), SE (Sergipe), SP (São Paulo), and TO (Tocantins).

Horizontal lines show regional averages. North in red bars (7 states): AC (Acre), AM (Amazonas), AP (Amapá), PA (Pará), RO (Rondônia), RR (Roraima), and TO (Tocantins).
Northeast in grey bars (9 states): AL (Alagoas), BA (Bahia), CE (Ceará), MA (Maranhão), PB (Paraíba), PE (Pernambuco), PI (Piauí), RN (Rio Grande do Norte), and SE (Sergipe).
Southeast in yellow bars (4 states): ES (Espírito Santo), MG (Minas Gerais), RJ (Rio de Janeiro), and SP (São Paulo). South in orange bars (3 states): PR (Paraná), RS (Rio Grande do Sul), and SC (Santa Catarina).
Midwest in blue bars (4 states): DF (Distrito Federal), GO (Goiás), MS (Mato Grosso do Sul), and MT (Mato Grosso).

6 What Is Behind the High Cost of Crime in the Northern Triangle? Recent Trends in Crime and Victimization

Rogelio Granguillhome Ochoa

6.1. Introduction

The past decade has witnessed an alarming spike in crime and violence in Latin America and the Caribbean (LAC). With only 9 percent of the global population, LAC is the most violent region in the world today, accounting for 33 percent of homicides worldwide. Homicide rates in the region vary from country to country, however, with figures ranging from 5 homicides per 100,000 population in some countries to well above 60 in others. It should be noted that El Salvador, Honduras, and Guatemala, known as the "Northern Triangle countries," are consistently among the LAC nations with the highest incidence of homicide (for a regional comparison, see Chapter 2, Section 2.1). Honduras and El Salvador in particular, with homicide rates in 2015 of 60.0 and 103.3, respectively, are far above the regional average of 26.0.[25]

Crime and violence are serious obstacles to development in LAC countries, adversely impacting their economies, with resulting costs as a percentage of GDP of 3 percent in Guatemala, 6.1 percent in El Salvador, and 6.5 percent in Honduras in 2014. This challenging security situation has not only put strains on these countries' economies but has further weakened the already limited capacity of the State, undermining the social fabric and quality of life of Central Americans.

The impact of this phenomenon is magnified by high impunity rates. Only 20 out of every 100 perpetrators of homicide in Central America are convicted, in contrast to 24 for LAC as a whole and 43 worldwide (UNODC 2013). This seriously undermines confidence in the institutions charged with preventing crime and prosecuting offenders. In 2015, 68 percent of people surveyed in Northern Triangle countries stated that they had little or no confidence in the police, a figure

far above the regional average of 62 percent (Latinobarómetro 2015). The low conviction rate in Central America contributes to a lack of confidence in the judicial system, in which, according to the survey, 74.4 percent of the population has little or no trust. Lack of confidence in institutions has become a key factor in the high index of emigration to the United States in recent years.

In 2013, approximately 3.2 million Central Americans were living in the United States (Batalova 2015). This figure represents 7 percent of the total immigrants in the country that year and an 80 percent increase since 2000, illustrated by the entry of nearly 100,000 unaccompanied minors from Northern Triangle countries between October 2013 and July 2015 (Batalova 2015).

To paint a comprehensive picture of the crime situation in the Northern Triangle, this chapter will be divided into two sections. The first analyzes the most frequent crimes at the municipal level and national victimization rates, and the second, the correctional system. Data for 2013 will be analyzed, as it is the only year for which municipal data are available for all three countries.[26]

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6.2. Trends in Crime and Victimization in the Northern Triangle

Given the wide variation in homicide rates, not only in LAC but within each country, it is important to analyze the geographic distribution of crime at the municipal level in Northern Triangle countries. The two main crime indicators that will be analyzed are intentional homicides and assaults. Intentional homicides were selected because they are the crime with the highest reported impact and because Northern Triangle

(25) Data from UNODC.

(26) The following sources will be used throughout this chapter: National Police (El Salvador); Plaza Pública, based on data from the National Police (Guatemala); National Police (Honduras); Latinobarómetro 2015; United Nations Office on Drugs and Crime; and World Prison Brief 2016.
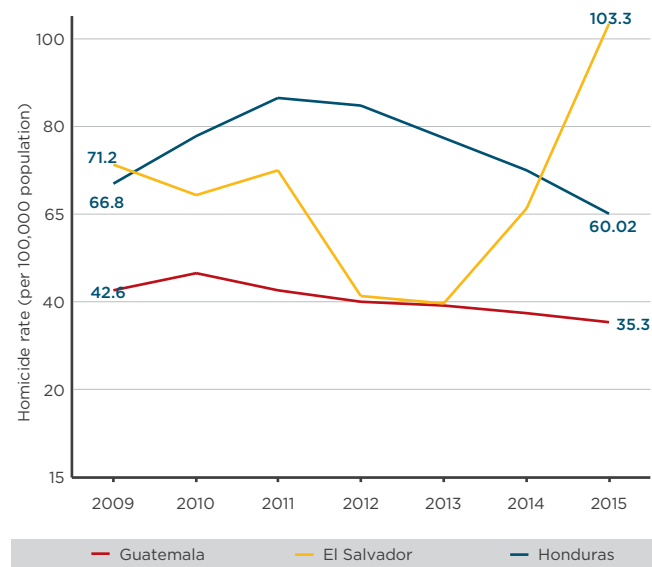(27) El Salvador: National Police; Guatemala: Plaza Pública-National Police and Ministry of the Interior and Instituto Nacional de Ciencias Forenses de Guatemala; Honduras: National Police-SEPOL.

countries are among those with the highest incidence of homicide in the region. Municipal-level data are also available for the two crime variables selected. It should be noted that data sources for these countries vary with the definition of homicide used in their respective penal codes . To supplement the analysis of administrative data, the Latinobarómetro victimization survey will be used as a proxy for property crimes.

6.2.1 Homicides

As mentioned at the start of this chapter, Northern Triangle countries rank among the most violent in the region in terms of intentional homicides. As Figure 6.1 indicates, homicide trends in each country since 2009 have varied. While the trend in Honduras and Guatemala has been downward, falling from 66.8 to 60 and 42.6 to 35.3 homicides per 100,000 population, respectively, between 2009 and 2015, the trend in El Salvador has moved sharply upward. The homicide rate in El Salvador has doubled since 2013, climbing from 39.6 to 103.3 homicides per 100,000 population in 2015. Although the countries in question exhibit high levels of violence in comparison with the rest of the re-

gion, it is important to analyze the distribution of crime at the lowest political administrative level, since some locations have double the national rate, and exploring these differences may prove useful for designing better public policies in the region.

An examination of municipal data shows that there are municipalities in which no homicides occurred in 2013, in contrast to others that had homicide rates of over 200 per 100,000 population. Map 6.1 shows the homicide rate per 100,000 population at the municipal level. Light colors represent municipalities with the lowest rates and dark colors those with the highest.

In the case of El Salvador, the municipalities at the higher end of the distribution had an average homicide rate of 96.4 per 100,000 population (1.5 more than the national average, almost three times the regional rate, and 14 times the world rate). Some 66 percent of the municipalities in this group are concentrated in four of the country's 14 departments: Usulután (21.7 percent), Chalatenango (14.3 percent), Cuscatlán (14.3 percent), and La Paz (14.3 percent). At the lower end of the distribution, the average homicide rate was 10.3 per 100,000 population. Almost 59 percent of the municipalities in this group are concentrated in three departments: La Libertad (27.7 percent), Chalatenango (18.8 percent), and Sonsonate (13.6 percent). This

Figure 6.1. Intentional Homicides per 100,000 Population per Northern Triangle Country, 2000-2015

Source: Prepared by the author, using official sources.

Map 6.1. Intentional Homicides per 100,000 Population at the Municipal Level, by country, 2013

Source: Prepared by the author, using official sources.

THE COSTS OF CRIME AND VIOLENCE
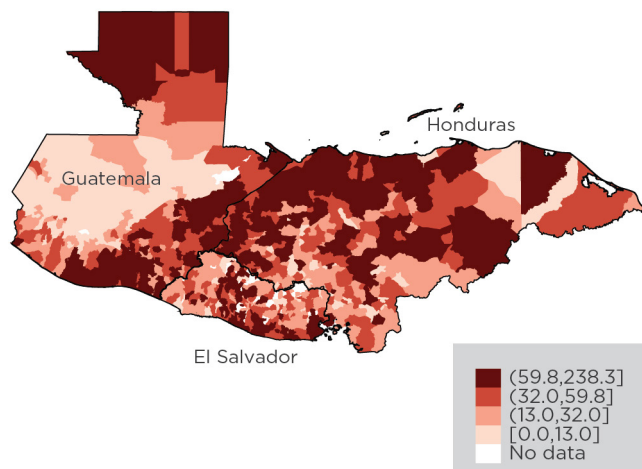
reflects the uneven distribution of crime across the country and especially, the heterogeneity present in a single department. In 2013, roughly 40 percent of all homicides were concentrated in 5 percent of municipalities (14) in El Salvador.[28] According to population estimates by the General Directorate of Statistics and Census (DIGESTYC), these municipalities are home to 32.0 percent of the country's population.

In Guatemala that same year, the average homicide rate per 100,000 population in municipalities at the higher end of the distribution was 93.7. Some 76 percent of these municipalities are located in 5 of the country's 22 departments: Escuintla (18.2 percent), Chiquimula, Jutiapa, Santa Rosa (15.2 percent), and Zacapa (12.1 percent). At the lower end of the distribution, the average homicide rate was zero homicides in 2013. Roughly 70 percent of the municipalities in this decile were located in four departments: Sololá (22 percent), San Marcos (20 percent), Quetzaltenango (16 percent), and Huehuetenango (12 percent). This distribution reveals a low incidence of violence in departments such as Huehuetenango and San Marcos in the country's central region and at the same time highlights the high concentration of violence in its southeastern region – especially in the departments bordering El Salvador, Honduras, and the northern border with Mexico. It should be pointed out that in 2013, roughly 46 percent of all homicides occurred in just 5 percent of municipalities (17).[29] For example, 26 percent of all homicides in 2013 occurred in just five municipalities in the Guatemala Department. It is worth noting, however, that 4 percent of the country's population lives in these municipalities, showing the high rates of violence found in highly urbanized areas of the country.

Finally, in Honduras, the average homicide rate per 100,000 population at the higher end of the distribution was 136.5. Within this group, 45 percent were concentrated in three of the country's 18 departments: Ocotepeque (20.7 percent), Santa Bárbara (13.8 per-

cent), and Copán (10.3 percent). In the lower decile, 52 percent occurred in four of the 18 departments: El Paraíso (20 percent), Intibucá (13.3 percent), La Paz (13.3 pecent), and Francisco Morazán 10 percent). The average homicide rate in these municipalities was 0.6. This distribution of municipalities indicates a high concentration of homicides in the northern and northeastern part of the country. In 2013, 5 percent of municipalities (15) in Honduras accounted for 62 percent of the country's homicides.[30] According to the 2013 population census, 44 percent of the population resides in these municipalities (Instituto Nacional de Estadística, XVII Censo de Población 2013).

6.2.2 Assaults

Assaults are another way to measure violent crime and serve as a complement to homicide data. By definition, an assault is considered a physical attack against another person that results in serious bodily harm. Map 6.2 shows the assault rate per 100,000 population at the municipal level in 2013. Light colors represent the municipalities with the lowest assault rates and dark colors, municipalities with the highest.

(30) The 15 municipalities are: San Pedro Sula, Distrito Central, La Ceiba, El Progreso, Choloma, Comayagua, Yoro, Juticalpa, Puerto Cortés, Tocoa, Villanueva, La Lima, Tela, Choluteca, and Olanchito.

Map 6.2. Assaults per 100,000 Population at the Municipal Level, by Country, 2013
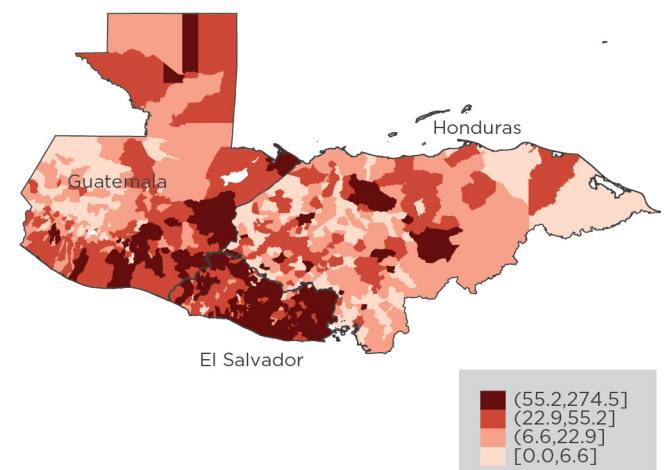
Source: Prepared by the author, using official sources.

(28) The 14 municipalities are: Santiago Nonualco, Armenia, Chalchuapa, Jiquilisco, Ilopango, Delgado, Ilobasco, Colón, Apopa, Santa Ana, San Miguel, Mejicanos, Soyapango, and San Salvador.
(29) The 17 municipalities are: Guatemala, Villa Nueva, Mixco, Puerto Barrios, Escuintla, Nueva Concepción, Villa Canales, Chiquimula, San José, Zacapa, La Libertad, Amatitlán, Morales, Jalapa, Jutiapa, Santa Lucia, and Coatepeque.

According to the most recent statistics from El Salvador's National Police, the assault rate in 2014 was 61.2 assaults per 100,000 population. This rate has been declining since 2013, when it reached a four-year peak of 68. A closer look at the municipalities reveals that the average rate at the higher end of the distribution was 181 per 100,000 population in 2013. Some 76 percent of these municipalities are located in the departments of Morazán (34.6 percent), La Unión (23.1 percent), and Chalatenango (19.2 percent). Looking at the opposite end of the distribution, the average in the lowest decile was 4.5 assaults per 100,000 population. Some 55 percent of these municipalities are located in just two departments: Chalatenango (29.6 percent) and Sonsonate (25.9 percent). It should be noted that 40 percent of the assaults in 2013 occurred in just 5 percent of the country's municipalities (14).[31] This figure reveals not only the variance in the country, but the existence of municipalities with a high incidence of assaults even though homicide levels are not high.

The assault rate in Guatemala has been moving downward, falling from 17.3 assaults per 100,000 population in 2004 to 13 in 2013. Looking at the behavior at the municipal level in 2013, the average assault rate at the higher end of the distribution stood at 105.1 assaults per 100,000 population. Some 60 percent of these municipalities are located in the departments of Chiquimula (24.2 percent), Guatemala (18.2 percent), and Zacapa (18.2 percent). At the lower end of the distribution, the average rate was zero assaults per 100,000 population. Approximately 72.5 percent of the municipalities in this group are located in the departments of Sololá (22.5 percent), Huehuetenango (17.5 percent), Quetzaltenango (17.5 percent), and Quiché (15 percent). The high concentration of assaults is evident, with 53 percent occurring in just 5 percent of municipalities (17).[32]

Finally, in 2015, Honduras reported only 1,326 cases of assault[33] in the category "Crimes against Phys-ical Integrity," for a rate of 15.4 assaults per 100,000 population, compared to 2013 (last year available), when the rate was 21 (1,744 assaults reported). Examining the municipalities at the higher end of the distribution, the average assault rate in 2013 was 61.6 per 100,000 population. Approximately 65 percent of these municipalities are located in the departments of Ocotepeque (17.2 percent), Olancho (13.8 percent), Lempira (13.8 percent), Santa Bárbara (10.3 percent), and Yoro (10.3 percent). Honduras has low levels of injury from assaults compared to homicides. For example, at the lower end of the distribution of assaults, the average rate was zero in 2013. The departments with the highest number of municipalities with zero assaults were Lempira, El Paraíso, Comayagua, and Copán. Assaults in 2012 were concentrated in just 3 percent of municipalities (10) in Honduras,[34] capturing 57 percent of the overall incidence.

How do departments where both homicides and assaults occurred compare? In the countries examined, the municipalities with the highest level of homicides were also those with the most assaults. In the case of El Salvador, 40 percent of homicides were concentrated in the 14 municipalities in which 35 percent of the assaults occurred.[35] The same pattern can be observed in Guatemala, where in 2013, 46 percent of homicides occurred in the 17 municipalities in which 50 percent of the assaults also occurred.[36] Finally, when analyzing the same distribution of homicides and assaults in Honduras, 60 percent of the assaults occurred in the 15 municipalities where 60 percent of homicides were reported.[37] It should be noted that more than half of both crimes occur only in the Central District and San Pedro Sula.

(31) The 14 municipalities are: San Salvador, San Miguel, Mejicanos, Santa Ana, Ilobasco, Ahuachapán, Cojutepeque, San Vicente, Delgado, Santa Rosa de Lima, Zacatecoluca, Soyapango, Usulután, and Santa Tecla.
(32) The 17 municipalities are: Guatemala, Villa Nueva, Mixco, Escuintla, Chiquimula. Villa Canales, Amatitlán, Puerto Barrios, Jutiapa, Chinautla, Cobán, San Miguel Petapa, Zacapa, San Juan Sacatepéquez, Santa Catarina Pinula, Jocotán, and Palencia.
(33) Assaults are the sum of assaults with firearms, assaults with a blunt object, and assaults with a sharp object.

(34) The 10 municipalities are: Distrito Central, San Pedro Sula, La Ceiba, El Progreso, Juticalpa, Yoro, Olanchito, Choluteca, Santa Bárbara, and Danlí.
(35) The 14 municipalities are: San Salvador, San Miguel, Mejicanos, Santa Ana, Ilobasco, Ahuachapán, Cojutepeque, San Vicente, Delgado, Santa Rosa de Lima, Zacatecoluca, Soyapango, Usulután, and Santa Tecla.
(36) The 17 municipalities are: San Salvador, San Miguel, Mejicanos, Santa Ana, Ilobasco, Ahuachapán, Cojutepeque, San Vicente, Delgado, Santa Rosa de Lima, Zacatecoluca, Soyapango, Usulután, and Santa Tecla.
(37) The 15 municipalities are: San Pedro Sula, Distrito Central, La Ceiba, El Progreso, Choloma, Comayagua, Yoro, Juticalpa, Puerto Cortes, Tocoa, Villanueva, La Lima, Tela, Choluteca, and Olanchito.

6.2.3 Territorial Analysis

In order to explain the high cost of crime in each Northern Triangle country, it is important to examine the territorial concentration of crime from a statistical standpoint. The preceding section analyzed the distribution of assaults and homicides using administrative data, mapping only the magnitude of each variable in quartiles. These maps are emerging evidence that a small number of political administrative units in each country are more violent than others nationwide. As mentioned earlier, crime tends to be concentrated in certain areas in each country, since crime patterns are not randomly distributed. These foci, or hot and cold spots, must be identified so that efficient targeted public policies can be developed in the most critical areas of each country studied.

A tool used to identify the clusterization of homicides in the municipalities of each country is local spatial autocorrelation, calculating the Getis Ord G_i^* statistic among municipalities. The Getis Ord G_i^* statistic seeks to identify clusters of municipalities with a high incidence of crime compared to the rest of the municipalities in each country.

This statistic will be used to measure the persistence of homicides over time in order to understand changes in the spatial distribution dynamic. The Getis Ord G_i^* can be expressed as (Kondo 2015):

$$G_i^*(d) = \frac{\sum_{j=1}^{N} w_{ij}(d) u_j}{\sum_{j=1}^{N} u_j},$$

where u_i is the homicide rate in municipality i and w_{ij} (d) is the ijth element of the binary row standardized spatial weights matrix. The numerator is the sum of the homicide rates at the municipal level, within a d kilometer radius from the centroid of municipality i, and the denominator is the sum of homicide rates in all municipalities in each country. This fraction identifies whether municipality i and its neighbors have a higher or lower homicide rate compared to the rest of the municipalities. If the statistic is significantly high (low), the area will be identified as hot (cold). The null hypotheses for the Getis Ord is complete spatial randomness.

The standardized Getis Ord $G_i^*(d)$ can be expressed as (Kondo 2015):

$$G_i^*(d) = \frac{G_i^*(d) - E(G_i^*(d))}{\sqrt{Var(G_i^*(d))}}$$
$$= \frac{G_i^*(d) - E(G_i^*(d))}{s\sqrt{(NS_i^* - (W_i^*)^2/(N-1)}}$$

where E $(G_i^*(d))$ and Var$(G_i^*(d))$ are the expected value and the variance $G_i^*(d)$ of the null hypotheses, respectively. $W_i^* = \sum_{j=1}^{N} w_{ij}(d), S_i^* = \sum_{j=1}^{N} w_{ij}^2(d),$ and $\bar{u}$ and s are the mean and standard deviation of the homicide rate.[38]

Maps 6.3, 6.4, and 6.5 show the results of the Getis Ord $G_i^*(d)$ statistic.[39] The red areas represent groups of neighboring municipalities with a high incidence of homicide and the blue areas, neighboring municipalities with a low incidence of homicide. Municipalities in white do not show significant spatial correlation. This does not mean that homicides did not occur in these municipalities, but rather, that no spatial patterns were found vis-à-vis the rest of the municipalities.
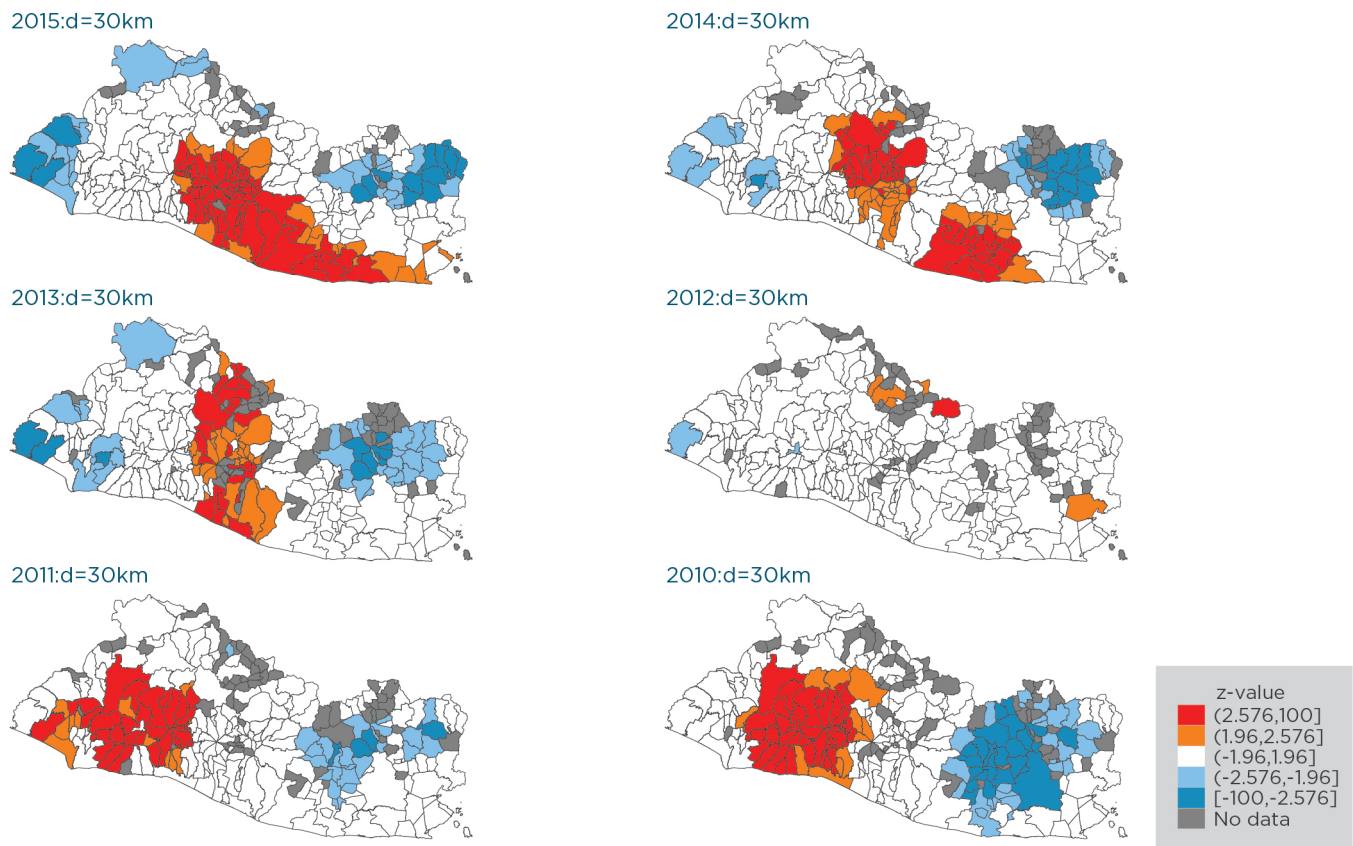
In the case of El Salvador, homicide rates from 2010 to 2015 were analyzed, revealing a high degree of variation over time. Beginning in 2010, a hot spot can be observed in the western region of the country in the departments of La Libertad, San Salvador, Santa Ana, and Sonsonate. On the other side of the country, the main cold spot is in the departments of Morazán, San Miguel, and Usulután. Over time, there is evidence not only of a territorial expansion of homicide rates from west to east but of the effect of the gang truce that began in 2012, the only year in which San Salvador, for example, was not a hot spot. By the end of 2015, two cold spots can be identified, but also the spread of violence with the end of the truce.

Guatemala, in contrast, shows little variation in the distribution of hot spots over time. The southeastern part of the country bordering Honduras and the Pacific Ocean was consistently a hot spot compared to the rest of the country. It is important to note the expansion of cold spots between 2010 and 2013 in the central-eastern part of the country toward the

(38) When $G_i^*(d)$ takes on a positive (negative) value and falls within the critical region, municipality i will be identified as hot (cold). The standardized $G_i^*(d)$ Z identifies municipal groups with high and low levels of homicide. This exercise was conducted specifically for each country, given that the definition of what constitutes a municipality and data availability vary from country to country and over time. A 30 km band was used to calculate $G_i^*(d)$.
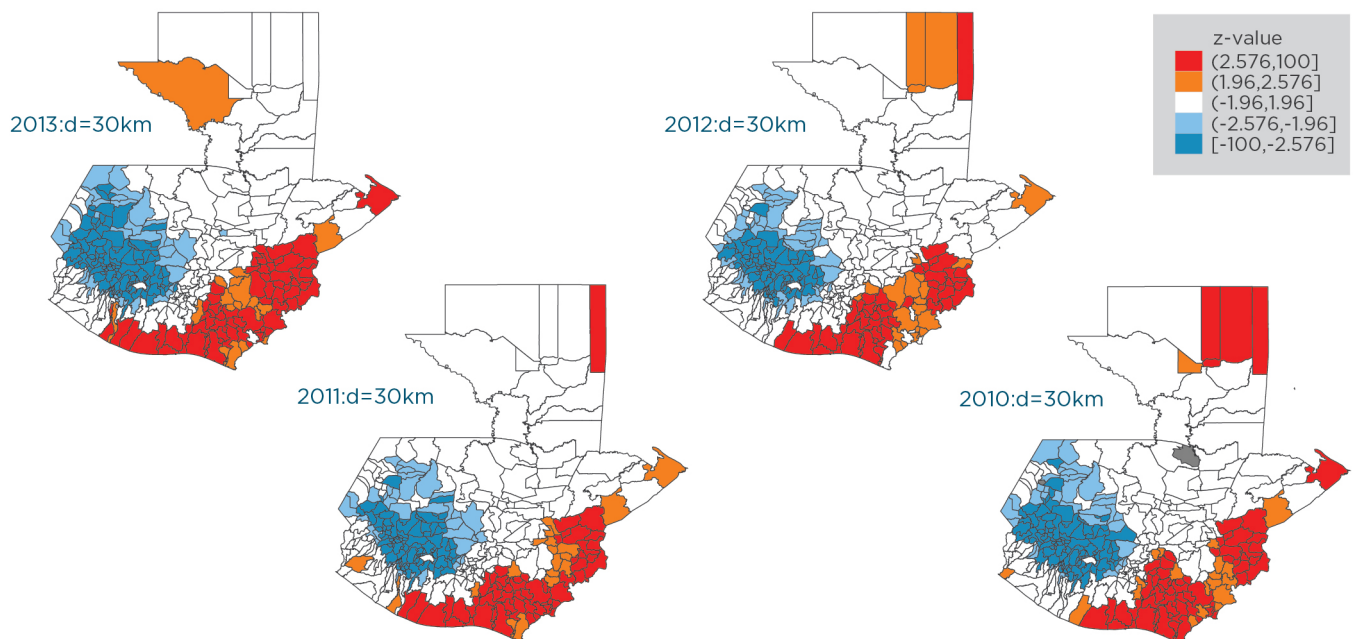(39) For more information, see Keisuke (2015).

Map 6.3. Analysis of the Spatial Distribution of Homicides in El Salvador, 2010-2015

2015:d=30km

2014:d=30km

2013:d=30km

2012:d=30km

2011:d=30km

2010:d=30km

z-value
- (2.576,100]
- (1.96,2.576]
- (-1.96,1.96]
- (-2.576,-1.96]
- [-100,-2.576]
- No data

Source: Prepared by the author, using data from El Salvador's National Police.

Map 6.4. Analysis of the Spatial Distribution of Homicides in Guatemala, 201-2013

2013:d=30km

2012:d=30km

z-value
- (2.576,100]
- (1.96,2.576]
- (-1.96,1.96]
- (-2.576,-1.96]
- [-100,-2.576]

2011:d=30km

2010:d=30km

Source: Prepared by the author, using data from Plaza Pública and Guatemala's National Police.

Mexican border.

Analysis of the spatial distribution of homicides in Honduras shows a decrease in hot spots and an increase in cold spots in the past three years, mirroring the general decline in the national homicide rate. In 2013, the hot spots were concentrated along the country's northeastern border, comprised of the departments of Copán, Cortés, Lempira, Ocotepeque, and Santa Bárbara. Cold spots, in contrast, were concentrated in southern Honduras, primarily the departments of Choluteca, El Paraíso, Francisco Morazán, Intibucá, La Paz, and Valle. It can be observed that by 2015, cold spots had gradually increased, while hot spots were declining. It should be noted that San Pedro Sula continues to be in the country's red zone and is one of the engines of violence in Honduras, accounting for 16 percent of all homicides.

6.2.4 Territorial Analysis

For an overall assessment of the crime situation, it is important to explore the incidence of less-violent crimes such as property crimes. Victimization surveys are useful for this purpose, since they provide infor-

mation about the degree of victimization or the frequency with which an individual has been the victim of theft or robbery. Since there is little data on property crimes that is comparable among countries, the regional Latinobarómetro survey can serve as a proxy to understand the dynamics of everyday property crime across countries.

According to the Latinobarómetro survey, crime and public safety has surpassed unemployment in recent years as the most pressing problem in LAC. Today, Venezuela and Brazil are the only countries where it is not. In El Salvador, 42.4 percent of people surveyed considered crime the country's most pressing problem. El Salvador has the highest percentage of people who view it as such; this percentage was 29.3 percent in Honduras and 20.6 percent in Guatemala. It should be noted that while the survey indicates that crime and public safety is considered the most pressing problem, Guatemala has the second lowest percentage in the region, just below Chile, compared to other issues.

These factors can be observed in the high levels of victimization in these countries. As Figure 6.2 illustrates, Venezuela, Mexico, and Peru are the countries with the highest victimization rates in the region. It
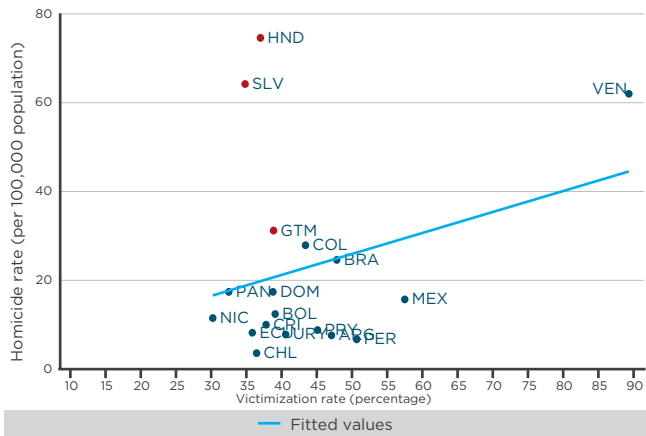
Map 6.5. Analysis of the Spatial Distribution of Homicides in Honduras, 2013-2015
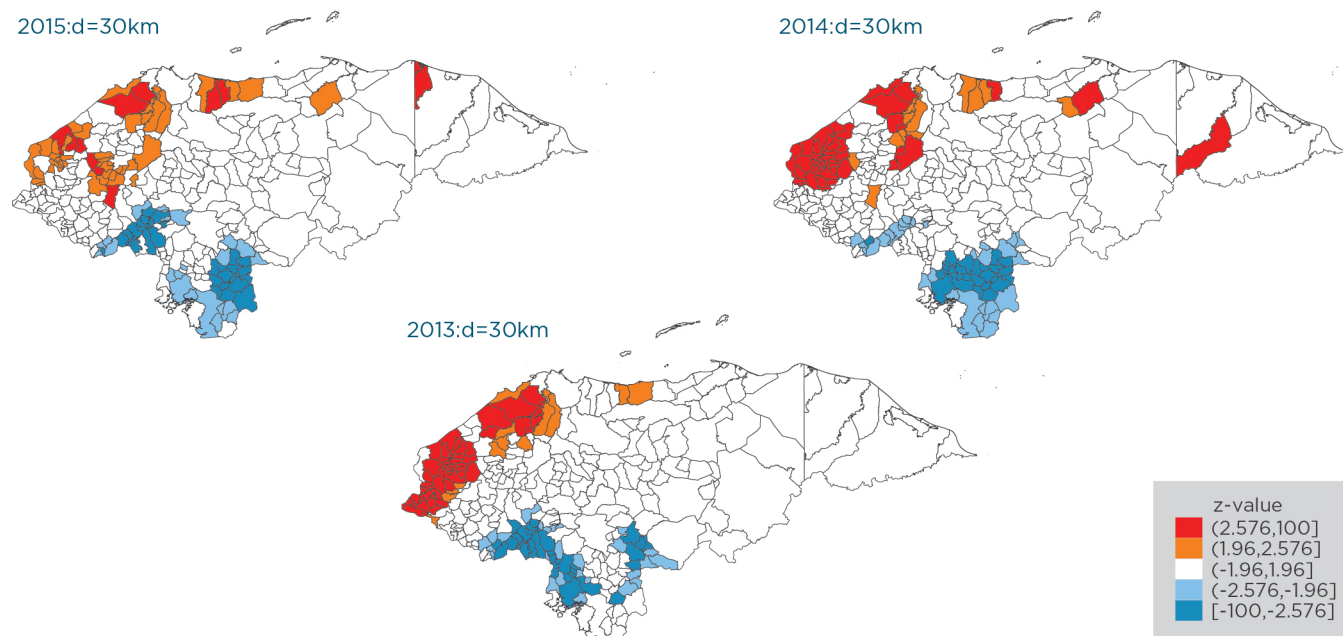
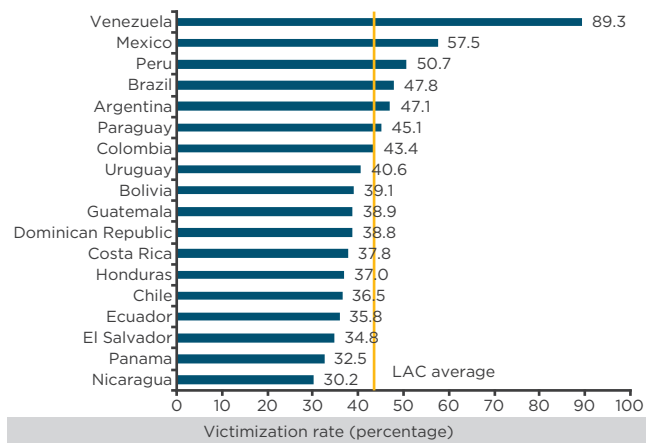**Source:** Prepared by the author, using SEPOL data.

Figure 6.2. Victimization Rate

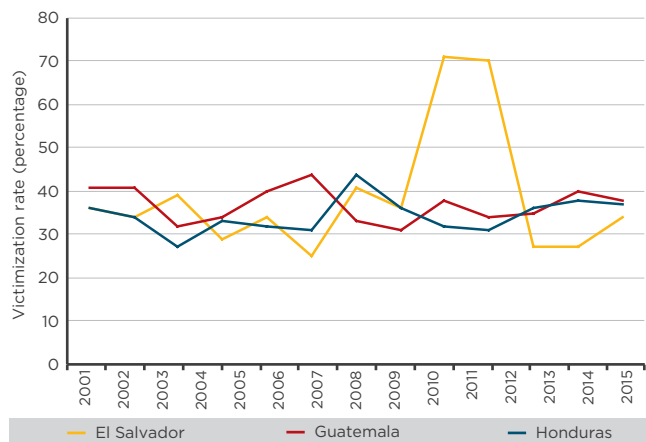**a.** Homicide Rate vs. Victimization Rate, by Country, 2015

— Fitted values

Note: Homicide data from 2014.

b. Victimization Rate, by Country, 2015

b. Victimization Rate, by Northern Triangle Country, 2000-2015

— El Salvador   — Guatemala   — Honduras

Source: Prepared by author, based on Latinobarómetro (2015) and UNODC (2016).
Note: LAC = Latin America and the Caribbean.

should be noted that while crime is the most pressing problem in the Northern Triangle countries, according to the survey, they report relatively low levels of victimization.[40] As Figure 6.2b shows, Guatemala had a victimization rate of 38.9 percent in 2015, followed by Honduras with 37 percent and El Salvador with 34.8 percent. It is important to point out in Figure 6.2a that these countries are among those with the highest homicide rates but have relatively low victimization rates.

Figure 6.2c shows victimization rates over time for each Northern Triangle country. In the past 15 years, the average victimization rate in El Salvador has been 38 percent, followed by Guatemala, with 37 percent, and Honduras, with 34 percent. Rates have generally been stable, fluctuating between 25 percent and 40 percent, with the exception of El Salvador, where the rate jumped from 36 percent to 70 percent between 2008 and 2009, remaining at this level until 2011, when it fell to 27 percent.

6.3   Correctional Systems in Northern Triangle Countries

Given the deterioration in the security situation in the Northern Triangle region, it is important to examine the correctional system to analyze the institutional capacity of each country to house the criminal population and reintegrate it into society. As Figure 6.3a illustrates, the incarceration rate in the Northern Triangle region varies from country to country. El Salvador has the highest rate in the region, with 519 inmates per 100,000 population. Guatemala, in contrast, has the lowest, with 122 inmates per 100,000 population. Finally, Honduras is just below the regional average, with 188 inmates per 100,000 population. Analyzing the levels of overcrowding in prisons, it can be seen that Northern Triangle countries have some of the highest figures in LAC. As Figure 6.3b shows, all three countries are above the regional average of 66 percent. El Salvador has the second highest percentage of overcrowding, with overcapacity of 210.4 percent,
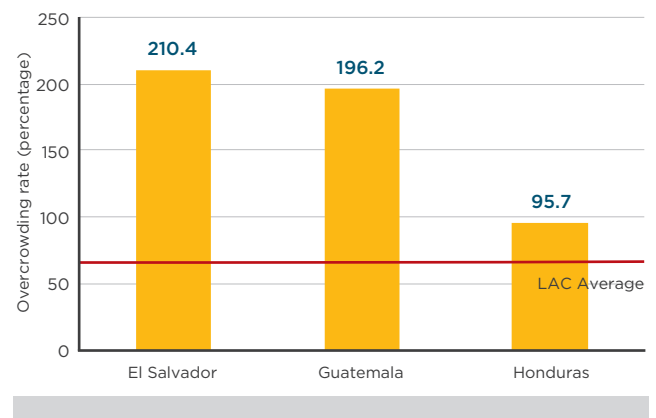
(40) The question asked was: "Have you (1) or a relative (2) been assaulted, attacked, or the victim of a crime in the past 12 months? Only you, a relative, and both are options".

Figure 6.3. Regional Comparison of Correctional System Statistics

a. Incarceration Rate per 100,000 Population
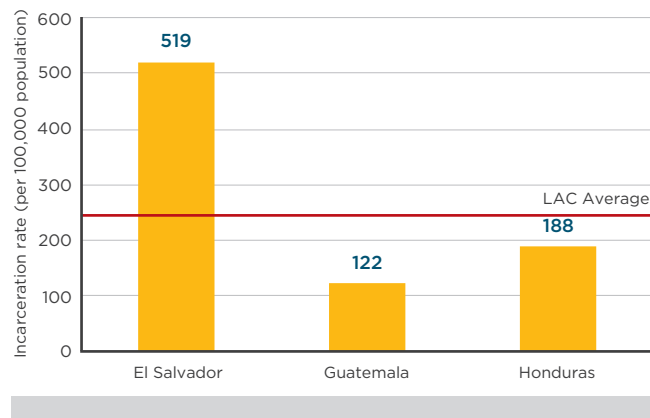
b. Overcrowding Rate

Source: Institute for Criminal Policy Research World Prison Brief database.
Note: LAC = Latin America and the Caribbean.

followed by Guatemala (third highest), with 196.2 percent. The two countries have twice as many inmates as their correctional systems can house. Honduras, in contrast, currently has an overcapacity of 95.7 percent, substantially below the levels of El Salvador and Guatemala but nonetheless a very high level of overcrowding. High levels of overcrowding can be seen across the region, except in the Caribbean countries.

Figure 6.4 shows the variation in the incarceration rate over time for each Northern Triangle country. As can be seen, El Salvador jumped from 130 inmates per 100,000 population in 2000 to 519 in 2014, a 200 percent increase. Guatemala also exhibited a significant increase over 2000, with a 97 percent increase in its prison population. Honduras, however, has exhibited only a 7 percent increase in its inmate population in the past 15 years.

6.4 The Need for Evidence-based Policies in the Northern Triangle

This chapter confirms that the situation in the Northern Triangle is both delicate and challenging. As noted throughout this volume, crime imposes significant costs on society and the economy. According to the estimates, Northern Triangle countries suffer major

losses as a consequence of crime. Thus, it is important to examine the geographic distribution of crime in these countries over time to better understand the economic losses. There are cross-country and intra-country variations among the three Northern Triangle countries in terms of homicides, assaults, and

Figure 6.4. Incarceration Rate per 100,000 Population in Northern Triangle Countries, 2000-2016
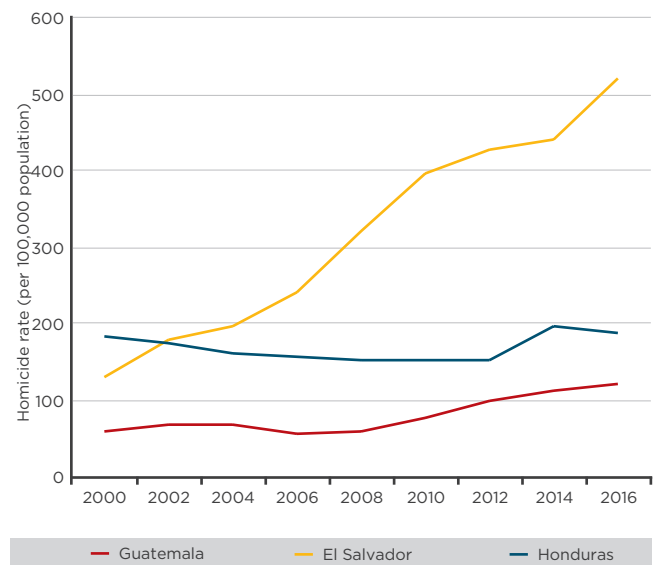
Source: Institute for Criminal Policy Research World Prison Brief database.

victimization rates. While Honduras, once the most violent country in the world, has shown a significant decrease in homicides, El Salvador's homicide rate has gained momentum with the end the gang truce in 2012, surpassing Honduras' homicide rate. Meanwhile, Guatemala's homicide rate has held steady over the past few years. As this chapter points out, while all three countries have homicide rates well above the regional average, the incidence of homicide is heterogeneously distributed across municipalities, further proving that crime tends to be concentrated in specific geographical regions and demonstrating the need to call for more targeted crime prevention policies in the areas that need them the most.

This chapter also sheds light on the overall situation of each country's correctional system, providing evidence of the lack of institutional capacity to handle the burgeoning numbers of inmates and the resulting high expenditures and costs to society and the economy, as will be seen in forthcoming chapters. This region needs special attention to determine how all the resources from the governments of these countries and the international community are being invested so that evidence-based policies can be adopted and the right geographic locations targeted to reduce crime and permit the sustainable development of this region.

7 Unpacking the High Cost of Crime in the Caribbean: Violent Crime, the Private Sector, and the Government Response

Heather Sutton

7.1. Introduction

The Caribbean consists of a number of small, democratic countries, many with relatively high levels of development.[41] In recent years, however, there has been growing concern about crime in the Caribbean subregion, as described in recent reports of international organizations (UNODC and World Bank 2007; UNDP 2012; Sutton and Ruprah 2016). Chapter 2 shows that Central American and Caribbean countries generally pay the highest costs for crime in the Latin American and Caribbean region. Among Caribbean countries, the cost of crime is particularly high in The Bahamas, Jamaica, and Trinidad and Tobago, while that in Barbados is among the lowest in the region. But what is the story behind these cost estimates? What is unique about crime in the Caribbean? How does crime differ among the countries within the subregion?

This chapter explores what lies beneath the estimates of social costs, private costs, and government costs of crime presented in Chapter 2. The chapter uses homicide data from official police records, as well as survey data on victimization of individuals and businesses, to further examine the phenomenon.[42] Despite the variations in the structure and complexity of crime problems across Caribbean countries, several conclusions can be drawn:

1. The high social costs of crime in the subregion are driven by specifically *high levels of violent crime* (homicide and violent assault).

2. Crime *affects a large portion of the private sector* through losses directly from crime and through expenses relating to private security.
3. The relatively *high government expenditure* on combating crime goes overwhelmingly toward costs for police (and prisons, in the case of Barbados), with precious little going to the judicial system and violence prevention.

The chapter is organized with one section for each of the aforementioned issues: violent crime, the private sector, and the government response. In each section, the Caribbean is compared to both Latin America and the rest of the world.

7.2 High Levels of Violent Crime

Over the last 20 years, for most of the world's countries for which multiple years of crime data are available, violent crime rates have been stabilizing or decreasing (Harrendorf, Heiskanen, and Malby 2010; van Dijk, Tseloni, and Farrell 2012). In the Caribbean, however, crime rates have shown the opposite trend. Jamaica was the first country in the subregion to begin to see escalating rates of crime, which occurred generally in three stages: (1) in the immediate post-independence period, property crime was the dominant type of crime; (2) the 1980s saw increased levels of violence related to the beginning of drug trafficking and political violence; and (3) the 1990s showed increased violent crimes, particularly homicides, firearm- and gang-related violence, and violence against women (Harriott 1996). A similar, if slightly delayed, pattern seems apparent in Trinidad and Tobago and The Bahamas, where there has been a clear turn toward higher violent crime beginning in the 1990s (Seepersad 2016; Sutton 2016). While the levels of violent crimes seem to have been decreasing in Jamaica and to some extent Trinidad and Tobago since 2009 (Harriott and Jones 2016; Seepersad 2016), they remain high compared to those in the rest of the world. Crime in some Caribbean countries has followed a different trajectory, such as in Barbados and Suriname, where homi-

cide remains relatively low. Even the latter countries, however, are not immune to relatively high levels of assault, as well as increasing signs of gang violence (Bailey 2016).

7.2.1 High Homicide Rates

Homicide rates are the most commonly used and widely recognized indicator of the levels of violence within a society.[43] The Caribbean subregion suffers from relatively high homicide rates (average of 16 per 100,000 vs. a global average of 6.2) (UNODC 2014). In 2014/2015, Caribbean homicide rates stood generally above those of countries in the Southern Cone of Latin America, but below those of Central American countries.

However, as Figure 7.1 shows, there is great intraregional variance in homicide rates. Jamaica, for example, stands out for its extraordinarily high rates of homicide. Trinidad and Tobago's homicide rates remained fairly low (below 10 per 100,000) until 2000 but have been climbing steadily since. Rates in these two countries reached some of the highest in the world in the first decade of the 2000s—peaking in Jamaica in 2009 (61.5) and Trinidad and Tobago in 2008 (41.6)—but they have decreased significantly in both countries since that time. These two countries have generally dominated subregional attention; however, rates in The Bahamas began to surpass those in Trinidad and Tobago in 2011 and are now nearing those of Jamaica. On the other hand, rates in Barbados and Suriname have stayed fairly constant at much lower levels over time. Guyana has medium-high homicide rates—far below those of Jamaica, but still more than three times the global average.

As of 2015, the Caribbean ranked just below Central America as the subregion with the second highest average rate (65 percent) of homicide committed with a firearm (Geneva Declaration on Armed Violence and Development 2015). This is in stark contrast to Asia and Europe, where only 22 and 24 percent of homicides, respectively, in that same year were carried out

(43) Homicide is the most visible and reliably reported form of violent crime. Given that most countries have a legal requirement that all deaths be registered, homicide data are generally captured fairly accurately by police or public health systems.
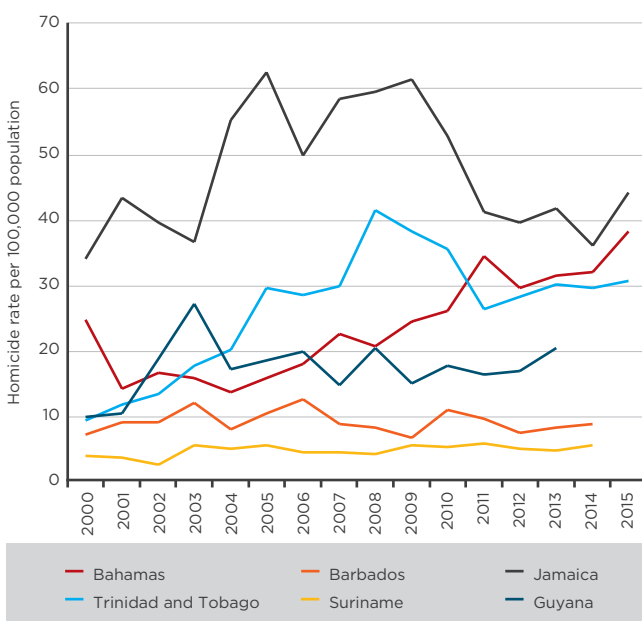
with firearms. When the data for the Caribbean are disaggregated by country, the highest percentage of homicides involving firearms is found in The Bahamas (82.4 percent), followed by Jamaica (73.4 percent) and Trinidad and Tobago (72.6 percent).[44] Again the story is different for Barbados (38 percent) and Suriname (25 percent).[45] The use of knives in homicides has been more or equally common in these two countries. In fact, one hypothesis explaining the overall lower homicide rates in these two countries is that there are fewer crimes and attacks committed with guns, which are more likely to be lethal.

Police data indicate that victims of homicide in

(44) Data for 2013 were provided by the Jamaica Constabulary Force, the Trinidad and Tobago Police Service, and the Royal Bahamas Police Force.
(45) Data for 2013 were provided by the Suriname Police Corps and the Royal Barbados Police Force.

Figure 7.1. Homicide Rate per 100,000 Population in Six Caribbean Countries, 2000–2015 (or latest available year)

Source: Homicide counts provided by Royal Bahamas Police Force, Strategic Policy and Planning Unit; the Jamaica Constabulary Force; the Crime and Problem Analysis Branch of the Trinidad and Tobago Police Service; the Suriname Police Corps; and the Royal Barbados Police Force. Homicide rates were calculated using population estimates (Medium Fertility) by the United Nations Department of Economic and Social Affairs Population Division (UNDESA 2016).

THE COSTS OF CRIME AND VIOLENCE

the subregion are disproportionately young males be-tween the ages of 18 and 35 (Table 7.1). Interestingly, in The Bahamas and Barbados, homicide rates are higher for youth (ages 18 to 25) than for young adults (ages 25 to 35), though only slightly so in the latter, while the opposite is true in Trinidad and Tobago and Jamaica.

Table 7.1. Homicide Rates by Age Group in Four Caribbean Countries, 2013 (per 100,000 population)

Country	Homicide Rate Under Age 18	Homicide Rate Ages 18–25	Homicide Rate Ages 25–35	Homicide Rate for Total Population
The Bahamas	5.3	84.8	64.7	33.3
Barbados	1.9	24.6	22.6	10.6
Jamaica	6.3	64.0	90.8	47.3
Trinidad and Tobago	8.6	52.8	69.6	34.8

Source: Homicide data were provided by the Strategic Policy and Planning Unit of the Royal Bahamas Police Force, the Royal Barbados Police Force, the Economic and Social Survey of Jamaica, and the Crime and Problem Analysis Branch of the Trinidad and Tobago Police Service. Youth population and homicide rates were calculated using the Population and Housing censuses of the four countries (2010 for The Bahamas and Barbados, 2011 for Jamaica and Trinidad and Tobago).

Figure 7.2. Percentage of Population that has Lost Someone Close to Them to Violence in Their Lifetime
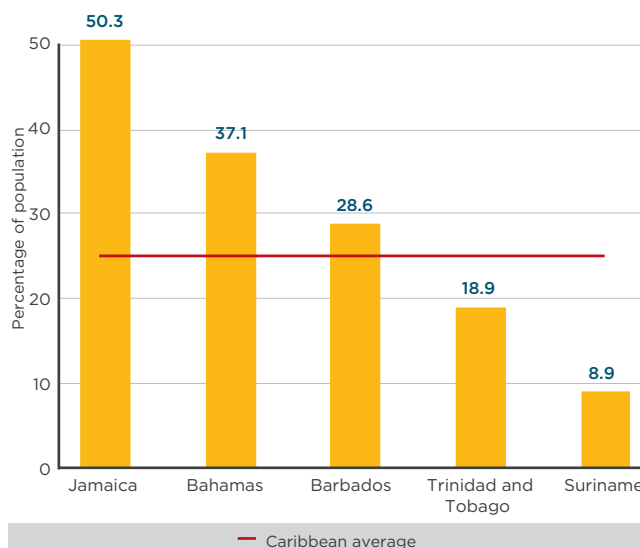
Source: Sutton and Ruprah (2016).

Beyond their obvious direct effect on victims, high homicide rates also affect the families and com-munities of both victims and offenders. Victimization survey data indicate that one in four (24.8 percent) Caribbean adults have lost someone close to them as a result of violence. This form of indirect victimization is highest in Jamaica, where half the population (50.3 percent) reports having lost someone to violence, fol-lowed by The Bahamas (37.1 percent) (Figure 7.2). This information should be interpreted with caution given the small size of Caribbean countries. Nevertheless, the implications are staggering and may reflect a rip-ple effect whereby each homicide has wide traumatic effects on small, tightly connected populations.

## 7.2.2 Other Violent and Property Crime

In 2014/2015 surveys about experiences with common crime and interactions with the police (the Caribbean Crime Victimization Survey, or CCVS, module of the Latin American Public Opinion Poll, or LAPOP)[46] were conducted among samples of the national and capital city populations of The Bahamas, Barbados, Jamaica, Suriname, and Trinidad and Tobago. To enable an inter-national perspective on the crime situation in the sub-region, the surveys used the standardized question-naire of the International Crime Victimization Survey (ICVS), carried out in more than 90 countries across all world regions under the aegis of the United Nations Office on Drugs and Crime. Figure 7.3 shows the prev-alence rates for five common crimes, measured via the CCVS, for five Caribbean capital metropolitan areas: New Providence (The Bahamas), Kingston Metropoli-tan Area (Jamaica), Greater Bridgetown Area (Barba-dos), Port of Spain Metropolitan Area (Trinidad and Tobago), and Paramaribo (Suriname).

The defining characteristic of crime in the Carib-bean is the high levels of violent crimes—particularly assault and threats of assault. Violent crimes are de-fined as those that include the use of force or threat of force against the victim. On average, 6.8 percent of the Caribbean population surveyed as part of CCVS
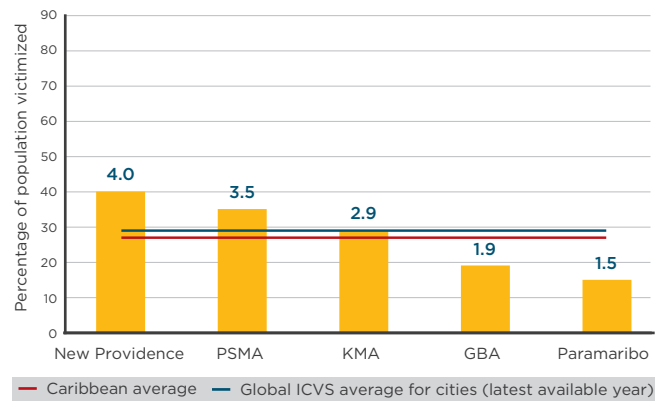
(46) The CCVS module was attached to the LAPOP in 2014/2015 and included a 3,000 oversample of capital metro areas. For further infor-mation on this survey, see Sutton and Ruprah (2017).

Figure 7.3. Prevalence of Victimization in the Preceding 12 Months in Five Capital Metropolitan Areas, 2014/2015, by Type of Crime
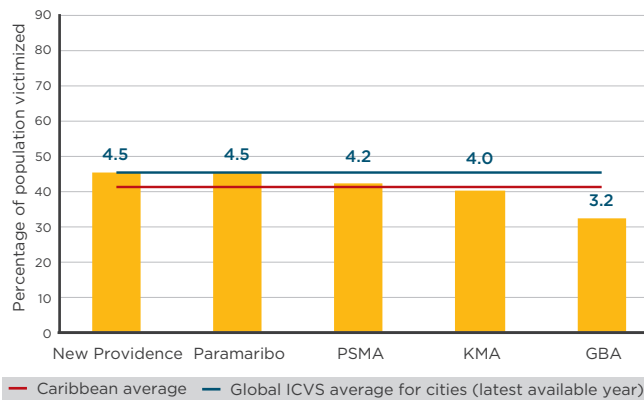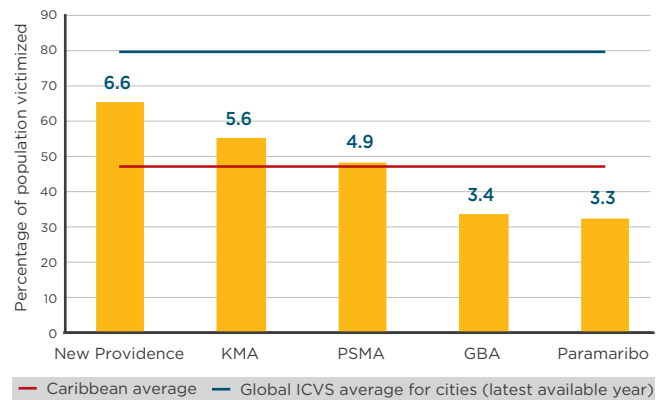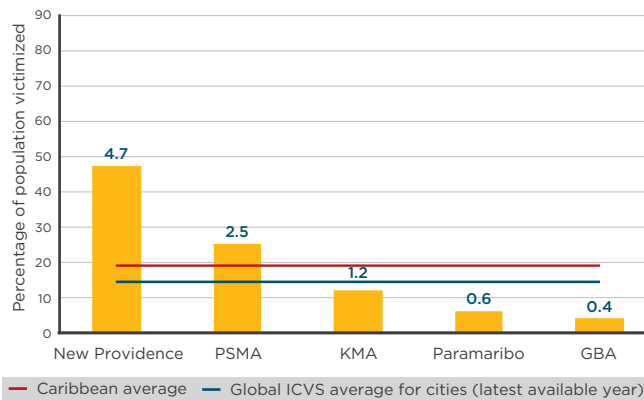
Assault & Threat
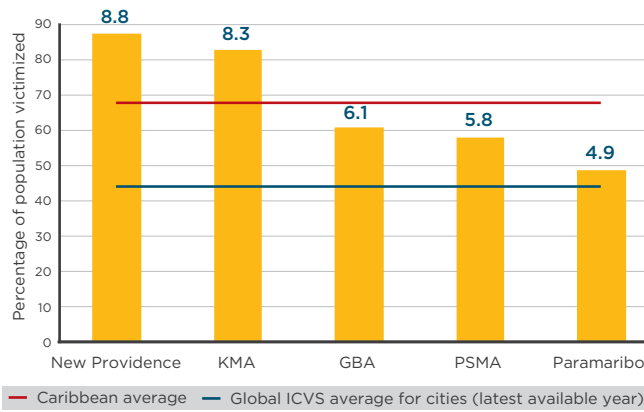
Robbery

Burglary

Theft

Car Theft

Source: Sutton and Ruprah (2017).
Note: GBA = Greater Bridgetown Area; KMA = Kingston Metropolitan Area; PSMA = Port of Spain Metropolitan Area. ICVS = International Crime Victimization Survey.

2014/2015 had been a victim of assault or threat of assault in the previous year. This rate is substantially higher than the ICVS global mean for cities (4.4 percent). In fact, the rate of victimization through assault and threat of assault in the Caribbean is significantly higher than in any world region in the ICVS database, including the seven-city average for Latin America (4.7 percent) and the 10-city average for Africa (5.2 percent).

CCVS 2014/2015 found high rates of car theft and robbery in New Providence and the Port of Spain Metropolitan Area, but the subregional average was approximately on par with international averages. The prevalence of burglary, in the Caribbean was similar to the global average of cities in the ICVS, and theft was

significantly lower than the ICVS average in Caribbean capital cities.

Again, the victimization rates for assault and threat of assault among youth ages 18–25 (11.6 percent) and young adults ages 26–35 (8.2 percent) were found to be higher than those for the overall population (6.8 percent), meaning that youth are disproportionately victimized compared to the percentage of the population that they account for. Furthermore, the use of firearms, in 35 percent of all robberies and in 17 percent of all assaults and threats of assault in the survey, was twice the ICVS international average for cities.

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7.3   Crime and the Private Sector

Beyond the personal costs highlighted in the preceding section, crime in the Caribbean takes a heavy toll on the private sector in terms of the costs it imposes. Figure 7.4 shows that nearly one in four Caribbean businesses (23 percent) reported experiencing losses due to theft, robbery, vandalism, or arson during the preceding fiscal year, according to the 2013/14 Productivity, Technology, and Innovation (PROTEqIN) Survey. This is higher than the world average according to the World Bank Enterprise Survey (19.4 percent), but lower than the average for the Latin American and Caribbean region overall (27.1 percent). As the figure shows, the percentage of businesses victimized ranged from 8 percent in Belize to 33 percent in Guyana. It is notable that the ranking of countries according to levels of victimization of businesses differs slightly from the ranking according to levels of victimization of individuals. For example, Jamaica shows lower levels of crimes against firms in the subregion. Suriname has one of the highest rates of crimes against firms, in contrast to its low ranking with regard to crimes against individuals.

While the percentage of businesses that suffer losses is relatively high in the Caribbean, according to the PROTEqIN survey, the average amount lost (2.3 percent of annual sales) is comparatively lower than the Latin American and Caribbean regional average (3.6 percent) and the international average (4.8 percent), according to World Bank Enterprise Survey data. Again there is variation among the countries of

the Caribbean, with losses ranging from 1.3 percent of annual sales in Barbados to 5.7 percent in Suriname.

Beyond the costs of being victimized, 70 percent of firms in the subregion reported spending money in 2013/2014 on security, including equipment, insurance, personnel, and professional security services (Figure 7.5). This is again substantially higher than the world average from the World Bank Enterprise Survey of 55.6 percent. The portion of firms paying for security in the Caribbean ranged from 44 percent in Saint Lucia to 85 percent in Trinidad and Tobago, as shown in the figure. The majority of firms (63 percent) reported spending on alarm systems, security cameras, and gates.

For those companies in the subregion with expenditures on security, on average these expenses accounted for 2.4 percent of annual sales in 2013/2014. This was lower than the international average of 3.2 percent. Suriname, Guyana, and The Bahamas showed the highest levels of expenditure among Caribbean countries (5.9, 5.0, and 3.8 percent of annual sales, respectively), whereas Barbados reported security expenditures significantly lower than the international and subregional averages (1.5 percent of annual sales).
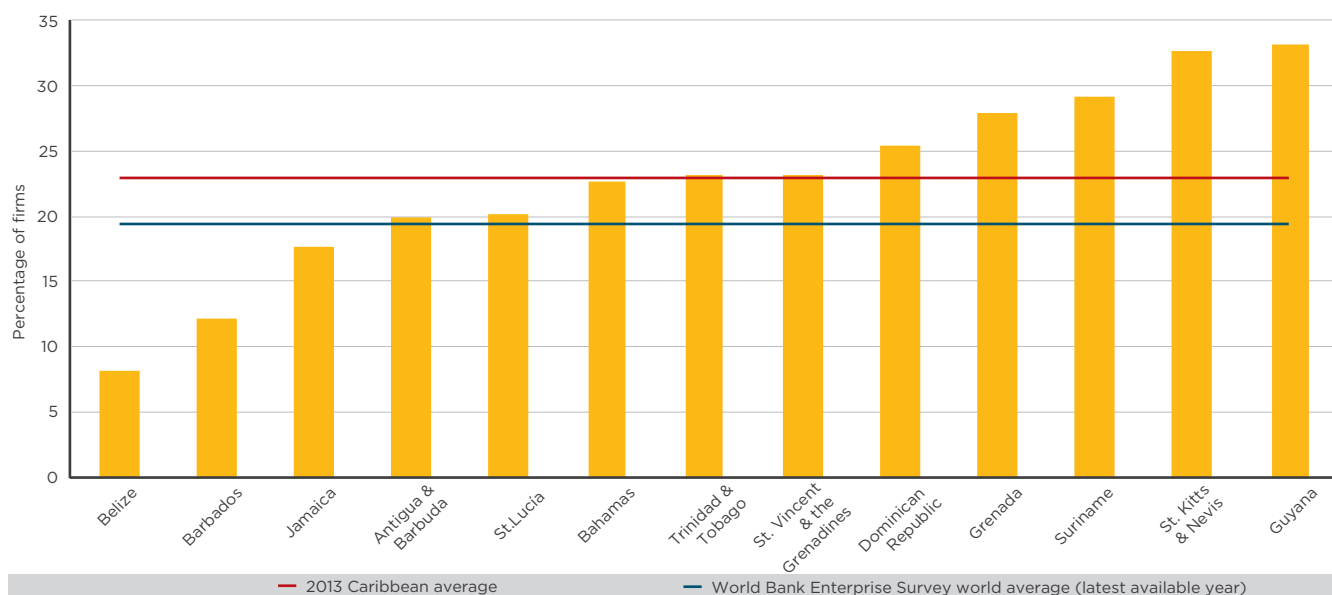
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7.4   Government Response

Given the high costs of crime in the subregion, both to individuals and to the private sector, it is worthwhile to examine what Caribbean countries are doing to deal with the problem. Overwhelmingly, the favored solution has been expenditure on law enforcement as opposed to other components of a potential solution. As discussed in Chapter 2, Caribbean countries have responded to the high-crime problem with some of the lowest expenditure on administration of justice and some of the highest expenditure on police, compared to the average for 17 countries in the Latin American and Caribbean. The Bahamas, Barbados, and Jamaica, for example, are among those countries that spend the least on justice administration — about 0.06 percent of GDP. Conversely, Jamaica has the highest percentage of crime-related police expenditures — 2.04 percent of GDP in upper-bound estimates. It is followed by The Bahamas, with police costs of 1.59 percent of GDP (upper bound).

This response of overreliance on the police has resulted in relatively high police-to-population ratios in the Caribbean compared to the average for Latin America and around the world (Table 7.2). This may be related to the relatively higher perceptions of police effectiveness and relatively higher crime-reporting rates found in the Caribbean compared to Latin America (Sutton and Ruprah 2017).

Figure 7.4. Percentage of Firms that Experienced Losses due to Theft, Vandalism, or Arson During the Preceding Fiscal Year, 2013/2014

Legend: — 2013 Caribbean average   — World Bank Enterprise Survey world average (latest available year)

Source: Sutton and Ruprah (2017) using data from the 2013/2014 Productivity, Technology and Innovation (PROTEqIN) Survey data set.
Note: The Caribbean average is the unweighted average of the 13 countries included in the figure.

Figure 7.5. Percentage of Businesses that Spent Money on Security, by Country, 2013/2014

Legend: — Caribbean average   — World average (WB Enterprise Survey, most recent year)
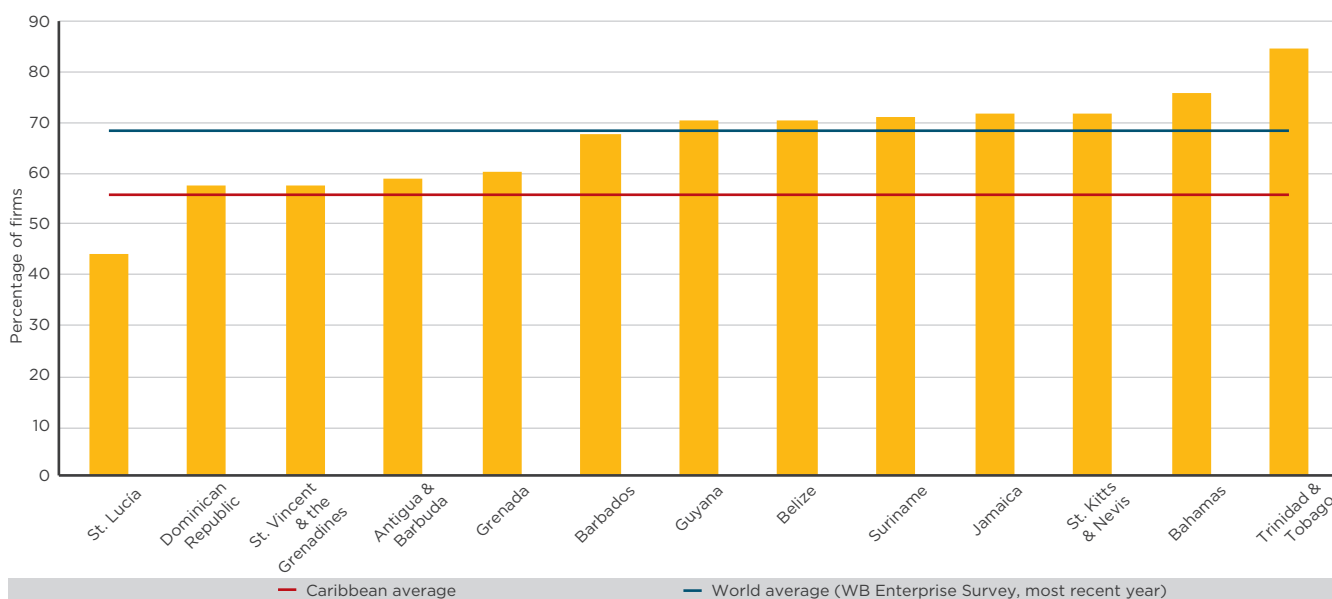
Source: Sutton and Ruprah (2017) using the 2013/2014 Productivity, Technology and Innovation (PROTEqIN) Survey data set.
Note: The Caribbean average is the unweighted average of the 13 countries included in the figure.

THE COSTS OF CRIME AND VIOLENCE

However, high police density has not necessarily resulted in rapid police response or higher police effectiveness in solving and investigating crime. Of those polled in the CCVS in capital metropolitan areas for the five Caribbean countries previously noted, an average of 56 percent said that if they called the police because someone was entering their home, it would take the police more than 30 minutes to arrive. It would take more than three hours, according to 9 percent of respondents, and 2.5 percent said there are no police in their area at all. Additionally, police detec-

tion rates[47] for the most violent crimes (i.e., homicides) are generally low. In 2013, only about half of all homicides were resolved by police in The Bahamas (51 percent detection), and the detection rates in Jamaica (41 percent) and Trinidad and Tobago (13 percent) were far less.[48] Rates of detection in the subregion for other crimes are generally even lower.

Notably, in Trinidad and Tobago detection rates for crimes are extremely low and have been declining since 2000 (Figure 7.6). In the case of murder, for example, detection rates averaged 64.8 percent between 1990 and 1999 and then plummeted to 13 percent by 2013. The raw numbers of crimes and clearances began to diverge substantially in 2000, when crimes began to increase, but clearances did not follow the same trend (see, as an example, the data for homicides in Figure 7.7). Changes in the volume and nature of crimes (armed and gang-related), combined

Table 7.2. Police Density

| Country	Number of Police Personnel per 100,000 Population
Jamaica	423.8
The Bahamas	846.1
Trinidad and Tobago	477.1
Barbados	503.9
Latin America and the Caribbean	435.6
World average	365.5

Source: United Nations Office on Drugs and Crime criminal justice data (2014 or latest available year).
Note: World and Latin American averages are for the year with the highest number of countries reporting (2012).

(47) Police forces in these three Caribbean countries use the term "detection rates" rather than "clearance rates," but the definitions of the two terms are equivalent. Comparable clearance rates for other countries include 64 percent in the United States (2013) and 75 percent in Canada (2010).
(48) Homicide detection rates were provided by the Statistics and Information Management Unit of the Jamaica Constabulary Force, the Strategic Policy and Planning Branch of the Royal Bahamas Police Force, and the Crime and Problem Analysis Branch of the Trinidad and Tobago Police Service.

Figure 7.6. Crime Detection Rates per 100,000 Population, Trinidad and Tobago, 1990–2013
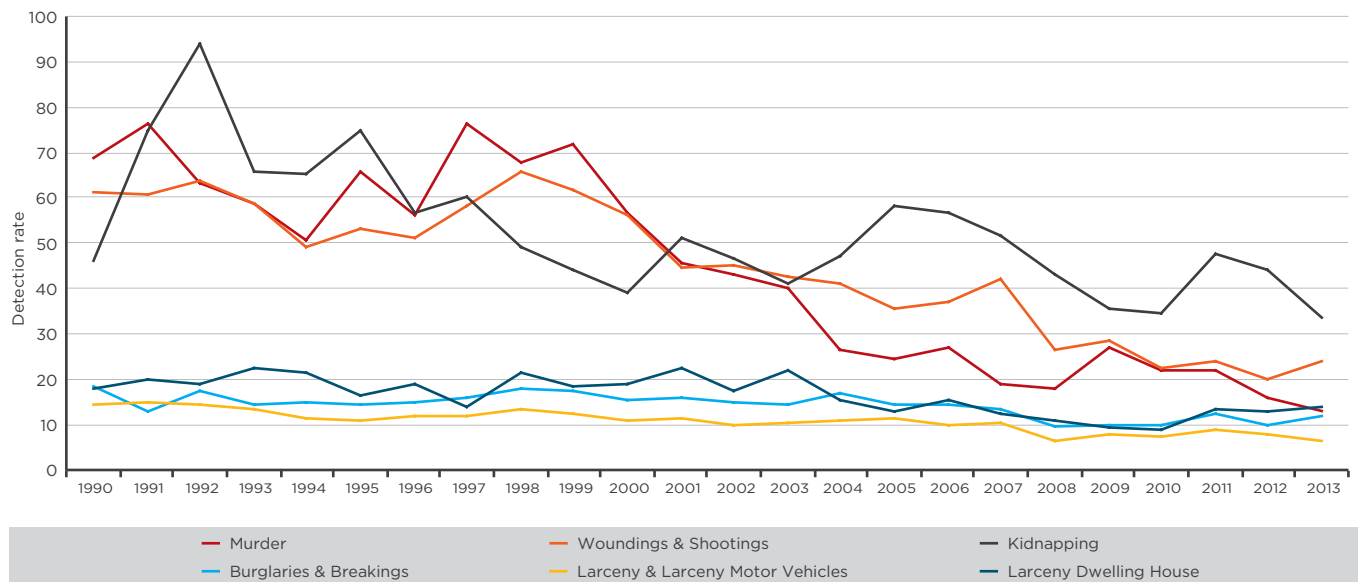
Source: Data provided by the Crime and Policy Analysis Branch of the Trinidad and Tobago Police Service.

with insufficient organizational capacity to detect and respond to these changes, help explain the declining detection rates (Maguire et al. 2010).

Weaknesses in the judicial systems in the sub-region are exacerbated by the high crime rates. Evidence suggests that the court systems account for the smallest amounts of spending in national budgets in the subregion and that lack of administrative capacity is a significant bottleneck to processing cases. While the statistical infrastructure for measuring the flow of cases through the criminal justice system is signifi-cantly lacking, in general, judicial systems in Caribbean countries have been found to be plagued by excessive processing delays, long backlogs, and low conviction rates (UNDP 2012; Seepersad 2016; Harriott and Jones 2016; Sutton 2016). Various anecdotal explanations for these problems have been put forth, such as increas-es in case load due to increasing arrests, inadequate staff, incompetent prosecution, and deliberate delays by lawyers and other personnel involved in judicial processes.

Finally, the subregion's high crime rates and weak

Figure 7.7. Murders Reported Versus Murders Detected, Trinidad and Tobago, 1990–2013
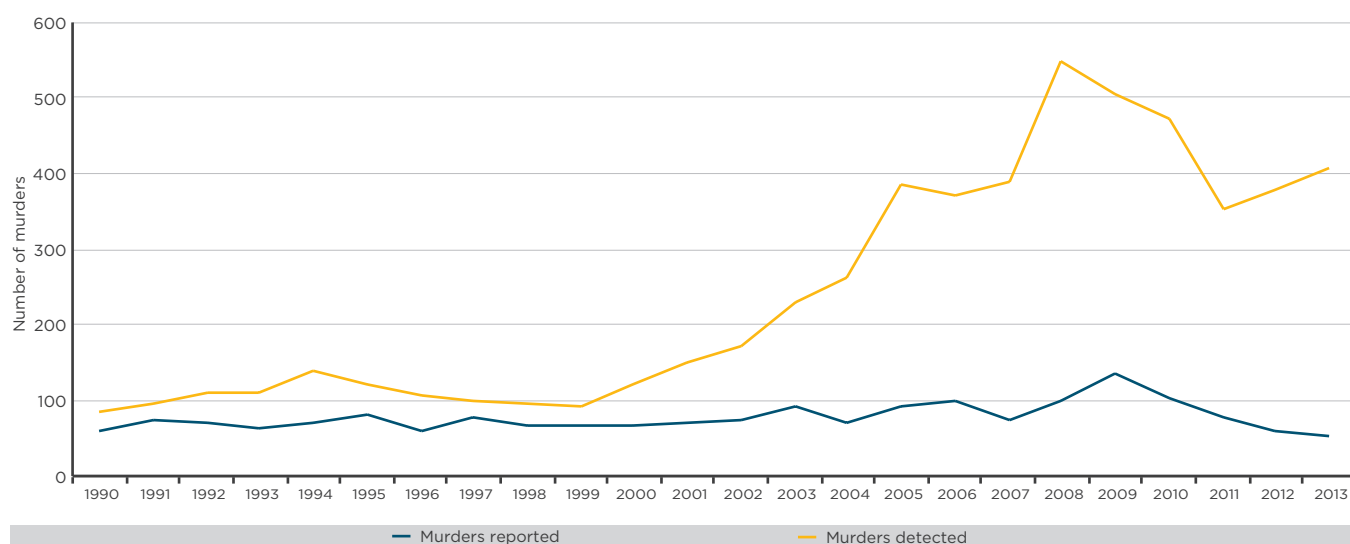
Source: Data provided by the Crime and Policy Analysis Branch of the Trinidad and Tobago Police Service.

Table 7.3. Prison Statistics for Six Caribbean Countries

| | Number of Prisons | Facilities for Females | Facilities for Males | Facilities for Juveniles | Prison Population | | | Official Capacity | Prison Occupancy (%) |
					Number	Rate	Remand/ Pretrial (%)		
The Bahamas	1	-	-	2	1,433	**379**	42	1,348	**97.8**
Barbados	1	-	-	-	908	**318**	40.4	1,250	**72.6**
Guyana	5	1	4	-	1,998	**264**	35.6	1,580	**126.5**
Jamaica	12	1	6	4	4,050	**145**	16.9	4,690	**87.7**
Suriname	5		4	1	1,050	**194**	50	1,330	**78.9**
Trinidad and Tobago	9	1	8	1	4,846	**362**	43.3	4,090	**118.5**

Source: Institute for Criminal Policy Research (2013).
Note: "Rate" refers to the number of incarcerated individuals per 100,000 population in each country.

court systems have also resulted in a profound crisis for Caribbean correctional systems (Table 7.3), reflected in (1) high prison populations (prison population rates in the subregion vary between 145 and 379 per 100,000 population, which surpasses the world average of 140 per 100,000 population); (2) prison overcrowding (prisoner volume exceeds prison capacity by more than 70 percent across Caribbean countries); and (3) high pretrial detention (a large number of prisoners are awaiting trial, with an average subregional rate of 40 percent of prisoners detained pending trial).

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7.5   Conclusions and Discussion

As this chapter has shown, the heavy cost of crime among Caribbean countries is driven primarily by the subregion's high levels of violent crime. This includes uniquely high levels of homicide and assault. Not surprisingly, the three countries in the subregion that lose the highest percentages of their GDP to crime are those with the highest levels of violent crime: The Bahamas, Jamaica, and Trinidad and Tobago. The high levels of crime likewise affect the private sector in the subregion. The number of firms in the Caribbean experiencing losses due to crime and the proportion of firms that pay for private security are higher than the international averages. These costs draw money away from other activities that could potentially enhance productivity—such as the amount spent on research and development, which is lower than the amount spent on crime overall (Ruprah and Sierra 2016). Finally, although government expenditure on combating crime is relatively high, the money is spent overwhelmingly on police, but this has not translated into higher police effectiveness. Moreover, with precious little of the total expenditure going to the judicial systems and crime prevention, much of the subregion has ended up with overcrowded prisons, where nearly half of the detainees may wait years before going to trial.

Reports by the United Nations Office on Drugs and Crime and World Bank (2007), the United Nations Development Programme (2012), and Sutton and Ruprah (2017) offer some explanations for the subregion's crime problems. Specific determinants include gang violence, drug trafficking, high availability of firearms, deportation of ex-convicts from the United States, economic inequality, and gender inequality. A full explanation for the crime profile of the subregion is beyond the scope of this descriptive chapter, but some general observations can be made.

First, within the last decade there has been increasing recognition in the subregion that a balance between suppression and prevention is most effective for reducing crime, and preventive interventions have accordingly been on the rise, with a number of prevention-oriented programs and interventions identified in recent attempts to map initiatives in Caribbean countries (Seepersad 2016; Harriott and Jones 2016; Sutton 2016; Bailey 2016). Some promising initiatives are based on adapting programs that have proven successful in other contexts. One example is Project REASON (Resolve Enmity Articulate Solutions Organised Neighbourhoods) in Trinidad and Tobago, which began in 2015 and has adapted the Chicago CeaseFire program model, an evidence-based and data-driven public health approach to crime prevention. Another example of a progressive approach to crime control is the move toward restorative justice in Trinidad and Tobago and Jamaica. Nonetheless, even with this increased attention to prevention,[49] the overwhelming majority of crime-related public spending in the Caribbean is still allocated to crime suppression. The United Nations Development Programme's *Caribbean Human Development Report 2012* found that even in Trinidad and Tobago, where government expenditure on prevention was the highest in the subregion, for every dollar spent on security, only 15 cents is spent on prevention.[50]

Secondly, security strategies in Caribbean countries are still predominantly reactive and rely heavi-

(49) The Cure Violence (formerly CeaseFire) model was successfully used in Chicago and a number of other locations around the globe to reduce violence through five core components: (1) street outreach to at-risk youth, (2) public education, (3) faith leader involvement, (4) community mobilization, and (5) collaboration with law enforcement agencies. In Trinidad and Tobago, the program has been adapted with guidance from those involved with the original Chicago model and is being evaluated by researchers at American University under the auspices of the Citizen Security Program, implemented by the Ministry of Justice and supported by the Inter-American Development Bank.
(50) According to the UNDP's *Caribbean Human Development Report 2012*, of the 13.9 percent of the national budget spent on security expenditures, 2.1 percent was on prevention (p. 145).

ly on law enforcement and tough deterrence. While steps have been taken to improve effectiveness and trust in the police, increasing their capacity to prevent and investigate crimes continues to be a critical focus. The same is true for the administrative capacity of the courts in the subregion. Yet many international studies have now shown that state investment in harsher penal laws, new prison construction, and the nonstrategic expansion of police forces has had a limited impact on reducing violence and has failed to discourage new crimes from occurring (see for example Sherman et al. 2002; Pousadela 2014; Jaitman and Guerrero 2015; Travis and Western 2014). This suggests that a reconsideration of spending priorities may be in order.

Finally, more work is required to begin to identify the effects of public policies and crime prevention programs in the Caribbean. In general, where evaluations of crime prevention and suppression initiatives have been conducted, they have been neither systematic nor carried out by independent bodies. Systematic monitoring of these programs would ensure that they follow evidence-based models accurately, while proper evaluation would suggest possible modifications and analyze the impact of interventions. It is important that government expenditure be carefully invested in programs that have a demonstrated capacity to be effective and that continually use data to achieve better results.

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Part III

The Costs of New and Old Crimes

THE COSTS OF
NEW AND OLD CRIMES

8 Avenues for Future Research and Action: The Cost of Violence Against Women

Laura Jaitman[51]

The phenomenon of violence against women (VAW) includes many forms of violence, from psychological abuse to femicide in extreme situations, and covers a wide range of criminal offenses ranging from domestic violence to sexual assault. In most cases, VAW is committed by people close to the victim, especially intimate partners (García-Moreno 2013). This proximity to the abuser and the normalization of this type of violence in some societies makes many women afraid or ashamed to report these offenses to the police. VAW therefore tends to be a silent form of violence.

According to WHO (2013), 29.8 percent of women in Latin America and Caribbean have experienced physical and/or sexual intimate partner violence during their lifetime. This figure drops to 23.2 percent in high-income countries (North America and Western Europe) but increases to 37.7 percent in Southeast Asia and 37 percent in the Eastern Mediterranean Region. Considering only non-partner sexual violence, the prevalence among Latin American and Caribbean women is close to that observed in Africa (10.7 percent and 11.9 percent, respectively), and much lower than in Europe (5.2 percent) or even Southeast Asia

(4.9 percent).

These high VAW figures point to a serious problem that engenders many welfare costs. The direct costs of VAW include public spending on security, such as policing, but also costs to the health system to treat to victims and costs to the judiciary system, among other expenditures. The direct costs of VAW also include social costs, such as the loss of lives and diminished quality of life due to rape and other violent offenses. Unlike property crimes and other violent crimes examined in this volume, VAW requires specific attention. Brazil, for example, has is a specialized police unit, known as the Maria da Penha Patrol, whose purpose is to prevent this of kind of violence, support victims, and ensure that the law is enforced.[52] In the health system, victims require different types of care, including psychological counseling. The direct costs of VAW are partly included in our estimations (see below for details).

In addition, there are also indirect costs not considered in this study that may be intangible (see Jaitman 2015 for more information on the indirect costs of crime). These intangible costs include poorer health outcomes for women and children living with domestic violence; and for women, a greater probability of having an abortion, experiencing depression or some other mental illness, or contracting sexually transmitted diseases. VAW has intergenerational impacts that

(52) The law often states that the abuser must keep a certain distance away from the victim. These restraining orders are hard to enforce, and special police units may be needed.

affect the development of future generations, besides keeping women from fulfilling their potential. VAW also affects women's behavior in ways that prevent them from achieving gender equality in many aspects of life. VAW affects intra-household bargaining and the balance of power in the home, sometimes preventing women from participating in the labor market. Furthermore, gender-based violence affects women's behavior in public spaces. Fear of victimization makes women take alternative routes to their destination and avoid certain places, leading to costly behavioral changes that keep them from moving about freely (see Galiani and Jaitman 2016) for an example of violence against women on public transportation).

8.1 Violence Against Women in the Estimations of the Direct Costs of Crime

This volume comparably and systematically estimates the welfare costs of crime and violence in 17 countries of the region. The estimates include public expenditure on public safety (police, criminal justice, and prison administration), private expenditure on security by firms and households, and the social costs of crime (poorer quality of life due to victimization and the foregone income of the prison population).

The estimates of the direct costs of crime in Chapter 2 of this study include some of the costs related to VAW. It is very hard to disaggregate the costs of crime by gender. In the estimates presented, the only category in which disaggregation by gender was feasible was the social costs of crime. Here we have losses associated with some types of violent crime, mainly homicides and the foregone income of prison inmates. The share of these costs borne by women is 10.8 percent of the total social costs. This figure seems low, since most of the prison population and homicide victims are male, as illustrated in Chapter 2. However, the cost of violence against women, measured only through social costs, is higher in LAC than in other regions of the world.

In fact, the social costs of crime are driven by the homicide figures. Roughly 10 percent of homicide victims in LAC are women, resulting in the highest female homicide victim rate compared to other regions (see Figure 8.1). LAC's female homicide victim rate stands at 4.3 per 100,000 women, almost double the world average of 2.3.

These high female homicide victim rates translate into high costs. If we consider the methodology in Chapter 2 and estimate the foregone income of women who were victims of homicides, we find that the costs in LAC are higher than in the developed countries (see Figure 8.2).

Not every homicide is the product of VAW, however. It is hard to determine exactly which homicides are the result of gender bias, since most countries do not provide information about the motive for the crime.[53] Waiselfisz (2015) estimates that 50.3 percent of female homicide victims in Brazil in 2013 were cases of femicide and that 33.2 percent of all female homicides were perpetrated by a member of the family. According to the most recent data from the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), at least 12 women are murdered every day simply because they are women. This figure

(53) In Brazil, for example, a law passed in 2015 requires the health system to state on the death certificate whether the death was motivated by gender bias.

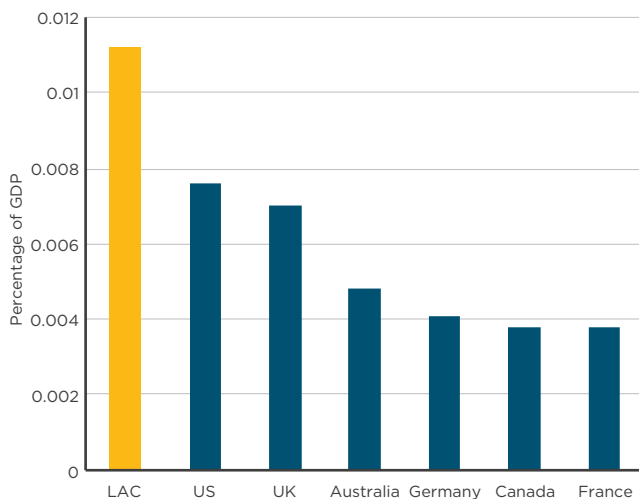## Figure 8.1. Female Homicide Victim Rates per 100,000 Women, 2010-2015
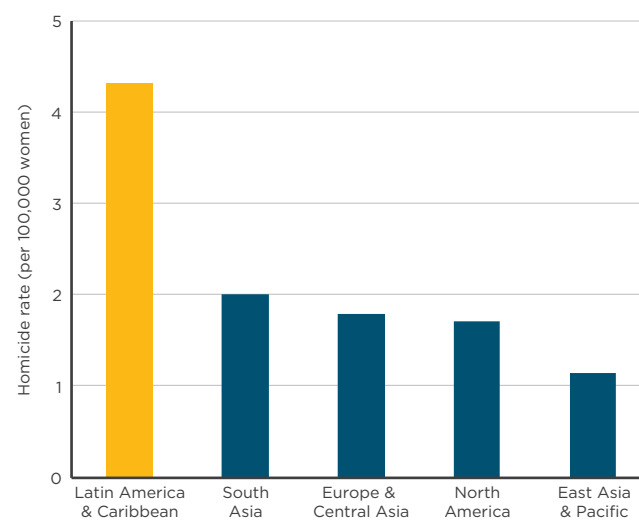
Source: Small Arms Survey 2016.

represents at least 4,380 deaths per year.[54] To put this into perspective, in a given year, roughly 4,500 people are homicide victims in Europe as a whole. This type of violence is most pronounced in Honduras and El Salvador, which have the highest femicide rates in the region (see Figure 8.3).

While young men constitute the bulk of male homicide victims, the age distribution among female victims is more equal, even showing an explicit share of deaths among women over the age of 50. This suggests that a large portion of the deaths among women are unrelated to criminal activity (see mortality pyramid tables in Chapter 3). Concerning rapes, roughly 90 percent of the victims in LAC are women. Cerqueira and Corelho (2014) characterized the victim profile in Brazil with 2011 data, noting that 70 percent of the victims were children or adolescents. This is extremely troubling, because the consequences for these boys and girls are devastating; this experience will damage their self-esteem, which develops precisely at this stage, causing irreparable harm to their social relationships.

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(54) Data available for 16 countries.

8.2 Indirect Costs of Violence Against Women

VAW affects women's health outcomes in many ways. García-Moreno (2013) does a meta analysis of the impact of domestic violence on a series of women's health outcomes. The study finds that women who experience intimate partner violence are 1.5 times more likely to contract HIV and 1.6 times more likely to contract syphilis than women who do not. The same paper also finds strong evidence that women with a history of intimate partner violence are twice as likely to report having had an abortion and more than twice as likely to experience depression. According to Bowlus and Seitz (2006), abused women are more likely to divorce and less likely to be employed. Ribero and Sánchez (2004) find that Colombian women who are victims of serious violence earn 40 percent less per month than women who are not abused.

Many studies seek to understand the impact of domestic violence against mothers on children's health outcomes. Aizer (2011) analyses the impact of domestic violence during pregnancy on birthweight, exploring variations in the enforcement of domestic violence

Figure 8.2. Social Costs of Female Homicides, 2014 (percent of GDP)

Source: Authors' estimates, using the methodology in Chapter 2. See Part I Appendix for sources.

Figure 8.3. Femicide Rates per 100,000 Women, 2014
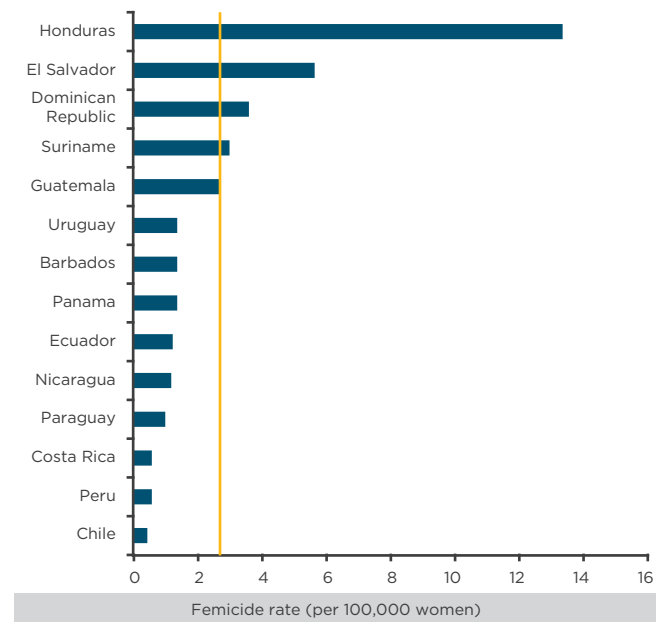
Source: United Nations Economic Commission for Latin America and the Caribbean (ECLAC).

laws to identify it. He finds that hospitalization for an assault during pregnancy reduces birthweight by 163 grams. Based on country studies, García-Moreno (2013) also concludes that women who experience intimate partner violence are 16 percent more likely to have a low birthweight baby. Aguero (2013) uses the growth of public centers in Peru that provide care and prevent domestic violence as a natural experiment to explore the impact of domestic violence on children's health outcomes. He finds that children whose mother has been subjected to domestic violence have worse health outcomes. For example, they are 15 percentage points more likely to have diarrhea; this result is linked with the educational level of the mother, decreasing by 0.6 percentage points per year of schooling. Regarding other effects of VAW on children, there is evidence that daughters are more likely to be abused by their partners and sons are more likely to become abusers (Hindin et al, 2008). These children also tend to underperform in school (Morrison and Biehl 1999).

Some studies use different approaches to determine the social costs of VAW. According to Fearon and Hoeffler (2014), female homicide costs 0.31 percent of GDP in Latin America and 0.12 percent globally. Considering only homicides committed by an intimate partner, these numbers drop to 0.09 percent and 0.05 percent, respectively. Although intimate partner homicide accounts for less than half the total cost of female homicide, it also includes non-fatal violence, as discussed above, which is harder to assess. According to Ribero and Sánchez (2004), Colombia lost 4.2 percent of GDP annually due to the indirect cost of domestic violence. Morrison and Orlando (1999) find that domestic violence cost 2 percent of GDP to Chile and 1.6 percent to Nicaragua. For England and Wales, Walby (2004) estimates the cost of domestic violence at £ 23 billion in 2001 (about 2 percent of GDP). Each of these studies uses a different methodology, however, making them hard to compare. It would therefore be worthwhile to develop a uniform methodology to permit country comparisons.

The consequences of VAW for society make it imperative for the public sector to take action to put a stop to it. For example, laws that treat VAW perpetrators differently than ordinary aggressors might be helpful. Assessing the impact of the Maria da Penha law on VAW in Brazil, Cerqueira et al. (2015) find that

the law has had a statistically significant impact, resulting in fewer gender-based homicides. Public policies aimed at reducing gender inequality in other aspects of life also seem to prevent VAW. According to Aizer (2010), reductions in the gender wage gap are responsible for 9 percent of the decline in domestic violence in the United States between 1990 and 2003. There is evidence that conditional cash transfer (CCT) policies can be also reduce VAW. Evaluating a randomized experiment with CCTs in Ecuador, Hidrobo and Fernald (2013) find that this type of policy has a positive effect leading to a reduction in VAW and that the more educated the woman, the greater the impact.

9 The Costs of Cybercrime: Is the Region Prepared?

James Andrew Lewis

In recent decades, the Internet has come to play a critical role in trade, finance, and economic growth. However, cyberspace has also created a unique opportunity for criminals, who take advantage of the speed, convenience, anonymity, and transborder nature of the Internet to engage in criminal activities that know no borders, either physical or virtual, cause serious harm, and pose very real threats to victims worldwide (Interpol 2016).

Estimating the cost of cybercrime is beyond the scope of this volume. According to the Center for Strategic and International Studies and McAfee (2014), it is anywhere from US$375 billion to US$575 billion worldwide. Given these figures, the growing importance of this issue, and the vulnerability of Latin America and the Caribbean in terms of cybersecurity, we have decided to introduce a brief discussion of the topic for future research. We are primarily interested in what constitutes cybercrime and cybersecurity and how to measure the cost of cybercrime, which probably already exceeds the cost of "traditional" crime and violence in many countries around the world.

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9.1 What Is Cybercrime? What Is Cybersecurity?

According to Anderson et al. (2013), there are three types of cybercrime: traditional forms of crime, such as fraud or forgery, committed over electronic communication networks and information systems; the publication of illegal content in electronic media; and crimes of a specifically electronic nature – i.e., attacks on information systems, denial of service, and hacking. The most damaging forms of cybercrime are attacks on financial institutions and the theft of commercially valuable information. These thefts are not confined to advanced economies; the US$18 million loss of the Central Bank of Bangladesh, as part of a larger effort to steal almost US$1 billion, shows that any country can be a victim.

The history of cybercrime reveals that criminals have been quick to take advantage of technology. Over the past 20 years, cybercriminals have grown more sophisticated and skilled. Cybercrime gangs are specialized and highly organized. Some have capabilities that rival those of most States. Others are connected with organized crime and, in a few instances, terrorist groups. Their activities can offer low risk and high returns.

Cybercrime hurts innovation by diverting resources to security and creating disincentives to investment through the theft of ideas. It imposes an opportunity cost on societies, as they must divert more resources to security. The result is that weak cybersecurity slows economic growth. If we look at the cost of cybercrime as a percentage of overall economic activity on the Internet, it may be as high as 15 percent of online revenues – more than any other transnational criminal activity. Because the losses and costs of cybercrime are often invisible, countries underestimate both the risk and the harm.

To protect themselves against cybercrime, businesses, governments and individuals have been investing in cybersecurity. According to the Cyber Center of Excellence (2016), business demand for cybersecurity products rose by 14.7 percent between 2011 and 2013, and consumer demand increased by 10.7 percent. An issue that was once of concern only to specialists, cybersecurity has now become a broad policy concern.

In the context of policy, cybersecurity represents the collective activities and resources that enable citizens, businesses, and governments to meet their computing objectives in a secure and reliable manner (Burt et al. 2013). It is not a technology issue; there is no technological "silver bullet" that can "fix" cybersecurity. This puts the problem squarely in the realm of policy. Cybercrime in particular poses challenges for policy-making, as its most harmful forms are transnational (e.g., criminals in one country commit crimes in another, thanks to the global connectivity provided by the Internet). These transnational crimes can be addressed only by cooperation among governments.

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9.2 How to Measure the Costs of Cybercrime

In 2014, 91 percent of businesses in the United States experienced some kind of cyber incident, for an average of 118,000 attempted attacks per day (Merrill Lynch 2015). Many of these attacks are automated, allowing cybercriminals to probe many different businesses simultaneously. Other attacks are aimed at a specific high-value target. Cybercrime is also affecting Latin America and the Caribbean. From 2011 to 2014, governments in the region reported an average increase of at least 8-12 percent in the number of incidents (Micro 2014), and this is likely an underestimate.

Given this increase in the number of cybercrimes, some studies have sought to develop methodologies to estimate their cost. Detica (2011), for example, considers four categories of cost, three of them direct and one indirect. The first is the cost of anticipating cybercrime, such as antivirus software, insurance, and compliance. The second is the cost stemming from the consequences of cybercrime, such as direct losses and indirect costs like lower competitiveness as a result of compromised intellectual property. The third is the cost in response to cybercrime, such as victim compensation and fines paid to regulatory bodies. The fourth and final category is indirect costs, such as reputational damage to businesses, loss of confidence in cyber transactions by individuals and businesses, lower public-sector revenues, and the growth of the underground economy.

Anderson et al. (2013) developed another approach. They disaggregated the costs of cybercrime into criminal revenue, which is the monetary equivalent of the gross receipts from a crime; direct losses, which are the monetary equivalent of losses, harm, or other distress experienced by the victim as a result of a cybercrime; indirect losses, defined as the monetary equivalent of the losses and opportunity costs imposed on society by a certain cybercrime; defense costs, which are the monetary equivalent of prevention efforts; and finally, the cost to society, which is the sum of direct losses, indirect losses, and defense costs.

Using different methodologies, some studies have estimated the cost of cybercrime. Lewis and Baker (2013) estimate the cost to the United States of malicious cyber activity. A 2014 study by these same authors measured the global cost of cybercrime using both reported loss levels and estimates of the effect on national incomes. Malicious cyber activity includes the loss of intellectual property and confidential business information, including cybercrime, the loss of sensitive business information, opportunity costs, the additional cost of securing networks, insurance, and recovery from cyber attacks, and reputational damage to the hacked company. They found annual costs to the United States equivalent to 0.2 to 0.8 percent of GDP and worldwide, 0.5 to 0.8 percent of global income.

The Ponemon Institute (2015) surveyed businesses to get a measure of the cost of cybercrime in Russia, the United States, Japan, the United Kingdom, Australia, Germany, and Brazil. The study estimated the cost of cybercrime at US$7.7 million per year in the countries in question, indicating an 8 to 29 percent increase in the cost of cybercrime in these countries between 2014 and 2015 – except in Brazil, where the survey was not conducted in 2014. Detica (2011) estimated the cost of cybercrime in the United Kingdom at £27 billion per annum. This study points out that a substantial proportion of this cost derives from the theft of intellectual property from UK businesses, which it estimated at £9.2 billion per annum. Apart from the direct costs, Acquisti et al. (2006) estimated that data breaches have a negative and statistically significant impact on a company's market value on the day the breach is announced.

Lack of comprehensive data poses a significant obstacle to accurately estimating cybercrime. Many countries still do not even track this type of crime, and businesses have powerful incentives not to report losses from hacking. Better data collection by economic and law enforcement agencies could help accelerate and incentivize improvements in cybersecurity. That said, the available evidence is sufficient to show that the cost and number of incidents is steadily on the rise.

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9.3 Cybercrime in Latin America and the Caribbean: Is the Region Prepared?

The advantages of connectivity are undeniable, and people from LAC eagerly embrace these new technologies. This is reflected in the following figures: LAC is the world's fourth largest mobile market, half of its population uses the Internet, and governments use digital media to communicate and provide services to citizens. Nevertheless, according to the most complete report ever published on global cybersecurity (OAS-IDB 2016), the region falls short when it comes to preventing and mitigating the risks of criminal or malicious activity in cyberspace. As some calculations suggest, LAC faces a cost from cybercrime equivalent to US$90 billion per year, which is a very sizable figure (Prandini et al. 2011). To put this into perspective, with those resources, the region could increase the number of scientific researchers fourfold. Globally, the cost of cybercrime is US$575 billion per year, or 0.5 percent of global GDP. This is equivalent to almost four times the annual donations for international development (Center for Strategic and International Studies and McAfee 2014).

To the best of our knowledge, the OAS-IDB (2016) study is the first to paint a comprehensive picture of cybersecurity in LAC. It thoroughly examines the cyber maturity of 32 LAC countries by analyzing 49 indicators, divided into five dimensions: i. National Cybersecurity Policy and Strategy; ii. Cyber Culture and Society; iii. Cybersecurity Education, Training, and Skills; iv. Legal and Regulatory Frameworks; and v. Standards, Organizations, and Technologies. It also analyzes those indicators divided into five levels of maturity: i. Start-up; ii. Formative; iii. Established; iv. Strategic; and v. Dynamic.

The analysis shows that several countries in the region are vulnerable to potentially devastating cyber-attacks. Crisis response and reporting mechanisms are nascent across the region, and there is limited capacity to proactively address cyber threats, either nationally or multilaterally. Specifically, 80 percent of countries lack cybersecurity strategies or critical infrastructure protection plans. Only five out of 32 countries already have a strategy in place (Colombia, Jamaica, Panama, Trinidad and Tobago and Uruguay), while other coun-

tries (i.e., Costa Rica, Dominica, Peru, Paraguay, and Suriname) are in the process of developing one. Moreover, two out of three countries do not have command centers and cybersecurity control, and the vast majority of prosecutors lack the legal authority to pursue cases of cybercrime. Almost half the countries in the region lack a coordinated response mechanism for cyber incidents. Specifically, 12 countries have response teams with defined roles but limited training and equipment, and only four have surpassed the intermediate level of maturity in this area. Moreover, nearly 56 percent of the countries have yet to clearly identify their critical infrastructure assets, and 75 percent have no mechanism for planning and coordinating responses to an attack on critical infrastructure in the country.

One especially significant area for improvement is the law. Comprehensive national cybercrime laws are essential, because weak cybercrime laws are associated with higher cybercrime. While these laws can pose complex privacy and prosecution issues, model laws and best practices are available to guide national efforts. Similarly, ratification of the Budapest Convention on Cybercrime, though politically controversial because of its European origins, can improve international cooperation among law enforcement agencies.

Finally, society is largely unaware of the risks and vulnerabilities associated with cyberspace. More precisely, citizens in 90 percent of the countries are not aware of the dangers that cyberspace can pose to their security and privacy, and only two countries (Colombia and Uruguay) have reached an intermediate level of maturity in this regard. Part of the problem connected with this underdeveloped state of awareness stems from the lack of cybersecurity educational infrastructure. The majority of countries (80 percent) do not have a cybersecurity education policy. Only six have a structured cybersecurity education program, which includes budgetary stability as well as research and knowledge transfer mechanisms. Only a handful of countries offer postgraduate cybersecurity programs. While professional training programs are more common, their quality varies, and they do not produce enough skilled workers to meet the demand. Moreover, they suffer from problems related to skills dissemination and training infrastructure.

In sum, the OAS-IDB (2016) report shows that the region is unprepared to deal with cybersecurity

threats and urgently needs to design and implement comprehensive policies in this regard. It suggests, however, that the issues of cybersecurity and resiliency have moved to the top of policy and social agendas in LAC. Thus, while no country is cyber ready, many countries are beginning to take significant steps to define their specific cybersecurity challenges in economic terms and commit limited resources to meet their goals. While gaps in cybersecurity preparedness remain across LAC, the entire region is making progress and strengthening its commitment to creating a more secure, resilient, and connected society.

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9.4   Toward Improving Cybersecurity in Latin America and the Caribbean

Cybersecurity has become a priority for governments because of its powerful implications for public safety and economic growth. As all societies increase their dependence on digital networks and computer devices (and more than half the population in Latin America is now online), the need for better cybersecurity will grow.

It is important to bear in mind that while cybercrime costs billions of dollars, we gain trillions of dollars in economic benefits from the Internet. Cyberspace remains an important avenue for growth and development. Reducing cybercrime would maximize the returns on the investment that nations have made in their digital infrastructure. However, the trend line for cybercrime is not moving in the right direction. Costs are rising, as are the number of incidents. Cybercrime is one of the greatest potential sources of instability in the global financial system. This makes better cybersecurity essential.

Improvements are not impossible, even if the discussion of cybersecurity is sometimes surrounded by an almost impenetrable layer of arcane technological terminology. We can identify the policy and organizational changes that countries need for better cybersecurity.

The first step is for countries to develop a national strategy that sets goals and assigns responsibilities for cybersecurity. The development and implementation of this strategy must be coordinated by a presidential or prime ministerial office, since senior-level political support is essential for success. Certain business sectors – electrical power, telecommunications, and finance – merit special attention, and the ministries responsible for them must develop policies and standards to improve cybersecurity. They must also forge ties with industry and review the rules governing privacy, data protection, and infrastructure security. Creating an adequate cybersecurity workforce is a problem for all countries, even the largest, but at the very least, countries will need a national Computer Emergency Readiness Team and cyber-capable police investigators. In Latin America and the Caribbean, national initiatives can take advantage of strong cooperative relationships with neighbors and regional organizations. This is especially important with respect to cybercrime, where a regional approach may offer the best chance of reducing risk and increasing public safety.

Perhaps the best way to think about cybersecurity is that the policies and practices needed for its improvement are, in fact, part of a larger effort to expand digital economic opportunity. Economies that are connected to the Internet and use it for business, education, and government see accelerated growth. Cybercrime is the inverse of this economic opportunity, as criminals and hackers have maximized their returns from connectivity. Businesses and governments must keep a step ahead of criminals if the countries of Latin America and the Caribbean (and the rest of the world) are to move forward – not only in cybersecurity but in growth and development.

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10 Homicide and Organized Crime in Latin America and the Caribbean

Ted Leggett, Laura Jaitman, and José Antonio Mejía Guerra

Previous chapters of this report have discussed the costs of crime in Latin America and Caribbean (LAC). In Chapter 2, for example, it was estimated that crime costs the region around 3.5 percent of its GDP, making it a real obstacle to sustainable development. The relationship between crime and development is complex, with different forms of crime affecting the economy in different ways. One of these most impactful forms of crime is homicide, and LAC has the highest levels of recorded homicide in the world.

The high regional homicide rate is often attributed to drug trafficking, but past analysis has indicated that the situation is more complicated than that (see, for example, UNODC 2012). Some of the areas with the highest rates of homicide have relatively little

drug trafficking, and those with the highest volumes of drugs passing through them do not necessarily have the highest homicide rates. It does appear that organized criminal groups, including but not limited to drug trafficking groups, play a role in many LAC countries, though the nature of these groups varies between countries and within countries across time.
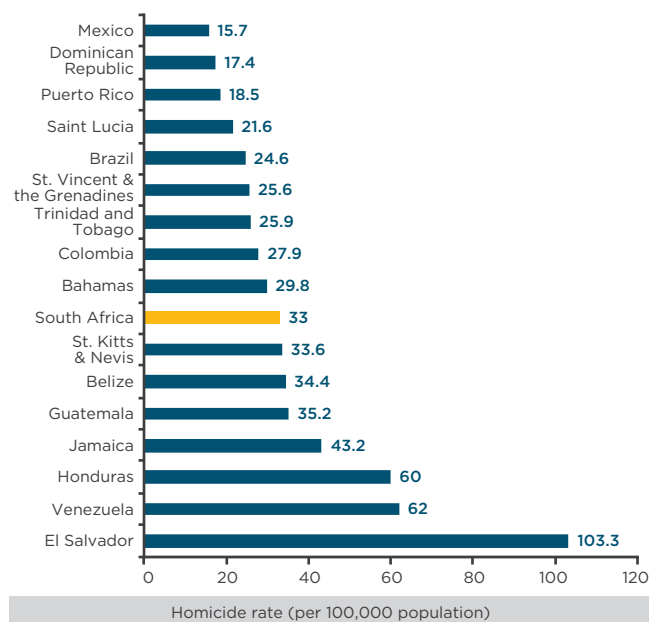
This chapter discusses the different forms of organized crime and their role in national homicide problems through three country case studies: El Salvador, Honduras, and Jamaica. This analysis gives some insight into the diversity of issues fueling the violence, and suggests that prevention measures will need to take this diversity into account.

Unlike the rest of the world, where criminal violence rates have been stable or declining, many countries in LAC have seen growing homicide rates since the end of the Cold War. The region is prone to sudden escalations in violence, where homicide rates begin spiraling out of control – a phenomenon rarely seen elsewhere. High homicide rates are not limited to a single subregion but are found in Central America, South America, and the Caribbean islands.

These unusual rates of violence impose a range of costs on the affected countries, including the loss of productive life years, the break-up of families, the loss of social capital, the undermining of public trust, the deterrence of investment, capital flight, brain drain, internal displacement, and a general loss of confidence in democracy. All of these effects can be seen, to one extent or another, throughout LAC. Some of these costs have been quantified in other chapters of this volume.

The reasons for this violence remain unclear. The region is diverse, with elevated homicide levels seen in countries with high, medium, or low levels of human development. Some LAC countries have service economies, while the economies of others are driven by raw materials extraction, agriculture, or manufacturing. The LAC region contains both countries with very large populations and countries with very small ones. One of the few common denominators among many countries in the region is the homicide problem.

Figure 10.1. Countries with the Highest Recorded Homicide Rates in the World, 2015 or most recent data

Country	Homicide rate (per 100,000 population)
Mexico	15.7
Dominican Republic	17.4
Puerto Rico	18.5
Saint Lucia	21.6
Brazil	24.6
St. Vincent & the Grenadines	25.6
Trinidad and Tobago	25.9
Colombia	27.9
Bahamas	29.8
South Africa	33
St. Kitts & Nevis	33.6
Belize	34.4
Guatemala	35.2
Jamaica	43.2
Honduras	60
Venezuela	62
El Salvador	103.3

Source: UNODC Homicide Database.
Note: This chart includes reported criminal justice system data only; public health data are not included.

10.1 A Typology of Organized Crime Groups

Criminal organizations can be classified into one of two types, each with different implications for homicide: territorial groups and trafficking groups.[55]

Territorial groups are focused on maintaining control of a certain geographic area. Some of these groups stake a political claim to this territory and openly oppose the State. Others simply exploit the weakness of the State to assert de facto control. Street gangs are a special subset of territorial organized crime with distinctive characteristics of their own.

Territorial groups often act as a surrogate State in areas neglected by the government.[56] Their first step is generally to impose a monopoly on violence, offering security to cooperating parties. Like a State, they tax all enterprises, legal and illegal, in the areas they control. Illegal activities may proliferate, since the self-appointed authorities are unconcerned with national laws. When deeply entrenched, they may offer many of the services normally provided by the State, including security, contract enforcement, corrections, welfare, employment, credit, and cultural activities (UNODC 2010).

To control territory, these groups must be violent and notorious. All members of the community must know who is in charge and must submit to their authority. Like an occupying army, these groups generally have a rigid hierarchical structure, with severe penalties for insubordination or desertion. Disrespect must be met with violence, even when that violence means losing money. Power comes first, and income derives from that power. Territorial groups are inward-looking, obsessed with local minutia, and therefore generally have little time for transnational commerce.

Street gangs are a particular type of territorial organized crime group, highly influenced by the structure of urban housing.[57] Typically, marginalized young men in a particular neighborhood form a kind of surrogate family revolving around mutual protec-

tion and rivalry with similar groups. The importance of economic activities, mainly extortion and the street drug trade, varies with the local circumstances but is always secondary to the ethic of territorial domination and the pursuit of respect. As territorial groups, very few street gangs manage to organize international contraband trafficking of any volume, even when situated close to border crossings. Although commonly associated with youth, in some countries gang membership does not end when the participants come of age, and many LAC gangs are led by men in their 30s and 40s (Arana 2005).

Trafficking groups, in contrast, have powerful incentives to avoid notoriety and violence. They focus on international contraband arbitrage and are motivated exclusively by profit. Like any collection of actors in a trade chain, they are "groups" only in the loosest sense of the word – law enforcement agencies like to refer to them as "networks" – because any link can be replaced as long as the sources of supply and the demand remain intact. Due to their flexible transnational nature, trafficking groups are often difficult for local enforcement agencies to combat or even understand.

There is often interaction between these two types of groups. When moving contraband to its final destination, for example, it is often highly advantageous for traffickers to pass through areas outside State control. For a fee, territorial groups will ensure smooth passage and security from both government forces and rival groups. The relationship can become so close that it may be hard to distinguish territorial groups from trafficking groups, but differences in focus and orientation mean that these two distinct functions are rarely integrated in a single organization.

Some of these territorial organized crime groups have managed to capitalize on the cocaine flow between the Andes and the United States. As discussed below, drug flows do not necessarily generate violence, unless changes in these flows upset the balance of power between territorial groups. Trafficking groups themselves are rarely violent, as violence is bad for business. Traffickers pay taxes to territorial groups to operate in the areas they control, however, and so contribute to conflict.

(55) This typology is further explored in UNODC (2010), and applied to the region in UNODC (2012).
(56) The idea of the State as a form of organized crime was first explored by Charles Tilly in Evans, Rueschemeyer, and Skocpol (1985).
(57) For a description of how this works, see Leggett (2004).

10.1.1 Case Study: The *Maras* and El Salvador

Few places have seen as much violence in the past few decades as Central America's Northern Triangle. Guatemala endured 36 years of civil war that left as many as 200,000 dead and disappeared before it ended in 1996 (Chamarbagwala and Morán 2011). El Salvador's civil war left some 80,000 dead and disappeared between 1979 and 1992, a proportionately equivalent figure (Seligson and McElhinny 1996). Beyond the raw body counts, the brutality displayed in these wars was extreme, with acts of great cruelty perpetrated against civilian populations. Twenty years afterward, the aftershocks, including continued violence, are still resonating throughout the region.

And yet, Nicaragua also experienced a 28-year civil war during the same period but appears to have had fewer problems with subsequent criminal violence. While homicide rates are high in the country (11.5 per 100,000 in 2012),[58] they have been fairly stable and are a fraction of those seen in the Northern Triangle. This relative peace appears to be attributable to at least two important factors: much less gang violence and a

different role in the cocaine flow.

Nicaragua has long had street gangs, but these groups are much less violent than those in the north, which have consolidated into two major opposing camps. These two camps were imported into the Northern Triangle when immigrants to the United States were deported back to their home countries. In contrast to Salvadorans, Guatemalans, and Hondurans, far fewer Nicaraguans have been deported from the United States for criminal offenses.[59]

In addition, Nicaragua's migration patterns have been very different from those of its northern neighbors historically. The flow of Nicaraguan immigrants to the United States, for example, has always been much lower (in 2013, less than 10 percent of those from the Northern Triangle) and those present in that country were more likely to have legally immigrated,[60] with a lower share living in poverty prior to immigrating.[61]

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(58) UNODC Homicide Database.

(59) United States. Department of Homeland Security (2015).
(60) Aside from Mexico, El Salvador, Guatemala, and Honduras are the three countries with the highest number of illegal immigrants in the United States. In 2012, for example, more than half the Salvadoran population in the United States (690,000 of 1.2 million) were undocumented, as were almost three quarters of Honduran immigrants (360,000 out of 491,000). For more details, see Baker and Rytina (2014).
(61) Only 17 percent, compared to 30 percent from Honduras, for example. See Batalova and Stoney (2013).

Figure 10.2. Number of Criminal Deportees from the United States, by Country
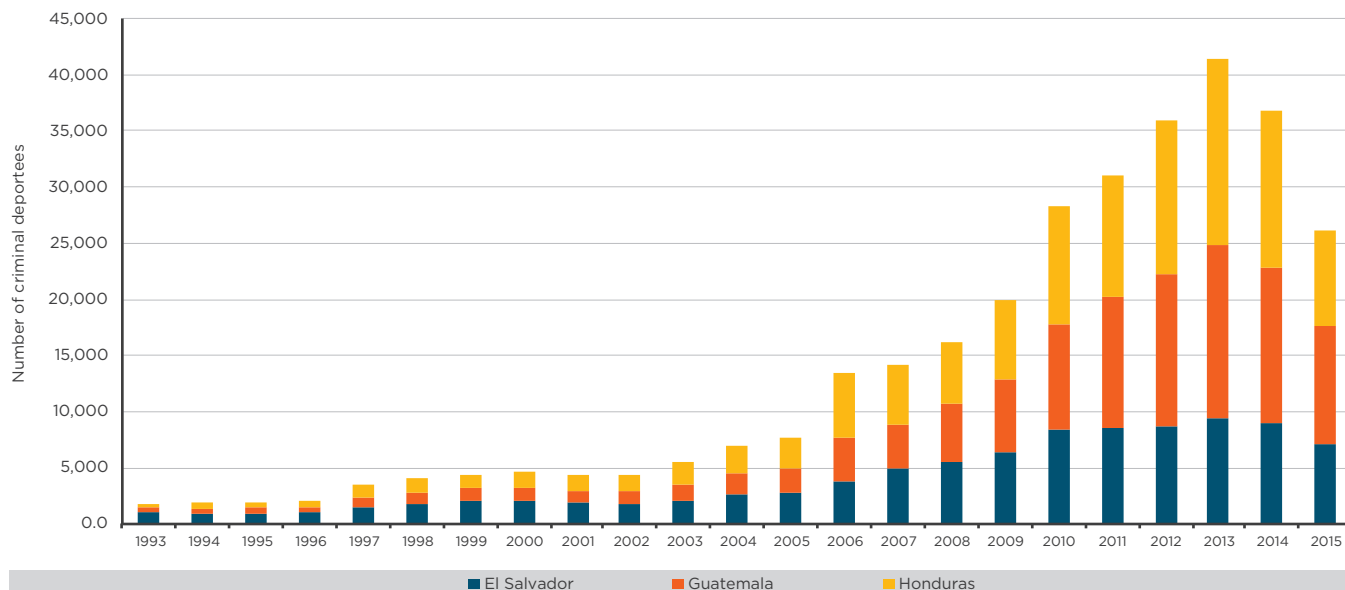
**Source:** United States Department of Homeland Security.

The situation in El Salvador is very different. *Mara Salvatrucha* (MS-13) was founded in the 1980s by Salvadoran emigrants in Los Angeles and quickly developed a rivalry with the multi-ethnic 18th Street gang (M-18), which also recruited from the Salvadoran community. In 1996, the U.S. Illegal Immigration Reform and Immigrant Responsibility Act considerably broadened the scope of criminal offenses that could result in deportation, and the 9/11 attacks in 2001 further increased the flow. Between 2006 and 2014, almost 240,000 convicts were deported from the United States to the Northern Triangle, with over 40,000 in 2013 alone. Between 1993 and 2015, the United States deported nearly 95,000 convicts to El Salvador, equivalent to 1.5 percent of the Salvadoran population and about three times the country's current prison population (United States Department of Homeland Security 2015). Many of these deportees were facing relatively minor charges in the United States, but some were gang members.

While the precise nature of the interaction remains obscure, it is clear that both MS-13 and M-18 became umbrella groups, absorbing local *pandillas* (gangs) into two opposing camps. Attempts to combat growing gang activity through the *mano dura* (iron-fisted) approach led to high levels of gang-member incarceration. Contrary to its intended purpose, however, this may have facilitated gang polarization. As seen in the California correctional system and elsewhere, when incarcerated, members of street gangs often integrate into opposing prison gangs, and these superstructures can be exported back onto the streets once members are released. Indeed, the "13" in MS-13 is a reference to affiliation with Sureños superstructure, which itself is an alliance based around the Mexican Mafia prison gang (Skarbek 2011).

The significance of superstructure gangs is often overstated, particularly when viewed internationally. Gangs aligned in prison may continue to be enemies on the streets, and the degree of street cooperation depends on local circumstances. Like any franchise arrangement, superstructure alliances are often no more than branding, and do not necessarily connote a common command structure or resource pool. With strong leadership, however, these local affiliates can become truly integrated, coordinating operations over extended periods of time.
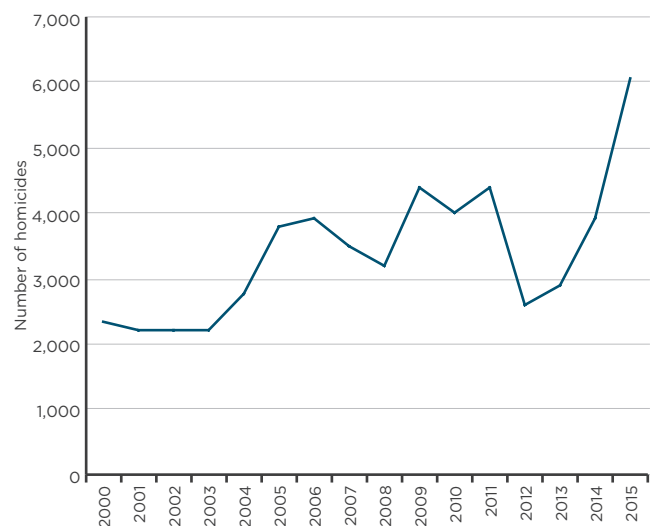
The extent of this integration has differed among the countries of the Northern Triangle but has clearly been the greatest in El Salvador. Originally, MS-13 was exclusively Salvadoran, and many of the M-18 de-

Figure 10.3. Number of Prisoners in El Salvador
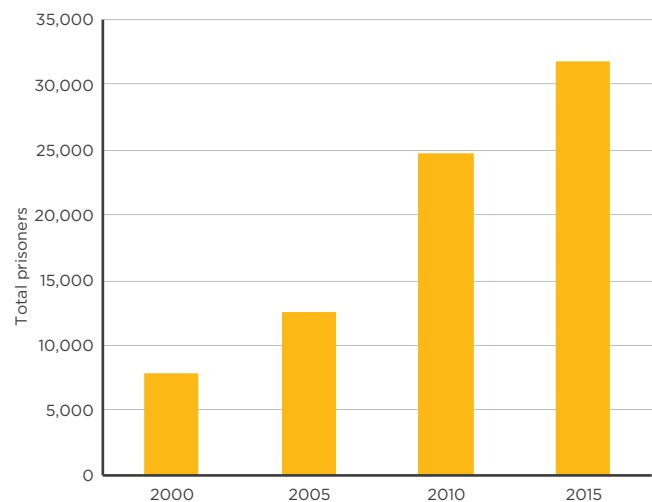
Source: Walmsley (2015).

Figure 10.4. Number of Homicides in El Salvador

Source: UNODC Homicide Database. Data for 2015 are from the National Police through the Government of El Salvador Transparency Portal: http://www.transparencia.oj.gob.sv/Filemaster/InformacionGeneral/documentacion/c-40/7065/HOMICIDIOS%20A%C3%91O%202015.pdf

portees were returned to El Salvador. The estimated 70,000 active gang members currently in El Salvador are believed to support a much larger network of affiliates and dependents, representing a significant share of the six million citizens of the country. According to the 2014 Latin America Public Opinion Poll (Zechmeister 2014), El Salvador figured among the LAC countries with the highest proportion of people reporting that they had been the victim of extortion (23 percent) and feeling that gangs were a problem in their neighborhood (43 percent).

Mass incarceration is also most evident in El Salvador, which has one of the world's highest incarceration rates: 492 inmates per 100,000 population in 2015. Between 2000 and 2015, the number of prisoners in the country quadrupled, largely as a result of anti-gang measures. During that same period, the annual homicide count tripled (for more details, see Chapter 6 on the Northern Triangle).

As a result, El Salvador is the country in which the violence is most tightly tied to *mara* conflict. According to UNODC (2014), of the 3,921 homicides reported in 2014, the police believe that 1,473 were due to *mara* violence (38 percent). The dominance of gang-related killing in the national homicide rate is reflected in the way that peace agreements between *mara* leadership in prisons can affect violence rates throughout the country. For example, in March 2012, gang leadership in prison agreed to a truce, and homicide levels fell by 40 percent the next year. The truce fell apart in 2014, and then 2015 saw record homicide levels.

Another reason why gang-related killings dominate the national homicide statistics in El Salvador is the relatively small number of killings committed by drug trafficking groups in the country. Most of the cocaine passing though the Northern Triangle proceeds from Honduras to Guatemala, bypassing El Salvador entirely (UNODC 2012). As a result, cocaine prices are generally higher in El Salvador than further north in Guatemala. The annual prevalence of cocaine use appears to be lower, and a smaller share of Salvadorans report street-level drug sales in their neighborhoods than do people in most LAC countries (LAPOP 2014). Thus, changes in gang relations can explain most of the variation in Salvadoran homicide rates, while, unlike Honduras, changes in drug trafficking flows have had little effect.

10.1.2 Case Study: Violence in Honduras

In contrast to El Salvador, the gangs in neighboring Honduras are not as well integrated and do not contribute as much to the national violence problem. There were roughly 7,000 *mara* members in Honduras in 2015,[62] about one-tenth as many as in El Salvador. Only 22 percent of respondents polled in 2014 felt that gangs were a problem in their neighborhood, a level comparable to that of the United States and half that of El Salvador (LAPOP 2014). A 2015 review of homicides in Honduras found that only 5 percent could be connected to *mara* activity.[64]

However, based on an analysis of trafficking data, the amount of cocaine passing through Honduras dramatically increased after 2000 and again, after 2006, due to an escalation in Mexican drug law enforcement, which reduced direct shipments to that country. After years of political instability, the overall flow appears to have peaked in 2011, when Honduran authorities seized 13 metric tons of cocaine, and declined in subsequent years. While seizures were up in 2014, analysis of

(62) United States Department of State (2015).
(63) Observatorio de violencia de Honduras (2015).

Figure 10.5 Number of Non-Commercial Air Shipments of Cocaine Into the U.S. Transit Zone that First Landed in Honduras
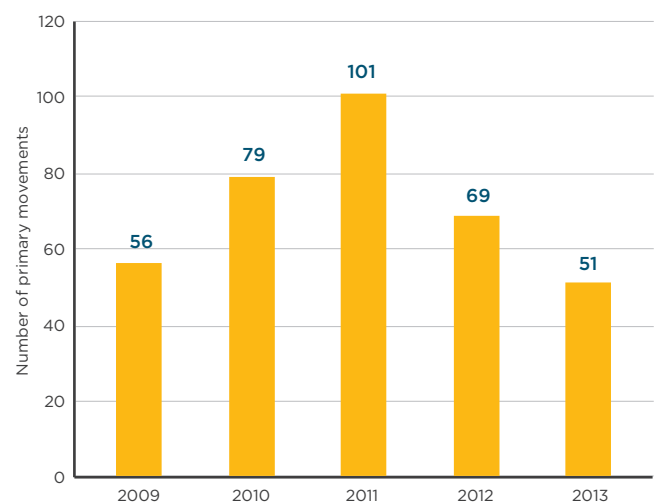
Source: U.S. Office of National Drug Control Policy (2015).

cocaine movements suggests that the volumes transiting Honduras continue to decline.[64]

Although the homicide rate in Honduras has long been high, the last wave of violence began around 2006, when a larger share of the cocaine flow began to transit Honduras. The violence was first seen in the provinces bordering Guatemala, where powerful subnational groups had long controlled the illicit cross-border trade. The cocaine flow increased competition among these groups, disrupting the balance of power and fueling violence. The competition became more intense as local border groups formed alliances with the two major Mexican drug trafficking alliances of the day: the Zetas and the Sinaloa Cartel (UNODC 2012).

While the border provinces remain areas of conflict to this day, by 2007, the epicenter of the violence had begun to shift toward the coast, where the bulk of the cocaine was arriving. By 2008, one coastal province, Atlántida, was reporting a homicide rate of over

100 per 100,000 population, meaning that over one-tenth of 1 percent of the entire population was murdered that year. More than two-thirds of the murders where the motive was known were ascribed to *sicariato*, or organized crime killings, compared to less than 1 percent attributed to *maras*.[65] After the 2009 political crisis, the cocaine flow from Venezuela to the Dominican Republic veered sharply toward Honduras, and Cortés Department became the most violent in the country. Cortés boasts the second-largest city in Honduras (San Pedro Sula), shares a border with Guatemala, and features a swath of coastline. Most of the cocaine transiting the country enters by sea. In 2009, the murder rate in San Pedro Sula was 137.5 per 100,000 population, with the share attributed to organized crime still around two-thirds of the killings. In 2010, Atlántida Department (132 per 100,00), and especially its capital, La Ceiba (158), again took the lead in the homicide rate. The two departments continue to vie with each other for the country's highest homicide rate.

(64) The 2015 U.S. International Narcotics Control Strategy Report said, "In 2014, the U.S. government estimated that sixty percent of cocaine smuggling flights that departed from South America first landed in Honduras – a decline from 75 percent of such flights in 2013." The 2016 edition read, "According to U.S. estimates, the volume of cocaine that transited Honduras to the United States over this period [2015] decreased by 40 percent from 2014."
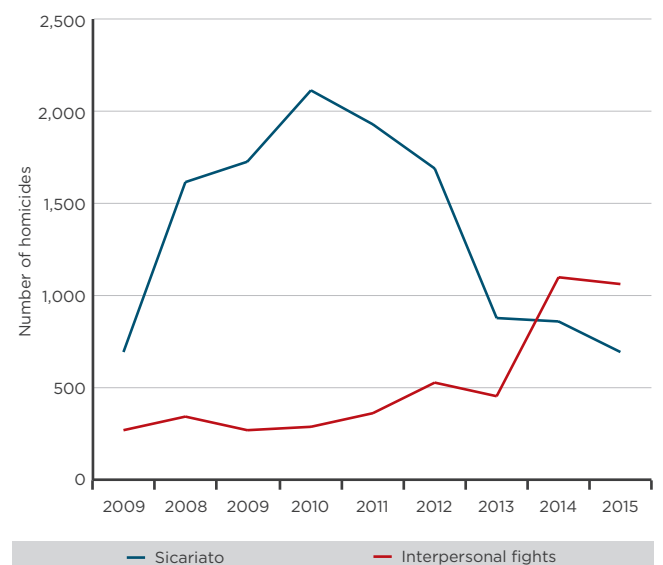
(65) See the relevant annual reports of the *Observatorio de la Violencia* of the *Instituto Universitario de Democracia, Paz y Seguridad* of the National University of Honduras.

Figure 10.6. Number of Homicides in Honduras
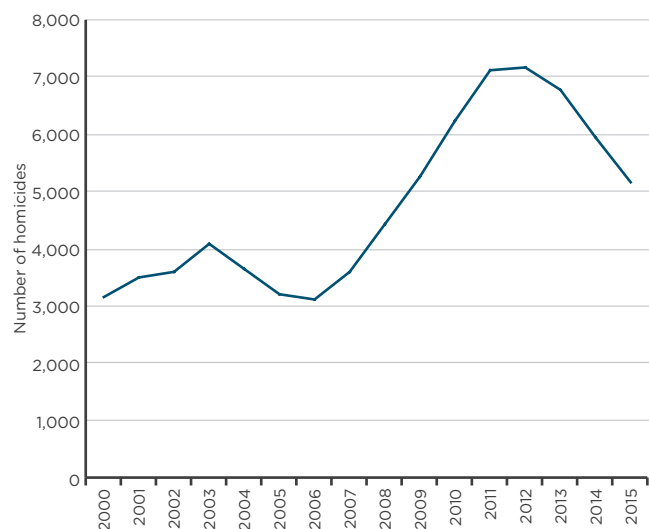
Source: UNODC Homicide Database.

Figure 10.7. Organized Crime versus Interpersonal Violence as a Cause of Homicide in Honduras

Source: Honduras Violence Observatory.

THE COSTS OF CRIME AND VIOLENCE

As cocaine trafficking began to decline after 2011, so did homicides, and a smaller share of the killings were attributable to organized crime. In 2014, interpersonal fights took over from organized crime executions as the number one cause of homicide in Honduras. Interpersonal killings also rose in absolute terms, suggesting that violence that had once been instrumental may be now more generalized. While still accounting for a relatively small share of the homicides, *mara*-related killings also began to rise during this period.

10.1.3 Case Study: Political Violence in Jamaica

The final case study is Jamaica, where the violence was originally rooted in the political process. In the context of rapid urbanization, the two major political parties inspired loyalty by securing preferential access to housing for their followers. This led to the creation of "garrison communities," where large blocks were controlled exclusively by members of one political party or the other. Around elections, these rival communities went to war, since victory meant continued access to patronage. Key in this process were middlemen known as "area dons," who ensured support for their political masters and served as a conduit for redistribution of the spoils (Charles 2002).

This conflict culminated in the run-up to the 1980 election, when the rival groups were allegedly armed by their patrons (Figure 10.8). Homicide rates peaked accordingly. Many of the enforcers from the losing party emigrated to the New York area, where they arrived just in time for the boom in crack cocaine, in which they became heavily invested. They maintained connections with their home communities, however, sending remittances for everything from education to beauty pageants. During this period, a substantial share of the cocaine entering the United States passed through Jamaica, and murder rates remained relatively low (UNODC 2012).

As the cocaine flow shifted to Central America, Jamaican criminals lost an important stream of revenue. There was much competition among experienced gunmen for the opportunities that remained. Many shifted from drug trafficking drugs to extorting local businesses, and violence rates increased. The de-

cline in the influence of area dons fueled the proliferation of neighborhood dons, whose rivalries often led to gunfire. As crime became less organized, it grew more violent.

It has been suggested that the situation in Jamaica, like Central America, might be influenced by the U.S. policy of deporting convicted criminals. One study that looked in detail at the profile of these deportees, however, found this to be highly unlikely. Most were deported for minor offenses at an age when they were unlikely to reoffend. Studies by CARICOM have concluded that deportees are no more likely to offend than local people (World Bank and UNODC 2007).

The violence peaked in 2010, the year that the don of one of the most notorious garrison communities was extradited to the United States to face charges of cocaine trafficking, provoking a great deal of unrest among the community that supported him.[67] The post-2010 decline has been steep and sustained, although conflict still occurs among criminal groups looking for new sources of revenue. Most recently, the competition has been over "lead lists" for criminals participating in advance-fee fraud (United States Immigration

(67) See the Report of the West Kingston Commission of Enquiry (the Tivoli Report): http://go-jamaica.com/TivoliReport/index.html

Figure 10.8. Number of Homicides in Jamaica
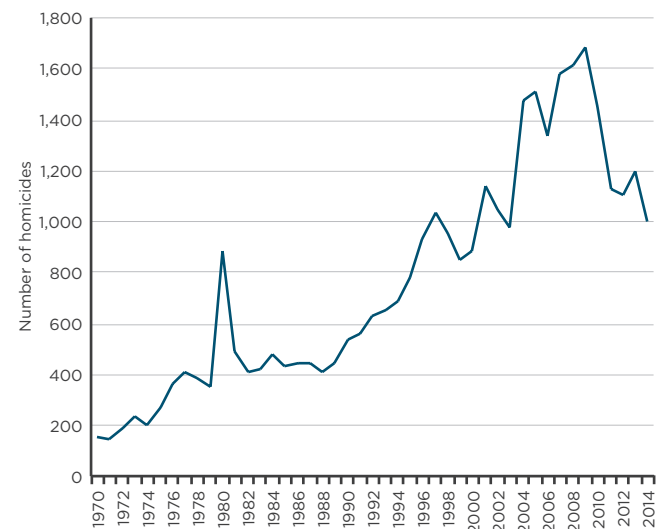
Source: UNODC Homicide Database.

and Customs Enforcement 2010). However, organized criminals, including those from the old "posses," remain key drivers of the violence.

10.2 Toward Peace in the Region

The case studies above illustrate the many ways that organized crime groups can affect homicide rates. Even in Central America's Northern Triangle, where the violence is often discussed at the subregional level, the national differences are stark. It is likely that subnational drivers are equally diverse. All this underscores the fact that violence in Latin America and the Caribbean is not monolithic, and policy interventions will need to be tailored to local circumstances.

In all the cases described in this chapter, however, territorial organized crime groups of one sort or another appear to be a significant part of the problem. This chapter argues that the proliferation of these groups is primarily a governance issue, as they emerge in areas where State control is weak. The solution to this problem is clearly for the State to reassert its authority over the entirety of its territory, which means both acquiring the monopoly on violence and providing access to the full range of State services in troubled areas. This will eliminate the need for extra-governmental control bodies.

Until this violence is addressed, however, it will continue to undermine development and progress in the region. Surveys show that many citizens are willing to trade their civil rights for security, and some are even beginning to doubt that democracy is the best form of government for their countries (LAPOP 2014). Restoring confidence in society, the economy, and governance in the region requires first ensuring that the people of Latin America and the Caribbean are safe in their homes.

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