Avoiding Crime in Latin America and the Caribbean[1]

Basic Definitions

Countries surveyed in 2010 and how they are grouped for analysis:

In 2010, Enterprise Surveys (ES) interviewed 12,855 enterprises in 30 Latin American and Caribbean countries. In addition in 2009, 1,802 firms were interviewed in Brazil also following the standard ES global methodology.

For analytical purposes, the 31 countries are categorized into 3 groups:

Small Caribbean countries: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Suriname, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines

Medium-size countries: Bolivia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Uruguay, and Trinidad and Tobago

Large countries: Argentina, Brazil, Chile, Colombia, Mexico, Peru, and República Bolivariana de Venezuela.

Two waves of Enterprise Surveys, 2006 and 2010:

Fifteen countries were surveyed in 2006 using the ES global methodology: Argentina, Bolivia, Chile, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and República Bolivariana de Venezuela. In total, 10,930 firms were interviewed in 2006, of which 3,535 were re-interviewed in 2010.

Reference periods of the survey data:

The information collected in the surveys refers to characteristics of the firm at the moment of the survey (2006, 2010 and 2009 for Brazil) or to the last completed fiscal year (2005, 2009, and 2007, respectively). In addition, sales, employment, and labor productivity annual growth rates are calculated comparing data from the last complete fiscal year of each survey and recall data. Consequently, growth rates refer to the period 2002-05 for the 2006 surveys, 2004-07 for the 2009 Brazil survey, and 2007-09 for the 2010 surveys.

A key element of the business environment in the Latin America and the Caribbean (LAC) region is firms' exposure to crime. Rigorous studies and anecdotal evidence suggest that crime is an important problem in LAC (Gaviria and Pages 2002), yet nearly all the studies focus on households, individuals or overall national crime rates. The literature also focuses on the impact of crime on economic variables, and on the relationship between crime and factors such as inequality, social capital, city size and the victims' characteristics (Kelly 2000; Lederman, Loayza, and Menendez 2002; Fajnzylber, Lederman, and Loayza 2000; De Mello and Zilberman 2008; Di Tella and Schargodsky 2004). Yet while few of these studies make specific reference to crime against business, anecdotal evidence suggests that firms too are often victims of crime, experience losses due to theft, vandalism and arson, and incur security expenses.

High crime rates add to firms' costs and can reduce the incentive to invest and innovate. Crime can also force firms to choose locations that may be low in crime but are otherwise sub-optimal. The Enterprise Surveys (ES) address three metrics of crime at the firm level: the incidence of crime, crime-related losses and the use of security to deter crime. Analyzing these metrics can provide useful information for the design, implementation and targeting of policies aimed at combating crime.

In the context of the surveys, the terms "crime" or "incidence of crime" refer to theft, vandalism, or arson that resulted in losses for the firm in 2010. Crime-related losses are expressed as a percentage of the firm's annual sales. The surveys also capture security costs: expenses incurred in 2010 on security measures, such as equipment, personnel, or professional security services which are also expressed as a percentage of firms' annual sales.

Exposure to crime in LAC is high but the cost of crime is average relative to other regions

The combination of crime-related losses and security-related costs as a percentage of total annual sales is lower in Latin America and the Caribbean than in Sub-Saharan

Africa and East Asia and the Pacific, but higher than in Europe and Central Asia and South Asia (Figure 1).

Nevertheless, the LAC region ranks first and second respectively when it comes to the percentage of firms that experience crime-related losses or incur security costs. In LAC nearly a quarter of firms experienced a crime resulting in a loss, costing them on average 0.8 percent of sales. Nearly two-thirds of firms in the region pay for security. Thus while the overall cost of crime is not high relative to other regions, exposure to crime is.

Based on individual firm responses, it can be estimated that losses from crime in the region amounted to $24.5 billion in 2010. Expenses on security averaged 1.4 percent of firms' annual sales and totaled $119.5 billion for the region as a whole. Thus crime and security costs for private firms in the region totaled $144 billion in 2010.

One in four firms in LAC experienced an incident of crime

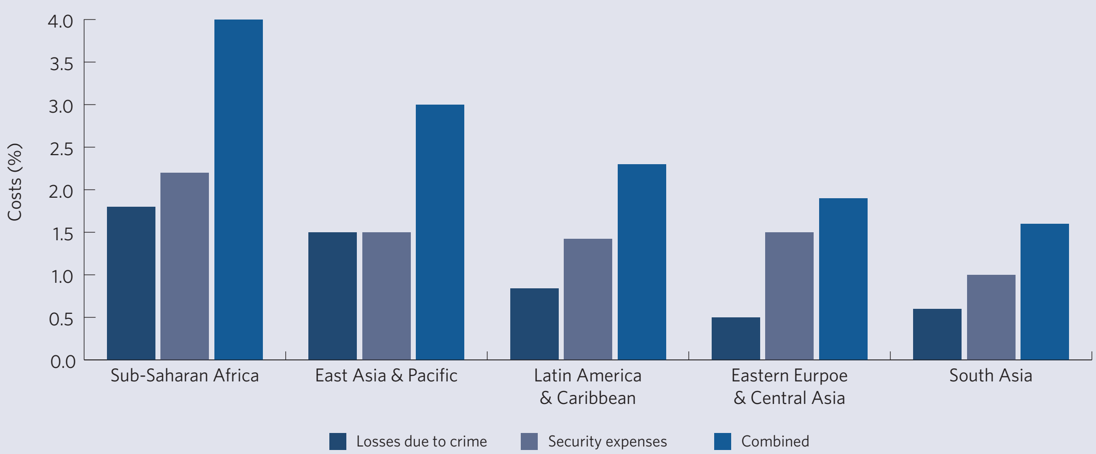
Across LAC, about one in four firms experienced an incident of crime. However, the losses incurred due to crime varied greatly across countries: from 2 percent in Dominica to 45 percent in St. Kitts and Nevis. This suggests that crime is not homogeneous across the region.

Crime-preventive behavior is widespread. About 62 percent of firms in the region spent on security, ranging from 25 percent of firms in St. Lucia to as high as 87 percent of firms in El Salvador and Guyana. Caribbean countries exhibited a much lower incidence of crime than the rest of the region: 20 percent compared to 26 percent. The same was true for the incidence of security expenses, which totaled 53 percent in Caribbean countries compared to 67 percent in the rest of the region.

Losses due to crime and security expenses as a percentage of annual sales averaged 0.8 and 1.4 percent, respectively, across the region. Crime-related losses were highest in Honduras and Nicaragua, at around 2.2 percent, and lowest in Dominica and Barbados, below 0.04 percent. Not surprisingly, security expenses were highest in two Central American countries, Honduras and El Salvador, and lowest in two Caribbean countries, Barbados and St. Lucia. Crime-related losses and security costs combined equaled 1.7 percent of firms' annual sales in Caribbean countries versus 2.6 percent of sales elsewhere in the region. The burden imposed by security expenses and crime is highest for firms in medium-size countries, followed by large countries and small Caribbean economies: 2.7 percent, 2.4 percent and 1.7 percent respectively (Figure 2).

Crime and security costs impose a heavier burden on firms in LAC than do other impediments to doing business, such as power outages. For the region as a whole, crime and security costs amounted to 2.3 percent

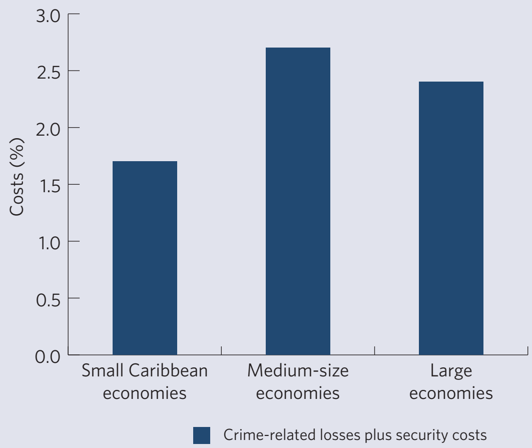
FIGURE 1 **CRIME-RELATED LOSSES AND SECURITY COSTS ARE HIGH FOR FIRMS IN DEVELOPING REGIONS**
(Percentage of annual sales)



Source: Enterprise Surveys.

FIGURE 2

LOSSES DUE TO CRIME AND SECURITY COSTS ARE LOWER IN THE CARIBBEAN COUNTRIES (Percentage of annual sales)



Source: Enterprise Surveys.

of firms' annual sales, compared with 1.3 percent for power outages. In East Asia and the Pacific, crime and security cost firms almost four times as much as power outages; in Eastern Europe and Central Asia, three times as much; and in Sub Saharan Africa, 1.5 times. Only in South Asia were crime-related losses lower than losses due to power outages (Figure 3).

Exposure to crime and security expenses vary widely by city in the LAC region

There is also significant variation within LAC when it comes to firms' crime-related costs and security expenses. For the four cities in LAC with the highest levels of crime and security losses (Rio Grande do Sul in Brazil, Valparaiso in Chile, San Pedro Sula in Honduras, and Managua in Nicaragua), such losses averaged 8.6 percent, far higher than the 2.7 percent average for the region as a whole.[2] Large countries such as Brazil showed a similarly large dispersion (Figure 4). For example, crime-related losses and security expenses for locations in the top 50 percent were more than 2.6 times as high as for those in the bottom 50 percent.

The ES data provide evidence that crime-related productivity losses are higher in larger cities than in smaller cities. That is, both total factor productivity and labor productivity of firms are more adversely affected by crime in large cities than in small cities.[3]

Large firms in LAC are more exposed to crime

There is also evidence that larger firms in LAC are more exposed to crime and its consequences than small firms. Indeed, in 22 of the 31 countries in the region, medium-size and large firms have higher rates of exposure to crime than do small firms. Losses from crime, however,

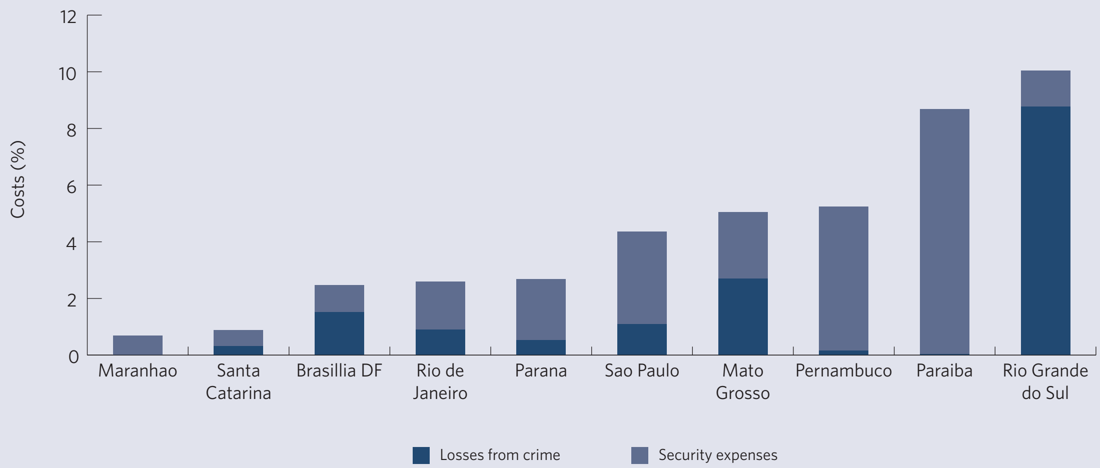
FIGURE 3

LOSSES FROM CRIME AND SECURITY COSTS IMPOSE A HEAVIER BURDEN ON FIRMS IN LAC THAN DO POWER LOSSES (Percentage of annual sales)

Source: Enterprise Surveys.

FIGURE 4

CRIME-RELATED LOSSES AND SECURITY COSTS VARY SIGNIFICANTLY IN BRAZIL
(Percentage of annual sales)



Source: Enterprise Surveys.

are slightly lower as a percentage of sales for medium-size and large firms than for small firms (0.8 compared with 0.9 percent). When it comes to expenditures on security, nearly 80 percent of large and medium-size firms incur security costs, compared with 52 percent of small firms. Expenditures on security as a percentage of annual sales totaled 1.7 percent for large and medium-size firms, versus 1.2 percent for small firms. Figure 5 provides more details.

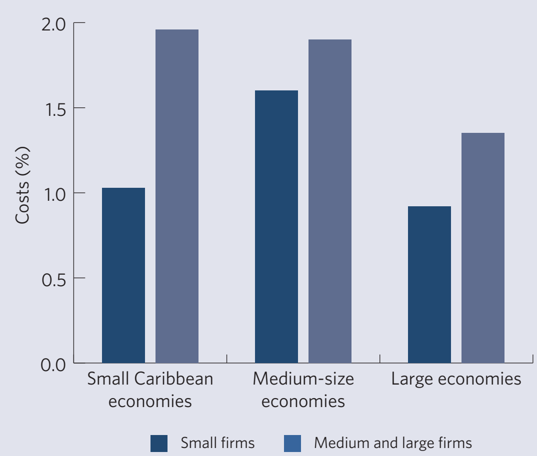
It is interesting to note that there are no major differences in the incidence or cost of crime and security between male-run and female-run firms, or between firms located in small cities and those in large cities. That said, the incidence and costs of crime are much lower for exporting firms. About one-in-four non-exporting firms reported losses due to crime compared to one-in-five exporting firms. The difference in losses is more striking when viewed as a percentage of annual sales: 0.9 percent of annual sales for non-exporting firms compared with 0.5 percent for exporting firms. Though a larger percentage of exporting firms spent on security, total security expenses were roughly the same for the two types of businesses. Manufacturing firms also faced a lower incidence of crime and crime-related costs than firms in services.

Between 2006 and 2010 crime and security worsened in the LAC region

Between the two waves of Enterprise Surveys, in 2006 and 2010, the combined crime-related losses and security costs worsened for firms in 11 of the 15 countries for which data are available. In four of these, the change was statistically significant.

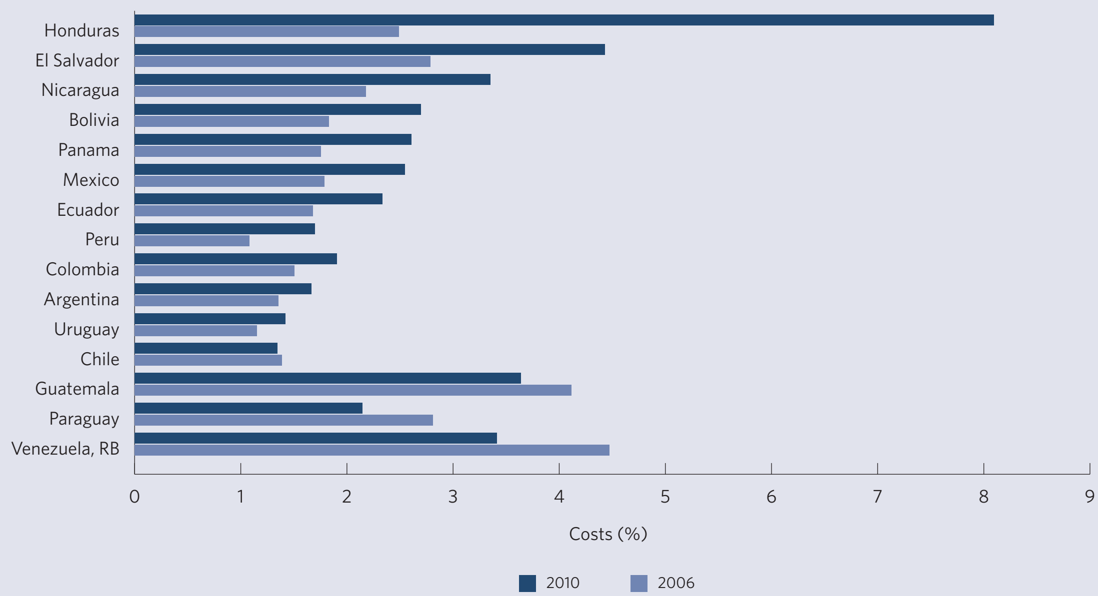
FIGURE 5

SECURITY EXPENDITURES ARE HIGHER AMONG MEDIUM-SIZE AND LARGE FIRMS THAN AMONG SMALL FIRMS
(Percentage of annual sales)



Source: Enterprise Surveys.

FIGURE 6 **CHANGES IN CRIME-RELATED LOSSES AND SECURITY EXPENDITURES HAVE BEEN SMALL IN MOST OF LAC**
(Percentage of annual sales)



Source: Enterprise Surveys.

Note: The sample of firms is all those covered by the surveys in 2006 and 2010. The differences were significant in only four (Honduras, El Salvador, Bolivia, and Peru).

It is also concerning that Honduras, El Salvador and Nicaragua—the countries with the highest losses due to crime and security expenses in the region—also exhibited the greatest deterioration in their situations (Figure 6). Only in the case in Mexico did losses due to crime decline significantly, but the combined costs of crime and security in Mexico nonetheless increased. The steepest increase in crime and security-related losses occurred in Honduras, where security expenses jumped from 1.3 to 5.7 percent of firms' annual sales and losses due to crime went from 0.8 to 2.4 percent of sales.

High crime-related losses and security costs may undermine firm productivity. Sales per worker or labor productivity are much lower for firms with higher crime-related losses or security costs. This effect is true for firms in both the service and the manufacturing sectors. Moreover, growth in sales is negatively correlated with crime-related losses and security costs, but this result holds only among the large Latin American countries.

The findings above can help prioritize policy responses to crime and security relative to other challenges, such as corruption and power outages. It is especially interesting that large businesses are more likely to be targets of crime than small businesses. This finding is important to the design and targeting of crime prevention policies and programs.

Endnotes

1. Lead author: Mohammad Amin with the collaboration of the LAC report team.

2. These calculations exclude countries with only one large city.

3 The result was obtained using linear regression analysis. In separate regressions, labor productivity and total factor productivity were used as dependent variables and regressed on the dummy for large city (capital city or city with over 1 million population), crime losses (as percentage of firm's annual sales) and the interaction term between large city dummy and crime losses.

References

De Mello, Joao M. and Eduardo Zilberman. 2008. "Does Crime Affect Economic Decisions? An Empirical Investigation of Savings in a High-Crime Environment," *Journal of Economic Analysis and Policy*, Berkeley Electronic Press (BE Press), 8(1), Article 52.

Di Tella, Rafael and Ernesto Schargrodsky. 2004. "Do Police Reduce Crime? Estimates Using the Allocation of Police Forces after a Terrorist Attack," *American Economic Review* 94: 115-133.

Fajnzylber, Pablo, Daniel Lederman and Norman Loayza. (2000). "Crime and Victimization: An Economic Perspective, *Economia*, 1(1): 219-278.

Gaviria, Alejandro and Carmen Pages. 2002. "Pattern of Crime Victimization in Latin American Cities," *Journal of Development Economics* 67: 181-203.

Kelly, Morgan. 2000. "Inequality and Crime," *Review of Economics and Statistics* 82(4): 530-539.

Lederman, Daniel, Norman Loayza and Ana Maria Menendez. 2002. "Violent Crime: Does Social Capital Matter?," *Economic Development and Cultural Change*. 50(3): 509-539.