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The Costs of Crime and Violence

Crime and violence plague Latin America and the Caribbean. At over 25 deaths per 100,000 people, the region's homicide rate is the highest in the world and triple the global average. Widespread common crime also racks the region, victimizing more than 10% of the population and 30% of firms (see figure 1). Not surprisingly, in the last few years citizens have ranked crime and violence as their top concern.

Given the social, political, and economic repercussions of crime and violence, governments have targeted them as a major policy challenge and dedicated substantial resources and efforts toward quelling the scourge. However, the fight has just begun as much remains to be done to understand the root causes as well as the negative consequences of these phenomena.

The Inter-American Development Bank (IDB) has launched a rigorous research agenda that aims to quantify the cost of crime and violence. "Costing" crime represents a first step to inform the public policy debate and provide tools to systematically analyze the cost-effectiveness of government policies to protect their citizens. Some of this work was presented at an IDB sponsored event on January 24-25, 2013. The preliminary results are both disheartening—the costs of crime are extremely high—and encouraging: home-grown policy innovations in the region are starting to show promise in reducing the crime epidemic.

> The homicide rate in Latin America and the Caribbean is the highest in the world and triple the global average!

Starting with the cost estimates, research in Uruguay finds that the cost of crime in that country amounts to at least 3% of GDP. These estimates include both the tangible public and private expenditures to prevent crime, such as spending on private security, and as a consequence of crime, such as the costs of the legal and prison system, and the intangible costs of being a victim. These costs, particularly the intangible, may be grossly underestimated.

For example, domestic violence has negative consequences beyond the direct impact on the women who are victimized. Domestic violence also affects the health of children in violent households. Thus, violence against women has a worrisome intergenerational cost. Given that almost 40% of women in a country like Peru, for example, report being victims of abuse, this finding is startling.

In addition to affecting human capital, crime and violence may also affect property values. In Brazil, increasing the sense of security in the home by one standard deviation boosts average home values by more than $750. Applying this number to all households included in the study raises the total amount to more than $13 billion.

Crime also reduces economic activity and limits economic opportunities. In Mexico, an increase in 1 homicide per 100,000 inhabitants from 2006 to 2010 is related

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The Costs of Crime and Violence

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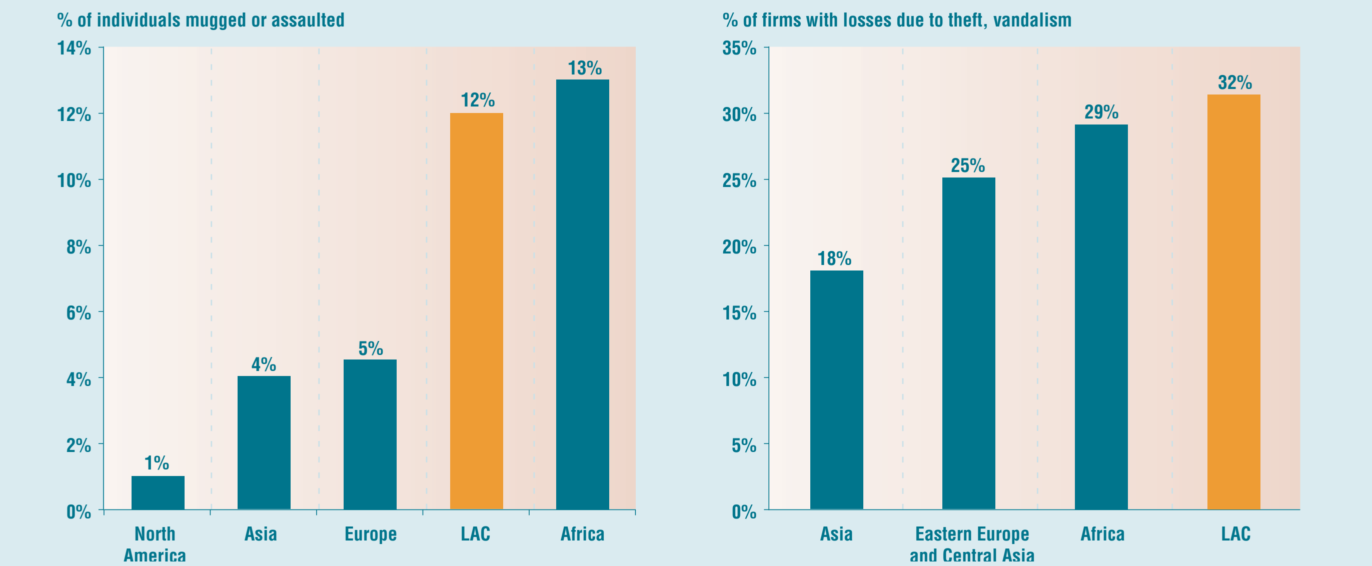
Figure 1: Victimization in Latin America



Source: Gallup (2007) and World Bank Enterprise Surveys (2010).

to a 0.21% decline in the proportion of working people, a 0.13% increase in the proportion of unoccupied labor force, and a decrease in the proportion of business owners by 0.06%. These changes accompany an equally worrisome trend. Electricity consumption in municipalities with persistent levels of drug-related violence after 2006 trailed levels in less violent municipalities by almost 6%. And lower electricity consumption suggests that there have been significant drops in local economic development.

Is everything lost? Fortunately, not. New evidence shows that policies can increase as well as prevent crime. In Colombia, for example, a new law that decreased penalization for Colombian youths may have reduced the perceived costs of engaging in criminal activity among young adolescents, increasing their participation in crime and reducing their school achievement. Children of relatively less educated parents are particularly susceptible to this behavior. On the other hand, the increase in penalties once they reach adulthood seems to have a dissuasive effect. Crime falls to half once youths turn 18 years old (compared to youths slightly younger than 18), although most of the reduction due to the penalties vanishes as they grow older.

On evidence of crime prevention, the roll out of CEMs (Centros para la Mujer) in Peru seems to be a helpful mechanism to reach women who suffer domestic violence. These results complement other work in the region. For example, conditional cash transfers have positive spillovers on crime in Brazil. Restricting alcohol sales seems to reduce property crime, and using electronic monitoring systems instead of prison may be a cost-effective way to reduce crime recidivism. Finally, local community policing models may have significant payoffs in crime prevention.

In short, the crime and violence situation in the region is dire. And the costs can be astronomical for a region with many unsatisfied needs. Still, there is some light at the end of the tunnel. Policy innovations, coupled with impact evaluation, are starting to show some promise in preventing crime. This edition of *IDEA* draws from recent IDB research to present some of the eye-opening facts on violence in the region and policy options for dealing with it. As policymakers seek a better future for their citizens they must learn what works and what doesn't work so every dollar or peso invested has a high return.

Crime and Violence: An Expensive Problem

The costs of Latin America's alarming levels of crime and violence go far beyond even the suffering of the direct victims.

In Uruguay, crime-related costs absorb 3.1 percent of GDP, diverting critical resources from more productive economic priorities. In Mexico, violence increases unemployment, closes businesses, and cripples municipal revenues. In Brazil, crime can reduce the value of your home. From Colombia to Mexico and across the region, crime erodes trust in government and cooperation with the police—a vicious cycle that undermines the very institutions responsible for protecting the public in the first place.

These are among the findings of a series of IDB studies that aim to quantify the cost of crime and violence. The overarching conclusion is easy to summarize: crime is incredibly expensive.

How bad is it?

In Uruguay—actually one of the region's safer countries, but with a crime rate on the rise—the cost of crime in 2010 was estimated at $1.2 billion. The price tag includes crime prevention, law enforcement, property losses, and judicial and prison costs. Uruguay spends more than $67 million a year just on medical treatment of victims of violent crimes. The country's GDP in 2012 increased by an estimated 3.5%, so the cost of crime projected forward to that year would have nearly neutralized growth.

In Mexico, which next to El Salvador has the highest homicide rate in Latin America—which in turn has the highest homicide rate of any region in the world—an increase of 1 homicide per 100,000 people in drug trafficking areas reduced annual municipal incomes by 1.2%. That is an exponential figure considering that on average the number of homicides in these areas tripled from 2006-2010. In addition, an increase of 10 homicides per 100,000 people reduced employment by 2–3% and the number of business owners by nearly half a percent. Finally, these municipalities consumed as much as 7.4% less electricity per capita than comparators, a statistic widely used as a proxy for economic activity.

Crime and violence can also affect property values—or perceptions of them, which can be just as important in the real estate market. In Brazil, increasing the sense of security in the home by one standard deviation boosts average home values by more than $750. Applying the finding to all 18 million households included in the IDB study area would increase home values by $13.6 billion.

Put differently, of course, a sense of *insecurity* in the home intuitively might well *decrease* home values by just as much. For example, a study in Mexico found that a 1 percent increase in homicides reduced home values by 1.8 percent. Importantly, the study actually found less of a decline in home values among wealthier households, meaning that the effect is by no means limited only to the well-to-do. It more strongly affects a far broader reach of homeowners of more modest socio-economic status.

What does crime mean for business? Figure 2 illustrates firms' losses from crime as a percentage of their sales. The numbers come from a

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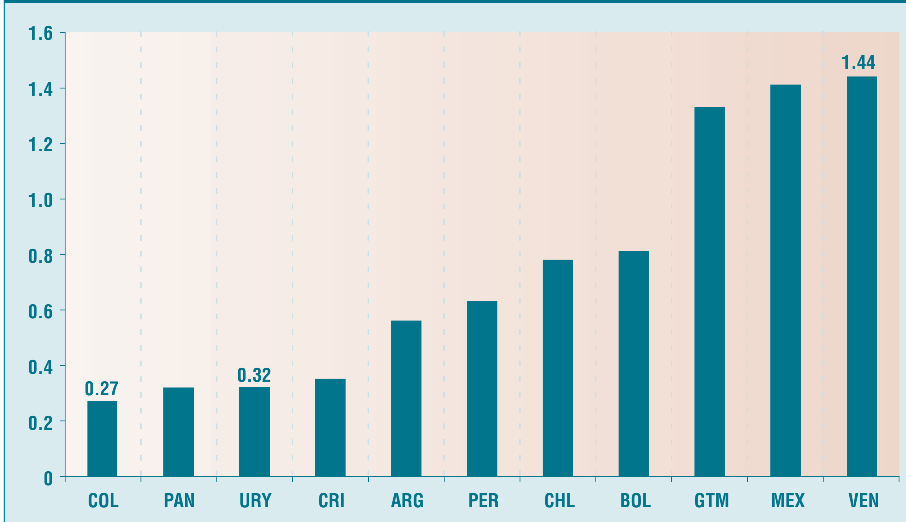
Figure 2: Losses to Firms due to Theft, Assault, Vandalism or Arson (% of sales)



Source: Enterprise Survey, World Bank and IDB

An Ounce of Prevention against Crime

Alcohol consumption has long been associated with increased crime, yet sweeping restrictions dating to Prohibition in the United States have proven to be counter-productive. Bogota, Colombia might have found a more effective approach: targeted restrictions on alcohol sales in specific areas with high crime rates and a high density of stores that sell alcohol.

Following a citywide surge in crime in 2008, the mayor of Bogota issued a curfew prohibiting the sale of alcohol from 11 p.m. to 10 a.m. in liquor stores, supermarkets, corner stores, and cigarette kiosks. The ban did not affect premises for on-site consumption such as bars and restaurants. It applied only to well-defined areas in nine of Bogota's 20 districts identified as having high levels of street and pedestrian traffic, public drunkenness, and, not coincidentally, homicides, assaults, and thefts. Authorities found that many of those crimes were being committed right in front of stores or in nearby parks or plazas, often by minors.

To measure the causal effect of the ban on several crime categories, an IDB study by De Mello, Mejía and Suarez published in April 2013 used time-series and cross-block variations comparing areas covered and not covered by the curfew. The authors note that determining direct correlations between alcohol consumption and crime has proven difficult in the past because any number of other factors can come into play. The Bogota curfew represented a good opportunity for analysis because the city has sufficiently high levels of crime that the restriction had a chance of having a measurable impact, and because the restriction was instituted in a limited area for a set period of time. In addition, geo-referenced information on crime and the presence of liquor stores and other

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survey conducted by the World Bank with the support of the IDB in Latin America. The results confirm that Uruguay suffers relatively less than its regional neighbors, with losses of about 0.32% of annual sales. Only Colombia and Panama boast lower rates. At the other end of the spectrum, Venezuelan firms suffer the most, losing 1.44% of sales to crime. Mexico and Guatemala are other regional leaders in corporate losses due to crime.

Finally, the most insidious effect of widespread criminality in Latin America may well be the most intangible and difficult to measure—its impact on trust in the authorities. A 2007–08 Gallup survey of 19 Latin American countries found that trust in the police and the judiciary in Latin America significantly lagged world levels. The credibility gap can be seen in a finding in Mexico that for every 100 crimes, only eight police reports are generated and one sentence handed down.

Addressing such perceptions may seem a daunting task, but some successful efforts are in fact under way. In Bogota, Colombia where homicides, robberies and burglaries have actually declined in recent years, authorities undertook a public information campaign to communicate the improvement in crime trends and encourage cooperation with law enforcement The campaign increased the share of people feeling safer by 30 percent, improved ratings of police effectiveness in dealing with robberies by 5 percent, and reduced the share of people who said they distrust the police by 11 percent.

Changing how people think may seem a small step indeed in the face of Latin America's dire crime problem, but as the authors of the Bogota study concluded, "more active engagement and communication with citizens is needed to achieve lasting benefits." For the citizens of Latin America the question may not be how expensive is crime and violence. The lasting question is: How much is enough?

The Littlest Victims

Children are a mother's— and a country's— greatest treasure. Yet they too are victims of violence, often indirectly through their mothers. The repercussions of violence against these littlest victims in society are far reaching. Compromising their health and happiness is not only an emotional issue, but an important economic issue as well.

While violence against men is largely impersonal, women are often attacked in their homes by their partners. There is nothing random about domestic violence, which is one of the most pervasive types of violence in Latin America and the Caribbean. Domestic violence affects women in various ways ranging from their marital status and employment to their mental and physical health. However, violence against women also affects their children as a mother's ability to care for her offspring may be impaired. Moreover, a child's health and education may be impacted, with all that implies for family and national income.

Research using the Demographic and Health Surveys (DHS) of Colombia, the Dominican Republic, Haiti, Honduras, and Peru allowed for the study of the effects of domestic violence on children beyond the obvious behavioral and emotional problems that may arise. The study looks only at children under six years of age to evaluate whether domestic violence affects the human capital accumulation of children before they go to school. Since early childhood has been identified as the most critical time in a child's life, this focus is important.

The results demonstrate that the health of children suffers noticeably when their mothers are subjected to physical violence. The negative impact begins even before they are born; mothers who have experienced physical violence are less likely to have attended the recommended four or more prenatal visits, with all that implies for an unborn fetus. Children are 15 percentage points more likely to have had diarrhea in the past 15 days and tend to have a lower birth rate. Moreover, the effects are not limited to short-term outcomes. Children are less likely to have received their vaccines, with measles being the most missed immunization. Also, children born to victimized mothers tend to be shorter.

Another study on the effect of homicides on birth outcomes in Brazil provides further evidence that even in-utero exposure to violence can impact a child's health. Specifically, one extra homicide that takes place in the vicinity of a pregnant woman's place of residency during the first trimester of pregnancy increases the probability of low birth weight by around 6%. Increased prematurity rather than intrauterine growth retardation appears to be the reason for lower weight. These results are particularly pronounced among the children of women with limited education, adding to the disadvantages these children suffer due to their lower socioeconomic status.

The consequences of low birth weight go well beyond infancy. Numerous studies document the effects on long-run outcomes such as educational achievement, later life health, mortality and labor market performance. Low birth-weight babies are at substantially higher risk of neonatal or infant death and are more likely to need additional outpatient care and hospitalization during childhood, implying significantly higher private and social costs. Of those living into adulthood, some may suffer from cognitive and neurological impairment, which typically is associated with lower educational and job-related productivity as well as higher rates of morbidity from a greater risk of cardiovascular disease, diabetes and hypertension.

While the relationship between violence against women and the welfare of their children exists, does one actually cause the other? A natural experiment in Peru provided evidence of this causal relationship. The Centros Emergencia Mujer (CEM) are public centers that provide free services to prevent domestic violence and treat its victims. The Ministerio de la Mujer y Desarrollo Social (MIMDES) created the program in March, 1999 and the number of centers multiplied from 13 in the first year to 40 in 2004 and 149 in 2012. The expansion of CEMs over time and space serves as an exogenous source of variation in the prevalence of domestic violence. The presence of a CEM in a district reduces the chances that a woman, particularly a younger one, will suffer from domestic violence. Moreover, comparing intangible outcomes for children in districts with and without CEMs provides evidence that domestic violence has a negative causal effect on the short-term health of children.

While providing evidence that domestic violence against women causes adverse health consequences among their children, the CEMs also provide a policy option for dealing with the problem. Their presence makes a real difference for women in Peru and offers a mechanism that could be helpful for women—and their children— in other countries in the region

A Lesson in Fighting Crime

Conditional cash transfer (CCT) programs—which provide payments to families for meeting such conditions as sending their children to school and getting regular health check-ups—have become a staple of anti-poverty initiatives in Latin America and around the world. While the direct benefits of CCTs in improving education, health, and nutrition are well established, only recently have studies found that the programs can also indirectly help combat crime.

The global potential of CCTs as a crime-reducing instrument is huge considering that more than 30 countries around the world today operate such programs. *Bolsa Familia* in Brazil, for example, covers 11 million families and is one of the largest CCT programs in the world. Making use of a unique dataset combining detailed school characteristics with time- and geo-referenced crime information, a study in São Paulo found a 21% reduction in crime in neighborhoods where schools participated in *Bolsa Familia* from 2006-09. The study reported the greatest effects on reducing robberies, though there is also evidence of reductions in drug-related crimes and crimes against minors.

A study of Colombia's *Familias en Accion*, which provides transfers to 2.3 million households below the poverty line nationwide, cross-referenced police reports against lists of program beneficiaries in Bogota. It found declines in personal and car thefts of 7.2% and 1.3%, respectively, on days after the cash transfers were disbursed. There was also more limited evidence of declines in home burglaries.

The impact of CCTs on criminal activity makes sense given that youth—who must stay in school for families to continue receiving benefits—account for a disproportionately high percentage of crimes. In São Paulo, for example, as many as 25% of robberies, thefts, and motor vehicle crimes are committed by individuals under 18. The Brazil study specifically examined data following expansion of the country's CCT program in 2008 to cover adolescents aged 16 and 17 (the prior maximum age was 15).

"There is an intimate relationship between education, socioeconomic conditions, and crime," the report said. "The number of children covered by a CCT in an area at a moment in time is determined by the incidence of poverty and unemployment and by other socioeconomic characteristics, all likely to be correlated with crime."

The actual monthly transfers from CCTs of course go to the adults in families, but the studies note that this may well have a direct impact on criminal behavior in other ways. First, the payments enable families to buy certain goods and thus reduce the incentive to engage in economically motivated crimes. Second, the additional income may afford parents more time to supervise their children, reducing inclinations or opportunities for delinquency.

The studies conclude that the decline in crime shows that reductions in poverty and inequality associated with CCT programs have broader social consequences that should be taken into account in program design and evaluation. In light of the drop in crime immediately following transfer payments, for example, the Colombia study recommends that the CCT program disburse payments more frequently, although the benefit of such a change would have to be measured against increased administrative costs.

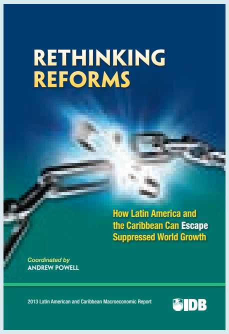
> "There is an intimate relationship between education, socioeconomic conditions, and crime," reports an IDB study.

The Brazil report notes that while there is evidence that *Bolsa Família* has had a substantial impact on enrollment rates, school progression, extreme poverty, and inequality, "there have been questions related to its social rate of return and its effectiveness in urban settings." The authors argue that their findings, in Brazil's largest city, reinforce the connection between inequality and crime, a factor that should be considered in CCT impact evaluations that to date have focused on specific and narrow program dimensions and not included crime reduction.

New Publications

Available in English only unless otherwise stated.

MONOGRAPHS



Powell, Andrew

Rethinking Reforms: How Latin America and the Caribbean Can Escape Suppressed World Growth (also available in Spanish) (IDB-MG-145)

Global growth projections have waned since last year and growth may be suppressed below potential for several years to come. Lower global growth will, all things being equal, imply lower growth in Latin America and the Caribbean. At the same time, clear limits to the potential use of monetary and fiscal policy measures pose another constraint. Consequently, countries should consider further structural reform measures to enhance economic prospects and to escape suppressed global growth. If all countries pursue reforms to enable growth to accelerate by 1.5% on average, then the effect on the region as a whole may reach 2.3% additional growth per annum.

WORKING PAPERS

Aboal, Diego, Jorge Campanella, and Bibiana Lanzilotta

The Costs of Crime in Uruguay (Los costos del crimen en Uruguay) (only available in Spanish) (IDB-WP-408)

This paper uses cost accounting to estimate some of the costs associated with criminal activity and violence in Uruguay. Costs considered include security and crime prevention; justice; incarceration and rehabilitation of prisoners; stolen goods; health care and loss of life resulting from violence; and costs associated with prisoners' loss of productive time while in prison. The total estimated cost for 2010 in Uruguay comes to 3.1% of gross domestic product (GDP).

Auguste, Sebastián, Ricardo Bebczuk, and Gabriel Sánchez

Firm Size and Credit in Argentina (IDB-WP-396)

This paper studies the link between bank credit (and internal funding) and average firm size in Argentina. This topic is of particular interest not only because economic growth tends to go hand in hand with larger firm size, but because of the severe credit crunch Argentina experienced following its 2001–02 financial crisis. To this end, a novel three-digit, industry-level dataset spanning the period 2000–10 was constructed. The results confirm the anticipated positive impact of credit supply on average firm size. Furthermore, the study builds on common knowledge by testing the sensitivity of firm size against internal funding and the differential financing behavior of the primary and manufacturing sectors.

Benigno, Gianluca, Huigang Chen, Christopher Otrok, Alessandro Rebucci, and Eric R. Young

Capital Controls or Real Exchange Rate Policy? A Pecuniary Externality Perspective (IDB-WP-393)

In the aftermath of the global financial crisis, a new policy paradigm has emerged in which macro-prudential policies (i.e., old-fashioned government distortions such as capital controls or other quantitative restrictions on credit flows) have become part of the standard policy tool kit, arguably because they can prevent or mitigate financial crises. On the heels of this seemingly unanimous policy consensus, a new strand of theoretical literature rigorously justifies the use of capital controls on welfare grounds. This paper questions that policy consensus; it argues that supporting the exchange rate during times of crisis is more welfare enhancing (since it can achieve unconstrained allocation) than imposing prudential capital controls.

Camacho, Adriana and Daniel Mejia

Las externalidades de los programas de transferencias condicionadas sobre el crimen: El caso de Familias en Acción en Bogotá (The Externalities of Conditional Cash Transfer Programs on Crime: The Case of Familias en Accion in Bogota) Avaliable in Spanish only. (IDB-WP-406)

This paper studies the indirect effects of the largest conditional cash transfer program in Colombia, Familias en Acción, on the levels of criminality in the Bogota metropolitan area. This study uses two principal sources of information: The system of Information for beneficiaries of Familias en Acción (SIFA) and the administrative reports on criminality of the National Police. Two possible ways in which Familias en Acción affect criminality are studied. On the one hand, the income effect, for which variations in the program's payment dates are evaluated. The paper finds that in the days following payments, the incidence of crime diminishes. On the other hand, the paper studied whether keeping adolescents in school kept them from engaging in crime. The study found that this was not the case.

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Cesa-Bianchi, Ambrogio, and Alessandro Rebucci

Does Easing Monetary Policy Increase Financial Instability? (IDB-WP-387)

This paper develops a model featuring a macroeconomic stability objective and a financial stability objective, in response to the interaction between monetary and macro-prudential policies. First, the authors find that interest rate rigidities in a monopolistic banking system have an asymmetric impact on financial stability: although they lead to greater financial instability in response to contractionary shocks, they act as an automatic financial stabilizer in response to expansionary shocks. Second, the authors find that when the policy interest rate is the only instrument at work, a monetary authority subject to the same constraints as private agents cannot always achieve an (constrained) efficient allocation, thereby facing a trade-off between macroeconomic and financial stability in response to contractionary shocks. This has important implications for the role played by U.S. monetary policy in the run-up to the global financial crisis; the model suggests that the weak link in the U.S. policy framework was not the monetary policy stance after 2002, but rather the absence of an effective second policy pillar aimed at preserving financial stability.

Céspedes, Luis Felipe, Roberto Chang, and Andrés Velasco

Is Inflation Targeting Still on Target? The Recent Experience of Latin America (IDB-WP-384)

The reaction to the recent financial crisis has involved frequent and large deviations from the standard inflation-targeting (IT) framework. This paper reviews six Latin American IT nations (Brazil, Chile, Colombia, Mexico, Peru, and Uruguay) and finds that they all deviated from the standard framework, though in different ways and with different instruments. The paper aims to document what policy responses these countries adopted in the face of certain shocks, and why they adopted them, so as to extract lessons from these experiences and gain a better understanding of which monetary policies work best in Latin America.

De Mello, João, Daniel Mejía, and Lucía Suárez

The Pharmacological Channel Revisited: Alcohol Sales Restrictions and Crime in Bogotá (IDB-WP-394)

This paper evaluates the impact that restricting late-night alcohol sales has made on crime in Bogotá, and quantifies the causal effect of problematic alcohol consumption in different crime categories. Alcohol restriction reduced physical attacks and deaths, and injuries in car accidents. The results are stronger in areas where alcohol restriction was actually enforced, and vary widely depending on the number of liquor stores restricted in a given city block. Finally, the paper measures the impact of the sales restriction on alcohol consumption, and quantifies the causal pharmacological impact of alcohol consumption on crime. The results show that a one standard deviation increase in problematic alcohol consumption increases deaths and car accident-related injuries by 0.51 standard deviations and 0.82 standard deviations, respectively, and physical attacks by 1.27 standard deviations.

D'Erasmo, Pablo N.

Access to Credit and the Size of the Formal Sector in Brazil (IDB-WP-404)

This paper studies the link between credit conditions and formalization in Brazil, since credit and the rate of formalization have notably increased in the last decade. A firm-dynamics model quantitatively evaluates to what degree the change in corporate credit and the size of the formal sector can be attributed to a cost reduction in financial intermediation. The model predicts that a reduction in intermediation costs generates an increase in the credit-to-output ratio and in the share of formal workers, in line with the data. It finds that a change in the corporate interest rate, the allocation of capital, and entry and exit rates affect credit conditions, which in turn has a significant impact on firm-size distribution and aggregate productivity.

Fernández, Andrés, and Juan Herreño

Equilibrium Unemployment during Financial Crises (IDB-WP-390)

Financial crises in emerging and developed economies have been characterized by large drops in output and spikes in unemployment and interest rates. To account for these stylized facts, this paper builds a business cycle model where financial and labor market frictions interact as occasionally binding borrowing constraints and search frictions. The model is calibrated to a sudden stop–prone emerging economy and to some peripheral European economies in the recent crisis. The model accounts for unemployment dynamics both during crises and normal business cycle frequencies. The paper also assesses the welfare implications of policies that reduce real minimum wages during crises.

Galindo, Arturo J., and Marcela Meléndez

Small Is Not Beautiful: Firm-Level Evidence of the Link between Credit, Firm Size and Competitiveness in Colombia (IDB-WP-395)

Credit has been found to be a catalyst for economic growth. Most stud-

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ies focus on the relationship between financial development and growth at the country level, while few analyze the relationship at the firm level. Using a panel-shaped, firm-level dataset of Colombian firms, this paper examines whether the response of firms to financial and real shocks varies according to firm size and across different levels of firm productivity. The study finds that financial shocks have a significant positive impact on firm growth, which is larger for larger firms and more productive firms that export. The results indicate that something is preventing smaller firms from taking full advantage of access to external financing.

Gandelman, Néstor, and Alejandro Rasteletti

Credit Constraints, Sector Informality, and Firm Investments: Evidence from a Panel of Uruguayan Firms (IDB-WP-392)

This paper explores whether the extent of informality in a sector affects a firm's investment decision directly or indirectly through a credit availability channel. Using a panel of Uruguayan firms for the period 1997–2008, this paper finds that financial restrictions affect investment decisions in Uruguay, as an increase in credit to the private sector translates into higher investment rates. A one percentage point increase in overall credit growth translates into a one-half percent increase in investment rates. It is also found that, although there is no direct effect of informality on the firm's investment decision, there is an indirect effect through the borrowing channel. More specifically, financial restrictions reduce the amount of investment undertaken by Uruguayan firms, the effect being smaller if the firm operates in a sector with lower informality.

Guerrero Compeán, Roberto

Weather and Welfare: Health and Agricultural Impacts of Climate Extremes, Evidence from Mexico (IDB-WP-391)

Using data from all of Mexico's 2,454 municipalities for the period 1980–2010, this paper analyzes the relationship between exposure to extreme temperatures and precipitation and death, as well as the relationship between severe weather and agricultural income and crop production. It is found that extreme heat increases mortality, while the health effect of extreme cold is generally negligible. Precipitation extremes seem to affect the agricultural system, but their impact on mortality is ambiguous. More specifically, exchanging one day with a temperature of 16–18°C with another day whose temperatures exceed 30°C increases the crude mortality rate by 0.15 percentage points, a result robust to several model specifications. It is also found that the extreme heat effect on death is significantly more acute in rural regions, leading to increases of up to 0.2 percentage points vis-à-vis a 0.07-point increase in urban areas. The timing of climate extremes is essential: if a weather shock takes place during the agricultural growing season, the effects on mortality, agricultural output, productivity, prices, and crop yields are significant; such is not the case if weather shocks occur during the non-growing season.

POLICY BRIEFS

Miller, Sebastián, Sang W. Yoon, and Bok-Keun Yu

Vulnerability Indicators of Adaptation to Climate Change and Policy Implications for IDB Projects (IDB-PB-184)

Effective adaptation to climate change depends on relevant and appropriate vulnerability indicators at the local and global levels. This paper reviews the literature on these indicators, and explores this issue using a select sample of IDB project proposals on climate change adaptation that discuss measuring vulnerability. The literature review illustrates the importance of assessing vulnerability based on local indicators that reflect the characteristics of different sectors. By analyzing IDB project proposals as case studies, the paper recommends that future proposals include more relevant indicators for measuring exposure and sensitivity in addition to adaptive capacity, although such indicators depend on project attributes.

TECHNICAL NOTES

Ames, Barry, Fabiana Machado, Lucio Rennó, David Samuels, Amy Erica Smith, and Cesar Zucco

The Brazilian Electoral Panel Studies (BEPS): Brazilian Public Opinion in the 2010 Presidential Elections (IDB-TN-508)

This report presents sample characteristics and summary statistics from the Brazilian Electoral Panel Study (BEPS) project. The survey, conducted in three stages (waves) in Brazil during a presidential-election year (2010), is composed of 4,611 interviews with 2,669 Brazilians of voting age.

Garlati, Adrián

Climate Change and Extreme Weather Events in Latin America: An Exposure Index (IDB-TN-490)

Climate change is changing the frequency and intensity of extreme weather events (EWEs), particularly in poor developing countries, and the international community is increasingly suggesting that adaptation funds be

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designed to resolve this situation. Measures of vulnerability and exposure to EWEs are a critical instrument to guarantee a transparent, efficient, and equitable allocation process for these funds. Latin American countries, which contribute little to climate change but are hard hit by EWEs, urgently need new indicators to back up their claims for financial and technical assistance. Using DesInventar data, the paper develops an innovative Disaster Exposure Index (DEI) that encompasses the impacts of many disasters. DEI calculations reveal an unexpected scenario in which some regions, usually considered resilient, are found to be exposed. The results call for further development of regional indicators to facilitate the international, national, and subnational allocation of adaptation funds.

Hallerberg, Mark

Explaining European Patterns of Taxation: From the Introduction of the Euro to the Euro-Crisis (IDB-TN-400)

This paper reviews developments in Europe from just before the euro was introduced through the euro crisis. It begins with a discussion of the tax reform agenda. Although differences exist in the literature on specific taxes, and while European countries prefer different levels of taxation, there is general consensus on the shape reforms should take. The paper then discusses the evolution of tax systems with the overall agenda in mind. It is found that overall revenue levels were broadly stable until right before the crisis, but marginal rates on top personal and corporate income declined almost continuously. During the crisis, however, this trend ended, when the most fiscally distressed countries raised tax rates and tax burdens. The last section provides a short analysis of why reforms were enacted in some countries but not in others.

Humpage, Sarah D.

When Are Field Experiments with Individual Assignment Too Risky? Lessons from a Center-Based Child Care Study in Guatemala (IDB-TN-469)

Randomized controlled trials (RCTs), prized for generating unbiased estimates of treatment effects, have become popular in development economics. However, RCTs do not always offer sufficient statistical power, which is reduced in experiments with imperfect compliance to treatment assignment. This is of critical importance if effect sizes are modest, and if noncompliance may occur. Both are likely in experiments in center-based childcare programs with individual-level randomization, for several reasons. Dropout in the treatment group may occur because families' demand for preschool is unknown when the sample is constructed, and it evolves over time as households experience shocks and as they learn about the center. Noncompliance in the control group arises when children access the program or alternative preschool programs.

OUTSIDE PUBLICATIONS

Ardanaz, Martín, and Carlos Scartascini

Inequality and Personal Income Taxation: The Origins and Effects of Legislative Malapportionment.

Comparative Political Studies. Published online before print April 26, 2013, doi:10.1177/0010414013484118

Why does personal income taxation (PIT) remain relatively low in many developing countries despite democratic advancement and rapid economic growth? This stylized fact is hard to reconcile with standard political economy models of taxation that expect democratic regimes to redistribute income in countries with high inequality. This article argues that the details of political institutions are key to understanding why PIT remains low in many developing countries. In particular, legislative malapportionment may prevent the use of PIT as a major revenue source by skewing the distribution of political power across groups. Malapportionment is usually engineered by those with political power at the transition or reform moment and depends on the structure of political and economic power in society. Based on a sample of more than 50 countries between 1990 and 2007, this article finds that (a) countries with historically more unequal distributions of wealth and income tend to systematically present higher levels of legislative malapportionment; and (b) higher levels of malapportionment are associated with lower shares of PIT in GDP.

Bianchi, Milo, and Matteo Bobba

Liquidity, Risk, and Occupational Choices

Review of Economic Studies, 80(2): 491–511. 2013.

This paper explores which financial constraints matter most in the choice of becoming an entrepreneur. The authors consider a randomly assigned welfare program in rural Mexico and show that cash transfers significantly increase entry into entrepreneurship. They then exploit cross-household variation in the timing of these transfers and find that current occupational choices are significantly more responsive to the transfers expected for the future than to those currently received. Guided by a simple occupational choice model, the paper argues that the program has promoted entrepreneurship by enhancing willingness to bear risk as opposed to simply relaxing current liquidity constraints.

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New Publications

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Busso, Matías, Jesse Gregory, and Patrick Kline

Assessing the Incidence and Efficiency of a Prominent Place Based Policy

American Economic Review
103(2): 897–947. 2013.

This paper empirically assesses the incidence and efficiency of Round I of the federal urban Empowerment Zone (EZ) program using confidential micro-data from the Decennial Census and the Longitudinal Business Database. Using rejected and future applicants to the EZ program as controls, the paper finds that EZ designation substantially increased employment in zone neighborhoods and generated wage increases for local workers without corresponding increases in population or the local cost of living. The results suggest the efficiency costs of Round 1 EZs were relatively modest.

Scartascini, Carlos, Ernesto Stein, and Mariano Tommasi

Political Institutions, Intertemporal Cooperation, and the Quality of Policies

Journal of Applied Economics
16(1): 1–32. May 2013. Available at: http://www.sciencedirect.com/science/article/pii/S151403261360001X

While economists have tended to focus on specific public policies when developing recommendations, the quality of development policies may be more important than their content for achieving welfare objectives. This paper develops several measures of the qualities of policies across countries, arguing that the quality of public policies depends on each polity's ability to strike intertemporal transactions necessary to develop and sustain effective policies. This ability depends on several characteristics of political institutions, such as congressional capabilities, judicial independence, and bureaucratic professionalism.

An Ounce of Prevention against Crime

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alcohol sales outlets provided the authors with comprehensive data.

The study found that the Bogota ban reduced deaths and injuries from car accidents, the number of simple assaults, and misdemeanors associated with problematic alcohol consumption in the areas covered. Although the study did not find a drop in the homicide rate, a study of a similar curfew in Diadema, Brazil in 2002 found a significant drop in homicides.[1] And a study of Cali, Colombia from 2004-2008, when different policies restricted the hours of alcohol sales and consumption, found an increased risk of homicides on days when the less-restrictive policies were in effect, that is, when more hours of sale were allowed.[2]

The late-night curfew on alcohol sales in Bogota was only in place for six months, but its positive effects may be long-lasting. The curfew was lifted in July 2009 when the Chamber of Commerce pledged to the local government to self-regulate alcohol sales and prevent the consumption of alcohol in public areas. Storeowners agreed not to sell alcohol or cigarettes to minors, to undertake a media campaign to promote self-regulation, and to inform law enforcement via an emergency telephone line when customers who purchase alcohol remain in public areas. According to Bogota's *El Tiempo* newspaper, the authorities accepted the commitment of storeowners but warned that they would continue to monitor the sale of alcoholic drinks to minors and consumption in public areas.

Finally, the authors of the study note that the findings could inform the development of policies beyond just those involving alcohol. "Knowledge about the alcohol-crime nexus is useful from a policy perspective even if one is unwilling to implement restrictions on alcohol sales," the study states. "For example, the recent debate on the legalization of illegal drugs begs for answering two questions. First, how will drug consumption change with legalization? Second, how will this change impact public health, including crime?"

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[1] Álvaro I. Sánchez, et al., 2011, Policies for Alcohol Restriction and their Association with Interpersonal Violence: A Time-series Analysis of Homicides in Cali, Colombia, *International Journal of Epidemiology* 40(4): 1037–046. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2089093/?tool=pubmed.

[2] Sergio Duailibi, et al., 2007, The Effect of Restricting Opening Hours on Alcohol-Related Violence, *American Journal of Public Health* 97(12): 2276–280. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3156368/

Network News

Seminar: Development Challenges and Policies in Latin America and the Caribbean: What Are the Issues?

June 13-14, 2013 at 9:00 am.
IDB Headquarters, 1300 New York Ave., NW, Washington DC - Room Andrés Bello

**** Live stream available the days of the event****
http://www.livestream.com/IDBdevelopmentchallenges

This seminar features a top-notch list of speakers on hot topics and has been designed for economists, researchers, and professionals from the development and academic communities.

RES/IFD Seminar: Accountability, Transparency and Innovation in the Public Sector

June 20, 2013 at 2:30 pm
IDB Headquarters, 1300 New York Ave., NW, Washington DC - Room Andres Bello

What do public employees do? How do communities ensure that government projects are efficient and effective? What available Internet technologies can be introduced to strengthen reputational mechanisms and significantly improve public governance? What is the role of the IDB in ensuring higher accountability and transparency in the public sector? What type of innovations is the Bank pursuing in the countries in the region? These and other similar questions will be answered during this seminar.

Speakers include:

Nicolas Dassen, IFD/IDB
María José Jarquín, IFD/IDB
Ezequiel Molina, IDB
Virginia Oliveros, IDB
Lucio Picci, University of Bologna
Miguel Porrúa, IFD/IDB
Ana Maria Rodriguez, IFD/IDB
Silvana Rubino-Hallman, Programa Optima, IDB
Jose Juan Ruiz, RES/IDB
Carlos Santiso, IFD/IDB
Carlos Scartascini, RES/IDB

www.iadb.org/res/researchnetwork

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