The Economics of Natural Disasters

Why do

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he earthquakes that struck Haiti and Chile just weeks apart early this year are a stark reminder that natural catastrophe remains part of the human condition. They also underscore that such disasters have grave economic as well as human consequences, depriving people of livelihoods and possessions as well as lives. Estimates of damage to structures—homes, businesses, public buildings—from the Haitian earth-

quake exceed that country's annual GDP. Damage from Chile's earthquake was roughly twice that in dollar terms, although only about 10 to 15% of that country's much larger GDP. Compare these losses with those in the typical business-cycle downturn, which eliminates only a few percent of GDP, and it becomes clear that all but the deepest recessions are mere tremors relative to the massive destruction of productive capacity caused by the greatest natural disas-

Yet despite their enormous cost, an understanding of the economic effects of natural disasters—their nature, their duration, the factors that determine their severity—remains scant. Many questions have only begun to be answered. An important question that the disparate experiences of Haiti and Chile throw in sharp relief is, why do similar natural disasters in different countries have such different effects? What attributes of economies themselves allow one country

to pick itself up off the ground and move on, while another, struck by the same blow, lies prostrate, dependent on external help?

One factor that clearly contributes to a disaster's economic impact is the size of the economy relative to the size or intensity of the disaster. Globalization notwithstanding, the world is still a collection of nation-states. Borders remain barriers to economic forces, so that the economic effects of a disaster

reverberate mainly within the affected country. And the smaller its population, the more crippling the wound. India, for example, can absorb the damage from a large cyclone better than Sri Lanka because resources from unaffected areas throughout the larger country can be brought to bear in relief and reconstruction, and because people and assets in the affected areas can relocate without emigrating. Larger countries also tend to be more economically diversified, so that if a disaster

wipes out one industry or sector, others can expand to take its place.

Output per capita obviously matters, too: the richer and more developed the country, the more resources it can devote to preventive measures before a disaster and to rebuilding after. Such countries are more likely to have—and enforce—building codes, and to engage in land use planning, for example.

Continued on page 2



Volume 22 May – August, 2010

IN THIS ISSUE

The Economic
Toll in Haiti—and
Its Implications

4

Silver Linings but No Rainbows: Natural Disasters Need Not Derail Growth

5

How Much Disaster Insurance Is Enough?

7

Learning from Disaster

8

New Publications

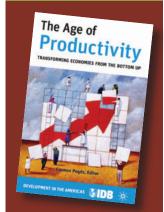
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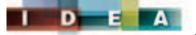
Network News

16

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The Economics of Natural Disasters

from page 1

Findings such as these provide insight into why Chile suffered far less mortality than Haiti (a few hundred deaths versus 200,000 or more), even though both earthquakes were of similar magnitude (Chile's was actually stronger) and both struck densely populated areas. One need only compare the post-disaster pictures to see that Chile had invested much more in sounder, more earthquake-proof housing and infrastructure. Chile could do this because it is larger, richer, and could afford to. Haiti's misfortune is that it is both small and poor—its population is one-half Chile's and its GDP per capita one-eighth—and thus was far more vulnerable.

A more nuanced view distinguishes between the direct and the indirect effects of disasters. Direct

effects include the immediate damage sustained to human life and to structures. Indirect effects are measured in terms of the economic output that is lost following a disaster, either because of the direct loss of productive assets, or because reconstruction siphons remaining resources away from their previous uses, or because the disruption of established production and distribution processes causes resources to be used less efficiently (for example, if the collapse of a bridge forces an expensive rerouting of shipments). It could well be that more developed economies suffer more from the direct effects—they have more and more-valuable physical assets to lose in a disaster—but that developing economies suffer more from the indirect effects, both for the reasons already noted and because many were on a steeper output growth path before the disaster and thus experience a sharper decline in growth.

Other factors that influence an economy's vulnerability to natural disaster are political and institutional. Of course, part of the influence of these factors is *through* their effect on economic growth and development, and thus on national income and wealth. Better policies and institutions make for a richer and thus more resilient economy. But there are also ways in which a country's political economy and its institutions interact more directly with disaster prevention—or the lack of it—to affect a country's exposure.

Continued on page 3

This issue of *IDEA* was prepared by Eduardo Cavallo, Michael Treadway and Rita Funaro and was based on research conducted by Eduardo Cavallo with Oscar Becerra, Eduardo Borensztein, Sebastian Galiani, Ilan Noy, Juan Pantano and Andrew Powell.

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The Economics of Natural Disasters

rom page 2

One such factor is the degree of economic inequality: more unequal societies spend fewer resources on prevention, perhaps because (whether as cause or as effect of the inequality) they lack the social cohesion needed to act for the common good. When the rich look out only for themselves, the poor are more exposed. More broadly, the degree to which government is responsive to the interests and desires of the population surely matters for whether it acts responsibly and aggressively to forestall the effects of predictable natural disasters. And in fact, studies have found that democracies tend to fare better than autocracies in the aftermath of disasters.

A chronic problem, however, is that voters tend to discount preventive measures, and thus fail to reward politicians for disasters avoided. On the other hand, lavish showering of relief aid is a proven method by which politicians endear themselves to the victims of disaster and their communities—all the better if a foreign donor or international agency is paying the bill.

Arguably, some response, even if crassly politically motivated, is better than none. On the other hand, excessive reliance on relief rather than prevention can lead to moral hazard. For example, if governments spend too freely on rescuing the residents of floodplains and volcanic slopes from the inevitable floods and eruptions, the result may be overinvestment in agricultural exploitation of these lands. This response could actually increase the total costs of these disasters when a final accounting is made.

Political and institutional factors combine with low national income to highlight yet another differentiating factor: poorer countries are less able to enact the countercyclical macroeconomic policies that could blunt the economic damage from a disaster. Fiscal stimulus—deficit spending—is a standard policy tool available, in principle, to all countries coping with an adverse economic shock of whatever origin. But governments of small, poor countries often lack the "fiscal space." Often already deeply in debt, such countries can play the fiscal

Developing countries contain 75% of the world's population, but suffer 99% of the mortality from natural disasters worldwide.

stimulus card only if they can borrow abroad. But foreign investors might be unwilling to lend, at least at affordable interest rates—especially when a major disaster has put the country's very economic future in doubt.

Meanwhile the possible uses of monetary policy after a natural disaster remain almost totally unexplored: even such elementary questions as the inflationary impact of disasters, and of the aid flows that often follow them, have yet to be carefully examined. Some research has found that a flexible exchange rate regime can provide a cushion against economic loss after a disaster.

Clearly, poorer countries face many disadvantages, relative to richer ones, in dealing with natural disasters. To make matters worse, some important types of natural disaster seem to take preferential aim precisely at the poorest countries: hurricanes, typhoons, and other large storms are largely a phenomenon of the tropics, and most of the world's most active volcanic zones—including the Pacific "Ring of Fire"—are in developing countries. The many disadvantages that poorer countries face when confronted by natural catastrophe can be summarized in one striking fact: developing countries contain 75% of the world's population—but suffer 99% of the mortality from natural disasters worldwide.

Undoubtedly, poor countries need help from the international community to deal with the incidence of natural disasters, reduce their vulnerabilities, and cope with the social and financial problems that arise from the destruction. The humanitarian needs are enormous and few countries have the deep pockets needed to absorb the immediate consequences of disasters and repair their damaged infrastructure.

This issue of IDEA was inspired by the myriad questions raised by the successive natural disasters that have struck the developing world of late. Having reviewed what characteristics make some economies more resilient to natural catastrophes than others, it goes on to examine the short-term economic effects of disaster (the case of Haiti), the long-term effects on economic growth, and the policies countries might adopt to better insulate themselves from the high economic costs of disasters.



The Economic Toll in Haiti—and Its Implications

onths after Haiti's catastrophic earthquake, the scale of that country's loss is still being debated. The heart-rending images—grim as they have been—fail to convey the extent of death and destruction. One thing is already clear, however: the cost of rebuilding will exceed what any one agency or country can reasonably contribute—least of all Haiti itself, which before the tragedy was already the poorest country in the Western Hemisphere.

Begin with the loss to human life: the latest estimates indicate that the earth-quake and its aftermath killed 200,000 to 250,000 people, and perhaps more. If the latter figure is correct, it exceeds the human toll of any other natural disaster worldwide in recent decades, including the Indian Ocean tsunami of 2004. But Haiti is a small country, with fewer than 10 million inhabitants. The quake thus wiped out between 2 and 3% of the

entire population—a staggering blow to any nation. Indeed, no natural disaster in recent world history has claimed the lives of so large a share of a single country's population.

What of the damage to property—to homes, to public buildings and infrastructure, to the business capital from which Haitians drew their livelihood? This is much harder to measure. Because the quake struck so close to the capital, the buildings housing many of the nation's key institutions, from the presidential palace down, were destroyed or rendered unusable. Much of the country's productive infrastructure was also located in Port-au-Prince and is assumed to be in similar condition. Another 10% of the population—a million souls—remain homeless.

The IDB published a working paper more than one month before the release of the detailed so-called Post Disaster Needs Assessment (PDNA) report, presenting a first approximation of Haiti's economic losses based on the statistical relationship between the human loss from a natural disaster and the economic loss. Using data from a large sample of natural disasters since 1970, and controlling statistically for other factors that affect a country's vulnerability to such disasters (such as GDP per capita), the study estimates that for a death toll of 250,000, Haiti's economic damage to fixed assets, extractable natural resources and raw materials is on the order of \$8.1 billion. That's more than a billion dollars greater than Haiti's annual GDP! Using a different methodology, the now-available PDNA estimates economic damages at US\$7.9bn and total needs (taking into account the recovery, reconstruction and reorganization of the Haitian State) at US\$ 11.5bn. As Table 1 illustrates, Haiti's earthquake ranks at

Continued on page 9

TABLE 1: Large Natural Disasters

Rank	Country	Year	Description	People killed	People killed per million inhabitants	Damages (US Millions, 2009)	Damages (% of GDP)
1	Haiti	2010	Earthquake	222,570	22,365	8,071**	112.0%
2	Nicaragua	1972	Earthquake	10,000	4,046	4,325	102.0%
3	Guatemala	1976	Earthquake	23,000	3,707	3,725	27.4%
4	Myanmar	2008	Cyclone Nargis	133,655	2,740	n.a.	n.a.
5	Honduras	1974	Hurricane Fifi	8,000	2,733	2,263	59.2%
6	Honduras	1998	Hurricane Mitch	14,600	2,506	5,020	81.4%
7	Sri Lanka	2004	Tsunami*	35,399	1,839	1,494	7.0%
8	Venezuela	1999	Flood	30,000	1,281	4,072	3.5%
9	Bangladesh	1991	Cyclone Gorki	138,866	1,228	2,802	5.9%
10	Solomon Is	1975	Tsunami	200	1,076	n.a.	n.a.

Source: Authors' calculations based on EM-DAT and WDI databases.

n.a. Not available *Indian Ocean Tsunami caused a total of 226,000 deaths over 12 countries.

** Estimates taken from Cavallo, Powell and Becerra (2010)



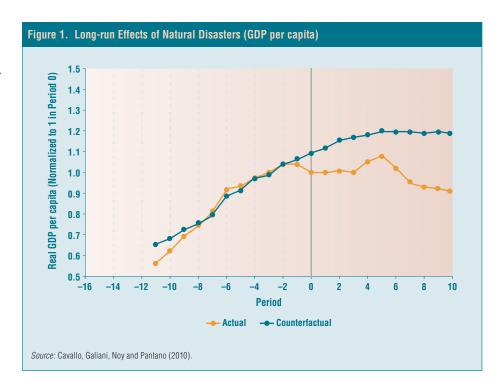
Silver Linings but No Rainbows: Natural Disasters Need Not Derail Growth

Suppose one were to draw up a national economic balance sheet for a small country like Ecuador or Panama in the immediate wake of a major natural disaster—say, a category 5 hurricane or a devastating volcanic eruption. Undoubtedly, such an accounting would show a sharp decline in the country's assets, and thus in its net worth, tallied in lives lost and property destroyed. Almost by definition, disasters leave an economy poorer the day after.

But an entirely separate question is what the country's income statement would look like in the years that followed. The short-term effects on income are likely to be negative as well: the loss of productive assets would likely reduce output over at least several months. But how quickly would output and economic growth recover? Would the aftermath of the disaster exert a persistent drag on growth, or would growth return to its predisaster path? Might the disaster even spark a surge of reconstructive activity, perhaps fueled by external aid, that pushes the growth rate to new heights?

Surprisingly, economic theory provides no clear answer to this question. Not that economics is silent on the issue. On the contrary, there is a range of competing theories to decide among, and they offer contradictory answers.

In traditional neoclassical growth models, what matters most for growth is technological progress. A disaster does not affect the rate of technological progress; hence, under this theory, a disaster should have no impact on growth, positive or negative. Certain



variants of another comprehensive theory, known as endogenous growth theory, assume increasing returns to scale in production; that is, each additional dollar's worth of capital or labor placed in production contributes more to output than the previous dollar. Under that assumption, the loss of part of the capital stock, human or physical, in a natural disaster would put the economy on a permanently lower growth path—the rate of growth falls.

But a quite different conclusion emerges from another variant of the same theory that incorporates Joseph Schumpeter's concept of creative destruction: in this model, the shock of a natural disaster can catalyze reinvestment and an upgrading of the capital stock, as antiquated capital goods destroyed by the cataclysm are replaced by more modern and efficient ones. Growth should therefore accelerate after a natural disaster, according to this theory. Call it the rainbow effect.

When theories disagree, theorists must turn to the real world for answers—ultimately, only empirical analysis can answer the question of what happens to growth after a disaster. A recent study by economists at the Inter-American Development Bank and academia is one of the first to address this question systematically, looking at both the short- and the long-term effects of disasters on growth.

Continued on page 6

Silver Linings but No Rainbows: ...

rom page 5

The IDB study adopts a novel methodological approach. A more standard approach might compare actual growth in a disaster-affected country against an extrapolation of that country's predisaster growth trajectory. The difference after the fact between the projected, "counterfactual" growth rate and the actual growth rate would then provide a measure of the disaster's impact. But simple extrapolations cannot account for other unpredictable events besides the disaster that influenced growth in its wake. So instead the IDB researchers build a "synthetic control group": a comparator group based on data from countries similar to the affected countries except for the incidence of the natural disaster. Using this methodology, they arrive at an estimate of the impact of a disaster of a given magnitude by comparing the paths of the actual GDP per capita series of the affected country to that of the comparator group of countries.

Stated briefly, what emerges from the analysis is that the very largest natural disasters do have a measurable effect on subsequent economic growth, and that impact is sharply negative. When a country suffers such a massive disaster—defined as one so severe as to fall in the top 1% of all natural disasters worldwide, measured in terms of deaths per million population—the likely result is not just slower growth but negative growth over the next ten years. Its GDP per capita can be expected, on average, to decline to a level 10% below that at the time of the disaster. Had it avoided the disaster, growth would have been positive, and GDP would have instead been 18% higher, on average, at the end of those ten years (see Figure 1).

Extreme disasters—of the magnitude, for example, of Haiti's recent earthquake—thus have an average 28-percentage-point negative impact on income per capita over a ten-year horizon, a dismaying result.

The outcome is very different, however, for disasters that are less catastrophic, even if only slightly so. When the definition is expanded to include the top 10%, rather than only the top 1%, of disasters worldwide, the effect on economic growth disappears entirely by conventional statistical measures. This means that even a disaster on the scale of Mexico City's 1985 earthquake is unlikely to have had any impact on Mexico's growth at a 10-year horizon—a much more encouraging, if somewhat surprising, finding.

Moreover, an important caveat attaches to the findings for the very largest disasters. Those dismal findings appear to be driven by just two of the four disasters in the sample's top 1 percentile: the December 1972 earthquake in Nicaragua, and the 1978 earthquakes in Iran. Both of these disasters were followed by precipitous declines in the affected country's GDP. When they are omitted from the sample, the statistical finding of a negative effect of very large disasters on 10-year growth vanishes.

Interestingly, both these disasters had one important characteristic in common besides their sheer scale. In each case the natural catastrophe was followed by political catastrophe: massive social upheaval that ended in radical revolution. The two severe earthquakes that struck Iran in 1978 were followed within months by the fall of the shah and the coming to power of Ayatollah Khomeini's Islamic revolutionaries.

Nicaragua's earthquake was followed by several years of bloody civil war, which ended in July 1979 with the Marxist Sandinistas toppling the dictatorial regime of Anastasio Somoza.

It is tempting to speculate whether the magnitude of the Nicaragua and Iran disasters helped catalyze the revolutions in those countries. There is historical evidence for such a claim in Nicaragua especially: Somoza's callous response and corrupt use of aid money after the Managua earthquake are widely seen as decisive in turning the population against him. But then there is the counterexample of the two other severely impacted countries—the Dominican Republic and Honduras—where revolution did not occur. And of the two, only the Dominican Republic was under democratic rule at the time. But it is best to refrain from making causal inferences about complex sociopolitical phenomena from a sample of only four cases.

What do the broader findings suggest? On the one hand, they provide no evidence of a rainbow effect: nothing in the findings indicates that growth accelerates in the wake of a natural disaster. On the other hand, neither is there evidence that any but the worst natural disasters are capable of throwing an economy off its previous long-run growth path. It appears that unless a natural disaster is very large and followed by radical political revolution, it is unlikely to have enduring effects on growth. Of course, all this may be of little comfort to countries still reeling from their losses in recent disasters, but it gives some hope—and an incentive to get on with the hard task of rebuilding.



How Much Disaster Insurance Is Enough?

overeign disaster insurance programs are a valuable innovation for developing countries seeking to reduce their fiscal exposure to natural catastrophe. But as with any insurance transaction, the question immediately arises: how much insurance should a country buy? Too little leaves the country unnecessarily exposed to catastrophe; too much means that the country pays premiums for coverage that provides no marginal benefit. An IDB study explores this question by estimating the optimal amount of catastrophe risk insurance for the country of Belize, a small Caribbean country that has often been struck by severe hurricanes.

As with any insurance purchase, the optimal coverage problem involves not only identifying the risks to be insured against and the likely monetary losses, but also deciding how large a loss one would be unwilling or unable to pay out of pocket. Unless it has large monetary reserves, an uninsured country struck by a natural disaster must borrow to pay for relief and reconstruction—foreign aid seldom, if ever, pays the whole bill. The ratio of debt to GDP thus rises. If it was high to begin with, or if the costs of the disaster are large, it could reach a point where either the population rebels against the resulting tax burden and the country defaults, or the country's creditors see the default coming and refuse to roll over the debt. Hence, the critical measure of debt sustainability, and thus the optimal coverage decision, is the debt-to-GDP ratio. How this ratio responds to shocks like a natural disaster (a hurricane in the case of Belize), and the extent to

The critical measure of debt sustainability, and thus the optimal insurance coverage decision, is the debt-to-GDP ratio.

which disaster insurance can blunt this response is the focus of the IDB study.

The researchers begin by simulating the likely range of outcomes for Belize's debt over an extended period, in the absence of insurance, given the ever-present threat of hurricanes. They do this using a version of a well-established statistical technique called the Monte Carlo method. First, they generate 1,000 random values for Belize's debt in a given year (using combinations of plausible values of Belize's GDP growth rate, fiscal balance, and the interest rate it pays), and 1,000 random values for damage sustained in a hurricane that year (based on the probabilities of hurricanes of different intensities striking the country). They then combine the two sets of numbers to create a distribution of simulated debt levels inclusive of hurricane costs. Then, they compare these no-insurance outcomes with two alternative scenarios where Belize buys catastrophe risk insurance: in the first, Belize pays \$1.6 million in premiums and is insured up to \$30 million; in the

second, Belize pays \$6.4 million and receives up to \$120 million in insurance (about 1 percent of its GDP); in each scenario the simulated debt is increased by the premium and reduced by the simulated payout if and when a disaster strikes. As a benchmark for comparison, the researchers also calculate outcomes for a scenario where Belize faces no hurricane risk. Finally, to account for a likely favorable impact of insurance on Belize's borrowing costs, they also adjust the interest rate on Belize's debt modestly downward in the scenarios where it has insurance.

Of particular interest are the study's results that indicate the high end of the range (the worst 1% of the whole distribution of outcomes) of Belize's indebtedness with and without insurance. After all, it is these "worst-case" outcomes that insurance is intended to address. When Belize goes without insurance, debt in the worst-case outcome is a dangerous 170% of GDP (the actual ratio today is about 78%). The smaller of the two insurance policies reduces this modestly, to 160%, but the larger one reduces it to about 145%—more than a third of the way to the case where Belize is hurricane-free. (The debt is reduced even further if one assumes, perhaps optimistically, that insurance also reduces the volatility of GDP and raises its growth rate as a consequence.) The results also indicate that raising the insurance limit above \$120 million would not be cost-effective: it would do little to further reduce the worst-case debt, and by raising the premium, it would increase debt at the other (bestcase) end of the range. For Belize's needs, \$120 million seems about the "right" amount of insurance to buy.



Learning from Disaster

arge-scale natural disasters, like this year's earthquakes in Haiti and Chile, and the tsunami that struck Indonesia and several other Asian nations in 2007, compel attention. When they strike developing countries, they highlight—if only too briefly—the dangers to which people in these countries were subject long before the event. Thus, although these disasters are immense human tragedies, they may also be "teachable moments," providing insight into the strategies that might have limited the human suffering and economic loss. The lessons may serve the developing world well in future disasters.

But what are those lessons? Even now it is surprising how little can be said with certainty and precision about what policy prescriptions may mitigate the impact of disasters. In particular, because research on their longer-term economic impact is limited and less than conclusive, there is no clear understanding of the optimal level of investment in preventive measures. On the other hand, there are some important lessons about the immediate impacts and the kinds of circumstances in which disasters do the most immediate damage.

One thing that is clear is that natural disasters hurt poor countries more than rich ones: the overall death rate from disasters in poor nations is about five times that for wealthier nations. This suggests that policies that support economic development—that boost incomes, literacy, and openness to the world—do not just make people materially better off. They also offer a side benefit: such policies should, over time, make countries less vulnerable to natural catastrophe.

Stronger public institutions also reduce the impact. For example, political institutions that allow the public to hold politicians accountable for their actions contribute to better disaster preparation. Policies that counteract the excessive concentration of wealth, such as fair taxation and universal education, may also make a difference: extreme inequality seems to make nations more vulnerable to natural disaster, perhaps because inequality is linked to lower levels of spending to protect vulnerable populations.

Promoting development, strengthening institutions, reducing inequality—these are things that countries should already be doing to promote the well-being of their peoples, apart from considerations of coping with natural disaster. What policies can countries adopt to mitigate that threat specifically?

One thing they can do is make themselves smaller targets. And one straightforward way to do this is to use land-use decisions and other policy levers to limit population density and reduce the concentration of infrastructure in especially vulnerable areas. Establishing and enforcing tougher building codes, to ensure that structures are better able to withstand the stress of storms or earthquakes, can also help limit a disaster's impact.

More work is needed to understand just how strong the impact of such initiatives and investments in disaster preparedness really is. Still, their evident importance suggests that, while disaster planning usually refers to finding better ways to cope with disasters after they have happened (through timelier and more effective aid, relief and rebuilding efforts), the focus should shift to the kind of pre-disaster planning and policy choices that can prevent smaller disasters from becoming major catastrophes.

Such a shift is not easy, because political and other incentives tend to reward successful aid efforts more than they encourage wise planning decisions. Governments and political leaders are rarely rewarded for decisions that avert disaster. But successful aid and relief efforts win friends and influence voters, whereas slow or inept efforts can end a national executive's political career. Predisaster mitigation efforts also divert resources from other needs to address a threat that may never be realized. In poor nations where resources are scarce, that can be especially difficult to justify.

Still, the dramatic contrast between the more than 200,000 deaths and vast devastation caused by the earthquake in Haiti, and the several hundred deaths and relatively limited destruction that followed the substantially stronger quake that struck Chile, is a vivid reminder of the power of prevention. Clearly, Chile's better building codes and better institutional arrangements had an enormous impact in keeping the damage limited.

Better pre-disaster policy planning can also contribute to a country's overall fiscal health. This is especially true for governments of small, poor nations whose geography makes them highly vulnerable to disasters, such as small Caribbean states, where many uninsured people live in low-lying coastal areas exposed to the full assault of hurricanes. New approaches to fiscal management can put countries in a better position to handle that kind of risk. Some, such as Mexico, have established annually budgeted national disaster funds to protect themselves against such liabilities. But those approaches divert funds from other important needs and amount to an inefficient form of self-insurance.

Insurance against catastrophic risk offers a more promising alternative, but the market has been slow to materialize. Political resistance in developing nations to spending money on disaster insurance, when other, more visible needs are so

Continued on page 9



Learning from Disaster

► from page 8

pressing, is part of the reason. But the larger problem is the limited insurance options available for disaster-prone developing nations. The huge and difficult-to-predict costs of natural disasters, and the problems insurers face in spreading these enormous risks over enough clients to protect their own solvency, have made insurers reluctant to participate.

The emergence of a market for catastrophe bonds ("cat" bonds) has helped improve this situation in recent years. These bonds are tradable financial instruments issued by lending institutions. They are attractive to global investors because they are rooted in the purchase of safe bonds such as U.S. Treasury bills. Payouts are based on the severity of the catastrophic event, which is well defined and immediately observable, rather than on estimates of

actual damages, which take time and are subject to dispute. That means the costs are easier to anticipate, and payouts can be made quickly enough to help stricken nations handle short-term relief and rebuilding needs. Most important, because the insurance takes the form of bonds, the risks are spread across global capital markets rather than concentrated on the books of one or a few insurance companies. In 2006, Mexico capitalized its state fiscal disaster fund by purchasing \$450 million worth of disaster insurance through cat bonds and a direct purchase of coverage from international reinsurers. A similar operation was conducted in 2009.

Several recent papers by IDB economists suggest that cat bonds and other catastrophe insurance mechanisms can help vulnerable nations better manage their public debt and smooth out the volatility in national budgets that disasters cause. This should allow developing countries to borrow internationally on more attractive terms and reduce the stock of foreign assets they have to hold as precautionary savings.

Since catastrophe insurance appears to be such a powerful instrument to protect the fiscal position, output, and welfare of poor nations, international financial institutions should consider making concessionary loans to vulnerable nations contingent on those nations securing that kind of protection. Such a requirement could not only help push poor nations past their political resistance to spending scarce funds on insurance, but also help expand the international market for catastrophic risk prevention instruments. That could prove a win-win-win solution for the IFIs, the insurers, and most important, for the disaster-threatened countries themselves.

The Economic Toll in Haiti—and Its Implications



the top of the list in terms of destruction from a natural disaster.

Haiti's earthquake is, unfortunately, only the latest in a string of major natural disasters worldwide in recent years: the 2004 Asian tsunami, the 2005 earthquake in Kashmir and in 2008, the earthquake in China's Sichuan province, the Myanmar cyclone and Haiti's own hurricanes. That the quake struck during a time of global recession only adds to the strain on available aid resources—and on the goodwill of an international community already feeling more than a twinge of aid fatigue.

In these circumstances, rebuilding Haiti will require resources far beyond what can reasonably be expected from any one country or international agency. And if, as some have proposed, the effort should go beyond reconstruction and instead turn the disaster into an opportunity to remake Haiti's economic and social structure from the ground up, the sums required will be even greater. In either case, the risk of there being too many helping hands is slim.

All of this assistance will require effective coordination, both of the reconstruction itself and of its funding. Work could be apportioned along thematic lines, with one donor focused on rebuilding homes, another on public infrastructure, another on social needs, and so on. But these efforts, too, will have to be coordinated; a single international agency created for the undertaking, transparent in its operations and accountable to the Haitian government and people, may be the

best solution. In all likelihood, donors will have to relinquish the control and conditionality they typically demand of their projects.

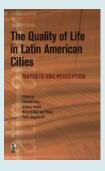
And what about the longer term? Even if aid flows to Haiti are generous and used optimally, they can present problems: inevitable bottlenecks in the supply of donated goods can raise local prices, and the appreciation of the local currency caused by the huge injection of purchasing power can price Haiti's exports out of their markets.

Of course, these are not arguments against aid. Without it, Haiti's prospects are unfathomable given the magnitude of its losses. Instead, the argument should be for more and better aid with a far more distant horizon than donors are accustomed to.



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BOOKS



The Quality of Life in Latin American Cities: Markets and Perception

Andrew Powell, Bernard van Praag, Eduardo Lora, Pablo Sanguinetti

http://www.iadb.org/research/pub_desc.cfm?pub_id=B-646

This book does not pretend to solve all the problems that must be addressed to establish a system for monitoring the quality of urban life. It does aspire, however, to serve as a means by which local governments, analysts of urban problems, and communities themselves may take advantage of a new generation of urban Quality of Life monitoring strategies that have significant potential for contributing to public decision-making processes.

WORKING PAPERS

Aninat, Cristobal, Jose Miguel Benavente, Ignácio Briones, Nicolas Eyzaguirre, Patricio Navia and Jocelyn Olivari

The Political Economy of Productivity: The Case of Chile (IDB-WP-105)

This paper analyzes the political economy of productivity-related policymaking in Chile. The main findings indicate that i) the Chilean policymaking process (PMP) was successful in the 1990s in implementing productivity-enhancing policies, but as the country developed further, the PMP grew less adept at generating the more complex set of policies needed to increase pro-

ductivity at this stage; and ii) the Chilean PMP is less transparent than previously thought, allowing political actors to favor private interests without being punished by the electorate. This has become apparent as the more sophisticated reforms needed at this stage of development require a deeper and more consolidated democracy.

Bonvecchi, Alejandro

The Political Economy of Fiscal Reform in Latin America: The Case of Argentina (IDB-WP-175)

This paper studies the political economy of fiscal reform activism in Argentina since the late 1980s. Between 1988 and 2008, tax legislation was changed 83 times, fiscal federal rules 14 times, and budgetary institutions 16 times. Tax and budgetary reforms moved from centralized revenue sources and spending authority in the federal government to mild decentralization. Federal fiscal rules combined centralization of revenues and management in the federal government with short-term compensations for the provinces. This paper contends that reform activism can be explained by the recurrent economic and policy shocks while reform patterns reflect the consequences of decreasing political integration among national parties in a polity whose decisionmaking rules encourage oversized coalitions. Less political integration weakened the national party leaderships' ability to coordinate intergovernmental bargaining and strengthened the local bosses and factions needed to form oversized coalitions.

Burger, John, Alessandro Rebucci, Francis E. Warnock, and Veronica Cacdac Warnock

External Capital Structures and Oil Price Volatility (IDB-WP-107)

This paper assesses the extent to which a country's external capital structure can aid in mitigating the macroeconomic impact of oil price shocks. Two Caribbean economies highly vulnerable to oil price shocks are considered: an oil importer (Jamaica) and an oil exporter (Trinidad and Tobago). From a risksharing perspective, a desirable external capital structure is one that, through international capital gains and losses, helps offset responses of the current account balance to external shocks. It is found that both countries could alter their international portfolio to provide a better buffer against such shocks.

Cavallo, Eduardo, Ilan Noy, Juan Pantano, and Sebastian Galiani

Catastrophic Natural Disasters and Economic Growth (IDB-WP-183)

This paper examines the short and long-run average causal impact of catastrophic natural disasters on economic growth by combining information from comparative case studies. It is found that only extremely large disasters have a negative effect on output, both in the short and long run. However, this result appears in two events where radical political revolutions followed the natural disasters. Once these political changes are controlled for, even extremely large disasters do not display any significant effect on economic growth. It is also found that smaller, but still very large natural disasters, have no discernible effect on output.

Cely, Nathalie, Francisco González, Iván Hernández, Ernesto Muñoz, and Iván Prieto

The Discovery of New Export Products in Ecuador (IDB-WP-165)

This paper examines export diversification in Ecuador in fresh cut flowers,

Continued on page 11



from page 10

canned tuna, palm heart, broccoli and mangoes. It is found that the discoveries were mainly of traditional competitive advantage, with various degrees of technology adoption. The following policy implications are derived: i) innovative mechanisms to share the costs of new discoveries must be found and intellectual property rights strengthened; ii) cooperation among industry experts needs to improve; iii) deeper collective action to promote public-private partnerships should be undertaken; iv) relevant information and knowledge should be made available to all interested parties; and v) a nationallevel agenda should be undertaken to increase private investment in promising sectors while promoting the creation of public goods and minimizing rent-seeking behavior.

Fernández-Arias, Eduardo

Multilateral Safety Nets for Financial Crises (IDB-WP-192)

There is an increasing need for a system of international lending of last resort (ILLR) to provide a safety net in the event of financial crises in vulnerable countries as financial globalization deepens and spreads. Multilateral progress to address liquidity and solvency crises has been patchy and inconsistent, with no clear distinction between the two; in particular, there is still no framework to address sovereign debt restructuring. This paper proposes an integrated system of specialized ILLR facilities to address problems of liquidity, adjustment, and debt restructuring in a focused but robust way as crises evolve and morph, structured in tiers to cater to countries' capacity to prequalify for automatic support. It further proposes feasible legal reform to subject creditors to standstills and seniority dilution as in domestic bankruptcy in order to empower ILLR to

facilitate orderly workouts in debt restructuring. Multilateral development banks would play important supporting roles.

Galindo, Arturo, Alejandro Izquierdo and Liliana Rojas-Suárez

Integración financiera en Centro América: Nuevos desafíos en el contexto de la crisis internacional (Financial Integration in Central America: New Challenges in the Context of the International Crisis) (IDB-WP-153)

(Available in Spanish only)

This paper analyzes the importance of financial integration in Central America and the effects of the recent international crisis on the financial systems of the sub-region. After presenting evidence of financial integration in Central America and comparing it to other countries in Latin America and the developing world, the paper describes two important factors that have characterized this process in the past decade and analyzes the impact of financial integration and of foreign bank participation. The paper emphasizes the response of local financial variables to international financial shocks and offers economic policy recommendations based on its findings.

Galindo, Arturo and Marcela Melendez

Corporate Tax Stimulus and Investment in Colombia (IDB-WP-173)

This paper uses a yearly dataset of plant-level investment in Colombian firms during the period 1997 to 2007 to assess the impact of a tax incentive for firms that invest in fixed assets implemented in 2004. A positive and statistically significant correlation is found between the boom observed in

investment and the adoption of the tax policy. However, the correlation vanishes when year-specific effects are controlled for. Overall, it is concluded that the tax stimulus analyzed was ineffective in promoting investment in Colombia.

Hewitt, John and Ricardo Monge-Gonzalez

Innovation, R&D and Productivity in the Costa Rican ICT Sector: A Case Study (IDB-WP-189)

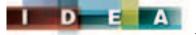
This paper addresses the relationships between innovation, research and development (R&D) and productivity in domestic ICT firms in Costa Rica. While most firms engage in all types of output and input innovations, they are driven by retaining or increasing market share rather than boosting productivity. Half of firms do not formally protect the intellectual property of their innovations, are not familiar with methods for protecting innovation or the availability of government grants for such purposes, and face barriers associated with the Costa Rican Patent Office. Other impediments include lack of knowledge about financial resources available and scarcity of human resources. There is also evidence of knowledge spillovers through worker mobility from multinationals operating in Costa Rica to domestic ICT firms.

Hoyos, Alejandro and Hugo Ñopo

Evolution of Gender Gaps in Latin America at the Turn of the Twentieth Century: An Addendum to "New Century, Old Disparities" (IDB-WP-176)

This paper complements a study on gender and ethnic wage gaps for 18

Continued on page 12



> from page 11

Latin American countries circa 2005 by analyzing gender wage gaps for the same countries between 1992 and 2007. During this span, the overall gender earnings gaps dropped about 7 percentage points, while the unexplained component dropped between 3 and 4 percentage points. The gap declined most notably among workers at the bottom of the earnings distribution, with children at home, the self-employed, part-time workers and those in rural areas-the segments of the labor market that previously showed the highest unexplained gender disparities. Most of the cut in unexplained gaps occurred within segments rather than due to the composition of labor markets. Job tenure played a limited role in explaining gender wage gaps.

Hoyos, Alejandro, Hugo Ñopo and Ximena Peña

The Persistent Gender Earnings Gap in Colombia, 1994–2006 (IDB-WP-174)

This paper surveys gender wage gaps in Colombia during three periods: 1994-1998; 2000-2001; and 2002-2006. It uses matching comparisons to examine the extent to which individuals with similar human capital characteristics earn different wages. The gaps dropped from the first to the second period but remained almost unchanged between the second and third. The gender wage gap remains largely unexplained after controlling for different combinations of socio-demographics and job-related characteristics, reaching between 13 and 23% of average female wages. That gap is lower at the middle of the wage distributions than the extremes, possibly due to a gender-equalizing effect of the minimum wage. The gap is more pronounced for low-productivity workers and those who need flexibility to participate in labor markets. This suggests that labor market regulations may have little impact on reducing gender wage gaps.

Ludena, Carlos

Agricultural Productivity Growth, Efficiency Change and Technical Progress in Latin America and the Caribbean (IDB-WP-186)

This paper analyzes total factor productivity growth in agriculture in Latin America and the Caribbean between 1961 and 2007. It shows that among developing regions, Latin America and the Caribbean shows the highest agricultural productivity growth. The highest growth within the region has occurred in the last two decades thanks to improvements in efficiency and new technologies. Within the region, land-abundant countries consistently outperform landconstrained countries. Crops and nonruminant sectors displayed the strongest growth between 1961 and 2001, and ruminant production performed the worst. Additional analysis of Brazil and Cuba uncovers the potential effects of policies and external shocks on agricultural productivity; policies that do not discriminate against agricultural sectors and that remove price and production distortions may help improve productivity growth.

Olivera, Mauricio, Mónica Pachón and Guillermo Perry

The Political Economy of Fiscal Reform: The Case of Colombia, 1986–2006 (IDB-WP-181)

This paper explores the characteristics of the political economy process that conditioned the scope and success of the fiscal reforms before and after Colombia's 1991 constitutional reforms. Using formal analysis of reforms and interviews with actors, reforms in taxation, decentralization,

the budgetary process and pensions are examined in times of political crisis, economic crisis, and economic boom. The results generally confirm the hypothesis that greater political fragmentation and limited unilateral executive power after the 1991 reforms restricted the extent of reforms, particularly in tax law. Nonetheless, the enactment of piecemeal reforms was encouraged by crisis conditions.

Perry, Guillermo and Marcela Melendez

Industrial Policies in Colombia (IDB-WP-126)

This paper finds extensive use of productive development policies (PDPs) in Colombia despite claims of only moderate government intervention. Rarely explicitly designed to address market failures, PDPs are instead associated with economic reactivation and vaguely defined "competitiveness." There are also PDPs that address government failures considered unlikely to be corrected by first-best interventions. Colombia has made progress, however, in structuring an institutional setting for PDP design that is sufficiently linked with private sector groups to elicit information on constraints and opportunities that require government intervention. Nonetheless, the overall set of PDPs in place still lacks coherence and is not always guided by the policy requests of the broadly-defined private sector.

TECHNICAL NOTES

Humpage, Sarah

Benefits and Costs of Electronic Medical Records: The Experience of Mexico's Social Security Institute (IDB-TN-122)

Continued on page 13



from page 12

This case study documents the implementation and use of an Electronic Medical Records (EMR) system at the Mexican Social Security Institute (IMSS). Three EMR systems are now in operation for primary care, outpatient and inpatient hospital care. The evidence suggests that the primary care system has improved efficiency of care delivery and human resources management, and may have reduced fraud. The hospital systems, however, have less coverage and are less popular among staff. The greater success of the primary care system may be due to greater investment, a participatory development process, an open workplace culture, and software appropriately tailored to the workflow. Moving forward, efforts should be made to exploit data housed in EMRs for medical and policy research.

OUTSIDE PUBLICATIONS

Azevedo, Viviane and Marcos Robles.

Simulating the Impact of Policy Changes in Mexico's PROGRESA/ Oportunidades.

Journal of Development
Effectiveness, Vol. 2 Issue 2, 263,
June 2010.

Conditional cash transfer (CCT) programs are being widely used in developing countries to reduce poverty and enhance children's human capital. Researchers have generally relied on ex-ante evaluation models to fine-tune existing CCTs or to design new ones. One of the main pitfalls is 'targeted modeling,' in which results of counterfactual simulations might be driven by model features rather than policy objectives. This paper uses the ex-ante evaluation tech-

nique of Bourguignon *et al.*, relaxes one of its assumptions, and simulates policy changes at the national level for the Mexican CCT. The model's result is in line with information from the national household survey, and counterfactual simulations indicate that overall school attendance can increase without additional budget outlays.

Bastos, Paulo, Udo Kreickemeier, and Peter Wright.

"Open Shop Unions and Product Market Competition,"

Canadian Journal of Economics, 43(2), 640–662, 2010.

Evidence on the effect of product market competition on unionized wages is mixed. This paper shows theoretically that the result may reflect genuine heterogeneity in the response of union wages to product market conditions. For low levels of unionization, union bargaining power may actually be enhanced by market competition, as firms have more to lose when there is a strike. Empirically, the paper explores interactions between the level of industry competition and unionization, and finds supporting evidence for this hypothesis.

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

Revisiting Overborrowing and its Policy Implications. Centre for Economic Policy Research. Working paper No. 7872. Available online at: www.cepr.org/pubs/dps/ DP7872.asp

(Also published as IDB-WP-185)

This paper analyzes quantitatively the extent to which there is overborrowing (i.e., inefficient borrowing) in a business cycle model for emerging market economies with production and an occasionally binding credit constraint. The main finding is that overborrowing is not a robust feature of this class of model economies: it depends on the structure of the economy and its parametrization. Specifically, there is underborrowing in a production economy with the baseline calibration, but overborrowing with more impatient agents and more volatile shocks. Endowment economies display overborrowing regardless of parameter values, but they do not allow for policy intervention during crises.

Blyde, Juan, Christian Daude and Eduardo Fernández-Arias

Output collapses and productivity destruction. Review of World Economics 146:359–387. Berlin, Germany: Kiel Institute. April, 2010.

This paper analyzes the long-run relationship between output collapses and total factor productivity (TFP). Using a panel of 76 developed and developing countries from 1960-2004, it identifies episodes of output collapse and estimates counterfactual post-collapse TFP trends. Collapses are concentrated in developing countries, especially Africa and Latin America, and were particularly widespread in the 1980s in Latin America. Overall, output collapses are systematically associated with long-lasting declines in TFP. The paper explores the conditions under which collapses are least or most damaging, as well as the type of shocks that make collapses more likely or severe. It also provides a quantification of the associated welfare loss with output collapses.

Continued on page 15



Look Who's Talking

This section of the newsletter spotlights presentations or events sponsored by RES in recent months.

World Growth in Perspective: The New Normal and Its Risks

April 23, 2010

At a policy seminar held at IDB headquarters, experts presented their visions of the future of world growth following the worst global downturn in recent history.

Peter M. Garber, Global Strategist, Deutsche Bank

Growth rates going forward are unlikely to be as high as those of the middle of the last decade. While current growth in industrial countries and China is being buoyed by stimulus measures, these alone are unlikely to produce desirable growth levels. New factors of concern in this recovery include: i) cautious, subdued consumers; ii) a risk-averse financial system; iii) heavily indebted public sectors; and iv) private sectors likely to be subject to higher tax rates, albeit from presently undetermined sources.

While fundamental changes are likely in the medium to long term, three institutions have remained largely unchanged during the recent crisis: i) the role of the United States dollar as a reserve currency; ii) the continuation of the Bretton Woods II system, as presently shown by a low real interest rate worldwide; and iii) the cohesion of the Euro. Nonetheless, all are under challenge, and the sudden elimination of one would challenge the survival of the other

The current challenges to the first two institutions are so far limited.

Although China and other countries with large dollar reserves are now exerting increasing pressure to use other currencies or currency baskets, this development represents an attempt to diversify in case of risk rather than abandon the dollar suddenly or on a large scale. The Bretton Woods II system seems similarly unlikely to face a major threat, as no pressure is expected on the renminbi any time soon and its gradual appreciation is expected.

A more urgent concern is the potential for profound effects in the event that the Euro fails, as the Euro zone includes several high-deficit countries with extensive access to low-interest financing. In one scenario, the Euro might weaken significantly and/or a country might effectively be removed from participation in the Euro. In that scenario, a country with a large deficit and large national debt, held mostly by Euro zone banks, might choose to default on sovereign debt. Alternatively, that country might sell more debt to its own country's banks and post that debt as collateral to obtain financing from a foreign central bank such as the European Central Bank in the hope of avoiding a run on the banks. This strategy, however, is viable only as long as that country's credit can be used as collateral (i.e., not downgraded). In the event of a debt downgrade, that country can be removed from full participation in the Euro and speculative attacks on other relatively weak countries can occur, resulting in a depreciation of the Euro. This depreciation would in turn strengthen the U.S. dollar, boost imports into the United States and have adverse consequences for U.S. industry and labor.

Ricardo Hausmann, Director, Center for International Development, Harvard University

Although a return to sustained growth seems to be beginning, that growth should not be expected to approach the unusually high rates seen in 2002. Risks remain, moreover, as global macro imbalances (e.g., very low interest rates in the United States, United Kingdom, European Union and Japan, along with massive public intervention in China) impose tremendous appreciation pressure on the real exchange rates of emerging market countries, with negative consequences for long-term growth. While inflation targeting (IT) orthodoxy suggests that exchange rates should be determined by market forces, foreign and domestic policy decisions appear to be driving current emerging market real exchange rates. Some central bankers may insist that countries should enhance their competitiveness rather than modify current practice, but no competitiveness policy can compensate for a large real exchange rate appreciation. Emerging market countries may therefore wish to institute a modified IT regime with the widest feasible range of policy instruments and the pursuit of real exchange rates within a desirable band. Possible policy instruments include: i) interest rates; ii) sterilized interventions; iii) interventions with passive sterilization; iv) credit policy; v) public and central bank debt composition; and vi) capital account policy. Central banks should additionally engage



Look Who's Talking ▶ from page 14

in "constructive ambiguity" when it comes to using instruments in relation to stated goals so that speculation does not become a destabilizing influence.

John Williamson, Senior Fellow, Peterson Institute for International Economics

In contrast to the 1960s and 1970s, when population growth dominated economic growth in the developing world and per capita economic growth was higher in the developed world, per capita growth rates are now higher in developing countries, a trend that is expected to continue as developing world productivity rates rise. Given this growth trend, the role of government in the post-crisis recovery is expected to decrease as stimulus policies end. Medium to long-term issues must therefore be considered in light of this secular trend.

In the mean time, a variety of near to medium-term challenges await. First, controlling inflation remains important and means for doing so could include capital controls. Moreover, participation in an inflation targeting regime does not necessarily imply ignoring unemployment.

Second, without major exchange rate changes international imbalances are expected to return, despite factors such as China's recovery and deficit spending and the recent increase in commodity prices. Under these circumstances there appears to be undue concern for a resurgence of protectionism. Third, actors must take into account the movement of global financial governance from the G-8 to the G-20, a shift hastened by what has come to be known as the Great

Recession. Fourth, countries in both the developed and developing world will have to rein in their high levels of debt. Higher taxes can therefore be expected in the United States and in Latin America, with the exception of already highly taxed Brazil. In Europe, whose countries are also highly taxed, spending cuts can be expected, particularly since the Greek debt crisis is likely to be followed by others.

Two additional long-term challenges will define policymakers' range of action. The first is the need for significantly higher expenditures to address climate change. The second is the continuing problem of global population growth, in spite of aging populations. Higher retirement ages and other potentially painful changes are needed.

Larry Hathaway, Managing
Director and head of Global
Asset Allocation, UBS Investment
Bank

The medium-term prospects for the global economy include recovery, assuming assistance from governments' fiscal and monetary policies. Nonetheless, a suboptimal growth equilibrium with weak demand appears likely. This weak recovery could additionally be derailed by shocks. In the United States, for example, under these circumstances it may take five years to reach full employment and non-inflationary growth. At present the prospect of public sector deleveraging, as in Greece, poses a threat to aggregate demand. The medium-term scenario is also likely to include a continuation of relatively high unemployment accompanied by low inflation or in some cases, such as Japan, possible deflation.

New ► from page 13 Publications

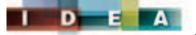
Burger, John, Alessandro Rebucci, Francis Warnock and Veronica Cacdac Warnock.

External Capital Structures and Oil Price Volatility. National Bureau of Economic Research. Working Paper 16052. http://www.nber.org/papers/w16052. Cambridge, MA: NBER. June 2010.

This paper assesses the extent to which a country's external capital structure can help mitigate the macroeconomic impact of oil price shocks. The paper studies two Caribbean economies highly vulnerable to oil price shocks: an oil-importer (Jamaica) and an oil-exporter (Trinidad and Tobago). From a risksharing perspective, a desirable external capital structure, through international capital gains and losses, helps offset responses of the current account balance to external shocks. It is found that both countries could alter their international portfolio to provide a more effective buffer against such shocks.

Welcome to RES

Samuel Berlinski, an Argentine national, joins the Research Department as a Senior Research Economist. Mr. Berlinski received a Ph D. in Economics from the University of Oxford and has served as a professor at various universities including University College London, University of San Andrés, and London School of Economics. He has published numerous articles, particularly on labor and educational issues. His current areas of interest are Economics of Education, Labor Economics and Political Economy.





Network News

Latin American and Caribbean Research Network

Proposals selected to participate in the following research projects:

Land Markets in Latin American and Caribbean Cities

- Land Markets in the Peripheries of three Argentine Cities: Buenos Aires, Córdoba and Rosario — CIPPEC, Argentina
- Land Titling, Market Development, and the Dynamics of Regularization and De-Regularization — Universidad Torcuato Di Tella, Argentina
- A Proposal for Analysis of Land Markets in Brazilian Municipalities David Vetter, Consultoria Econômica Ltda, Brazil
- Land Markets in Latin American and Caribbean Cities Economía Urbana, Colombia
- Urban Structure, Land Markets and Social Housing in Santiago, Chile Pablo Trivelli y Compañia Limitada, Chile

Housing Markets in Latin American and Caribbean Cities: Implications for Development and Macroeconomic Stability

- The Housing Sector in Colombia: Implications for Development and Macroeconomic Stability —Fundación para la Educación y el Desarrollo (Fedesarrollo)
- Macroeconomics and the Housing Market in Argentina Fundación de Investigación Latinoamericanas (FIEL)
- Competition in the Santiago Housing Market Universidad Diego Portales, Facultad de Economía y Empresa
- Housing Markets in Uruguay: Determinants of Housing Demand and its Interaction with Public Policies — GEOPS: Grupo de Estudios en Económía, Organización y Políticas Sociales
- Urban Housing Markets: Achievements and Failures in Brazil Julie Anne Litchfield, Fernando Balderrama and Caio Piza Mazzutti

Events at IDB Headquarters

- August 26–27, 2010: Second seminar of the research project Housing Finance in Latin America and the Caribbean: What is Holding It Back?
- September 21, 2010: First discussion seminar of the research project Land Markets in Latin America and the Caribbean Cities
- September 22, 2010: First discussion seminar of the research project Housing Markets in Latin America and the Caribbean Cities: Implications for Development and Macroeconomic Stability
- November 28–29,2010: Second discussion seminar of the research project Protecting Workers Against Unemployment in Latin America and the Caribbean

www.iadb.org/res/researchnetwork