



Climate Change and Health

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Climate change is widely—and correctly—associated with an increasingly familiar set of phenomena. Average temperatures are rising, as shown in Figure 1, as are sea levels.

At the same time, climate change challenges simplistic notions of cause and effect.

It cannot accurately be claimed that any particular weather event like a flood or drought is the result of climate change. It can be said, though, that the frequency and intensity of such events is gradually increasing. This picture is further complicated when considering the effects of those events. Their impact varies across places—for example, coastal lowlands versus interior highlands—and over time in the same place.

Assessing those impacts involves far more than the collection and analysis of meteorological data, as human health is affected by both individual weather events and the larger climate trends that emerge over time. This is especially true in Latin America and the Caribbean, where much of the population lives at or near tropical latitudes. Even urban white-collar workers have to leave air-conditioned homes and offices from time to time and risk exposure to extremely hot days that can aggravate pulmonary conditions. Far more vulnerable are the poor and those without adequate housing—a declining but still-substantial share of the

While Latin America and the Caribbean has made great gains in public health, these advances are threatened by the ongoing effects of climate change.

region’s population—as well as children, the elderly and pregnant women. Agricultural and other outdoor workers, who make up a significant share of the region’s labor force, can likewise face difficulties in physical exertion and productivity as working becomes harder

or even impossible. Given the region’s high level of informality, lost days of work can add up to major income losses for households with already-limited resources and disrupt food and other consumption that supports good health.

In short, while Latin America and the Caribbean has made great gains in public health in recent decades, they can be slowed or in some cases even reversed if governments and

citizens fail to adapt to the ongoing and anticipated effects of climate change. In order to provide a basis for future policy and research, the Inter-American Development Bank undertook the research project “The Health Impacts of Climate Change in Latin America and the Caribbean” and commissioned six studies encompassing data from several large countries with most of the region’s population (e.g., Brazil, Colombia, Mexico, Peru and Venezuela) as well as several smaller countries such as Bolivia, the Dominican Republic, Nicaragua and Paraguay.

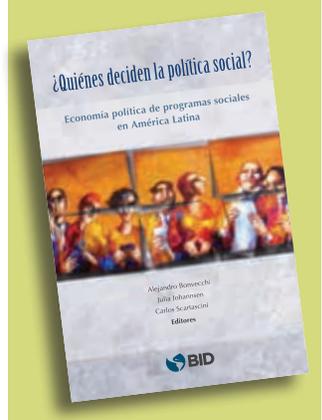
Some of the studies’ findings are intuitive and in line with earlier research on

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Too Warm for Growth?

When people think about climate change, what often comes to mind are rising temperatures. Indeed, for much of the world's population higher temperatures mean more heat waves responsible for hundreds and sometimes thousands of deaths. Heat waves in Chicago in 1995, France and other European countries in 2003, and South Asia in the summer months of this year are just a few examples of recent heat waves that took a dramatic toll in terms of human lives.

The risks of heat waves are no less real for Latin American and Caribbean countries, whose citizens live predominantly in the latitudes subject to the greatest ongoing and anticipated temperature increases. In Mexico City, for example, one of the largest urban concentrations in the region and the world, the number of days with temperatures over 30°C (86°F) between 1991 and 2000 almost doubled compared to the 1970s and tripled in relation to the 1950s. Current models project an even

greater incidence of such days before the end of this century.

As serious as they are, the immediate harm of extremely high temperatures—deaths, heat exhaustion, ruined days of work and leisure—are merely the tip of the proverbial iceberg. Sometimes the effects of extreme heat can last a lifetime.

A study on Mexico by Jorge Aguero supports this conclusion. Using nationwide temperature data collected at the

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variations in weather. Exposure to excessive rainfall during critical periods of gestation, for example, is associated with later reductions in cognitive development and height compared to unaffected children in Ecuador. Similarly, as Brazil's temperate regions

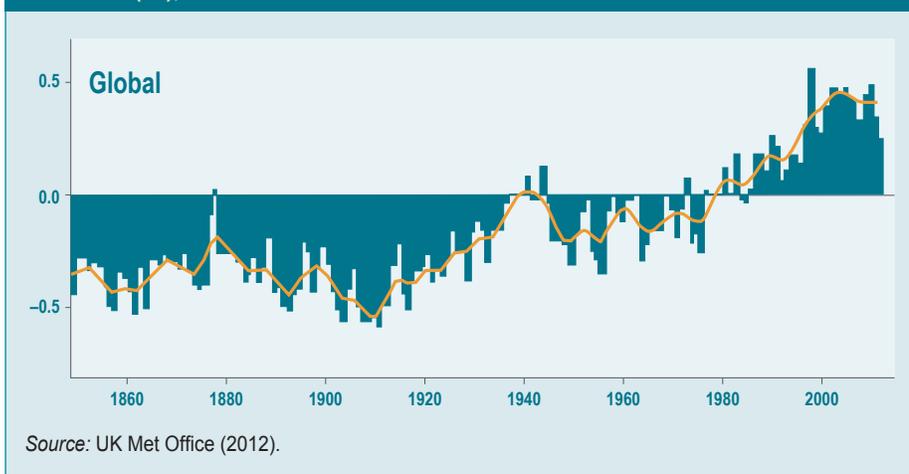
grow warmer, the range of exposure to the mosquito-borne disease dengue (also known in English as "breakbone fever" for its painful symptoms) is expected to spread south.

Other findings prove far less obvious. An analysis of Colombia's 2010

weather shock, marked by both heavy rainfall and high variability in rain, shows that in some instances dengue actually decreased when floods occurred. A similar result is anticipated in the event of increased rainfall in areas of Brazil that already experience high precipitation. Mosquito larvae need stagnant water for feeding and development, and heavy rains and flooding can wash them away.

This issue of *IDEA* includes discussions of three of the research project's studies. They outline the impacts of events expected to increase as climate change proceeds, and they suggest approaches to adaptation that apply to developed as well as developing countries. While these papers address only a few of the many questions associated with climate change and health, they represent valuable steps toward dealing with an issue that will shape the futures of individuals, families and countries in the decades to come. ■

FIGURE 1. Temperature Deviation from Long-Term Average in Degrees Celsius (°C), 1860 to 2006



A Climate for Infant Health

Exposure to extremes in weather affects people throughout their lives, from childhood all the way to old age. But can the weather affect babies even before they are born? Although the womb provides a degree of protection from the outside world, major stresses on maternal health are likely to be reflected in newborn and infant health, and they must be taken into account as part of a larger response to climate change.

A recent Brazilian study took a major step toward understanding this connection between weather and infant health. The authors analyzed National Household Survey results, Primary Care System birthweight data and Brazilian Health Ministry infant mortality statistics from 2000 to 2011 in relation to weather data collected by Brazil's National Meteorology Institute. Since Brazil is a vast and populous country with great variation in both climatic and socioeconomic conditions, findings there are likely to be applicable to countries both in the region and elsewhere, and to countries at different points on their development paths.

The analysis reached several notable conclusions. First, increased neonatal mortality—i.e., death within the first 27 days of birth—is associated with excessive rainfall across the country year-round, and in the largely impoverished Northeast during the summer. Neonatal mortality in the Northeast in the summer months also appears to be increased by above-average summer temperatures, while elevated summer temperatures in the Midwest region raise neonatal mortality in the autumn, suggesting an impact on the fetus in the third trimester.

Weather appears to have a less definitive but nonetheless meaningful

FIGURE 2. Increase in Low Birth Weight by Month and Scenario, 2041–2070 (percent change)



impact on low birth weight. Among rural households—which are more likely than others to be poor and suffer from inadequate housing—exposure to below-average temperatures during the third trimester of pregnancy leads to low birth weight, as does exposure to extremely high and low humidity. High temperatures during the second trimester of pregnancy are likewise associated with low birth weight among rural households.

Birth outcomes in Brazil are expected to be further affected by climate change in the decades ahead. The authors calculate potential impacts using scenarios of low, middle and high levels of human effects formulated by the United Kingdom's Met Office-Hadley Centre, one of the world's leading institutes in meteorology and climate science. In terms of infant mortality, the middle scenario predicts 305 more deaths than would otherwise occur nationwide each year from 2041 to 2070. This number may seem small, particularly in a country the size of Brazil, but two additional factors must be

considered. First, the increase is concentrated in the already-disadvantaged Northeast and Southeast regions. Second, the trauma of losing a child can extend over the remainder of surviving parents' and siblings' lives, with serious consequences for emotional and physical well-being.

Low birth weight, which has been widely associated with diminished cognitive development and health over the course of a lifetime, is also expected to increase. The middle scenario foresees an additional 3,171 births under 2.5 kilograms annually from 2041 to 2070, broken down by month and compared with low scenarios in the Figure 2. This total is further divided into 1,922 urban cases of low birth weight and 1,249 rural cases, the latter disproportionately large in relation to the rural share of the population. Again, the poor and vulnerable suffer more.

Since no country can mitigate climate change alone, governments and citizens must find ways to adapt and

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The Land May Be Dry, but the Flood Goes on

The immediate effects of floods are well known and frequently devastating. Lives are lost and homes and possessions destroyed or damaged by water, while crops can be ruined or washed away, affecting livestock as well as people. Workers and firms alike lose irreplaceable days of productivity, and they can incur crippling expenses in the absence of adequate insurance—a widespread problem in developing countries.

Other effects, though, persist long after the waters subside and daily life returns to normal. Since floods and other extreme weather events are expected to become both more frequent and more intense as climate change continues, understanding past impacts can help prepare for future shocks.

A study of the health effects of

the El Niño phenomenon in Ecuador is one step toward this understanding. Analyzing household survey data from Ecuador's coastal lowlands and more elevated interior, the study takes advantage of the “natural experiment” of the 1997–98 El Niño phenomenon, which produced heavy rainfall on South America's western shores, to see how flooding affects health outcomes and the potential for developing skills over the course of a lifetime.

The study revealed stark differences between more and less-affected areas. In utero exposure to floods—especially during the critical growth period of the third trimester—results in low birth weight and reduced stature five and seven years later. In utero exposure to flooding additionally makes affected children more likely

to suffer from anemia than their highland counterparts. Moreover, children exposed to floods in the first trimester of pregnancy score lower than others on the Peabody Picture Vocabulary Test, an internationally used measure of cognitive development. This finding, though distressing, is unsurprising from a biological perspective: the first trimester, particularly the embryonic period, marks a time when the brain, heart and other major organs begin to develop and the baby is highly vulnerable to damage.

It is impossible to say how exposure to floods translates into negative health and cognitive outcomes in each and every case. Still, several results of El Niño exposure offer likely explanations. Households affected by

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sub-state municipality level from 1960 to 1990, and a sample of household survey data on 65,000 individuals born between 1960 and 1990—when heat waves were becoming more frequent—the author finds disturbing results. Exposure to high temperatures during critical windows of early life leads to reductions in adult height, a widely used measure of health outcomes. More precisely, a child exposed to high temperatures during infancy (1–4 years) and adolescence (10–15 years), the main periods of human growth spurts, will be a shorter adult than he would have been

otherwise. No significant difference appears between men and women. The effects of heat exposure are especially negative, though, for persons raised in poorer municipalities. This has potentially troubling implications for the intergenerational transmission of poverty and the amplification of health differences according to socioeconomic status in a warming world.

Exactly how does exposure to extreme heat translate into reduced adult height? Does heat suppress appetite or affect digestion enough to affect growth? Do adults leave the home less

often to buy food, or can they afford less food because of missed or canceled day labor and other work in the informal economy? Do heat waves increase air pollution and aggravate its effects enough to impact long-term health? Alternatively, is agricultural productivity reduced so much that some households simply have less food available? The answers to these questions are unclear. Additional research is needed to determine how heat waves affect health and to formulate appropriate policy responses, especially for vulnerable segments of the population. ■

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the 1997–98 El Niño experienced a decline in income. The regions most affected by floods also experienced the greatest losses in agricultural production, which appear to account for at least some of that income reduction. Food consumption, notably food consumption by children under the age of five, dropped as well, with negative effects on child development.

Especially disturbing is the impact of floods on breastfeeding, a major contributor to child health and development. Exposure to El Niño floods decreased the duration of exclusive breastfeeding and increased the duration of non-exclusive breastfeeding, which suggests disruption of food supplies for both mothers and children. In addition, contaminated water, infectious diseases, and dehydration may also have affected maternal health and milk production. Further research is needed to determine more precisely

how breastfeeding is affected and what policy responses may be needed.

Shocks to health and development in utero and in early childhood can produce deficits in cognitive abilities and the ability to learn new skills, a process that economists call “human capital formation.” Such permanent setbacks imply lifelong limitations for individuals in earnings potential and other aspects of wellbeing, and when those setbacks occur on a wide scale—and repeatedly—they pose a challenge to a country’s development.

In utero exposure to floods results in low birth weight and reduced stature.

There are a variety of possible policy responses for minimizing the impacts of floods and other extreme weather events on child development in Ecuador and other developing countries. In general, social protection and safety nets can be used to make households more resilient in the face of shocks that affect parental stress and family health. This is especially important for disadvantaged families with children and pregnant women. More particularly, policies should target pregnant women at the earliest possible stage, rather than just shortly before birth, to reduce the effects of shocks on children’s health and cognitive skills. Other possibilities include the expansion of crop insurance to buffer income losses and housing policies to encourage careful location and construction of homes. All of these measures fit easily into existing development frameworks. ■



New Publications

Available in English only unless otherwise stated.

WORKING PAPERS

Attanasio, Orazio, Andrea Bonfatti, Sagiri Kitao, and Guglielmo Weber

Global Demographic Trends, Capital Mobility, Saving and Consumption in Latin America and the Caribbean (IDB-WP-586)

This paper studies the effect of demographic transitions on the Latin American and Caribbean economy. In the paper, the authors build a model wherein several countries throughout the world are divided into five “regions:” high income, middle income, low income, China, and Latin America and the Caribbean. The authors then derive the path of macroeconomic variables (e.g., aggregate output, capital, labor, and the saving rate), as economies face a rapid shift in demographics. The timing and extent of the demographic transition differ across regions. The model is simulated based on closed-economy and open-economy assumptions to quantify the roles played by factor mobility across regions in shaping capital accumulation and equilibrium factor prices.

Busso, Matías, Julián Cristia, and Sarah Humpage

Did You Get Your Shots? Experimental Evidence on the Role of Reminders (IDB-WP-600)

Many families fail to vaccinate their children despite the supply of free vaccines. This study tests whether personal reminders can increase demand for vaccination. A field experiment was conducted in rural Guatemala in which timely reminders were provided to families whose children were due for a vaccine. The six-month intervention increased the probability of vaccination completion by 2.2 percentage points among all

children in treatment communities. Moreover, for children in treatment communities who were due to receive a vaccine, and whose parents were expected to be reminded of their due dates, the probability of vaccination completion increased by 4.9 percentage points.

Cesa-Bianchi, Ambrogio, Luis F. Céspedes, and Alessandro Rebucci

Global Liquidity, House Prices and the Macroeconomy: Evidence from Advanced and Emerging Economies (IDB-WP-576)

Using a new quarterly housing-price dataset for 1990 to 2012, this paper compares housing price cycles in advanced and emerging economies. It finds that housing prices in emerging economies grow faster and are more volatile, less persistent, and less synchronized across countries than in advanced economies; moreover, they correlate more closely with capital flows than in advanced economies. The authors then condition their analysis on an exogenous change to global liquidity, broadly understood as a proxy for the international credit supply. They find that in emerging markets, a global liquidity shock has a much stronger impact on housing prices and consumption than in advanced economies. Finally, holding housing prices constant in response to this shock tends to dampen its effects on consumption in both advanced and emerging economies through different channels: in advanced economies, by boosting the value of housing collateral, thus supporting domestic borrowing and, in emerging markets, by appreciating the exchange rate, thereby supporting the economy’s international borrowing capacity.

Espino, Emilio and Martín González-Rozada

On the Implications of Taxation for Investment, Savings and Growth: Evidence from Brazil, Chile and Mexico (IDB-WP-560)

Studying small, open economies using an endogenous growth model (where the domestic interest rate depends on the level of domestic debt), this paper explores the qualitative and quantitative implications of taxation for growth and savings in Brazil, Chile, and Mexico. The model’s parameters are calibrated to the Brazilian, Chilean, and Mexican economies. The findings suggest that, in order to implement the optimal tax regime, Brazil must tax capital at a rate considerably lower than the present rate. In addition, consumption should be heavily taxed in Brazil and Mexico, and optimal labor taxes should be lower than those currently in effect in Brazil and Chile. However, while suboptimal taxes seem to imply lower, long-run growth in these three countries, low saving rates do not seem to be a direct consequence of suboptimal taxation.

Fernández, Andrés and César E. Tamayo

From Institutions to Financial Development and Growth: What Are the Links? (IDB-WP-565)

This paper presents an integrated overview of the literature linking institutions, financial development, and economic growth. From the large body of research on institutional development, the paper starts by selecting those works that make it possible to study institutional arrangements’ role in ameliorating/exacerbating information frictions and transaction costs that characterize the development of financial markets. Then, it explores the theoretical mechanisms by which these

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particular frictions affect economic growth. At the same time, it presents the stock of empirical evidence quantifying the impact of institutions on growth through financial development.

Finkelstein Shapiro, Alan, and Andrés González Gómez

Macroprudential Policy and Labor Market Dynamics in Latin America (IDB-WP-584)

This paper builds a small, open economy business-cycle model (with labor and financial market frictions) that incorporates frictional and endogenous self-employment entry and a link between formal credit markets, informal credit, and the labor market. The paper then shows that the model is consistent with the cyclical behavior of both labor and credit markets in Latin American economies, and analyzes the aggregate consequences of cyclical macroprudential policy for labor market and aggregate dynamics. It finds that a policy that reduces credit fluctuations successfully reduces consumption, investment, and output volatility, but generates substantially higher unemployment fluctuations in response to productivity shocks. Moreover, the policy increases the volatility of all these variables in response to net worth shocks. The link between formal credit markets, input credit between firms, and self-employment plays a key role in explaining the adverse impact of macroprudential policy on unemployment dynamics and points to potential gains from policy complementarities between macroprudential regulation and active labor market interventions over the business cycle.

Gandelman, Néstor

A Comparison of Saving Rates: Micro Evidence from Seventeen Latin American and Caribbean Countries (IDB-WP-602)

Using microdata on expenditure and

income for 17 Latin American and Caribbean countries, this paper presents stylized facts on saving behavior by age, education, income, and place of residence. Counterfactual saving rates are computed by controlling for saving behavior, population distribution, and income distribution of two benchmark economies (the United States and Korea). The results suggest that the difference in national saving rates between Latin America and the benchmark economies is attributed mainly to differences in the populations' saving behavior, rather than to differences in population distribution by education level or to differences in income distribution.

Gandelman, Néstor

Do the Rich Save More in Latin America? (IDB-WP-588)

This paper addresses whether the rich save more by following two strategies. First, the paper implements a two-stage procedure in which the household's lifetime income is instrumented by education level of the household head and that of his/her partner. Second, using information on household assets, the paper constructs a wealth index. The richest households were shown to save more in Argentina, Bolivia, Brazil, Costa Rica, Ecuador, Honduras, Mexico, Panama, Paraguay, and Peru. On the other hand, the authors found no differences in saving rates either by lifetime income or wealth in Bahamas, Chile, Colombia, and Uruguay.

García-Cicco, Javier, and Enrique Kawamura

Dealing with the Dutch Disease: Fiscal Rules and Macro-Prudential Policies (IDB-WP-562)

From a welfare perspective, this paper evaluates three policy alternatives for dealing with Dutch disease problems originating from cyclical

movements in commodity prices: fiscal rules for government expenditures, capital controls, and taxes on domestic lending. A DSGE model of a small, open economy is developed, with a sectoral decomposition featuring three distinctive characteristics: financial frictions, a learning-by-doing externality in the industrial sector, and a fraction of households being non-Ricardian (credit constrained). The model is calibrated using Chilean data. For each policy tool, optimal simple rules are analyzed from a welfare (Ramsey) perspective, describing how different households rank the policy alternatives, and studying how each of the model's features shapes the optimal policy design. A general conclusion of the analysis is that the included Dutch disease inefficiencies are of quantitatively limited relevance in analyzing the desirability of these policies from a welfare perspective.

Hansen, Erwin, and Rodrigo Wagner

Multinationals Stockpiling Cash: Exploring a Commodity Boom (IDB-WP-580)

This paper explores how affiliates of multinational corporations save liquidity when facing a transitory cash-flow shock. To that end, the authors build a sample of non-publicly-traded copper mines operating in South America between 2001 and 2012, most of them set up as foreign direct investment (FDI). When exploring cash-flow sensitivity, the copper industry offers a peculiar advantage as a social science experiment: given the ample time frame, investment decisions are based on expectations of future copper prices, while current cash flows are based only on current copper prices. Although the authors do not find a robust effect of cash flow on current capital expenditures, they do observe a much more noticeable effect of transitory earnings

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on cash stockpiling: out of every extra dollar in cash, between 20 and 50 cents end up as extra cash holdings, especially among the most financially constrained firms. This was salient in the aggregate, since average cash holdings tripled as a share of assets during the commodity boom. The findings support the importance of cash as a buffer stock for liquidity of financially constrained firms. Although reinvestment of multinationals' earnings is considered FDI in the balance of payments, a significant share of that cash is not new investment in national accounts (at least in the short run), since it is a current asset rather than a fixed one.

Ronconi, Lucas, and Rodrigo Zarazaga

Labor Exclusion and the Erosion of Citizenship Responsibilities (IDB-WP-556)

This paper argues that workers who do not receive legally mandated benefits due to employer noncompliance have a negative view not only of their employers, but also of the State. These workers believe that the State did not protect their rights (e.g., it did not intervene to punish labor law violations), hence they feel less obligated to comply with their civic duties. Using a list experiment, as well as household data from nine Latin American countries, the paper shows that unregistered workers are less likely to obey the law, pay taxes, and vote, compared with registered workers.

Schclarek, Alfredo, and Mauricio Caggia

Household Saving and Labor Informality: The Case of Chile (IDB-WP-581)

This paper compares the saving behavior of formal and informal workers, and provides a socioeconomic and financial characterization of informal workers in Chile. Using microdata from

the Central Bank of Chile's Financial Household Survey—conducted between 2007 and 2010, and covering between 1,740 and 2,533 urban households—as well as OLS and probit regressions, the authors find that informal households generally save less than formal households. Furthermore, their descriptive data show that informal workers have less access to financial services and possess fewer financial assets and liabilities. With respect to policy implications, combating informality may not only improve workers' well-being, but may also boost the aggregate saving rate. In addition, in Chile there is clearly ample room to improve access to financial services, for informal workers as well as formal ones.

TECHNICAL NOTES

Alves, Denisard, Paula Pereda, and Raquel Nadal

Agriculture and Adaptation to Climate Change: The Role of Insurance and Technology Dissemination in Brazilian Risk Management (IDB-TN-732)

This study examines potential policy instruments for agricultural climate change adaptation based on empirical analysis of a theoretical model for Brazil. Risk management approaches, such as agricultural insurance and research and development investments in technological change, especially call for analysis. The results for a weather index effect on loss of profits and amount of insurance indicate that it is important to insure against droughts and temperature extremes. In addition, extensive research and development investment is found to be necessary to mitigate the effects of climate change on almost all agricultural sectors, particularly soy, cattle, maize, and milk production.

García Romero, Helena, and Adriana Molina

Agriculture and Adaptation to Climate Change: The Role of Insurance in Risk Management: The Case of Colombia (IDB-TN-731)

As part of an overall climate change adaptation strategy, insurance can potentially play an important role in climate change adaptation for rural households in developing countries. However, agricultural insurance markets have many market failures that inhibit their full development. In Colombia, these market failures, namely information asymmetries and high transaction costs, are exacerbated by the country's difficult topography, poor infrastructure, and history of rural violence. Even though the government provides premium subsidies to increase coverage, it is still very low, and vital crops and small producers are not covered. This paper provides a detailed analysis of market constraints on the development of Colombia's agricultural insurance market, and makes recommendations to help that market achieve its potential as a risk management tool in Colombia.

OUTSIDE PUBLICATIONS

Caruso, G., Scartascini, C., and M. Tommasi

“Are We All Playing the Same Game? The Economic Effects of Constitutions Depend on the Degree of Institutionalization.” 2015. *European Journal of Political Economy* 38: 212–228. June

This paper addresses an important source of variation within democracies—the degree of institutionalization. The concept of institutionalization describes the extent to which politics takes place via formal

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political institutions. Countries vary in their degree of institutionalization, hence, in the degree to which political actors pursue their goals via conventional politics or via “alternative political technologies.” This paper postulates that if politics is conducted largely outside of formal channels, the structure of the formal channels should not matter much as a determinant of policy outcomes. To address this issue this paper proposes a new index of institutionalization and revisits seminal work regarding the impact of constitutions on public spending. The findings show that the effect of constitutional rules on policy outcomes is conditional on the degree of institutionalization.

Castro, L, and C. Scartascini
“Tax Compliance and Enforcement in the Pampas. Evidence from a Field Experiment.” 2015. *Journal of Economic Behavior and Organization* 116: 65–82. August.

Tax evasion is a pervasive problem in many countries. In particular, some developing countries do not collect even half of what they would if taxpayers complied with the law. This paper reports the results of a large field experiment that tried to affect compliance by influencing property tax taxpayers’ beliefs regarding the enforcement, reciprocity, and peer-effects of the tax system in a municipality in Argentina. Those taxpayers that received the deterrence message have a higher probability (almost 5 percentage points) to comply than taxpayers in the control group. No average effects are found for the other two treatments. However, these average effects mask important results. After receiving the reciprocity and the peer-effects messages, the probability of compliance increased for some taxpayers but decreased for others

according to their underlying distribution of beliefs. The evidence in this paper provides the basis for advancing policies and research on tax compliance in developing countries.

Cavallo, Eduardo, Joshua Aizenman and Ilan Noy

Precautionary Strategies and Household Saving. *Open Economies Review*, 2015, DOI 10.1007/s11079-015-9351-2.

Why do people save? A strand of the literature emphasizes the role of ‘precautionary’ motives; i.e., private agents save in order to mitigate unexpected future income shocks. An implication is that in countries faced with more macroeconomic volatility and risk, private saving should be higher. From the observable data, however, we find a negative correlation between risk and private saving in cross-country comparisons, particularly in developing countries. We provide a plausible explanation for the disconnect between precautionary-saving theory and the empirical evidence that is based on a model with a richer account of the various modes of ‘precautionary’ behavior by private agents, in cases where institutions are weaker and labor informality is prevalent. In such environments, household saving decisions are intertwined with firms’ investment decisions. As a result, the interaction between saving behavior and aggregate risk and uncertainty may be more complex than is frequently assumed.

Cavallo, Eduardo, Oscar Becerra and Ilan Noy

“Where is the Money? Post-Disaster Foreign Aid Flows.” 2015. *Environment and Development Economics*, Vol. 20, issue 05, pp.561–586.

This paper describes the flows of aid after large catastrophic natural disas-

ters by using the extensive record of bilateral aid flows, by aid sector, available through the OECD’s Development Assistance Committee. For each large donor, the extent of cross-sector reallocation is identified; that is, the amount of humanitarian aid that increases while other types of aid decreases in the aftermath of large disasters. The evidence in this paper suggests that the expectation of large surges in post-disaster aid flows is not warranted given the past diversity of experience of global foreign post-disaster aid by donor and by event. No evidence is found, however, that donors reallocate aid between recipient countries (cross-recipient reallocation). These observations suggest that countries that expect to face increasing losses from natural disasters in the coming decades (and almost all are) should devote significant resources to prevention, insurance and mitigation, rather than expecting significant post-disaster aid inflows.

Cavallo, Eduardo and Matthieu Pedemonte

“What is the Relationship between National Saving and Investment in Latin America and the Caribbean?” *Economía*. Forthcoming. Published online http://www.cid.harvard.edu/Economia/Forthcoming%20papers/Cavallo_Pedemonte_EDITEDited.pdf

This paper finds a positive and significant correlation between national saving and domestic investment rates in Latin America and the Caribbean. The estimated correlation is approximately 0.39; i.e., for every 1 percentage point of GDP increase in national saving, domestic investment increases by 0.39 percentage points on average. There are however, three nuances to the headline re-

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sult: i) the estimated correlation has been declining over time; ii) the regional average hides a large degree of intra-regional heterogeneity; and iii) the estimated coefficient is largest amongst the biggest economies in the region. It concludes that low national saving rates remain a binding constraint for capital accumulation in the region.

Chirinos-Leañez, Ana Maria and Carolina Pagliacci

“Macroeconomic Shocks and the Forward Yield Curve: How Important Is Monetary Policy?” *Macroeconomics and Finance in Emerging Market Economies*, DOI: [10.1080/17520843.2015.1049640](https://doi.org/10.1080/17520843.2015.1049640)

The associations between macroeconomic fluctuations and the yield curve tend to be explained by the reactions of the monetary authority. This paper evaluates how macroeconomics shocks affect the forward yield curve for domestic and foreign debt markets in Venezuela, where monetary policy is not the main source of macroeconomic fluctuations. In keeping with previous results in the literature, macroeconomic shocks affect more strongly the short end of the yield curve in the expected direction. Overall, supply shocks explain most of the variability of long-term yields, spread and volatility. Nonetheless, short-term yield movements can be associated with general monetary conditions of the economy and not necessarily with monetary policy actions.

Fernández, Andrés and Adam Gulán
“Interest Rates, Leverage, and Business Cycles in Emerging Economies: The Role of Financial Frictions.” *American Economic Journal: Macroeconomics* 2015, 7(3): 153–188 <http://dx.doi.org/10.1257/mac.20120141>

Countercyclical country interest rates are an important characteristic of business cycles in emerging markets. This paper provides a microfounded rationale for this pattern by linking interest rate spreads to the dynamics of corporate leverage. For this purpose, we embed a financial accelerator into a business cycle model of a small open economy and estimate it on a novel panel dataset for emerging economies that merges macroeconomic and financial data. The model accounts well for the empirically observed countercyclicality of interest rates and leverage, as well as for other stylized facts.

Fernández, Andrés and Felipe Meza

“Informal Employment and Business Cycles in Emerging Economies: The Case of Mexico.” *Review of Economic Dynamics*, 2015. 18 pp.381-405.

This paper documents how informal employment in Mexico is countercyclical, lags the cycle and is negatively correlated with formal employment. This helps explain why total employment in Mexico displays low cyclicality and variability over the business cycle when compared to Canada, a developed economy with a much smaller share of informal employment. To account for these empirical findings, we build a business cycle model of a small, open economy that incorporates formal and informal labor markets and calibrate it to Mexico. The model performs well in terms of matching conditional and unconditional moments in the data. It also sheds light on the channels through which informal economic activity may affect business cycles. Introducing informal employment into a standard model amplifies the effects of productivity shocks. This is linked to productivity shocks being imper-

fectly propagated from the formal to the informal sector. It also shows how imperfect measurement of informal economic activity in national accounts can translate into stronger variability in aggregate economic activity.

Hallerberg, Mark and Carlos Scartascini

“When Do Governments Improve Fiscal Institutions? Lessons from Financial Crisis and Fiscal Reform in Latin America” *Economia*. Forthcoming Fall 2015. Published online January 2015. <http://www.cid.harvard.edu/Economia/Forthcoming.htm>

Do crises really lead to more institutional reforms? This paper explores the connection between financial crises and one type of reform frequently advocated during the recent global financial crisis, namely fiscal institutional reforms. Some authors expect that crises lead to reforms, but we demonstrate that the relationship is not so straightforward. Using a dataset of Latin American countries from 1990 to 2005 that have experienced several crises and also several periods of reform, we find that the type of crisis as well as its duration matters. We argue that reforms are *less* likely during a banking crisis. In contrast, fiscal crises are most likely to lead to fiscal reforms, which means that the type of economic crisis is important when explaining the likelihood of reforms. We explore other possible explanations for reform, such as the partisanship of the president and whether a country is under an IMF program, and do not find confirming evidence for alternative explanations.

Network News

20th Annual LACEA Meeting

Date: Oct. 15-17
Time: 9:00 AM
Location: UPSA Campus, Santa Cruz de la Sierra, Bolivia

Hosted by the Bolivian Society of Economists (SEBOL), the Private University of Santa Cruz de la Sierra (UPSA) and the Institute for Advanced Development Studies (INESAD).

Second Annual Inter-American Development Bank Development Lecture

Date: Nov. 5
Time: 4:00-5:30

The Geography of Development

Esteban Rossi-Hansberg, Princeton University

An individual's place of residence is essential in determining her productivity, income, and well-being. A person's location, however, is neither a permanent characteristic nor a free choice. People tend to flee undesirable and low productivity areas to go to places that offer better opportunities, but these choices are often hindered by an assortment of restrictions. An obvious example is the effort to stop undocumented migration to Europe, the U.S. and most developed countries. How do these restrictions affect the evolution of the world economy? How do they interact with today's production centers, as well as today's most desirable places to live, to shape innovation and thereby the economy of the future? How will trade, migration, and the effect of market size on innovation affect the evolution of the economies of Latin America? This talk will discuss recent advances in economics that help provide initial answers to some of these questions.

EconNet Seminar Series

All seminars are held at IDB headquarters, Room SE-1035, at 12:00 pm

- Oct. 1: How Important are Term of Trade Shocks?**
 By Stephanie Schmitt-Grohé
 (Columbia University)
- Oct. 8: Hotelling under Pressure**
 By Soren Anderson
 (Michigan State University)
- Oct. 27: Banks, Capital Flow and Financial Crises**
 By Ozge Akinci
 (Federal Reserve Bank of New York)
- Oct. 29: Colombian Cities: Agglomeration, Growth and Trade**
 By Gilles Duranton
 (University of Pennsylvania)
- Nov. 12: Bankruptcy and Aggregate Productivity**
 By Juan Neira
 (University of Exeter)
- Dec. 3: Sovereign Risk, Currency Risk, and Corporate Balance Sheets**
 By Jesse Schreger and Wenxin Du
 (Federal Reserve Board)

Welcome to RES

RES would like to extend a warm welcome to four economists who have joined its staff this year.

- **Dany Bahar** comes to the Research Department through the IDB's Young Professionals Program. He is also a nonresident fellow at the Brookings Institution's Global Economy and Development program and an associate fellow at the Harvard Center for International Development. His research interests include the role of international knowledge transmission and diffusion on innovation and sectoral productivity dynamics. He holds a PhD in Public Policy from Harvard University.
- **Bridget Hoffmann** recently joined the Research Department as a research economist. Her research interests are applied microeconomics, development economics, and environmental economics. She received her Ph.D. in Economics from Northwestern University and a bachelor's degree in Financial Economics and Mathematics from the University of Rochester.
- **Julián Messina** brings a wealth of experience to the Research Department. Prior to joining the IDB, he worked at the World Bank and the European Central Bank, and has taught at the Universities of Barcelona GSE, Georgetown, Girona, Frankfurt and Mainz. His research interests include labor economics, applied macroeconomics and the economics of education. He has extensive experience advising governments in Latin America, Europe and Asia. He obtained his PhD. in Economics at the European University Institute in 2002.
- **Razvan Vlaicu** is the newest member of the Research Department's staff. He received his Economics Ph.D. from Northwestern University. He previously taught economics at the University of Maryland, and held short-term positions at the Kellogg School of Management and the World Bank. His research interests are applied microeconomics, political economics, and public economics.

This issue of *IDEA* was prepared by John Dunn Smith and Rita Funaro and is based on the research of Jorge Agüero, Denisard Alves, Nora Ruth Libertun de Duren, Carlos Ludena, Sebastian Miller, Tatiane A. de Menezes, Paula Pereda, and Maria Fernanda Rosales.

José Juan Ruiz

Chief Economist and Manager (RES)

Rita Funaro

Managing Editor (RES)

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A Climate for Infant Health

► from page 3

increase their resilience to weather extremes. The relatively good news for Brazil is that, for birth outcomes, adaptation consists largely of increasing access to existing services and technologies. Increasing mothers' educational level holds particular potential for reducing neonatal mortality, the highest rates of which occur among mothers who do not complete elementary school. Neonatal mortality can also be reduced by providing adequate sewage systems

and by increasing the per capita number of nurses, who play a significant role in educating poor families on hygiene and primary care. The incidence of low birth weight can be reduced by a similar combination of measures. In rural areas adequate sewage systems are again important, and in both rural and urban areas mothers are more likely to obtain the prenatal care that can prevent low birth weight and other problems if a hospital is present in a household's municipality. ■