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Rethinking Industrial Policy

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Compared to the rest of the world, Latin America and the Caribbean was much better off 50 years ago than it is today. The typical country in the region has an income per capita about 25% above the typical country in the world, but 80% below the income per capita of an advanced country like the United States. Moreover, despite recent strides, countries have been unable to converge with respect to the United States. Why is the region so much poorer than the advanced countries in the world? Why does it lag behind while other parts of the world are catching up with the leaders? And most importantly, what can the region do about it?

The main driver of the region's disappointing performance, and the one factor on which to lock the policy radar, is the low productivity with which factors of production are utilized. Economic performance over the last 50 years has been held back by declining total factor productivity compared to both the most advanced economies and the successful developing economies. Relative to the United States, the typical country in the region has reduced the gaps in both physical factors—capital and labor headcount—as well as schooling of the labor force, but its productivity gap has ballooned from 27% to 48% (see Figure 1). At the same time, the typical East Asian tiger narrowed its productivity gap significantly, from 51 percent to 33 percent.

> More and more, the question is not put in terms of "whether" to do active productive development policies but, rather, "how" to do them.

If low productivity is the culprit, then the policy goal should be to create the conditions necessary to improve productivity to match the pace of other, better-performing countries. How can economies strive for this objective? While the public policy agenda for boosting productivity is vast and varied, recent research at the Inter-American Development Bank, including its latest flagship report, has focused specifically on policies for the productive sectors of a national economy known as productive development policies (PDPs). They include diverse areas such as: promoting technological upgrading at the level of the firm; encouraging the creation and growth of high-impact, high-productivity firms; ensuring that collective productive inputs needed at the sector level are in place; stimulating efficient collaboration among firms to resolve coordination problems at the cluster level; promoting an education and training system fitting the needs of production. These policies supplement more systemic ones designed to ensure the adequate provision of public goods such as infrastructure and, more generally, policies supporting a market-friendly business environment.

Continued on page 2

IN THIS ISSUE

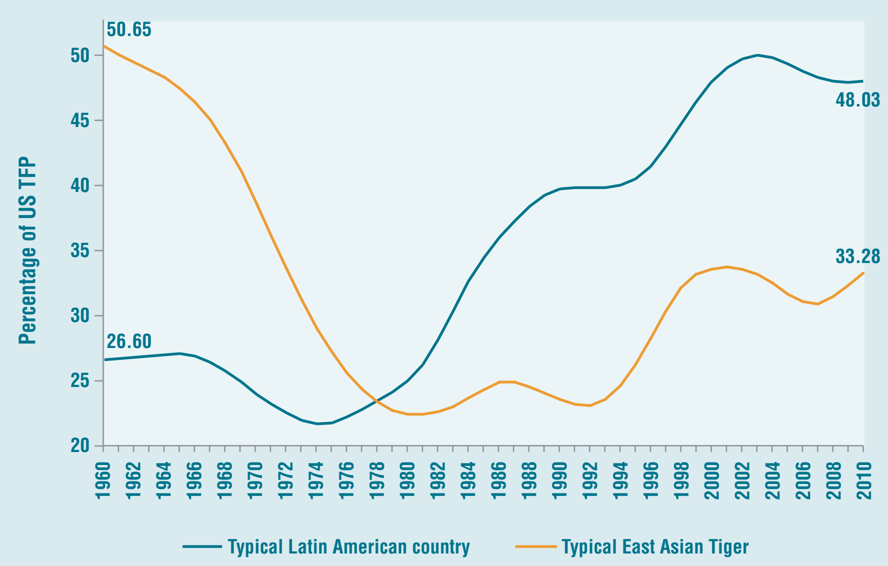
Rethinking Industrial Policy

▶ from page 1

Are productive development policies just a new label for the industrial policies of old? Absolutely not! PDPs differ in important ways from their much maligned predecessors. For instance, their scope is the totality of the economy and not accelerated industrialization; their emphasis is competitiveness and integration with global value chains, not import substitution; and the instruments of intervention are not public companies or subsidies to declining sectors or SMEs of low competitive potential but rather policies that help the market overcome its failures to promote innovation, human capital formation, entrepreneurship, clusters, internationalization, and, especially, public and private collaboration.

There is a growing consensus among policymakers and analysts alike that by putting all industrial policy out of bounds, the region may have thrown out the baby with the bathwater. More and more, the question is not put in terms of "whether" to do active productive development policies but rather "how" to do them. Productive development in the region is clearly ripe for rethinking. Countries are increasingly attempting to find new ways to conduct productive development policies—what might be called second-generation industrial policies, radically different from the original:

FIGURE 1. Productivity Gap with the United States



Source: Authors' calculations based on Fernández-Arias (2014).

- Policymakers have become much more respectful of comparative advantage, both actual and potential. Protection of the domestic market has given way to a strategy of export transformation. Development strategies are outward-oriented, and export agencies play an important role.
- The emphasis on manufacturing is largely gone. In countries with large manufacturing sectors, such as Brazil and Mexico, policymakers have continued to think of diversification partly in terms of manufactures, but with the central objective of helping firms in new sectors become internationally competitive. Much of the new emphasis has gone into moving up the technological ladder in industries that have proven successful (agriculture, food products, and mining).
- Policies are more guided by the perception of market failures. There is stronger willingness to tackle them in a horizontal fashion but also a growing recognition of the power of specific, vertical interventions to address bottlenecks. Encouraging clusters of firms with backward, parallel, and forward linkages in their production network to form sectors that have a demonstrated comparative advantage have been the hallmark in some countries.
- Interventions gradually tend to emphasize innovation. Following the lead of successful catch-up developing economies, many countries in the region now have an agency dedicated to innovation and technology diffusion, and many support it through tax breaks and outright subsidies.
- There has been a switch from state-led and state-implemented development to giving the private sector a central role. The

▶ Continued on page 3

Rethinking Industrial Policy

from page 2

state is viewed as a facilitator of the production decisions that must be carried out by private agents, which puts a premium on public-private collaboration. In modern productive development policies, the policy process tends to be bottom-up rather than top-down.

- The attraction of foreign direct investment (FDI) has played a prominent role in the new PDPs. Some countries have made efforts to attract FDI into specific, technologically advanced sectors. In some cases, state agencies have played a coordinating role, as foreign companies have made known their requirements for investing in the country. Boosting the supplies of human resources in industry-specific and generic skills has figured prominently in these efforts.

Productive development policies are important for the economic development of all countries in the region. However, some countries may benefit from them more than others and some policy areas may be more important than others depending on country circumstances. Country heterogeneity in the region implies that uniform policy priorities are bound to be inadequate; in fact, policies that are appropriate in a given country may not work in another.

So where do policymakers begin? Before embarking on policy thinking, it is important to ask why presumably desirable productive developments are not undertaken by the market. Policymakers in market economies can benefit enormously by understanding the apparently failed behavior of market agents that possess deep business information and a strong profit incentive to use it. Thus, a proposed starting point for policy analysis involves responding to three questions:

- What is the plausible market failure that has been diagnosed to justify the policy?
- Is the alleged policy remedy—whether it entails alleviating the failure or redressing its impact—a good match for the diagnosis?
- What types of institutions, with what characteristics, are necessary to develop the policy with success?

From here, policymakers can differentiate policies in at least two dimensions. The first pertains to their scope. They can focus on specific sectors (*vertical* policies). Or they can be broad-based and not attempt to focus on any industry in particular (*horizontal* policies).

The second dimension relates to the type of intervention. Support can take the form of *public inputs* that the state can provide in order to enhance the competitiveness of the private sector, such as improvements in infrastructure or the provision of phytosanitary services to help control plagues. Or support can take the form of *market interventions*—such as subsidies, tax breaks, or tariffs—that affect the incentives faced by private actors, and thus influence their behavior. These two dimensions can be combined in a 2×2 matrix, which divides the universe of productive development policies into four quadrants (Figure 2).

Continued on page 4

FIGURE 2. A Typology of PDP Interventions

	Horizontal policies	Vertical policies
Public Inputs	Improve business climate	Phytosanitary control
Market Interventions	R+D subsidies	Tax exemptions for the tourism sector

Source: Crespi, Fernández-Arias, Stein. **Rethinking Productive Development**.

A Tale of Two Interventions

The experiences of the rice sectors in Costa Rica and Argentina offer an interesting contrast in both the type of policy intervention and the results.

Dysfunctional Market Interventions in Costa Rica

Rice is one of the most protected commodities in Costa Rica. Tariffs are high (35%) and prices are controlled at each stage of the production process. Overall, rice subsidies in Costa Rica amount to 45% of the domestic price, higher than those in the United States (31%) and the European Union (32%). A central player in the rice policy has been the Corporación Arrocera Nacional (CONARROZ), created in 2002 to protect producers from international price shocks and improve local production conditions. But the efforts of CONARROZ, which has strong lobbying capabilities, have focused entirely on the first objective (protection) and not the second (productivity).

When local rice production falls below local demand (as is typically the case), import quotas are allocated to private sector actors, who can import rice without paying the corresponding tariffs. CONARROZ manages the quotas, which are assigned to rice processors in proportion to their processing capacity. Thus, processors can purchase rice at international market prices and sell the processed rice in Costa Rica at prices that reflect the high level of protection and subsidies. This generates extraordinary rents for rice processors, particularly the large ones. Altogether, rice policy in Costa Rica implies important transfers from consumers (in particular, the poor, for whom rice represents a large share of their consumption basket) to medium and large rice producers and processors.

Effective Public Inputs and Resolution of Coordination Problems in Entre Ríos, Argentina

The experience of Costa Rica contrasts with that of Entre Ríos, Argentina, where problems in the rice sector were addressed using public inputs. In this case, the key players have been the National Agricultural Technology Institute (INTA) and Pro-Arroz, a foundation of local rice producers. Until 1998, this province produced one low-quality, low-productivity variety, mainly for export to the Brazilian market. With the devaluation of the Brazilian currency in 1999, the sector lost competitiveness. Since the early 1990s, INTA had been developing a new variety of rice (Camba) of better quality and higher productivity.

Rather than lobbying for protection or subsidies, Pro-Arroz organized the producers to complement the financing of the local chapter of INTA, INTA-Concepción, by coordinating its members' contributions. Later, at the request of Pro-Arroz, the provincial government introduced a tax on producers that went directly into financing the research activities of INTA-Concepción. This is a clear mechanism to prevent free riding, where the state helps to solve the

▶ Continued on page 9

Rethinking Industrial Policy

▶ from page 3

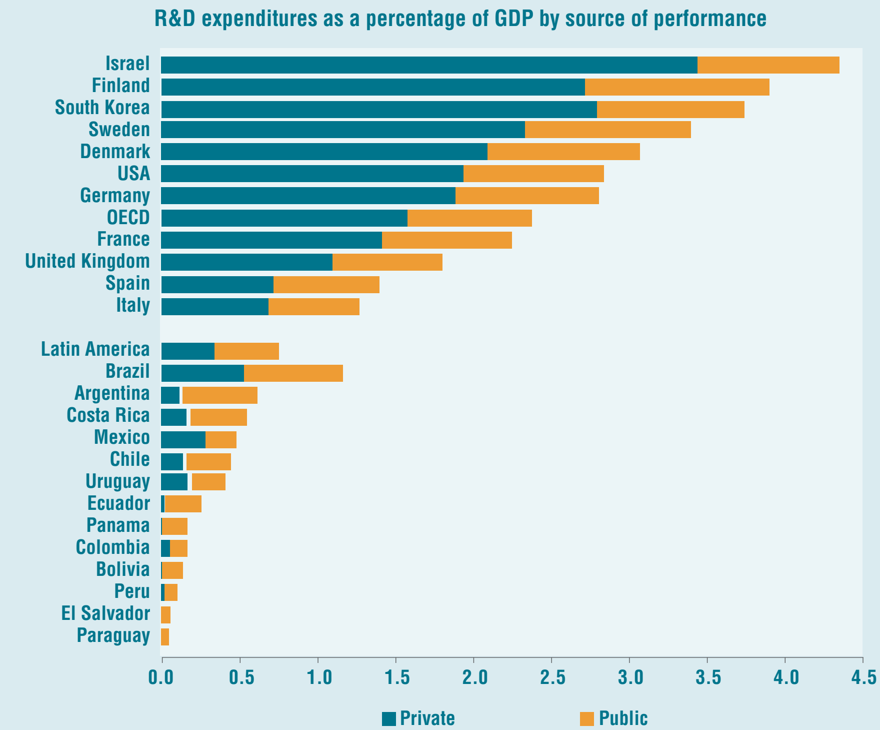
Depending on the quadrant, one or another of the three questions is more critical or probing. Similarly, the policy considerations to take into account when designing and implementing PDPs are somewhat different in each of these quadrants. And, as the next article in this issue of IDEA illustrates, policies of different types, even when designed to address the same sector, can have substantially different results.

This issue of *IDEA* provides a taste of the varied menu of productive development policies in the region as well as some of the analytical issues related to the policymaking process. It is based on the IDB's latest edition of its flagship *Development in the America's* series entitled **Rethinking Productive Development: Sound Policies and Institutions for Economic Transformation**. The time is right for Latin America and the Caribbean to explore a new way of thinking about productive development policy that will help accelerate growth in the region and improve the wellbeing of its citizens.

Investing in Ideas

Technological change is credited with explaining a substantial share of economic growth. Indeed, the United States can thank investments in research and development (R&D)—a proxy for the innovation effort of a nation—for 40% of the productivity growth achieved during the postwar era. For this reason, Latin America's lackluster performance in this area is of great concern and has prompted several countries to look at why this is so and implement public policies aimed at enhancing innovation and encouraging technology adoption.

FIGURE 4. Innovation in Latin America at a Glance



Source: Authors' calculations based on OECD (2010) and Red de Indicadores de Ciencia y Tecnologia (RICYT) (2013).
Notes: Data are from 2010 or the latest available year: 2009 for Bolivia, Costa Rica and Peru and 2008 for Ecuador and Paraguay.
Data for Peru are based on authors' calculations using innovation survey data and data from OECD (2011).

How poorly does Latin America compare to other regions when it comes to innovation? It depends on how innovation is measured. If looked at from the input side, innovation results from firm investments in R&D, the stock of knowledge and other complementary inputs such as human capital, machinery, and software. On the output side, measurable innovation outcomes include productivity indices, intellectual property rights and new or improved products.

Figure 4 shows how Latin America stacks up against developed countries in terms of innovation inputs, specifically aggregate R&D intensities. Latin American and Caribbean countries are systematically lower than developed countries, particularly those top performers that have managed to catch up with other developed countries over the last 20 or 30 years: Israel (4.3%), Finland (3.9%) and South Korea (3.7%). Moreover, in top-performing countries, the private sector finances a large proportion of the R&D effort. Firms contribute more than 60% of the overall investment in R&D in developed countries compared to less than 35% in Latin America and the Caribbean. Clearly there is an important deficit in R&D investment in the region, particularly in the private sector. Even regarding the acquisition of technology embodied in machinery and equipment, in which the deficit is smaller, the lack of investment in R&D and low human capital in the region, seriously undermines the effectiveness with which embodied technologies can be used. This deficit in innovation investment has not allowed the region to catch up to the rest of the world in terms of productivity.

The benefits of boosting innovation in the region are clear: innovation in the form of successfully adapting technologies to local conditions and diffusing them widely across firms and sectors is at the core of productive transformation of countries in the region. However, for firms, getting on the creative bandwagon is not without its costs. Firms considering investing in R&D may be reticent to commit their money to something that, when successful, is likely to benefit not only their own company, but

▶ Continued on page 9

Picking Winners?

The process of economic development does not just involve producing more of the same. Most success stories around the world feature countries that have managed to produce new and better-quality goods and services—that is, to engage in processes of productive transformation. Unfortunately, these processes do not always happen spontaneously. In many cases, governments have actively intervened, supporting specific sectors, products, and processes perceived as having high development value but somehow impeded by market failures. When done well, these vertical policies can not only open the floodgates for the growth of a particular sector or industry, they can contribute to the development process of the overall economy. However, as Latin America's experience with industrial policies highlights, when not done well "picking winners" can be a risky business that wastes resources and discredits the entire process.

What sort of policies would help a sector overcome market failures? Policies may provide key public inputs and facilitate coordination among firms in need of certain collective inputs that would benefit all firms but that no firm has the incentive to provide on its own. For instance, a group of farmers would collectively benefit from research to upgrade their crop varieties but may find it difficult to coordinate to fund the needed research, as each one has an incentive to free ride. PDPs may help—through temporary subsidies or guarantees—develop certain sectors when the market is unable to coordinate the multiple investments needed for a sector to emerge because the new ventures are not profitable unless carried out jointly; a new tourist destination that requires joint investments by lodging and transportation companies is a case in point. They may also help infant industries with latent competitiveness to develop through learning by doing, which the market would not pursue if the fruits of the costly learning process cannot be appropriated by the pioneering firms. Importantly, vertical policies may also be geared towards developing sectors with high strategic value, which contribute to open up new avenues for valuable productive transformation.

On the other hand, these selective policies can easily do more harm than good—particularly when they distort market forces with arbitrary subsidies, tax breaks or protection. Given the high stakes among competing prospective beneficiaries, with decision-making left largely to the discretion of policymakers, and weak institutional settings, the potential for capture, rent-seeking, unsound policy and outright corruption is considerable. Not surprisingly, even within countries, the experience with sector selection in vertical policies has been a mixed bag. For example, Costa Rica successfully intervened to attract FDI in soundly selected sectors such as electronics and medical devices but failed miserably with rice policies that distribute rents to large growers at the expense of consumers without doing anything to increase productivity.

Political and private capture is not the only risk. Even well-intentioned vertical policies aimed at fostering economic development may go sour simply because of their technical complexity. The process of adopting vertical policies is necessarily imprecise, demands multiple institutional capabilities, and is always open to mistakes. For example, Brazil's policy success in the aircraft industry contrasts with its failed attempts in the 1980s to create a competitive computer industry in the face of the informatics revolution in advanced countries.

Undoubtedly, the key question in vertical policies is how to select the right beneficiary sectors. How can policymakers soundly identify high value sectors that underperform, or do not emerge, due to market failures? Certainly not by hunches or ideological preconceptions. The IDB's latest flagship publication proposes a policy framework to identify sectors that are potential candidates for vertical policies. Using objective metrics, it can help detect telltale signs of market failures in productive transformation to seize the opportunities available and open up new opportunities for development. It does so with proxy indexes of how costly specific transformations to uncover international competitiveness may be (based on world experience) and how valuable they would be for the economy in improving its export basket.

On the Road to Success: Auto Parts in Durango

While getting it right is not easy, it can be done and can certainly pay off. The case of auto parts in Durango tells the story of how this state government in Mexico really did pick a winner. Until recently, the economy of Durango, Mexico, was based on primary products such as agriculture, forestry, and mining. In the last decade, however, the area has enjoyed a significant amount of productive

▶ *Continued on page 10*

Two to Tango: Public-Private Collaboration

When it comes to productive development policies, the government cannot do it alone. It's as simple as that. At the very least, the public sector cannot hope to have all the knowledge it needs to design appropriate policy because some of that information is held by private firms. However, extracting that information is complicated because the profitability of those firms is affected by the shape and size of the resulting policy. While firms share an interest in productivity-increasing policies, they may find it more lucrative to lobby for distortionary policies and syphon off rents. The challenge for government is to provide incentives to firms to provide complete and accurate information, rather than manipulate it in order to bias the policy in their favor. The challenge for the private sector is to make a convincing case for policy intervention in the public interest. It takes two to tango in this policymaking dance, but moving in sync without stepping on each other's toes requires fancy footwork indeed.

In many cases, the design, implementation, feedback, and redesign of policy cannot be done by the public sector without interaction and perhaps collaboration with private agents. However, the motives of public and private agents are often at odds and the resulting lack of trust interferes with their interaction. This process is further complicated by other issues such as public-private communication, coordination within the public sector, and the manner in which private agents interact with one another, not only with government.

In practice, the resulting relationships between government and the private sector run the gamut. In some instances, the public-private interaction is limited to government consulting with the private sector about its intended policies and extracting information relevant to policy design through informal dialogue. In other situations, the private sector is integrally involved in the design and/or implementation of policies. Sometimes, the involvement extends to the monitoring, evaluation, and redesign of those policies. Finally, government may yield the initiative on certain policies, or even partial or total control and authority to make the relevant decisions, to the private sector. These diverse forms of interaction show that collaboration is possible but that impediments may be severe, depending on the circumstances.

When designing PDPs, the private sector brings much to the table. First and foremost, as mentioned, its informational input is crucial to guide public policy. The public sector does not have readily available signals to guide it in fulfilling its objectives or a process of competition to automatically weed out ineffective decisions. On the other hand, the private sector receives information from prices, feedback from profitability, and benefits from the natural selection of the most efficient initiatives and firms through competition. Identifying and carrying out socially beneficial PDPs requires elaborate information that the government usually does not have, including details about the production, trade, and usage of goods and services. Such knowledge may reside in the private sector, mainly in firms and industry associations that own and use the technology in the market. They live and breathe their problems on a daily basis, know the cost such problems impose, and can better evaluate the repercussions of alternatives.

While the public sector still needs to validate and integrate the pieces of information gathered from private sector sources, clearly much can be gained by engaging the private sector in public policy issues. To a large extent, the value of private sector participation depends on its ability to organize its members into coherent counterparts capable of interacting effectively in public-private councils. Suitable private sector counterparts may articulate specific demands or full-fledged policy proposals to influence the PDP selected by the public sector. For example, most activities require the provision of sector-specific collective inputs (such as certification, storage, or communications), and the private sector has an interest in demonstrating the need for such inputs to the public sector. In some instances, the basis for collaboration may not even be information sharing, but "learning sharing." In these cases, the motivation for public-private interaction may be the need to engage in co-exploration of new, mutually-beneficial directions unknown to both the public and the private sectors.

Private sector demands actually contribute to the cooperation of the

▶ Continued on page 8

Two to Tango: Public-Private Collaboration

from page 7

relevant public sector units, usually in their own functional silos in the public administration. By requesting solutions to real problems in the productive sphere, the private partner may be a coalescing force for the public sector to get its act together.

Private sector engagement also helps protect PDP from undue influences of the political cycle. Private participation may bring a long-term perspective to policy by providing a safeguard for policies to survive changes in key public officials and, especially, election-induced reshuffling. Public-private collaboration can help create a consensus above the political fray and provide governments the means to preserve their policies over time. In the right proportions, engaging the private sector may provide the balance between stability over the political cycle and a healthy flexibility to make room for the policy perspectives of new governments.

However, for all its important benefits, private sector engagement in PDP also involves serious perils that need to be contained. While good PDP is presumably also in the interest of the private sector subject to it, other inefficient but self-serving policies may be even better for their private bottom line. In that case, private sector engagement may not help and may hinder policy quality. In the extreme, private sector engagement may end up being a mechanism for seeking privileges, or rent seeking, rather than information sharing of any kind. In other words, the policymaker may be subject to capture. Not surprisingly, there is skepticism about the advisability of PDPs in Latin America—even if the effectiveness of such policies in other regions is accepted. Skepticism partly derives from the likelihood that such policies will be used to transfer rents to private groups with privileged access to power, rather than to increase productivity.

Institutions can be designed to align private incentives with the public policy interest, favoring collaboration and minimizing capture, to the extent that countries have the necessary capabilities to do it. For example, information inputs provided by private interests can be vetted by third parties—some perhaps with opposing interests—or tested after the fact to discriminate the reliability of private counterparts. Sharing with the private sector the burden of carrying out policy (as in cofinancing arrangements) and applying conditionality to beneficiaries to ensure that the desired policy objectives are met may also be useful features to align incentives. If capabilities are not strong enough to deal with hard-to-manage conversations such as subsidies, policy discussions with the private sector may be restricted to identifying public inputs needed for improved productivity and obstacles to be removed.

Relationships are never easy; making a public-private marriage work for PDPs is no exception, but it can be done. Success stories abound in Latin America. For example, Empleartec, a collaborative program between Argentina's Software and IT Services Chamber of Commerce and the Labor Ministry focused on overcoming the most salient constraint faced by the rapidly growing industry: the lack of adequately trained human resources. In Colonia, Uruguay, the Tourism Department helped a fragmented private sector come together and agree on 12 initiatives involving over $500,000 in resources to enhance the town as a tourist destination. The flower sector in Colombia, sterilization services in Costa Rica and sugarcane in Argentina are other areas where the public and private sectors have partnered in successful ventures.

Relationships are never easy; making a public-private marriage work for PDPs is no exception, but it can be done.

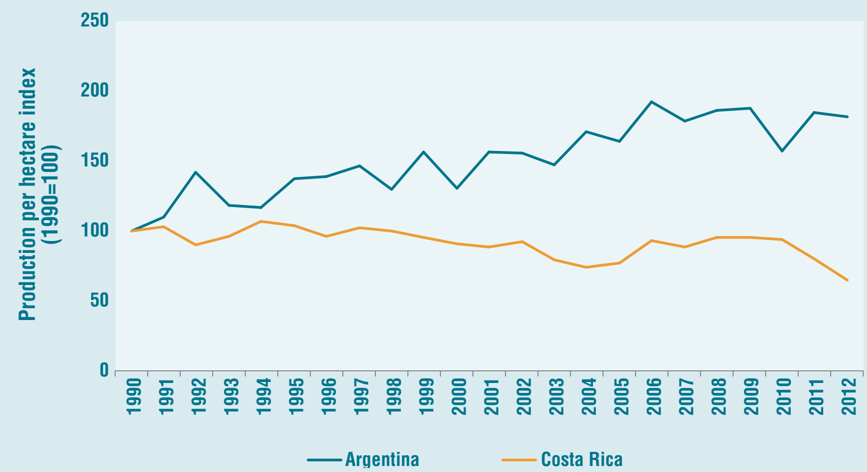
A system abused by capture and riddled with rent seeking—as was often the case in the past—is clearly faulty; avoiding these risks by severing the private sector from the process of PDPs would also be a failure. Both "public-minded" and "rent-seeking" behaviors can be rational responses by private counterparts; the key for government is to create an environment that favors the former and discourages the latter. Under such conditions, the public and private sectors can be very compatible partners as they dance around the twists and turns of PDPs.

A Tale of Two Interventions

▶ from page 4

coordination problems of the private sector. Rice producers collaborated by lending their fields for the necessary experimentation with the new variety. Thanks to the successful introduction of the new variety, the sector's productivity rose rapidly, boosting its competitiveness. INTA went on to become a global leader in rice technology, and has since developed a more sophisticated variety (Puita), which has been successfully introduced in many countries, in association with BASF, the German chemical company. The results in each country in terms of productivity are very clear, as seen in Figure 3.

FIGURE 3. Rice Productivity in Argentina and Costa Rica 1990–2012



Source: Authors' calculations based on FAO (2013).

Investing in Ideas

▶ from page 5

their competition as well. Knowledge cannot be put in your back pocket and it leaks to varying degrees to other competitors. In fact, the more likely knowledge is diffused and spills over others, the more valuable it is socially. On the cost side, financing R&D can be challenging because being intangible, new knowledge is hard to collateralize. Furthermore, competing firms and institutes with separate agendas may balk at the idea of collaborative research to defray costs. The question is, how to address these market failures preventing socially valuable innovation?

The dilemmas are clear. Blanket promotional policies of R&D could unnecessarily subsidize activities with few spillovers to other firms, which is exactly the wrong policy objective. Policies that protect the successful innovator by impeding the diffusion of knowledge to followers would help buoy valuable R&D but tend to defeat their very transformational purpose at the national level. Furthermore, the duplication of investments in firms competing to be the first to come up with a viable innovation may still unduly discourage worthwhile exploration.

Innovation policies must take into account these tradeoffs and let market failures shape policy. Policy ideas to help align incentives on these fronts include targeting R&D policies to those activities that are more likely to generate spillovers. For these purposes, specific subsidies or matching grants may be better suited than generic corporate tax incentives, which tend to cover all innovation activities of the firm. The reason is that firms will naturally want to engage in activities whose benefits they can appropriate—precisely the ones that do not require stimulus—while policymakers can target those with higher spillover potential.

Similarly, subsidies should primarily target innovation activities that involve intangible assets, which are harder to collateralize, and also more likely to produce spillovers. Technology embodied in tangible assets like machinery and equipment—which is the most prevalent type of technological investment in the region, and is often a target of innovation policy—is less likely to generate spillovers, except perhaps when the equipment is new not just to the firm but to the

▶ Continued on page 10

Picking Winners?

from page 6

transformation. This transformation did not happen by chance. Rather, it resulted from deliberate efforts, headed by successive state governors, to attract foreign investors in order to diversify the productive structure toward more sophisticated products that could generate good jobs.

The move that got the ball rolling was the successful attraction of Yazaki, one of the global leaders in the production of auto parts and, in particular, of wire harnesses. Why seek wire harnesses? The authorities identified good opportunities in the car parts industry, and considered which products would be worth pursuing. After careful consideration, they decided that harnesses offered great potential, provided a large number of jobs, and, given existing capabilities, were within their reach. A wire harness is like a vehicle's spinal cord, distributing electricity and information to the different components. As cars became more complex and the number and sophistication of electronic components have multiplied, harnesses themselves have become more complex, containing a rapidly increasing number of wires. Thus, authorities correctly anticipated that this would be a sector of growing demand.

Having selected a product to target, next came the decision of which firms to approach. Given the relative proximity to Toyota manufacturing plants in the United States, the authorities decided to target Yazaki, Toyota's largest supplier of wire harnesses. After some initial discussions, the Durango government offered Yazaki a generous package including land, buildings, scholarships, and tax exemptions, which the Japanese manufacturer accepted. In cases such as this one, the benefits of attracting a company such as Yazaki extend beyond the direct jobs it can create, or even the productive capabilities that are developed as a result. If the company is successful, it can signal to the world that this location has what it takes to compete in the international marketplace, and that the government is willing and able to provide a business environment that allows this to happen. This important information externality, particularly with the first firm that comes to an area, more than compensates for the generous incentives package. Equally generous packages for later entrants, in contrast, may not be warranted. As it turns out, Yazaki was just the first car parts manufacturer to set foot in Durango. Soon, several others followed, proving that the presumed spillovers associated with the initial investment were in fact real. The sector now employs over 34,000 people, 6,000 of whom work in Yazaki plants. And Durango is moving up the complexity scale by engaging in the production of wire harnesses for the aviation industry. The experience of Durango with car parts suggests that a careful selection process that takes into account current capabilities and latent comparative advantage as well as the expected growth of global demand can lead to successful results when the process is done right.

Investing in Ideas

from page 9

market, and the costs and benefits of its adoption under local conditions is uncertain. In this case, the promotion of the first adopters may be justified and could be conditioned on the pioneers sharing the experience with potential followers. This is just one possible way to combine innovation policies with technology extension policies, and would ensure that subsidies are linked to diffusion and thus, to spillovers. Technology extension programs in the region, which are critical for technology diffusion, have very limited coverage and resources suggesting that this is another area where the innovation policy mix could be improved.

Finally, promotional policies may be directed to collaborative R&D performed by research consortia involving multiple firms as well as research institutes. This kind of joint effort would avoid unnecessary duplication and facilitate diffusion through sharing agreements of the knowledge produced. Encouraging stronger links between research institutes and businesses also helps ensure the relevance of their research.

Without new ideas, productive transformation is impossible. But investing in ideas is not necessarily an automatic market response and may require carefully crafted policies to overcome its failures.

New Publications

Available in English only unless otherwise stated.

WORKING PAPERS

Adams-Kane, Jonathon, Julián Caballero, and Jamus Lim

Foreign Bank Behavior during Financial Crises (IDB-WP-512)

This paper studies whether lending by foreign banks is affected by financial crises. The paper pairs a bank-level dataset of foreign ownership with information on banking crises and examines whether the credit supply of majority foreign-owned banks that underwent home-country crises differs systematically from that of other foreign banks. The baseline results show that banks exposed to home-country crises in 2007 and 2008 exhibit changes in lending patterns that are lower by between 13% and 42% than their non-crisis counterparts. This finding also holds, though less strongly, for the 1997–98 Asian crisis.

Ajzenman, Nicolás, Sebastián Galiani, and Enrique Seira

On the Distributive Costs of Drug-Related Homicides (IDB-WP-471)

There are few reliable estimates of the effects of violence on economic outcomes. This study exploits the manifold increase in homicides in 2008–11 in Mexico resulting from its war on organized drug traffickers to estimate the effect of drug-related homicides on housing prices. Using an unusually rich dataset that provides national coverage on housing prices and homicides and exploits within-municipality variation, the study finds that the burden of violence affects only the poor. An increase in homicides equivalent to one standard deviation leads to a 3 percent decrease in low-income housing prices. Moreover, the effect on housing prices of long-term increases in crime is 40% larger.

Bebczuk, Ricardo, and Eduardo Cavallo

Is Business Saving Really None of Our Business? (IDB-WP-523)

This paper investigates the relevance of business saving for private saving and investment around the world by constructing and exploiting a broad international, unbalanced panel of 64 countries over 1990–2012. The paper shows that businesses are the main contributors to private and national saving around the globe, contributing on average more than 50% of national saving. Using this unique dataset, evidence is found of partial piercing of the corporate veil: for the core estimation, a $1 increase in business saving gives rise to a decrease of only $0.28 in household saving. Also, higher business saving is significantly associated with higher business investment, further confirming the non-neutrality of business saving. Combined with the empirical results, this paper sheds new light on the role of business saving in the economy by critically scrutinizing the existing macroeconomic and corporate finance literatures.

Bet, Germán, Julián Cristiá, and Pablo Ibarrarán

The Effects of Shared School Technology Access on Students' Digital Skills in Peru (IDB-WP-476)

This paper analyzes the effects of increased shared computer access in secondary schools in Peru. Administrative data are used to identify, through propensity-score matching, two groups of schools with similar observable educational inputs but different intensity in computer access. Extensive primary data collected from the 202 matched schools are used to determine whether increased shared computer access at schools affects digital skills and academic achievement. Results suggest that small increases in shared computer access, one more computer per 40 students, can produce large increases in digital skills (0.3 standard deviations). No effects are found on test scores in math and language.

de la Mata, Dolores, and Mauricio G. Valencia-Amaya

The Health Impacts of Severe Climate Shocks in Colombia (IDB-WP-498)

This paper studies the link between severe weather shocks in Colombia and municipality-level incidence of dengue and malaria. The unexpectedly high variability of the 2010 rainfalls relative to previous periods and their regional heterogeneity are exploited as an identification strategy. A differences-in-differences (DD) strategy is thereby implemented where the period 2007–09 is defined as the pre-treatment period and 2010–11 as the post-treatment period. The treatment group is all municipalities that experienced higher intra-year rain variability in 2010 than in 2007–09. The results from the different specifications confirm that the relationship between climate events and vector-borne diseases is intricate. The 2010 weather shocks are associated with not only an increase in the number of dengue cases, in the case of high variability (but not extreme) yearly rain, but also a decrease in its incidence, in particular in the presence of extreme rain events. Floods seem to have decreased the number of dengue cases.

García Ayala, Rodrigo, and Andrés Estrugo

Assessing the Effects of Climate and Socioeconomic Factors on Vulnerability to Vector-Borne Diseases in Latin America (IDB-WP-497)

▶ Continued on page 12

New Publications

▶ from page 11

Climate change is imposing a large burden on the most vulnerable populations, particularly in the developing world. Establishing consistent causal relationships, however, is difficult because a multiplicity of climatic, economic, and sociodemographic elements are combined to create the conditions for an outbreak of vector-borne disease. Based on a two-step procedure, this paper presents and tests an approach to estimate the effects of epidemic outbreaks on health vulnerability. The model proposed is empirically tested for five countries in Latin America where dengue is a national health priority. Using data from national censuses, satellite climate information, and data from a newly developed disease outbreak surveillance online platform, the paper finds that climate has non-negligible effects on health vulnerability. The evidence found and the vulnerability index constructed can be used to analyze the main determinants of vulnerability in order to address policy concerns.

González-Rozada, Martín, and Martín Sola

Towards a "New" Inflation Targeting Framework: The Case of Uruguay (IDB-WP-486)

Using a dynamic, stochastic general equilibrium model with financial frictions, this paper evaluates the effects of a rule that incorporates not only the interest rate but also the legal reserve requirements as instruments of monetary policy. It is found that reserve requirements can be used to achieve the central bank's inflation objectives. The use of this instrument, however, produces a real appreciation of the Uruguayan peso. When the central bank uses the monetary policy rate as an instrument, the effect of an increase in reserve requirements is to contribute to reducing the negative impact on consumption, investment, and output. Nevertheless, the quantitative results in terms of inflation reduction are rather poor. The policy rate becomes more effective in reducing inflation when the reserve requirement instrument is solely directed at achieving financial stability. The paper's main policy conclusion is that a well-targeted, unconventional policy instrument can help to effectively control inflation.

Muñoz, Juan Sebastián

Reestimating the Gender Gap in Colombian Academic Performance (IDB-WP-469)

This paper presents evidence of the relationship between the disparity in the academic performance of boys and girls in Colombia and the country's excessively high school dropout rates. By using the Ordinary Least Squares (OLS) and trimming for bounds techniques, and based on data derived from the PISA 2009 database, the presented findings show that the vast majority of this gender-related performance gap is explained by selection problems among low-skilled and poor male students. In particular, the high dropout rate overestimates male performance means, creating a selection bias in the regular OLS estimate. To overcome this issue, unobservable male students are simulated and bounding procedures used. The results suggest that low-income men are vulnerable to dropping out of school in the country, which leads to overestimating the actual performance levels of Colombian men.

Pereda, Paula C., Tatiane A. de Menezes, and Denisard Alves

Impacts of Climate Change on Dengue Risk in Brazil (IDB-WP-511)

Climate-sensitive health problems kill millions every year and undermine the physical and psychological well-being of millions more. To identify the climate impacts on dengue risk in Brazil, a comparative case study based on the synthetic controls approach is used. The South and Northeast regions of Brazil are compared to the rest of the country in order to identify those impacts. The results suggest that dengue is more prevalent in warmer regions, but the humidity and amount of rainfall seem to be key in increasing the disease's prevalence in temperate climate regions or drier tropical regions of the country. On the other hand, greater rainfall in the rainiest tropical areas could diminish the disease's prevalence, as standing water accumulations might be washed away. Therefore, due to expected climate changes in the future, the dengue fever distribution in the country might change, with the disease migrating from north to south. Public policy's role in minimizing these effects in the country should be focused on anticipating the proper climate conditions for dengue incidence by using integrated actions among local authorities.

POLICY BRIEFS

Attzs, Marlene, Malini Maharaj, and Gopiechand Boodhan

Survey and Assessment of Environmental Taxes in the Caribbean (IDB-PB-188)

Although the Caribbean region relies heavily on its natural assets as sources of income, generally for tourism and, in particular, cases from agriculture and energy, environmental taxes in the region have been little studied. This paper, therefore, utilizes the existing economic instruments in place for capturing the use (and abuse) of

▶Continued on page 13

New Publications

▶ from page 12

the region's environmental and natural resource assets to reflect the degree to which adopted actions have been effective. Data paucity has been highlighted as a major obstacle to rigorous assessment; the report therefore draws on the available literature and experiences for guidelines. This final report presents an inventory of economic instruments with an emphasis on assessing the environmental taxes in seven Caribbean countries that are members of the Inter-American Development Bank: Belize, Bahamas, Barbados, Jamaica, Guyana, Suriname, and Trinidad and Tobago.

Franco Chuaire, María, and Carlos Scartascini

The Politics of Policies: Revisiting the Quality of Public Policies and Government Capabilities in Latin America and the Caribbean (IDB-PB-220)

Most policy analyses and academic papers deal with finding the combination of policies that may bring about the best development outcomes. However, in the long run, it is the features of public policies that seem to matter for explaining development outcomes. Unfortunately, Latin America and the Caribbean lags behind other regions in the quality of the features of public policies. Policy features depend on the quality of government institutions, but Latin American and Caribbean countries have done particularly poorly in that area as well. Not every country, however, fares the same. While a few countries sit alongside the developed world, more than two-thirds of countries in Latin America and the Caribbean score below the median. This policy brief should encourage researchers to use the data, and it may help policymakers identify which institutions may be reducing the possibility of moving upward and forward. Some of the policy recommendations may help change current paths.

TECHNICAL NOTES

Clerc, Jacques, and Manuel Díaz

Mitigación de la contaminación local y cambio climático en América Latina y el Caribe: costos y sinergías [Mitigation of Local Pollution and Climate Change in Latin America and the Caribbean: Costs and Synergies] (Available in Spanish only) (IDB-TN-616)

The overall purpose of this study is to analyze the synergies of environmental mitigation initiatives in practice, based on the approach proposed by Muller and Mendelsohn (2011). According to this methodology, externalities associated with local pollutants are measured using the impact pathway approach. The main local benefits of applying mitigation measures are the impacts on health and agriculture. This paper presents and explains the impact pathway methodology, revealing a specific model for its application in Chile. The paper's purpose is to extend that methodology to other contexts, particularly to Latin America.

OUTSIDE PUBLICATIONS

Ardanaz, Martín and Carlos Scartascini

The Economic Effects of Constitutions: Do Budget Institutions Make Forms of Government More Alike? *Constitutional Political Economy* 25(3): 301–29. September 2014.

It is argued that presidential systems tend to have smaller governments than parliamentary countries because the separation between those who decide the size of the fiscal purse and those who allocate it creates incentives for lower public expenditures. In practice, however, presidential and parliamentary countries come in many forms. In particular, procedural rules that assign budget prerogatives across the popular branches of government vary and may affect the underlying incentives that differentiate these types of regimes in terms of fiscal outcomes. The paper finds that presidentialism has a negative impact on government size only when executive discretion in the budget process is low (that is, in a context of separation of powers). However, the negative effect of presidentialism on expenditures vanishes when the executive's discretion over the budget process is higher. This result highlights that not all budget institutions have the same effect on incentives and outcomes, and points out how important it is to go beyond broad characterizations of political institutions to explain policy outcomes, and more generally, to advance the research agenda in constitutional political economy.

Bernal, R., and L. Flabbi

Desempeño económico y raza: ¿evidencia de discriminación en Colombia? In P. Urdinola, ed., *Aplicaciones en demografía*. Editorial UN: Bogotá, Colombia. 2014. (*Available in Spanish only*)

The evidence suggests that race does not significantly explain the difference in labor income after controlling for a wide range of observed characteristics. On the other hand, the results suggest that racial differences in levels of poverty persist even after controlling for a variety of characteristics of individuals who measure their productivity levels. In sum, it is important to conduct further research on racial

▶ Continued on page 14

New Publications

▶ from page 13

disparities because the policy implications are not clear, even though it appears that interventions designed specifically for the labor market are not necessarily the best response.

Becerra, Oscar, Eduardo Cavallo, and Ilan Noy

Foreign Aid in the Aftermath of Large Natural Disasters. *Review of Development Economics* 18(3): 445–60. August 2014

This paper examines Official Development Assistance (ODA) in the aftermath of large natural disasters between 1970 and 2008. Using an event-study approach, the paper finds that while the median increase in ODA is 18% compared with pre-disaster flows, the typical surge is small in relation to the size of the affected economies. Moreover, aid surges typically cover only 3% of the total estimated economic damage caused by the disasters. The main determinants of post-disaster aid surges are found to be the intensity of the event itself and the recipient country's characteristics such as the level of development, country size, and the stock of foreign reserves. The paper does not find evidence that political considerations or strategic behavior on the part of donors determine the size of post-disaster aid surges.

Cavallo, Alberto, Eduardo Cavallo, and Roberto Rigobón

Price and Supply Disruptions during Natural Disasters. Forthcoming in *Review of Income and Wealth*. DOI: 10.1111/roiw.12141

This paper studies the daily behavior of supermarket prices and product availability following two recent natural disasters: the 2010 earthquake in Chile and the 2011 earthquake in Japan. In both cases, there was an immediate and persistent effect on product availability. The number of goods available for sale fell 32% in Chile and 17% in Japan from the day of the disaster to its lowest point, which occurred 61 and 18 days after the earthquakes, respectively. Product availability recovered slowly, and a significant share of goods remained out of stock after six months. By contrast, prices were relatively stable and did not increase for months after the earthquakes, even for goods that were experiencing severe stockouts. These trends are present at all levels of aggregation, but appear strongly in nonperishable goods and emergency products. The findings shed light on the determinants of sticky prices in conditions where traditional adjustment costs are less important. Looking at the frequency and magnitudes of price changes in both countries, the paper finds that the results in Chile are consistent with pricing models where retailers have fear of "customer anger." In Japan, by contrast, the evidence suggests a bigger role for supply disruptions that restricted the ability of retailers to restock goods after the earthquake.

Cavallo, Eduardo, Eduardo Fernández-Arias, and Andrew Powell

Is the Euro-zone on the Mend? Latin American Examples to Analyze the Euro Question. Forthcoming in *Journal of Banking and Finance*. DOI: 0.1016/j.jbankfin.2014.07.010

A version of this paper was also published as (IDB-WP-525).

Several European countries face challenges reminiscent of those faced by the emerging economies of Latin America. The economic booms in some peripheral Euro-zone countries financed by large capital inflows; the credit and asset price booms and then the busts including sudden stops in capital flows; the strong interaction between sovereign debt and domestic banking systems; the role of foreign banks and contagion; and all in the context of a fixed exchange rate, are familiar plotlines for Latin American audiences. For those Euro-zone countries that built up large Euro-denominated external liabilities, Latin America's experience is particularly relevant and worrisome. Still, Europe may be in a better position to navigate a path out of the crisis given cooperative mechanisms that were absent in Latin America, particularly the availability of massive liquidity support. Nonetheless, while such support buys time, it does not guarantee success. This paper argues that reflecting on Latin America's experience provides useful lessons for Europe to improve the chances for a successful resolution.

Powell, Andrew, and Pilar Tavella

Capital Inflow Surges in Emerging Economies: How Worried Should Latin America and the Caribbean Be? *Economia*, 15(1). Spring 2015.

This paper analyzes capital inflow surges to emerging economies. Probit models estimated for the 1980–2005 period discriminate well between surges associated with banking crises or recessions, and those that end without such events. The composition of inflows and the extent of financial reform are significant determinants of outcomes. Applying the models to Latin America and the Caribbean reveals relatively high estimated probabilities for recessions and lower probabilities for banking crises for post-2005 surges. While there were no financial crises in LAC-7 countries, some surges may have contributed to the slowdown in growth. Results constitute a prima-facie case for macro-prudential interventions.

Network News

International Launch of the 2014 Edition of the IDB's Flagship Series, Development in the Americas (DIA)

Rethinking Productive Development: Sound Policies and Institutions for Economic Transformation

Date: September 18, 2014
Time: 10:00 a.m.
Location: Four Seasons Hotel, Mexico City, Mexico

Washington Launch of the 2014 IDB Edition of Development in the Americas

Good-Bye Industrial Policy, Hello Productive Development Policies

Anemic economic growth in Latin America and the Caribbean is in need of a post-Washington-Consensus policy shot in the arm. Unfortunately, the ghost of industrial policy casts a shadow over all efforts because it has often done more harm than good. The IDB's new book ***Rethinking Productive Development: Sound Policies and Institutions for Economic Transformation*** helps countries to adopt the productive development policies necessary to prosper while avoiding the mistakes of the past—just what the doctor ordered!

Date: October 9, 2014
Time: 2:30 p.m.
Location: IDB Headquarters, Enrique Iglesias Conference Center, CR-2, Washington, DC

20 Years of Research: Development Challenges in Latin America and the Caribbean

In the context of the Research Department's 20th anniversary, RES presents:

IDB First Development Lecture: Growth, Capital, and Inequality

Speaker: **Brank Milanovic (City University of New York)**

Date: October 7, 2014
Time: 9:30 a.m.
Location: IDB Headquarters, Enrique Iglesias Auditorium, Washington, DC

Policy Seminars

The Economic Development of East Asia and Latin America in Comparative Perspective and Lessons for Development Policy

Why have East Asia and Latin America developed so differently? Anthony Elson tries to answer this question as he presents his new book, *Globalization and Development: Why East Asia Surged Ahead and Latin America Fell Behind.*

Date: September 23, 2014
Time: 11:00 a.m.
Location: IDB Headquarters Washington DC

www.iadb.org/res/researchnetwork

Network News

Policy Seminars

Economic Effect of Infrastructure Investment

Naoyuki Yoshino (Asian Development Bank)

Date: October 1, 2014
Time: 2:30 to 4:30 p.m
Location: IDB Headquarters, Washington, DC

EconNet Seminars

Global Financial Shocks and Foreign Asset Repatriation: Do Local Investors Play a Stabilizing Role?

Sebastián Sosa (IMF)

Date: September 18, 2014
Time: 12:00 p.m. to 1:30 p.m.
Location: IDB Headquarters
Washington, DC

Career Choices and the Evolution of the College Gender Gap

Martín Rossi (Universidad de San Andrés)

Date: September 24, 2014
Time: 12:00 p.m. to 1:30 p.m.
Location: IDB Headquarters, Washington, DC

No Guarantees, No Trade: How Banks Affect Export Patterns

Tim Schmidt-Eisenlohr (University of Illinois)

Date: September 25, 2014
Time: 12:00 p.m.
Location: IDB Headquarters, Washington, DC

www.iadb.org/res/researchnetwork

This issue of *IDEA* was prepared by Rita Funaro and draws heavily on the 2014 edition of the IDB's flagship Development in the Americas series entitled **Rethinking Productive Development: Sound Policies and Institutions for Economic Transformation.** The editors of this year's publication are Gustavo Crespi, Eduardo Fernández-Arias, and Ernesto Stein. Other authors whose research is reflected in the book and in this newsletter include Manuel Agosin, Marina Bassi, Juan Blyde, Gabriel Casaburi, Jorge Cornick, Alessandro Maffioli, Fernando de Olloqui, Ugo Panizza, Carlo Pietrobelli, Alejandro Rasteletti, Graciana Rucci, Alberto Trejos, Sergio Urzúa, Christian Volpe Martincus, and Rodrigo Wagner.

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