

# Institutions — for — productivity

Towards a better  
business environment  
Executive summary

# Institutions for productivity

## Towards a better business environment

### Executive summary

Title:

Institutions for productivity: towards a better business environment  
Executive summary

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publicaciones@caf.com

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## Institutions, productivity and development

In 1960, average income in Latin America was 20% of that in the United States. Today, the situation remains practically unchanged. Other countries, in contrast, have closed their income gap relative to the United States in the same period: Spain has increased its relative income per capita from one-third to two thirds, while South Korea has increased it from 7% to 67%. Hence, reducing the large and persistent per capita income gap relative to developed countries is one of the major development challenges for Latin America.

The main reason for this lag in income per capita is low aggregate productivity. In turn, the low aggregate productivity in Latin America is mainly due to a low productivity across all activity sectors and does not seem to be related to a productive structure in which particularly low-productivity sectors employ a high share of the labor force.

The fundamental causes of low productivity can be traced back to the institutions that shape the productive environment of firms, regardless of the sector in which they operate. This report focuses on four realms of that environment: competition, access to inputs and cooperation between firms, labor relations, and financing.

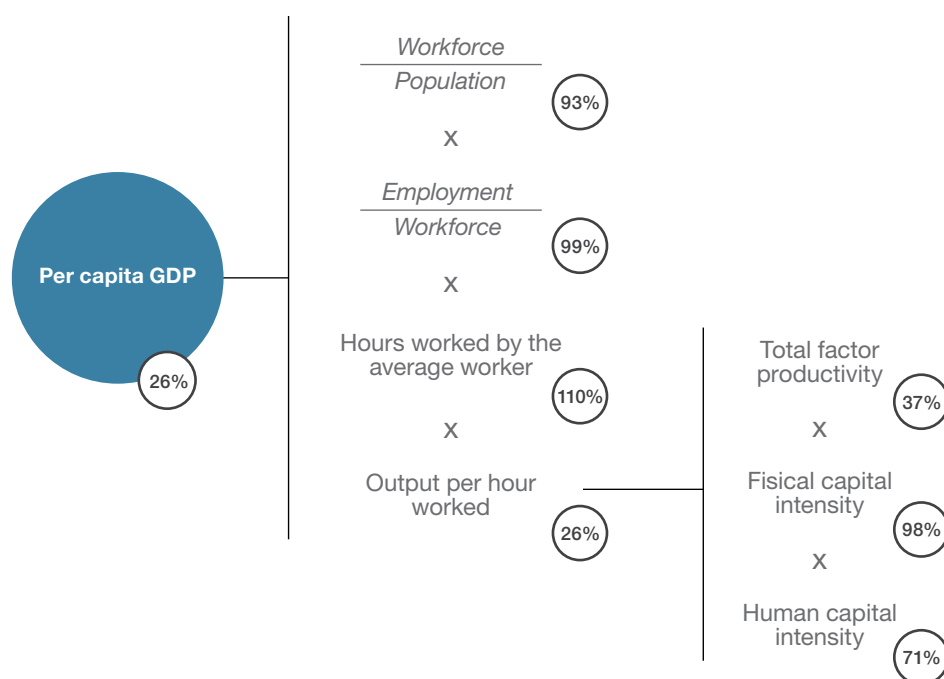
## Low productivity as a key development problem

A country's level of per capita output is the product of four components: i) the fraction of the population that work or actively search for a job; ii) the fraction of people in the workforce with employment; iii) the number of hours worked in a year by the average worker and; vi) output per hour worked. That is to say, per capita output depends on the fraction of the population working, on the average number of working hours and the level of productivity.

In turn, output per hour depends on three components. First, the contribution of physical capital (machinery and equipment, buildings, etc.). Second, the contribution of human capital (the workers' skills). Third, the contribution of total factor productivity, or TFP, which measures the efficiency of a country in combining physical and human capital to produce goods and services.

Which of these components are most important in explaining Latin America's output gap? Figure 1 provides an answer to this question. It shows the value of each component as a percentage of its corresponding value in the United States.

Figure 1 shows that the region's low level of output per capita is exclusively due to productivity and not the amount of hours worked. Likewise, the productivity gap is mainly explained by the TFP gap and, to a lesser extent, by differences in human capital. Indeed, the region's TFP is only 37% that of the United States, while the average human capital per worker is 71% that of the United States. To put this in perspective, if the region's TFP were that of the United States, per capita output would be around 70% of that of the United States instead of 26%. Therefore, Latin America can only significantly reduce its output gap relative to the developed countries by increasing its total factor productivity.

**Figure 1** Per capita GDP decomposition: Latin America vs. the United States

Note: The figure represents the decomposition of per capita GDP and shows the value of each component for Latin America as a percentage of the corresponding value in the United States. Latin America includes Argentina, Brasil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru, Uruguay and Venezuela, due to data availability on hours worked. Data corresponds to averages for the period 2004-2014.

Source: Authors' calculations based on Penn World Tables 9.0 and World Development Indicators (World Bank, 2018).

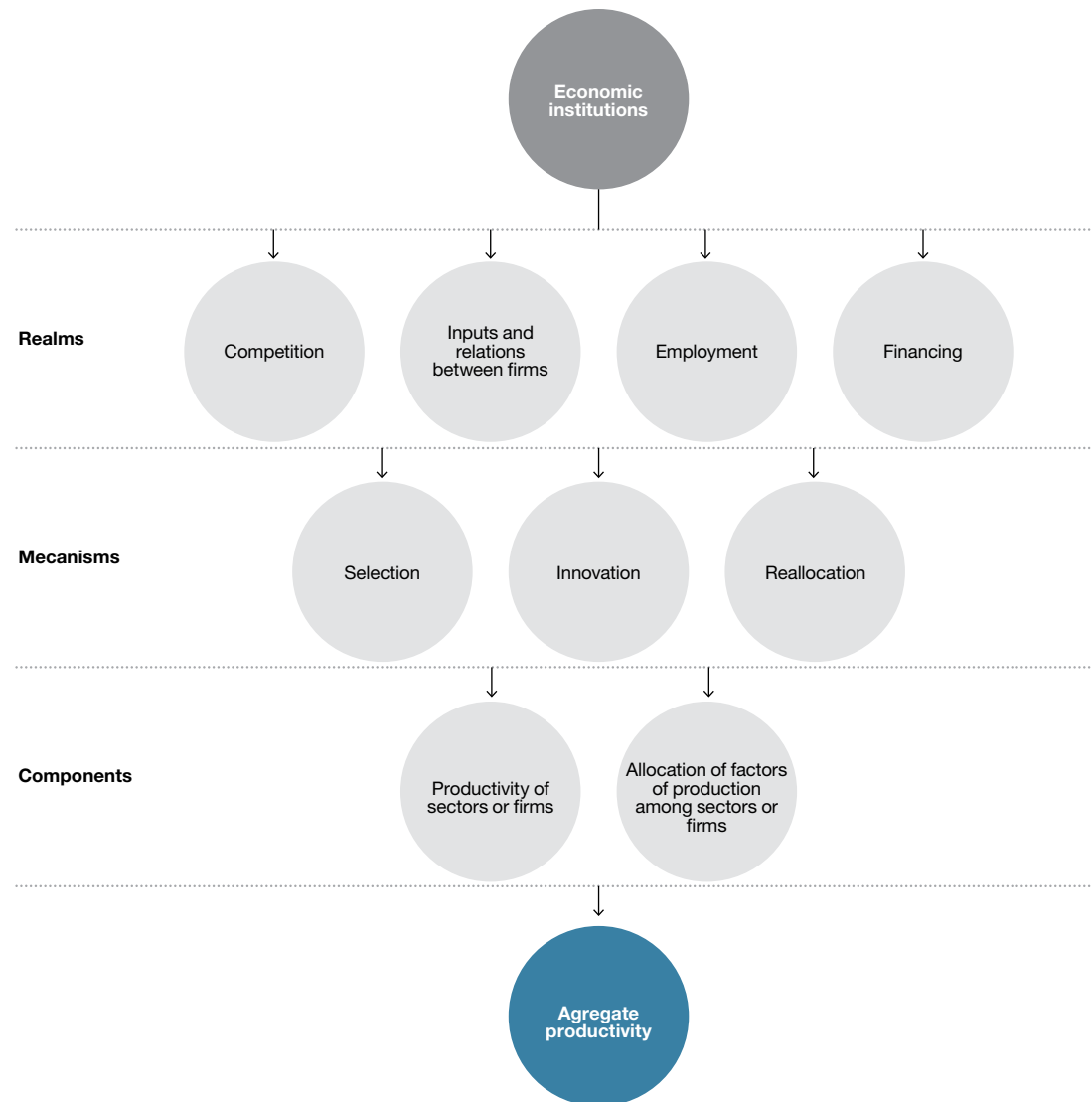
## Conceptual framework: What lies behind productivity?

The aggregate productivity of an economy can be broken down into two elements. The first is the productivity of existing firms and the second is the way in which factors of production are allocated among them. Both elements change over time due to three closely related mechanisms or channels.

First, through the entry and exit of firms, known as the “selection channel”. An economy characterized by the entry and survival of high-productivity firms and the exit of low-productivity ones is bound to achieve a high level of aggregate productivity.

Second, through the “innovation channel”. The productivity of firms depends on their investment in innovation, that is, the adoption of cost-reducing technologies, the development of new products and the use of more efficient management practices, including human talent management methods that promote employees’ effort and reduce labor mismatches (between workers’ skills and the skills required by the tasks they perform).

**Figure 2** Analytical framework: What’s behind productivity?



Source: Authors' elaboration.

Third, through the “reallocation channel”. Economies are characterized by a continuous expansion and/or contraction of firms leading to changes in aggregate productivity. When factors of production reallocate towards higher productivity sectors or firms, aggregate productivity increases.

However, the level of firm innovation and the efficiency of the economy in both the selection process and the allocation of resources among productive units are endogenous outcomes and not fundamental causes of a country’s productivity. In order to understand a country’s productivity gap, we must

understand why firms innovate little, why inefficient firms survive while productive projects with high growth potential do not materialize, and why factors of production are inefficiently allocated among firms. The search for answers to these questions leads to the study of the role of economic institutions as “deep determinants” of productivity.

Economic institutions affect productivity by conditioning the business environment. The report emphasizes four key realms of this environment: firms interact to compete, to access inputs or cooperate, to hire workers, and to seek funding to leverage their operations. These institutional factors include, on one hand, those of a cross-cutting nature, such as the protection of property rights, contracts enforcement and state capacity, including the control of corruption, but also, institutions associated with regulatory frameworks and public policies, specific to each of the aforementioned realms. Furthermore, the institutional framework includes, not only *de jure* norms, policies and regulations, but also the organizations, procedures, and formal or informal customs that *de facto* determine its functioning and enforceability.

Figure 2 illustrates this approach to the analysis of productivity.

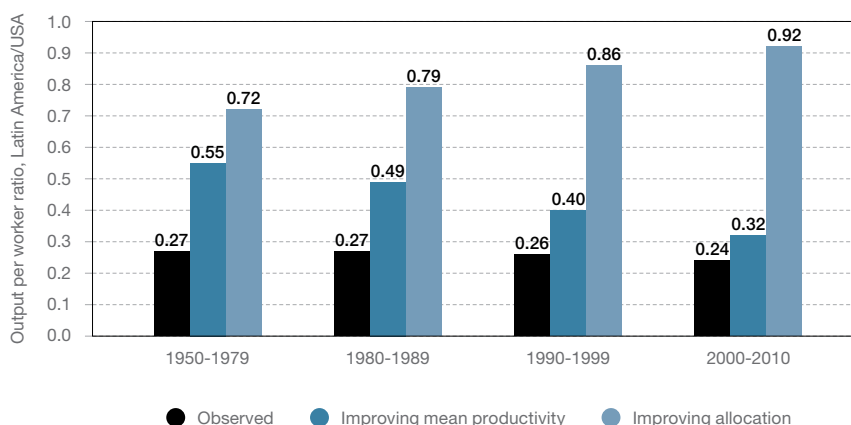
## Anatomy of productivity in Latin America

The problem of productivity in Latin America can be analyzed by decomposing aggregate productivity levels into two terms: one that reflects the average productivity level across activity sectors and another that represents how resource allocation among sectors is related to their productivity. This exercise can be useful to assess if the region’s productivity gap is due to a low level of productivity across all sectors, or else, due to an inefficiently large allocation of resources in low productivity sectors.

Graph 1 shows output per worker in Latin America relative to United States as well as two counterfactual exercises based on this decomposition, considering three large activity sectors –agriculture, manufactures and services– and taking output per worker as a proxy for productivity. Under the first exercise (improving allocation), we impose for Latin America the United States level of the term that reflects the association between productivity and labor share at the sectoral level. In the second exercise (improving mean productivity), we impose for Latin America the simple mean of productivity across sectors found in the United States.

The graph shows that relative output per worker in Latin America has remained mostly constant during the period, at around 25% of output per worker in the United States. The exercises suggest that these differences are mostly explained by a low average productivity of the three sectors and not so much by labor misallocation. For instance, if during the 2000-2010 period average productivity of the three sectors had been the same in both regions, then aggregate productivity in Latin America would have been 93% of that in the United States. Instead, if resource allocation among sectors according to their productivity had been equivalent in both regions, that value would have only reached 32%. From this analysis, we conclude that Latin America’s productivity gap is not due to an overly large proportion of workers in low productivity sectors, but instead to productivity shortfalls that are common across sectors.

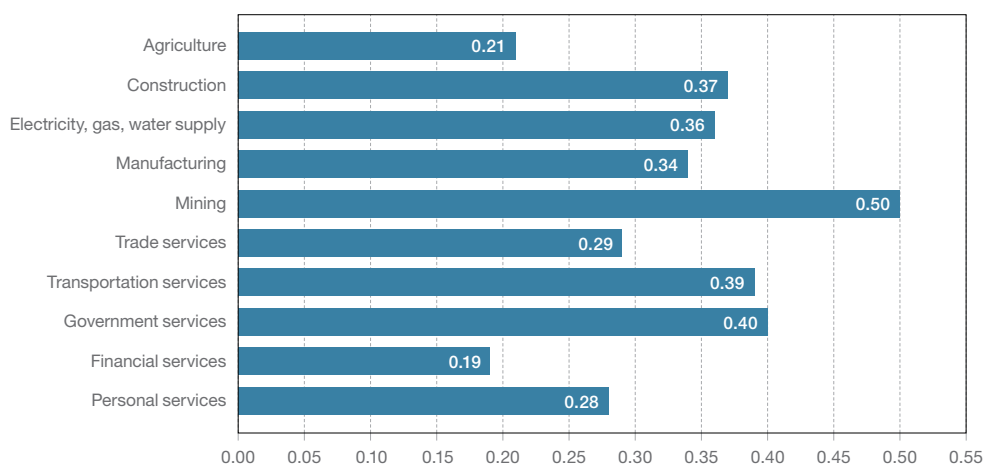
**Graph 1** Contribution of the allocative efficiency and mean productivity components to the productivity gap



Note : The graph reports the ratio of output per worker between Latin America and United States using four different time spans. In addition, it reports the values that would be observed in Latin America if it had the same factor allocation efficiency among productive sectors (covariance among sector productivity and employment participation) as the United States and if it had the same average sector productivity as the United States. Latin America is the simple average of the values in Argentina, Brasil, Bolivia, Chile, Colombia, Costa Rica, Mexico and Peru. This analysis uses 3 activity sectors.

Source: Authors' elaboration based on GGDC 10-Sector Database.

**Graph 2** Output per worker in Latin America relative to United States in 10 productive sectors



Note: The graph reports output per worker in Latin America relative to United States in 2010, in 2011 US dollars (at Purchasing Power Parity). The values correspond to simple averages of Argentina, Brasil, Bolivia, Chile, Colombia, Costa Rica, Mexico y Peru.

Source: Authors' calculations based on GGDC 10-Sector Database.



The conclusion that productivity would not improve much through reallocation among sectors remains true if we consider a higher level of disaggregation, such as ten activity sectors. The modest productivity gains in this case reinforce the cross-cutting nature of the productivity problem. Graph 2 shows that in none of the 10 sectors does output per worker exceed 50% of that in United States in the same sector, and in 9 of them it does not exceed 40%. The largest gaps are found in agriculture and financial services, with values around 20%, and in personal services and trade services with values of about 30%. Therefore, closing the aggregate productivity gap requires major efforts to increase productivity across the board.

What happens within these sectors? Are their productivity gaps due to a low productivity within their subsectors and establishments or due to resource misallocation among subsectors and/or establishments?

In the case of manufacturing, output per worker in the region is only 34% of that in the United States. An analogous decomposition for 50+ subsectors for Chile, Colombia and Mexico, shows that the productivity gap in manufacturing relative to the United States is mainly due to the low productivity of its sub-sectors, and not due to the allocation of productive factors among them. In fact, in Chile, Colombia and Mexico manufacturing resources are relatively more concentrated in the most productive subsectors, which helps to close the productivity gap with the United States. In contrast, in 2010 average output per worker across manufacturing subsectors in these three countries was only 30% of that in the United States.

What happens within these subsectors? Further decomposition inside manufacturing subsectors at the establishment level shows that resource misallocation among establishments is partially responsible for the low productivity of subsectors. However, its relevance is modest relative to the role played by the low level of average productivity of establishments. In fact, the decomposition exercise suggests that if labor allocation among establishments were as efficient as in the United States, relative output per worker in the average manufacturing subsector in Latin America would increase from 34% to 40% in Chile, from 25% to 28% in Colombia and from 32% to 40% in Mexico. In contrast, if the average output per worker across manufacturing establishments were equal to that observed in the United States, output per worker in the average manufacturing subsector would reach 85% of that in the United States<sup>1</sup> in Chile, 91% in Colombia and 78% in Mexico<sup>1</sup>.

As for services, the gap in output per worker in the region relative to the United States is greater than in manufacturing. The decomposition exercise with establishment-level data suggests that the greater gap observed in the service sector is, in part, due to a more inefficient allocation of resources. Indeed, in countries with available data on output per worker in the services sector (Uruguay and Colombia), we find that the term reflecting the correlation between a sector's or establishment's labor share and its productivity is smaller in services than in manufacturing.

Other major explanations for the productivity gap across sectors are the prevalence of micro establishments and labor informality. Table 1 shows that a large share of employment is concentrated in establishments with less than 10 workers. While approximately 1 of every 2 employees in the region works in micro-establishments, the proportion is about 1 in 8 in the United States. The concentration of employment in micro and small firms in the region is especially salient in agriculture and trade.

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1 It is important to mention that due to data limitation, these calculations are based on information on establishments with at least ten workers.

**Table 1** Distribution of salaried workers through firm sizes, by job formality and sector

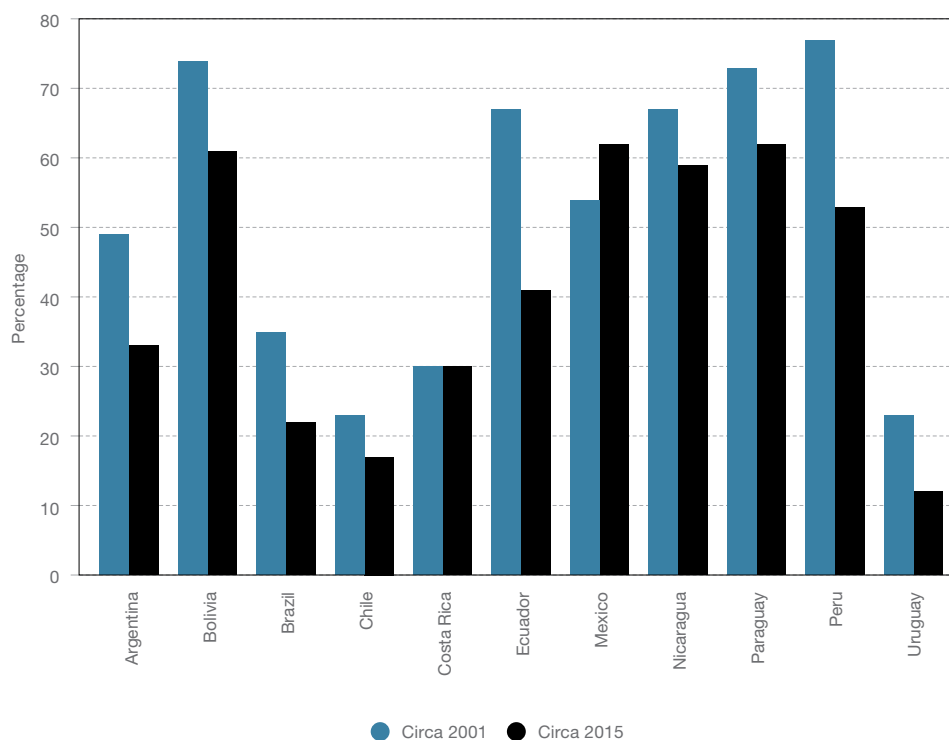
	Firm size (employees)	Latin America			United States
		Formal employees	Informal employees	All Employees	All Employees
All sectors	1 to 9	17	75	48	12
	10 to 99	32	16	23	
	100 or more	50	8	29	
Manufacture	1 to 9	10	69	36	4
	10 to 99	30	21	26	
	100 or more	60	10	38	
Commerce	1 to 9	28	82	58	11
	10 to 99	37	12	23	
	100 or more	35	6	19	
Other services	1 to 9	15	60	31	13
	10 to 99	33	25	29	
	100 or more	52	15	40	
Agriculture	1 to 9	29	78	70	31
	10 to 99	32	16	19	
	100 or more	38	6	11	

Note: The table shows the distribution of salaried employment between categories of firm size, by formality and activity sector, for the Latin American average. It also reports the proportion of salaried employment in companies with less than 10 employees in the United States. Countries considered in Latin America are Argentina, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Mexico, Paraguay, Peru and Uruguay. Formal salaried employees are those with a claim to a pension. Pooled data for years 2011 through 2015.

Source: Authors' calculations based on household surveys standardized by CEDLAS for Latin America and on Business Dynamics Statistics for the United States.

Likewise, a high percentage of employment in Latin America is informal, exceeding 50% of workers in several countries in the region by 2015 (Graph 3). Moreover, formal wages are higher than informal wages (between 15% and 30% higher), even after controlling for worker characteristics (such as education, age and gender). These wage differences are, in part, indicative of productivity gaps between formal and informal jobs.

The observed productivity gap in informal jobs (approximated by the wage gap) entails that if all informal workers were migrated to the formal sector, large aggregate productivity gains would be obtained, which illustrates the relevance of informality over productivity in Latin America.

**Graph 3** Evolution of the informality rate in Latin America

Note: The graph shows the percentage of salaried workers without claim to a pension, for two points in time: around 2001 and around 2015. Years reported for the first and second time period per country are: Argentina, 2003 and 2015; Bolivia, 2002 and 2014; Brazil, 2001 and 2015; Chile, 2000 and 2015; Costa Rica, 2001 and 2015; Ecuador, 2003 and 2015; Mexico, 2000 and 2014; Nicaragua, 2001 and 2014; Paraguay, 2002 and 2015; Peru, 2000 and 2015; and Uruguay, 2001 and 2015.

Source: Authors' elaboration based on household surveys standardized by CEDLAS.

A decomposition based on household survey data from 10 countries in the region shows that around 60% of the productivity gap, as measured by salary (controlling for education, age and gender), between informal and formal jobs is due to lower average labor productivity in the informal sector, regardless of sector and firm size. The remaining 40% of the gap is attributable in equal proportions to a greater concentration of informal employment in micro and small enterprises and to the fact that informal employment is more concentrated in low productivity subsectors.

By considering these results altogether, it is clear that the productivity gap in the region mostly results from low a productivity across all sectors, while the allocation of resources among them plays a relatively minor role. The low productivity of sectors, in turn, is due to both the low productivity of establishments and to resource misallocation among establishments within subsectors. Low productivity in the informal sector affects most sectors.

Now we take a look of some deep determinants of these sources of productivity shortfalls.

## Deep determinants of productivity: economic institutions and their impact on the four realms of firms' interaction

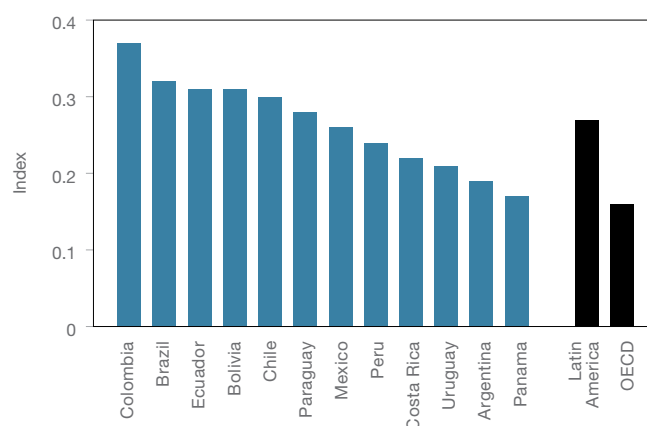
The key cause of low productivity is an institutional framework that affects the business environment where firms interact, regardless of the type of sector. Four essential realms in which this occurs are competition, access to inputs and cooperation between firms, labor markets, and financial markets.

### Competition

The first key area to consider when analyzing a country's productivity is the market for goods and services where firms compete. Competition is critical because it promotes both a greater level of productivity within the firm and a better allocation of resources between them.

Unfortunately, several indicators show that Latin American economies suffer from a lack of competition compared to developed regions. To begin with, indicators of the costs of entry into a market are considerably higher in the region. For instance, Latin America is the region of the world with the highest percentage of firms declaring that permits and licenses represent a moderate to severe obstacle. This percentage is 43% in manufacturing and 49% in services. Likewise, regulation indicators in the goods market not only confirm how restrictive the system of permits and licenses in the region is but also reveal high legal entry barriers. Furthermore, firms' market power in the region is evidenced by high price markups (the percentage difference between price and marginal cost). Figure 4 shows the Lerner index for the manufacturing sector (a measure of market power), which reveals higher mark-ups in all countries in the region compared to the OECD.

**Graph 4** Lerner index for the manufacturing sector in Latin America and OECD, 2000-2015



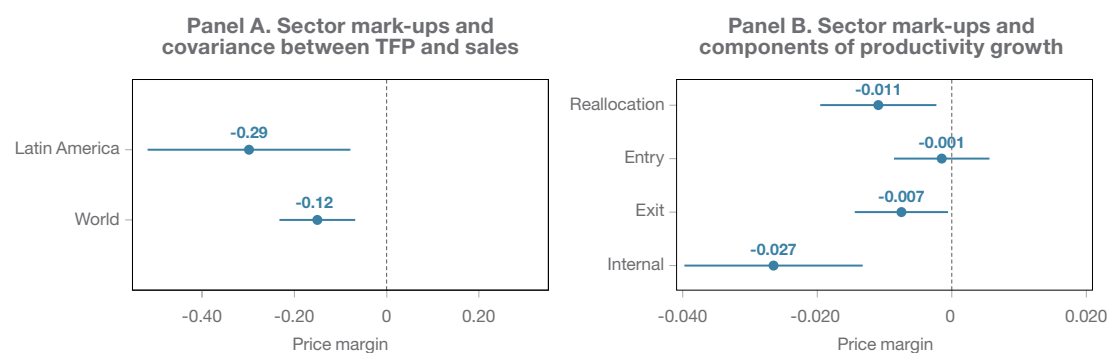
Note: The graph shows the average of the available values in the 2000-2015 period. A high value of the indicator points to a low level of competition. The Latin American average (LA) includes the countries shown. The OECD excludes Chile and Mexico.

Source: Authors' elaboration based on INDSTAT2.

Lack of competition has important implications for productivity. First, several empirical exercises show that sectors with higher mark-ups display a worse allocation of resources (Graph 5, panel A). For example, a one standard deviation decrease in mark-ups would bring about a 20% increase in manufacturing productivity, solely through a better resource allocation. The data for Chile, Colombia, Mexico and Uruguay confirm the positive association between market power and inefficiency in the allocation of resources.

Second, a dynamic analysis shows that greater market power at the sectoral level (as measured by mark-ups) is associated with a lower rate of productivity growth, which is mainly due to lower productivity gains within the surviving firms (Graph 5, panel B). This result is consistent with the hypothesis that competition fosters innovation and productive efficiency in firms. Deficiencies in the process of intra-sectoral factor reallocation and in the exit of establishments also explain, although to a lesser extent, the weaker productivity growth in sectors with greater market power.

**Graph 5** Competition and productivity

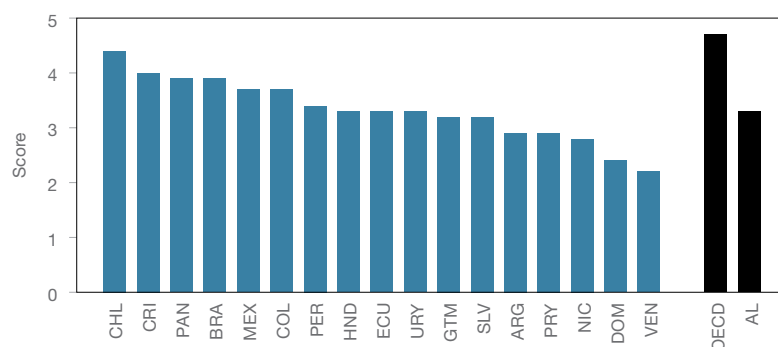


Note: Panel A shows the linear regression coefficient and 95% confidence interval of the price margin independent variable, taking the covariance between TFP and sales as dependant variable, for two groups of countries. The sample includes observations from 18 countries in Latin America and 126 countries worldwide. The observation unit is the 3-digit sector according to the ISIC Rev. 3.1 classification, for each country and year. Each regression includes a constant term and contry-year and country-sector fixed effects (2 digit categories). Sectors with fewer than five companies are discarded. Panel B shows the linear regression coefficient and 95% confidence interval of sector average mark-ups, taking the components of the Total Factor Productivity (in terms of incomes, TFPI) growth rate as dependent variables. These are, from top to bottom: the reallocation effect, the contribution of entry and exit and the productivity growth of surviving establishments. The sample includes observations from Chile, Colombia, Mexico and Uruguay. Each regression includes constant and country-year and country-sector (2 digits) fixed effects. Observations with extreme values of the price margin are discarded (outside the p1-p99 range). Only establishments with 10 or more employees are included.

**Source:** Authors' elaboration based on Enterprise Surveys for panel A; Encuesta Anual Manufacturera from Chile (1995-2007) and Colombia (1990-2012), Encuesta Industrial Anual (2005-2009) and Encuesta Anual para la Industria Mexicana (2009-2015) for México and administrative records from the Dirección General de Impuestos (2008-2015) from Uruguay for panel B.

How can competition be improved? At least two types of actions may be relevant. On the one hand, strengthening policies for promoting competition and, on the other hand, facilitating international trade, by reducing non-tariff barriers in particular and improving logistics and infrastructure. The information available for the region points to challenges on both fronts.

As for competition promotion and antitrust regulations, the indicator of effectiveness of antitrust policies compiled by the World Economic Forum shows that all Latin American countries are below the average levels of developed countries, represented by the OECD average (Graph 6).

**Graph 6** Effectiveness of antitrust policies

Note: The score for each country is based on the following question: How effective are antitrust policies to ensure fair competition in your country? (1 = not effective at all, 7 = extremely effective). The Latin American average (LA) includes the countries shown. The OECD excludes Chile and Mexico.

Source: Authors' elaboration based on Global Competitiveness Report 2017-2018.

The OECD also provides additional indicators for the effectiveness of competition-promotion policies and laws in Brazil, Chile, Colombia, Mexico and Peru, countries that are relatively advanced in comparison to the rest of Latin America. While in these countries the *de jure* laws and policies do not seem to be far from OECD standards (for example, the scope of the antitrust legal framework), there are sizeable differences in implementation aspects, such as the probity degree of investigations aimed at enforcing laws.

Regarding international trade promotion, available indicators also reflect scope for improvement. While average tariffs in the region have fallen considerably since the mid-1990s, important non-tariff barriers still prevail, including sanitary and phytosanitary measures, technical barriers and special trade protection policies. Considering these restrictions, the equivalent tariff for 2009 in Colombia and Mexico (last available value for this indicator) was above 20%, even though formal tariffs were well below that figure. Furthermore, shortcomings in logistics also represent effective obstacles to trade.

## Inputs and relations between firms

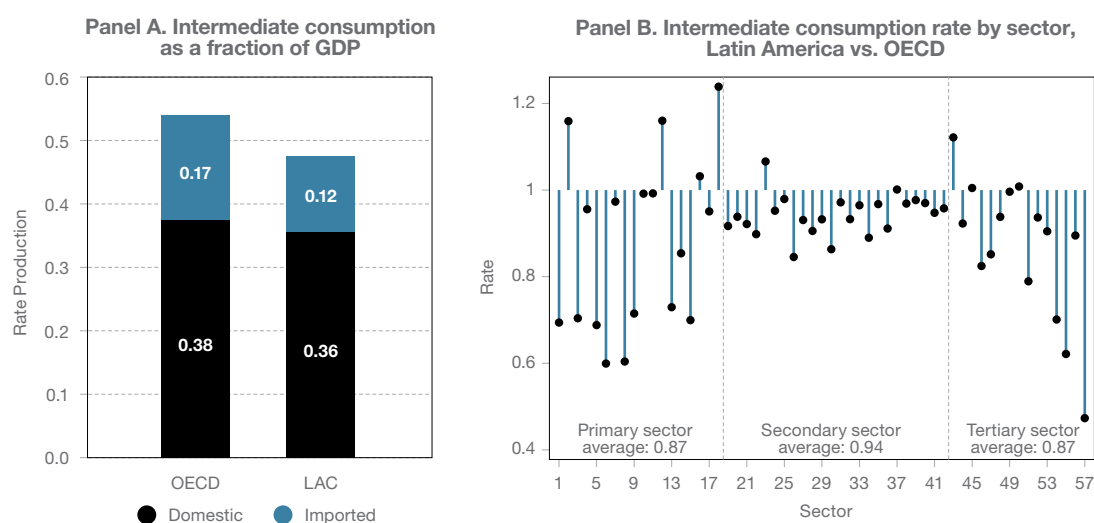
It is hard to understand the issue of productivity without taking a closer look at the relationships among firms. The most obvious reason is that firms, in order to produce their goods and services, need goods and services produced by other firms as inputs. On the other hand, input-output linkages are important to identify how certain distortions and productivity shocks at the sector level spread throughout the production chain. This helps identifying key sectors for productive development. Finally, relations among firms also affect productivity by favoring the spread of knowledge and ideas, as well as synergies and coordination.

Access to inputs is an essential part of a country's business environment and, as such, it influences productivity. For example, in Colombia there is an important dispersion in the magnitude and complexity of intermediate consumption among establishments of the same industry. The number of materials used by the typical manufacturing establishment in Colombia varies from 2.69 for firms in the

10th percentile of the distribution, to more than 21 for firms in the 90th percentile. Similarly, the average share of expenditure on purchases of imported materials varies from practically 0 for establishments in the 10th percentile, to almost 40 for establishments in the 90th percentile. Evidence presented in the report suggest a positive association between these indicators of intermediate consumption and productivity at the plant level.

The analysis of Input-output matrices shows that, compared to OECD countries, the fraction of intermediate consumption in Latin America is depressed, especially regarding imported inputs and in primary and tertiary sector industries. Graph 7 (panel A) shows that the percentage of intermediate consumption in the region is, on average, 7 percentage points lower than in the OECD, which is mainly due to a difference of approximately 5 percentage points in the imported component. The same graph (panel B) also shows that, although this lag is widespread, it is considerably higher in the primary sector (left) and in the service sector (right).

**Graph 7** Domestic and imported intermediate consumption



Note: Panel A shows intermediate goods consumption as a fraction of GDP, broken down into its domestic and imported components. LAC refers to Latin America and the Caribbean. Panel B shows the ratio between total intermediate consumption (domestic + imported) and production for each sector in Latin America relative to the OECD. The dotted lines separate sectors into three broad categories: primary, manufacturing and services. All data correspond to the year 2011.

Source: Authors' elaboration based on GTAP v9.2.

Some authors suggest that these relatively low levels of intermediate consumption may reflect sectoral distortions. These distortions affect the allocation of resources between sectors thereby hindering productivity. A sectoral distortion also operates as a (negative) supply shock of specific input sectors, which spreads across all sectors through the input-output linkages, ultimately leading to aggregate productivity losses. The aggregate impact of a distortion in a particular sector depends on its importance as an input provider. According to some studies, removing these sectoral distortions would imply modest but not negligible gains in productivity. A study conducted in the context of this report (Leal, 2017) estimates gains of about 17% on average for 7 countries in the region.

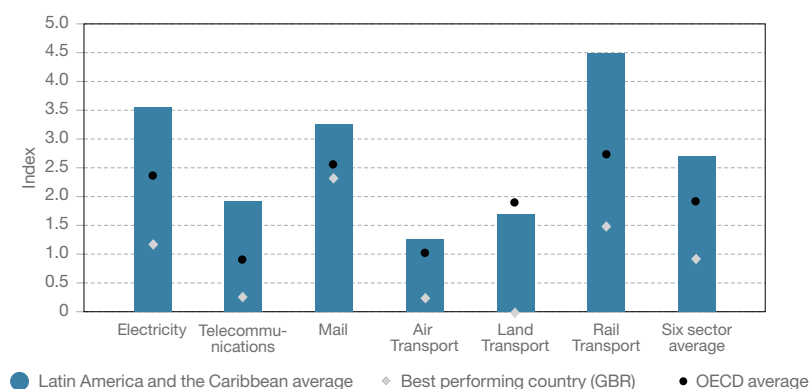
Forward linkages, or a similar concept named “the degree of Influence”, reflect the direct and indirect importance of each sector as a supplier of inputs and can serve as a basis to identify key sectors for productive development. In Latin America, as well as in OECD countries, the forward linkages of services stand out. Industries such as commerce, services to businesses, transportation, financial services and electricity appear as very important sectors given their role as input suppliers. The degree of influence can also be combined with sectoral productivity gaps to identify key sectors. Under this approach, industries in the services sector are again highlighted, but also the agricultural sector.

How can access to inputs for firms be improved through public policies? International trade, better regulation, less corruption in the provision of public services and greater development of value chains are keystones in this area.

Regarding international trade, evidence suggests that trade openness and the access to lower-cost inputs, improves the productivity of local firms as well as their capacity to create new or higher quality products. Part of the explanation comes from the absence of substitutes for these inputs in domestic markets, but also in the technology embedded in imported intermediate goods. The gains from tariff reductions are larger when they are accompanied by other reforms, such as the reduction of non-tariff barriers and the opening to foreign direct investment.

Regarding regulation, different datasets suggest room for improvement in regulatory frameworks aimed at promoting competition, international trade, public-private partnerships and foreign direct investment, especially in the services sector. For example, Graph 8 shows the Market Regulation Index prepared by the OECD (lower values are associated with a friendlier environment for competition) for 6 network services sectors. The graph shows that the region still has less friendly regulatory frameworks for competition than OECD countries in most of these sectors, and especially in electricity, telecommunications and rail transport. Evidence indicates that improvements in the regulatory frameworks governing the provision of services could produce productivity gains, not only in services directly affected by these improvements, but also in the manufacturing industries that use them as inputs.

**Graph 8** Quality of regulatory frameworks in network services



Note: The graph reports the value of the regulatory quality index for competition in network sectors for the average of Latin America and the Caribbean, average of OECD and the country with the best performance (United Kingdom). The index takes on values from zero to six, where zero represents the least regulatory quality level. The data correspond to 2013.

Source: Authors' elaboration based on Network Sector Regulation Indicators and Product Market Regulation Indicators.



The report also provides evidence on how information and communication technologies can help reducing corruption in the provision of public services demanded by firms. For example, the customs reform of Colombia, which consisted in automating customs procedures so that importers could declare their imports online instead of doing it personally, reduced the number of corruption cases under the Directorate of National Taxes and Customs (DIAN) reported to the Office of the Attorney General of the Republic. Likewise, positive and substantial effects were found on imports, the level of capital and value added of firms requiring customs services.

Finally, policies to strengthen value chains and productive clusters can be powerful instruments to improve access to inputs as well as innovation. The development of clusters, can also favor cooperation among firms to address issues of collective interest and exploit synergies and complementarities. Indeed, well-designed cluster policies can induce phenomena that improve productivity of firms, including the division and specialization of labor, the development of a wide range of high-quality inputs and services for the sector, the provision of public goods and essential infrastructure, the development of business associations, as well as knowledge spillovers, among others.

Indeed, the simple spatial agglomeration of firms does not guarantee that synergies will be fully exploited; the public sector can play a catalytic role. For that to happen, policies must take a comprehensive and long-term approach, incorporating actions that favor the creation of capacities both in the public and private sectors, the promotion of positive externalities, strengthening the links within the value chain and their integration to global markets (Figure 3).

**Figure 3** Menu of actions for the promotion of clusters

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### Identification of clusters and creation of institutional capacities

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- Develop cluster maps and identify key actors
- Favor the conformation and capacities of sectoral associations
- Promote capacities in public institutions promoting clusters

### Promotion of external economies and strengthening of internal links

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- Promote specialized skills training centers
- Promote joint innovation
- Strengthen the local provision of services essential to the cluster (including infrastructure)
- Improve the capabilities and scale of providers, including their access to credit
- Create and expand trust between firms
- Promote the establishment of collective projects
- Strengthen business associations

### Strengthening external connections

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- Improve logistics infrastructure
- Promote brand development and marketing
- Support the development of supply chains
- Attract value chain leaders and potential investors to the cluster
- Support firms to comply with international standards

Cluster initiatives are not free of risks and limitations. Ill-conceived strategies can lead to distortions and harm aggregate productivity. To avoid these risks, the initiatives should be conceived as strategies to overcome market failures, such as coordination problems. Cluster policies can hardly generate competitiveness if not based on the sector's comparative advantages. They are complements, not substitutes, of other policies to improve firms' productive environment.

## Labor Relations

Given the central role of labor as a productive factor, improving its allocative efficiency between firms and its performance within firms is essential to achieve higher levels of productivity.

Among the factors that affect the assignment of workers to positions in labor markets are, for example, search costs and information asymmetries. The factors that affect the productivity of workers within firms include on-the-job training as well as managerial practices. In Latin America, several patterns of workforce allocation conspire against productivity. In particular, there is a significant gender gap, high levels of mismatch between workers' skills and their tasks and, especially, a large concentration of the workforce in informal jobs.

Regarding the gender gap, the data indicate that although the difference between men and women's participation rates has diminished considerably in the region (dropping from more than 40 percentage points in 1999 to just over 22 percentage points in 2015), this difference is still more than 14 percentage points higher than the average in OECD countries. This gap could indicate a deficient allocation of talents, implying that there is scope for productivity gains through increases in the female labor participation rate.

As for the matching between workers' skills and tasks, Latin American workers' high mobility between jobs (compared to their peers in developed countries) could indicate a mismatch between their skills and the requirements of their positions, leading to a loss of productivity. According to CAF's Report on Economic Development, for example, 4 out of 10 workers consider that their level of qualification for their current job is inadequate. This, in turn, may be related to inefficient job search practices. According to the 2017 CAF Survey, almost 37% of unemployed workers visit establishments in person to seek employment and more than 14% do so through their informal networks; in contrast, the use of employment agencies is low. Clearly, this context of inefficient job-search practices harms the alignment between workers' skills and job requirements and could point towards an opportunity for public policies in the field of labor intermediation.

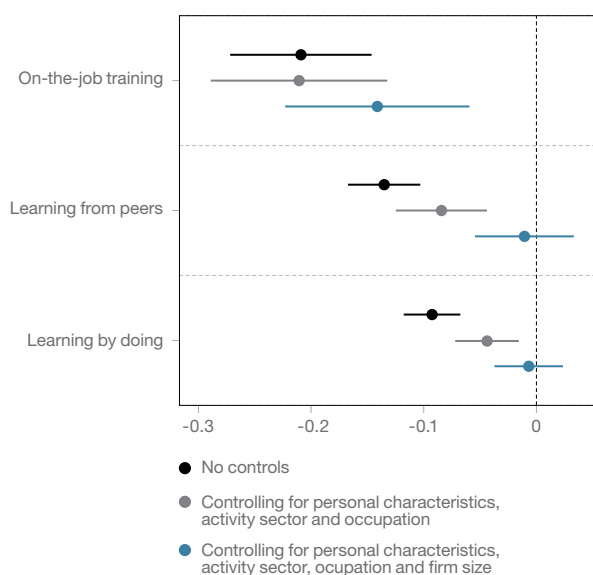
Finally, informality is the most prominent feature of the region's labor market and it has serious negative consequences for productivity. As shown previously, several countries in the region have a high incidence of informal employment, and existing differences in the average salaries of workers in formal and informal jobs are indicative of important productivity gaps between both types of jobs.

Regarding the factors that affect productivity within firms, both informality and firm size are key for workers' skill accumulation. As shown in Graph 9, workers in informal and small businesses are less likely to report receiving on-the-job training, learning-by-doing and learning from peers, even when controlling for personal characteristics, sector of activity and occupation.

Personnel management practices are also relevant for promoting greater work productivity within firms. Among these practices, performance-based payments have shown considerable positive

impacts on productivity but, according to the 2017 CAF Survey, these payment schemes are not widely used in the region.

**Graph 9** Lag in the acquisition of skills of informal employees



Note: The graph shows marginal effects and 90% confidence intervals, estimated from probit regressions with a dummy dependent variable, taking on the value 1 if the interviewee claims to have acquired skills through the indicated channel and 0 otherwise. The dummy independent variable takes on the value 1 for informal jobs and 0 for formal jobs. The values in the graph indicate how much higher the probability of acquiring skills for the channel in question is for informal workers relative to formal workers, assuming that all other independent variables take on their average values. Three specifications are considered: without controls; including controls of 14 levels of education, 11 categories of sector of activity and 43 categories of occupation type; and finally, including 6 categories of company size in addition to the previous controls. The sample consists of individuals between 20 and 60 years old living in 11 cities in Latin America.

Source: Authors' elaboration based on the 2015 CAF Survey.

Labor regulations and policies can have an impact on both worker allocation and labor productivity within firms. On one hand, labor regulations and policies can affect labor participation rates, the quality and frequency of job-to-job transitions and the allocation of workers between jobs, including between formal and informal jobs. On the other hand, policies, regulations and labor institutions can affect productivity within firms by conditioning the process of skill formation, the adoption of efficient labor management practices and the use of incentives to promote effort and cooperation.

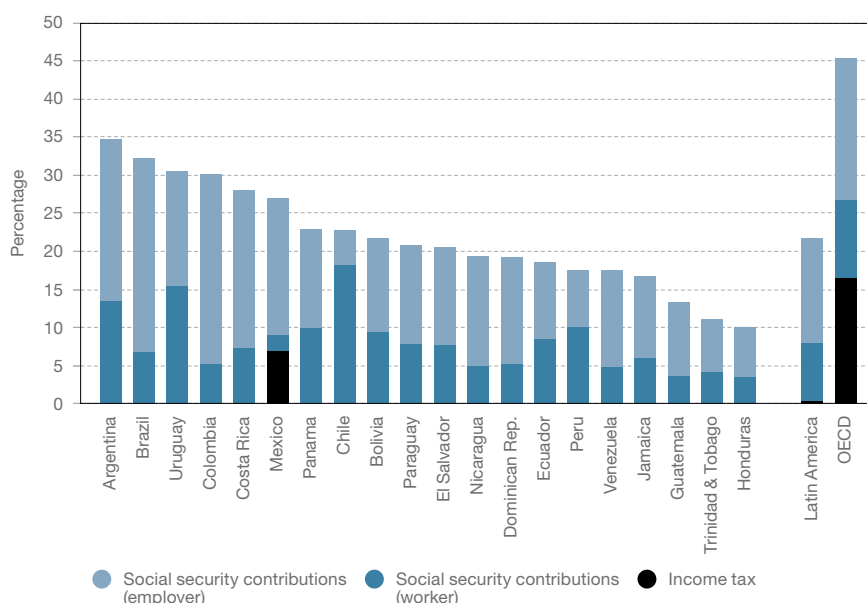
However, these policies may reduce productivity when enforced differentially among firms, usually in detriment of more productive firms. For example, the enforcement of labor regulations is usually biased towards large, more visible firms. This affects productivity both through the allocation channel and by diminishing incentives to innovate and grow.

Three sets of policies and regulations stand out for their widespread use in the region: employment protection policies (which regulate hiring and firing), wage-setting policies and tax and social contribution policies associated with formal employment.

Regarding employment protection policies, there are significant differences between countries in the region. Argentina, Mexico and Venezuela have high levels of protection, while countries in Central America exhibit low levels of protection. Existing evidence shows that these policies negatively affect productivity, especially in industries that require greater workforce mobility. In this context, unemployment insurance might be a better alternative to the high levels of employment protection observed in some countries. Unemployment insurance can facilitate the creation and destruction of jobs associated with systemic increases in productivity, protecting workers from the costs involved in these transitions.

Regarding wage setting policies, minimum wage levels in the region are generally high, although with important differences between countries.<sup>2</sup> In theory, the presence of minimum wages can negatively affect the level of employment, the formalization of workers and even, within firms, the investment in human capital and the implementation of pay-for-performance schemes that incentivize effort. However, available evidence indicates smaller or null effects on unemployment and evidence for impacts on other variables is scarce. There is a positive albeit modest association between increases in minimum wage and informality, especially in sectors that are most exposed to this regulation.

**Graph 10** Taxes and social security contributions as a percentage of salary (2013)



Note: The data correspond to a household composed of an adult without children and whose income is equal to the average worker. The average for Latin America is based on the countries shown. The OECD average includes all member countries except Chile and Mexico.

Source: Authors' elaboration based on Taxing wages in Latin America and the Caribbean (OCDE/BID/CIAT, 2016).

<sup>2</sup> In a first group of countries, such as Paraguay and Ecuador, the minimum wage exceeds 80% of the median salary; in an intermediate group, which includes Argentina, Brazil, Chile, Colombia and Peru, the minimum wage is between 70% and 60% of the median salary; finally, a last group includes Bolivia and Uruguay, with relative minimum salary levels similar to the average of the OECD countries (50% of the median salary) and also Mexico, with a minimum wage equivalent to 40% of the median salary.

As with the setting of a minimum wage by the State, regulating collective wage bargaining and other working conditions can have effects on productivity. In particular, collective bargaining by large sectors of activity implies imposing similar conditions for firms that can be highly heterogeneous, which reduces firms' flexibility to adjust to economic shocks. Collective bargaining regulations could also limit the implementation of pay-for-performance practices and other work management practices that affect effort levels. On the other hand, collective bargaining could have positive effects on productivity by favoring the exchange of information and reducing conflicts between employees and employers. The available evidence suggests that in countries where collective bargaining is more important, such as Argentina and Uruguay, pay-for-performance and quality management practices have the lowest incidence.

Finally, regarding tax and social security contributions associated with formal employment, Graph 10 shows that their levels in the region are modest compared to OECD countries. Abundant evidence suggests that lower social contributions and higher benefits in formal employment lead to lower levels of informality. For example, both the tax reform that reduced social contributions in Colombia and the expansion of health benefits for formal workers in Uruguay reduced informality. Conditional cash transfers for workers who are not formally employed can also encourage informality. Evidence of this can be found in Argentina, where the introduction of a cash transfer program for workers without formal employment and with children caused a drop of 8.4 percentage points in their probability of formal employment. More generally, the correct design of contributions and social benefits is key to avoid such unwanted effects.

## Financing

Just as labor markets are key to productivity for their role in the allocation of the labor input, credit markets are key for their role in the allocation of the capital input. Unfortunately, credit markets in Latin America exhibit low levels of development.

Credit to the private sector in Latin America represents 50% of GDP while in countries such as Japan or the United States it is around 200% of GDP. On the other hand, the percentage of the adult population in the region with access to a bank account is around 56%, while in countries such as Japan or the United States this access is practically universal. The region is lagging in both dimensions even when compared to countries with similar level of income.

More comprehensive indicators of the financial system also reveal a lag. For example, a joint indicator that combines the level of development of financial institutions (which mainly includes the banking system) with the level of development of financial markets (whose main component is the capital markets) yields a value for the United States 146% greater than the average value for Latin America and 40% greater than the value for Chile, the highest in the region (Table 2).

The malfunctioning of financial systems affects productivity through different channels. First, it affects individuals' occupational choice and firms' scale, which are decisions that are linked to the selection and reallocation channels. Problems or difficulties in the access to financing can prevent talented entrepreneurs from carrying out their projects and hold back projects with great potential. Likewise, they can limit the growth of skilled entrepreneurs already operating. The lack of quality projects and entrepreneurs and/or their slow growth reduces the returns on capital and labor, as well as the scale of firms, encouraging self-employment.

**Table 2** Financial development index

Country	Financial development index	Financial institutions Index	Financial institutions			Financial markets index	Financial markets		
			Depth	Access	Effectiveness		Depth	Access	Effectiveness
Argentina	0.24	0.39	0.09	0.33	0.81	0.08	0.02	0.21	0.02
Brazil	0.30	0.32	0.31	0.63	0.05	0.28	0.21	0.35	0.29
Chile	0.39	0.52	0.41	0.39	0.77	0.26	0.31	0.40	0.06
Colombia	0.23	0.34	0.17	0.15	0.70	0.13	0.16	0.18	0.05
Costa Rica	0.20	0.38	0.17	0.45	0.58	0.02	0.01	0.04	0.01
Ecuador	0.07	0.12	0.10	0.24	0.05	0.01	0.02	0.01	0.01
El Salvador	0.11	0.15	0.19	0.22	0.06	0.06	0.07	0.10	0.00
Mexico	0.29	0.39	0.13	0.31	0.78	0.18	0.13	0.31	0.11
Panama	0.26	0.44	0.20	0.42	0.75	0.08	0.08	0.14	0.01
Paraguay	0.15	0.28	0.11	0.18	0.58	0.02	0.01	0.03	0.02
Peru	0.24	0.32	0.14	0.29	0.57	0.15	0.13	0.30	0.02
Uruguay	0.20	0.36	0.14	0.29	0.67	0.04	0.00	0.11	0.00
Australia	0.49	0.56	0.61	0.25	0.77	0.41	0.44	0.52	0.27
Canada	0.44	0.49	0.45	0.20	0.79	0.38	0.24	0.62	0.28
United States	0.55	0.59	0.65	0.29	0.77	0.50	0.34	0.54	0.64
Switzerland	0.48	0.60	0.31	0.81	0.77	0.36	0.39	0.45	0.24

Note: The Financial Development Index is a simple average of the Financial Institutions Index and the Financial Markets Index. The Financial Institutions Index is a weighted average of the Depth, Access and Efficiency indicators, with weights of 0.39, 0.28, and 0.33, respectively. The Financial Markets Index is a weighted average of analogous indicators with weights of 0.35, 0.33, and 0.32, respectively. The data shown is an average for years 2011 to 2015.

**Source:** Prepared by the authors using data from the Financial Access Survey and the World bank (2017c).

Second, access to financing plays a key role in the firms' decisions to innovate and export. Underdeveloped financial systems reduce the rate of innovation (both of products, processes and markets), leading to smaller, less internationalized and, ultimately, less productive firms.

A better functioning of the financial system would allow firms to react better to real shocks, and especially to financial ones, in order to mitigate their perverse effects on productivity. Indeed, the lack of access to financing can lead to the exit of productive firms with liquidity constraints and keep unproductive firms with liquidity in the market.

Finally, access to credit also affects institutions in other areas. For example, there is evidence that credit restrictions increase the cost of permanent contracts. This leads to firms using more temporary contracts, which can negatively affect their productivity.

The implications of the lack of financial development observed in Latin America are quantitatively important in terms of productivity. Different studies estimate that the increase in productivity that could be obtained by eliminating credit frictions is between 18% and 24% and could reach

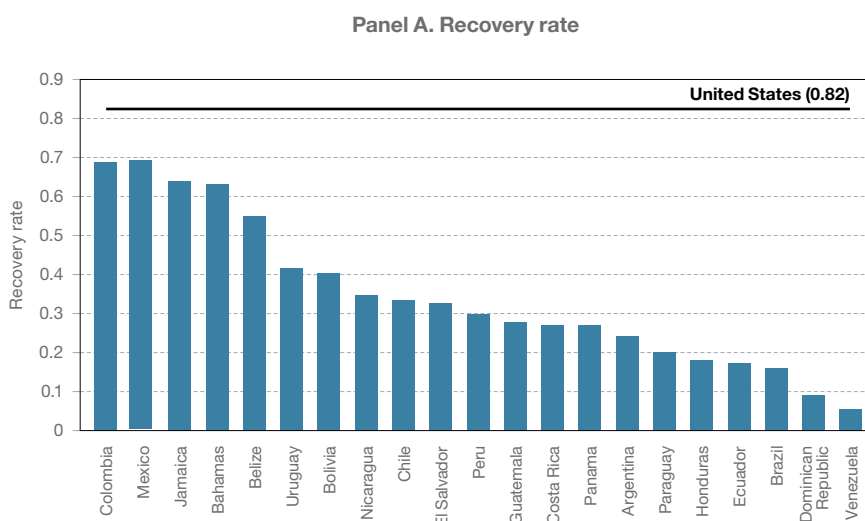
up to 36%. Existing estimates also suggest that if countries in the region were to adopt the best financial practices, they could achieve productivity gains of 18% and output per capita gains of up to 88%.

Public policy plays a fundamental role in improving the development of financial systems and access to credit for firms. For example, it can improve regulatory frameworks and undertake interventions aimed at correcting market failures.

Regarding regulatory frameworks, well-designed laws in the financial realm can promote greater access and use of the system by firms and individuals. An example, often overlooked, is the bankruptcy institutional framework that affects both the firms' decisions to take loans and the availability of loanable funds by financial intermediaries. A slow and/or expensive bankruptcy process increases the cost of loans and reduces the amount of funds available to intermediaries. This has a direct effect on the selection of firms that take loans and therefore on the productivity of the firms that operate in the economy.

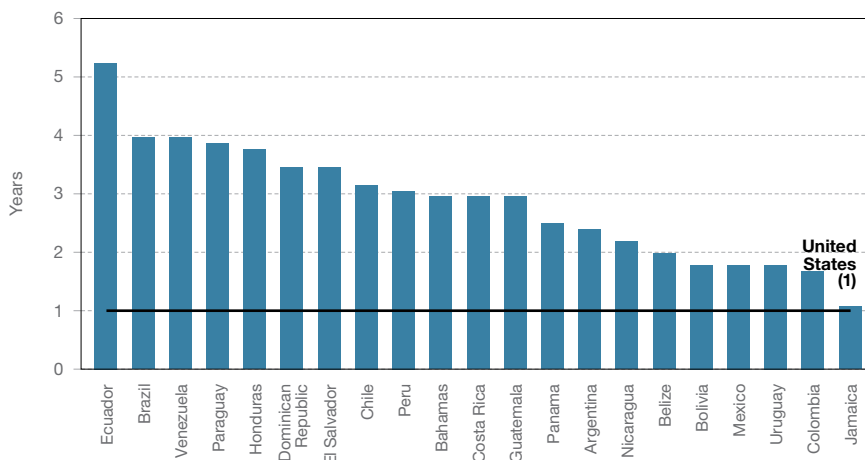
Unfortunately, quality indicators for bankruptcy processes reveal great challenges in the region (Graph 11). For example, while the recovery rate is 0.82 in the United States, the two Latin American countries with the best performance, Colombia and Mexico, display values below 0.7, and some countries such as Brazil, Ecuador, Paraguay and Venezuela, show values below 0.2. Similarly, conflict resolution times are considerably longer in Latin America, exceeding two years in many countries of the region, twice as long as in the United States. Fortunately, bankruptcy law reforms can improve these indicators, as well as the functioning of credit markets in general.

**Graph 11** Quality of bankruptcy processes in Latin America



Continued >

Panel B. Bankruptcy resolution time



Note: Panel A shows the recovery rate in case of insolvency, measured as dollars recovered for each dollar owed. Panel B shows the average time to resolve an insolvency episode. The horizontal line shows the value for the United States. The data corresponds to the year 2017.

Source: Authors' elaboration based on Doing Business.

Regarding interventions aimed at correcting market failures, Table 6 shows some experiences in the region, classifying programs according to their type. Experience with these programs in Latin America shows contrasting results depending on the type of instrument used, the measure of performance considered, the type of firm or project benefited, and the selection method applied. In many cases there is an increase in investment and/or innovation, but the effect on productivity is much less clear. It has also been observed that in many cases the firms benefiting from these programs could have had access to credit in the private sector anyway. Consequently, a key aspect for the success of these programs is the design of beneficiary selection strategies. For example, although small firms are commonly selected on the assumption that they have greater growth potential, it has been shown that age may be a better predictor of this potential. Finally, complementing the analysis of benefits with a consideration of the costs and risks of these programs is important to comprehensively assess their convenience.

Among the risks of these interventions, rent-seeking behavior and the creation of distortions at the expense of productivity particularly stand out. For example, interest rates subsidies or the granting of fiscal benefits can encourage firms to allocate resources so as to appropriate the rents that these programs convey, instead of allocating them to more productive uses. On the other hand, selecting beneficiary firms according to characteristics associated with low productivity, as it happens when small firms are selected, can distort the allocation of resources and thereby negatively impact aggregate productivity. The design and targeting of these interventions are essential to mitigate these risks.

Finally, technological advances open a range of possibilities for generating efficiency gains in the financial industry that must be exploited. In particular, the possibility of partnerships between *fintechs* and traditional financial institutions seems to be a promising way to improve and broaden the scope of financial services, with lower costs, new products and new processes (for example, new ways of rating risk).



**Table 3** Some examples of public financing programs

Program type	Components	Beneficiaries	Example of programs with that component in the region	Problems attended	Objectives / Mechanisms
Mutual Guarantee Societies	Granting of guarantees to potential creditors of the financial system	SMEs	SGR (Argentina)	Information problems / Lack of collateral	To improve access conditions to credit of SMEs by decreasing financing costs
Interest rate subsidies	Financement of exports of goods and associated services	Large companies	FINEM Exim (Brazil)	Barriers to access foreign markets	To promote export
	Agreements with financial entities, which could offer rates with three percentage points subsidized by the National Treasury	SMEs	Rate Bonus Regime (Argentina)	Costs associated with access to credit in the financial system	To improve the conditions of access to credit of SMEs by decreasing financing costs
	Subsidized interest rates with grace periods and different types of amortization	No restrictions	FINEM and FINEM Automatic (Brazil)	Costs associated with access to credit in the financial system	Financing for fixed assets (Implementation, expansion, recovery, modernization).
	Subsidized interest rates	No restrictions	FINAME (Brazil)	Costs associated with access to credit in the financial system	Financing for the purchase of machinery and equipment (Capital).
Direct credit	Subsidized interest rates	No restrictions	BNDES PSI (Brazil)	Costs associated with access to credit in the financial system	Financing for the purchase of capital goods produced in the country.
	Innovation	R&D activities	FONTAR (Argentina)	Positive externalities of Innovation	To promote investment in innovation and Development
	Capital contributions or direct financing with a grace period in some cases	SMEs	FONAPyME (Argentina)	High financing costs	To improve the conditions of access to credit of SMEs by decreasing financing costs
Direct credit	Access to credit and grace period	Micro and Small. Sectors of Agriculture and Manufacture	Individual Productive Credit-Productive Development Bank (Bolivia)	Access to credit in the financial system	Credit as an instrument to improve income. Additionally, to generate a social, economic and financial impact by generating new jobs and improving incomes in micro and small producers
	Access to credit	No restrictions	Bancoldex (Colombia)	Access to credit, especially long-term credit	To improve the supply of long-term loans mainly for small and medium-sized companies
Tax benefits	Tax incentives to encourage innovation	Large companies	Lei do Bem (Brazil)	Positive externalities of Innovation	Promote investment in Innovation and Development
	Shared Funds, Fiscal Credits and Subsidized Credits	Technological innovation companies	FONTAR (Argentina)	Failures that restrict innovation and the adoption of new technologies	Promote investment in Innovation and Development
Direct Credit accompanied by technical assistance	Access to credit accompanied by technical assistance	Start-up companies	Buenos Aires Emprénde (Argentina)	Access to credit for new companies	Promote the creation and development of innovative ventures

**Source:** Authors' elaboration.

## Final considerations

In this report we find that the levels of per capita income observed in Latin American countries are mainly caused by low productivity. This low productivity, in turn, is not so much caused by a bad economic structure, but rather by low productivity in all sectors of the economy.

This suggests that the roots of the development issue in the region are deep and pervasive throughout the entire productive fabric. Consequently, achieving continuous gains in the levels of per capita income requires adapting the institutional framework that conditions several of realms where firms operate.

The institutional framework is a set of laws, norms, principles, policies and practices that complement each other and that together determine incentives. Thus, potential productivity gains that could be achieved through reforms or interventions in specific areas may be limited by lags in other aspects of the institutional framework. This demands a comprehensive approach.

Likewise, the institutional framework tends to persist over time and improving it requires broad consensus. Reaching consensus is easier when there is information regarding which initiatives are essential to promoting productive development. In this regard, it is worth emphasizing a few specific areas of action.

First, promoting competition is key. This requires improving the capacities of the agencies that carry this mandate, reducing barriers to entry and promoting trade and international integration, in particular by attacking non-tariff and logistical barriers that still impose important trade restrictions in the region.

Second, it is important to ensure access to high-quality inputs for firms and to encourage cooperation between them. To this aim, trade in goods and services plays an important role, as do cluster support policies. Regarding access to inputs, the role of some services is highlighted, whose poor operation creates a limitation for the productive development of the entire economy. Improving regulation and fighting corruption in these sectors in particular is essential to improve productivity.

Third, it is essential to adjust labor regulations and policies in order to achieve a balance that guarantees the protection of workers' rights without discouraging innovation, hindering reallocation or promoting informality. The design of these policies and the State's capacities to implement them are key to its success.

Finally, it is essential to improve the functioning of financial markets, both through better regulation, such as in the case of bankruptcy proceedings, and better interventions aimed at favoring access to financing. The focus on resolving market failures and adequate beneficiary selection mechanisms are critical for this objective.

The horizontal nature of this productive development strategy stems from the fact that the region's productivity problem is pervasive across all sectors of the economy. However, not all sectors show the same potential, the same lag, or the same influence on aggregate productivity. On the other hand, policies associated with productive clusters clearly have a sectoral component. The important thing is that the sectoral dimension of the productive development strategy should enhance the comparative advantages that arise naturally, minimizing resource deviations towards unproductive activities.

In summary, there is a wide agenda of institutional reform to foster productivity in Latin America. Some countries in the region have been making efforts to identify and implement this agenda for several years and it is crucial to continue this process. For this, governments need information, ideas and arguments to inspire and validate their reform initiatives. In this context, diagnosis and recommendations of evidence-based public policies provide valuable guidance to the debate. With this report we hope to contribute to that goal.

## **Report on Economic Development 2018**

### **Institutions for productivity: Towards a better business environment**

The Report on Economic Development (RED), CAF's flagship report, is published by the Vice Presidency of Knowledge for Development, led by Pablo Sanguinetti. The academic coordination of the RED 2018 was in charge of Fernando Álvarez and Manuel Toledo. Marcela Eslava participated as academic advisor.

Contents and authors of the full report:

**Chapter 1** Institutions, productivity and development – Fernando Álvarez, Marcela Eslava, Pablo Sanguinetti and Manuel Toledo

**Chapter 2** Anatomy of productivity in Latin America – Marcela Eslava

**Chapter 3** Fostering competition – Manuel Toledo

**Chapter 4** Access to inputs and cooperation among firms – Fernando Álvarez

**Chapter 5** Employment and productivity – Guillermo Alves y Christian Daude

**Chapter 6** Improving business financing – Lian Allub

In 1960, average income in Latin America was 20% of that in the United States. Today, the situation remains practically unchanged. By contrast, other countries have shown significant progress in the same period: South Korea, for example, increased its relative income per capita from 7% to 67% in that period.

The source of this persistent lag in per-capita income is the low aggregate productivity of economies in the region. In turn, the main reason for this low productivity is not that productive resources in Latin American countries are particularly concentrated in low productivity sectors, but instead that productivity is low across all activity sectors.

This evidence implies that the search for fundamental causes of low productivity should focus on the institutions that shape the productive environment of firms, regardless of the sector in which they operate. The report focuses on four realms of firms' interaction in that productive environment: competition, access to inputs and cooperation between firms, labor relations, and financing. In each case, it points to institutions that shape the policies and regulations that affect productivity through three distinct mechanisms: the process of firms' entry and exit (selection), innovation and the allocation of productive resources among firms.