

DEBrief

Productivity Differences among Manufacturing Firms in Latin America and the Caribbean

- Large performance differences among seemingly similar enterprises in Latin America and the Caribbean (LAC) negatively affect aggregate productivity.
- A manufacturing firm in the 90th percentile of the productivity distribution produces almost 7x as much output as a firm in the 10th percentile (using the same inputs).
- Productivity differences persist over time. A firm's current productivity is almost completely explained by its one-year lagged productivity (i.e., productivity today is nearly the same as it was a year ago).
- Firm strategies, organization, and operating environments affect productivity.
- As many drivers of productivity differences are interrelated, policies and investments that do not take a comprehensive approach are prone to failure.

WHY FIRM PRODUCTIVITY MATTERS

As the economist Paul Krugman famously said: *"Productivity isn't everything, but in the long run it is almost everything."*

Aggregate productivity is believed to explain cross-country differences in per capita income, economic growth, and, ultimately, standards of living. While the accumulation of factors of production, both physical and human capital, has helped LAC narrow the income gap with developed economies, the region's aggregate productivity is still relatively low.

Aggregate productivity is largely based on the underlying productivity of all firms in the economy. Large and persistent differences in firm productivity within narrowly defined industries have been widely documented.¹ Therefore, by increasing productivity at the firm-level, there is potential to positively affect aggregate productivity.

PRODUCTIVITY DIFFERENCES IN LAC

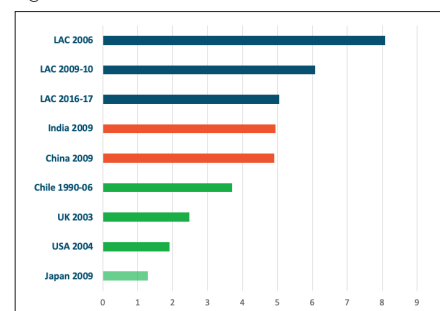
The region's productivity differences are significant. Based on an analysis of three waves of the World Bank Enterprise Survey data for 13,500 companies in 19 LAC countries, the most productive firms, which are in the 90th percentile of the Total Factor Productivity (TFP) distribution, produce almost seven times as much output with the same measured inputs as firms in the 10th percentile (referred to as the 90-10 TFP ratio from now on).



While productivity differences persist over time, the gap between the most and least productive firms in LAC seems to have decreased since 2006. As shown in Figure 1, the average 90-10 TFP ratios are 8.09,

6.09, and 5.05 for 2006, 2009-10, and 2016-17, respectively. LAC's productivity dispersion is significantly larger than that of the U.S. and the U.K. and similar to that of China and India.²

Figure 1. 90-10 TFP Ratios



Complementary data from Chile's manufacturing sector reflects similar trends: the most productive firms produce about four times as much as the least productive ones. Our analysis also shows that productivity differences remain over time: a firm's past productivity explains most of its productivity today (autoregressive coefficient of around 0.9).

Finally, using a decomposition of aggregate productivity, we show that most growth in Chile's aggregate productivity comes from improvements in the productivity of existing firms, and some from the entry and exit of firms. Little of this growth appears to be due to reallocations of output between firms (i.e., more productive firms growing faster than less productive ones).

CAUSES OF PRODUCTIVITY DIFFERENCES

A firm's performance depends on its strategy and organizational design (internal factors) and the environment in which it operates (external factors).

INTERNAL FACTORS Management practices

How firms are managed varies significantly across countries and industries. Firms in LAC tend to have poorer quality management than

1. Bartelsman and Doms, 2000; and Syverson, 2011.
2. Estimates for Japan, Ito and Lechevalier, 2009; for USA, Syverson, 2004; for UK, Disney et al., 2003; for China and India, Hsieh and Klenow, 2009.

SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE





those in advanced economies like the U.S., and are similar to those in China³, consistent with productivity dispersion comparisons.

These differences are mainly caused by information failures, such as an inaccurate assessment of the firm's situation, difficulties in understanding the effects of new practices, or even a lack of knowledge about how to implement better practices. These failures are related to characteristics of the firm, the manager, and the market.

Credit constraints and the lack of developed insurance markets may also hinder firms, especially small and medium-sized ones, from investing in training and introducing innovative practices. Finally, some sectors lack adequate consulting and training services, making it difficult for firms to improve their practices.

Human resource management

The hiring process is inherently uncertain as it is difficult to know the productivity levels of potential new employees until observing them on the job. Firms have different strategies for addressing these information asymmetries, such as evaluating applicants' social networks and offering salaries above or below the median. Apart from employee selection, retention is also key. Studies show the positive impact of training on employee productivity, which directly translates into firm productivity gains.

Various market forces affect how firms manage human resources. For example, information asymmetry in the labor market can lead to high-productivity firms employing low-ability workers and vice versa. For companies or industries with

compressed wage structures, whereby worker salaries remain similar regardless of seniority or skill-level, firms may invest more in training, as training increases labor productivity more than the wage. This contrasts with competitive labor market scenarios where there is greater worker mobility. There is also evidence that more competitive product markets have a positive effect on firms adopting best practices in human resource management.

Innovation and technology adoption

Innovation is widely seen as a driver of productivity improvements. Public initiatives designed to boost innovation have blossomed all over the world – although their effectiveness is still open to debate.

According to the World Bank Enterprise Survey data we analyzed, about 70% of LAC firms claim to have innovated (in products or processes), and around 53% report having introduced new or significantly improved processes in the three years before they were surveyed. Forty percent of LAC firms were engaged in R&D when surveyed.

What is holding firms back from investing in R&D and innovation? For some firms, the possibility of knowledge spillovers, whereby competitors benefit from the knowledge generated through their investments in innovation, serves as a disincentive. Firms may also face difficulty accessing financing for innovation because returns are more uncertain and take longer to materialize and such investments normally involve intangible assets that have very limited use as collateral.

EXTERNAL FACTORS Access to credit

Most firms in LAC (75%) believe limited access to finance is an obstacle to their current operations, and 12% say that it is the

biggest barrier. Accordingly, 41% of firms do not have a line of credit or loan from a financial institution, and almost a third of firms finance all of their working capital and investment from internal funds and retained earnings. This situation hampers firm entry and growth, and reduces productivity, especially among MSMEs, which could deteriorate country-level productivity.

Product market competition and other factors

Several studies propose that greater product market competition increases firm productivity,⁴ either directly or by inducing productivity-enhancing changes in organizational structures. Other factors, such as regulatory frameworks, corruption, and job market informality also play a big role in explaining productivity differences.

CONCLUSION

Since many of the factors identified above are interrelated, firms may be trapped in a viscous cycle of low productivity if they are unable to make significant, coordinated changes across all dimensions. For example, training programs may only be effective if they are accompanied by programs to improve access to capital. Efforts to lower the cost of new technology for firms increases adoption only if the incentives of the workers who are adopting the technology are considered. Ultimately, taking these interconnected factors into account is key for designing policies and providing financing to address the region's ongoing productivity challenges. ■

Additional Information

Authors: Lucas Figal Garone and Enrique Carreras
Editors: Norah Sullivan and Patricia Yañez-Pagans

For more information, contact:
lfigal@iadb.org

This brief summarizes the findings of the study by Figal Garone, López Villalba, Maffioli and Ruzzier (2020), [Firm-level Productivity in Latin America and the Caribbean](#), which is part of IDB Invest's *Development through the Private Sector Series* and has been published in [Research in Economics](#).

Photography: Shutterstock
Design: Mario Segovia Guzmán

The views expressed here are those of the authors and do not necessarily reflect the views of the IDB Group, its respective Boards of Directors, or the countries they represent.

3. Comparisons based on the [World Management Survey](#).
4. MacDonald 1994, Nickell 1996, Nickell et al. 1997 and Schmitz 2005.