THE VENEZUELAN ENTERPRISE:

Current situation, challenges, and opportunities

Jose Luis Saboin

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ABSTRACT *

Using Enterprise Survey data, this study describes the characteristics of current Venezuelan firms —the survivors of one of the deepest economic contractions of modern history— across different dimensions, such as access to infrastructure services, firms' investment and financing, labor and skills, foreign trade, the legal environment, and firms' innovation and performance. The study identifies the main challenges faced by the surviving firms (notably: macroeconomic and political instability, unreliability of basic services, lack of credit, and migration), while identifying some of the opportunities for these firms to exploit if a comprehensive recovery strategy for the country were to be implemented. In this sense, I find that the representative Venezuelan survivor firm has managed to internationalize through several channels (foreign ownership, exports, and international quality certifications), as well as to match skills with current business and market demands and keep innovating. The study also briefly analyzes some of the traditional determinants of (labor) productivity at the firm level, bringing the most interesting aspects to the fore so they can be explored further in more topic-focused research.

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I. INTRODUCTION

The last 20 years of the private sector in Venezuela are characterized by a high degree of state intervention, with consequences for the incentives to invest, produce, and exchange in the country.[1] Supported by the oil bonanza of the 2004–2014 period, the state advanced the implementation of an interventionist model of the economy through control policies, particularly on consumer prices, foreign exchange, and labor markets, as well as a long list of expropriations of companies and productive assets.[2]

Moreover, from end 2013 until end 2020, gross domestic product (GDP) is estimated to have contracted by at least 75%, putting Venezuela's depression among the deepest of the world over the last 60 years.[3] In the midst of this debacle, non-oil private economic activity is at historic lows, in a country that was already having growth challenges 20 years ago.[4] According to the few, delayed, and disputed official statistics,[5] while the private sector represented 63% of GDP in 2006, it is estimated that in 2019 it decreased to 43% (including households). The use of installed capacity in the manufacturing sector is at 18%, compared to 76% in 2010.[6] The result in terms of private investment—one of the most important sources of economic growth—is a decline from 15.9% of GDP in 1998 to an estimate of 2.1% in 2018 (Figure 1).[7]

1 However, this process did not start 20 years ago. Vera (2009) presents evidence that Venezuela has been suffering from a process of deindustrialization since the 1980s.

2 See Obuchi et al. (2011).

3 For a discussion of the factors that brought on this debacle, see Abuelafia and Saboin (2020).

4 See Hausmann and Rodriguez (2014).

5 For instance, on May 2, 2018, the International Monetary Fund issued a declaration of censure against Venezuela for its failure to comply with its obligation under Article VIII, Section 5, which requires fund members to provide adequate data for macroeconomic surveillance.

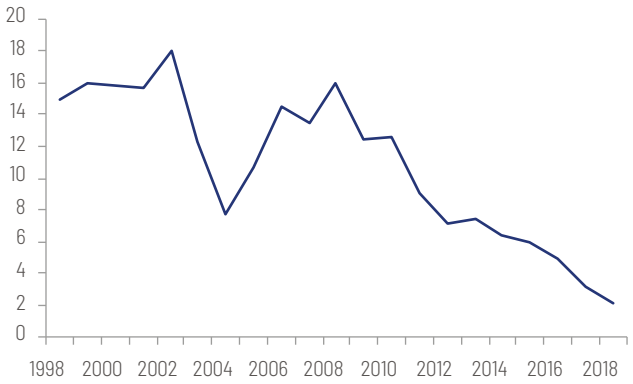
6 According to CONINDUSTRIA's 2020Q1 survey.

7 International Monetary Fund (IMF), World Economic Outlook (WEO), October 2020.

Figure 1. Venezuela's private sector's great shrinking

A. Private investment

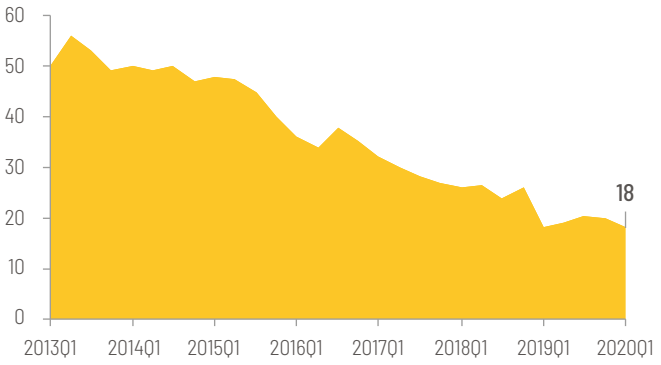
Venezuela: Private Investment
(% Real GDP)



Source: BCV and IMF, WEO October 2020.

B. Capacity utilization

Venezuela: Industry's capacity utilization
(% of total capacity)



Source: Conindustria.

When thinking about a potential process of recovery, it is necessary to understand the current situation of the private sector. In this sense, it is worth asking: What is the status of the Venezuelan business fabric? What are its strengths and weaknesses? And where should the emphasis be put to help the private sector jump-start an economic recovery? To answer these questions, the IDB, in conjunction with the Instituto de Estudios Superiores de Administración (IESA), conducted the Enterprise Survey during the second half of 2019 and the first half of 2020.

Developed by the World Bank in partnership with the IDB and other multilateral actors, the Enterprise Survey (ES) is a company-level survey of a representative sample of the private sector of an economy. It covers a wide range of business environment topics, including access to financing, corruption, infrastructure, crime, competition, and performance measures.

One of the main advantages of the ES is that it has a standard methodology that is applicable to all countries. This facilitates the comparative analysis of the microfoundations of growth between countries and helps policy makers identify, prioritize, and implement reforms of policies and institutions that support the development of private economic activity in an efficient manner. To date, more than 164,000 interviews have been conducted in 144 countries. There is a wide empirical

literature available from the application of these surveys, some of which are inputs to this work.[8]

Therefore, this survey allows us to assess the status of the survivors of one of the deepest economic contractions in the world over the last 60 years. These, the firms that will enable Venezuela to reconvert, provide information through the survey on what they need to improve their performance. In addition, the survey serves as the basis for inferring the more-general characteristics of the universe of "non-surveyed" firms in the country. Therefore, this study ultimately contributes to the understanding—from a firm-level perspective— of Venezuela's economic collapse.

In this sense, the purposes of this study are to (i) describe the characteristics of the firms that were surveyed across different dimensions; (ii) identify the main challenges faced by the surviving firms, while at the same time identifying some of the opportunities; and (iii) bring the most interesting aspects up front so they can be explored further in future and more topic-focused research.

This paper contributes to several strands of the economics literature. First, it offers additional evidence relevant to the strand of the literature related to populism, state capacity, and economic outcomes, particularly in Latin America. A seminal work in this literature is Dornbusch and Edwards (1993), in which populism is defined as a set of policies that receive support from a significant fraction of the population, but that ultimately hurt the economic interests of this majority (as countries end up with a depressed environment that prevents firms from operating profitably). Studies have shown that such populist actions trigger political instability (Alesina et al., 1996) and the deterioration of institutions (Baumöhl et al., 2019) and increase uncertainty (Byrne et al., 2015), all of which have negative impacts on firm performance. Regarding Venezuela, Corrales and Penfold (2011) describe the political economy of the populist process in the country and Penfold and Vainrub (2009) document the impact of these populist actions during the 2000s on Venezuelan firms and the response of those firms.

A second strand of the literature to which this work contributes seeks to understand the behavior and survival of firms in times of economic distress. For instance, Amorim and Rocha (2012) suggest that firm largeness is less helpful in avoiding exits in a crisis context, as large size may be responsible for firm inertia and the inability to adapt optimally to an adverse environment. In a recent paper, Arrighetti et al. (2019), using firm-level data from manufacturing firms in Italy over the period 2001–2013,

8 For more information, see https://www.enterprisesurveys.org/.

argue that firms adopting a corporate strategy that makes relatively broad use of skills and capabilities to deal with (business) environment complexity are less likely to exit during a downturn than firms that do not. A paper from Boscio et al. (2020) tests Schumpeter's (1934) creative destruction theory, which holds that small and less efficient firms are the ones that exit the market during downturns, using a sample of 6,345 firms across 12 high- and middle-income countries. They show that, in a hypothetical scenario fashioned after the current COVID-19 pandemic (during which firms have no revenues due to a lockdown or collapsed demand), with a few exceptions at the country level, firms suffer from "untimely illiquidity" regardless of age, size, and productivity levels.

The paper also contributes to the understanding of the role of internationalization in firm survival. Autio et al. (2006) argue that while internationalizing late allows firms to assemble resources and gain experience, it also allows inertia to develop. They posit that internationalization has differing effects on firm survival and growth and that the effects are moderated by organizational age, managerial experience, and resource fungibility. A recent paper by Baumöhl et al. (2020) finds that foreign ownership increases survival rates of firms in countries that joined the European Union more recently.[9] The outward orientation of the firm can also support survival through the possession of international quality certificates, as these can open new markets and lead to better quality monitoring, better management of product risks, and generate knowledge spillovers through greater international contact (Garcia-Pozo et al., 2014; Lakhal, 2014; Sánchez-Ollero et al., 2015; Sıtkı İlkay and Aslan, 2012).

Finally, this paper adds to the literature that studies the determinants of (labor) productivity at the firm level. Amin et al. (2019b) analyze several determinants of productivity using ES. Other authors emphasize particular determinants, such as size (Bartelsman et al., 2013; Tybout, 2000; Acs and Audretsch, 1988; Diaz and Sánchez, 2008; Pagano and Schivardi, 2003; Söderbom and Teal, 2004), age (Bahk and Gort, 1993; Jensen et al., 2001; Jovanovic, 1982; Thompson, 2005; Zimmerman, 1982), management (Bloom et al., 2010; Pfeifer, 2015), the regulatory burden (Aghion et al., 2004; Djankov et al., 2002; Djankov et al., 2006; Gaviria, 2002), finance (Presbitero and Rabellotti, 2014), and skills (Helble et al., 2019; Maré et al., 2015).

The results of this paper reveal that the representative Venezuelan firm has aged.[10] While aging is usually associated to larger economies of scale and therefore higher productivity, from this sample aging is associated to lower labor productivity levels as

9 The Czech Republic, Hungary, Poland, and Slovakia.

10 "Representative firm" typically refers to the average firm; these terms are used interchangeably throughout this document.

well as to labor productivity decreases. However, the links between company age and productivity may be more complex than what these conditional correlations show. [11] Foreign participation in firm ownership has increased for the average Venezuelan firm over time. This represents an opportunity for greater access to modern technology and to international markets and business knowledge. From this sample, foreign ownership is associated to higher levels of labor productivity, particularly for large firms and in the retail sector. In Venezuela, managers of firms have more years of experience than in countries of similar actual and potential income per capita,[12] and is associated to higher labor productivity for medium-sized firms. There is also an increased presence of women among the owners of firms; however, the link between gender and firm productivity in Venezuela needs to be looked at in depth.

Almost a third of Venezuelan firms have an internationally recognized quality certificate, a share higher than that of firms in both actual and potential per capita income peers. Quality certificates can lead to benefits such as new markets for firms, superior quality monitoring, improvement of the management of product risks, and knowledge spillovers through greater international contact. From this sample, the possession of such quality certificates is associated to higher labor productivity levels, although the causes and channels remain to be studied, including the possibility of reverse causality.

Most Venezuelan firms report macroeconomic and political instabilities as their biggest obstacles, followed by the lack and unreliability of electricity and other basic services, the lack of credit, the practices of the informal sector, and the shortage of skilled workers. Some firms have addressed the issue of electricity and water supply by providing these services themselves (buying small power plants and digging wells). For other services, such as internet, overcoming the challenge can be more complicated, as the sector is subject to tight regulation and investment needs are high. While basic service unreliability is not found to be associated either positively or negatively to firms' labor productivity in this sample, more research is required on this topic.

Access to credit is quite limited for Venezuelan firms. Only 18% of the firms report having a credit instrument while in peer countries this figure is 54%. Most firms report that it is difficult to obtain a loan and that rejection rates are higher than for firms in peer countries. Firms also report that banks are now more oriented to financing working capital (which is shortsighted) than to financing fixed-asset investment (which

11 See Jensen et al. (2001), Jovanovic (1982), and Thompson (2005).

12 We observe two sets of comparator countries, the first with actual or current per capita income levels similar to those of Venezuela and the second with potential or historical per capita income levels similar to those of Venezuela. See section II for details.

has long-term implications), an expected result given Venezuela's difficult business environment. The access to credit story has its correlate with the story of investment, as there are more firms investing in working capital than in fixed assets, although firm overall investment (working capital and fixed assets) has decreased significantly. This effect is more pronounced for medium-sized firms, which are more dependent on banks for financing their investments. Regarding investment financing, firms in Venezuela, as in most countries, report doing so by their own means. Although bank financing of investment has diminished over the last decade, it is still present and public banks are important sources of it, particularly for medium-sized firms. Investment has also been found to be associated to higher levels of labor productivity for small firms and in the service sector.

The labor factor picture for Venezuelan firms is one of low salaries, a low proportion of skilled labor in firms, difficulty with finding skilled workers in the domestic market, a lack of in-house training, lower female participation, and a labor force who lack motivation and commitment. Firms report that the lack of skills is mostly due to the out-migration that is occurring, followed by the labor laws, the quality of the current labor force, and the quality of domestic education. However, it is found that most of the required education levels are attained; when this is not the case, two things happen: (i) it occurs at the basic education levels and (ii) the required vs. actual skills gap does not seem especially wide. Nevertheless, such changes in the composition of workers within firms, which are associated to migration (and ultimately to lower state capacity), can reduce productivity and impede innovation, with negative consequences for the productive structure of the country.

Over the last decade, an increasing share of Venezuela's average firm sales has come from exports (from 0.1% in 2010 to 8% in 2020). While the sample points to exporting being positively associated to labor productivity, particularly in the manufacturing sector, it is not clear if exporting causes firms to become more productive or if the more productive firms self-select into the exporting activity, something worth looking at in more detail. At the same time, compared to 10 years ago, more firms are importing and a larger share of firms' inputs is coming from abroad. When compared to firms in peer countries, however, it is noticed that the share of firms using inputs of foreign origin is smaller in Venezuela, something that could be related to either import constraints faced by Venezuelan firms and/or to the existence of resilient local value chains in the country. This is something definitely worth looking at in detail, since a more resilient local value chain can reduce the need for external resources to bring in the required goods to jump-start the economy and/or contributes to optimizing the allocation of such resources. On the contrary, a depressed local value chain will impose larger foreign currency needs to boost aggregate production.

The regulatory burden seems too heavy for Venezuelan firms, with most of the surveyed companies reporting that compliance requires a significant burden on manager's time, and is negatively correlated to firms' productivity, particularly in the service sector. The responding firms' perception of corruption is high and deep, and higher than in both actual and potential income peer countries; notably, corruption generates costs for firms that reduce the resources available for more productive activities. Crime affects more than half of the firms and it is responsible for significant losses that, coupled with the funds firms have to commit to security to avoid crime, take an important toll on firms' sales, even when compared to firms in peer countries. In sum, the high levels of corruption and crime are currently major stumbling blocks for Venezuelan firms.

Firms innovate for the most part through changes in the production process, although there is some product innovation, too. Firms report that innovation has improved their ability to develop new processes, enhance product quality, reduce costs, increase the number of product lines, and reach new markets. Firms, however, spend less on innovation than on security, and innovation expenditures are usually lower than the losses generated by services interruptions and theft/vandalism. In addition, firms face significant challenges regarding knowledge protection and innovation financing and promotion, particularly the provision of these by the public sector.

Average firm performance seems to have improved during the period of study (2018 vs. 2017), particularly in terms of sales, although the results should be taken with caution, because some of the data regarding sales are affected by hyperinflation and monetary conversion (despite this study correcting for these distortions). Firms saw the numbers of their employees fall. Migration aside, this seems to have happened in spite of tight labor regulations, an issue that requires more investigation so as to avoid major employment fluctuations if labor laws are eased. The increase in sales (in US$) and the reduction in employment resulted in a greater increase in sales per worker (a proxy for labor productivity) that, beyond its magnitude, is mostly associated to firm size, the outward orientation of the firm, and its management quality. Moreover, firms are working at a fifth of their installed capacity, something that while being perceived as an opportunity for a faster recovery can turn into a challenge if this spare capacity is deteriorated.

The document continues as follows: section II briefly discusses the survey and sample characteristics, section III presents the results of the main topics covered by the ES, and section IV provides the concluding remarks

II. DATA CHALLENGES AND SAMPLE DETAILS

The ES are nationally representative surveys of formal (registered) private firms. They cover manufacturing and services firms and exclude extractive industries and agriculture. The sampling methodology used is stratified random sampling with the region, sector, and size as the strata. The surveys cover a range of topics, including access to finance, infrastructure, competition, crime, labor, business environment obstacles, and firm performance.[13]

To execute the survey in Venezuela, the active participation of 44 business associations was solicited, who provided their corresponding directories of affiliated firms for the construction of "the directory of firms," which was the essential input for carrying out the project. Once this directory was constructed, data were collected during the second half of 2019 and the first half of 2020. The data collection process, however, faced several challenges associated, in essence, to three main factors: (i) a context of a severe economic depression, (ii) the unfamiliarity of the firms with the survey and its complexity (the most recent survey of comparable scope was conducted 10 years ago), and (iii) the COVID-19 pandemic.

First, as a result of the sharp depression the Venezuelan economy has experienced since the end of 2013, it was necessary to review the sample design in order to construct a survey instrument appropriate to small economies, in accordance with the World Bank's criteria.[14] In this sense, as a first result of the survey, the reduction in the population universe (i.e., the directory of firms) stands out, going from about 10,000 companies in 2006 to 4,758 in 2020.[15] This is evidence of the economic contraction in general and of the contraction of the private sector in particular. The technical team at IESA selected 2,849 firms to survey, of which: 931 could not be contacted (though multiple attempts were made), 926 explicitly indicated that they

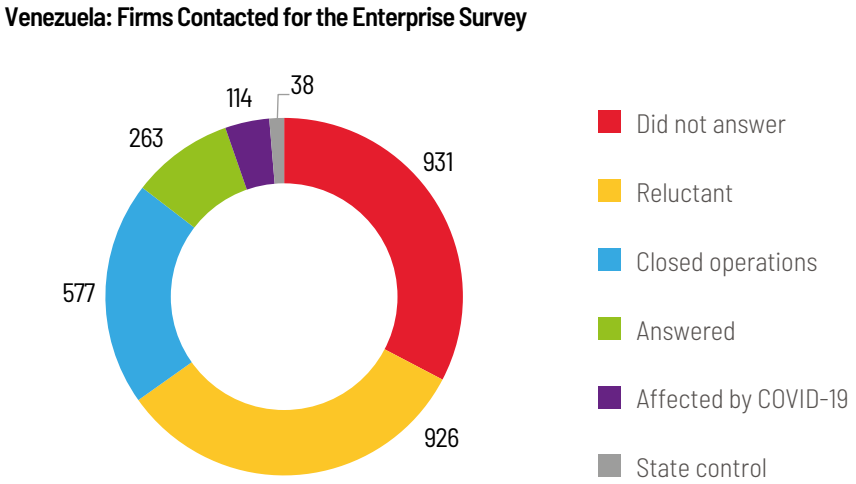
13 For details of the methodology, see: http://www.enterprisesurveys.org/methodology.

14 See World Bank (2009).

15 According to older directories from the 44 business associations that supported the project.

would not participate,[16] 577 had closed operations in Venezuela, 114 were affected by the COVID-19 pandemic,[17] and 38 were under some form of government control, leaving 263 that did respond (see Figure 2 below). Fortunately, the actuarial tables of the Enterprise Survey allow for making inferences about small economies (with a GDP of between US$15 and 100 billion) based on a sample of between 150 and 360 companies.[18]

Figure 2. Classification of firms contacted for the survey



Source: Enterprise Survey 2019/2020, IDB.

For an economy of the size of Venezuela in 2019[19] and according to the methodology for estimating stratified random proportions in finite populations, the size of the sample should have been 322 firms. This means that only 82% (263/322) of the theoretical or desired level was obtained. Classified by size and economic activity, the theoretical and actual samples are depicted in Table 1 below.

16 These include many companies that initially committed to participating and then backed out, possibly after evaluating the length of the questionnaire and the nature of the information requested.

17 Although they stated their intent to submit their information, in the end they did not. The contact and follow-up effort could not be continued due to the effects of the COVID-19 pandemic: on March 13, 2020, the country entered a State of Alarm that forced social isolation.

18 See World Bank (2009).

19 US$70.14 billion. See IMF, WEO April 2020.

Table 1. Venezuelan firm sample composition by size (in number of employees) and sector

	Theoretical				Actual			
	Small (0–19)	Medium (20–99)	Large (100 or more)	Total	Small (0–19)	Medium (20–99)	Large (100 or more)	Total
Manufacturing	23	42	48	**113**	42	78	80	**200**
Retail	49	42	18	**109**	11	9	3	**23**
Services	40	32	28	**100**	19	16	5	**40**
Total	**112**	**116**	**94**	**322**	**72**	**103**	**88**	**263**

Source: Enterprise Survey 2019/2020, IDB.

As can be deduced from Table 1, only in the case of manufacturing firms did the actual sample size equal or exceed the theoretical one (being 177% of the latter),[20] while the actual sample sizes of firms in the services and retail sectors were 21.1% and 40%, respectively. Thus, the results and inferences for the manufacturing sector turn out to be more reliable than for the other sectors. Similarly, the larger the firm, the more accurate the inference about the population. Thus, the sample is biased toward large firms and toward manufacturing firms (see Table 2).

Table 2. Venezuelan firm sample coverage by size and sector

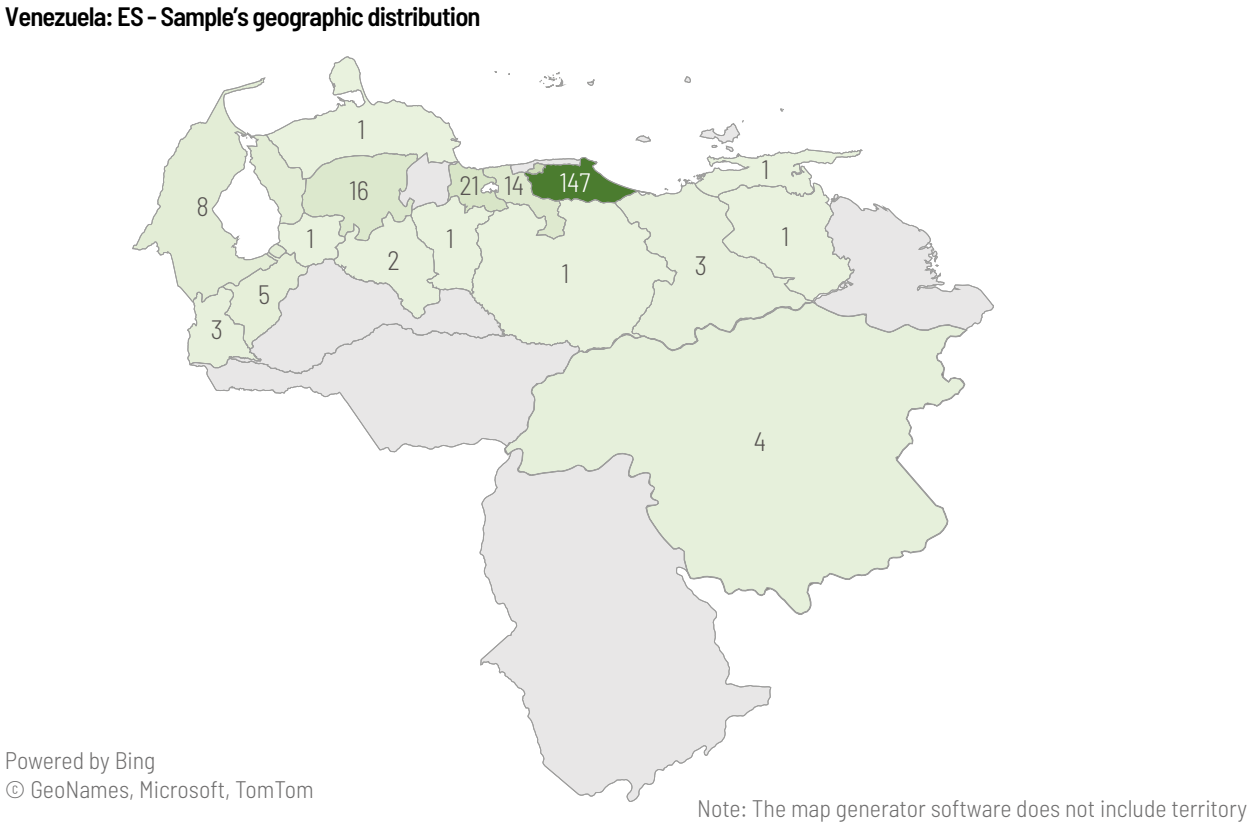
	Coverage (Actual/Theoretical, %)			
	Small (0–19)	Medium (20–99)	Large (100 or more)	Total
Manufacturing	182.6	185.7	166.7	**177.0**
Retail	22.4	21.4	16.7	**21.1**
Services	47.5	50.0	17.9	**40.0**
Total	**64.3**	**88.8**	**93.6**	**81.7**

Source: Enterprise Survey 2019/2020, IDB.

The geographical distribution of the sampled firms is shown by Figure 3 below, with most firms located in the north-central region. The majority of firms (55.9%) were based in Miranda state, with the following states being associated with the next highest shares in terms of firm location: the Capital District (11.4%), Carabobo (8%), Lara (6.1%), Aragua (5.3%), and Zulia (3%). The remaining 10% of the sample was distributed among the country's 18 other states.

20 See IESA (2020).

Figure 3. Geographic distribution of Venezuelan firms surveyed



Source: Enterprise Survey 2019/2020, IDB.

Note: The map generator software does not include territory in eastern Venezuela that is in dispute with Guyana.

Despite the effort made by IESA, the survey had other set of limitations related to (i) the high number of closed firms, (ii) the decision by many firm managers not to participate in the study, and (iii) the voluntary and mandatory quarantine due to the COVID-19 pandemic.[21] Moreover, in the process of reviewing the completeness of the questionnaires received, several omissions were observed in terms of the answers to the questions of both qualitative and quantitative nature, which prompted the resending by email of the observations to a qualified informant. However, informants very rarely responded to these queries. Thus, given that some omissions are voluntary and others are involuntary, the treatment of the data was such that, depending on the nature of the question, the results shown in section III are for firms with informants who *actually* responded to that specific question, these are called: the *responding* firms.

Other challenges were related to (i) the lack or unavailability of management, as the vast majority of the management teams of the firms (and also of the partners of

21 Decreed by the authorities as of March 13, 2020.

the firms) were outside the country (beyond the holiday season), which considerably hindered the authorization and consultation processes for completing the surveys; (ii) disposition, as firms claimed their personnel did not have time or were not qualified to fill out the survey due to its length, distrust of the process, concerns about disclosing private firm data, or low interest in the project; (iii) deficiencies in internet, telephone, and electricity services, which negatively affected the receiving, completing, and returning of the electronic survey questionnaires, particularly for companies located in the interior of the country; and (iv) the increasing fuel scarcity during the months of March, April, and May of 2020 at the national level, which limited the ability of informants to be present at their work centers, affecting their availability for and attention to the survey.

Comparator countries and previous versions of the survey

To compare results cross-sectionally and over time, other Enterprise Surveys carried out by the World Bank were considered. The cross-sectional dimension considered two aspects: regional similarities and per capita income levels; while the time dimension, given that ES are carried out every 3 to 5 years and that Venezuela missed several attempts, considered all the available previous ES for Venezuela (2006 and 2010) when data for the specific question was available.

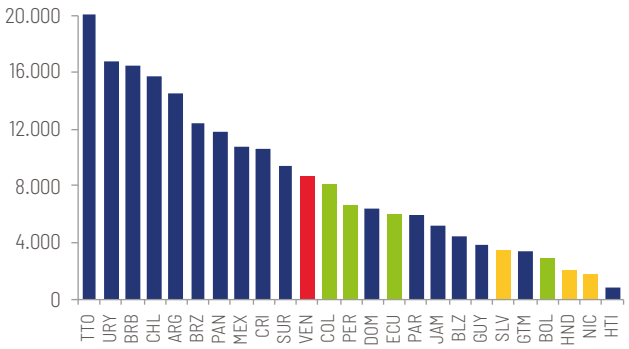
In capturing the cross-sectional aspect, a crucial consideration was that, given Venezuela's massive economic contraction, the living standards of firms and households at the time of the survey were quite different from where they had been when the economy was growing. This implies that Venezuela's peer countries in terms of per capita income are different now as well. As can be seen in Figure 4, while in 2013 (the last year of positive economic growth for the country) Venezuela's per capita income was closest to (and exceeded) those of its natural peers of the Andean Community,[22] especially Colombia and Peru, countries with comparatively higher per capita income for the region (chart 4A); however, by 2019 Venezuela's per capita income had declined substantially, being more on a par with the per capita income of Central American countries such as El Salvador, Honduras, and Nicaragua (chart 4B).

22 The Andean Community countries are Bolivia, Colombia, Ecuador, and Perú.

Figure 4. Latin America and The Caribbean (LAC) per capita incomee

A. Per capita GDP in 2013

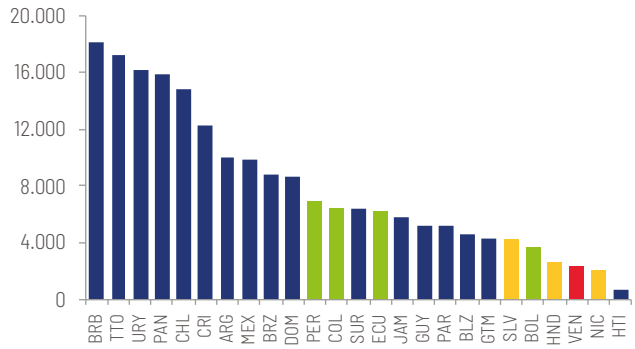
LAC: GDP per capita in 2013 *(U.S. dollars)*



Source: IMF, WEO October 2020.

B. Per capita GDP in 2019

LAC: GDP per capita in 2019 *(U.S. dollars)*



Source: IMF, WEO October 2020.

Considering both the new reality of Venezuela's per capita income and the country's potential per capita income, the results of the survey were compared to data from two sets of countries, "Similar income" and "CAN" (Comunidad Andina de Naciones—"Andean Community of Nations") or "Andean countries." The first set was constructed to account for Venezuela's actual level of per capita income; the data used were from the last available ES for Bolivia (2017), El Salvador (2016), Honduras (2016), and Nicaragua (2016). The second set was constructed to account for Venezuela's potential level of per capita income, with the data used being from the last ES of Bolivia (2017), Colombia (2017), Ecuador (2017), and Perú (2017). Note that Bolivia is a member of both comparator sets. Moreover, in most of the charts of section III, the figures reported are simple averages for each set and sometimes for all seven countries.

Finally, regarding the time dimension, the results of the last two Enterprise Surveys carried out by the World Bank in Venezuela (2006 and 2010) were considered.[23] It must be borne in mind that the economic environment in which the last ES was carried out and the current environment are quite different. In essence, during the late 2000s, Venezuelan firms were still benefiting from the oil boom, while being subject to an increasing degree of interventionism. Nowadays, while firms are grappling with one of the greatest collapses in demand in the world in the past 60 years, they are benefiting from reduced state interventionism.

23 The technical details of previous Venezuelan Enterprise Surveys and those of comparator countries are available upon request at https://www.enterprisesurveys.org/.

III. RESULTS

This section presents results for the 10 key sections covered by the survey (following the standard practice of the ES), namely firm characteristics, main obstacles, service infrastructure, investment and financing, labor and skills, foreign trade, legal environment, corruption and crime, innovation, and gender and performance. The details of these results are presented below.

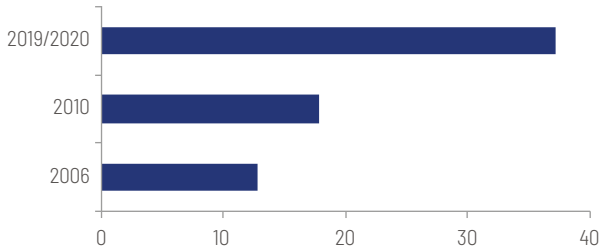
Firm characteristics

One of the findings of the survey is that the representative (average) Venezuelan firm is older now (going from an average age of 13 years in 2010 to 37 years currently) (Figure 5). Compared to firms in the countries of the Andean region and those of similar per capita income, the representative Venezuelan company is, on average, 17 years older. This implies, on the one hand, that the rate of creation of new companies has decreased significantly and on the other that the Venezuelan firms that exist today are deeply rooted in the country. The literature on firm age highlights the benefits of a firm's aging as being the gaining of economics of scale, learning by doing (Bahk and Gort, 1993; Zimmerman, 1982), selection effects (the elimination of inefficient firms, implying higher productivity on the part of the surviving older firms; see Jovanovic, 1982 and Thompson, 2005), and vintage effects (the impact on both old and young firms of the use of new technology or equipment by younger firms; see Jensen et al., 2001).

Figure 5. Representative firm age

A. Trend

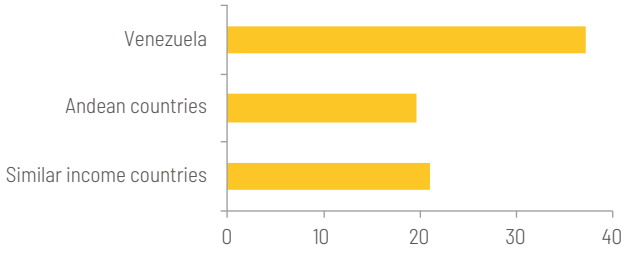
Venezuela: Age of the average firm
(years)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Peer comparison

LAC: Age of the average firm
(years)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

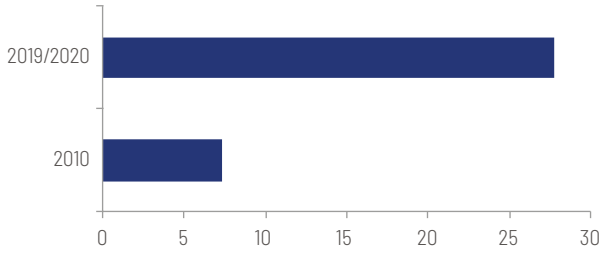
Another characteristic of Venezuelan companies is that foreign ownership has increased in recent years (from 7% in 2006 to 28% currently),[24] while in comparator countries at present only 10% of the firms are of foreign proprietary origin (see Figure 6 below).[25] This could be related to three phenomena: (i) the number of transnational companies that have been allowed to continue operating in Venezuela under certain operating modalities, (ii) the change of residency of many proprietors that were previously based in Venezuela (those who were able to diversify their market and geographic risks in the 2000s and previous decades), and (iii) the arrival of new foreign enterprises. The literature on the impact of foreign ownership on firms states that it brings, among other things, more access to modern technology and to international markets (Alfaro and Chen, 2011).

24 The terms of "firm," "company," and "enterprise" are used interchangeably.
25 This is measured as the share of firms with 10% or greater foreign ownership.

Figure 6. Share of Venezuelan firms with at least 10% foreign ownership

A. Trend

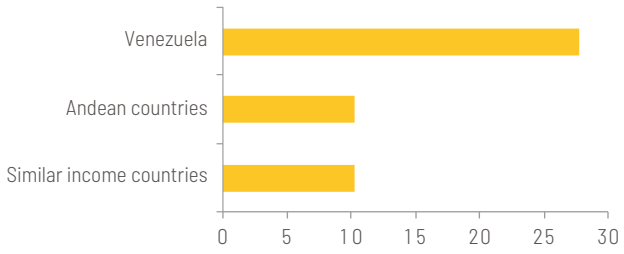
Venezuela: Foreign ownership
(% of responding firms)



Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

B. Peer comparison

LAC: Foreign ownership
(% of responding firms)



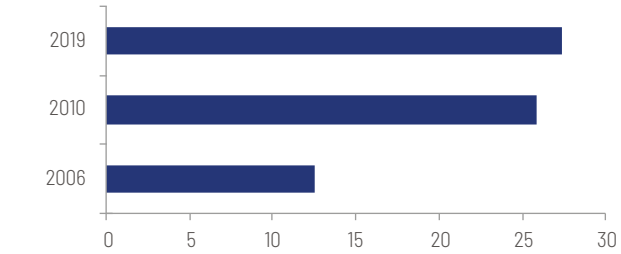
Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

Hand in hand with this, it should be noted that 27% of Venezuelan firms have an internationally recognized quality certificate, well above the 14% registered by their peers in Andean countries and the 8% registered by their peers in similar income countries (see Figure 7 below).[26] It has been argued that international quality certificates can open new markets for firms and lead to better quality monitoring, better management of product risks, and knowledge spillovers through greater international contact. Also, 71% of firms with such certificates have their financial statements reviewed by external auditors, a figure much higher than that of firms in comparator countries (58%), a sign of accountability on the part of the firms.

Figure 7. Venezuelan firms with an internationally recognized quality certificate

A. Trend

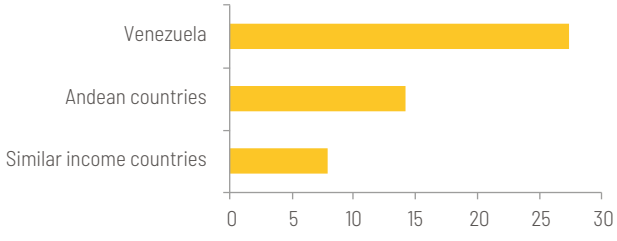
Venezuela: Internationally-recognized quality certification
(% of responding firms)



Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

B. Peer comparison

LAC: Internationally-recognized quality certification
(% of responding firms)



Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

26 As defined in section II.

Main Obstacles

Figure 8 below represents a snapshot of the main business environment obstacles as perceived by Venezuelan firms. Panel A shows obstacles in Venezuela benchmarked against the country's regional and per capita GDP comparators. Panel B shows the top 3 constraints broken down by large-, medium-, and small-sized firms. Finally, Panel C shows the top 3 constraints broken down by the sectors of retail, manufacturing, and services.

Among the main obstacles to production, 45% of the firms point to the macroeconomic environment, 21% to political instability, and 12% to the lack of electricity. Ten years ago, the main obstacle for most firms in Venezuela was crime (32%), followed by lack of electricity (16%) and political instability (14%). These numbers contrast with those of selected comparator countries. For instance, for similar income peers, the biggest obstacle identified was the practices of the informal sector, followed by access to finance and tax rates. Regarding its Andean peers, the biggest obstacle mentioned by the most firms was the practices of the informal sector, followed by political instability, and with corruption and tax rates tied for third place. It is noteworthy that most firms in peer countries see the practices of the informal sector as the biggest obstacle, in sharp contrast to Venezuela, where, beyond this ranking fifth in the list of obstacles, 45% of the firms report competing with informal firms, vs. 70% of firms in comparator countries on average[27].

Macroeconomic and political instability have been found to have significant negative impacts on economic growth.[28] These, as sources of volatility, reduce domestic firms' incentives to invest, discourage the arrival of foreign firms, and reduce the size and quality of the domestic market, among other consequences. The provision and reliability of basic service infrastructure, such as electricity, is also critical for economic development.[29]

Crime is an important impediment to the soundness and growth of firms, because it reduces incentives, increases costs, and generates losses, particularly for small firms.[30] Access to finance is also key, because it contributes to firms' investment in capital and innovation and thus to growth, as well as providing a buffer during bad times.[31]

27 For an analysis of the impact of informality on formal firms' productivity, see: Amim et al. (2019a).

28 See, for example: Alesina et al. (1996) and Sanchez-Robles (1998).

29 See Burke et al. (2018)

30 See, for example, Bates and Robb (2008), Amin (2009), and Motta (2017).

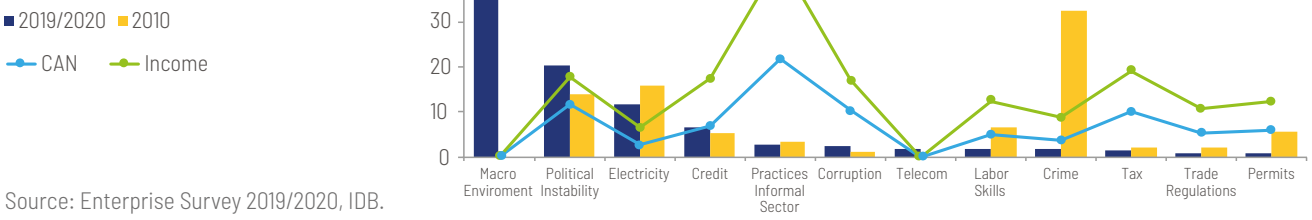
31 See Presbitero and Rabellotti (2014).

Finally, a large informal sector can have serious consequences for the formal private sector, as it may represent unfair competition.[32] Moreover, it should be noted that, in general, large firms typically have many more tools to circumvent obstacles than small- and medium-sized firms. This can also be the case with firms that have existed for a significant period of time, since firms in Venezuela are much more long-lived than firms in peer countries.

Figure 8. Venezuelan firms' main obstacles

A. Top 10 obstacles

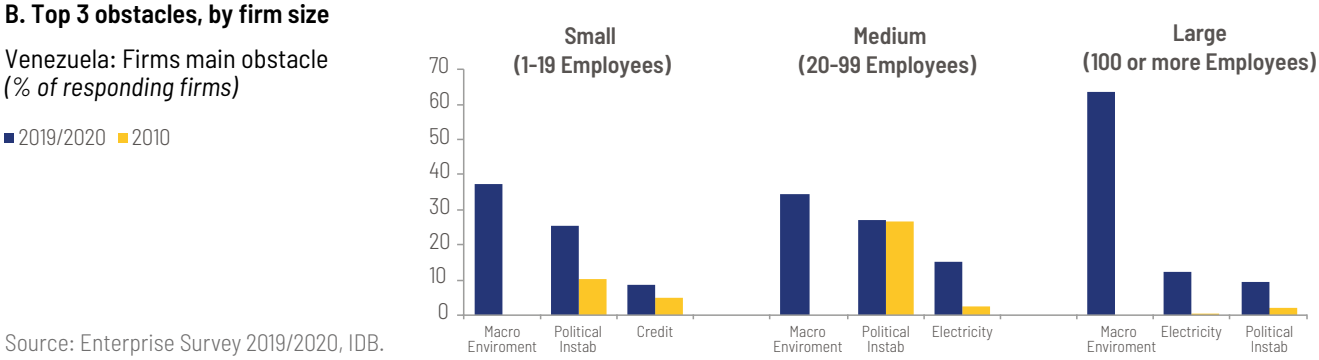
Venezuela: Firms main obstacle
(% responding firms)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Top 3 obstacles, by firm size

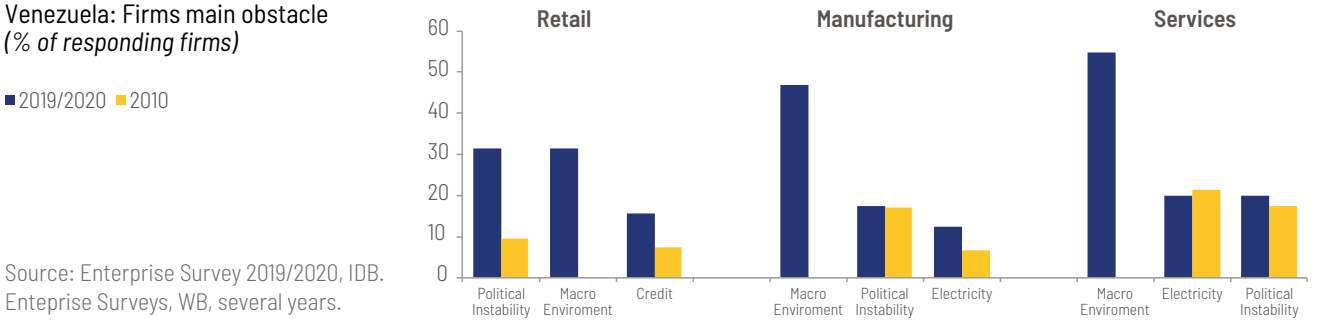
Venezuela: Firms main obstacle
(% of responding firms)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

C. Top 3 obstacles, by sector

Venezuela: Firms main obstacle
(% of responding firms)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

32 See Ulyssea (2018) and Amin et al. (2019a).

Infrastructure services

The panels of Figure 9 show that the provision and reliability of the service infrastructure is critical in Venezuela. Regarding the most basic services, 84% of firms claim to experience interruptions in any given month in the case of electricity and 44% in the case of water. In peer countries the shares of firms reporting interruptions for these services are 50% and around 15%, respectively (Panel A).[33]

Such interruptions are quite frequent, showing the instability of the basic service network.[34] Over the course of a month, the representative firm in Venezuela experiences 11 internet service blackouts, 10 electricity outages, 6 occurrences of no or limited availability of water, and 6 cell phone blackouts (Panel B). Moreover, for the average responding firm, interruptions of internet, electricity, water, and cellular phone service represent an average annual loss of 10% of sales (Panel B). For firms in peer countries, it is observed that on average the number of electricity outages in any given month is around 2, whereas for water it is around 1 (Panel C). A comparison with the previous versions of the ES (2006 and 2010) shows that this deterioration in the provision of basic services has increased exponentially over time (Panel D).

The process of establishing a new service connection in Venezuela is marked by major delays. The average responding firm has to wait 262 days to get a water connection, 175 days for internet, 86 for cell phone service, and 41 for electricity (Panel E). As shown in Panel F for the case of electricity, this situation has worsened over time.

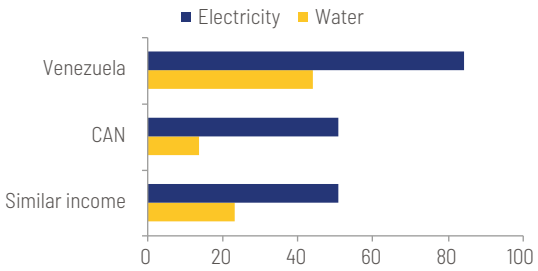
33 For a discussion of the potential positive impact of services on economic growth in Latin America, see Cavallo et al., 2020.

34 There is a causal link between access to electricity and other services, such as water and internet connectivity. Without electricity, there is no direct internet and water pumps do not work.

Figure 9. Basic services interruptions in Venezuela

A. Firms experiencing interruptions

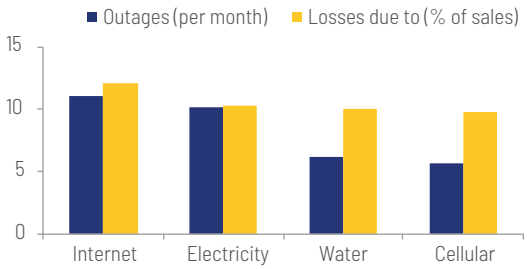
LAC: Firms experiencing service interruptions
(% responding firms)



Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

B. Interruptions by type of service

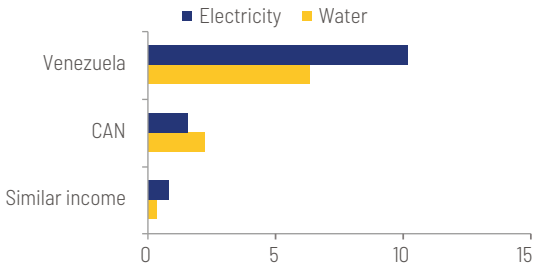
Venezuela: Service interruptions
(average responding firm)



Source: Enterprise Survey 2019/2020, IDB.

C. Monthly interruptions, Venezuela vs. peer countries

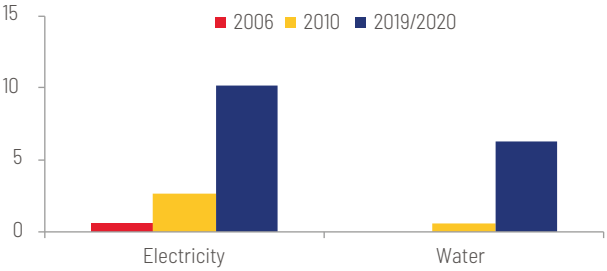
LAC: Number of service outages per month
(average responding firm)



Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

D. Trend of monthly interruptions

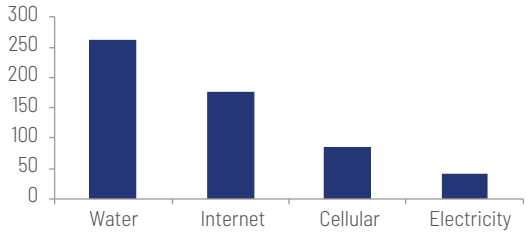
Venezuela: Average firm number of service interruptions
(per month)



Source: Enterprise Survey 2019/2020, IDB.

E. Delays in obtaining a connection

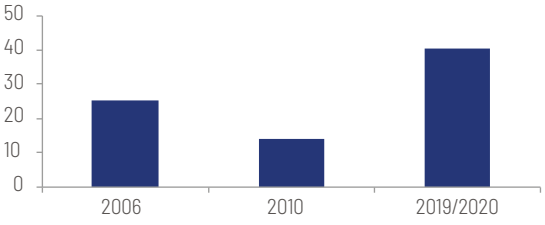
Venezuela: Delays in obtaining connection
(days, for the average responding firm)



Source: Enterprise Survey 2019/2020, IDB.

F. Trend in delay in obtaining an electricity connection

Venezuela: Delays in obtaining electricity connection
(days, for the average responding firm)



Source: Enterprise Survey 2019/2020, IDB.

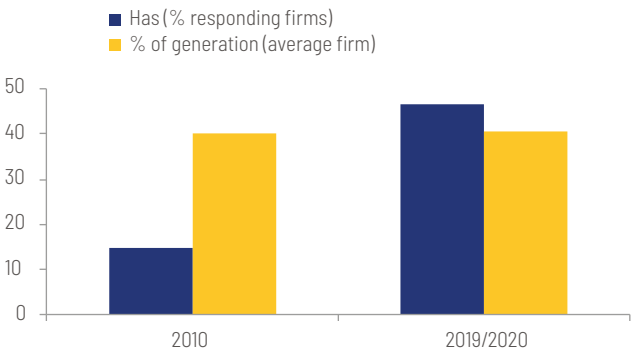
Venezuelan companies have been quick to come up with their own solutions in light of these problems, but only for some services. In the case of electricity, Figure 10 shows that from 2010 to 2019/2020, the proportion of surveyed companies that reported having an electric generator went from 15% to 47% (70% in the case of large companies and manufacturing companies). In the case of water, following household

behavior, there are reports of firms digging their own wells.[35] In other cases, such as obtaining an internet or cellular connection, government or collective action may be required, because the sector is subject to tight regulation and the needed investment is beyond the capability of individual firms,[36] creating difficulties for production and sales that are especially pronounced in this digital age.

In sum, because the infrastructure of basic services is quite precarious, companies have taken and will continue to take actions on their own to continue operating.

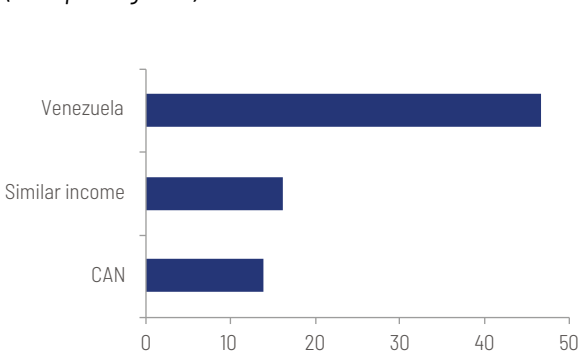
Figure 10. Venezuelan firms using a power generator

A. Firms using a power generator



Source: Enterprise Survey 2019/2020, IDB.

B. Firms using a power generator vs. firms in peer countries



Source: Enterprise Survey 2019/2020, IDB.

Investment and Financing

Investment and financing are intertwined in the sense that (deep and developed) financial markets provide the resources that facilitate investment. Moreover, efficient financial markets reduce the reliance on internal funds and on money from informal sources by connecting firms to a broad range of lenders and investors, usually reducing financing costs. Also, financial markets provide the payment services needed for the agile operation of firms. However, even in financial markets more developed than that of Venezuela there are market failures (e.g., information asymmetries) and financing gaps.

35 For details on the water situation and how agents are dealing with it, see http://factor.prodavinci.com/vivirsinagua/index.html.

36 For an overview of the telecommunications sector, see https://comunicacion.gumilla.org/2020/05/19/estado-de-la-libertad-en-internet-en-venezuela-reporte-2019/.

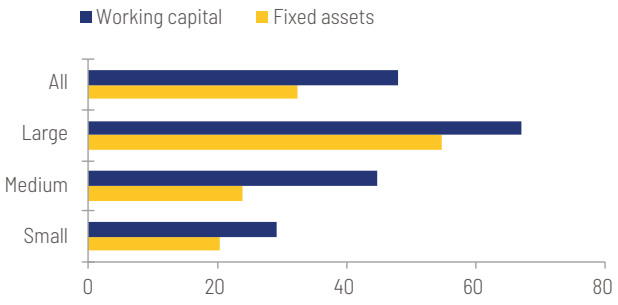
Investment

Overall, the survey's results show that firms are continuing to invest but are doing so with a short-term vision and by their own means (Figure 11). This is shown by the type of investment firms are making: while 47% of the firms report investing in working capital during the previous year of the survey (which is short-term oriented), only 33% report doing so in fixed assets (which is long-term oriented). Moreover, the proportion of firms investing is higher in the large firm sector and lower in the small firm sector, an expected result (Panel A). The share of firms investing in fixed assets has decreased by almost 10 percentage points (pp) over the last decade for all firms and the decline has been especially prominent with respect to medium-sized firms, as only a quarter of them report investing in fixed assets (Panel B).[37]

Figure 11. Venezuelan firms' investment

A. Firms' investment, by type of investment

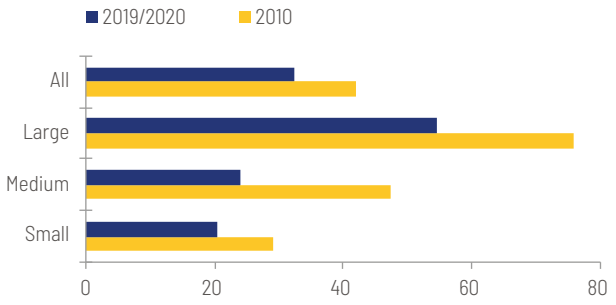
Venezuela: Firms investment
(*% firms*)



Source: Enterprise Survey 2019/2020, IDB.

B. Trend in firms' fixed asset investment

Venezuela: Firms fixed asset investment
(*% firms*)



Source: Enterprise Survey 2019/2020, IDB.

In general, despite being part of companies' assets (accounts receivable, cash, and inventories in intermediate goods, among others), working capital is being used to finance production. It accumulates (and de-accumulates) due to factors other than those that affect fixed asset investment. Changes in working capital depend on the financing needs of production (inputs, transport, storage, services, etc.) and the availability of external (i.e., outside of the firm) financing sources. For example, less access to external financing for companies (such as bank credit) can reduce working capital. Greater financing needs, such as to expand production or accumulate larger inventories of materials, could increase working capital.

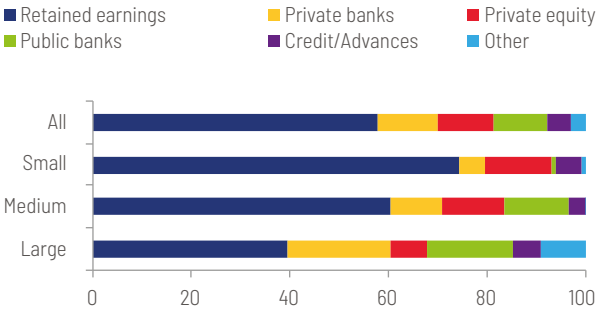
37 For a complete, updated analysis of the barriers to investment in Venezuela and proposals for possible solutions, see: CONAPRI (2017).

As Panel A in Figure 12 shows, 58% of working capital investments for the average responding firm are financed through retained earnings or internal funds, 12% through private banks, 11% by own capital/private equity, 10% by public banks, 5% by suppliers' credit/customer advances, and the remaining portion is financed by nonbank financial institutions and family/friends. When these findings are broken down by firm size, it emerges that the smaller the firm, the larger the proportion of working capital financed by retained earnings/internal funds or the firm's own capital and the smaller the share financed by both private and public banks. The findings concerning the financing sources of fixed asset investment are quite similar to working capital financing, with the following differences (Panel B): (i) the proportion of retained earnings/internal funds rises from 58% to 74%; (ii) banks are an important financing source for medium-sized firms, particularly public banks; and (iii) bank financing for fixed asset investment is nonexistent at the small-sized firm level.

Figure 12. Venezuelan firms' investment financing sources

A. Working capital financing sources

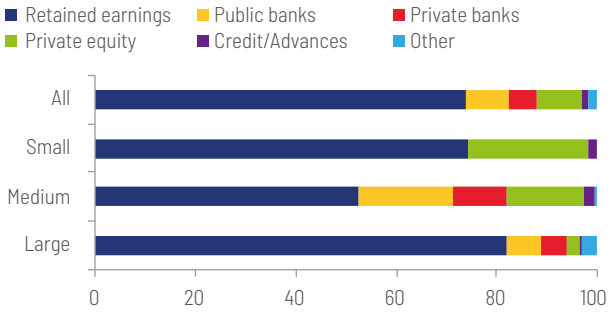
Venezuela: Working capital financing sources
(% source, average responding firm)



Source: Enterprise Survey 2019/2020, IDB.

B. Fixed asset financing sources

Venezuela: Fixed assets financing sources
(% source, average responding firm)



Source: Enterprise Survey 2019/2020, IDB.

On the one hand, a greater dependence on internal funds for investment is a sign of potentially inefficient financial intermediation. On the other, restricted access to external financing leads companies to use internal financing more intensively, typically through the retention of profits. In turn, the retention of profits depends on the ability of companies to increase the sale prices of their products, without resulting in a substantial reduction in the quantities sold. This ability is directly related to the market power of companies and their interaction with competitors.

In Venezuela, several factors can encourage the use of prices as a means of financing production. First, the scarcity of bank financing leads companies to raise the prices

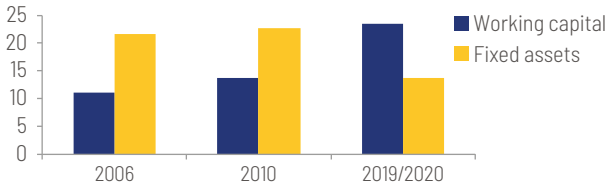
of their products.[38] Likewise, in a macroeconomic context of currency depreciation, a combination of greater production financing needs and less access to external financing is possible. Pagliacci (2020) shows that with depreciation, firms increase the value-added price of their production. This price increase is not explained by the increase in the price of imported materials or the pass-through. Thus, companies' limited access to bank (or third-party) credit and the difficulties associated with obtaining new loans could explain the increased use of retained earnings for working capital financing. However, as will be shown below, Venezuelan firms' bank financing of working capital is higher than that of firms in regional and similar income peer countries, although fewer firms use banks to finance their working capital investments.

Panels A and B of Figure 13 show that, over the last decade, the proportion of Venezuelan firms' working capital financed by banks (public and private) increased from 14% to 23%, while the figure is 18%, on average, for firms in comparator countries. In the case of fixed assets, the proportion financed by banks decreased from 23% to 14%, while the share is 28%, on average, for firms in comparator countries. Moreover, Panels C and D of Figure 13 show that in this survey only 5% of the firms reported having used a banking institution to finance their fixed asset investments, a sharp decline from the 35% of Venezuelan firms in 2010 that reported having done so and far below the average of 40% of firms in peer countries that report having done so.

Figure 13. Venezuelan firms' investment financed by banks

A. Investment financing by banks, trend

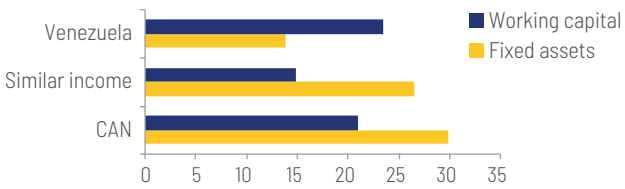
Venezuela: Investment financing by banks *(% of total financing)*



Source: Enterprise Survey 2019/2020, IDB.

B. Investment financing by banks, Venezuela vs. peer countries

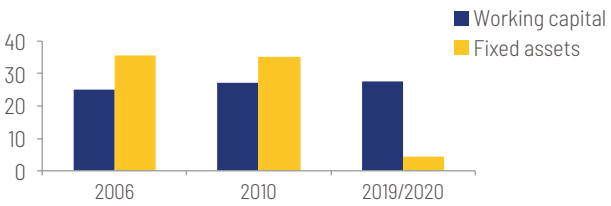
LAC: Investment financing by banks *(% of total financing)*



Source: Enterprise Survey 2019/2020, IDB. Enterprise surveys, several years, WB.

C. Firms using banks to finance investment, trend

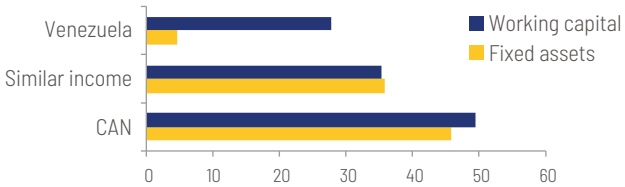
Venezuela: Firms using banks to finance investments *(% of responding firms)*



Source: Enterprise Survey 2019/2020, IDB.

D. Firms using banks to finance investment, Venezuela vs. peer countries

LAC: Firms using banks to finance investments *(% of responding firms)*



Source: Enterprise Survey 2019/2020, IDB. Enterprise surveys, several years, WB.

38 See Pagliacci (2019) for a detailed explanation.

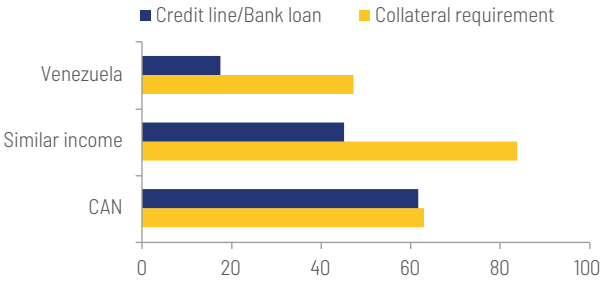
Financing

Regarding the use of financial markets by the surveyed firms, only 18% report having taken out a loan or credit line (compared to 38% of firms in 2010), while in peer countries the average share of firms that report doing so is 54% (Panel A of Figure 14). Collateral requirements seem to be less of a burden in Venezuela: around 40% of the surveyed firms were asked for collateral, whereas in comparator countries the figure is above 50% (Panel A). In Venezuela, slightly more than half of the responding firms claimed they had never applied for a loan, whereas around 45% of firms in peer countries claimed this (Panel B of Figure 14). When questioned about the reasons why they had not done so, 55% of the firms mentioned (i) unfavorable conditions, (ii) very complex processes, and (iii) insufficient collateral (Panel C). There is also a high incidence of firms that applied for a loan but were rejected: 12% of the surveyed firms in Venezuela report that this happened, compared to 4% of firms in peer countries (Panel D).

Figure 14. Venezuelan firms' borrowing

A. Firms' borrowing

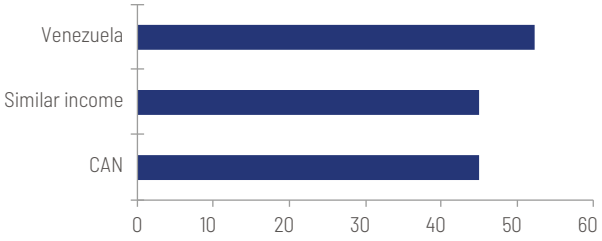
LAC: Firms borrowing *(% of responding firms)*



Source: Enterprise Survey 2019/2020, IDB and Enterprise Surveys, several years, WB.

B. Firms not applying for a loan

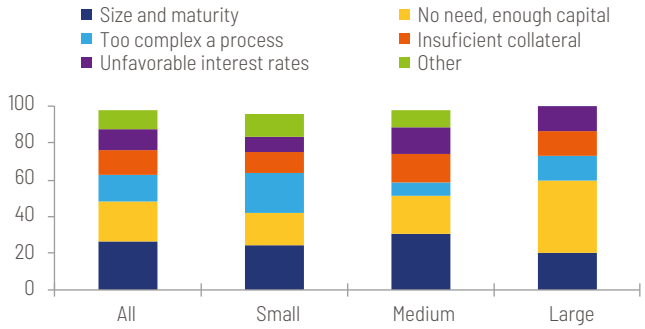
LAC: Firms not asking for a loan *(% of responding firms)*



Source: Enterprise Survey 2019/2020, IDB and Enterprise Surveys, several years, WB.

C. Reasons for not applying for a loan

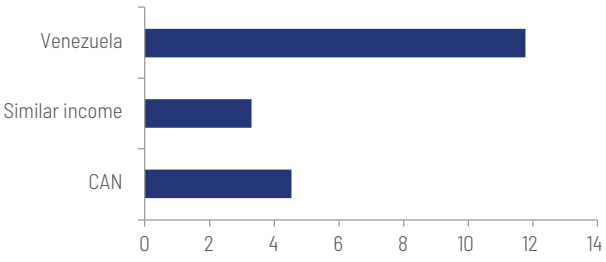
Venezuela: Reasons not asking for a loan *(% firms not asking)*



Source: Enterprise Survey 2019/2020, IDB.

D. Firms' loan rejection

LAC: Firms loan rejection *(% of responding firms)*



Source: Enterprise Survey 2019/2020, IDB and Enterprise Surveys, several years, WB.

This reduction in the access and use of bank credit by the surveyed firms is due to a myriad of reasons. [39] The most recent is related to the government's need to capture more seigniorage (e.g., the income the government receives as a result of its monopoly on the issuing of currency), which the government meets by increasing banks' reserve requirements at the Central Bank, thereby reducing the amount of bolívares (Venezuela's currency) channeled by banks into the rest of the economy.[40]

Since 2014, when the price of oil fell by more than 30% and the country's access to hard-currency financing became constrained, the Central Bank of Venezuela (Banco Central de Venezuela, BCV) began to issue more and more currency to finance Petróleos de Venezuela, S.A. (PDVSA, the state-owned oil company) and other nonfinancial public firms. These transfers peaked in 2017 at 10% of GDP,[41] unleashing hyperinflation in the country. A year later, due to the effect of hyperinflation on both the purchasing power of seigniorage and economic activity,[42] seigniorage fell slightly to 6.5% of GDP. By 2019, this type of financing did not exceed 2% of GDP. In an attempt to rise this type of financing, that same year, the government decided to increase the banks' reserve requirements at BCV, bringing the marginal reserve requirement to 100%,[43] keeping the ordinary reserve requirement at 30%,[44] and therefore limiting banks' liquidity provisioning to each other and overall credit to firms and households. In such a context, it is not surprising that banks became quite selective in their loan selection criteria, as evidenced by the share of firms reporting loan rejections in the survey. In general, credit restrictions affect firm production and expansion capabilities, ultimately reducing the supply of goods in the economy.

39 At the aggregate level, data from Sudeban show that since the peak in 2014, there has been a continuous and severe reduction in bank credit relative to GDP (from 29% to 0.6% in October 2020). At the end of October 2020, the total loan portfolio was valued at US$240 million (compared to US$6.63 billion in December 2014), 69% of which was held by the private banking sector.

40 By reducing the amount of bolívares in the hands of the banking system, two things happen at the same time: the seigniorage-maximizing monetary authority captures resources that otherwise would be in the hands of the financial system (with little-to-low impact on the inflation tax), but also closes off a channel by which agents can substitute the bolivar. This channel is bank financing, which allows agents to exchange bolívares (at negative real interest rates) for goods or assets that hold their value over time, such as inventories, durable goods, or hard currency. See chapter 7 in White (1999) and Saboin (2018).

41 For two estimations of seigniorage in Venezuela, see Zambrano (2013) and Saboin (2018).

42 The amount of seigniorage collected is a concave function of the inflation rate (e.g., a Laffer curve). When inflation rates are too high, the purchasing power of seigniorage is reduced (see Cagan [1956] and Bailey [1956] for an explanation). Similarly, since some economic activities depend on the time value of money to be profitable, extremely high inflation rates can make such activities unprofitable, putting enough firms out of the market, reducing aggregate supply and the tax base at the same time.

43 The marginal reserve requirement corresponds to a portion of the variation of the banks' net obligations with respect to the reserve requirement base. The rate of this reserve has been raised several times since the beginning of hyperinflation: from 31% to 40% in October 2018 and from 40% to 50% in December of the same year. Because the reference base becomes relatively small as hyperinflation advances, the marginal reserve requirement tends to become the most important in terms of amounts collected via inflationary tax.

44 The ordinary reserve requirement corresponds to a portion of the total balance of banks' net obligations.

Another reason for the credit crunch is related to the rise of dollarization in a context of a depressed banking system. The government's ability to eliminate substitutes of the bolivar is not absolute. Throughout history, societies that have experienced hyperinflationary processes have managed to protect their wealth and exchanges in different ways,[45] with the most common method being currency substitution.[46] Venezuela has been experiencing an increasing dollarization process since 2019, and as in other contexts, the process started from the base, that is, it was initiated informally by economic agents for transactions of some goods and services,[47] but because hyperinflation was not (and has not yet been) brought under control, the government began to allow these transactions to advance to the point that a cautious process of financial dollarization began.[48]

However, beyond regulatory constraints, the situation of the financial sector is dire. Although financial soundness indicators seem to be in line with prudential levels, these are influenced by the adjustment for devaluation of the components denominated in foreign currency that belong to equity (which are associated with debt securities of the Sovereign and PDVSA, as well as placements in the BCV). Additionally, two decades of an environment of high inflation, low and controlled interest rates, fiscal voracity (which crowds out resources for the private sector)[49], lagged fees and commissions, a recent slowdown in transaction volume (due to the greater use of foreign currency), and an increase in some components of operating expenses (due to hyperinflation) causes the net profits to grow at a slower pace than the financial margin, a phenomenon that makes maintaining a level of equity in line with the returns to the activity (profitability) difficult, which in turn affects financial solvency structurally.

If financial dollarization manages to advance, bank lending activity could flourish again (although mixed currency environments and dollarization are not free from risks[50]). In fact, in April 2020, and in light of the presence of COVID-19, the BCV modified its monetary policy by setting a single reserve coefficient of 93%, implying a simplification

45 White (1999), chapters 1 and 7.

46 For models, empirics, and discussion, see Calvo and Végh (1992).

47 Ecoanalítica, weekly reports No. 39, 2019 and No. 7, 2020.

48 While more and more banks are allowed to take foreign currency deposits and the electronic payment system now permits foreign currency transactions, countries are still forbidden to give loans in foreign currency. For a summary of recent developments, see https://prodavinci.com/como-avanza-la-dolarizacion-en-venezuela/.

49 Regarding the total assets of universal and commercial banking, public banks represented around 80% as of October 2020. Regarding total liabilities, the weight of public banks in October 2020 was in the vicinity of 85%, and in relation to equity, the weighting reached around 70%.

50 Most of the financial crises of the 1990s occurred in multicurrency environments, in particular due to currency mismatches in the banking system. For an account and treatment of these, see Goldstein and Turner (2004).

of the calculation for the reserve requirements that institutions had to maintain at BCV. Moreover, at the beginning of 2021, authorities reduced this reserve coefficient from 93% to 85%. However, while financial dollarization and a loosen monetary policy could contribute to reviving the much-reduced credit activity, the complicated Venezuelan economic context is plagued by other risks that will continue to be a drag on a significant and sustained expansion of credit.

Labor and skills

The economic crisis has impacted the use of the labor factor: 57.3% of the firms report payroll reductions over the course of the last 2 fiscal years, 15.7% report having increased payroll, and the remaining 27% stood still. When asked about the reasons for such variation, 38.8% of the firms attribute them to changes in the economic environment, 33% to changes in the demand for the goods they produce, roughly 7% to the introduction of new technologies or new skills, and the remaining 20% to other causes. While the reported payroll change is largely explained by the factors mentioned above, resignations (especially in a context of high migration) are another driver. From the responses to questions related to sources of payroll variation, it is difficult to accurately discern the portion of payroll changes due to resignations. However, other survey questions analyzed below shed light on the role of migration on the availability of skilled workers. Thus, it can be stated confidently that resignations significantly contribute to payroll variations.

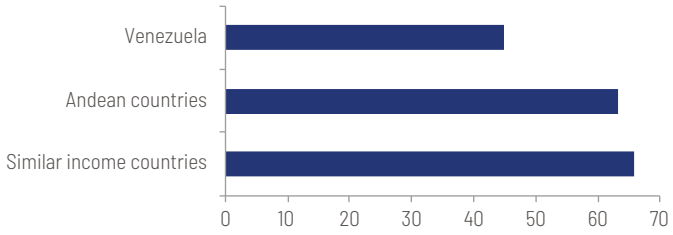
The structure of the payrolls of Venezuelan firms has changed over the last decade, reflecting a reduction in the participation of skilled labor. In 2010, 67.5% of the permanent workers of a representative Venezuelan firm were devoted to production activities (the rest being devoted to management and nonproduction roles); in 2019/2020 the percentage fell to 41.3%. In comparator countries productive positions account for 65% of the payrolls of firms (Panel A of Figure 15).Moreover, among production workers, the share of qualified or skilled workers has decreased slightly from 66.2% to 61.8%. However, when compared to the average for firms in peer countries, the representative Venezuelan firm has 20 pp less skilled workers (Panel B of Figure 15). This implies that the share of skilled workers (out of all permanent workers) for the representative firm in Venezuela was reduced by half over the last decade and currently stands at a quarter of the permanent payroll.[51]

51 Permanent workers make up 86.2% of the representative firm's payroll.

Figure 15. Venezuelan firms' proportion of production and skilled workers

A. Production workers

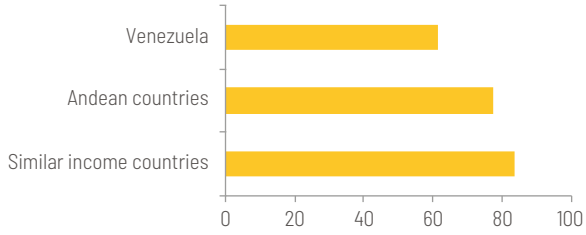
LAC: Production workers
(% of all permanent workers)



Source: Enterprise Survey 2019, IDB.
Enteprise Surveys, WB, several years.

B. Skilled workers

LAC: Skilled workers
(% of all production workers)



Source: Enterprise Survey 2019, IDB.
Enteprise Surveys, WB, several years.

Concerning wages, the data from this sample reveal, as expected in a context of hyperinflation and falling demand, that the Venezuelan private sector wage distribution is skewed to the right. For the 2017–2019 period, the median monthly wage of a Venezuelan worker has been in the US$305–422 range. Moreover, the median monthly wage for elementary occupations—a good proxy of the minimum wage—fell within the US$43–54 range over the same period. Data reveal that median monthly wages decreased in the period, going from US$422 in 2017 to US$395 in 2018 and falling to an estimated US$305 in 2019.[52] A similar trend is observed for the minimum monthly wage, as it went from US$54 in 2017 to an estimated US$43 in 2019. As can be seen in Panels A and B of Figure 16 below, there is high wage dispersion as well. For instance, the distribution's *maximum* monthly wage for elementary occupations hovered within the US$217–263 range over the 2017–2019 period, while the distribution's *minimum* monthly wage for elementary occupations was in the US$0.01–25 range. For higher salaries, such as those of managers, the distribution *maximum* ranged from US$4,383 to US$5,797 while the distribution's *minimum* hovered within the US$60–167 range (see Figure 17 for the other occupations).

Panel C of Figure 16 below shows that the sector paying the highest median monthly wages was retail (US$421) followed by manufacturing (US$374) and services

52 "2019 wages" are the wages firms expected to pay when the survey was conducted (in some cases, prior to the end of 2019), converted to dollars at the average exchange rate of the parallel market for the whole year (after 2019 ended). Thus, any increase in wages by a firm after the survey was conducted was not captured, and therefore 2019 wages for that firm could be underestimated in this study. To the extent that a firm did not adjust wages after the survey was conducted, one could say that *realized* depreciation exceeded the firm's *expected* depreciation, and dollar wages were actually lower than expected by that firm. In any case, wages are analyzed across the entire period of study.

(US$334). The same pattern is observed for elementary occupation wages (Panel D). Moreover, Panel E of Figure 16 below shows that, for the entire 2017–2019 period, larger firms paid the highest median monthly wages (US$482), followed by small-sized firms (US$344), with medium-sized firms paying the lowest median monthly wage (US$344). In contrast, Panel F shows that small-sized firms pay the highest monthly median minimum wage (US$66), followed by large-sized firms (US$54) and lastly medium-sized firms (US$43).

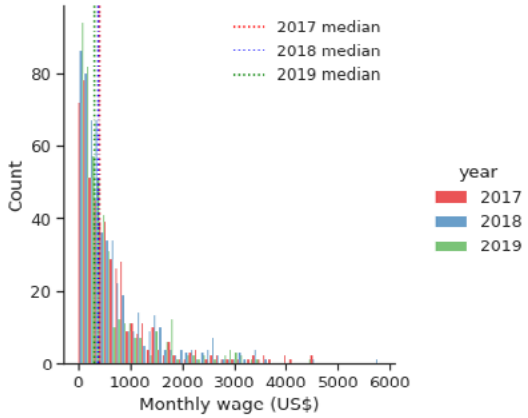
At least three interesting patterns emerge from these wage distributions. The first has to do with the difference between wages in Venezuela and in its peer countries. Just to give a sense of this, the median wage in Venezuela is equivalent to the minimum wage in its Andean peers.[53] The second has to do with sectoral differences in wages. For instance, a typical manufacturing company tends to be larger and therefore should have greater capacity relative to retail firms. Moreover, labor risks in manufacturing should be higher than in retail (e.g., accidents are more likely to happen to employees operating machinery). The last is size differences: for instance, medium-sized firms pay the lowest salaries. This could be related to a squeeze this sector might be suffering for a variety of reasons.[54] In the financing section of this paper, it was noted that medium-sized firms rely more on bank financing for investments. The reasons behind the minimum wage differences across firms of different sizes (small-sized firms paying higher wages than large-sized firms) are worth looking at in depth.

53 According to the ministries of labor of Bolivia, Colombia, Ecuador, and Perú.

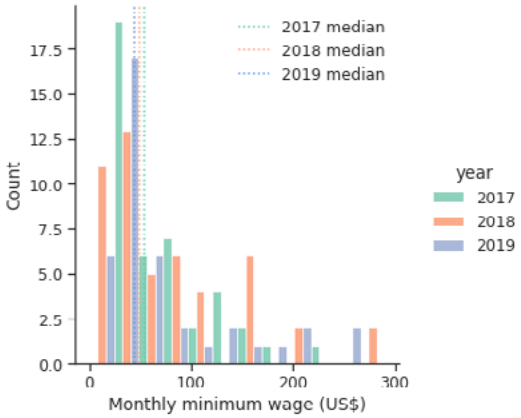
54 These could include greater reliance on bank financing, difficulties in raising equity, the greater impact of labor laws on payroll, etc. There is a growing literature on the challenges faced by medium-sized firms: see, for example, de la Cruz et al. (2020), chapter 4.

Figure 16. Venezuelan workers' wage distribution

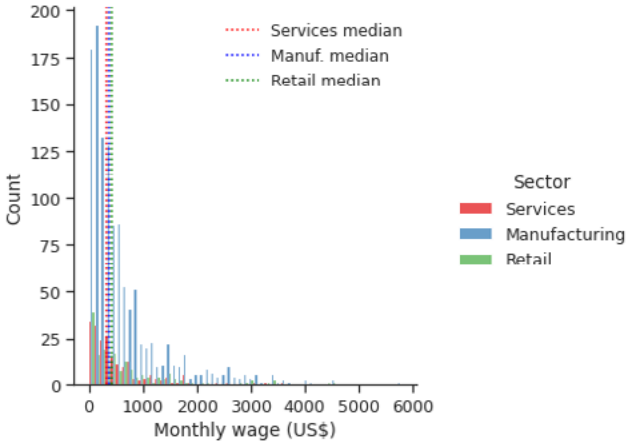
A. All occupations, 2017–2019



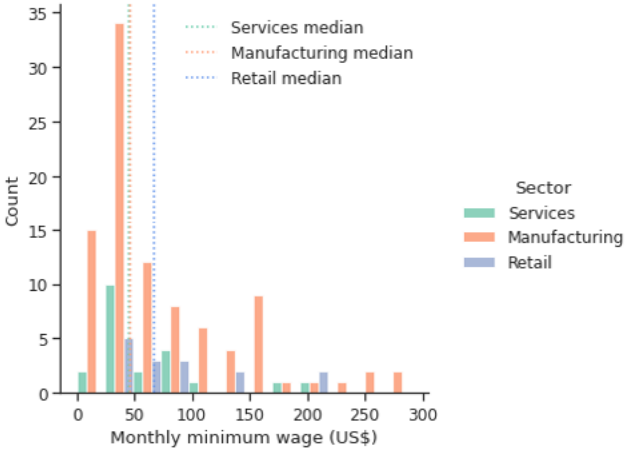
B. Elementary occupations, 2017–2019



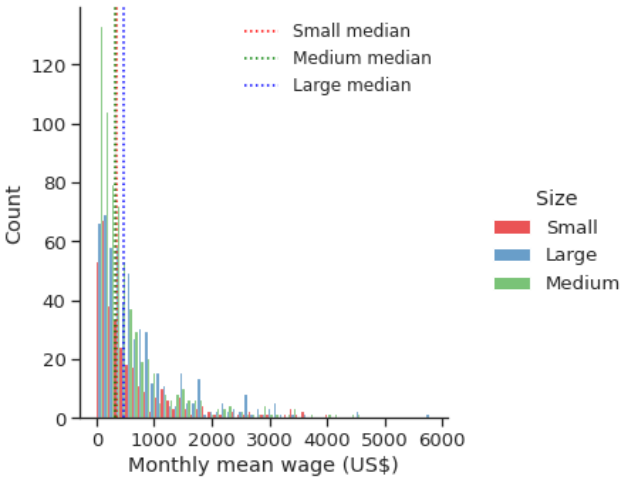
C. All occupations, by sector



D. Elementary occupations, by sector



E. All occupations, by firm size



F. Elementary occupations, by firm size

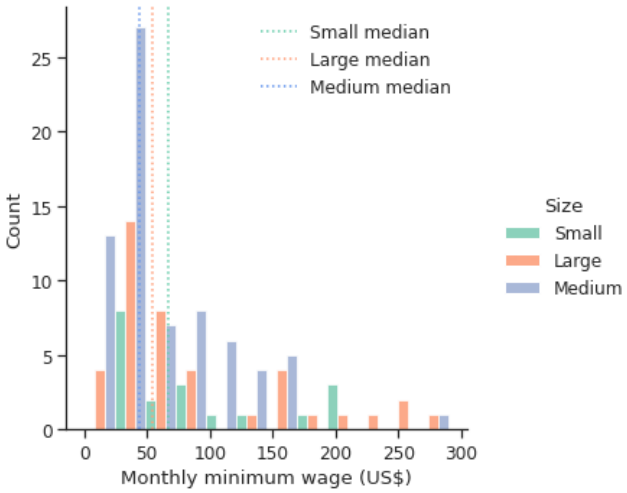
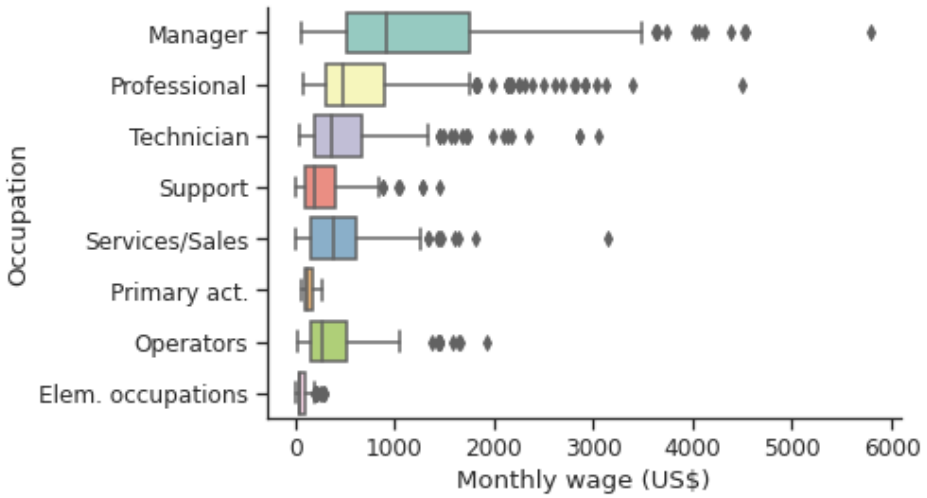


Figure 17. Venezuelan workers' wage distribution, by occupation

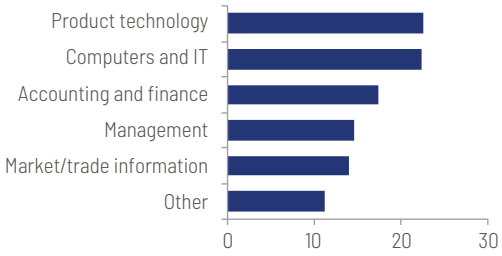


When surveyed if they had difficulties finding skilled labor, 50.9% of the firms report that they did. When asked in which areas this was an important obstacle (Panel A of Figure 18), product technology and computers and IT were the two areas in which the largest percentage (around 20% for both) of firms report more trouble finding skilled labor, followed by accounting and finance (17.4%), management (14.7%), and market or trade information (14%). When surveyed concerning the factors causing skills shortages (Panel B of Figure 18), 37.7% of the responding firms considered migration the main factor contributing to the lack of specialized personnel, while 13% pointed to rigid labor legislation. The structure of the local market has also been affected, as 10.5% report that local professionals are not qualified, while 8.9% report that the quality of local education is low.

Figure 18. Skilled labor issues facing Venezuelan firms

A. Obstacles to finding skilled employees, by area

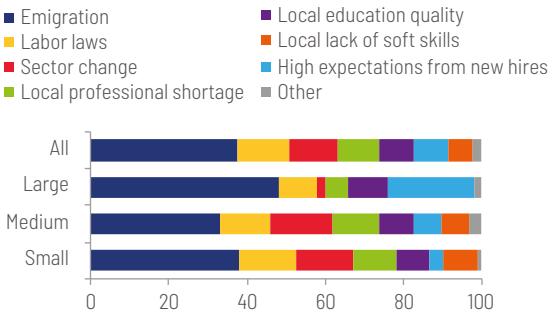
Venezuela: Firm areas where finding skills was an important obstacle
(% responding firms)



Source: Enterprise Survey 2019/2020, IDB.

B. Causes of skilled worker shortages

Venezuela: Critical cause of skills shortages
(% responding firms)



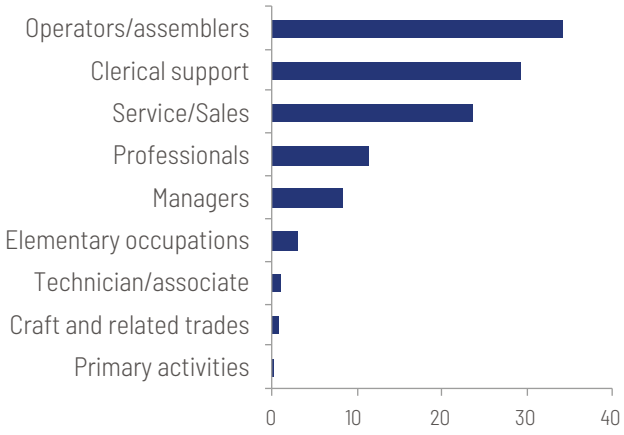
Source: Enterprise Survey 2019/2020, IDB.

Looking at the educational dimension of skills, in particular the current education level of employees by job type, in order to investigate whether a firm can match its required (minimum) education level, firms were asked about the required and effective levels of education of their employees. If the average effective education level for a given position is lower than the minimum required level, one could say a firm has difficulties in "matching" its educational demand (though the opposite can also occur). The results of this exercise suggest that there is less "matching" for plant/machine operators and assemblers, as 34.2% of firms report effective education levels being lower than the minimum required for this kind of job. This category is followed by clerical support workers (29.3% of the firms are unable to match educational demand), service and sales (23.6%), professionals (11.4%), and finally managers and other categories (less than 10%) (see Panel A of Figure 19).

Figure 19. Venezuelan firms' labor education matching and gaps

A. Lack of education matching

Venezuela: Lack of education matching, by job type
(% responding firms)



Source: Enterprise Survey 2019/2020, IDB.

B. Education gaps

Job type	Required	Effective
Operator/ assembler	Secondary	Primary
Clerical	Completed university/vocational	Not completed u/v
Service Sales	Completed u/v	Not completed u/v
Professionals	University	University
Managers	Post-graduate	Post-graduate
Elementary	Secondary	Secondary
Technician/ associate	Not completed u/v	Completed u/v
Craft/other trades	Secondary	Secondary
Primary activities	Completed u/v	Completed u/v

Source: Enterprise Survey 2019/2020, IDB.

To gauge with some precision how wide these "education gaps" are, both the average effective education level and the average required education level by job type were calculated. Panel B of Figure 19 shows that the gaps do not seem too wide: while the average minimum required education level for plant/machine operators and assemblers is completed secondary, the average effective level is completed primary, that is, just one step below in the required education ladder. Similarly, for clerical support and service and sales workers, the average required education level is completed university/vocational training and the average effective education level is started but

not completed university/vocational training, again just one step below the required level. The rest of the occupations seem to not show gaps. However, for technicians/associate professionals, the opposite seems to occur: whereas the average (minimum) required education level is to have some (i.e., started but not completed) university/vocational training, the average effective education level is completed university/vocational training.

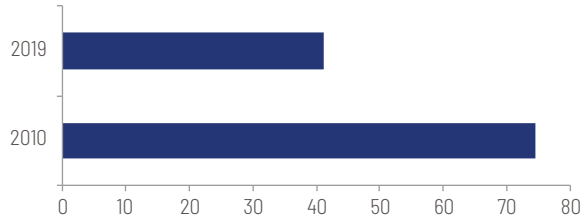
Although from this sample it does not seem a big issue, the redistribution of less qualified labor in favor of more complex tasks can lead to different economic problems. For instance, when vertical productive gaps are being filled by promoting people who are not so well trained and who, in better times, would not have reached those positions so quickly, labor market rigidities tend to be accentuated. This, as periods of better-prepared workers being led by less-prepared workers can generate contractual problems within the firm and, at the same time, make reaching higher productivity levels difficult.

Sometimes workers' educational attainment is provided by the firm. In response to the survey's question about training provided at the workplace, firms reported that only 41% of their workers received in-house formal training (vs. 74.5% in 2010), while in regional and income peer countries this percentage oscillates around 70%. Thus, as Figure 20 shows, the percentage of employees offered training by firms in Venezuela has decreased and is rather low when compared to firm in peer countries.

Figure 20. Venezuelan firms' provision of formal training to workers

A. Trend

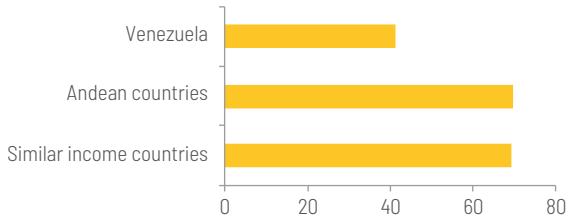
Venezuela: Workers offered formal training
(% of workers)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Peer comparison

LAC: Workers offered formal training
(% of workers)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

Another key aspect regarding the use of the labor factor is the means by which firms find their workers and the obstacles they face in this process. Regarding the identification and recruitment of potential hires, 42.8% of the responding firms report using their network of friends and family, 25.6% use public announcements, 10.7% use private allocation offices, and 4.7% use academic networks, while the rest use public allocation offices and other methods.

Regarding the most significant obstacles to recruiting new hires (Panel A of Figure 21), 48% of the responding firms report lack of financial incentives, 40% report lack of motivation and commitment, 40% report lack of strong job-related technical experience, 38.8% report lack of a strong educational background, 35% report lack of personal qualifications (such as honesty or integrity), and 13.3% report health issues. In terms of the main obstacles affecting the productivity of current workers (Panel B of Figure 21), the types of factors are the same as those that affect recruiting, but the ranking is different. Lack of motivation and commitment is the obstacle most reported by firms (43.7% of the responding sample), followed by a lack of financial incentives (39.9%), lack of personal qualifications (30%), lack of strong job-related technical experience (28.5%), and lack of strong educational background (26.3%).

Figure 21. Obstacles to Venezuelan firms' recruiting and workers' productivity

A. Obstacles when recruiting new hires

Venezuela: Firm's obstacles when recruiting
(% responding firms)

Source: Enterprise Survery 2019/2020, IDB.

B. Obstacles to workers' productivity

Venezuela: Firm's obstacles to workers productivity
(% responding firms)

Source: Enterprise Survery 2019/2020, IDB.

So far, the labor factor picture we obtain from the survey for the Venezuelan firm is one of low salaries, a low proportion of skilled labor in firms, firms having difficulties in finding skilled workers in the domestic market, a lack of in-house training, and a labor force who lacks motivation and commitment. However, the impact of labor regulation on all of this remains unclear.

In the 20th century, labor market regulations reduced the efficiency of the productive sector.[55] Since the 2000s, this situation has been exacerbated, reaching a high point with labor legislation enacted in 2012. This legislation introduced extremely significant

55 See Bello and Bermudez (2014).

changes in employer-employee relations, such as the reduction of working hours, the calculation and retroactivity of social benefits, and the elimination of outsourcing, as well as less significant changes, such as the extension of the prenatal and postnatal leave period and the calculation of overtime. González et al. (2015) argue that this legislation is highly punitive with regard to employers and very protectionist for workers with implications for the productivity of firms. This legal framework has been accompanied by yearly presidential decrees that prohibit unjustified firings.[56]

To the question of whether labor regulations have affected firm hiring/firing decisions in a significant way, 56% of the firms report that they have. Of this group of firms, 75.6%% report that if they had not had to comply with labor regulations, they would have hired workers, while 76% report they would have fired workers.

Moreover, among the firms that experienced a payroll reduction over the last two fiscal years, 64.4% report that labor regulations affected their hiring/firing decisions. Of this percentage, 76.2% report they would have hired workers, and 81.3% report they would have fired workers if they had not had to comply with labor regulations. Of the firms that either maintained or increased payroll over the last two fiscal years, 54.5% report that labor regulations affected their hiring/firing decisions. Of this percentage, 75.6% report they would have hired workers and 69.2% report they would have fired workers if they had not had to comply with labor regulations.

Thus, despite whether or not firms suffered payroll changes, a clear majority of the firms considers labor regulations as significantly affecting their payroll decisions. In turn, the potential removal of these restrictions could increase the firing of workers, particularly by firms that have already seen a payroll reduction. However, most firms also seem open to hiring new workers if labor regulations are eased. Therefore, these preliminary results suggest that labor regulations impact the ability of firms to retain and make an efficient use of the labor factor. Notwithstanding, a more profound analysis of the current labor regulation regime and the implications of its potential reform (e.g., to jump-start the economy) will be very necessary.[57]

Finally, while the current state of skills and education of the workforce might be the consequence of different factors, such as those described by the companies (e.g., out-migration, labor legislation, poor quality of domestic education, and the economic

56 https://www.jdsupra.com/legalnews/venezuela-ratifican-inamovilidad-44411/.

57 For instance, if the regulation regime is relaxed, the desirable outcome is a better allocation of resources. This can happen through the firing of workers and their hiring by expanding and more-productive sectors (at least conceptually). This optimization can be achieved through a better allocation of resources, re-skilling and up-skilling of workers, and compensation for those who cannot be retrained or rehired in the short term.

environment), the overall education–occupation mismatch does not seem so wide and even skews positive at the technician level. Furthermore, there does not seem to be a critical lack of education matching, at least for the most important job types. Therefore, if a recovery process starts and more firms enter the economy while preexisting firms are expanding, it is expected that the labor market will become more dynamic (i.e., with new firms demanding additional workers and surviving firms competing with them not only to keep current talent but also to attract more-qualified employees). Thus, to avoid potential frictions and bottlenecks during this process, policies aimed at easing labor regulations, incentivizing the return of migrants, and raising workers' skill levels (e.g., through programs that facilitate the expedited completion of the most demanded education levels as well as program that increase training at the firm) will be key.

Foreign trade

Access to foreign markets allows firms to expand, raising standards for efficiency on the part of exporter firms and enabling firms to import low-cost supplies. External trade, on the other hand, forces firms to deal with customs services and trade regulations, such as export and import licenses. Moreover, firms could face additional costs due to losses during transport. In the case of Venezuela, results show an increased dependence on imported inputs on the one hand, and a rebound in exports as a share of sales on the other.

On the export side, it should be noted that, hand in hand with the contraction of the local market due to the crisis and hyperinflation, direct exports currently represent 8% of the sales of the representative firm (0.1% in 2010), a figure that is halved for firms in peer countries. The percentage of firms in Venezuela that directly export 10% or more of their sales is 10% (0.2% in 2010), while for firms in actual and potential income peer countries the figure averages 7% (see Panels A and B in Figure 22).

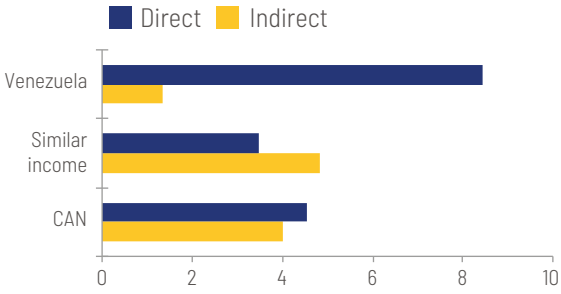
The share of foreign inputs/supplies in total inputs/supplies for production for the representative Venezuelan firm is 59%, a figure that is 34 pp higher than it was 10 years ago and 13 pp higher, on average, than that for firms in comparator countries; by sector, this figure increases in retail and decreases in manufacturing. Moreover, the percentage of firms using inputs/supplies that are entirely of foreign origin has increased from 53% in 2010 to 65% at the time of the survey; despite this increase, this figure is lower than the average for firms in peer countries (73%). Within Venezuela, there is wide variation across sectors in terms of the usage of foreign inputs/supplies, with it being more pronounced in the retail sector (80%) and less pronounced in the services sector (36%). In sum, there is more reliance on imported

components for the representative firm and more firms importing than 10 years ago (see Panels C and D of Figure 22).

This lower share of firms using inputs/supplies that are of foreign origin could be related either to tighter import constraints faced by Venezuelan firms or to the existence of more-robust local value chains in Venezuela, relative to firms in peer countries. Both possibilities, given the financial constraints characterizing the Venezuelan economy and the need to satisfy the urgent consumption demands of the population, must be investigated in depth, because each could impact the recovery strategy differently. If some goods can be produced cheaper locally, this could generate national savings. This is a key point, as domestic value chains are particularly influenced by different degrees of state intervention. For instance, the level of state intervention is different in the tradeable sector (in some of this sector's industries the state has no presence, while in others, such as mining, the state has a monopoly) than in the nontradeable sector (while this sector is generally dominated by the private sector in other countries, in Venezuela there are industries that are heavily dominated by the public sector; construction is a good example).

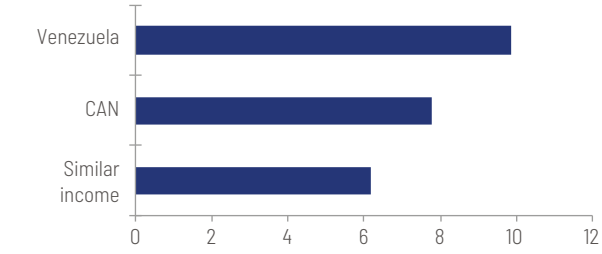
Figure 22. Venezuelan and peer-country firms' foreign trade indicators

A. Exports as share of sales
LAC: Exports of the average firm (*% sales*)



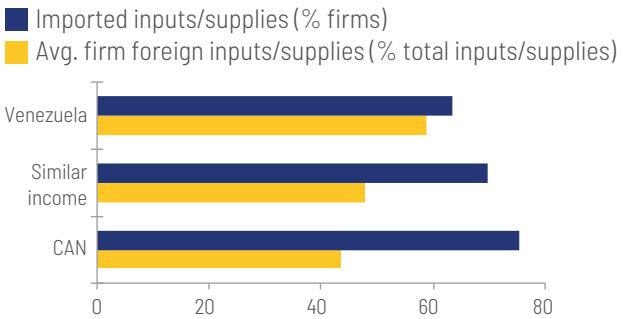
Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Firms exporting 10% of sales or more
LAC: Firms exporting directly (at least 10% of sales)
(*% firms*)



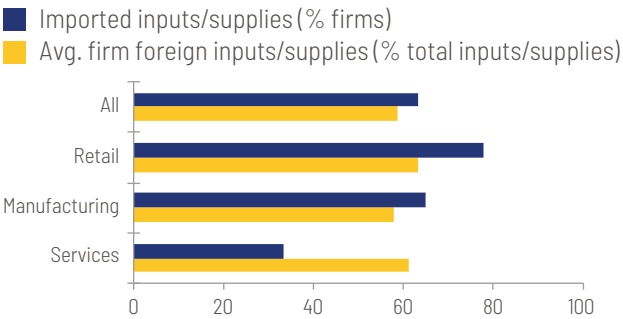
Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

C. Selected import indicators, vs. peers
LAC: Firms imports



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

D. Selected import indicators, by sector
Venezuela: Firms imports



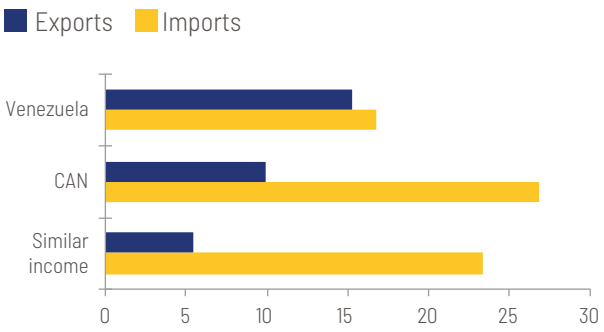
Source: Enterprise Survey 2019 / 2020, IDB.

Delays in clearing customs for imports or exports create additional costs for firms, can interrupt production, interfere with sales, and result in damaged supplies or merchandise. Figure 23, which provides a snapshot of customs efficiency for Venezuela, shows that exports by that country's companies take almost twice as long to clear customs (15 days), compared to exports by firms in Venezuela's regional and income peers (8 days). However, the opposite occurs with imports: while in similar countries clearing customs takes 25 days, in Venezuela the time, as of the survey, was 17 days (vs. 19 in 2010). The contrast between Venezuela and its peers in this regard is interesting and deserves in-depth study that is beyond the scope of this paper. Nevertheless, while the improvement in the speed of import movement through customs is beneficial for the recovery in the short term (in terms of attending to the population's pressing needs), export times are key for the medium term (to improve the flow of sources of foreign exchange). For the long term, custom policies should target closing the gap with the country's main trade partners.

Figure 23. Venezuelan customs efficiency indicators

A. Customs efficiency, vs. peer countries

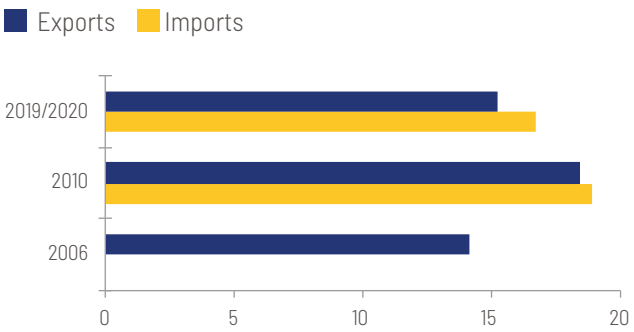
LAC: Customs efficiency
(days to clear from customs)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Customs efficiency, trend

LAC: Customs efficiency
(days to clear from customs)



Source: Enterprise Survey 2019/2020, IDB.

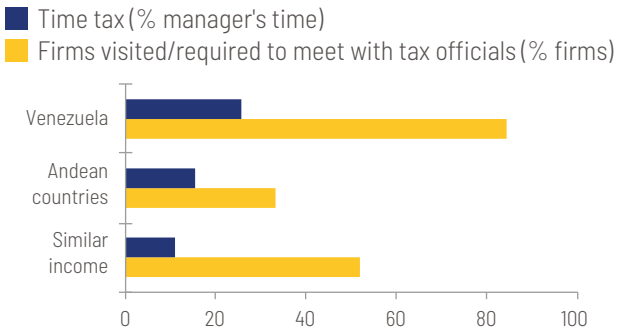
The legal environment, corruption, and crime

Good economic governance in areas such as taxation, business regulation, and licensing is key to the creation of a favorable business environment. The first set of indicators generated by the survey considers the "time tax" imposed by regulations: it measures the time spent by senior management in meetings with public officials. Together with the time tax, the share of firms with representatives who visited or were required to meet with tax officials in a given year was considered. As can be seen in Panels A and B of Figure 24, Venezuela surpasses its peers with regard to both indicators and almost all large firms in the sample met or were expected to meet with tax officials.

The second set of indicators generated by the survey focuses on the efficiency of business licensing and permitting services. The indicators measure the delays faced in making use of these services. As can be seen in Panels C and D of Figure 24, when compared to its peers, Venezuela is associated with the highest number of days to obtain an import license (almost 60), but the lowest number of days to obtain a construction permit (around 30). However, when analyzed by sector, disparities are evident and regressive, as smaller firms report more delays.

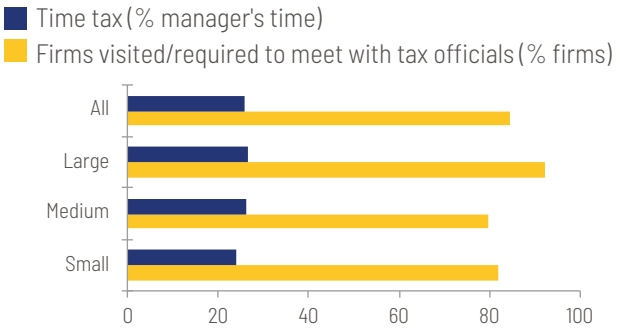
Figure 24. Venezuelan firms' regulation indicators

A. Regulatory burden, vs. peer countries
LAC: Regulatory burden



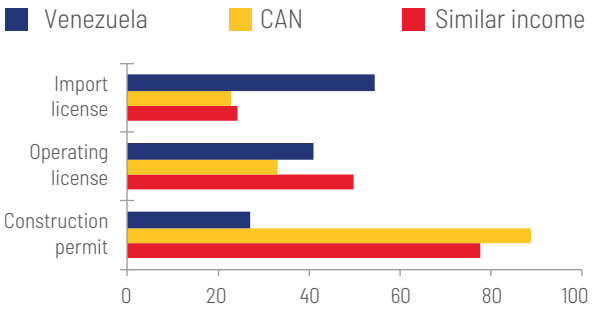
Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

B. Regulatory burden, by firm size
Venezuela: Regulatory burden



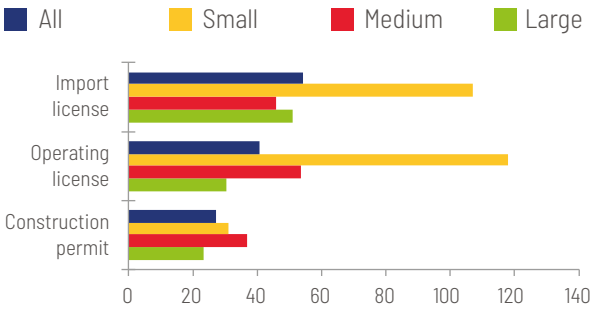
Source: Enterprise Survey 2019/2020, IDB.

C. Regulatory efficiency, vs. peer countries
LAC: Firm days to obtain
(Days per year)



Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

D. Regulatory efficiency, by firm size
Venezuela: Firm days to obtain
(Days per year)



Source: Enterprise Survey 2019/2020, IDB.

Corruption on the part of public officials can be a major administrative and financial burden for firms. It creates an unfavorable business environment by undermining the operational efficiency of firms and by raising the costs and risks of operating in such an environment. In many countries, bribes are common and quite high and they add to the bureaucratic costs of obtaining required permits and licenses. They can be a

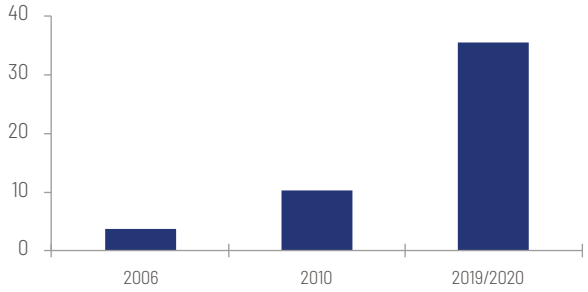
serious impediment to firms' growth and development. In Venezuela, the bribery rate[58] reached 35% in 2019 (it was 3.8% in 2006), a figure well above the average in peer countries of 8% (see Panels A and B of Figure 25). Similarly, the bribery depth index[59] went from 3% in 2006 to 53% at the time of the study, far higher than the average of 6% across Venezuela's comparators (Panels C and D).

Figure 25. Venezuelan firms' bribery incidence and depth

A. Bribery incidence, trend

Venezuela: Bribery incidence

(% firms experiencing at least 1 bribe payment requested)

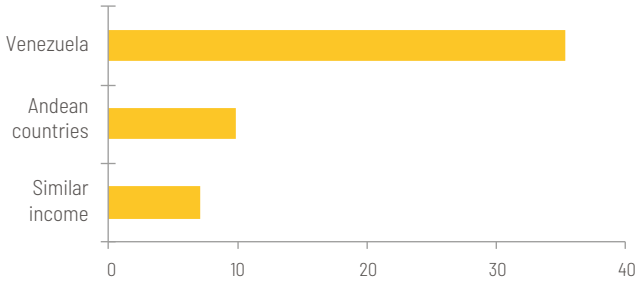


Source: Enterprise Survey 2019/2020, IDB.

B. Bribery incidence, vs. peer countries

LAC: Bribery incidence

(% firms experiencing at least 1 bribe payment request)

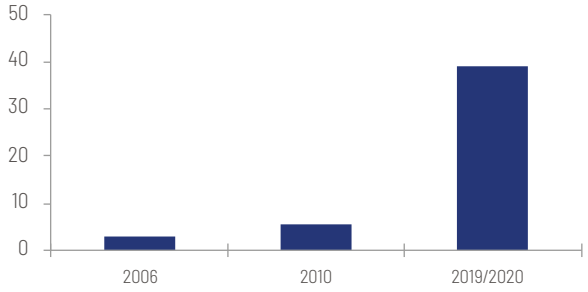


Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

C. Bribery depth, trend

Venezuela: Bribery depth

(% public transactions where gift/payment was requested)

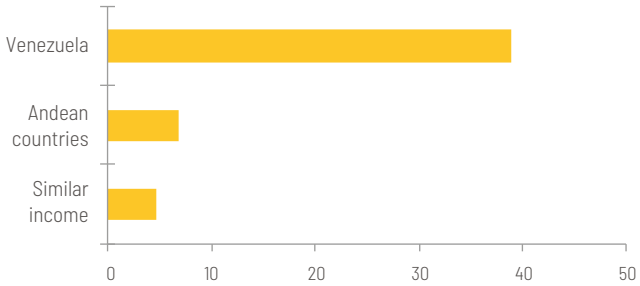


Source: Enterprise Survey 2019/2020, IDB.

D. Bribery depth, vs. peer countries

LAC: Bribery depth

(% public transactions where gift/payment was requested)



Source: Enterprise Survey 2019/2020, IDB.
Enteprise Surveys, WB, several years.

Crime imposes costs on firms when they are forced to divert resources from productive uses to cover security costs, thereby affecting productivity.[60] Moreover, both foreign and domestic investors perceive crime as an indication of social instability, driving away

58 This is the percentage of firms that report having experienced at least one request for the payment of a bribe.

59 This is the percentage of government-business transactions in the course of which a gift or bribe payment was expected.

60 On the negative relationship between crime and firm performance in Latin America, see Amin et al. (2009).

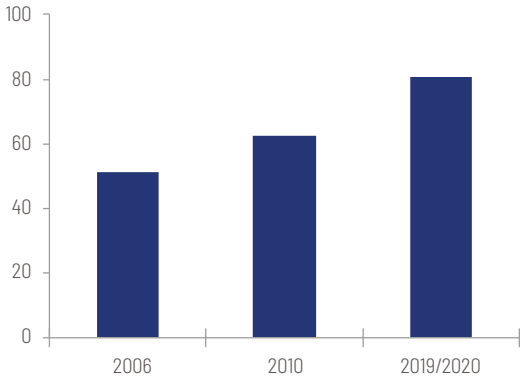
investment from the local economy. While in 2006, only 50% of Venezuelan companies paid for security, at the time of this study 80% did so (vs. 65% in comparator countries). This cost is equivalent to 12% of annual sales of firms in Venezuela, whereas in peer countries the cost of security is on average equal to just 3% of annual sales (see Panels A and B of Figure 26). Despite this significant outlay, 52% (vs. 22% in 2006) of firms report having suffered losses due to theft and vandalism, while across the region the percentage drops to 23% (Panels C and D).

Figure 26. Venezuelan firms' crime and security indicators

A. Security, trend

Venezuela: Security

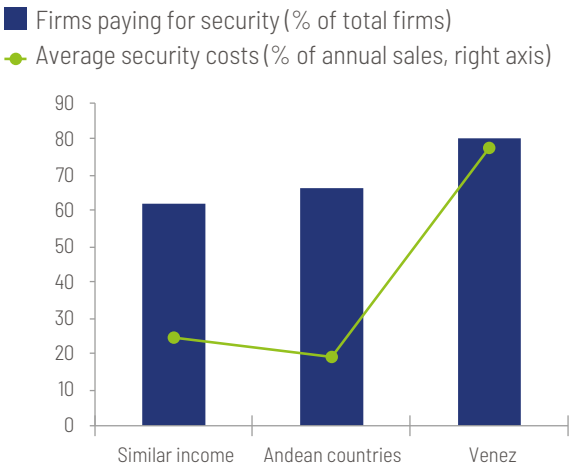
(% firms paying for security)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Security, vs. peer countries

LAC: Security

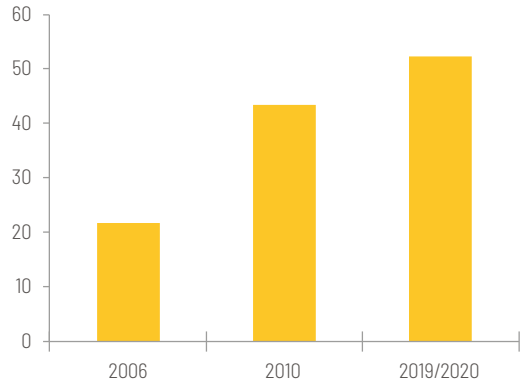


Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

C. Crime, trend

Venezuela: Crime

(% firms experiencing losses due to theft/vandalism)

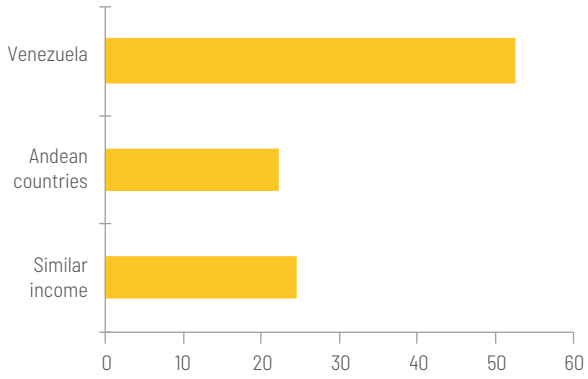


Source: Enterprise Survey 2019/2020, IDB.

D. Crime, vs. peer countries

LAC: Crime

(% firms experiencing losses due to theft/vandalism)

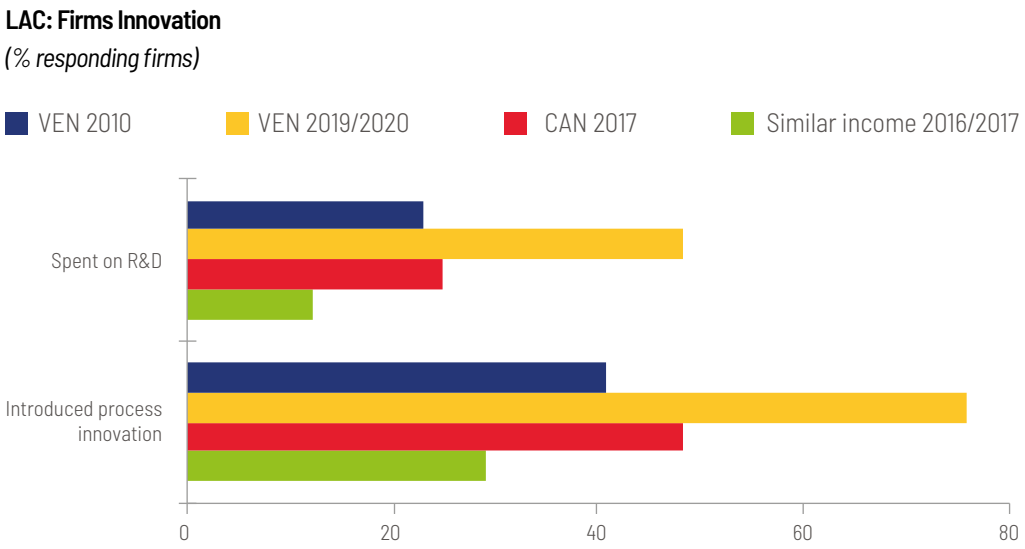


Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

Innovation

The situation regarding innovation at the firm level shows that Venezuelan inventiveness is still active. Figure 27 below shows that despite operating in such a hostile business environment for so long, nearly 50% of the surveyed companies reported that they invested in research and development (vs. 23% in 2010), a figure that compares with 20% of firms in Venezuela's peer countries. In addition, 76% of the firms stated they had introduced at least one innovation process (vs. 41% in 2010), a figure substantially higher than the average of firms in comparator countries (around 40%). The fact that companies say that they innovate more in processes than in products is striking. This is not the case for firms in peer countries, at least as reported in innovation surveys.[61] Assuming innovation leads to greater efficiency, two outcomes are possible: employment is reduced and productivity rises. On the other hand, these findings might suggest that Venezuelan companies are adopting innovative management strategies, driven by the continuing existence of profit opportunities, even in the midst of hyperinflation and other difficulties.

Figure 27. Venezuelan firms' innovation indicators



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

Additionally, when we look at creation indicators, such as the introduction of a new product or service, we see that 51% of surveyed firms (vs. 33% in 2010) report having done so, a figure that is on par with the average share (56%) of firms in Venezuela's peer countries making the same claim (see Panel A of Figure 28), which is another

61 See Beverinotti et al. (2020).

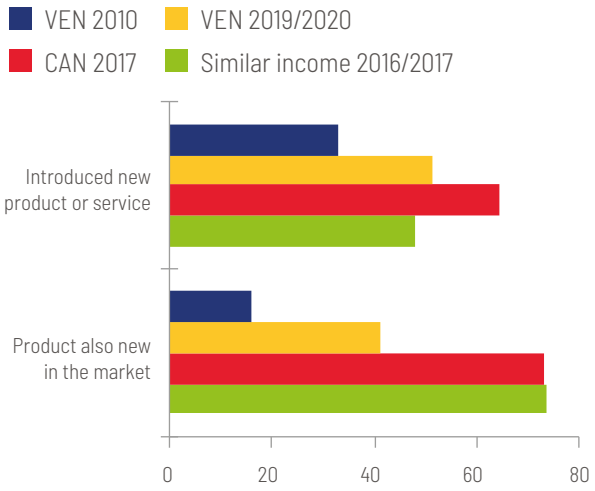
sign of the efforts Venezuelan companies are making to compete in market settings. However, when asked if the product was also new in the main market, the percentage of Venezuelan firms responding affirmatively, 41.4%, was well below the average percentage (73%) of firms in peer countries that responded affirmatively (Panel A). On the other hand, 14.6% of the responding Venezuelan firms report making use of technology licensed from foreign companies, a figure that lags only slightly behind the percentage of firms in peer countries that report doing so (Panel B).

Figure 28. Venezuelan firms' innovation, creation, and technology indicators

A. Introduction of new product/service

LAC: Firms Innovation

(% responding firms)

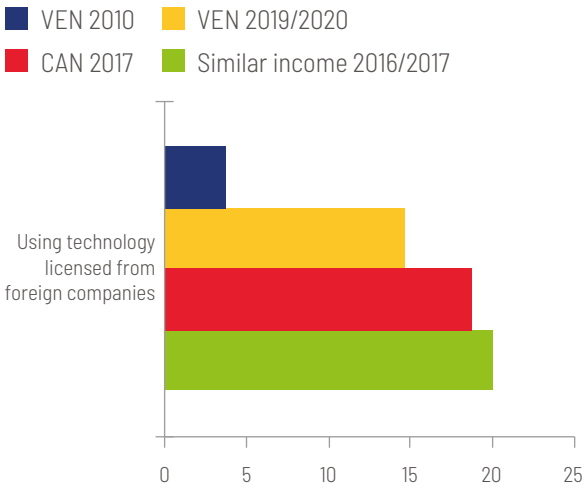


Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Use of foreign technology

LAC: Firms Innovation

(% firms)

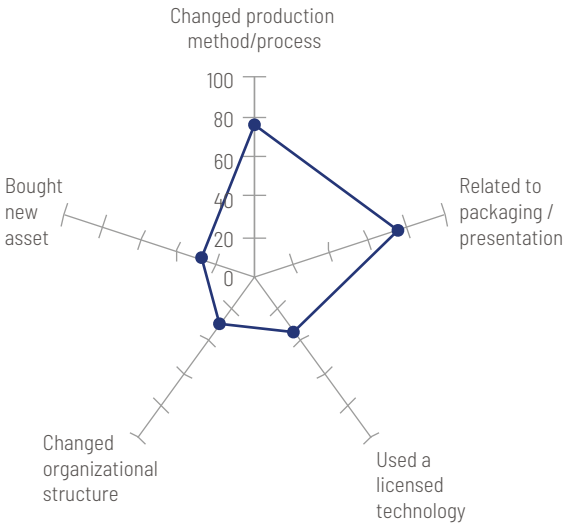


Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

Innovations make major contributions to most aspects of the productive process for most firms. When looking at the characteristics of the innovation by Venezuelan firms (Panel A of Figure 29), it can be observed that most firms changed their production methods/processes and around one-third either changed their organizational structure, used a foreign licensed technology, and/or bought a new asset. In response to questions about the importance of the implications of such innovations (Panel B of Figure 29), more than half of the firms report that their innovation improved both their ability to develop new products/processes and product quality, and around half of the firms report that their innovation increased the number of product lines offered to the market, reduced their average cost per unit of product, and increased their sales. Finally, around 40% of the firms report that the innovation was critical for opening access to new categories of costumers.

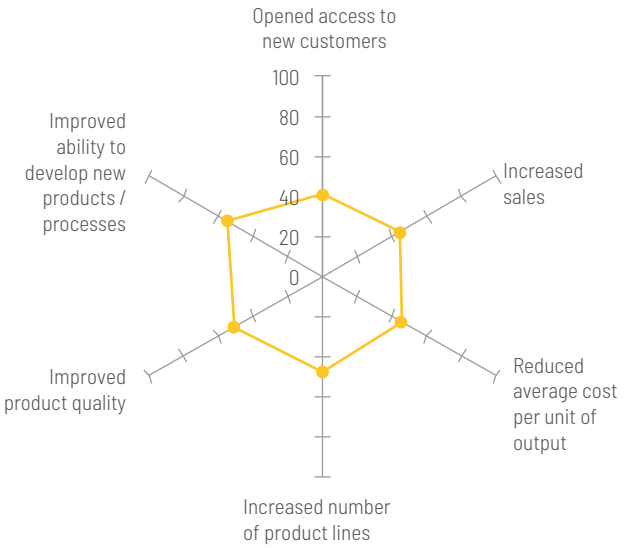
Figure 29. Venezuelan firms' innovation characteristics and implications

A. Characteristics
Venezuela: Firm innovation characteristics
(% innovating firms)



Source: Enterprise Survey 2019/2020, IDB.

B. Implications
Venezuela: Innovation implications
(% responding firms)



Source: Enterprise Survey 2019/2020, IDB.

Knowledge protection seems hard to obtain. A question was posed to innovating companies about whether they had successfully filed any patents, trademarks, industrial designs, or copyright registrations related to their products or process innovations, and only 20.5% reported having done so. However, when asked whether they owned any patents or trademarks or had registered any industrial design or copyrights related to their products or process innovations, 20% responded affirmatively.

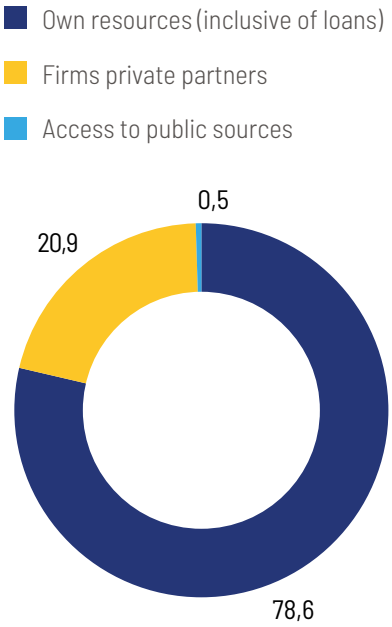
Over the last two fiscal years, firms in Venezuela that innovated devoted on average 8.6% of their sales to innovation, a percentage lower than the losses due to interruptions of basic services and security expenditures. Moreover, for the average innovating firm, 78.6% of the innovation was financed with the firm's own resources (inclusive of loans), 20.9% through the firm's private partners, and just 0.5% via public sources (Panel A of Figure 30). Naturally, when asked about the obstacles to innovation, 30% of the surveyed firms responded that access to public funding was the most significant, followed by the level of financial resources available; the lack of an investment/policy framework to foster innovation; the lack of flexibility/openness of laboratories, research centers and other companies for collaborative approaches; and the lack of technical capacity in key institutions responsible for innovation promotion (see Panel B of Figure 30).

Figure 30. Venezuelan firms' innovation financing sources and obstacles

A. Financing

Venezuela: Firms financing of innovation

(% total sources)

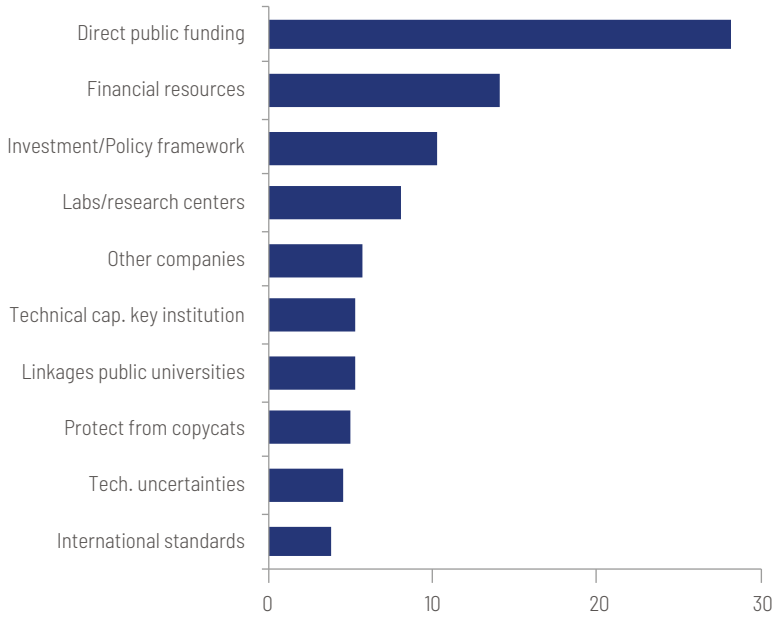


Source: Enterprise Survey 2019/2020, IDB.

B. Obstacles

Venezuela: Top 10 obstacles to innovation

(% responding firms)



Source: Enterprise Survey 2019/2020, IDB.

Gender

Regarding gender, the last 10 years are marked by two trends: more participation by women as owners of firms and less participation by women in the labor force overall.

Panels A and B of Figure 31 show that although there is greater female participation in the ownership of Venezuelan firms (from 31% of the firms surveyed in 2010 to 65% of those surveyed in this study), levels similar to those associated with firms in comparator countries, just 12.2% of Venezuela firms have *majority* female ownership, well below the percentage of such firms in peer countries (around 25%, on average). Moreover, the percentage of firms with a female top manager has declined from 31.1% in 2010 to 15.4% in 2019/2020, below the current average, 23%, of such firms in peer countries.

Another finding is that there had been a decline in female labor participation, from 39% in 2010 to 26% at the time of the survey, a percentage below the average in comparator countries (33%). Among production workers, female participation is even

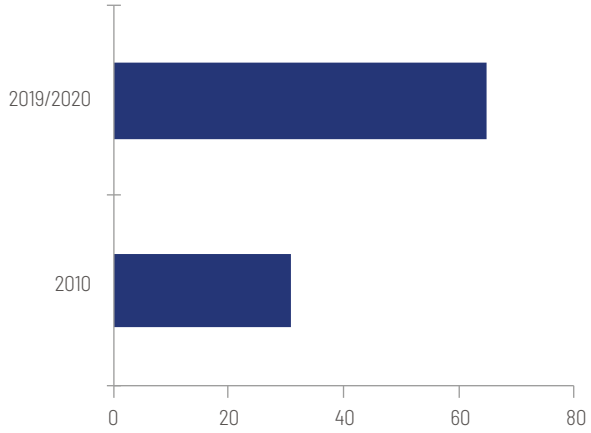
lower (16.7%, down from 32.4% in 2010), a share that, like the rate of female labor participation in Venezuela overall, is lower than that in comparator countries (23%) (see Panels C and D of Figure 31).[62]

Figure 31. Venezuelan firms' gender indicators

A. Female ownership, trend

Venezuela: Female participation in ownership

(% of responding firms)

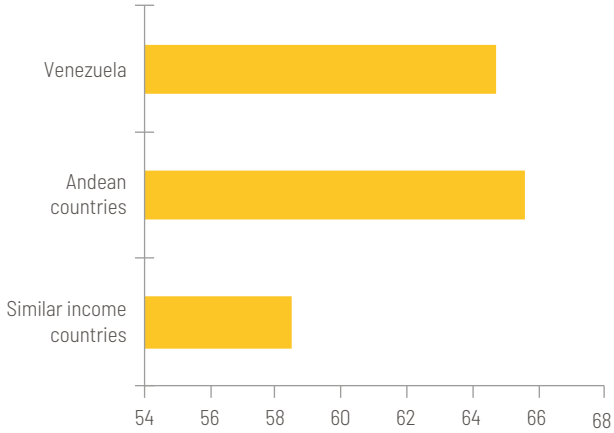


Source: Enterprise Survey 2019/2020, IDB.

B. Female ownership, Venezuela vs. peer countries

LAC: Female participation in ownership

(% of responding firms)

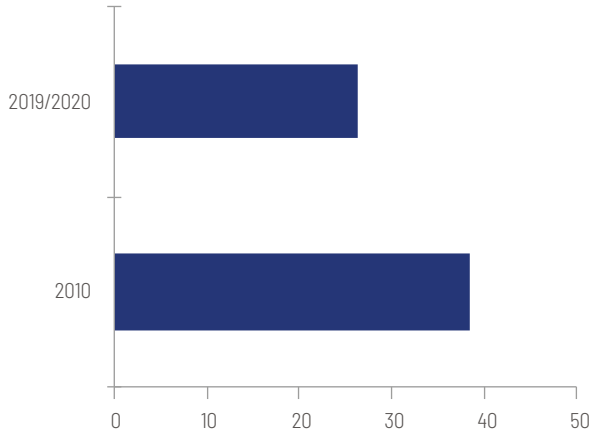


Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

C. Female labor, trend

Venezuela: Female full-time workers

(% of workers)

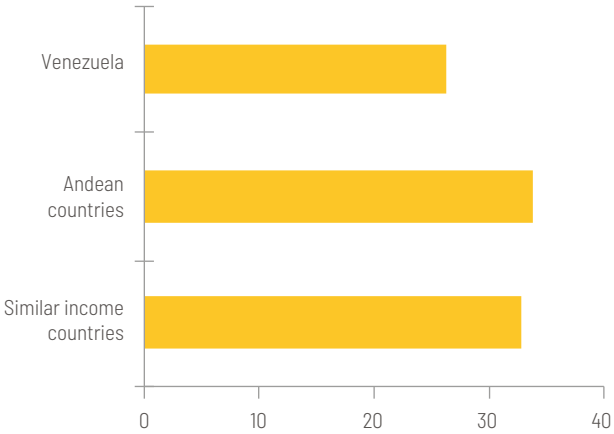


Source: Enterprise Survey 2019/2020, IDB.

D. Female labor, Venezuela vs. peer countries

LAC: Female full-time workers

(% of workers)



Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

62 This finding needs to be confirmed through some cross-validation against labor surveys. A recent study suggests that when there are job scarcities, social norms signal that men "deserve" openings more than women. See Bertand (2011).

Performance

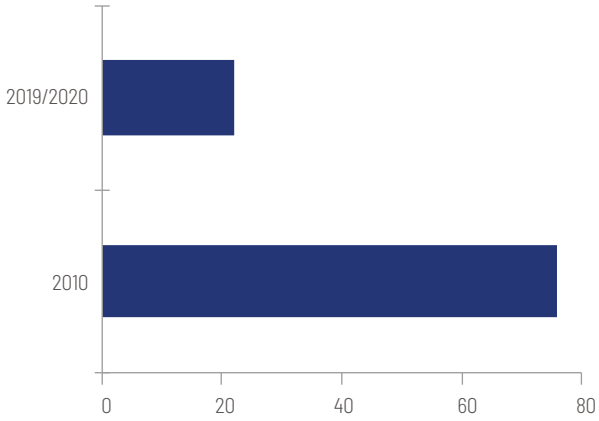
Capacity utilization has decreased substantially over the last decade. In 2010, capacity utilization for the representative firm in Venezuela was 75.8%; by 2019/2020 the percentage had declined to 22.1%. The representative firm in Andean peer countries reports capacity utilization as being 68.9% and in similar income countries reports it as being 71.3%.

Figure 32. Venezuelan firms' capacity utilization

A. Capacity utilization, trend

Venezuela: Capacity utilization in manufacturing

(% of total capacity)

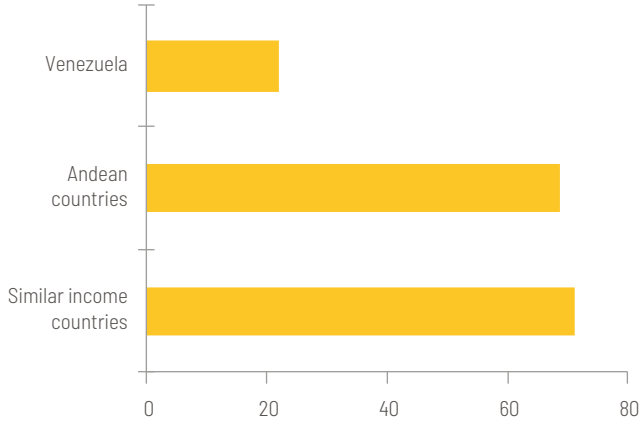


Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

B. Capacity utilization, Venezuela vs. peer countries

LAC: Capacity utilization in manufacturing

(% of total capacity)



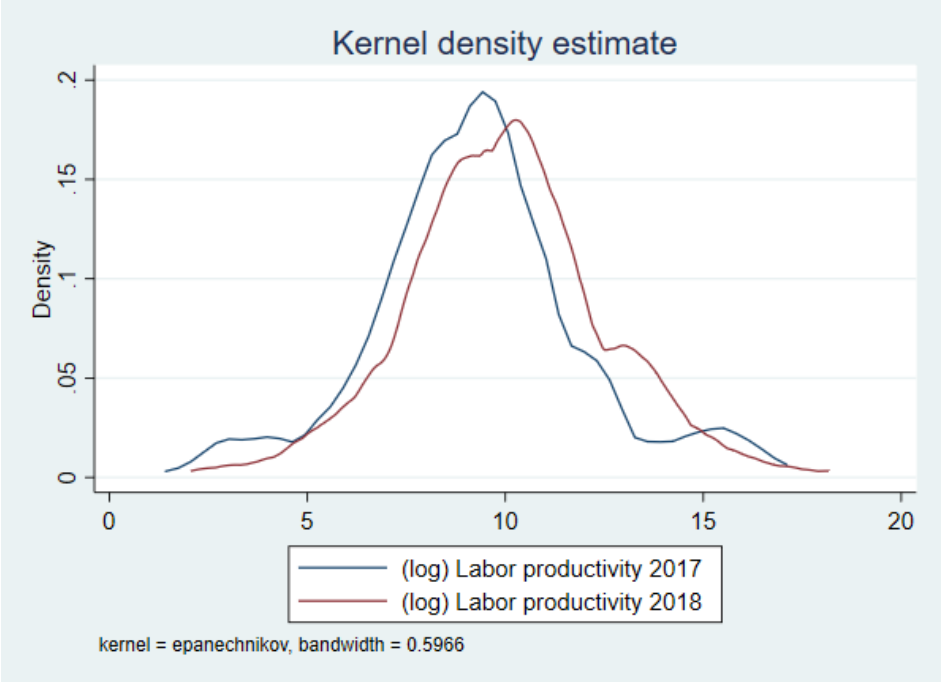
Source: Enterprise Survey 2019/2020, IDB. Enteprise Surveys, WB, several years.

Regarding other performance indicators such as real sales, employment, and real labor productivity changes, Venezuelan indicators pose some interpretative difficulties that reflect the ongoing hyperinflation process. As explained in the financing section, broadly speaking hyperinflation has consequences that change the behavior of economic agents, particularly in relation to the demand for domestic currency and equity protection. The changes frequently involve currency substitution and/or dollarization,[63] as well as an increase in the frequency of transactions, as agents seek to preserve value by getting rid of their cash holdings, most often by acquiring hard currency and/or tradable/durable goods. Therefore, since some variables of the survey were expressed in domestic currency (such as salaries and annual sales), these variables were converted to USD at the average exchange rate of the parallel market for the corresponding year.

63 See Calvo and Végh (1992).

When analyzing annual sales converted to USD, it is observed that, for the average firm, real sales increased 60.3% between the 2017 and 2018 fiscal years. Moreover, as explained in the labor and skills section, since most firms reduced their number of employees, the average firm had a reduction in employment of 24.4% over the same period. Taking both variables together and using the log of sales per worker to minimize the impact of outliers and extreme values, this implies that average real productivity of labor increased by 112% an striking figure 33 shows the kernel density function of firms' labor productivity for the years 2017 and 2018. As is evident from the chart, the average (as well as the median) level of productivity increased in 2018.

Figure 33. Venezuelan firms' distribution of labor productivity



Source: Enterprise Survey 2019/2020, IDB.

A caveat regarding the above measure of labor productivity should be mentioned. Average sales per worker do not represent value added (GDP) per worker. These sales cover production costs (the cost of intermediate goods and services, capital, and labor) and the markup (the means of internal financing). Changes in total factor (or worker) productivity can affect the value of sales by reducing average costs. However, this does not ensure a strong (temporary) correlation between productivity and sales per worker. Therefore, the statistical analysis of the average sales of companies requires controlling for the (relative) cost of materials, labor, and capital in each company. Theoretically, the remaining part of the variable could be attributed to differences between companies that are explained by the markup and total factor productivity. However, firms'

responses to questions related to production costs were typically scarce in this sample and therefore were not taken into consideration in the analysis of the following section. Thus, it is premature to propose hypotheses about a possible increase in average productivity per worker in the period of study and to try to explain which characteristics of the companies affect said productivity based on the preliminary results presented below. The idea is to motivate future and deeper research on these topics.

Determinants of labor productivity

Beyond the magnitude of the increase in labor productivity are the drivers of it. Following the approach and assumptions of Amin et al. (2019b) using ES data, the determinants of labor productivity (measured as sales per worker) are briefly explored in (log) levels as well as in (log) differences using a pooled sample of all firms. To capture the differences across sectors, categorical variables are introduced. Following the existing literature, several determinants are considered.

The first is firm size. There are two possibilities, the first being that (labor) productivity becomes larger as firm size increases. This is often attributed to the greater allocative efficiency of relatively larger firms and the presence of fixed costs that generate economies of scale (Bartelsman et al., 2013; Tybout, 2000). The other possibility is the opposite: labor productivity gets smaller as firms get larger. This could be due to decreasing returns to scale overall or to diminishing returns to labor. Moreover, size also works as a key proxy measure of other firm attributes that affect labor productivity, such as access to finance, raw materials, and product markets; the tendency to innovate and/or to export; and firm efficiency and growth.[64]

Another key determinant is the age of the firm. The links of this channel come, among others, through scale economies gained from expansion over time, a vintage effect due to younger firms employing new and improved technology or equipment, and selection effects that wipe out inefficient firms and that imply higher productivity for the surviving older firms and learning by doing.[65]

Other determinants are related to the outward direction of the firm. As in Amin et al. (2019b), I include the proportion of exports on firms' annual sales, a dummy variable equal to 1 if private foreign individuals, companies, or organizations own more than 10% of the firm and 0 otherwise, and a dummy variable equal to 1 if the firm has an

64 See, for example, Acs and Audretsch (1988), Diaz and Sánchez (2008), Pagano and Schivardi (2003), and Söderbom and Teal (2004).
65 See, for example, Bahk and Gort (1993), Jensen et al. (2001), Jovanovic (1982), Thompson (2005), and Zimmerman (1982).

internationally recognized quality certificate and 0 otherwise. Though there is evidence that exporting makes firms more productive, it is not clear whether it is exporting that causes firms to become more productive or whether the more-productive firms self-select themselves into the exporting activity.[66] Foreign ownership brings, among others, greater access to modern technology and to international markets. An internationally recognized quality certificate can open new markets for a firm and lead to better quality monitoring and management of product risks and to knowledge spillovers through greater international contact; empirical evidence, however, on the impacts of internationally recognized quality certificates on labor productivity is limited and mixed.[67]

Differences in the education and experience of top managers have been found to impact firm productivity by improving the quality of management.[68] This effect is included in the regressions, using a proxy that equals the (log of) number of years of experience in the industry the top manager of the firm has.

Since the seminal works of Solow (1956) and Swan (1956), physical capital has been found to be one of the key determinants of productivity. While the ES asks about the value of the capital stock (book value and replacement cost), these data are missing for more than 50% of the firms in the sample. To account for this determinant, a proxy measure has been used as a dummy variable equal to 1 if the firm bought fixed assets the previous year and 0 otherwise.

Several studies have underscored the effect of the regulatory burden on firm productivity.[69] To account for this, a proxy measure for the regulatory burden a firm faces is the percentage of the time of firms' senior management that is spent dealing with government regulations. This variable is considered a de facto measure of regulation (see Duvanova, 2014).

Another driver of firm productivity is access to finance.[70] This is incorporated using a dummy variable equal to 1 if the firm currently has a bank loan or a line of credit and 0 otherwise.

66 See, for example, Bernard and Jensen (1999), Melitz (2003), and Wagner (2007).
67 See, for example, Garcia-Pozo et al. (2014), Lakhal (2014), Sánchez-Ollero et al. (2015), and Sıtkı İlkay and Aslan (2012).
68 See Bloom et al. (2010) and Pfeifer (2015).
69 See, for example, Amin et al. (2019c), Aghion et al. (2004), Djankov et al. (2002), Djankov et al. (2006), and Gaviria (2002).
70 See Presbitero and Rabellotti (2014).

To evaluate some of the constraints reported by the Venezuelan firms in the previous subsections, some other variables were included. In particular, since the lack of skills was mentioned as a key variable and considering that the presence of more-skilled staff has important effects on firms' productivity,[71] the share of the total payroll that was skilled labor was included. In addition to this, considering that Venezuelan firms seem to be vigorously innovating —especially when compared to firms in Venezuela's peer countries—a dummy variable equal to 1 if the firm introduced a new product or process and 0 otherwise was included to determine how these innovations contribute to labor productivity.

Another notable result for Venezuelan firms is the relevance of bribery. To evaluate the impact of bribery on labor productivity, a dummy variable was included that was equal to 1, if during inspections by or meetings with government officials a gift or informal payment was implicitly or explicitly requested, and equal to 0 otherwise. Last, given the relationship of the provision of basic services to productive activities, dummy variables equal to 1 if, in a given month, the firm experienced interruptions in electricity, water, cell phone, or internet services and 0 otherwise were included.

Results related to the level of labor productivity are shown in Table A1 of the Annex. The first regression (column 1) does not discriminate by sector and size nor control for service interruptions. It shows a positive and significant relationship between labor productivity, foreign ownership, and access to credit. The rest of the variables do not show statistically significant coefficients. The second regression (column 2), which includes the effect of service interruptions, does not alter the results of the previous regression nor evidence the impact of any service interruption on the level of productivity. The third regression (column 3), which includes controls for sector and firm size, maintains the statistical significance of the positive relationship between foreign ownership, with the novelty that it points to a higher level of productivity for large firms. The last column adds service interruption controls without reporting significant changes.

Table A2 of the Annex shows results for the yearly change in labor productivity.[72] Following the same logic as Table A1, the first regression (column 1) does not discriminate by sector and size nor control for service interruptions. It only shows a positive and significant relationship between labor productivity and the possession

71 See Helble et al. (2019) and Maré et al. (2015).

72 Though annual sales for the two periods were available, greater explanatory power of their variation over time would require longer time series. Although it is preferable to compare the same model (cross-section) of average sales for each available year, not all variables are available for both periods.

of an internationally recognized quality certificate. The second regression (column 2), which includes the effect of service interruptions, does not alter the results of the previous regression, but does indicate a negative relationship between firm age and changes in productivity. Service interruptions have no impacts on productivity changes. The third regression (column 3), which includes controls for sector and firm size, maintains the statistical significance of the coefficients on firm age and the possession of an internationally recognized quality certificate, with the novelty that firm size is associated to increases in labor productivity. The last column adds service interruption controls, but there are no significant changes with respect to the previous column.

Heterogeneity

In this subsection, I will comment on the results for the separation of the sample by sectors and size. Due to sample size constraints, only regressions for the main productivity drivers were considered. It should be noted that sample size was reduced significantly for sectors and sizes; thus, compliance with the asymptotic properties of the parameters for these sectors is not granted and significant correlations must be analyzed in depth and checked for robustness. That said, I am reporting the results to motivate future analysis and discussion.

Table A3 shows results for the main drivers of productivity at the sector and size level. Only statistically significant coefficients are mentioned. Column 1 presents regression results for the sample of retail firms; these results suggest that foreign ownership is associated to a higher level of labor productivity, whereas the possession of an internationally recognized quality certificate does the opposite. For manufacturing firms (column 2), higher levels of exports as share of total sales and access to credit are associated to higher levels of productivity. In the service sector (column 3), having an internationally recognized quality certificate and having bought fixed assets are associated to higher levels of labor productivity, whereas years of manager's experience and having innovated are associated to lower levels.

Regarding firm size, column 4 shows results for small firms: having bought fixed assets is associated to higher productivity levels, whereas the age of the firm, innovation, and bribery incidence are associated to lower levels. Column 5 shows results for medium firms: years of manager's experience is associated to higher labor productivity levels. Lastly, column 6, which reports regression results for large firms, shows that foreign ownership and bribery incidence are associated to higher labor productivity levels whereas firm's age shows the opposite. Regarding the positive correlation between bribery and productivity, large firms being able to endure both a higher frequency of bribes and a larger per-bribe amount could be a component of survival behavior in a

context of an extremely weak institutional environment such as that characterizing Venezuela.[73] Moreover, it is important to emphasize that this study does not suggest corruption activities are desirable for companies and for society in general; on the contrary, such activities are wasteful, as the lost resources could be used for other welfare-increasing activities such as innovation.[74]

73 On the incidence of bribery and its implications in developing country firms, see Gonzalez et al. (2007).

74 See Amin et al. (2019c), where they conclude that a negative relationship exists between corruption and firm-level productivity.

IV. CONCLUSIONS

The representative firm in Venezuela has aged and it is older than in both actual and potential income peer countries. While the creation of new companies has decreased, aging does bring economies of scale and learning by doing. From this sample, aging seems to be associated to lower productivity levels as well as productivity decreases. It remains to be seen whether this aging process is due more to selection effects, vintage effects, or other causes.

The average firm in Venezuela has experienced an increase in foreign ownership over time and is also more likely to be at least more partially foreign-owned than firms in both actual and potential income peer countries. With more foreign ownership generally comes, among other things, greater access to modern technology and to international markets and knowledge. From the sample, foreign ownership seems to be associated to high levels of labor productivity, particularly for large-sized firms and firms in the retail sector. The top management of the average Venezuelan firm has vast experience, something associated to higher labor productivity for medium-sized firms. Women have increased their presence among the owners of firms; their impact on firm productivity is worth looking at.

Almost a third of the firms have an internationally recognized quality certificate, a portion that is higher than that of firms in both actual and potential income peer countries of Venezuela. These quality certificates can, for example, open new markets for a firm and lead to superior quality monitoring, better management of product risks, and knowledge spillovers through greater international contact. The sample's data show the possession of such quality certificates is associated to increases in labor productivity. Other empirical evidence on the impact of quality certificates on labor productivity is limited and mixed, however.

The average Venezuelan firm is also more accountable. This is shown by the percentage (71%) of firms in the sample that have their financial statements reviewed by external auditors, which is much higher than the average percentage (58%) of firms in actual and potential income peer countries of Venezuela. More than regulatory compliance, accountability undergirds other key virtues such as transparency.

The average Venezuelan firm reports macroeconomic and political instabilities as its biggest obstacles, followed by the lack and/or unreliability of electricity and other basic services, the lack of credit, the practices of the informal sector, and the shortage of skilled workers. Given that unreliability of services, with an average of 8 monthly interruptions across all types of service (electricity, water, cell phone, and internet), results in losses in the vicinity of 10% of sales, some firms have taken to providing some services themselves by buying small power plants and digging wells. For other types of services, such as internet, self-provision can be more complicated, if the sector is subject to tight regulation and investment needs are high. Basic service unreliability does not seem to be impacting the average Venezuelan firm's productivity, although more research is required on this topic.

Access to credit has turned out to be lacking for Venezuelan firms. Only 18% of the responding firms report having a loan or credit line (compared to 38% in 2010), while on average 54% of firms in peer countries of Venezuela report doing so. Most firms report that it is difficult to obtain loans, and rejection rates are higher than for firms in both actual and potential income peer countries of Venezuela. Firms also report that banks are now more oriented to financing working capital (which is short-sighted) than to financing fixed-asset investment (which has long-term implications), an expected result given Venezuela's macroeconomic picture.

The financing story has its correlate with the story of investment. More firms are investing in working capital than in fixed assets, although the average Venezuelan firm's overall investment (working capital and fixed assets) has decreased markedly, an effect that is more pronounced for medium-sized firms that are more dependent on banks for financing their investments. Regarding investment financing, most firms report using retained earnings or their own capital as sources. Among others, this is a sign either of the lack of financial intermediation or of a financial sector that is inefficient at it. It should be noted that although bank financing of investment has diminished, it is still available and public banks are an important source of it; hence, their role in a process of recovery should be carefully studied to avoid potential financial distress. Investment has also been found to be associated to higher levels of labor productivity for small-sized firms and the firms in the service sector. Lastly, the issue of endogeneity between the type of investment and the sources financing the investment is worthy of investigation. Put more concretely, is it firms that have a short-sighted view of investment, is it banks, or both?

The labor factor picture for the Venezuelan firm is one of low salaries, a low proportion of employees who are skilled, difficulty with finding skilled employees in the domestic market, a lack of in-house training, lower female participation, and a labor force who lack motivation and commitment. The lack of skilled employees is mostly due to the

migration process that is occurring and to a lesser extent to labor laws, the quality of the current labor force, and the quality of domestic education. However, when looking at the education dimension of skills, it is the case that most of the required education levels for workers are matched, and that when there is no matching, either it occurs at the basic education levels or the gap between the required level of education and the actual level is not wide. If a recovery process starts and more firms enter the economy while current firms expand, it is expected that the labor market will become more dynamic, with new firms demanding potential workers have additional and more-advanced skills and preexisting firms competing to retain their current employees. To avoid potential frictions and bottlenecks during this process, policies aimed at incentivizing the return of migrants, easing the burden of labor regulations, and increasing capacity, especially of programs that facilitate the expedited completion of the most-demanded education levels, such as secondary education and university/vocational training, as well as training within firms, will be key.

Compared to 10 years ago, a larger share of the sales of the representative Venezuelan firm is now coming from exports. While there is evidence from the sample that exporting causes firms to become more productive, particularly in the manufacturing sector, it is not clear whether this is in fact the case or whether more-productive firms self-select into the exporting activity. This issue is worthy of being looked at in detail. At the same time, compared to 10 years ago, more firms are importing and a larger share of firms' inputs/supplies comes from abroad. Compared to firms in peer countries of Venezuela, fewer firms in Venezuela use inputs of foreign origin, which could be related to either import constraints faced by Venezuelan firms or the existence of more-robust local value chains in the country. Given the financial constraints characterizing the Venezuelan economy and the need to satisfy the urgent consumption demands of the population, this low share of usage of foreign inputs by Venezuelan firms relative to firms in peer countries needs to be investigated in depth. Any recovery strategy should consider the national savings that could be generated by the cheaper local production of certain goods.

The current regulatory burden seems too heavy for Venezuelan firms. It impacts firms in all sectors and, when measured by the time tax, seems to impact the productivity of firms negatively, particularly those in the service sector. The level of corruption, as measured by the bribery index, is high and of considerable depth, and exceeds the level in both actual and potential income peer countries of Venezuela, generating additional costs for firms and thus reducing the availability of resources for more-productive activities. Crime affects more than half of the surveyed firms, generating significant losses, which, coupled with the security expenses firms have taken on to avoid crime, take a major toll on firms' sales. In sum, the high levels of corruption and crime are major stumbling blocks for Venezuelan firms.

The inventiveness of Venezuelan firms is still present and has expanded into a variety of domains. It has largely taken the form of process innovation, although there has been some product innovation as well. Some positive outcomes are enhanced product quality, reduced costs, an increased number of product lines, and expansion into new markets. Unfortunately, firms spend less on innovation than on security, and these expenditures are usually lower than the losses due to services interruptions and theft/vandalism. In addition, firms face significant challenges regarding knowledge protection and innovation financing and promotion, particularly the provision of these by the public sector.

Firm performance seems to have improved in 2018 vs. 2017, particularly in terms of sales, although the results should be taken with caution, because some of the data regarding sales are affected by hyperinflation and monetary conversion. Firms reduced their workforces, in spite of tight labor regulations, mostly due to the out-migration process; this issue of smaller payrolls does require more investigation in order to avoid major output/employment fluctuations if labor regulations are going to be relaxed. The increase in sales and the reduction in employment have resulted in a large increase in labor productivity that, in spite of its magnitude, is mostly associated to firm size, the outward orientation of the firm, and the quality of management. Moreover, firms are working at a fifth of their installed capacity. While this can represent an opportunity for a faster recovery, it can also become an obstacle if spare capacity is deteriorated.

The next steps are to deepen the research. I propose the following as the main topics: the construction of the profile of the representative Venezuelan exporting firm; a closer look at the causal relationships between internationally recognized quality certificates, firm size, firm age, and firm productivity; financial intermediation and the role of the banking sector in investment and firm development; the attraction of skilled employees and in-house skill development, the role of female labor participation and ownership, and the impact of labor laws; the instrumentalization of the reduction of excessive and unnecessary regulations and the control of corruption and crime; and finally, the state's role in innovation and how this can be promoted and financed.

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ANNEX

Table A1

	(1)	(2)	(3)	(4)
Dependent variable: Labor productivity (logs)				
Manufacturing			0.307	0.442
			(0.508)	(0.531)
Services			-0.372	-0.277
			(0.932)	(0.930)
20-49 employees			1.119*	0.968
			(0.629)	(0.626)
50-99 employees			1.081	1.134
			(0.783)	(0.792)
100-more employees			1.215*	1.173*
			(0.645)	(0.682)
Age of the firm	-0.228	-0.255	-0.492	-0.526
	(0.281)	(0.288)	(0.319)	(0.331)
Exports as % sales	0.819	0.603	0.532	0.323
	(0.528)	(0.553)	(0.543)	(0.567)
Foreign ownership > 10%	1.040**	0.986**	1.145**	1.049**
	(0.468)	(0.475)	(0.464)	(0.482)
Quality certification	0.687	0.692	0.571	0.581
	(0.506)	(0.504)	(0.498)	(0.498)
Manager's experience	-0.148	-0.090	-0.028	0.009
	(0.281)	(0.259)	(0.297)	(0.286)
Investment	-0.176	-0.141	-0.249	-0.180
	(0.386)	(0.389)	(0.439)	(0.442)
Time tax	0.276	0.330	0.052	0.205
	(0.766)	(0.794)	(0.763)	(0.799)
Access to credit	0.940**	1.071***	0.529	0.692
	(0.375)	(0.409)	(0.439)	(0.479)

	(1)	(2)	(3)	(4)
Dependent variable: Labor productivity (logs)				
Skilled labor % total labor	-0.182	-0.148	-0.180	-0.214
	(0.799)	(0.799)	(0.782)	(0.790)
Innovation	-0.182	-0.130	-0.266	-0.285
	(0.490)	(0.516)	(0.518)	(0.545)
Bribery incidence	0.505	0.586	0.354	0.484
	(0.481)	(0.464)	(0.494)	(0.480)
Electricity		0.508		0.589
		(0.526)		(0.544)
Cellphone		-0.208		-0.433
		(0.510)		(0.496)
Internet		-0.838		-0.687
		(0.625)		(0.626)
Water		0.686		0.615
		(0.456)		(0.438)
Constant	10.396***	10.241***	10.130***	9.986***
	(1.185)	(1.266)	(1.398)	(1.463)
Observations	153	153	153	153
R-squared	0.114	0.144	0.160	0.188

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A2

	(1)	(2)	(3)	(4)
Dependent variable: Labor productivity (log diffs)				
Manufacturing			-0.948	-0.806
			(0.747)	(0.795)
Services			-1.265	-1.036
			(1.044)	(1.087)
20-49 employees			1.233*	1.147*
			(0.662)	(0.673)
50-99 employees			1.546**	1.664**
			(0.770)	(0.789)
100-more employees			1.672**	1.559**
			(0.682)	(0.707)
Age of the firm	-0.495	-0.566*	-0.770**	-0.822**
	(0.325)	(0.324)	(0.337)	(0.343)
Exports as % sales	-0.624	-0.779	-0.923	-1.015
	(0.528)	(0.570)	(0.598)	(0.647)
Foreign ownership > 10%	0.141	0.148	0.247	0.246
	(0.501)	(0.505)	(0.505)	(0.509)
Quality certification	1.705***	1.674***	1.610***	1.580***
	(0.603)	(0.616)	(0.581)	(0.592)
Manager's experience	-0.106	0.030	0.075	0.160
	(0.297)	(0.279)	(0.285)	(0.279)
Investment	0.349	0.445	0.422	0.531
	(0.501)	(0.519)	(0.511)	(0.526)
Time tax	1.034	1.095	0.905	1.041
	(0.809)	(0.813)	(0.869)	(0.887)
Access to credit	0.545	0.516	-0.084	0.002
	(0.679)	(0.686)	(0.702)	(0.725)
Skilled labor % total labor	-0.412	-0.402	-0.182	-0.243
	(0.927)	(0.897)	(0.914)	(0.915)
Innovation	-0.403	-0.316	-0.411	-0.360
	(0.507)	(0.471)	(0.550)	(0.517)
Bribery incidence	0.125	0.228	-0.034	0.109
	(0.469)	(0.483)	(0.464)	(0.472)

	(1)	(2)	(3)	(4)
Dependent variable: Labor productivity (log diffs)				
Electricity		-0.365		-0.419
		(0.716)		(0.699)
Cellphone		0.081		-0.134
		(0.498)		(0.494)
Internet		-1.061*		-0.741
		(0.603)		(0.644)
Water		0.387		0.317
		(0.505)		(0.500)
Constant	2.237	2.926**	2.453	3.080**
	(1.432)	(1.474)	(1.480)	(1.507)
Observations	137	137	137	137
R-squared	0.112	0.137	0.183	0.199

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A3

Dependent variable: Labor productivity (logs)	(1) Retail	(2) Manuf.	(3) Services	(4) Small	(5) Medium	(6) Large
Age of the firm	-3.334	-0.363	1.101	-1.260*	-0.612	-0.806**
	(2.506)	(0.330)	(1.185)	(0.729)	(0.630)	(0.385)
Exports as % sales	34.407	0.986*	0.962	-3.517	-1.579	0.993
	(18.434)	(0.541)	(1.439)	(7.554)	(1.130)	(0.618)
Foreign ownership > 10%	4.289**	0.867	0.534	-0.487	0.434	1.607***
	(1.327)	(0.558)	(1.885)	(1.115)	(1.232)	(0.400)
Quality certification	-3.805**	0.598	5.196**	0.243	1.183	0.176
	(1.214)	(0.552)	(1.863)	(1.247)	(0.927)	(0.520)
Manager's experience	0.447	0.305	-2.743**	-1.396	0.825*	-0.571
	(0.628)	(0.320)	(1.088)	(1.158)	(0.426)	(0.372)
Investment	-1.325	-0.667	4.204**	4.717***	-0.266	-0.030
	(1.188)	(0.434)	(1.735)	(1.655)	(0.663)	(0.602)
Time tax	-2.342	-0.204	-11.017*	3.424	-0.157	-0.510
	(4.687)	(0.888)	(5.299)	(2.703)	(0.923)	(1.420)
Access to credit	-1.235	0.723*		-4.425	0.157	0.905
	(2.085)	(0.435)		(2.578)	(1.042)	(0.672)
Skilled labor % total labor	-2.350	-0.678	-0.692	-0.740	0.538	-1.244
	(1.577)	(0.984)	(3.375)	(1.955)	(1.587)	(0.989)
Innovation	-1.254	0.026	-8.121***	-2.761*	-0.275	0.196
	(2.283)	(0.559)	(2.016)	(1.364)	(1.002)	(0.614)
Bribery incidence	0.868	0.213	-3.233	-3.483**	0.558	0.741*
	(2.534)	(0.535)	(2.912)	(1.479)	(0.974)	(0.434)
Constant	20.690*	10.148***	18.530**	17.904***	9.063***	14.106***
	(8.698)	(1.287)	(5.940)	(4.682)	(2.583)	(2.359)
Observations	17	117	19	34	64	55
R-squared	0.755	0.129	0.709	0.468	0.103	0.573

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1