

3 **A strong recovery: Economic growth and business dynamics**

The direct economic impact of the COVID-19 pandemic was muted in Paraguay compared to other countries in the region. However, the pandemic was bookended by two severe droughts that have challenged the economic recovery. Diversifying the economy is critical to enhance growth and resilience to climate change. It is also a major challenge in a context of high informality in a landlocked country. This chapter examines how measures established during the crisis and recovery period can support the country in tackling structural challenges. Credit support measures can support a formalisation effort that will have to be broader and combine ongoing administrative simplification efforts with support to increase the productivity of MSMEs and foster integration in regional and global value chains.

Box 3.1. Main findings and assessment

Benchmark data

- **Paraguay's GDP decreased only slightly in 2020 (-0.8%)**, while the GDP of all other countries, including OECD member countries, dropped by several percentage points (-4.9% on average). After a muted recovery, growth fell again to 0.1% in 2022 before recovering (4.7%) in 2023
- **The share of Paraguayan citizens with confidence in the national government was 33.6% in 2022.** This value is relatively low compared to the OECD average of 47.4%. Improving governance, integrity and transparency within public institutions are pending challenges in Paraguay that affect citizens' trust in government as well as the business environment.
- **Paraguay (10.9%) lags behind in fixed broadband coverage** by a wide margin with respect to the average for OECD countries (34.9%). Mobile broadband fills part of this gap (71 active subscriptions per 100 population). Broadband speed is also an important factor, in addition to accessibility. In 2022, Paraguay ranked 59th for fixed network speeds (57.89 mbps) among countries and 114th for mobile speeds (15.19 mbps).
- **Paraguay contributes to green growth by generating renewable energy almost on par with the country's energy supply (99%).** This level of electricity production is maintained by the two binational hydroelectric plants, Itaipú and Yacyreta.

Main findings on the impact of the COVID-19 pandemic

- Paraguay experienced a relatively mild contraction in 2020 compared to the LAC and OECD averages, however the onset of a drought in 2019 had already triggered an economic slowdown.
- Restaurants and hotels, services to households, business services and commerce were hit hardest during the pandemic in 2020 but showed already signs of recovery in 2021.
- In 2021, the agriculture and electricity and water sectors continued to underperform as a result of a drought that negatively affected soy production and electricity generation in the two binational dams. The simultaneous shock of the pandemic and the drought highlighted Paraguay's vulnerability to climate change.
- Most employment in Paraguay is concentrated in micro- and small enterprises, both of which were severely affected by the pandemic.

Policy responses

Government policy responses to support business production and investment during the pandemic included the following measures targeted at service industries (e.g., gastronomy, events, tourism, and hotel services):

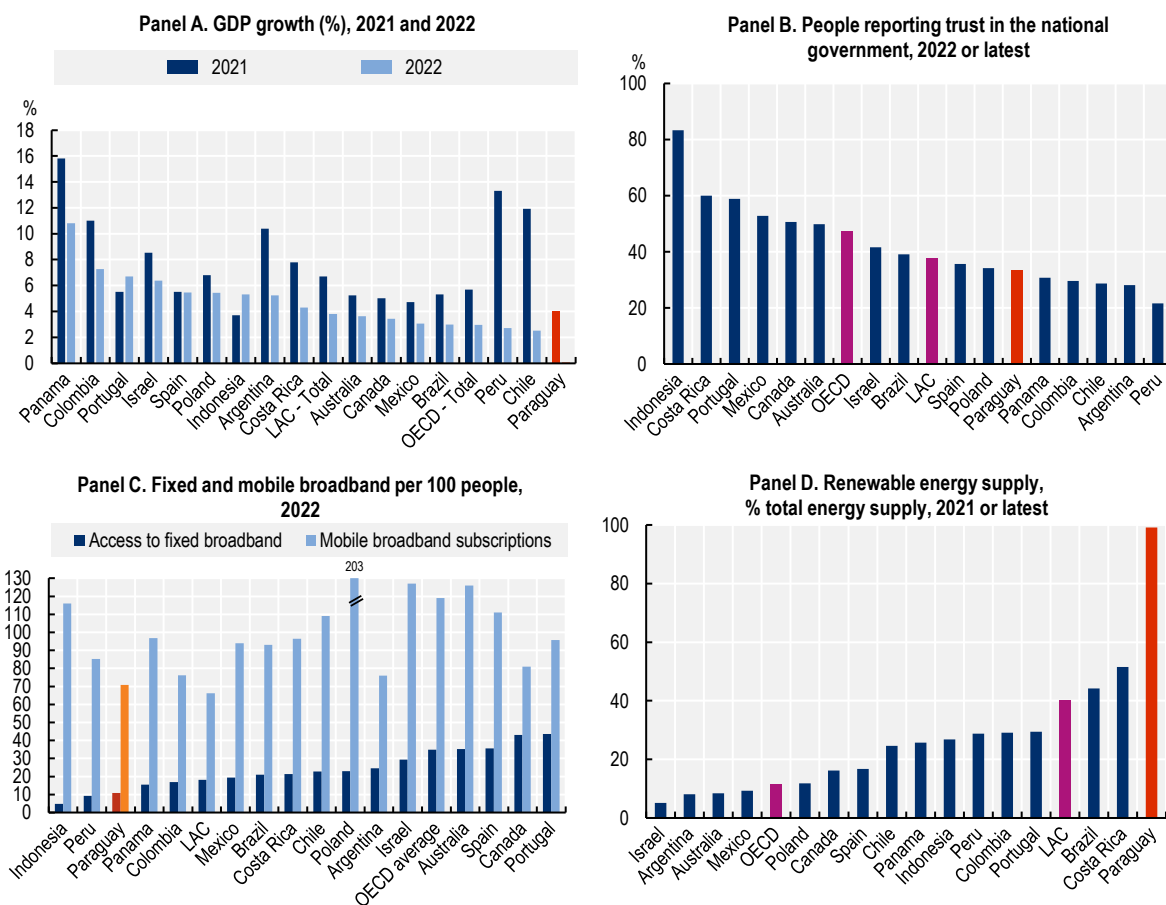
- **income support measures** consisting of subsidised utility bills, reduced VAT for certain sectors, reductions in the employer's contribution rate (*aporte obrero patronal*) and extensions for the payment of taxes.
- **credit support measures** such as different lines of credit provided by the state-owned bank *Crédito Agrícola de Habilitación* (CAH), the public development bank *Agencia Financiera de Desarrollo* (AFD) and the *Banco Nacional de Fomento* (BNF), as well as a strengthened guarantee fund (FOGAPY) to support access to credit for MSMES.

Strategies for the recovery

To ensure a robust and sustainable recovery, Paraguay must tackle the structural problems exposed by the pandemic, while also learning from innovative approaches applied during the crisis:

- **Tackling informality remains a key priority to reduce vulnerability and increase productivity.** Widespread informality in the Paraguayan economy represented one of the most serious obstacles to the government's COVID-19 response. As formalisation is not a linear, one-step process, any successful formalisation strategy requires a holistic approach with added incentives to formalise (e.g., access to social protection, financing, capacity building and business services) as well as supervision and enforcement mechanisms (e.g., enhanced inspections).
- **Ensuring that the process of digital transformation that accelerated during the pandemic remains a driver of inclusive growth.** Supporting and accelerating digitalisation is particularly important for Paraguay given the absence of transport costs, which are high as a result of the country's geography. This will require greater investment in digital infrastructure as well as in digital skills and access to digital technologies. Strengthening Paraguay's digital governance will also be of importance, particularly in the areas of data protection and digital security.
- **Capitalising on the global reconfiguration of trade and commerce to increase Paraguay's participation in global and regional value chains.** Lockdowns, restrictions on travel and trade in goods, disruption of international transport networks and changes in demand for goods and services all disrupted GVCs during the pandemic. This led to an increase in the relocation of business operations to closer locations from more distant ones. In this context, opportunities exist for Paraguay to increase exports to countries in the region. Strengthening commercialisation and internationalisation policies will be key for this purpose.
- **Increasing resilience to climate change.** Paraguay's reliance on agricultural commodities and hydroelectric power exports renders the country highly vulnerable to climate change. Better access to financing and crop diversification could make Paraguay's agricultural sector more resilient to natural disasters, while improving transport infrastructure could enhance resilience to climate change. Finally, supporting the expansion of renewables other than hydropower and enhancing energy efficiency could reduce the country's dependency on hydropower while decreasing electricity consumption, thereby strengthening Paraguay's capacity to withstand the impacts of climate change.

Figure 3.1. The OECD COVID-19 Recovery Dashboard: Strong dimension



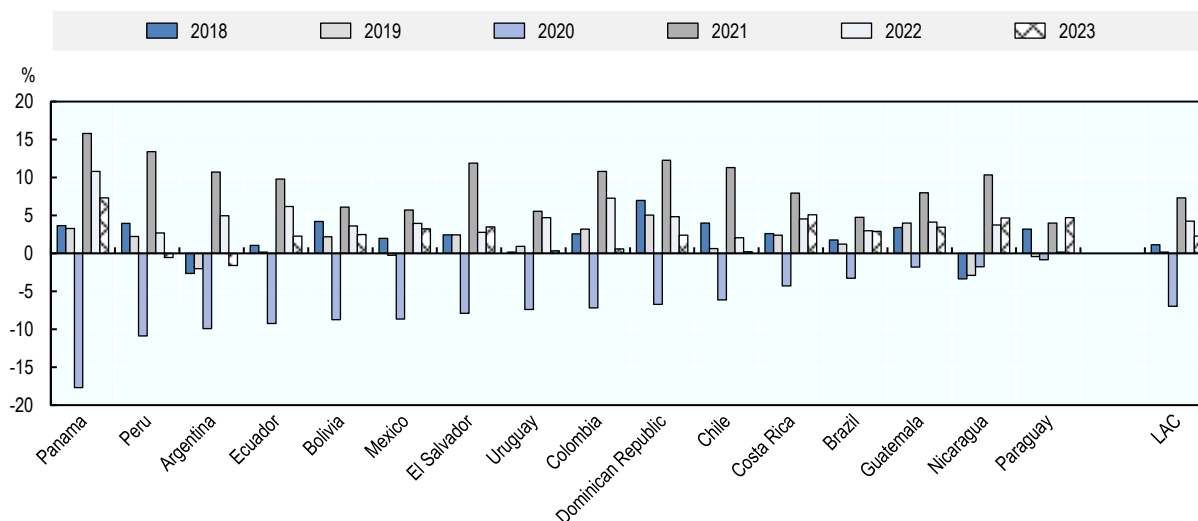
Source: All data for OECD countries have been extracted from the OECD Recovery Dashboard. For Paraguay, data for Panel A are taken from the World Bank (World Bank, 2022^[1]), data for Panel B are from the Gallup World Poll (Gallup, 2022^[2]), data for Panel C are from the World Bank (World Bank, 2022^[1]) and the International Telecommunications Union (ITU, 2024^[3]), and data for Panel D are from the OECD Green Growth Indicators (OECD, 2017^[4]).

The impact of the COVID-19 pandemic on Paraguay's economy was muted but recovery was hindered by severe droughts

Paraguay was impacted less hard by the COVID-19 pandemic than most other countries in Latin America and the Caribbean (Figure 3.2). The economy experienced a 0.8% contraction in 2020 due to the pandemic compared to a 7% contraction on average in Latin America and the Caribbean. However, even this relatively mild contraction proved harder for Paraguay to handle than for other LAC countries, due to a GDP per capita well below the LAC average (USD 5 400 in 2021 compared to a LAC average of USD 8 340 (World Bank, 2024^[5])) and despite the fact that Paraguay's growth performance prior to the COVID-19 pandemic was relatively good with a GDP growth rate averaging 4.8% between 2013 and 2018 (IMF, 2022^[6]). Paraguay's services sectors, specifically restaurants and hotels, services to households, business services and commerce, were hit hardest by the COVID-19 pandemic, largely as a result of mobility restrictions and lockdowns in Paraguay in 2020 (Figure 3.3, Panel C). Together, these four industries account for 20% of Paraguay's GDP (Figure 3.3, Panel A and B). Paraguay's exports declined as a consequence of the pandemic and an exceptional drought but rebounded quickly, with the exception of electricity exports, which were affected by the drought and only recovered in 2022 (Figure 3.4).

Figure 3.2. Paraguay experienced only a mild recession in the context of the COVID-19 pandemic

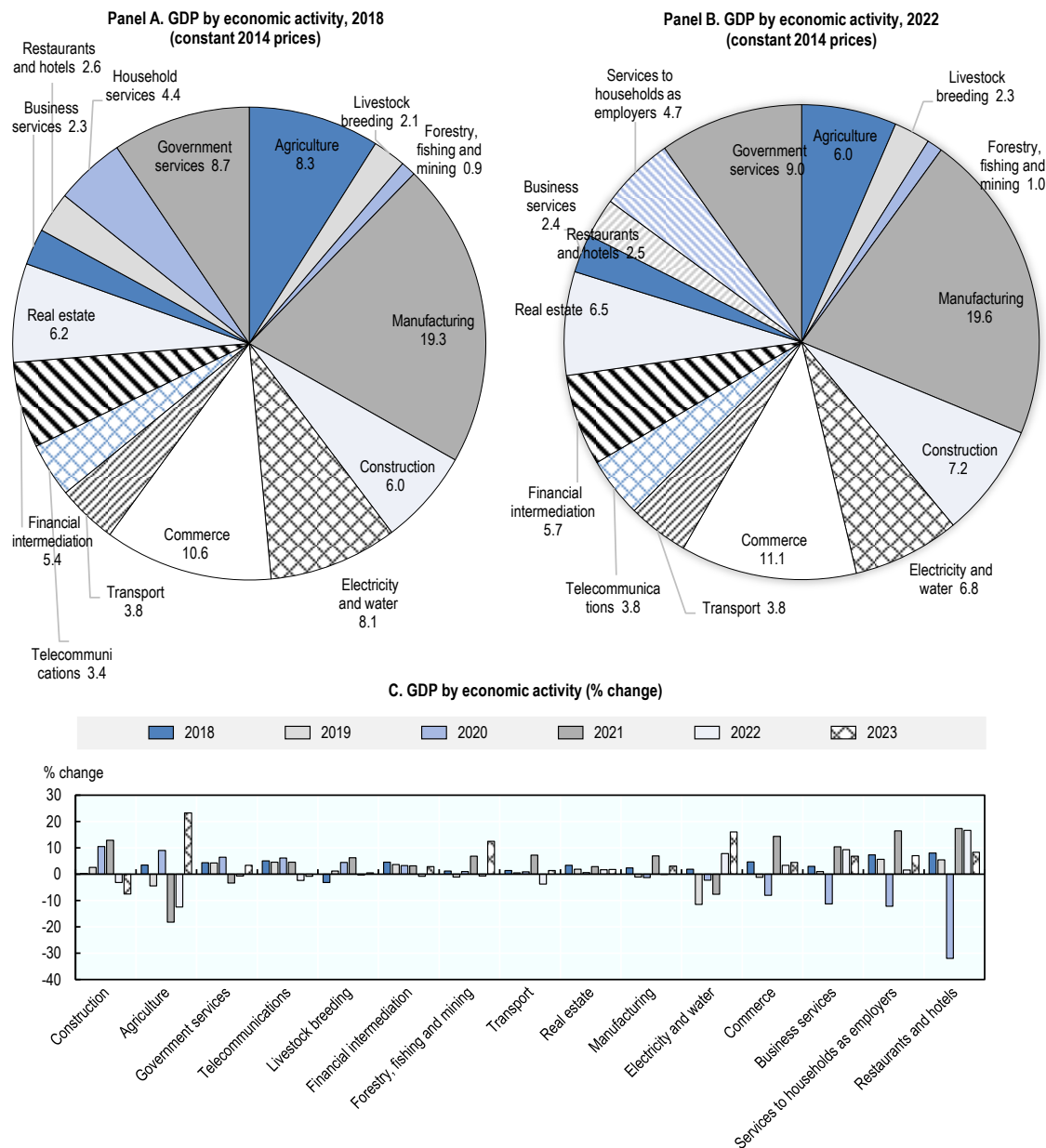
GDP in constant prices (% change)



Source: IMF (2024^[7]) *World Economic Outlook Database*, April 2024 and BCP (2024^[8]), *Anexo estadístico del informe económico*, 29 April 2024, <https://www.bcp.gov.py/anexo-estad%C3%ADstico-del-informe-econ%C3%B3mico-i365>.

The impact of the COVID-19 crisis was compounded by a severe drought that exposed the Paraguay's vulnerability to future extreme weather events. The drought started in 2019 and resulted in severe consequences that are still being felt years later by water-dependent sectors (SISSA, 2022^[9]). The drought led to a 4.4% contraction in Paraguay's agricultural sector in 2019 and, following a rebound in 2020, a further 18.2% contraction in 2021, despite high commodity prices, before partial recovery in 2023 (Figure 3.3, Panel B) (World Bank, 2022^[10]). Paraguay's soya production, the country's largest export good, has been particularly affected (SISSA, 2022^[9]). Soybeans and products derived from soybeans (oil, oilcake) accounted for 41.3% of Paraguay's exports in 2021 and for 38.5% of Paraguay's exports on average between 2017 and 2021 (UN, 2024^[11]). As of 2022, agriculture accounts for 6.0% of Paraguay's GDP (Figure 3.3, Panel A). Paraguay also experienced a three-year contraction in the electricity and water sector of 11.5% in 2019, 2.3% in 2020 and 7.6% in 2021, as a result of low water levels in the Paraná River, which led to a large fall in hydroelectricity production and exports. Electricity generation in Paraguay is based entirely on hydropower from two binational hydroelectric plants, the Itaipú (Paraguay/Brazil) and Yacretá (Paraguay/Argentina), with the electricity and water sector accounting for 6.8% of Paraguay's GDP (2022). Overall, the drought led to a 0.4% recession in Paraguay in 2019, even prior to the pandemic, and the draught suffered in 2022 slowed the recovery (FitchRatings, 2022^[12]; World Bank, 2022^[10]).

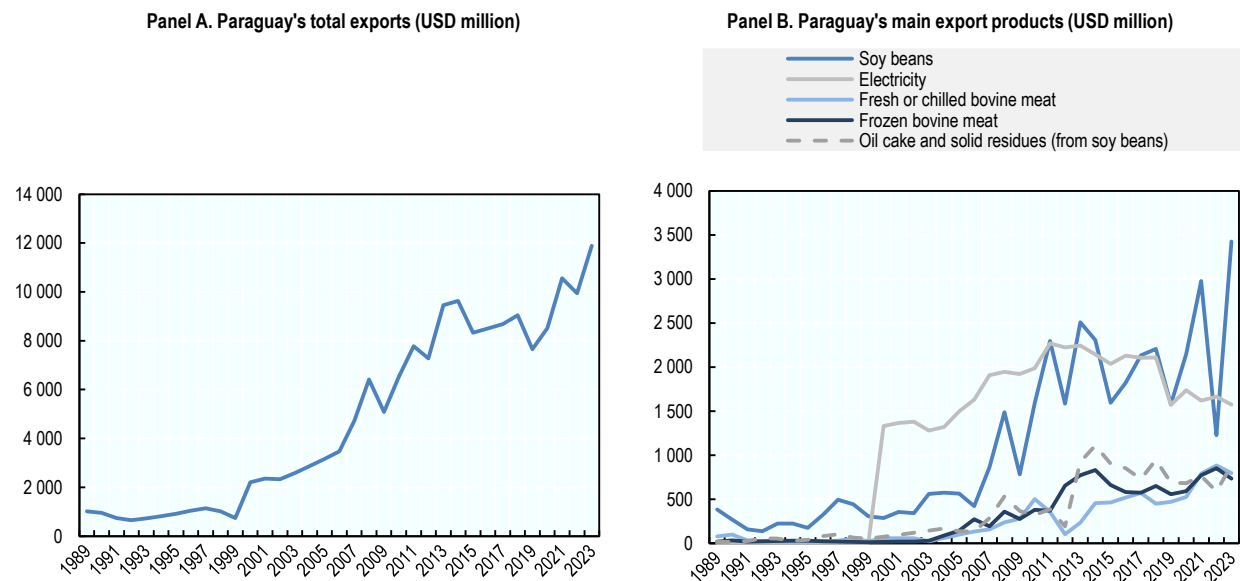
Figure 3.3. Restaurants and hotels, services to households, business services and commerce were hit hardest by the COVID-19 pandemic



Source: Banco Central del Paraguay, (2024^[8]), Anexo Estadístico del Informe Económico, www.bcp.gov.py/anexo-estadistico-del-informe-economico-i365.

Paraguay's reliance on agricultural commodities and hydroelectric power exports leave the country high vulnerable to climate change. Indeed, real GDP stagnated in 2022, growing only 0.1%, with a marked contraction in agriculture (-12.7%). The agriculture sector and the economy rebounded in 2023, with real GDP growth reaching 4.7% driven in part by the recovery of the agriculture sector, which grew 23% year-on-year. The recovery of agriculture also contributed to recovery in exports (Figure 3.4) (BCP, 2024^[8]).

Figure 3.4. Paraguay's exports declined as a consequence of the pandemic and a severe drought, but rebounded quickly

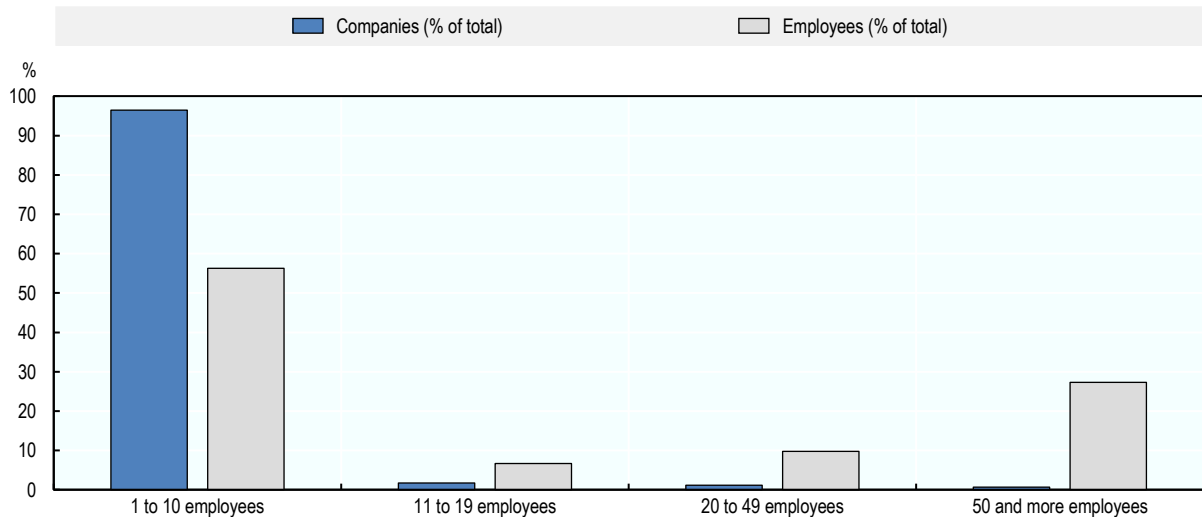


Source: UN (2024_[11]) Comtrade (database), <https://comtradeplus.un.org/>.

Paraguay's micro- and small enterprises were hit hard by the pandemic. In Paraguay, both employment and companies are concentrated in micro-enterprises (Figure 3.5), which are characterised by high levels of informality. According to an online survey of 360 MSMEs conducted between February and April 2021, 70.6% of micro-enterprises, 71% of small companies and 64.7% of medium-sized companies experienced a decline in sales in 2019-20. Employment decreased in 41.8% of micro-enterprises, 53.2% of small companies and 59.2% of medium-sized firms. Companies in the services sector experienced the largest declines in both sales and employment (Sánchez Báez, Sanabria and Paredes Romero, 2021_[13]). Another online survey of 635 companies, largely formal MSMEs, conducted in April 2020, found that 68% of MSMEs had completely suspended their activities as a consequence of the COVID-19 pandemic (as compared to 63.2% of large companies) (MIC/MTESS/SINAFOCAL, 2020_[14]).

Figure 3.5. Employment is concentrated in micro- and small enterprises, which account for the majority of companies in Paraguay

Companies and employment by firm size (% of total), 2011



Source: DGEEC (2011_[15]), Censo Nacional Económico 2011, <https://www.ine.gov.py/publication-single.php?coddec=MTE3>.

Access to finance became more difficult during the COVID-19 pandemic, in particular for micro- and small companies. Some 63% of medium-sized companies requested a loan during the pandemic but only 51.8% of small companies and 50.3% of micro-enterprises. Conversely, 31.3% of micro-enterprises and 20% of small enterprises did not apply for a loan as they did not expect to be eligible; this number was lower for medium-sized firms at 4.3%. The loan applications of 36.4% of applying companies were rejected and 19.9% were granted a loan in worse conditions than in previous years (Sánchez Báez, Sanabria and Paredes Romero, 2021_[13]).

Paraguay responded by supporting investment, MSMEs and productivity

Income support measures for businesses

- **Reduction in import tariffs.** In March 2020, in response to the COVID-19 pandemic, Paraguay reduced import tariffs on a set of products, mainly raw materials and capital goods. Import tariffs on raw materials were dropped to 0% until December 2020 in line with MERCOSUR's Raw Materials Regime and were reduced permanently on 162 products following an assessment of the pandemic's impact on international trade flows under Decree No. 4694/2020. Furthermore, the reduction in import tariffs to 0% for 222 capital goods in place since 2019 was extended to December 2021 under Decree No. 5966/21.
- **VAT reductions.** In July 2020, the VAT on gastronomy, events, tourism, and hotel services was reduced from 10% to 5% until June 2021. These reductions were subsequently extended until October 2021.
- **Reduction of tax on commercial rents.** In July 2021, the VAT on commercial rents was reduced to 5% (instead of increasing to 10% as part of a planned fiscal reform).
- **Reduction in employer's contribution for employees.** In March 2021, the employer's contribution rate (*aporte obrero patronal*) was temporarily reduced from 16.5% to 2.5% for the

whole of 2021 retroactively from January 2021, while workers' contributions remained unchanged at 9% (see Law 6706/2021). A grace period of six months starting from July 2022 was introduced for the payment of remaining employer's contributions (14%).

- **Extension of deadlines for the submission of tax returns and payments.** In March 2020, the deadlines for the submission of tax returns and payments for 2019 and 2020 were extended.
- **Other tax reductions.** In March 2021, the interest rate for the fractioned payment of taxes was reduced from 1.4% to 1.1% (13.2% annually) and late payment surcharges and interests on cash payments for old debts were eliminated for the gastronomy, events, tourism and hotel sectors.¹
- **Utility subsidies for households and MSMEs.** In March 2020, utility bill payments for basic services (electricity, telephone, and water) were waived for the months of March, April and May up to 100% for vulnerable households, MSMEs and other exposed groups. The possibility to defer payments and make them in 18 instalments with 0% interest was introduced for all other groups. In March 2021, the gastronomy, events, tourism, and hotel sectors were granted the possibility to postpone payments of electricity and water bills for March, April, May and June 2021 and additionally, debt refinancing without interest and with terms up to 18 months was possible.

Credit support measures were directed largely at MSMEs

Paraguay implemented a range of measures during the pandemic to facilitate credit for private businesses, directed mainly at MSMEs. Paraguay's state-owned banks created several new credit lines, directed largely at MSMEs. Furthermore, two trust funds with the mission of supporting MSMEs were established and Paraguay's guarantee fund for MSMEs was strengthened:

- **Establishment of new credit lines for MSMEs, particularly in rural areas and the agro-food sector.** In March 2022, the state-owned bank *Crédito Agrícola de Habilitación* (CAH) created new lines of credit to attribute loans for up to 24 months with an annual interest rate of 8.9% (excluding administrative fees) and flexible repayment conditions, in accordance with cash flows and income generation, to smallholder farmers, small entrepreneurs and micro- and small businesses in the productive, commercial and services sectors. In March 2021, the loans were extended for an additional year.
- **Strengthening of Paraguay's guarantee fund for MSMEs (*Fondo de Garantía del Paraguay, FOGAPY*).** To encourage financial institutions to provide more loans to MSMEs, in March 2020, Paraguay's guarantee fund for MSMEs was recapitalised and allocated an additional USD 100 million through the Ministry of Finance to support 39 financial institutions in the provision of loans to formal MSMEs. In July 2020, several articles of Law 5628/2016 that created FOGAPY were modified through Law 6579/2020 from 30 July 2020. The fund's volume of financial resources for guarantees was augmented and the coverage of loans for riskier segments of beneficiaries was increased from 70% to 90% of the loans. Furthermore, target beneficiaries were widened to include large companies and additional guarantees were granted to businesses in the hotel, gastronomy, tourism, and events sectors (FOGAPY, 2020^[16]). In October 2021, FOGAPY was attributed additional resources worth USD 25 million.
- **Creation of a trust fund to support MSMEs (*FISALCO*).** In March 2020, a trust fund, the *Fideicomiso para pago de Salarios y/o Capital Operativo* (FISALCO), administered by Paraguay's development bank, the *Agencia Financiera de Desarrollo* (AFD), was established to promote credit lines for MSMEs. The Trust Fund was funded through 20% of the *Banco Nacional de Fomento's* (BNF) net profits in 2019 and endowed with approximately USD 85 million. FISALCO directly granted financial resources to credit institutions to be used to administer loans to MSMEs at interest rates capped at 5.5% annually for the payment of salaries and operating capital. It differs from FOGAPY in that financial resources for loans are transferred directly to credit institutions. FISALCO is no longer operational.

- **Creation of the emergency *Pro-Reactivación* programme by the AFD to provide liquidity to financial institutions.** This emergency programme was created by the AFD and between June 2020 and September 2020 provided further liquidity to financial institutions at a 5% interest rate, supporting the creation of further credit lines with a term of up to seven years and a one-year grace period. The resources available to the programme amounted to PYG 360 billion (AFD, 2020_[17]).
- **Creation of a programme to refinance credit operations.** AFD directed PYG 800 billion to financial institutions to help their clients refinance their credit operations for operating capital or investment in productive activities with a term of up to seven years and a two-year grace period (AFD, 2020_[17]).
- **Opening of a credit line to provide operating capital for MSEs by the *Banco Nacional de Fomento* (BNF).** Starting from March 2020, micro- and small enterprises could obtain loans for operating capital from the public bank at an annual interest rate ranging from 7% to 8.5% for loans in PYG, and 5% for a one-year loan in USD. To qualify for these credits, MSEs should be at least one-year old, be compliant with tax obligations and not have any overdue transactions (BNF, 2020_[18]).
- **Exemption from reserve requirements for new loans to MSMEs.** In March 2020, Paraguay's central bank, the *Banco Central del Paraguay* (BCP), decided that new loans granted prior to 30 June 2020 to businesses, preferably MSMEs, would be exempted from reserve requirements for a period of up to 18 months (Resolución N° 23, Acta N° 23 del 02/04/2020). Subsequently, this measure was extended until the end of 2020.
- **Grace period for the repayment of loans.** A one-year grace period for the repayment of loans was introduced and then extended by an additional year in March 2021 for businesses in the gastronomy, events, tourism, and hotels sectors.
- **Trust fund to support MSMEs and formal workers in the gastronomy, event, hotel, tourism, and entertainment sectors, administered by the BNF.** In October 2021, a trust fund administered by BNF was established to provide financial support to MSMEs and formal workers in the gastronomy, events, hotel, tourism, and entertainment sectors. USD 20 million were attributed to the trust fund, which will provide loans at interest rates between 2% and 4% of terms of up to ten years, with a three-year grace period, to micro-entrepreneurs and self-employed workers (up to PYG 75 million), small businesses (up to PYG 150 million) and medium-sized businesses (up to PYG 300 million).
- The Ministry of Industry and Commerce also provided assistance to around 1 346 MSMEs in the process of accessing credit from AFD and *Crédito Agrícola de Habilitación* (CAH) (MIC, 2022_[19]).

Production support measures

- **Visibility of MSMEs in Google.** To support the digitalisation of MSMEs, the Ministry of Industry partnered with the marketing platform Kolau and Google to offer digital training to firms and small businesses and help them strengthen their web presence and increase their online sales. This collaboration resulted in the creation of 483 web pages and 430 online shops (MIC, 2022_[19]).

Business environment

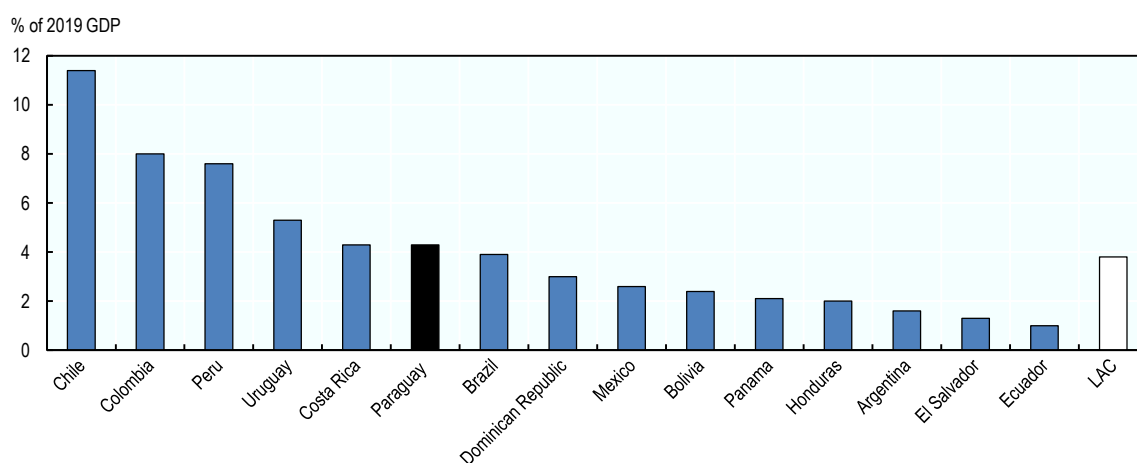
- **Updating of categorisation parameters for MSMEs.** Through Decree No. 3698/2020 of June 2020, the Ministry of Industry and Commerce increased by 29% the maximum annual turnover of each of the three categories in line with the cumulative variation of the consumer price index, in order to expand the number of businesses able to access the measures to support MSMEs.
- **Creation of a new form of incorporation.** The Simplified Joint Stock Company (*Empresa por Acciones Simplificadas*, EAS), established by Law 6480/2020 and characterised by the

simplification of procedures for incorporation and registration, was designed to reduce the bureaucratic obstacles to creating companies. This new legal personality, unlike existing corporate categories in Paraguayan legislation, can be constituted by a single person, is processed entirely online at zero cost, and is constituted in a maximum of 72 hours. As of August 2023, 6 388 EAS had been created under this new type of legal category.²

- **Transparency improvements.** In December 2021, the Economic Development Advisory Council was created by Paraguay's Ministry of Industry and Commerce. It convenes once a month and is composed of representatives of business associations, including MSMEs. The council's objective is to provide a space to discuss pressing issues and public policies with the private sector.

Figure 3.6. Paraguay announced a substantial amount of credit support measures directed largely at MSMEs in response to the COVID-19 pandemic

Total credit support measures announced (% of 2019 GDP), 27 May 2020



Note: The estimation only includes policies for which a quantifiable amount could be identified.
Source: ECLAC (2020^[20]), *Sectores y empresas frente al COVID-19: emergencia y reactivación*.

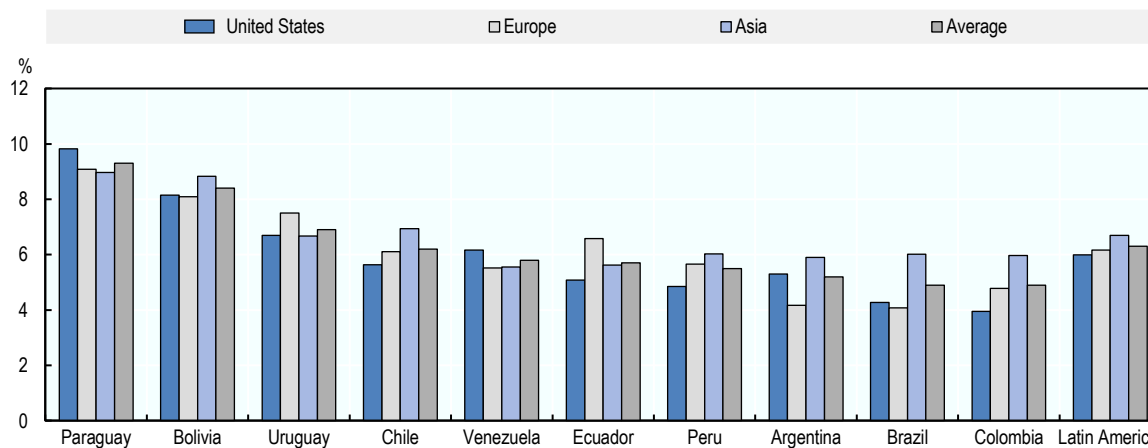
Geography, informality, institutional quality and skills stand out among the structural challenges for a strong economy in Paraguay

Paraguay's geography and quality of transport infrastructure result in high transport costs

As a landlocked country, Paraguay has high transport and logistical costs. The country's transport costs are the highest in the region, averaging 9.3% of traded value compared to 6.3% on average in Latin America (Figure 3.7). Transport costs are higher for commodities than for manufactured goods. Paraguay relies largely on its rivers for merchandise and international trade: 42% of the country's merchandise trade is transported by river, 24% via road and the remainder by air (34%). However, river-based transport accounts for 65.6% of transport costs, while road accounts for 15.1% and air freight for 20.4%, reflecting the differences in value added of goods transported through the waterways (ALADI, 2016^[21]).

Figure 3.7. Paraguay's transport costs are the highest in the region

Transport costs (% of traded value), 2016



Source: ALADI (2016^[21]), *El Costo de la Mediterraneidad: Los Casos de Bolivia y Paraguay*, www2.aladi.org/biblioteca/Publicaciones/ALADI/Secretaria_General/SEC_Estudios/216.pdf.

Infrastructure gaps further add to Paraguay's high transport costs. As a landlocked country, Paraguay's competitiveness in international trade is highly dependent on its own and neighbouring countries' transport and logistics infrastructure to access international markets and seaports. However, the quality of this infrastructure remains an issue. The Paraguay-Paraná waterway, which connects Paraguay with the ocean ports of neighbouring countries, lacks dredging and signalling, which would enable navigation all year round. Furthermore, despite notable improvements, the quality of Paraguay's port infrastructure remains poor (OECD, 2018^[22]). The same is true for Paraguay's airport infrastructure: Paraguay ranked 104th out of 117 countries in terms of efficiency of air transport in 2021 with a score of 3.7 out of 7 (WEF, 2022^[23]). This constitutes an improvement compared to previous assessments – Paraguay ranked 122nd out of 141 countries in the 2019 Global Competitiveness Index (WEF, 2019^[24]) – but still represents a low level of perceived efficiency. As such, Paraguay's port and airport systems require administrative, technological, and infrastructural improvements (World Bank, 2019^[25]). The country's road network, however, is sufficient to cater for the majority of the population, with a road density of 0.2 km per square km, above that of neighbouring Brazil (0.19) (World Bank, 2019^[26]; IRF, 2023^[27]). However, the quality of road infrastructure is a constraint for businesses, and the perceived quality of roads has been a longstanding issue. According to the World Economic Forum (WEF), the quality of road infrastructure indicated for Paraguay has improved from 2.48 (on a scale from 1 to 7) in 2018 to 2.9 in 2021, but remains well below that of peer countries (ranking 107 out of 117 countries in 2021) (WEF, 2019^[24]; WEF, 2022^[23]). The Government of Paraguay has put significant effort into developing the road network in the past five years. Notably, the proportion of the network that is paved increased from 11.8% in 2017 to 15% in 2021 (IRF, 2023^[27]), with new paved roads and the paving of existing roads reaching 4 169 km between 2018 and 2023 (MOPC, 2023^[28]). Regarding rail transport, the few railways that exist in Paraguay are used only for passenger travel but not for merchandise transport. Expanding and upgrading Paraguay's rail system and integrating it with those of neighbouring countries could create new transport corridors for imports and exports and reduce transport costs (OECD, 2018^[22]). There is also much scope for improvements in intermodal transport and border crossings (ECLAC, 2020^[29]).

Institutional quality, a shortage of skilled workers and poor infrastructure in Paraguay limit FDI flows

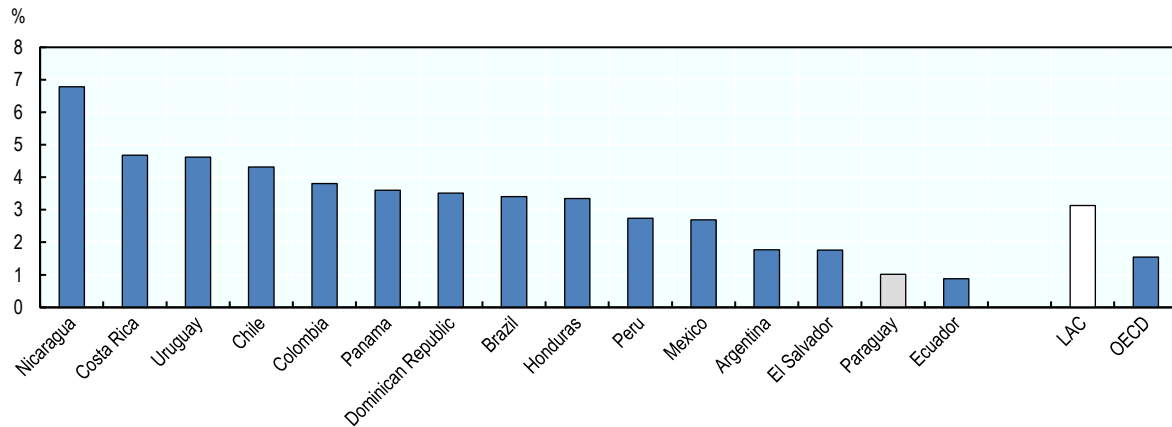
FDI flows in Paraguay remain low by regional standards. Average annual FDI inflows between 2017 and 2022 amounted to only 1% of GDP compared to 3.1% of GDP on average in the LAC region and 1.5% in OECD countries (World Bank, 2024^[5]). FDI inflows increased in 2022 to USD 725 million, bringing the average up, but inflows remain modest in the regional landscape. This situation has persisted despite Paraguay's advantages for investors: fast economic growth rates; macroeconomic, fiscal and political stability; low energy costs; plenty of fertile land; low taxes; a young labour force and preferential access to the Brazilian and Argentinian markets (Quijada, Sierra and Espinola, 2018^[30]; Dettoni, 2022^[31]). Traditionally, FDI in Paraguay has originated principally from countries in the region such as Brazil (13% of Paraguay's FDI stock in 2021), Chile (8%) and Uruguay (7%) as well as the United States (13% of Paraguay's FDI stock in 2021) and European countries such as the Netherlands (11% of Paraguay's FDI stock in 2021) and Spain (8%) (BCP, 2022^[32]).

Institutional quality is an important concern for investors in Paraguay. An IDB publication identifies Paraguay's institutional quality, including perceptions of corruption, judicial independence and property rights, as important deterrents for FDI in Paraguay. The country is 25% less likely to receive FDI compared to countries with similar characteristics but better institutional quality. Moderate improvements in institutional quality would have a considerable impact on Paraguay's competitiveness and could raise the amount of FDI the country receives compared to neighbouring Costa Rica, Guatemala, Panama, and Peru (Quijada, Sierra and Espinola, 2018^[30]). In line with these results, corruption has been identified as the second-biggest obstacle by private companies in Paraguay (23.9%) following the informal sector (24.1%) (2017) (World Bank, 2017^[33]). Furthermore, Paraguay performs poorly on the Global Competitiveness Index's institutional pillar (score 44/100, rank 115/141 countries), in particular, in terms of future orientation of the government (score 38.9/100, rank 124/141 countries), checks and balances (score 38.5/100, rank 115/141 countries), corporate governance (score 46.2/100, rank 112/141 countries), transparency (score 29/100, rank 111/141 countries) and public sector performance (score 40.3/100, rank 107/141 countries). On these dimensions, Paraguay scores worse than other countries in the region (WEF, 2019^[24]). Paraguay ranks only 125th out of 190 countries on the World Bank's Doing Business ranking.

A shortage of skilled workers and poor infrastructure represent additional concerns for investors in Paraguay (Dettoni, 2022^[31]). A poorly educated workforce (12.9% of companies) was the third-biggest obstacle identified by private companies in Paraguay (2017) (World Bank, 2017^[33]). The country performs poorly on the Global Competitiveness Index in terms of the skills of the current workforce (score 36.8/100, rank 136/141) with the quality of vocational training, the skillset of graduates, digital skills among the active population and finding skilled employees all identified as challenges. In terms of infrastructure, 26.7% of companies in Paraguay identified transport as a major constraint compared to 23.7% of companies on average in the LAC region, and 83% of Paraguayan firms have experienced electrical outages compared to 59.2% on average in the LA region (World Bank, 2017^[33]).

Figure 3.8. Paraguay's FDI inflows are among the lowest in the LAC region

Foreign Direct Investment, net inflows (% of GDP), 2017-22 average.



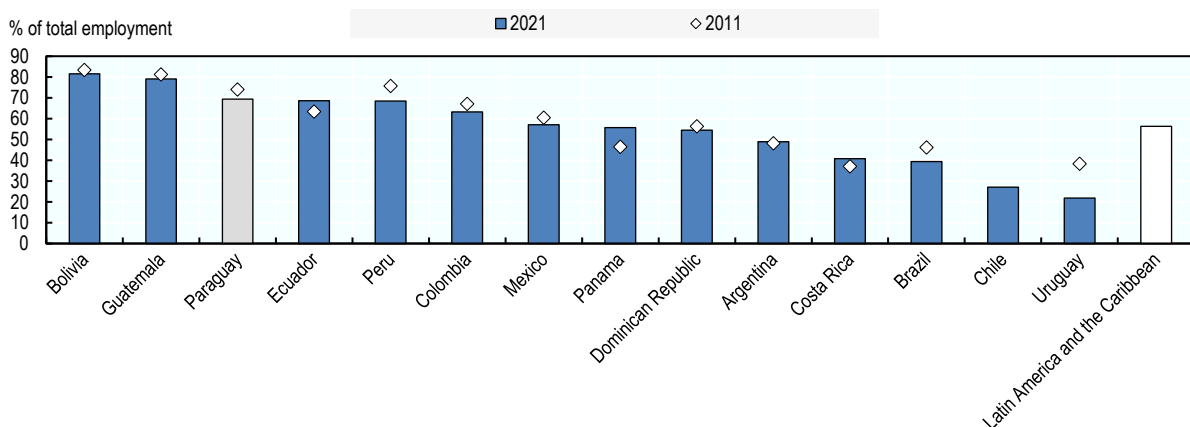
Source: World Bank (2024^[5]), World Development Indicators (database).

Paraguay's informal sector is large and illegal activities such as smuggling are widespread

Despite the country's relatively low tax rates, Paraguay is characterised by a high level of informality. In 2021, 69.3% of all employment in Paraguay (and 63.5% of non-agricultural employment) was informal³ compared to 56.3% on average in LAC countries (Figure 3.9) (ILO, 2022^[34]). Own-account workers (21.2% of employment) and micro-enterprises with up to 10 employees (39.8% of employment) account for most informal employment (INE, 2022^[35]). According to estimates by FEPRINCO, Paraguay's informal economy amounted to 18.9% of GDP in 2020 (FEPRINCO, 2022^[36]).

Figure 3.9. Paraguay's informal sector is significant

Informal employment (% of total employment)



Note: For Dominican Republic and Uruguay, data are for 2020 instead of 2021; for Bolivia and Guatemala, data are for 2019 instead of 2021. The LAC average is based on 2019-2021 data for 18 Latin American countries.

Source : ILO (2022^[34]), ILOStat, <https://ilostat.ilo.org>.

Illegal activities account for a large share of Paraguay's economy. A report published by *Pro Desarrollo Paraguay* in partnership with the National University of Asunción estimated the value of Paraguay's shadow economy – encompassing not only informal activities but also all types of illicit transactions, including bribes, drug trafficking, smuggling and money laundering – at USD 11 billion in 2015, the equivalent of 39.6% of Paraguay's GDP. The report relied on differences in GDP growth and growth in electricity consumption, the demand for cash and the salaries of informal workers as compared to total labour income to estimate the size of Paraguay's underground economy. As a result of this large shadow economy, Paraguay's government would have lost USD 1.1 billion in tax revenues in 2015 (Clavel, 2016^[37]; Pro Desarrollo Paraguay, 2016^[38]). A World Bank study arrives at similar results, estimating Paraguay's shadow economy at 36.7% to 37.4% of GDP in 2007 compared to 41.4% of GDP on average in the LAC region (Schneider, Buehn and Montenegro, 2010^[39]). A report by Global Financial Integrity estimates that illicit financial outflows from Paraguay, including both trade mis-invoicing and illicit hot money flows, amounted to 20.2% of Paraguay's GDP on average between 2004 and 2013 compared to an LAC average of 8.4% and 1.4% in Brazil, 2.2% in Argentina and 3% in Chile. Trade mis-invoicing accounts for the large majority of these illicit financial outflows from Paraguay (Kar and Spanjers, 2015^[40]).

Paraguay is a regional hub for smuggling. In particular, the triple border area with Argentina and Brazil is one of the busiest smuggling corridors in the world. Cigarettes are among the most important smuggling goods due to the significant amount of illicit tobacco production in Paraguay. A recent study estimated the volume of cigarette smuggling in the country by comparing Paraguay's cigarette exports and domestic consumption with imports and domestic production of raw materials for cigarette production (raw tobacco and cigarette filters). It found an excess supply of cigarettes of 2.5 billion packs annually on average between 2008 and 2019 (Masi et al., 2021^[41]). This means that only about 10% of cigarettes produced in Paraguay are sold on legal markets, 5% domestically and 5% for exports (Bargent, 2017^[42]). There is further evidence that in addition to cigarette smuggling into neighbouring countries, a significant amount of Paraguay's legal cigarette exports to countries such as Bolivia, Aruba, Curaçao and Suriname actually continues to be illegally shipped to third countries (Masi, Rodriguez-Iglesias and Drope, 2022^[43]).

Widespread smuggling is a result of price and tax differences and widespread corruption and impunity. A huge discrepancy in taxation levels for cigarettes between Brazil and Paraguay makes contraband trade highly attractive: cigarettes are taxed at only 16% in Paraguay compared to 80% in Brazil. Furthermore, while cigarette smuggling offers high profits, risks are much lower compared to more traditional smuggling activities such as drug or arms trafficking. The huge profits offered by cigarette smuggling have attracted not only smuggling rings into Paraguay but also organised crime networks, insurgent groups and money launderers (Bargent, 2017^[42]; Dalby, 2022^[44]).

Smuggling became even more widespread in Paraguay in the context of the COVID-19 pandemic. The void created by the closure of legal industries, as a result of mobility restrictions and supply shortages, was filled by smugglers supplying basic products such as meat, sugar, fruit and vegetables. Many Paraguayans continued to depend on this shadow economy for months, as uncertainty persisted and products were often cheaper on the black market (Dalby, 2022^[44]).

Smuggling is particularly harmful to the Paraguayan economy, reducing current tax income and blunting investment incentives. The general level of tariffs is relatively low in Paraguay (4.1% in weighted terms in 2020) but border taxes remain important relative to a relatively modest level of total tax revenues, while lack of border controls also removes imported goods from the VAT base. Competition from the informal sector under these circumstances is particularly acute. Smugglers do not abide by tax and social security provisions, and often also focus their efforts on cheaper products that escape sector regulations – including for health and safety. This can explain why 24% of Paraguayan businesses identified competition from the informal sector as the biggest constraint to doing business in the latest enterprise survey carried out by the World Bank (2017), compared to 17% of firms in the LAC region on average (World Bank, 2017^[33]).

Lessons from recovery measures and new opportunities: A holistic approach to MSME informality, building resilience to climate change, and capitalising on digitalisation and regional integration

Tackling informality in MSMEs from a holistic perspective

Strengthening micro-, small and medium-sized enterprises is a key objective for Paraguay's development. MSMEs are a major contributor to employment in Paraguay but are significantly less productive than larger firms (Feal Zubimendi and Ventura, 2023^[45]). Improving the competitiveness of MSMEs is therefore a priority for the Paraguay government. Formalisation is a key objective in strengthening MSMEs, and is recognised as one of the strategic axes and a key cross-cutting axis in Paraguay's MSME strategy (MIC, 2019^[46]). As discussed during a policy workshop held as part of this review, Paraguay is advancing on multiple fronts to improve the competitiveness of MSMEs including by: i) strengthening digital resources to expand the diversification, productivity and quality of MSMEs; ii) introducing progressivity into the tax system; iii) moving beyond the current legal framework of voluntary social security contributions towards a mandatory and special scheme for MSMEs and the self-employed; iv) expanding credit opportunities; and v) better informing workers about the benefits of formality.

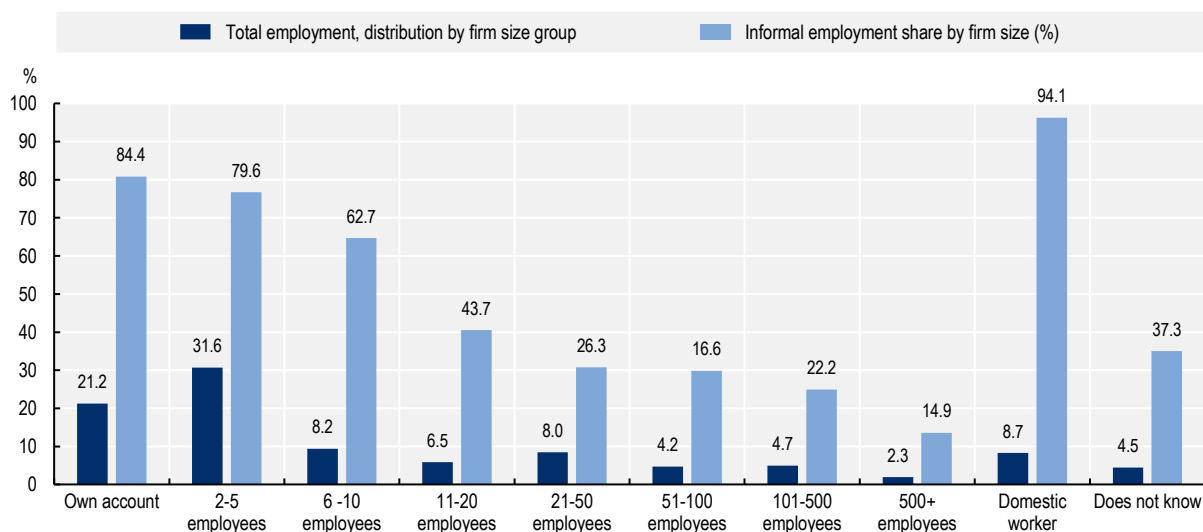
Widespread informality in Paraguay contributes to low levels of productivity and obstructs firms' development

Widespread informality in the Paraguayan productive structure was one of the most important obstacles during the response to the COVID-19 crisis. The economy is characterised by the dominance of own-account workers (21.2% of the employed population in 2020) and micro-enterprises (up to ten employees, 39.8% of employed), which together account for over 60% of the total employed population in the country (Figure 3.10, Panel B). These small economic units tend to employ unskilled labour and have relatively lower productivity levels than bigger enterprises. They are also characterised by a higher level of business and labour informality. In fact, in 2018, 71.9% of firms with up to ten employees were not registered in the *Registro Único del Contribuyente* (RUC) necessary for paying taxes, equivalent to 69.8% of total firms according to joint estimates of the INE and the Ministry of Industry and Commerce (MIC) (Insfrán and Ramírez, 2021^[47]).

Moreover, as formalisation is a gradual process, even firms registered in the RUC may not be compliant with tax obligations or have registered workers with social security. As Figure 3.10 illustrates, a high share of employees working in this sector of the economy tends to be informal, representing the majority of own-account workers that usually work subsistence jobs. This share accounts for 79.6% of those employed in firms with 2-5 employees and 62.7% of those employed in firms with 6-10 employees. However, labour informality not only affects domestic and own-account workers, and SMEs; 16.6% of those employed in firms with 51-100 employees, 22.2% of those employed in firms with 101-500 employees and 14.9% of those employed in firms with 500+ employees were also informal (Figure 3.10). Indeed, recent estimates show that even within firms registered with the tax authorities, only 35% of small and 63% of medium-sized firms are also registered with social security (IPS) and the Ministry of Labour. The corresponding figure is 7% of very small firms, with size determined by turnover (MIC et al., 2023^[48]).

Figure 3.10. Firm size is an important determinant of informality

Total employment by firm size and rate of informality by firm size, 2021.



Note: The figure does not include the departments of Boquerón and Alto Paraguay.

Source: INE. Encuesta Permanente de Hogares 2012-2016, Encuesta Permanente de Hogares Continua 2017-2021. Cuarto trimestre. Serie comparable, www.ine.gov.py/default.php?publicacion=3.

As well as resulting in lower growth and poor-quality labour conditions, informality is also associated with obstacles that inhibit a firm's development. Examples include poor access to financing through formal channels, restricted access to business support and development services, inability to participate in public procurement processes and poor insertion in supply chains (ILO, 2017^[49]). As observed during the COVID-19 crisis, informality also results in poor access to emergency support mechanisms and automatic stabilisers. The invisibility of these firms and workers further complicates the targeting of ad-hoc instruments destined for this vulnerable group.

Box 3.2. Policy workshop on the formalisation and strengthening of MSMEs

As part of the process documented in this report, the OECD and the governments of Panama and Paraguay organised an international workshop on “Policies to support and formalise MSMEs for a new model of sustainable development for the post-COVID era”, held on 13 November 2023. The online workshop gathered representatives from the public and private sectors of both countries as well international experts. The objective was to facilitate exchange at a regional level on policies for the strengthening and formalisation of MSMEs and help identify avenues to promote this agenda in Panama and Paraguay.

The participants concurred on the importance of formalising and strengthening MSMEs in Panama and Paraguay, agreeing that MSMEs and independent workers are major contributor to employment but also have the highest levels of informality, with low levels of productivity compared to large companies.

The workshop noted the commitment of participating actors – governmental and non-governmental – to strengthen MSMEs through a multiplicity of actions and instruments, several of which were bolstered during the COVID-19 pandemic. The following key points were among those discussed in relation to supporting productivity in MSMEs:

- An institutional strategy based on **multistakeholder participation** is essential to incorporate views and **tools from each key sector**.
- **Access to credit** is a key mode of intervention, as MSMEs typically have less access to credit from the formal financial sector. **Clear communication campaigns** are key to expanding demand for credit and establishing the basis for a culture of entrepreneurship.
- **Support programmes that respond to the specificity of firms’ needs must be developed**. A variety of programmes and approaches are required across different sectors and the life cycle of firms based on their positioning. These include the **provision of quality advice and services** to MSMEs and management training. Different kinds of training can play multiple roles in supporting the formalisation and strengthening of MSMEs. They can build capacity through the use of digital tools, but also contribute to a culture of entrepreneurship that values opportunity and innovation and understands the importance of formalisation.
- **The simplification of procedures** can promote business registration and thus contribute to the formalisation of MSMEs. This approach should include the digitalisation of basic procedures as well as the creation of new categories better adapted to the reality of MSMEs.

MSME programmes and productivity support programmes should be better aligned. Both efforts often operate on parallel tracks despite numerous interactions. In particular, access to credit, markets and services provided through entrepreneurship and MSME support programmes can be incentives to formalise.

The workshop also noted that formalisation remains a crucial challenge, and one that requires:

- **legal frameworks** adapted to the capacity of MSMEs in terms of incorporation, tax and social security regulation, and sector regulations.
- **easy procedures** that limit the cost and bureaucratic burden of formalisation.
- greater awareness that formalisation brings **benefits**, rather than simply imposing costs on entrepreneurs and MSMEs.

Source: Authors' elaboration.

Formalisation requires a holistic approach based on a combined set of policies

Evidence shows that formalisation requires a holistic approach combining a range of policies and regulations. Formalisation is neither a linear nor a one-step process, as demonstrated by the number of firms that formalise and then fall back into informality, as well as by the number of firms that formalise only partially (see above). At every stage of the formalisation process, firms are assessing whether the benefits of further formalisation outweigh the costs (ILO, 2017^[49]; Díaz et al., 2018^[50]). Hence, tackling informality requires a comprehensive strategy responding to a variety of obstacles that firms may encounter on their path to formalisation. Moreover, policies should provide incentives for firms to remain formal and prevent them from reverting back to informality.

The policy framework for MSMEs is relatively recent in Paraguay. The adoption of Law No. 4457 in 2012 for micro, small, and medium enterprises represented an important achievement, creating a regulatory framework that acknowledges the importance of MSMEs in the Paraguayan economy and streamlining a series of policies and incentives aimed at this vital sector of the economy. The same law also created the National System of MSMEs (*Sistema Nacional de MIPYMES*, SINAMIPYMES), an intersectoral body involved in the creation, formalisation, development, and competitiveness of MSMEs, under the direction of the Vice Ministry of MSMEs in the MIC. The latter was created during the same year through Decree No. 9261 but has little power and resources to exercise its co-ordination role from the relatively lower rank of a vice ministry.

In recent years, the main initiatives targeted at MSMEs have addressed formalisation and registration, access to financing, and capacity building and technical assistance for innovation. These themes are also among the main pillars of the First Strategic Plan for the Promotion and Formalisation of MSMEs 2018-2023 (MIC, 2019^[46]). Yet, formalisation strategies still remain fragmented across different ministries, including the Vice Ministry for MSMEs, the Ministry of Labour (MTESS) and the Subsecretary for Taxation (SET).

Beyond reducing obstacles to formalisation through the simplification of registration and licensing processes, a holistic formalisation strategy requires policies to encourage formalisation, increase productivity, facilitate dialogue, and enforce the correct application of norms. Evidence shows that the simplification of administrative processes usually results in an initial increase in business registration, but that the effect of these measures tends to fade over the medium term (Díaz et al., 2018^[50]). To ensure continued commitment to the formalisation process, it is important to encourage MSMEs to remain formal through a comprehensive set of policies, including “sticks”, (e.g. increased enforcement and inspections) and “carrots” (e.g. access to public services and public procurement, simplified tax regime and business services).

Enforcement and labour inspections are essential and should accompany any incentives to formalise. Labour inspections remain scarce in Paraguay and the number of labour inspectors is insufficient to cover the entire national territory. The labour inspectors employed by MTESS decreased from 31 in 2015 to 25 in 2019 and their level of training remains insufficient. In particular, serious shortcomings in labour inspections have been found in the Chaco region and, although the government has opened a local MTESS office, it has neither the means nor the autonomy to investigate possible irregularities in situ, since inspectors can only enter rural properties with a court order (CI-IT, 2021^[51]). Labour inspections could play a particularly important role in decreasing the share of informal workers in large firms with more than 50 employees (Figure 3.10).

The legal and administrative framework for MSMEs has become more conducive, but challenges remain

Enterprise formalisation strategies have focused on simplifying the administrative processes for registration of MSMEs and lowering the associated cost. This was accomplished first through the one-

stop shop *Sistema Unificado de Atención Empresarial para la Apertura y Cierre de Empresas* (SUACE) and subsequently through the *Empresa por Acciones Simplificadas* (EAS). The EAS is a new form of incorporation established by Law 6480 of 2020 that allows to register a firm in 72 hours at zero cost. This new corporate form has also been adopted in Argentina, Chile, Colombia and Mexico, and more recently in Ecuador, Peru and Uruguay due to its flexibility: there are no minimum capital requirements and an EAS can be opened by a single entrepreneur (de la Medina Soto, 2021^[52]). Between February and December 2021, over 1 000 businesses were created in the form of an EAS (AFD, 2021^[53]).

A special tax regime has also been introduced for SMEs with the aim of simplifying tax payments and encouraging business formalisation. In 2020, a new tax reform entered into force (Law 6380 of 2019) amalgamating a number of taxes into a single corporate tax (*Impuesto a la Renta Empresarial*, IRE) and introducing three different regimes based on the annual turnover of the business. The *RESIMPLE* regime is based on a monthly fixed contribution of at least 0.1% of annual turnover for businesses with a turnover up to PYG 80 million. While a fixed contribution means that businesses at the bottom of the bracket will pay more as a share of turnover than those at the top of the bracket, the annual contribution represents at most 2.4% of annual turnover, making it highly beneficial for firms to choose this regime. In addition, businesses that do so pay no VAT. The *SIMPLE* regime introduces a contribution of up to 3% of annual turnover or 10% of annual net profits for businesses with a turnover up to PYG 2 billion. The *general system* introduces a contribution of 10% of annual net income for businesses with an annual turnover over PYG 2 billion. Assessing the benefits of this reform in terms of the number of new formal enterprises will be key as the effects of the COVID-19 crisis dissipate. The SET registered a 59.5% increase in the number of taxpayers registered with the Single Taxpayer Registry (RUC), from 824 thousand to 1 315 thousand between 2019 and 2020, and a further 3.1% increase between 2020 and 2021, from 1 315 thousand to 1 355 thousand taxpayers (SET, 2022^[54]). This increase was due partly to the automatic inclusion of micro-entrepreneurs requesting assistance through the *Pytyvõ* programme. However, it is important to note that the current simplified regimes established by the SET only cover businesses with a turnover up to PYG 2 billion (i.e., representing only micro-enterprises and a proportion of small enterprises according to the 2020 parameters for defining MSMEs).⁴

Easing registration for MSMEs is a key component of Paraguay's enterprise formalisation efforts. The MSME law (Law 4457 of 2012) grants MSMEs a number of benefits depending on their categorisation as micro-enterprises, small enterprises, and medium-sized enterprises. These include access to credit, training and technology as well as tax exemptions in the case of micro-enterprises, and access to special labour and social security provisions. They also include the possibility for firms to hold simplified accounting and personnel management records. Registration as an MSME in the SUACE is certified by a certificate (*cédula mipyme*) which ensures that firms can access those benefits. The strategy therefore rests on firms registering as MSMEs, as it requires registration with the tax authorities as taxpayers and with the Ministry of Labour and IPS as employers. Once recognised as MSMEs, benefits from other institutions should be easily accessible.

Despite recent efforts, inconsistencies remain in accessing the benefits granted to formal MSMEs. Some inconsistencies have been removed through normative reforms. For example, until 2021, MSMEs were limited in their access to the special "raw materials regime", which allows the import of raw materials for industrial production. Even though MSMEs paid reduced fees for inscription into the regime, a minimum import value (of USD 1 500 free on board [FOB]) was required, which excluded a number of small enterprises. This minimum import value was removed for registered MSMEs in 2021 by Decree 6141, expanding access to this regime. However, other inconsistencies remain. For instance, companies registered as an EAS cannot access the recently enacted simplified regimes SIMPLE and RESIMPLE, which have more limited eligibility conditions. RESIMPLE is only available to unipersonal firms, which excludes incorporated entities, while SIMPLE is intended to be used by larger unipersonal enterprises as well as production committees and a number of other specific forms of collective management of productive assets. Multiple and overlapping eligibility conditions could exclude a large number of self-employed or

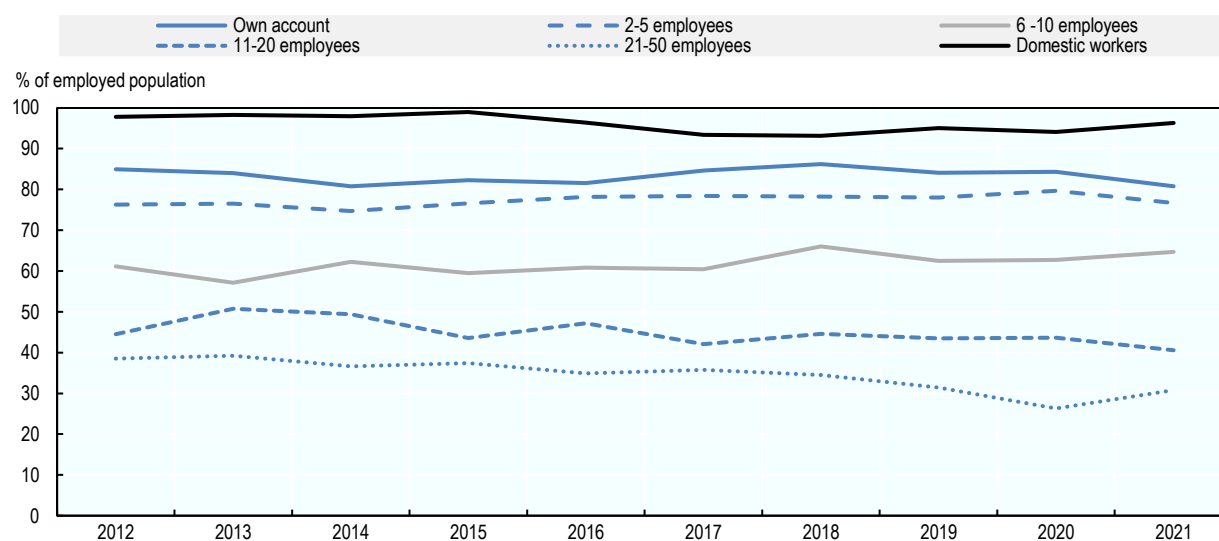
small entrepreneurs who would otherwise benefit from support measures, and create informational and bureaucratic barriers to access. This is particularly important given the high percentage of the population in self-employment, which implies a large universe of workers with low and volatile incomes, amounting to 38.9% of the employed population (Centrngolo, 2022^[55]).

Social security coverage remains a challenge for MSMEs

Efforts to encourage formalisation through expanding access to social security remain partial. The voluntary affiliation of own-account workers and MSMEs to the pension system (Law 4933 of 2013) and the mandatory incorporation to the social security system of the IPS (Law 5741 of 2016) through a special system of benefits have been introduced, but with poor results. Throughout 2012-21, the share of informal workers in these segments of the economy remained relatively stable, highlighting the ineffectiveness of these formalisation strategies (Figure 3.11). Voluntary affiliation to the pension system remains unattractive for many domestic, own-account and MSMEs workers as it covers only a small range of benefits (old age, disability and death). At the same time, the lack of a decree regulating Law 5741 on affiliation to the IPS means that domestic, own-account and MSME workers lack access to social security. Moreover, in its current formulation, the special regime created by Law 5741 risks generating less benefits than the normal regime, thereby discouraging affiliation.

Figure 3.11. The share of informal workers has not decreased despite public formalisation strategies

Informal workers as a share of the group (non-agricultural employed population), 2012-21



Source: INE (2022^[35]), *Encuesta Permanente de Hogares 2012-2016*, *Encuesta Permanente de Hogares Continua 2017-2021*. Cuarto trimestre. Serie comparable, www.ine.gov.py/default.php?publicacion=3.

Contribution schemes designed to promote formalisation must consider the specific conditions of independent and MSMEs workers including their volatile income and frequent changes of employment status and category. For example, flexible contribution schedules can encourage the affiliation of workers with irregular or seasonal incomes. Instead of a monthly payment, contribution schemes could include an option allowing for irregular contributions. Another option could involve simplifying the collection of taxes and social security contributions by bundling them together into a single payment or *monotributo*, as in the case of Argentina, Brazil and Uruguay. Determining contributions based

on the minimum salary also constitutes an obstacle as the level is too high compared to the salaries of the population (OECD, 2019^[56]; OECD, 2018^[57]). Finally, the obligation stipulated in Law 5741 requiring that independent workers and MSMEs register and obtain a MSME Identification Card (*cédula mipyme*) prior to affiliation to the Social Security Institute (IPS), may constitute an obstacle. An alternative measure could draw on information collected in the Unified Register of Informal Workers (*Registro unificado de trabajadores informales*), created for the emergency programmes *Pytyvõ 1.0* and *Pytyvõ 2.0*, to assess eligibility.

Access to social security by micro-entrepreneurs has recently been regulated. In December 2023, the regulation of Law 5741 (Decree 933 of 2023) established a special social security regime for micro-entrepreneurs registered as such (Presidencia de la República del Paraguay, 2023^[58]). The special regime grants rights akin to those of the general regime of social security. It requires contributions of 23% of the base, which is established by the highest salary paid to a dependent worker of the firm or the minimum wage. In practice, this corresponds to the contribution rate of the general regime with the exclusion of contributions dedicated to the anti-malaria programme (SENEPA) and the technical and vocational education and training (TVET) system (SNPP and SINAFOCAL). The regulation also establishes a gradual implementation path: social security registration will be voluntary for firms registered up to 2018 and will become compulsory for all as of July 2028.

Social protection coverage of MSME workers remains a significant challenge. The 25.5% rate of contributions in the general social security regime is often cited as a barrier to formalisation by MSMEs, which as a result have incentives to under-declare wages or rely on informal arrangements to avoid these contributions (Feal Zubimendi and Ventura, 2023^[45]). The Government of Paraguay is working towards establishing a special regime for MSME workers to encourage their incorporation into social security. This reform target is part of a two-year policy co-ordination agreement signed by Paraguay with the IMF (IMF, 2022^[59]). Further reforms to the social security system should also consider alternatives for access of independent workers to social security, depending on the success of the newly adopted micro-enterprise regime.

The productivity and formalisation agendas for MSMEs should be more tightly linked

Offering capacity-building and business services can also help firms formalise through increases in productivity. MSMEs tend to compensate for their low productivity with informal employment arrangements. Evidence shows that firms with greater value added per worker are therefore more likely to register their workers and keep them registered (Díaz et al., 2018^[50]). This suggests that firms must reach a certain level of productivity to afford to formalise their labour force. The Vice Ministry of MSMEs offers a range of classes to MSMEs to develop a business plan and strengthen financial education. However, these projects are usually small, and the Vice Ministry does not have the capacity to monitor their impact. In 2022 the Vice Ministry also began to strengthen physical centres to attend to firms' needs at the local level. These Centres of Support for Entrepreneurs (*Centros de Apoyo a Emprendedores*, CAE) have the objective of creating a decentralised network of support for MSMEs, providing guidance on formalisation, access to credit, access to new markets and trade fairs, and training opportunities (MIC, 2022^[60]). They are developed at the local level in partnership with academia, the private and public sectors or business associations. MIC has recently started expanding its networks of small business support centres with the implementation of the Small Business Development Centre (SBDC) model in Paraguay, with a first centre opening in August 2023. Two of the particularities of the model are the importance given to one-to-one coaching and mentorship alongside more traditional training activities, and the existence of long-term partnerships with local teaching institutions, governments, and private sector bodies.

Business chambers play a crucial role in the provision of services to MSMEs, and partnerships with this sector should be nurtured. As highlighted during the COVID-19 crisis, business chambers and associations play an important role in channelling claims and proposals to the government. Business chambers also provide valuable services to firms and recent years have seen improvement in their

organisation and dialogue with the government. For instance, some business associations are responsible for managing CAEs, in partnership with the MIC. The Paraguayan Industrial Union (UIP), the apex business organisation for industry, is an implementing partner for a number of support programmes, including the SBDC programme, the ILO project *My SME Complies (Mi Pyme Cumple)*, and programmes like *Mipyme Compite*, which offer business development and advisory services. However, it is also important for policy makers to extend their dialogue and reach beyond traditional business and employer structures to connect with informal business membership organisations and coalitions (ILO, 2016^[61]).

Policies promoting business linkages can also provide incentives for MSMEs to become formal by accessing new markets or business opportunities. Formalisation via integration into the value chains of larger enterprises can often result in better market positioning, both nationally and regionally, as a result of linkage with a multinational enterprise (MNE), technology transfers by MNEs leading to greater value added of MSMEs' products and innovation, and better enterprise management due to the adoption of administrative controls and techniques. While there is no one-size-fits-all policy, better business processes and firm management can result in higher formalisation (ILO, 2016^[62]). Local and regional value chains can also help increase productivity and have positive effects on the formalisation of MSMEs. However, an active strategy on the part of the central government is needed to facilitate the insertion of MSMEs as vendors of value chains. Such a strategy should seek to: i) promote demand; ii) reduce supply-side gaps and position MSMEs appropriately in markets; and iii) improve articulation with public, private and civil society actors to achieve greater impact (UNDP, 2023^[63]). Peru has made good progress on the strategic planning front, connecting the development of MSMEs with the broader productive system. As part of the Competitiveness Agenda 2014-2018, the Peruvian government developed a Supplier Development Programme and Cluster Support Programme. The main aim is to improve the quality and productivity of MSME suppliers, in order to ensure stronger ties with their respective value chains by ensuring that suppliers acquire the necessary competencies and skills required by the companies driving the process, in terms of product quality, punctuality of delivery, costs, inputs and services, among others. This results in productive development for both suppliers and client companies (CNC, 2015^[64]).

Local governments and institutions can play a strategic role in strengthening MSMEs by establishing clusters of innovative businesses in regions with distinct comparative advantages. The effectiveness of such initiatives can be further boosted through co-ordinated efforts between national and local governments, considering the geographical and economic distances between businesses (Rodríguez-Clare, 2005^[65]). Policy makers can glean valuable insights from international collaborations and the experiences of countries such as Argentina, Colombia, Costa Rica, Mexico and the Caribbean, where cluster initiatives have proven particularly beneficial (OECD et al., 2023^[66]). Looking beyond the LAC region, Germany and Italy offer noteworthy examples with their successful "industrial districts", underscoring the significance of explicit policies in Europe that foster business collaboration and support an entrepreneurial culture (ECLAC, 2013^[67]).

Paraguay has reformed its procurement law to promote the participation of SMEs in public procurement processes. The 2022 reform of the procurement law (*Ley de suministro y contrataciones públicas*) provides for 20% of public procurement to be reserved for SMEs, fulfilled gradually within the space of five years. It also allows for smaller tenders to be opened exclusively to MSMEs. However, frequent delays in payment limit the ability of MSMEs to participate in such public tenders, due to their often-limited liquidity.

Unlike neighbouring countries, no supplier development programmes exist with the private sector in Paraguay. In comparison, the Supplier Development Programme of the Chilean Corporation for Production Promotion (CORFO) focused on the creation and consolidation of stable subcontracting relationships between a long steel and wire enterprise and its suppliers. Half funded by the Supplier Development Programme, the initiative aimed at reinforcing business linkages and had a duration of three years during which SMEs were accompanied by capacity-building opportunities to increase their management skills,

entrepreneurship, accounting, IT and software, inventories and sales, among others. In the first year of the initiative's implementation, the level of compliance among participating SMEs was approximately 25% on average. This further increased to 56% and finally culminated in 70%, demonstrating increased positive impacts regarding the process of formalisation (ILO, 2016^[62]; Stucchi, 2012^[68]).

Access to finance remains a challenge for MSMEs in Paraguay but improved during the COVID-19 crisis

The framework to support access to financing by MSMEs is relatively recent and gaps remain.

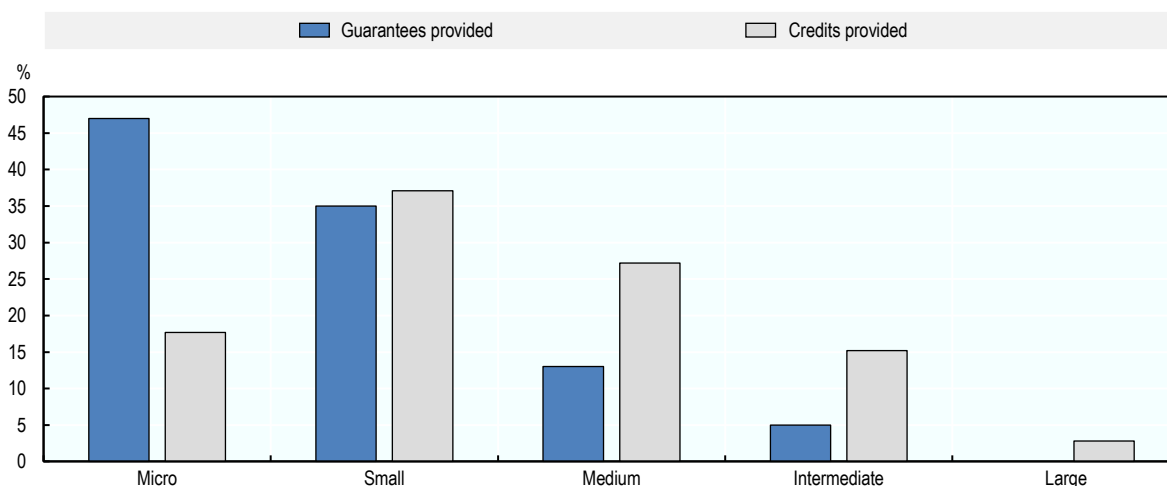
Access to financing is a key problem for MSMEs as their risky creditor profile exposes them to low credits and high interest rates. Prior to the COVID-19 crisis, only a small number of MSMEs were able to access credit, with the minimal participation of public credit institutions (MIC, 2019^[46]). The Guarantee Fund for Micro, Small and Medium Enterprises (FOGAPY) was created in 2016 and subsequently regulated in 2017, but its initial USD 8 million capitalisation was not sufficient to attend to the needs of MSMEs, especially medium-sized enterprises (Santander, 2017^[69]). In addition, the lack of formal supervision and regulation of certain financial institutions, such as microfinance institutions, payment providers and remittance providers, which tend to cater more to low-income groups and MSMEs, exposes the latter to higher risks (World Bank, 2014^[70]). The lack of formalisation of many MSMEs also prevents them from accessing financing from formal credit institutions and forces them to resort to non-bank intermediaries.

Public policies supporting access to finance for MSMEs improved during the COVID-19 crisis.

Strengthening of the resources available to FOGAPY and the increase in guarantees provided to the most vulnerable sectors of the economy played a key role in the pandemic response. In terms of the number of guarantees granted, micro-enterprises benefited the most from the strengthening of FOGAPY during this period (Figure 3.12). Indeed, a strengthened FOGAPY is an important legacy of the COVID-19 response. As of August 2023, FOGAPY had granted 41 238 guarantees underpinning USD 1.09 billion in loans. Evidence from EU countries shows that credit guarantees are an important counter-cyclical policy tool. By reducing credit risk for partner institutions, they dampen market failures in SMEs' access to credit, and support technology, innovation, growth and employment (Brault and Signore, 2019^[71]). The proposal to introduce a law on movable collateral (*garantías mobiliarias*) as part of the Recovery Plan could also further improve financial inclusion and access to credit for MSMEs which often do not own real estate.

Figure 3.12. Guarantees provided by FOGAPY benefited micro-enterprises the most

Guarantees granted by FOGAPY by size of firm, March 2020 – December 2020.



Source: AFD (2022^[72]), *Reporte de Rendición de Cuentas*, Garantías Emitidas por el Fondo de Garantías del Paraguay.

Working with non-bank financial intermediaries also expanded the reach of development banks towards MSMEs. During the pandemic, a fiduciary fund was put in place to channel financial resources to MSMEs with credit for operations and payroll. While AFD operates primarily as a second-tier bank with the banking sector, the funds were channelled through co-operatives and non-bank financial intermediaries, who typically have greater ability to reach MSMEs.

Financial literacy, management training and business advisory services are crucial for formalisation to lead effectively to access to credit for MSMEs. While formalisation is a precondition for access to bank credit, it is not sufficient. As many as 60% of micro-enterprises and 35% of small-sized enterprises had no active financing from banks as of end March 2023, according to the BCP. Financial literacy is an issue, as 55% of the population has a savings account, and only 7% of micro and small enterprises have a bank account, the majority relying instead on savings and credit co-operatives or non-bank financial intermediaries. Self-exclusion is also an important phenomenon. The lack of formalisation prevents these companies from complying with the requirements demanded by financial institutions to access loans. Surveys reveal that 22% of MSMEs that have not obtained credit believe they do not meet the necessary requirements to obtain financing. This self-exclusion is directly linked to MSMEs' perception of their own ability to meet the criteria for accessing credit. Factors such as high interest rates, difficulty in meeting the requirements and lack of confidence in their ability to repay loans stand out as elements influencing this self-perception (Monsberger, 2022^[73]). Business advisory and support services allowing firms to keep appropriate books and plan future operations and their financing are an important step in making formalisation pay for MSMEs, both in terms of better management and access to credit.

Digitalisation for inclusive growth

The COVID-19 pandemic has accelerated the global digital transformation. As a result of the pandemic, school classes moved online and teleworking from home became the norm wherever possible. In this context, many firms adopted digital business models to maintain operations. Jobs, education, health, government services and even social interactions became increasingly dependent on digital technologies, with Internet traffic increasing up to 60% in some countries soon after the outbreak. Looking ahead, the COVID-19 pandemic has demonstrated the potential of digital technologies and it is likely that the resulting changes and advances in digitalisation, including telework, e-commerce, e-health and e-payments, will persist (OECD, 2020^[74]).

The pandemic heightened the importance of adopting and prioritising policies that support digitalisation and ensure widespread and trustworthy digital access and effective use. However, while digitalisation creates new opportunities, countries lagging behind risk forgoing opportunities for productive investment, the development of new sectors, and economic growth and development. The COVID-19 pandemic not only accelerated digitalisation, it also accentuated gaps in digital infrastructure, access and skills, both within and across countries. In this context, policies supporting digitalisation have assumed increasing importance, notably investment in digital infrastructure to ensure high-quality and affordable connectivity, skills to enable people and firms to use increasingly sophisticated digital solutions, and measures to close persistent digital divides as well as those newly emerged as a result of the pandemic (OECD, 2020^[74]).

Supporting and accelerating digitalisation is of particular importance for Paraguay given the opportunities the digital services sector presents for the country. A major advantage of digital services industries is the absence of transport costs. As noted earlier, Paraguay is a landlocked country, and as a result of infrastructure gaps, such transport costs are relatively high. The country also relies significantly on its river network for merchandise transport and international trade; however, the feasibility of river-based transport can be affected by extreme weather events such as the recent drought (OECD, 2018^[22]). The frequency of such weather events and the risks associated with river-based transport are

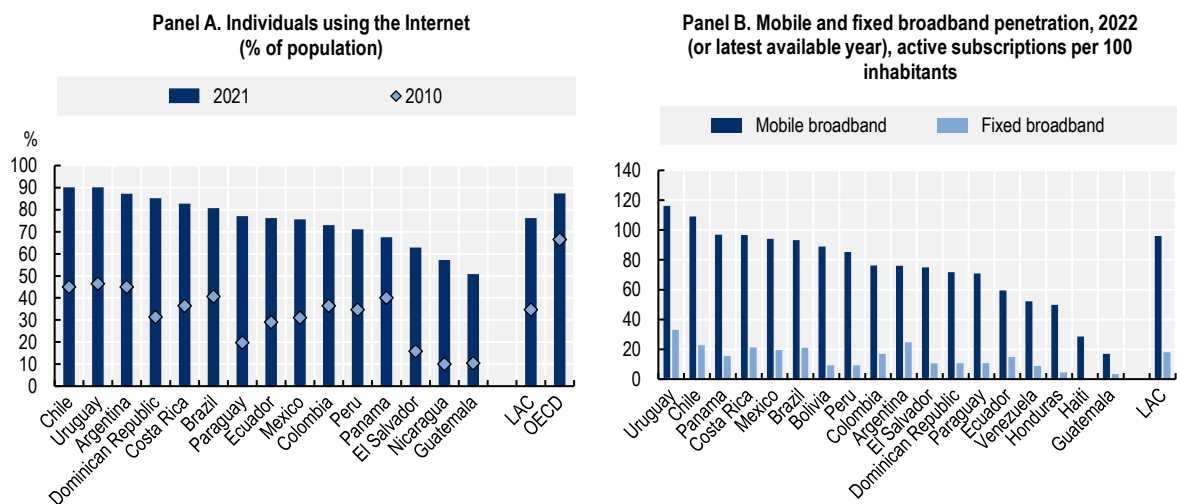
increasing in the context of climate change, which makes digital services a very attractive sector for further development.

Paraguay has already adopted digitalisation policies but lags behind other countries in the LAC region in terms of digitalisation

Paraguay has already put in place a national digital strategy. The National Development Plan: Paraguay 2030 and the National Digital Agenda are the main reference documents for the country's development and digital policies. The Digital Agenda aims to achieve digital transformation through: i) better connectivity, ii) digital government development, iii) a digital economy to make the country more competitive, and iv) institutional strengthening, including through cybersecurity. Digital transformation policies link directly to the development plan's four overarching goals: poverty reduction and social development, inclusive economic growth, deeper inclusion in the international economy and institutional strengthening (STP, 2021^[75]). Created in 2018, Paraguay's Ministry of Information and Communication Technologies (MITIC) is the technical entity responsible for the formulation and implementation of public sector information, communication and technology (ICT) plans and projects. It also functions as the administrative authority responsible for social and educational aspects of the inclusion, innovation and implementation of technologies. MITIC emphasises the importance of administering the communication infrastructure and promotes the interoperability of public sector systems (OECD et al., 2020^[76]).

Paraguay's level of digitalisation is intermediate, lagging behind other LAC countries in terms of Internet use and broadband penetration. The share of Internet users in Paraguay has increased rapidly from 19.8% of the population in 2010 to 77% in 2021. This trend aligns with the LAC average but remains below the OECD average and that of neighbouring countries such as Argentina, Brazil, Chile and Uruguay (Figure 3.13, Panel A). Mobile broadband penetration is 25% lower than in the LAC region on average. Fixed broadband penetration has increased notably in the past decade but is only 60% of the LAC average (Figure 3.13, Panel B) (OECD, 2020^[74]).

Figure 3.13. Potential exists to further improve digitalisation in Paraguay



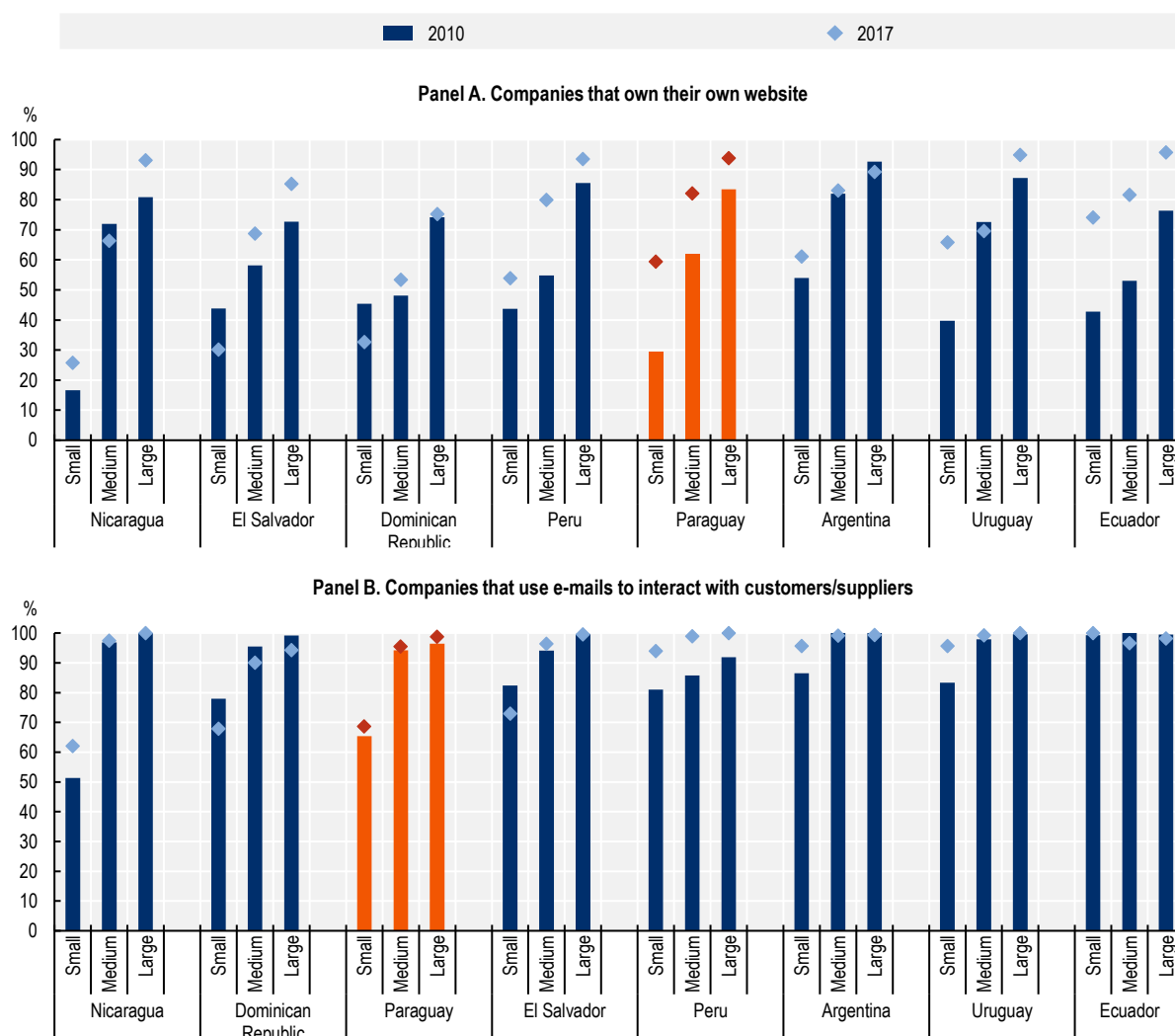
Note: Panel B. Active mobile broadband subscriptions refer to the sum of standard mobile broadband and dedicated mobile broadband subscriptions to public Internet. They cover actual not potential subscribers, even though the latter may have broadband-enabled handsets.

Source: A. World Bank (2024^[5]), *World Development Indicators* (database), <https://data.worldbank.org/>; B. OECD et al. (2020^[74]), ITU (2024^[3]), *ITU DataHub* (database), International Telecommunication Union, Geneva, <https://datahub.itu.int/> and ECLAC (2024^[77]) *Cepalstat* (database), <https://statistics.cepal.org/portal/cepalstat/dashboard.html>.

The diffusion of digital technologies remains uneven in Paraguay. Among businesses, diffusion remains especially low for small firms, in line with the regional trend (Figure 3.14). In 2017, 93.8% of large companies, but only 59.3% of small companies, owned their own website in Paraguay. Similarly, 98.7% of large companies used emails to interact with customers, but only 68.6% of small companies (2017) (Figure 3.14). Among households, 87.5% of individuals in the highest quintile of the income distribution were using the Internet in 2017 (compared to 75% in the LAC region on average), but only 48.5% of individuals in the lowest quintile (compared to 36.6% in the LAC region on average). The income divide in Internet usage is larger in Paraguay than in LAC countries with comparable levels of overall Internet usage (OECD, 2020^[74]). Only 3.8% of vulnerable students and 0% of poor students enrolled at primary school have access to a computer with Internet access at home, compared to 69.3% of affluent students (Figure 3.15). Paraguay must focus on closing these digital divides to ensure that the benefits of digitalisation are shared equally.

Figure 3.14. The diffusion of digital technologies remains especially low for small firms

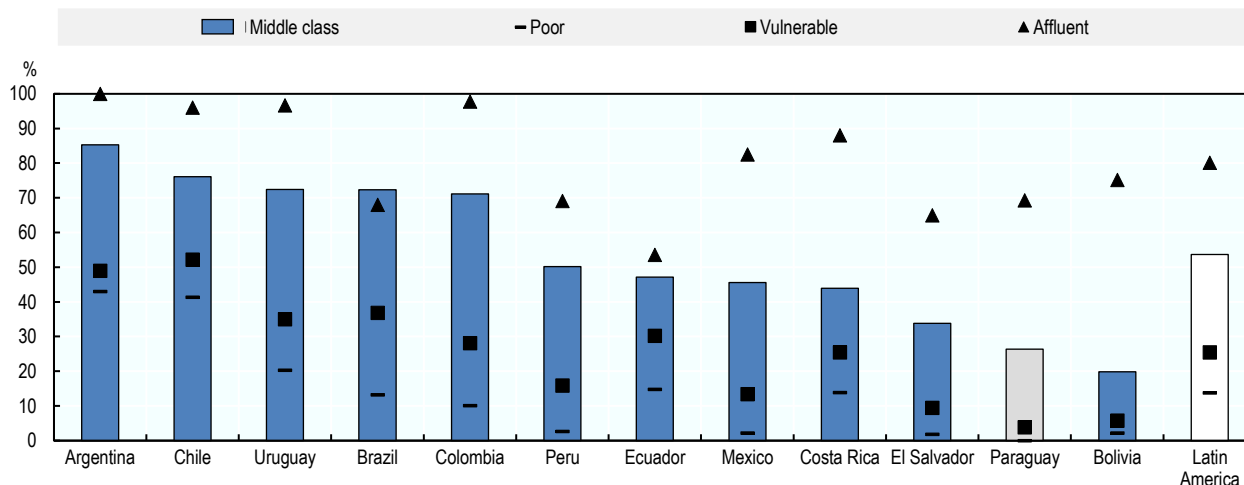
Use of basic digital technologies by firm size in selected Latin American and Caribbean countries, 2010 and 2017.



Source: OECD et al. (2020^[76]) based on World Bank (2020), *Enterprise Surveys* (database), www.enterprisesurveys.org/; Correa, Leiva and Stumpo (2018), "Avances y desafíos de las políticas de fomento a las mipymes", *Mipymes en América Latina: Un Frágil Desempeño y Nuevos Desafíos para las Políticas de Fomento*.

Figure 3.15. Access to digital equipment remains low among students in Paraguay, in particular among the most vulnerable

Share of students enrolled in primary education with an Internet-connected computer at home by income group, 2018 or last available year.



Note: The regional average is a simple average. “Poor” are those living with less than USD 5.5 per capita per day (PPP 2011), “vulnerable” those living with USD 5.5 to USD 13 per capita per day (PPP 2011), “middle-class” those living with USD 13 to USD 70 per capita per day (PPP 2011) and, “affluent” those living with more than USD 70 per capita per day (PPP 2011).

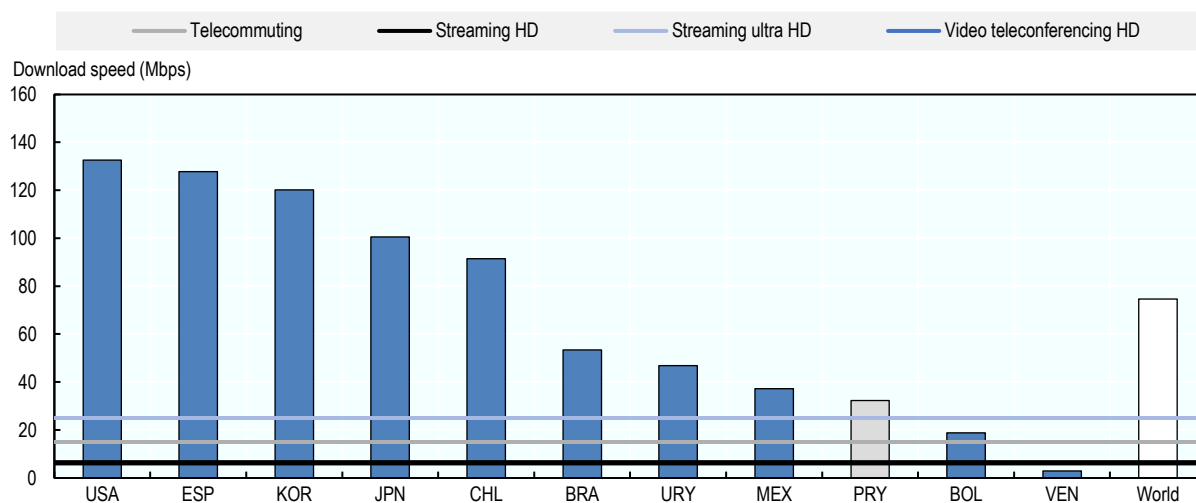
Source: OECD et al. (2020^[76]) based on Basto-Aguirre, Cerutti and Nieto Parra (2020^[78]).

Accelerating digitalisation in Paraguay requires investment in digital infrastructure, enhanced digital skills and support for innovation

Improving digital infrastructure is essential to support and accelerate digitalisation in Paraguay and to close existing digital divides. Fixed broadband speed in Paraguay is 40% lower than in the LAC region on average and only 10% of fixed broadband speed in the OECD (2018). Meanwhile, fixed broadband *download* speed is only 43% of the world average (Figure 3.16) (OECD, 2020^[74]). Improving the digital infrastructure is essential, especially in rural areas, and would include better fibre-optic cable and mobile network coverage outside major cities in the south-east. As in other LAC countries, there remains an important rural–urban divide in Internet usage in Paraguay. In 2017, 80% of the population was using the Internet in urban areas (compared to 65.3% in the LAC region on average), but only 56.4% in rural areas (compared to 39.9% in the LAC region on average) (OECD et al., 2020^[76]). This divide is also due to affordability. In 2018, 50% of the urban population but only 20% of the rural population could afford a mobile broadband service (Deloitte, 2018^[79]). The digital infrastructure of schools should also be improved to enhance the access of vulnerable and poor students to digital equipment. Investing in physical infrastructure for digitalisation can help spur economic and social benefits (OECD, 2020^[74]).

Figure 3.16. Internet speed remains relatively low in Paraguay

Fixed broadband download speeds in selected countries compared to bandwidth requirements for Internet services, March-July 2020



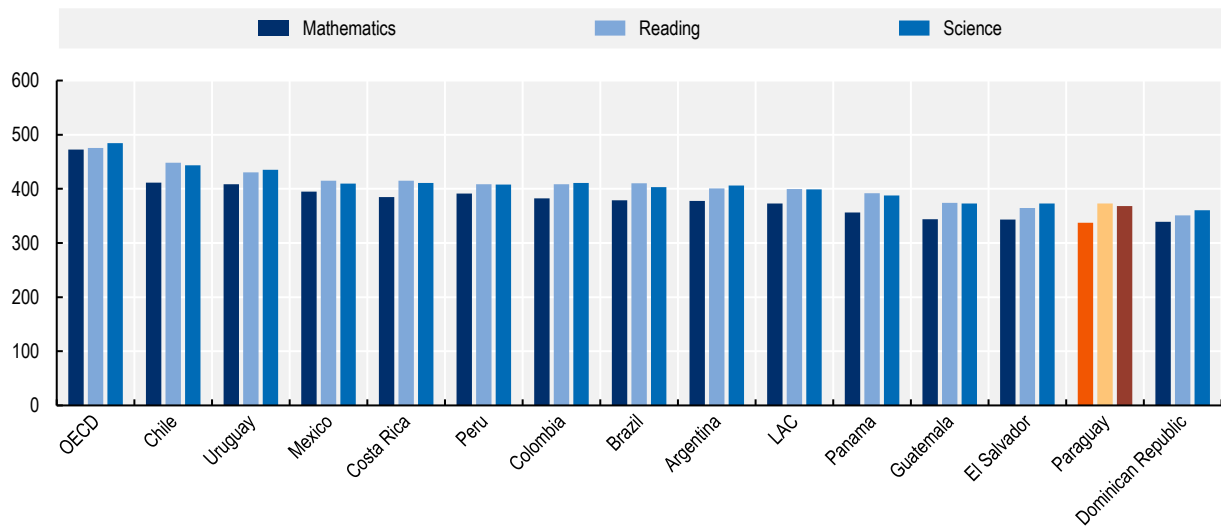
Note: HD = High definition, Mbps = Megabytes per second. The indicator reflects wired broadband speed achievable “onnet”.

Source: OECD et al. (2020^[74]) based on ECLAC Regional Broadband Observatory (ORBA), based on data from the Federal Communications Commission and Ookla Global Speed Test Index.

Accelerating digitalisation in Paraguay and closing digital divides also requires that all workers and firms are equipped with the skills necessary to succeed in the digital economy. Individuals with a well-rounded skillset in terms of literacy, numeracy and problem solving in a technology-rich environment can be expected to make more and better use of digital tools, carry out more sophisticated activities online and better adapt to digital transformations (OECD, 2020^[74]). However, the results from the OECD’s Programme for International Student Assessment (PISA), which measures 15-year-olds’ ability in reading, mathematics and science, show that Paraguayan students aged 15 perform more poorly than the LAC average, despite progress made in recent years. Most LAC students perform particularly poorly in mathematics, but results for Paraguay are even lower with the majority of students performing below the basic level of competency in this area. Moreover, students from disadvantaged backgrounds, who do not speak Spanish and come from rural areas, have the lowest performance scores in reading, science and mathematics (MEC, 2019^[80]). Improving the population’s digital skills could boost productivity and make Paraguay a more attractive location for digital services industries. Enhancing the digital skills of micro- and small enterprises in Paraguay should be a particular focus.

Figure 3.17. Paraguayan students aged 15 perform particularly poorly in science and mathematics

OECD PISA 2022 scores for mathematics, reading and science.



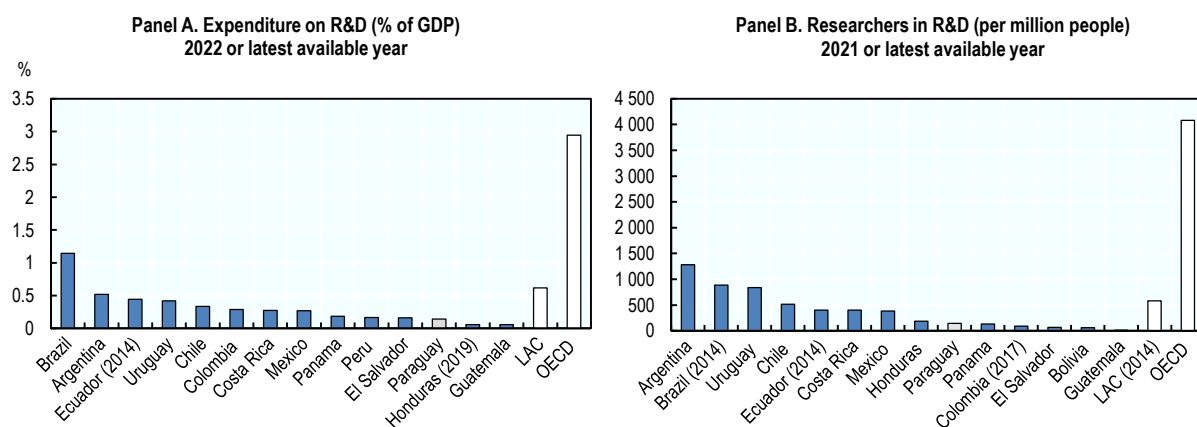
Source: OECD (2024^[81]), PISA data explorer (database), <https://pisadataexplorer.oecd.org/>.

Paraguay could accelerate digitalisation by better supporting innovation, which acts a fundamental driver of the digital transformation (OECD, 2020^[74]). Paraguay performs rather poorly on innovation-related indicators and has a limited innovation capacity. Both expenditure on research and development (R&D) and the number of researchers in this area per million people remain low in Paraguay (Figure 3.18). According to Paraguay's Entrepreneurial Innovation Survey 2016 (EIEP), 44.4% of companies performed some innovation activity in 2013-15 compared to 52% of firms in 2010-12, but the figure for micro- and small enterprises was only 11% compared to 54.4% of large firms. The main obstacles to innovation identified by firms were insufficient incentives linked to shortcomings in public policies (57.2% of firms), lack of skilled staff (47% of firms), a long payback period on investments (46.6% of firms), lack of funding (41.7% of firms) and lack of skilled workers in the labour market (36% of firms) (DGEEC, 2017^[82]). Improving the incentives for investment in R&D and more and better designed public policies for innovation could accelerate the digital transformation in Paraguay.

The challenge is to progress from policies encouraging the adoption of digital technologies in industry to support for the complete transformation of production processes and the creation of novel business models supported by new technologies. One such example is Colombia's Centres for Entrepreneurial Digital Transformation (*Centros de Transformación Digital Empresarial*, CTDE) developed by the Ministry of Information Technology and iNNpulsa in collaboration with business chambers to offer digital skills training and technical assistance to firms, especially MSMEs, during the digital transformation process (MINTIC, 2021^[83]). In another example, the "Mittelstand – Digital" programme in Germany supports the adaptation to digital processes in SMEs. The German government finances 26 competency centres across the country to offer free-of-charge consultations to MSMEs in the areas of artificial intelligence, blockchain, IT-security, digital processes and online sales, among others. During the pandemic, all learning tools were made available as online seminars (OECD, 2020^[84]).

Paraguay's Digital Signature Act and Electronic Commerce Act represent important milestones for governance of the digital ecosystem in Paraguay. The promotion of a digital ecosystem started in 2010 with the Digital Signature Act. In 2013, enactment of the Electronic Commerce Act introduced the concept of liability of providers, electronic billing and rules regarding consumers of services or products purchased online (Di Martino Ortiz, 2014^[85]).

Figure 3.18. R&D expenditure and researcher numbers are low in Paraguay



Source: World Bank (2024^[5]), *World Development Indicators* (database).

Strengthening Paraguay's digital governance, particularly in the areas of data protection and digital security, could accelerate digitalisation

Improved data and consumer protection is vital to strengthen trust in the digital environment, accelerate digitalisation and make Paraguay an attractive location for digital services industries (OECD, 2020^[74]). Comprehensive protection of personal data should be a key priority for the Government of Paraguay, in order to guarantee the full exercise of the rights of its owners in a digital economy, where data itself has become a source of value. A law on personal data protection is especially urgent given that the repeal of Law No. 6534/2001 “Regulating private information” and its amendment by Law No. 6534/2020 “On the protection of personal credit data” has left personal data without substantial protection. Given the increasing use of technologies and advanced analytics by governments and firms to collect, process and share data (e.g. contact tracing, biometrics and geolocated data during the response to the COVID-19 crisis), this regulatory void risks the onset of mass surveillance, limiting individual freedoms and challenging democratic governance (OECD et al., 2020^[76]).

Updating data protection legislation is also crucial to make the Paraguayan digital economy more competitive by regional and international standards. The EU General Data Protection Regulation (GDPR) establishes the protection of data belonging to EU citizens and residents regardless of whether the data collection, control, processing or use takes place in the EU or not – the so-called “extra-territorial effect”. GDPR compliance is therefore extremely important to facilitate digital trade and commerce between Paraguayan companies, or subsidiaries based in Paraguay, and EU consumers. Currently, Argentina and Uruguay are the only LAC countries deemed to provide an “adequate level of data protection” for cross-border data transfers compliant with the GDPR (EC, n.d.^[86]). The OECD’s *Guidelines Governing the Protection of Privacy and Transborder Flows of Personal Data* (the “Privacy Guidelines”), updated in 2013, are recognised as the global minimum standard for privacy and data protection (OECD, 2013^[87]). Beyond the internationally recognised models provided by the European Union and the OECD, Paraguay could also learn from recently approved data protection regulations in Brazil and Ecuador that introduced novel concepts such as “the right to information” and “the right to restrict processing”, which are inspired by the EU GDPR.

Strengthening digital security in Paraguay is essential, especially with regard to the protection of critical infrastructure. Digital security risks increased during the COVID-19 pandemic, highlighting the importance of holistic national strategies for digital security implemented in co-ordination with the private sector, including SMEs, as the latter are increasingly involved in essential service value chains. If not addressed, these risks can disrupt operations and essential public services, resulting in direct financial loss, lawsuits, reputational damage, loss of competitiveness (e.g. through the disclosure of trade secrets),

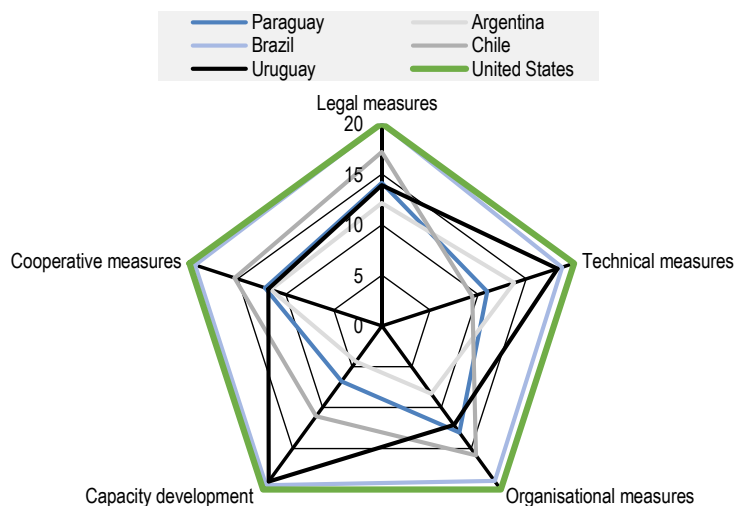
privacy harm and consumer distrust (OECD, 2015^[88]; OECD et al., 2020^[76]). Paraguay approved a National Cybersecurity Plan in 2017, but a review of progress by the National Cybersecurity Commission in February 2020 noted that the main pillars of the plan were slow to be implemented. In particular, 86% of actions related to the protection of critical infrastructure pillar had not been implemented, and the remaining 14% had been implemented only sporadically. Other critical areas included the ability to respond to cyberattacks and investment in research, development and innovation (MITIC, 2020^[89]).

Digital security policies should be implemented throughout government institutions. MITIC mandated a decentralised form of digital security governance under Resolution No. 733/2019 requiring each government institution to establish a dedicated area for information security. However, out of 136 public institutions, only 72 institutions (52%) had formally designated an Information Security Officer in 2020. A survey conducted with Information Security Officers in 49 institutions also revealed that only 26% of institutions had dedicated Information Security or Cybersecurity areas in 2020 (MITIC, 2020^[89]).

Capacity development in cybersecurity also needs attention. Overall, Paraguay ranks 84th globally and 11th regionally on the ITU Global Cybersecurity Index 2020, behind the regional leader Brazil (18th), Uruguay (64th), Chile (74th) and the United States (1st), but above Argentina (Figure 3.19). The index shows that Paraguay performs relatively well regionally and internationally in the areas of legal and organisational measures but exhibits deficiencies in the area of capacity development (Figure 3.19). To address capacity shortages, in 2019, the Ministry of Defence began implementing the Programme of Specialisation in Cyberdefence and Strategic Cybersecurity through the Institute of High Strategic Studies, to train people to combat new threats occurring in cyberspace (IDB/OAS, 2020^[90]).

Figure 3.19. Paraguay performs poorly in capacity development for cybersecurity

ITU Global Cybersecurity Index, 2020.



Source: ITU (2021^[91]), *Global Cybersecurity Index 2020*, www.itu.int/epublications/publication/D-STR-GCI.01-2021-HTM-E.

Regional trade opportunities have increased as a result of nearshoring and reshoring

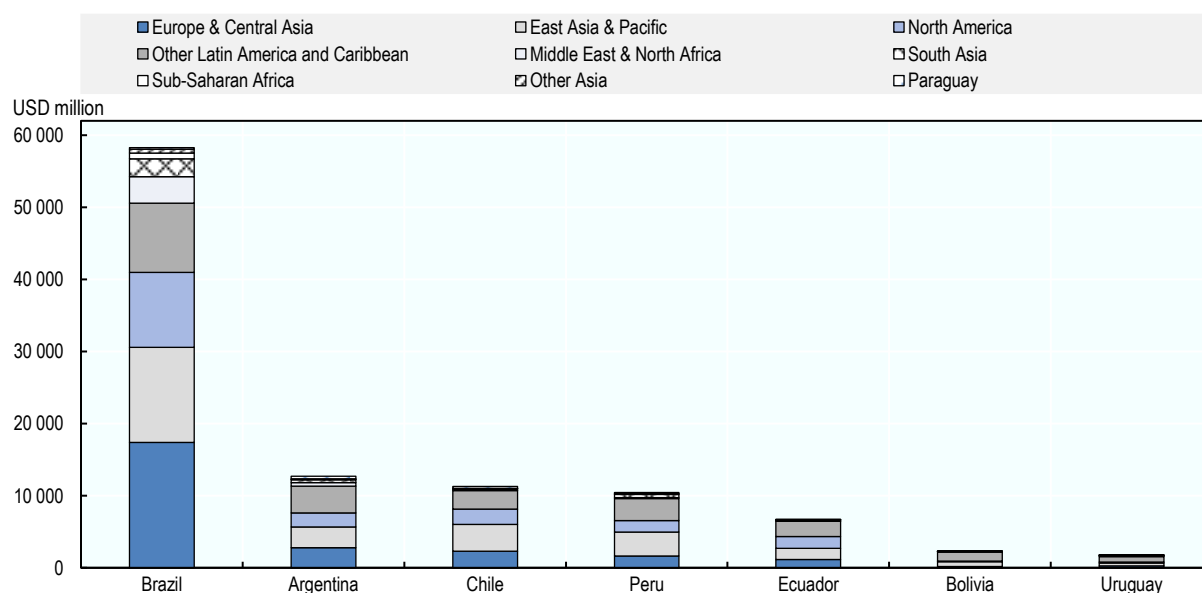
Global value chains were severely impacted by the pandemic. Lockdowns, restrictions on travel and trade in goods, the disruption of international transport networks, and changes in demand for goods and services all led to an increase in nearshoring and reshoring – the relocation of business operations to closer locations from more distant ones or back to their original country – and the shortening of value chains to mitigate risks of supply disruptions as a result of reliance on foreign suppliers. The beginnings of

this trend precede the COVID-19 pandemic, however, with a decline in the fragmentation of production across borders observable since 2011. For each dollar of output in the world, trade in intermediate goods and services has lessened and GVCs have become shorter. The most exposed sectors to nearshoring and reshoring are manufacturing industries with long value chains, such as communication equipment, electronics, machinery and equipment, and textiles and apparel (OECD, 2020^[92]; UNCTAD, 2022^[93]).

Opportunities also exist for Paraguay to increase exports to neighbouring countries, several of which still import large volumes of intermediate goods from other regions. Imports from East Asia and the Pacific, Europe and Central Asia, and North America account for between 41% of intermediate goods imports in Bolivia and 70% in Brazil (Figure 3.20). Conversely, imports of intermediate goods from Paraguay account for less than 3% of total intermediate goods imports in all countries in the region. Recent GVC disruptions may lead Paraguay's neighbours to import a greater proportion of goods from neighbouring countries, which could in turn benefit Paraguay. Some 75% of Paraguay's intermediate goods exports are already directed to LAC countries, most importantly, Brazil (45.3%), Argentina (17.9%), Chile (6%) and Peru (3.5%) (World Bank, 2022^[94]). An increase in demand for these exports from countries in the region could allow Paraguay to expand its manufacturing sector and attract more FDI. Brazil represents the largest potential market for Paraguay, followed by Argentina, Chile and Peru (Figure 3.20). Greater commercial integration with regional partners may also help the country achieve a stronger recovery through increases in export-induced domestic value added. In fact, if Paraguay's exports are valued per their domestic value added content, the great majority of domestic value added (46%) was exported to Latin America in 2017, with Asia and the Pacific a distant second (at 11%) (ECLAC, 2020^[95]). Creating a sound business environment and the right enabling conditions for manufacturing FDI would be essential to take advantage of this opportunity.

Figure 3.20. A significant share of neighbouring countries' intermediate goods imports originate from remote countries in East Asia and the Pacific, Europe and Central Asia, and North America

Intermediate goods imports by origin (USD million), 2019



Source: World Bank (2022^[94]), World Integrated Trade Solution (WITS), <https://wits.worldbank.org>.

In recent years, the country's economic stability and fiscal prudence have attracted new investments, mostly from Brazil, but FDI remains low by regional standards. Brazilian investors have announced 15 FDI projects worth USD 1.2 billion in the country since 2003 (Dettoni, 2022^[31]), and in June 2022, Japanese garment producer Hagihara and US carbon fibre power conductor manufacturer CTC Global both announced the opening of local production facilities in Paraguay, their first in Latin America. Swedish-Paraguayan joint venture Paracel also wants to develop a USD 3.3 billion pulp mill in Concepción, which would represent the country's largest ever private investment (Dettoni, 2022^[31]).

Strengthening commercialisation and internationalisation policies will be key for attracting new GVCs and promoting the insertion of SMEs in GVCs. As a country without access to the sea, Paraguay faces additional trade costs. Currently, the average Most Favoured Nation (MFN) tariff is in double digits in 7 of the 16 broad sectors of the tariff schedule (World Bank, 2022^[96]). The ability to quickly import and export inputs is therefore an important requisite for attracting FDI and new GVCs. Supporting the internationalisation of MSMEs is particularly important: high costs and complex trade procedures can negatively affect the internationalisation of MSMEs, for which the costs of trading can be disproportionately large compared to the volume exported.

Despite recent progress in trade facilitation, barriers to the speedy import and export of goods persist. The OECD Trade Facilitation Indicators for Paraguay improved between 2017 and 2019 in the areas of advance rulings, appeals procedures, simplification and harmonisation of documents, automation of processes and cross-border inter-agency co-operation (OECD, 2019^[97]). However, significant gaps persist relative to peers in the use of risk management systems and the transition from transaction-based controls to audits, simplification and digitisation of procedures, provision of information to traders, and the extensive use of fees imposed on licences and other authorisations for trade (OECD, 2019^[97]; World Bank, 2022^[96]). The implementation of two single windows for imports and exports has facilitated processes for traders, but these need to be more effective. Under the Single Import Window (*Ventanilla Única de Importación*, VUI), administered by the DNA, most procedures can be carried out electronically. However, certain procedures and payments of the Single Export Window (*Ventanilla Única de Exportaciones*, VUE), administered by the MIC, lag behind in comparison. A degree of interoperability also persists between the two windows, with many processes not yet harmonised, leading to duplication and the simultaneous use of both platforms (World Bank, 2022^[96]).

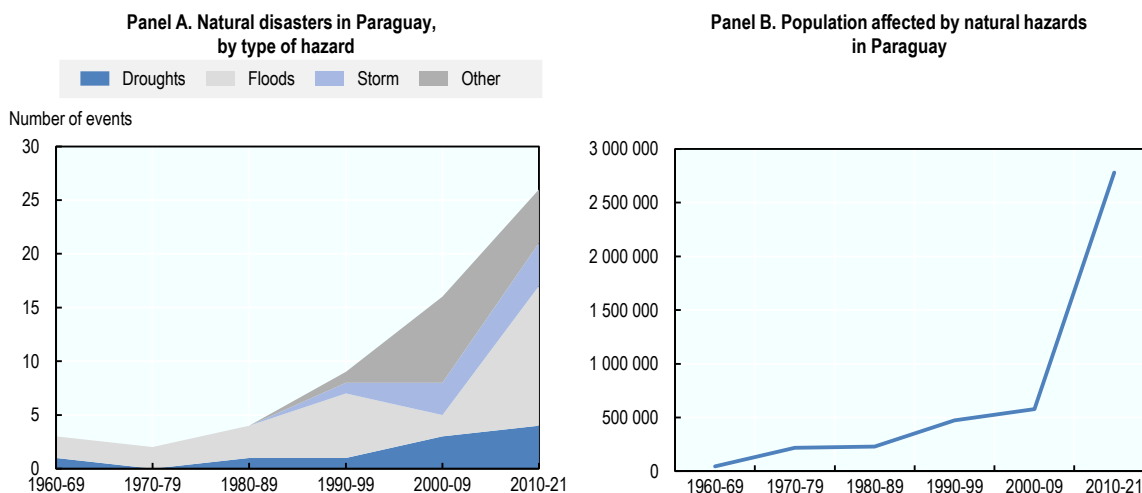
Considering the different needs of medium-sized enterprises (MSEs) will be important. Medium-sized enterprises are usually the ones most consolidated in national markets with the greatest potential to serve international customers. To simplify the export of MSME products, the inter-institutional pilot project *Exporta Fácil* was launched in 2022, offering the possibility of sending packages of up to 20 kg abroad through the *Dirección Nacional de Correos del Paraguay* (Dinacopa) (MIC, 2022^[98]). However, this simplified export service may be more suited to the needs of micro- and small enterprises than those of MSEs, who generally need to export larger volumes of goods. Strengthening export support policies and technical assistance for this segment through the *Red de Inversiones y Exportaciones del Paraguay* (REDIEX), an institution attached to the MIC, would help address the needs of MSEs.

More broadly, Paraguay requires new strategies to increase its competitiveness. The country could reduce transport costs by upgrading its transport infrastructure, including its port, airport and road networks, and by dredging its rivers. A focus on improving institutional quality would also yield benefits as corruption, the rule of law, the quality of public services and red tape remain important concerns for investors. Another key approach is to increase the quality of Paraguay's human capital through improvements in the country's education system and investment in skills demanded by investors. There is also scope to catch up with other countries in the region in terms of digitalisation. Access to finance remains a challenge, in particular, for MSMEs. Lastly, to avoid high transport costs linked to the country's geography, Paraguay could expand sectors with low transport costs, such as digital services and manufactured goods, which are subject to lower transport costs than agricultural commodities, the main export goods at present.

Building resilience to climate change

Paraguay is highly vulnerable to climate change, which has increased the frequency and intensity of extreme weather events such as droughts and floods. While the impact of the COVID-19 crisis on Paraguay was moderate, the effects were exacerbated by the droughts that struck the country in 2019 and 2021/22. The number of extreme weather events affecting Paraguay, including droughts, floods, storms, cold waves and wildfires, has increased over recent decades as a result of climate change (Figure 3.21). Furthermore, a reliance on agricultural commodity and hydropower exports together with a dependence on river transport for international trade render Paraguay highly vulnerable to climate change and contribute to volatility in GDP growth. Agricultural commodities accounted for 60.8% of Paraguay's exports in 2021 and 52.4% of exports on average between 2017 and 2021 (UN, 2024^[11]). At present, approximately 75% of Paraguay's export and import cargos are transported by the Paraguay-Paraná waterway connecting to the ocean ports of Buenos Aires and Montevideo (OECD, 2018^[22]).

Figure 3.21. The number of natural hazards affecting Paraguay and the impacted populations have increased over time



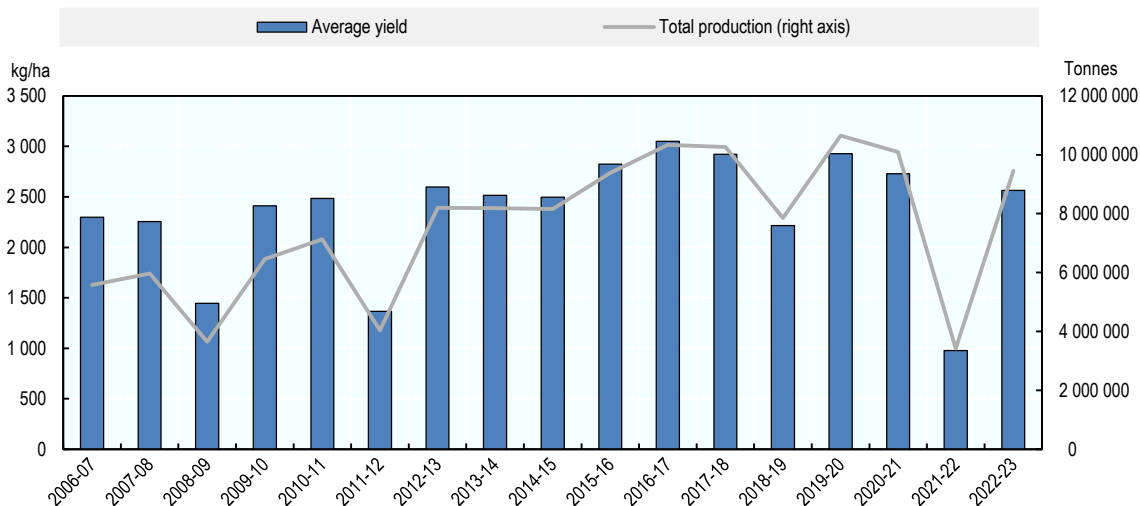
Source: EM-DAT (2022^[99]), The International Disasters Database.

Better access to financing and crop diversification could make Paraguay's agricultural sector more resilient to natural hazards

The impacts of the 2021/22 drought rippled outwards from the agriculture sector to the rest of the economy. After the drought compromised the soy harvest in the summer months of 2021/22, total soy production decreased by 66% with respect to the previous harvest and average yields plummeted to 979 kg/ha from 2 728 kg/ha in 2020/21 before recovering in 2022/23 (Figure 3.22). Lower soy production has also had negative repercussions on the rest of the agriculture value chain through higher unemployment due to lower economic activity in the primary sector, lower performance in the transport sector due to lower demand for fleets to move agricultural products, lower exports and international reserves, and higher inflation (UNDP, 2022^[100]). This ripple effect sheds light on the transmission channels of future extreme weather events.

Figure 3.22. The drought negatively affected the 2021/22 soy harvest resulting in the lowest yields in two decades

Average yield (kg/ha) and total production (tonnes, right axis) of soy in Paraguay, 2006-22



Source: INBIO (2024_[101]), *Superficies de siembra*, www.inbio.org.py/superficies-de-siembra.

The government reacted quickly to the 2022 drought, aided by experience from similar episodes in the past. Flexible financial schemes were implemented to tackle the dual effects of the COVID-19 pandemic and the drought. In particular, the Central Bank of Paraguay allowed small and medium agricultural producers to refinance their debt without compromising their credit ratings, with no interest rate surcharges – an initiative previously applied in response to the 2019 drought. Refinancing schemes were put in place through the *Agencia Financiera de Desarrollo* and the *Crédito Agrícola de Habilitación*, while the *Banco Nacional de Fomento* provided a credit line for operating capital. In terms of technical assistance, the Ministry of Agriculture provided needed inputs to producers such as seeds and fuel, amounting to a total investment of USD 1 million. On the fiscal side, the contributors to the SIMPLE IRE corporate tax regimen were able to delay their payments (STP, 2022_[102]).

It is necessary to address the inability of family-run small farms to recover from bad harvests as quickly as large-scale farms. Easier and more flexible access to credit for family farms remains a pending issue (see the section on MSMEs and formalisation for more on this topic), while large-scale commercial farms usually enjoy easier access to financing and re-financing schemes from banks. Family farms are more likely to seek credit from private and informal creditors since their credit rating is not sufficiently high for formal credit institutions or because they are unable or unwilling to provide the property titles necessary to obtain a mortgage (UNDP, 2022_[100]).

Further investment in adaptation practices and crop diversification is needed for family farms. Following the drought in 2022, large-scale farms were able to recoup some of their losses caused by failure of the soy harvest from the subsequent maize harvest, which was unaffected. However, family-run farms usually focus on a single crop and are thus more vulnerable to harvest fluctuations. Moreover, sesame, which is highly common in family agriculture, was strongly affected by the drought. Beyond providing inputs such as seeds, fertilisers and fuel, policy makers could improve awareness among family farms of the importance of crop diversification and other agricultural practices to enhance adaptation to extreme weather events. For instance, a recent FAO (2020_[103]) assessment of the impacts of climate change on different crop yields most commonly cultivated in family farms in Paraguay concluded that higher climate change risks concern predominantly sugarcane, soybeans and upland rice, while wheat, maize and beans

(“poroto”) are not significantly affected. Furthermore, climate change has been shown to have a positive impact on cassava (“*mandioca*”) yields. To strengthen family production systems, *batata* could also be introduced, as this tropical crop, like cassava, easily adapts to different soil types (UNDP, 2022_[100]).

Some of these options are already incorporated in the *Plan Nacional para la Gestión de Riesgos de Desastres y Adaptación al Cambio Climático en el Sector Agrícola del Paraguay*, with projects underway to increase resilience to natural hazards. Examples include an ecosystem-based approach to reduce the vulnerability of food security to the effects of climate change in the Paraguayan Chaco region (MADES, n.d._[104]; MADES, 2022_[105]), as well as the project *Saemaeul Undong*, which focuses on sustainable agriculture (APS, 2020_[106]). The Poverty, Reforestation, Energy and Climate Change (PROEZA) project, which focuses on social and climate vulnerability, also promises to bring further advancement in reforestation, diversification of agricultural production and resilience of rural livelihoods in Eastern Paraguay. In addition, environmental conditional cash transfers (E-CCT) will be provided in exchange for community-based climate-sensitive agroforestry, serving as a bridge until new farming models are financially sustainable.

Improving Paraguay’s transport infrastructure could enhance resilience to climate change

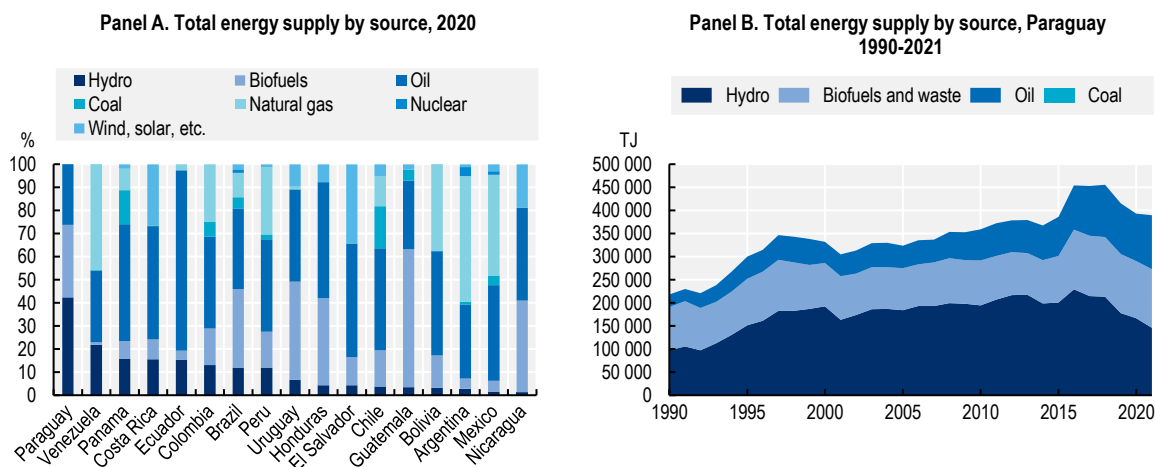
Reducing Paraguay reliance on waterways and increasing the resilience of existing river transport to droughts would enhance transportation services. Investments in dredging and signalling, especially on the Paraguay River, would allow for navigation all year around (even during drought months) and at night. Furthermore, investing in other means of transport to complement the Paraguay and Paraná waterways, including land routes and railways, would improve the transportation network. There is much potential for multi-modal transportation systems, including land-water connections (OECD, 2018_[22]).

Future investment in transport infrastructure should adopt resilience to climate change as an important criterion for prioritising projects. Public investment in Paraguay increased in response to the pandemic, reaching 3.6% of GDP in 2020 and staying at historically high levels of 2.9% of GDP in 2021 and 2022. Transport infrastructure was a key component of public investment, commanding 51% of public investment in 2021 (MH, 2021_[107]). This included major projects such as the bi-oceanic route across the Paraguayan Chaco and the construction of international bridges linking Paraguay with Brazil. Job creation was an important motivation for the fiscal effort directed to infrastructure investment. In the future, it is essential that the multiple criteria used to prioritise investment account for remaining gaps in connectivity, especially among rural populations, and their susceptibility to climate change, in particular in more humid areas of the country where rainfall can make uncovered roads impracticable.

Paraguay’s dependence on hydropower together with rapid growth in demand for electricity render the country vulnerable to climate change

Paraguay relies largely on hydropower for electricity generation, while electricity exports to neighbouring countries make an important contribution to Paraguay’s GDP. Hydropower accounts for 99.5% of Paraguay’s installed capacity for electricity generation (2021) and 99.7% of electricity generation (2020) (IRENA, 2022_[108]). Hydropower also represents 42.4% of Paraguay’s total energy supply (IEA, 2024_[109]) (Figure 3.23, Panel A). While the electricity-generation capacity of Paraguay, equivalent to 8 760.67 MW, is among the highest in the world, Paraguay consumes less than half of the electricity it generates domestically (MOPC, 2022_[110]). In 2019, Paraguay exported 64% of electricity generated – the equivalent of 6% of its GDP – to Brazil and Argentina. In 2021, Paraguay’s energy exports decreased to 53.5% of electricity generated as a result of the recent drought (IRENA, 2021_[111]; IEA, 2024_[109]; MOPC, 2022_[110]).

Figure 3.23. Paraguay's energy mix comprises hydropower, biofuels and oil products



Source: IEA Energy Statistics, www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser?country=PARAGUAY&fuel=Energy%20supply&indicator=TESbySource.

Despite a reliance on hydropower for electricity generation, fossil fuels and biomass still play an important role in Paraguay's energy mix. Biomass accounts for 32.6% of Paraguay's total energy supply and oil derivatives for 29.9% (as of 2021) compared to 27.1% and 18.7% in 2010 (IEA, 2024_[109]). The share of fossil fuels in Paraguay's final energy consumption has been increasing, driven mainly by the transport sector (Figure 3.23, Panel B). Paraguay's imports of oil derivatives, mainly petrol and diesel, increased at an average growth rate of 5.1% between 2010 and 2019. The contribution of biomass to Paraguay's energy supply has increased as well driven by growing demand for energy crops such as sugar cane, corn and soybeans for the production of biofuels as a result of national policies and laws promoting the blending of biofuels into regular petrol and diesel (Figure 3.23, Panel B). There are 14 bioethanol plants in Paraguay, and in 2018, national bioethanol production capacity reached 550 million litres, 55% from corn and 45% from sugar cane. The cultivated area doubled between 2008 and 2018. Paraguay's biodiesel production capacity increased from 138 million litres in 2019 to 376 million litres in 2019. In addition, Paraguay also produces biogas and maintains mono-culture forest plantations (IRENA, 2021_[111]).

Paraguay's demand for electricity has grown rapidly in the recent past, a trend that is forecast to continue. Between 2000 and 2020, Paraguay's electricity consumption grew at an annual rate of 5.6% and tripled from 4 700 GWh to 14 100 GWh (IEA, 2024_[109]) as a result of the low cost of electricity, an expanding industrial sector and increasing demand from the residential sector (IRENA, 2021_[111]). Projections indicate that demand is likely to grow at a similar pace in the future (Hu, Wu and Modi, 2021_[112]). Climate change mitigation policies such as electrification of the transport sector and a shift towards electric cooking could further accelerate growth in electricity demand.

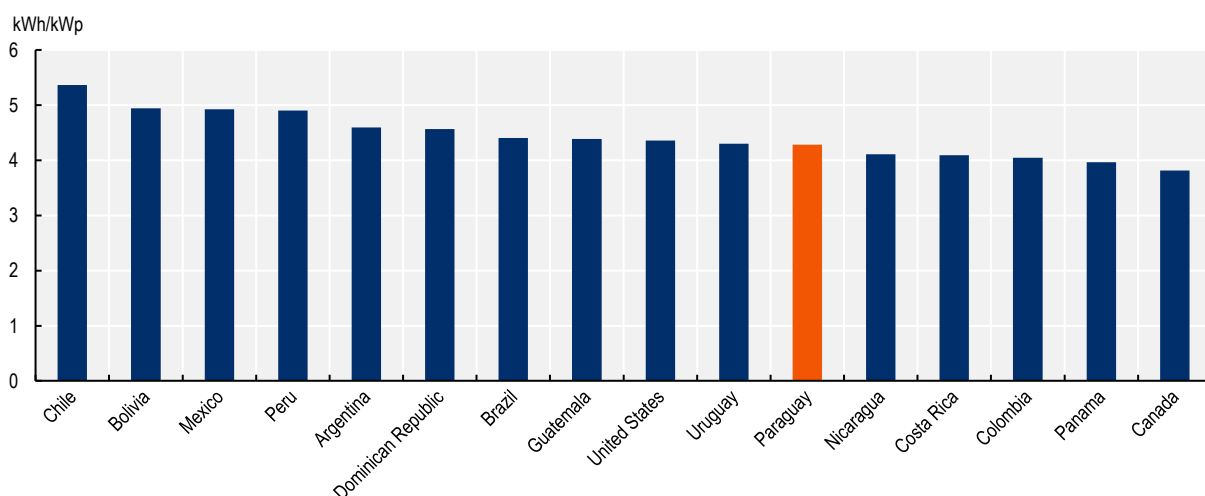
Paraguay's dependence on hydropower combined with rapid growth in electricity demand makes the country vulnerable to climate change. Greater variation in water availability as a result of more frequent droughts and floods in the context of climate change is likely to cause large fluctuations in Paraguay's electricity generation and revenues from electricity exports in the future. Electricity exports have already plummeted due to the recent drought, declining by 25% in 2019 as a result of a dry period in the Paraná River Basin and an increase in domestic consumption. Furthermore, despite Paraguay's large excess capacity, projections indicate that current electricity generation capacity may become insufficient from 2026-28 as a result of reduced water availability due to climate change and rapid growth in electricity demand. Power shortages could start occurring during peak demand hours at a load equivalent to 1.5 times the electric load in 2019 (CCSI/CRECE, 2021_[113]; Hu, Wu and Modi, 2021_[112]).

Supporting the expansion of renewables other than hydropower and enhancing energy efficiency could improve Paraguay's resilience to climate change

To increase its resilience to climate change, Paraguay could reduce its dependence on hydropower by expanding other renewable sources. Investment in other renewables, most importantly, solar power, which is largely complementary to hydropower, could help diversify Paraguay's energy sources, contribute to energy security and stabilise electricity exports. The country's potential for solar power generation is good (Figure 3.24) and aligns well with seasonal electricity demand, which is higher in the hotter summer months when Paraguayans use air conditioning. However, while solar potential is strongest in the daytime, while electricity demand is highest in the evening and at night (Hu, Wu and Modi, 2021^[112]). The wind potential for Paraguay is classified as medium to high, with good locations for wind power in particular in Alto Paraguay and Boquerón. However, while seasonal solar potential is largely complementary with hydropower, this is not true for wind power. The cost of power generation from solar photovoltaic (PV) and onshore wind has decreased considerably over the last decades. There is also potential to scale up modern biomass in Paraguay using forest biomass from native forests and biogas from landfills in urban areas for energy production (IRENA, 2021^[111]).

Figure 3.24. Paraguay offers good potential for solar power generation

Average practical PV potential (in kWh/kWp), 2020



Source: Betak et al. (2020^[114]), *Global Photovoltaic Power Potential by Country*. Energy Sector Management Assistance Program (ESMAP) Washington, DC, <http://documents.worldbank.org/curated/en/466331592817725242/Global-Photovoltaic-Power-Potential-by-Country>.

Despite Paraguay's promising potential for solar and wind energy, they are largely absent from the country's energy mix. Paraguay's existing installed wind and solar capacity consists mainly of isolated small-scale systems and pilot projects in remote locations such as a solar PV system for 35 Indigenous people's centres in Chaco (20 kW), a wind and solar plant at the Joel Estigarribia military base (40 kW solar and 5 kW wind), a solar PV plant at the Mayor Pablo Lagerenza military base in Chaco (40 kW) and wind turbines for research purposes at the Wind Turbine Engineering Faculty of the National University of Asunción (FIUNA) (15 kW) (Hu, Wu and Modi, 2021^[112]). Another solar plant was inaugurated in Limpio in 2022 thanks to the investment of a Paraguayan-Spanish private firm.

Paraguay requires additional storage capacity to increase the share of intermittent renewables in its energy mix and to respond to increasing peak demand for electricity. Solar power would need to be combined with substantial energy storage, since daily electricity demand does not align with solar

peaks. As energy demand continues increasing in Paraguay, future electricity shortages will occur first during peak demand hours. “Hydropeaking” – adding a few hours of storage capacity to existing hydropower stations – would increase the amount of electricity available during peak hours. The most cost-effective storage option for solar power would be high cooling efficiency electric chillers with “iced storage” in the residential sector, an emerging technology. Projections indicate that solar power combined with iced storage would be cheaper than building new hydropower plants. Conversely, battery storage remains expensive, and projections indicate that at current prices, building new hydropower plants combined with daily based hydro-storage for hydropeaking would be cheaper than investing in solar power combined with batteries (Hu, Wu and Modi, 2021^[112]).

Paraguay recently improved the regulatory and incentive framework for renewable energies other than hydropower. Paraguay’s legal framework includes provisions for generation and transmission of electricity for self-consumption. Law 3 009, approved in 2006, creates a legal framework for independent power producers for self-consumption or exports. Private and public independent power producers with a capacity of less than 2 MW can apply for a license, concessions for co-generation and self-generation projects, and shared/risk contracts for power generation from hydropower plants larger than 2 MW (IRENA, 2021^[111]). In 2022, Paraguay adopted a new law that improves the legal framework and provides tax incentives for renewables other than hydropower. The law includes provisions for renewable self-producers, independent power producers, co-generators and exporters. Renewable self-consumers with a generation capacity below 1 MW do not require a license and the law establishes a net-metering scheme for renewable self-consumers. In the context of this net-metering scheme, self-consumers can inject up to 1 MW into the electricity grid. Quantities above 1 MW can only be injected into the national grid if there is sufficient demand for electricity. The law further establishes tax incentives for producers of renewable equipment and independent power producers buying and importing renewable equipment, as well as construction standards for large buildings, to facilitate the installation of renewable equipment for water heating and lighting (Honorable Cámara de Senadores, 2021^[115]; Honorable Cámara de Diputados, 2022^[116]). In July 2021, the first two licences for private power generation from renewables were approved, one for self-generation with solar PV and one for co-generation with biomass (IRENA, 2021^[111]).

Further improvement of the regulatory and incentive framework is important for Paraguay’s energy sector. At present, ANDE, a state-owned company, controls electricity generation, transmission and distribution in Paraguay, and exercises certain regulatory functions. However, Paraguay lacks an independent regulator for the electricity sector. Furthermore, planning responsibilities for the energy sector are scattered among different institutions (IRENA, 2021^[111]). Paraguay could also accelerate investment in intermittent renewables by independent power producers through the introduction of additional incentives such as feed-in premia combined with renewable auctions.

Paraguay needs a comprehensive renewable energy strategy and targets. The country’s National Development Plan 2014-3030 includes a target of 60% of renewable energy consumption by 2030. Paraguay further aims to reduce the share of fossil fuels in final energy consumption by 20% before 2030 (IEA, 2016^[117]). In addition, the country’s Nationally Determined Contribution (NDC) includes a 20% reduction in greenhouse gas (GHG) emissions by 2030 as compared to business as usual, 10% conditioned to international support (MADES, 2021^[118]). Paraguay also has a long-term National Energy Policy for 2016-40, the main objectives of which are to ensure energy security and access to a quality energy supply for the population and to consolidate the country’s strategic position in the region (Presidencia de la República del Paraguay/MOPC, 2017^[119]). Paraguay’s Sustainable Energy Agenda 2019-2023 promotes a transition to sustainable mobility, and in 2020, the Mobility Board was created to assess and define electricity rates for charging vehicles (IRENA, 2021^[111]; MOPC, 2019^[120]). However, Paraguay requires a more comprehensive national energy plan with comprehensive decarbonisation strategies and targets for all end-use sectors, including power, transport, industry and buildings. The country also needs to conduct a comprehensive assessment of its renewable energy resources (IRENA, 2021^[111]).

There is room to reduce Paraguay's energy demand, including peak demand, through energy efficiency improvements. At present, energy efficiency measures targeted at households and companies are virtually absent, while the use of fuelwood for cooking is still widespread, as is the use of traditional biomass by industry. Peak demand for electricity is mostly residential, and its growth is driven by inefficient air conditioning consumption, in particular in the Asunción metropolitan area (CCSI/CRECE, 2021^[113]). While cooling accounts for only 16.8% of total electricity consumed in Paraguay, in summer, the peak cooling load reaches 46% of peak load in Paraguay (Hu, Wu and Modi, 2021^[112]). Possible energy efficiency measures which could be introduced include district cooling systems, energy efficiency standards for electrical devices and, most importantly, air conditioning, building retrofits, upgrading metering systems for larger buildings and incentives to buy energy efficient equipment. In addition, demand response programmes and time-of-day tariffs for large customers could reduce electricity demand during peak hours. Furthermore, a strategy to subsidize and disseminate modern, efficient electrical devices could reduce the use of fuelwood and other types of traditional biomass in Paraguay. In order to develop and implement a comprehensive strategy for energy efficiency improvements, the country could create a dedicated institution for energy efficiency, which would work across different government institutions, the private sector and other stakeholders involved (Hu, Wu and Modi, 2021^[112]). An energy efficiency law could further make energy efficiency improvements mandatory. Paraguay already has a National Energy Efficiency Committee, in place since 2011, that includes representatives from different public and private institutions and academia, and adopted its first Energy Efficiency Plan in 2014 (IRENA, 2021^[111]).

Expanding and upgrading Paraguay's transmission and distribution infrastructure would be an important step forward. Rapid growth in demand for electricity has rendered Paraguay's transmission and distribution system unfit for purpose, resulting in line overload and frequent power cuts (Hu, Wu and Modi, 2021^[112]).⁵ Paraguay's high-voltage transmission lines remain insufficient to meet rising demand despite investment in two critical 500 kV lines in the past eight years (Itaipú–Villa Hayes and Yacuyretá–Villa Hayes) (CCSI/CRECE, 2021^[113]). Furthermore, Paraguay's transmission and distribution losses are among the highest in Latin America, amounting to 23% of internal supply in 2020 compared to 13.8% on average in Latin America, with distribution losses accounting for approximately 80% of total losses (IRENA, 2021^[111]; ECLAC, 2024^[77]). With projections indicating continued rapid growth in demand for electricity in Paraguay, insufficiencies are likely to be further exacerbated without considerable investment to expand and upgrade the country's transmission and distribution system – investment that is also required to reduce electricity losses.

Notes

¹ See SET (2022), “La administración tributaria en tiempos de pandemia”, *Medidas implementadas Julio 2020 a Diciembre 2021*, for a more comprehensive review of tax measures implemented.

² www.lanacion.com.py/negocios/2022/09/23/estudiantes-fueron-capacitados-sobre-servicios-online-para-la-apertura-de-empresas and www.ip.gov.py/ip/gobierno-celebra-creacion-de-1-000-empresas-bajo-personeria-simplificada-y-gratuita.

³ Official statistics only measure informal employment as a share of non-agricultural employment. According to the INE, 64.2% of non-agricultural employment was informal in Paraguay in 2021 (INE, 2023^[121]).

⁴ The 2020 update of parameters for micro-, small and medium enterprises establishes that their annual turnover should amount to up to PYG 646 million, PYG 3.2 billion and PYG 7.7 billion, respectively (see Decree No. 3698 of 2020).

⁵ According to ANDE's annual reports, the power-weighted frequency of interruptions in 2022 was 19.9 interruptions per installed kVA, with an average interrupted duration of 32.2 hours. This is in the high range relative to Latin American countries for which reported data give the number of interruptions as Argentina (7), Brazil (14), Perú (28) and Uruguay (6). As a benchmark, 58% of European countries reporting to the Council of European Energy Regulators reported less than 3 interruptions (customer-weighted) (Levy and Carrasco, 2020^[122]).

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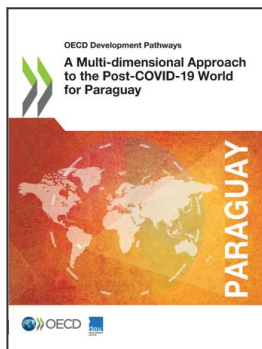
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