

Chapter 2

Towards shared prosperity in Paraguay

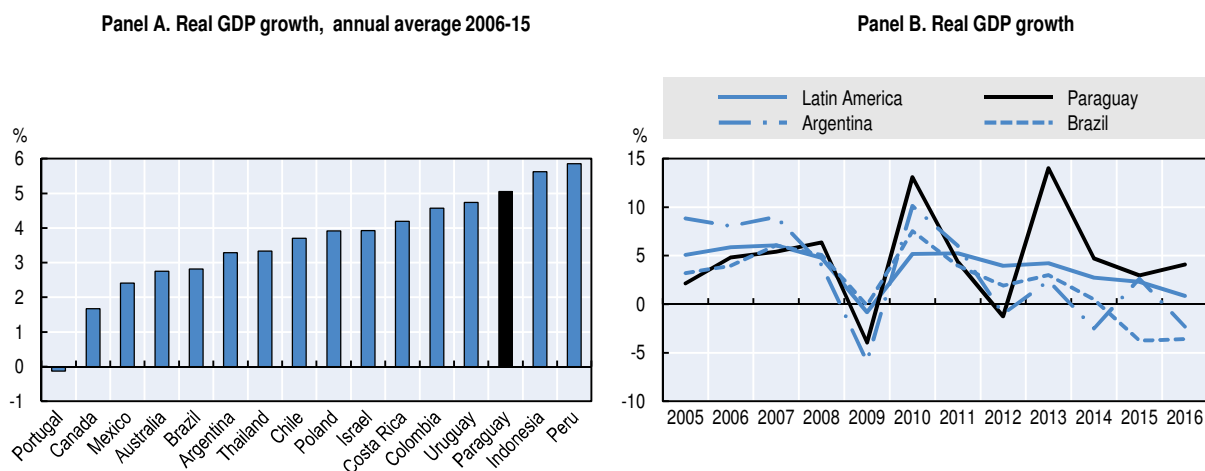
This chapter first analyses Paraguay's macroeconomic performance, looking into the drivers of recent economic growth as well as recent developments in economic and trade diversification. Second, the inflation-targeting regime and the fiscal framework are discussed. Third, the chapter examines the levels of both capital and public investment, discussing some of the main challenges regarding budget management and execution, particularly for infrastructure investment projects and as investment contribution to growth. Finally, it looks into remaining challenges faced by Paraguay to further boost productivity and competition such as innovation, skills mismatch, infrastructure and the institutional framework.

Paraguay's macroeconomic performance has been robust but is highly dependent on a few agricultural products and trading partners

Growth remains strong but volatile because of the high reliance on agriculture and trade

The Paraguayan economy has remained among the strongest-growing economies in the region but with significant volatility (Figure 2.1). Between 2006 and 2015, Paraguay's gross domestic product (GDP) grew at an annual average of 5.1%, mainly supported by solid external trade and favourable commodity prices. GDP growth has slowed in the last few years (2014-15) in part because of a decline in commodity prices. More recently in a context of economic downturn for both the region and the main trading partners (Argentina and Brazil), Paraguay registered high growth rates, as GDP increased by 4.0% in 2016 (including binationals), explained largely by exports and investment, while consumption remained sluggish (Figure 2.2). Growth volatility is mainly the result of its heavy reliance on agriculture and livestock production as well as electricity generation, which are the leading economic activities, representing around 60% of all Paraguayan exports in 2016.

Figure 2.1. Paraguay's economic growth remains strong relative to benchmark countries



Note: Panel A: Purchasing power parity (PPP), constant 2011 international USD.

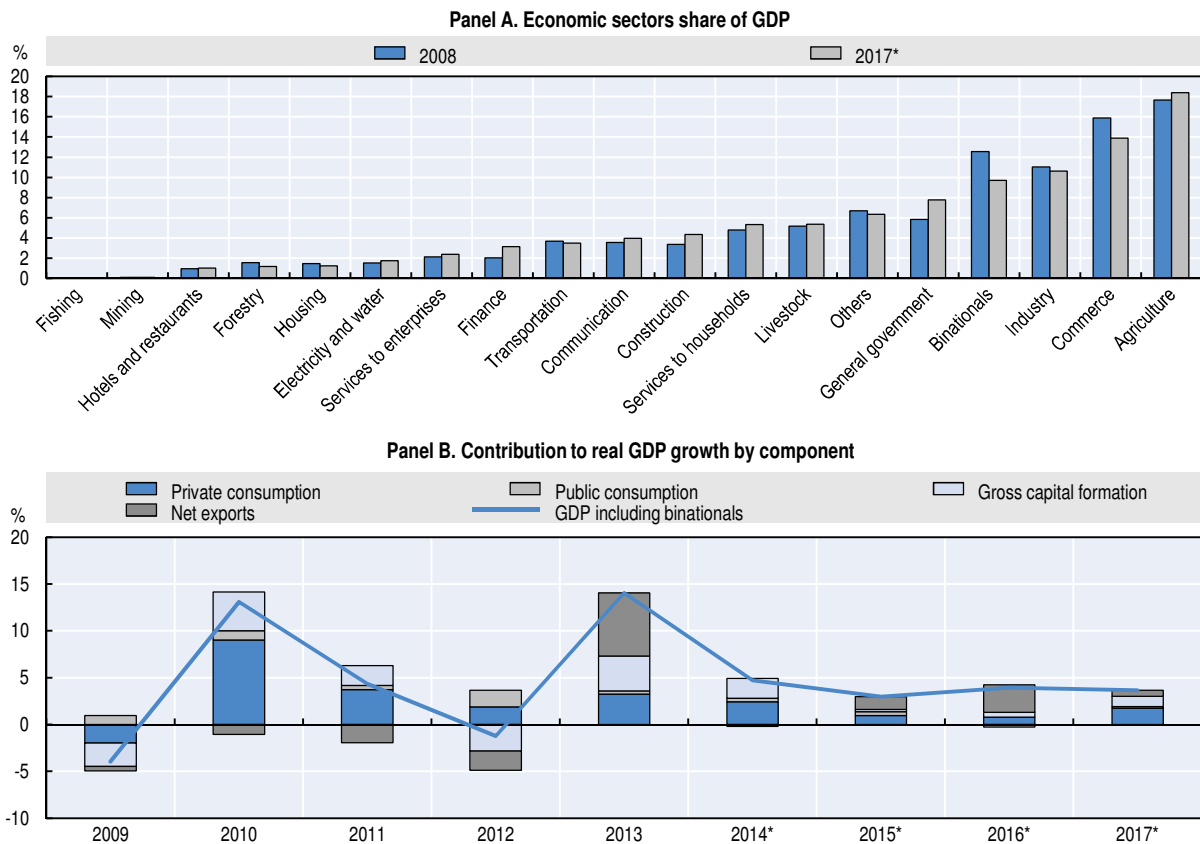
Source: Panel A: World Bank (2017a), World Development Indicators Database (database), Washington DC, <http://data.worldbank.org>. Panel B: International Monetary Fund (2017), World Economic Outlook (database), <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/index.aspx>.

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Reliance on agriculture and few export products to drive growth exposes the economy to weather and commodity price shocks as well as regional spillovers. The agricultural sector accounted for around 18.7% of GDP in 2016 (trade accounted for 14.3% and industry

for 10.7%). Paraguay's exports are concentrated in a few products (soybeans, beef meat, electricity) and a few export destinations (Brazil with about 35% of exports, the European Union (EU) with about 14%, Asia 12%, Argentina 10% and Russia 8%) (Figure 2.3). The current account is estimated to have recorded a surplus of around 1.7% of GDP in 2016 given a strong improvement in the trade balance, caused in part by an increase in re-exports and contraction of imports (BCP, 2016).

Figure 2.2. **Economic growth is highly dependent on agriculture and trade**

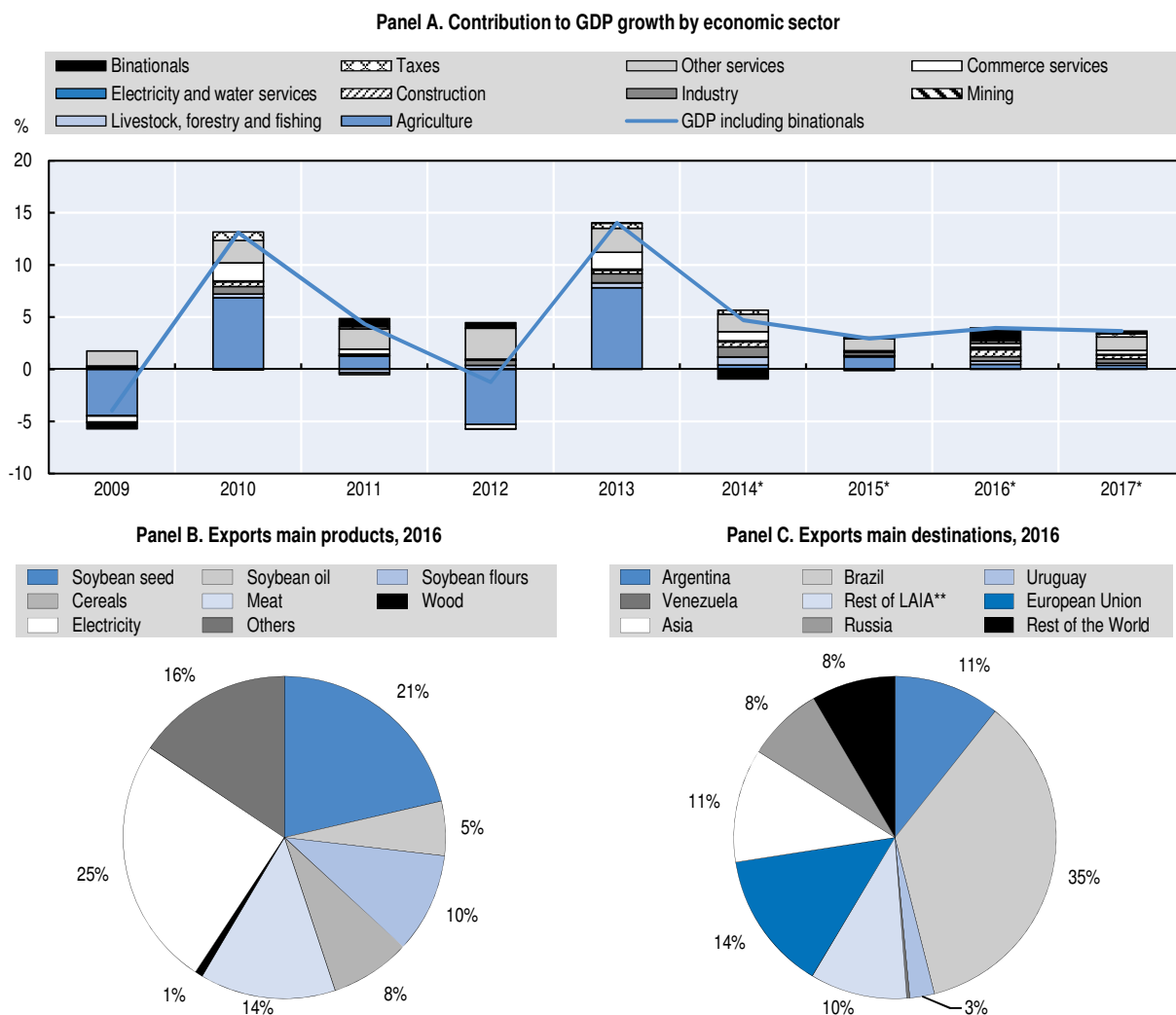


Note: * Preliminary figures.

Source: Central Bank of Paraguay (2017), <https://www.bcp.gov.py/>.

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Sectoral growth patterns in recent years show that diversification is contributing to greater resilience in aggregate performance. At 4.8% in compound annual terms, real GDP growth was comparable in 2007-11 and 2011-16. Agriculture grew 7.4% in the former period, but only 4.7% in the latter,¹ although given its large contribution to GDP, it remained the sector with the largest contribution to growth. Faster growth in manufacturing (which grew at 6.1% compared to 1.4% in the first period) contributed to stabilising total growth and to increasing productive diversification. During the period 2011-16, a number of sectors grew more rapidly than agriculture thereby increasing diversification, including livestock (6.9%), construction (8.9%) and financial services (8.6%).

Figure 2.3. **Economic and exports diversification remains low**

Note: * Preliminary figures. Panel C: **Rest of LAIA is Latin American Integration Association.

Source: Central Bank of Paraguay (2017), <https://www.bcp.gov.py/>.

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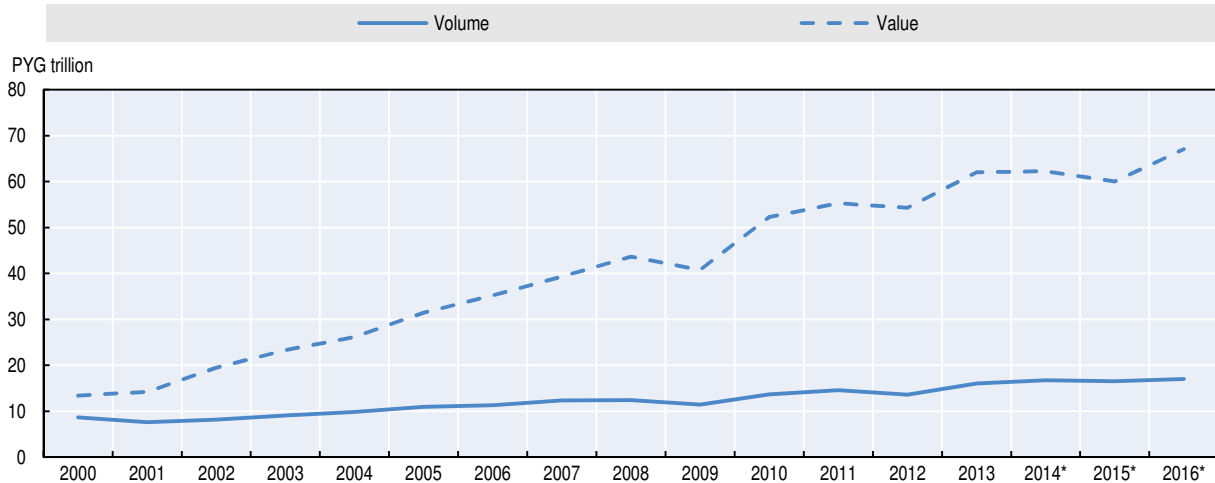
Exports are concentrated in primary products but sophistication is slowly increasing

Exports are concentrated in primary agricultural products and processed agricultural products. Oilseeds, vegetable oils and meat products together account for over two thirds of Paraguay's exports. In 2014, soybeans and their derivatives accounted for over 40% of the country's exports. Bovine meat accounted for approximately 14%, while other grains such as maize and rice accounted for 6% (Center for International Development at Harvard University, 2017). In 2016, soybeans and their derivatives accounted for 37% of the country's exports. Beef meat accounted for approximately 14%, while cereals such as maize and rice accounted for 8% (BCP, 2017).

The concentration has increased since 2000 due to trends in prices, which also drove the rapid increase in total exports. However, in 2015, international and regional events reversed this trend. Between 2000 and 2016 the value of exports increased more than their volume, which suggests that growth in exports in this period was mainly due to the increased prices of its main commodities (Figure 2.4 and Figure 2.5). Total goods exports fell by 16% in 2015. The fall can be explained by the decline of three of Paraguay's main exports: oilseeds

accounted for approximately 62% of the fall, vegetable oils for 4%, and meat products for 14%. Taken together, these products accounted for 52% of the country's total exports (without electricity) in 2015 (OBEI, 2016).

Figure 2.4. **Paraguay's exports increased more in value than in volume**

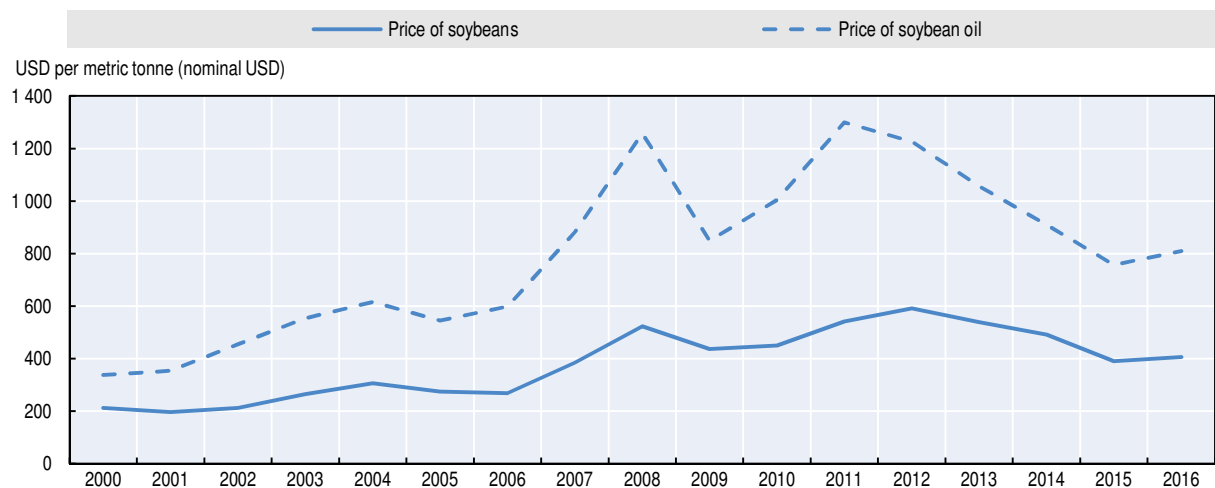


Note: * Preliminary figures.


Source: BCP (2017), <https://www.bcp.gov.py/>.

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Figure 2.5. **Prices for some of Paraguay's main commodities have increased**



Source: World Bank (2017b), Commodity Price Data (database), <http://data.worldbank.org>.

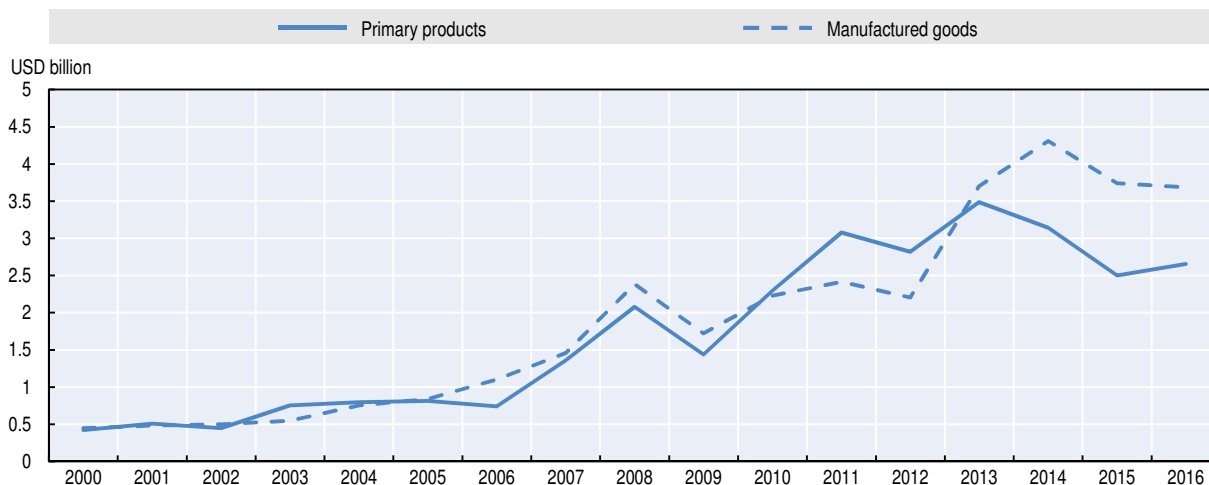
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Moreover, 60% of total exports value was concentrated in the top 1% of exporting firms in 2016. This concentration of exports among a few firms is consistent with an increasing trend in exports that parallels a decreasing trend in the number of exporting firms (CEPAL, 2016). Moreover, the export concentration is more marked in specific sectors. Since the beginning of the 2000s, exports of primary products and manufacturing outputs have been increasing at similar rates (Figure 2.6).

In terms of its trading partners, the number of Paraguay's export destination countries remains limited, yet some diversification is observed (Figure 2.7). Asian economies have gained weight in Paraguay's exports, as have European markets and the Pacific Alliance countries.

Within Asian economies, Paraguay's main recipients of exports are: Bangladesh, India, Israel, Korea, Thailand and Viet Nam, which jointly accounted for 76% of exports to Asia in 2016.

Figure 2.6. **The value of exports of primary commodities and manufactured goods has increased at a similar rate**

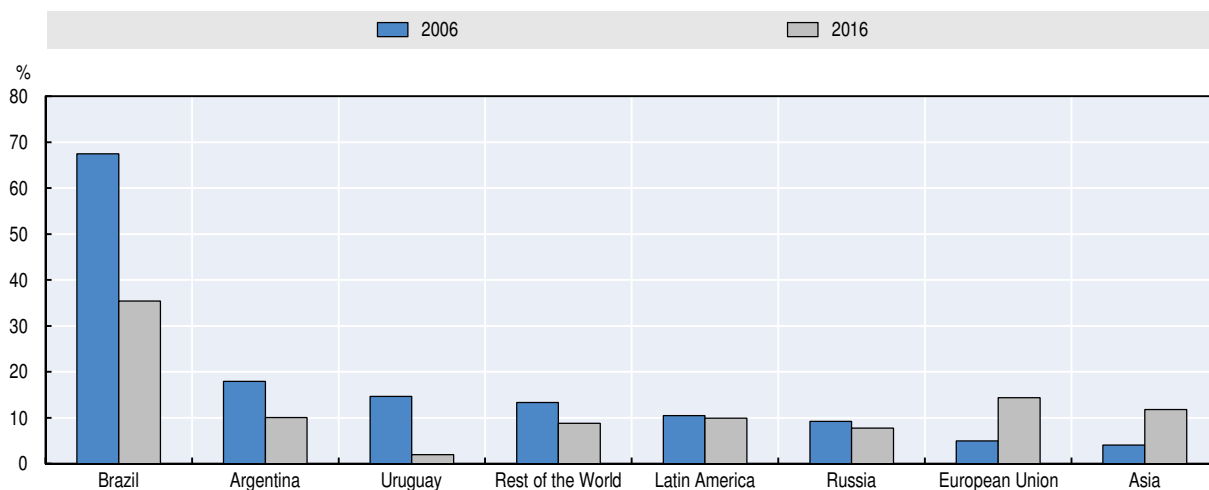


Source: Central Bank of Paraguay (2017), <https://www.bcp.gov.py/>.

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Figure 2.7. **Diversification is observed in export destination countries**

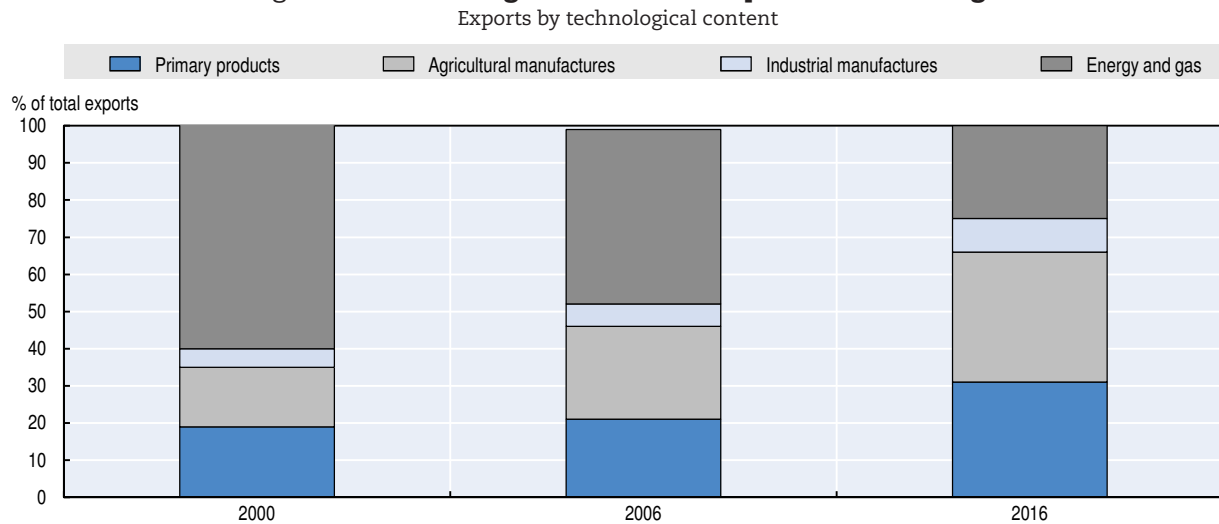
Exports by trading partners



Source: Central Bank of Paraguay (2017), <https://www.bcp.gov.py/>.

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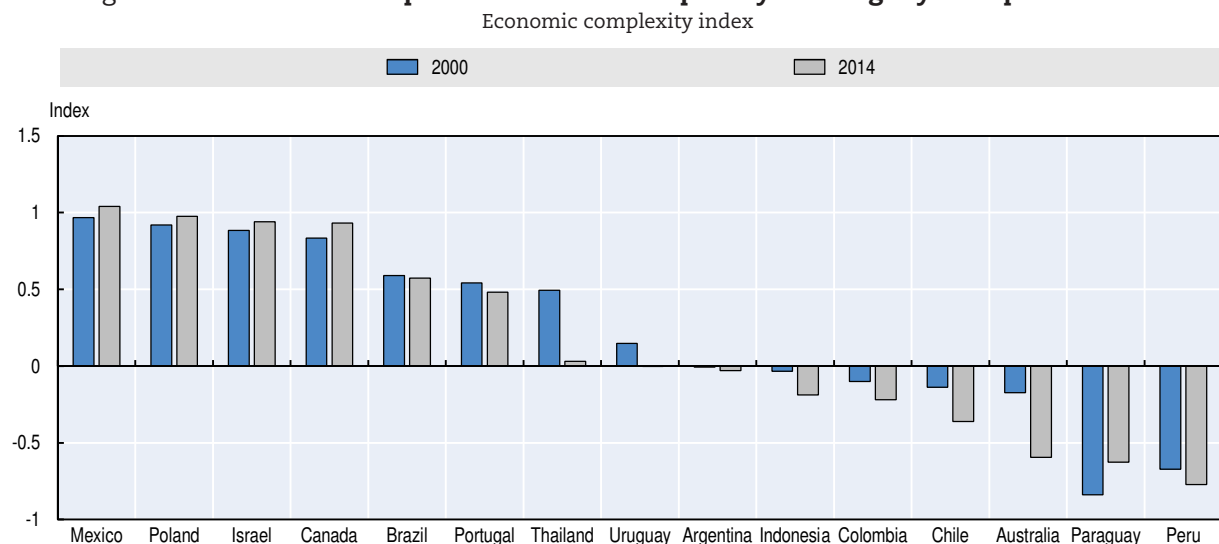
In 2016 Asian economies accounted for over 11% of Paraguayan exports, and the EU for approximately 14%. Overall, Paraguay exports less today to its South American neighbours than previously and has been increasingly redirecting its exports out of the Mercosur block and into Asian and new European trading partners. China's demand for agricultural and food products, including meat, is likely to increase considerably in the next few years (OECD/CAF/ECLAC, 2015). In particular, China's beef consumption is expected to grow by between 10% and 20% over the next decade, offering new opportunities for exporters such as Paraguay. Taking advantage of some of these possible opportunities would contribute to strengthening the already increasing trend in the value of low and medium technological content such as primary products and agricultural manufactures (Figure 2.8).

Figure 2.8. **Technological content in exports is increasing**

Source: Central Bank of Paraguay (2017), <https://www.bcp.gov.py/>.

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The level of sophistication and complexity of Paraguayan exports is low. In 2015, Paraguay was ranked as 91st in terms of economic complexity, out of 141 countries, defined as a measure of the knowledge in a society that gets translated into the products it makes. A country is considered “complex” if it exports not only highly complex products, but also a large number of different products (AEC, 2017). The country-level economic complexity is measured through the Economic Complexity Index (ECI). Although between 2000 and 2014, there was a positive change in Paraguay’s Economic Complexity Index (ECI), the country’s index remains negative, with an ECI of -0.51 (Figure 2.9). Moreover, when compared to other countries in the region and countries with a similar economic structure, such as Brazil, Colombia, and Argentina, Paraguay ranks as one of the last in terms of the ECI.

Figure 2.9. **The level of sophistication and complexity of Paraguayan exports is low**

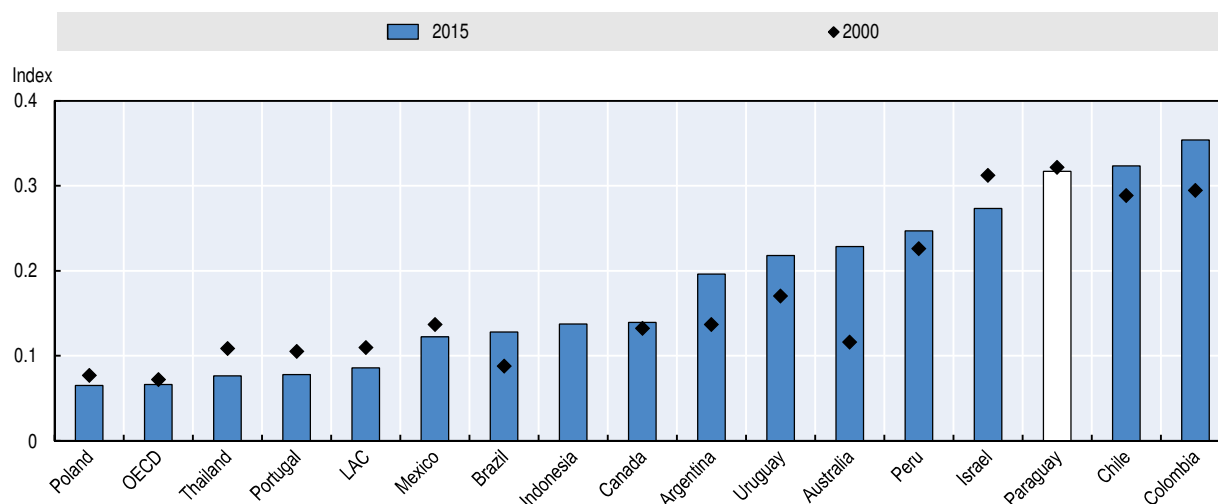
Source: Center for International Development at Harvard University (2017), <http://www.atlas.cid.harvard.edu>.

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The country's low economic complexity rank is partly explained by its reliance on primary products. Primary products with low levels of sophistication accounted for roughly 54% of Paraguay's total exports in 2016. As an example, in the case of soybeans, the country's largest export crop, over 60% is exported as grain, while less than 40% is industrially treated prior to its commercialisation (BCP, 2017). Both raw primary products and manufactured outputs have increased their share of exports over the past decades. Nonetheless, it is important to acknowledge that in 2016, energy accounted for over 25% of Paraguay's exports. During this year, the country exported approximately 75% of its total energy production, making Paraguay a significant regional exporter of clean and renewable energy. Increasing investment from hydroelectric companies may pave the way for the country to expand its involvement in exports of higher complexity, while moving away from primary products.

Figure 2.10. **Paraguay's exports are concentrated**

Concentration index, 2000-15



Note: The concentration index, also referred to as Herfindahl-Hirschmann Index (HHI), is a measure of concentration of exports. Values range between 0 and 1; a value of 1 suggests that a specific country's exports and imports are highly concentrated in a few products. On the contrary, a value of 0 means that a country's exports and imports are highly diversified and relying on many different products.

Source: UNCTAD (2017), UnctadStat (database), <http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx>.

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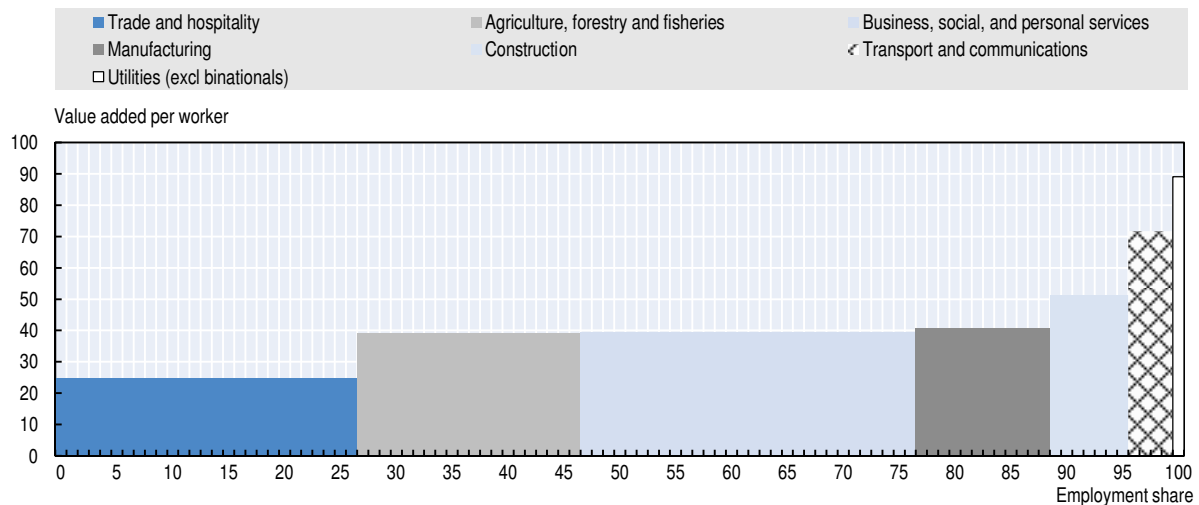
Structural transformation is progressing, but is not the main driver of productivity growth

While Paraguay's sector composition of GDP has remained relatively stable over the past decades, the contribution of the primary sector to the economy remains important. Whereas during the 1970s the average contribution of the primary sector (including agriculture, livestock, forestry and fishing industries) to the economy was 22%, a similar average annual contribution was registered during the 1980s (19%), 1990s (19%) and 2000s (22%). Between 2010 and 2015, the contribution from the primary sector dropped in current prices from 20.5% at the beginning of the decade, to 17.5% in 2015, a phenomenon partially explained by the fall in commodity prices. While the average participation has been stable, during specific years (2007, 2010 and 2013), when Paraguay's annual GDP growth reached 11%, the contribution of the primary sector was above 50%. The agro-industry sector represents around 40% of Paraguayan exports, but it has also shown signs of dynamism towards other sectors, with a contribution to the tertiary sector, in particular transport, commerce and financial services (CADEP, 2014a). This explains why fluctuations in the agricultural sector (due to climatic changes) can go beyond the

primary sector and impact on other parts of the economy. Employment shifts from agriculture towards manufacturing, construction and services have been substantial. Paraguay's share of employment in agriculture and related activities remains large, accounting for nearly one-fourth of the labour force (from 24% of the labour force to 20% in 2015). Manufacturing employs a smaller share (nearly 12%, excluding electricity generation), whereas the services sector employs between 50% and 60% of the labour force, including commerce, tourism, business, social and personal services, transportation and communication. In terms of output, the contributions of agriculture and related sectors in 2015 (20%), manufacturing (13%) and services (altogether, 53%) are comparable to their employment share.

Structural transformation has the potential to increase productivity growth in Paraguay. The distribution of the workforce according to the labour productivity of broad industrial groups shows that there are significant productivity gains to be realised through labour reallocations from less to more productive sectors. Labour productivity in the sector where it is lowest, trade and hospitality services, is only 60% of the average, and the sector employed 27% of the workforce in 2015. Relative productivity across sectors also shows two particularities of the Paraguayan economy. The first is the high productivity of agriculture: labour productivity in agriculture is only 5% below average productivity. The second is the high labour productivity of the utilities sector, driven by the reliance of the country of hydropower. The data in Figure 2.11 do not include revenues from the binational dams in the value added of utilities. If it were included, productivity in the utilities sector would be 16 times the country average. The analysis on the basis of sector-level data is limited by the level of detail available in labour statistics. For example, Figure 2.11 bundles personal and business services or all sectors in manufacturing, whose productivity levels are very different. More importantly, it considers the agricultural sector as a whole, while there exist large productivity and yield gaps between mechanised agriculture and smallholder production.

Figure 2.11. **Productivity and the distribution of labour in Paraguay, 2015**



Source: Authors' calculations, based on Central Bank of Paraguay (2017), <https://www.bcp.gov.py/> and General Directorate of Statistics, Surveys and Censuses (DGEEC) data.

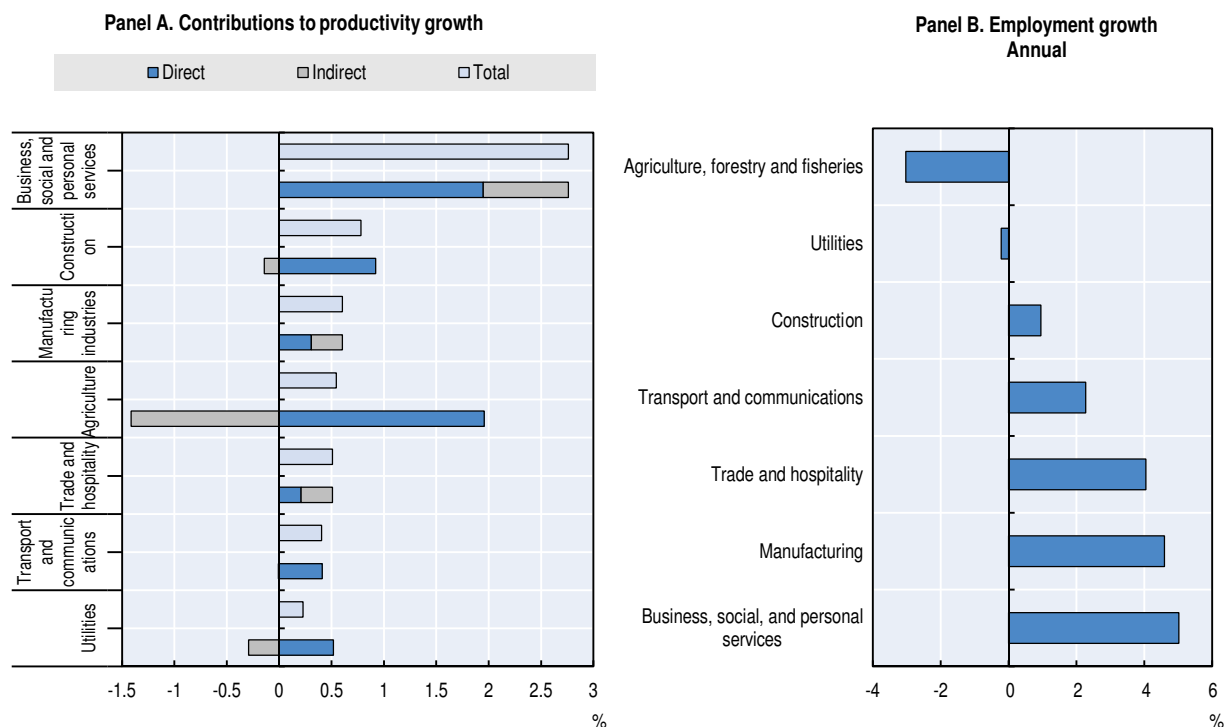
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Labour reallocation in Paraguay has been mostly from agriculture-related sectors to the rest of the economy (Figure 2.12). Job creation in Paraguay between 2010 and 2015 has been notable, even with the country's high levels of labour force participation and low

unemployment rates. The average annual employment growth for the whole economy of 1.8% hides some interesting dynamics at the sectoral level. Whereas the primary sector experienced an average annual 3% slowdown over the period, the manufacturing industry experienced a major increase in employment of 3.9%. This increase can be partially explained by the investment attraction policy implemented in recent years. Services sectors have also experienced an increase in employment ranging from 0.8% (on average) for construction, to 3.3% for commerce and tourism and 5.0% for business, social and personal services. Differences in overall labour productivity levels per sector are moderate, with business and personal services leading, followed by manufacturing and construction then by agriculture and related services. In contrast to other economies, labour productivity in the agriculture sector remains substantial in Paraguay, even in a context of decreasing yields of the agriculture sector. Therefore, the shift of a share of the agricultural labour force towards other sectors does not have a large positive impact on overall labour productivity, because part of that reallocation is towards less productive sectors.

Figure 2.12. **Productivity increases are led by within-sector growth rather than by labour reallocation**

In percentage, 2010-15



Note: In Panel A, overall productivity growth is decomposed into a within-industry effect (direct), measuring the average yearly growth of output per employed person; and a between-industry effect (indirect) measuring compositional shifts in sectoral shares of employment and relative price changes, as in Diewert (2014).

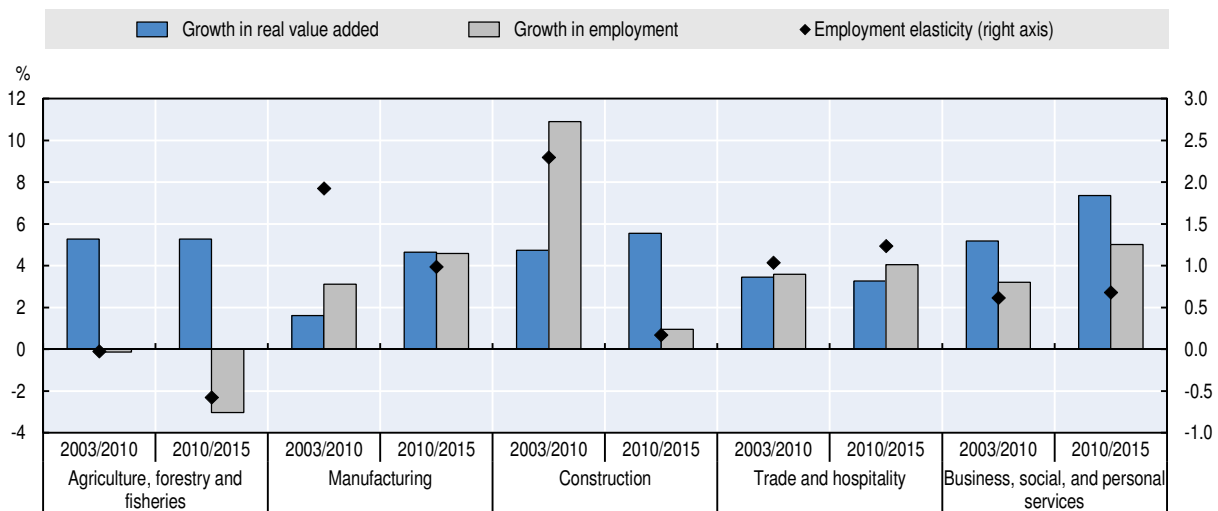
Source: Authors' calculations, based on Central Bank of Paraguay (2017), <https://www.bcp.gov.py/> and General Directorate of Statistics, Surveys and Censuses (DGEEC) data.

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Productivity gains in all major sectors in the past 5 years have been achieved with falling labour elasticities. Figure 2.13 shows the growth in value added and in employment across the sectors with the largest employment shares in the economy. A positive employment elasticity of growth indicates that increased output is associated with increased employment, unlike the case of the agriculture sector, where it has been accompanied by falling employment.

An elasticity lower than 1 indicates that output is growing more quickly than employment, signifying both increases in productivity and in employment. While manufacturing and construction were associated with large gains in employment during the past decade, elasticities have fallen below 1 since 2010 – in the case of construction, much below 1. The trend in the trade and restaurant sector, where elasticity is above 1 and growing is a call to attention. Since this is the sector with the lowest productivity in the economy, and its employment share is growing, a further fall in productivity is a cause for concern. This is in contrast to the rest of the services sector, where fast employment growth is accompanied by steady productivity growth. Fostering labour reallocation towards more productive services is therefore an avenue to increase overall productivity in the economy.

Figure 2.13. **Employment elasticity across selected sectors in Paraguay (2003-15)**



Note: Growth rates are compound annual growth rates for real value added (in 1994 constant prices) and employment by sector. The elasticities are calculated as the ratio of compound annualised growth rates (CAGR) for the two series.

Source: Author calculations based on BCP (2017) and EPH (DGEEC, 2017).

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The agriculture, livestock and forestry sectors in Paraguay account for nearly a quarter the country's GDP and more than 40% of its exports. The Paraguayan economy is highly dependent on the sector, with agriculture accounting for 17% of its GDP between 2008 and 2016, and livestock and forestry 5% and 1%, respectively (BCP, 2017). Still, this large share hides considerable differences between large, commercially-oriented producers and subsistence producers. According to the 2008 agricultural census, Paraguay accounted more than 250 000 family farms, 17% concentrated in the areas of San Pedro, Caaguazú (15%), Itapúa (12%), Paraguari (9%) and Caazapá (8%). Data on productivity by farm size is not available for recent years. However, the yield differential between small and large farms in the 2008 Agricultural Census suggests that, overall, large farms are more productive (CADEP, 2014b). Commercial agriculture has also moved away from less-profitable products in international markets today, such as cotton and sesame, towards soy, maize and wheat. In contrast, products like cassava, beans, white maize, cotton, sesame, fruits and vegetables, constitute the main farming crops in family agriculture and key staples within households' consumption baskets.

Providing proper support to family agriculture could improve living conditions of the rural population. While services in the agriculture sector are not particularly developed in Paraguay, other forms of support have been introduced, in line with Paraguay's National

Development Plan (section 2.26). The Ministry of Agriculture co-ordinates three main lines of action directed at family agriculture: first, employing direct-seeding systems for crops used for self-consumption, specifying minimum coverage and using coverage for the conservation of minerals and soil biomass; second, rotating crops to avoid the propagation of diseases and plagues, and to replace nutrients in the soil; third, using a silvo-pastoral system for cattle, which combines forestry and grazing of animals to enhance soil protection while guaranteeing a long-term income for cattle-dependent households. All three initiatives, while still modest in coverage, aim at promoting a more sustainable approach to agricultural practices. In recent years other forms of support to family agriculture have been introduced, in the form of promotion activities and market creation. The creation of a “quality seal” for family agriculture products is one of the innovations in the sector. Also, through public procurement, the government is trying to create demand for agricultural products, for example to supply schools. Some specific products in the agro-business sector are being developed. One example of this is stevia, a sweetener, which is traded to China and Malaysia. Organic sesame production has also gained traction recently thanks to demand from Japan, and there could be an opportunity to develop a competitive value chain in the sector.

Developing the service sectors within the agricultural chain is an area where Paraguay could focus in the future. While the provision of services in some areas of agriculture and livestock are consolidated in the most dynamic sectors (for example distribution for the meat industry or research and development [R&D] for the soybean sector), other sectors lack a proper services supply in areas such as logistics, transport, distribution, marketing and R&D. More investment is needed in technical services for agricultural value chains. In addition to services, mechanisms to reduce the volatility of the agriculture sector are lacking. The transfer of agro-climatic risks among small agriculture producers is a recent area of intervention of the Ministry of Agriculture, which assumes the production risk of vulnerable agriculture-dependent families (also guaranteeing some fiscal predictability).

Paraguay’s industrial sector has gained dynamism in recent years. While traditionally, the country’s industrial development was limited to the processing of primary products from the agricultural and forestry industries, more recently the metal-mechanics, auto parts and pharmaceutical sectors have gained prominence. Electricity generation remains the most important contributor to the country’s GDP in the industry sector. However, in recent years, sectors such as clothing, footwear, auto parts, electrical appliances and chemical products have resurged, thanks to Paraguay’s competitive advantages, which include low labour costs (20% lower than its neighbour Brazil), access to low-cost and clean electricity, and a favourable tax regime for companies. The maquila regime and a more solid investment promotion strategy have also been critical in explaining the expansion of the manufacturing sector. The government has made efforts to diversify domestic production and develop the manufacturing and services sectors, mainly by promoting added value in primary goods, by introducing investment attraction instruments and by developing an infrastructure plan. Initiatives for the internationalisation of firms, such as those managed by REDIEX, have aimed at supporting strategic sectors in manufacturing and logistics services (see Chapter 6).

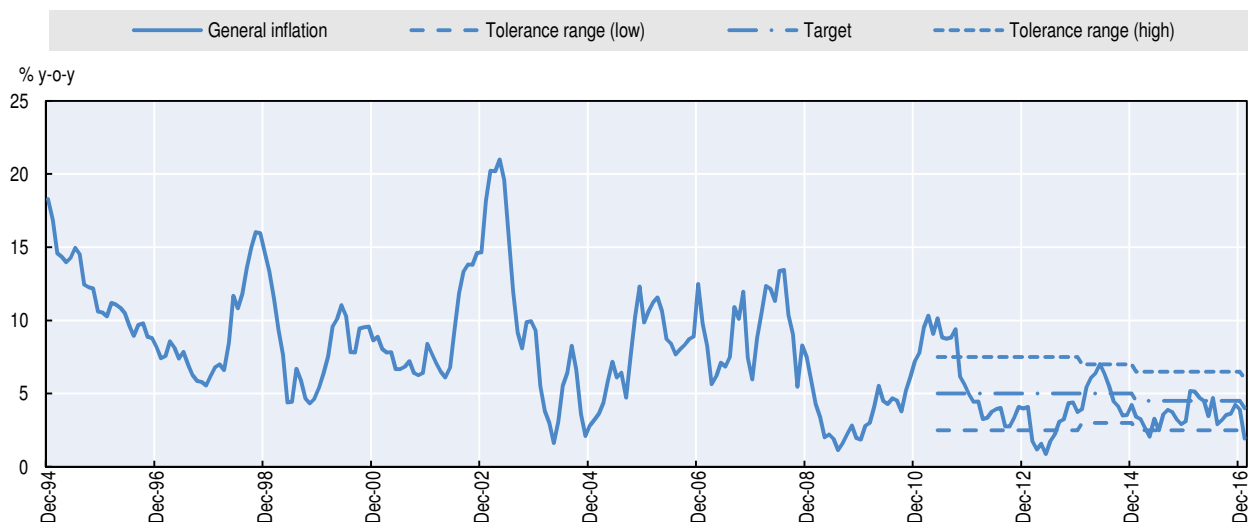
The development of tourism is another opportunity for Paraguay to consolidate a diversification strategy. Both foreign and domestic tourism flows have increased in recent years, particularly in the area of ecological tourism. The core of international tourism in Paraguay comes from Mercosur neighbours Argentina and Brazil, with 848 000 and 190 000 registered visitors in 2015 from a total of 1 214 000 visitors, which represents an impressive increase with respect to previous years. The number of Argentinian visitors has almost

quadrupled since 2010. The rest of visitors come mainly from the Americas (Bolivia, United States, Uruguay), and Europe (Germany, France, Spain). The emergence of tourism as a promising sector is also the result of the national plan for the development of tourism (*Plan Maestro de Desarrollo Turístico*), which covers several strategic areas. The *posadas turísticas* (tourist guesthouses) programme aims at empowering local communities to develop domestic tourism. Ecotourism (*turismo de naturaleza*) has gained ground in recent years. Other forms of tourism, such as religious tourism (the Jesuit Mission *Guaraní de la Santísima Trinidad* attracts 30 000 visitors per year) and conference-related tourism, have raised the profile of Paraguay in the region. The decentralisation of tourism-related activities remains an essential objective for the government in coming years. To this end an ambitious capacity building programme is being implemented with municipalities.

The inflation-targeting regime has helped to control inflation volatility

An implicit inflation-targeting regime since 2004 has helped to control inflation volatility. An explicit inflation target started in 2011 which together with the tolerance range have been adjusted downwards. The tolerance range was lowered from +/-2.5 percentage points (pp) to +/-2 pp in January 2014. In December 2014, the inflation target was shifted from 5% to 4.5% for the years 2015 and 2016. In February 2017, the inflation target was shifted from 4.5% to 4%, keeping the tolerance range at +/-2 pp. Inflation in 2016 averaged 3.9%, well within the Central Bank tolerance range, while inflation expectations are well anchored (Figure 2.14). The Central Bank expects headline and core inflation to remain within the tolerance range. The most relevant risk to this forecast remains future exchange rate developments, which could be partly affected by monetary policy decisions from the United States Federal Reserve, however monetary policy is expected to remain accommodative. After cutting the policy interest rate by 50 basis points in 2016 to 5.5%, rates are likely to remain on hold given that inflation and inflation expectations remain within the tolerance range while the international context remains uncertain.

Figure 2.14. **The inflation-targeting regime has helped to control inflation**



Source: Central Bank of Paraguay (2017), <https://www.bcp.gov.py/>.

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Excess liquidity in the interbank market could diminish the effectiveness of the monetary policy transmission channels. Paraguay's banks hold a high volume of excess reserves and there is less need for interbank transactions. Therefore, while interbank

market rates follow policy rates relatively well, they have little influence on banks' interest rates, making the monetary transmission channel weaker and limiting the effectiveness of monetary policy (IMF, 2016a). To support the monetary policy framework, efforts to develop the financial system and the interbank market should be strengthened and liquidity conditions carefully monitored.

Paraguay follows a flexible exchange rate policy with occasional interventions by the Central Bank. Interventions are of two types: regular pre-announced interventions (*operaciones compensatorias*) to sterilise government receipts (royalties, issued bonds) and exceptional interventions (*operaciones complementarias*) used in situations of volatility and exchange rate fluctuations that do not respond to market fundamentals. Limiting discretionary interventions only to extraordinary disorders in the markets with clear communication and intervention rules is crucial to reinforcing the inflation-targeting scheme.

Dollarisation of the economy has diminished in the last decades but is still high and has recently increased. Around 48.2% of credits are denominated in dollars as are 46.4% of the deposits in the banking system. Although there are no evident currency mismatch risks, close monitoring and supervision should be guaranteed and macro prudential tools could be used to reduce potential risks. Simulations of exchange rate depreciation shocks show that most banks appear able to withstand depreciation shocks of 10% to 25%; however, larger depreciations result in more notable decreases in capitalisation (IMF, 2016b).

The fiscal framework is sound but tax collection and capital investment should be improved

Tax collection is low mainly because of low tax rates, but efforts to fight evasion and informality should be strengthened

Paraguay's tax rates and revenues are low by regional standards and when compared with OECD economies. Total tax revenues, as a share of GDP, continue to be low and concentrated in indirect taxes. However, since 2000 tax revenues have increased by 5.4 percentage points of GDP, a rate higher than the growth of 4.9% of GDP in Latin America during the same period. In spite of recent improvements, tax-to-GDP ratios continue to be low, 17.9% of GDP in 2015 (including social security contributions), compared with Latin America and OECD averages of 22.8% and 34.3% respectively. Paraguay's main sources of total revenue are taxes on the consumption of goods and services (mainly value added tax [VAT], excise taxes and taxes on foreign trade), and social security contributions. These groups of taxes and contributions represent 83% of total tax revenues (see Chapter 6 for a more thorough analysis on Paraguay's revenues).

Government efforts to contain spending are ongoing but more needs to be done to free fiscal space for social and capital expenditure

Central government spending in Paraguay is characterised by a greater concentration on current expenditure rather than investment, but the government has made efforts to contain employees' compensation expenditures. Following the passage of the Fiscal Responsibility Law (FRL), the government has taken steps to reduce non-discretionary expenses related to the public-sector payroll by controlling salary expenditures, a hiring freeze and the reallocation of existing resources within the public sector to improve performance and productivity. In 2015, total expenditure amounted to 18% of GDP, higher than the previous year (16.6% of GDP). Preliminary estimates for 2016 showed a slight decrease to 17% of GDP. In terms of the components of expenditure, figures for 2016 showed that employee

compensation accounted for 43% of total expenditure (including investment) while investment accounted for only 15% (an increase from the 2012 level of 13%). There was also an increase in the proportion of interest payments, rising from 1% to 3% of total expenditure. The government's efforts to contain spending on employees' compensation are noteworthy, as it fell from 9.4% of GDP in 2012 to 8.6% of GDP in 2016. This has allowed a slight increase in social benefits as well as in government investment in recent years (rising from 2.6% of GDP in 2012 to 2.9% of GDP by 2016) (Figure 2.15).

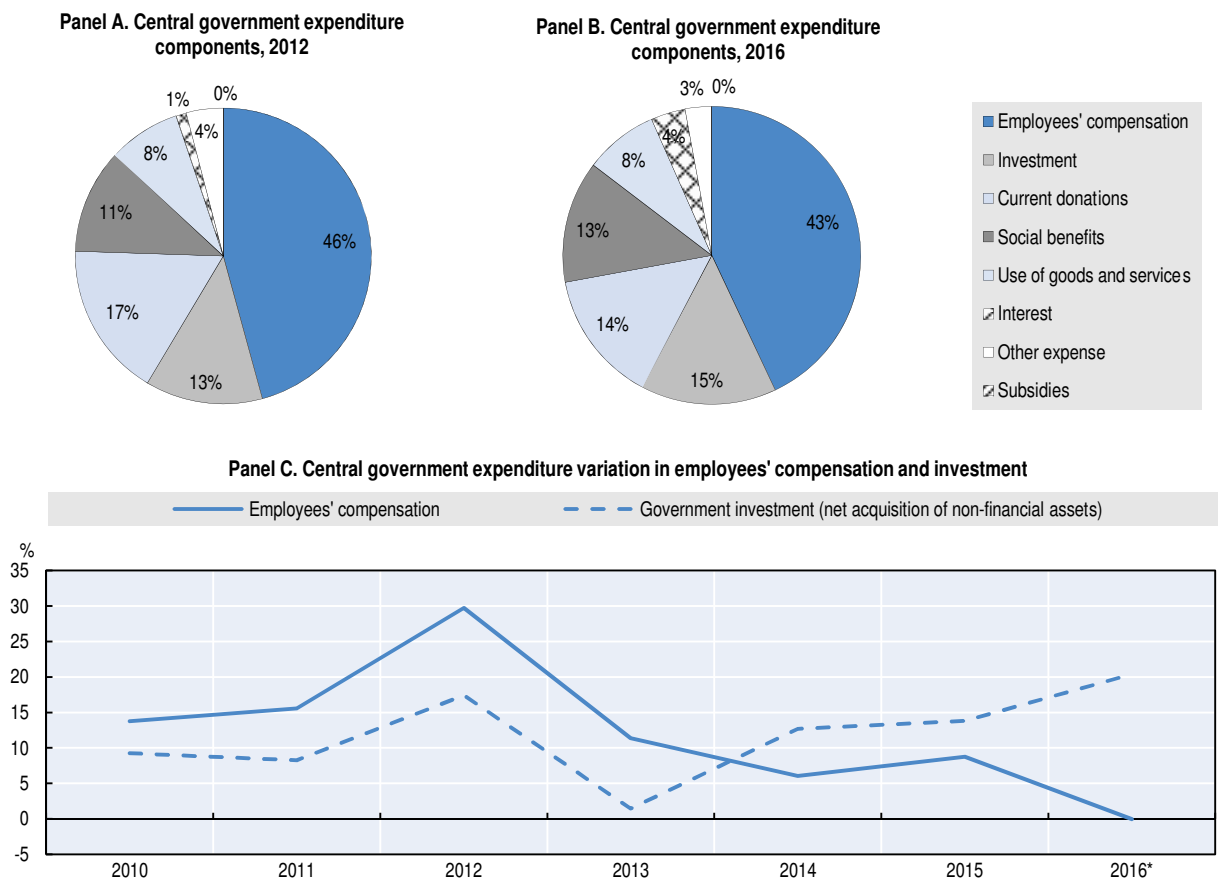
Box 2.1. Main macro-fiscal reforms in Paraguay 2011-17

A number of reforms undertaken between 2011 and 2017 have contributed to stable and resilient growth in the country and have encouraged private investment. Some of the most important reforms are:

- **The adoption of an inflation targeting scheme**, announced in May 2011 by the Central Bank of Paraguay. The original target was 5% annual inflation. The target was lowered a year after to 4.5% and has recently been lowered to 4%, with a tolerance range of +/- 2 percentage points.
- **The creation of the National Public Investment System (SNIP)**. Created in 2012 with Decree 8 312/12, the SNIP seeks to optimise the use of public investment resources through methodologies, norms, capacity-building and a project bank, as well as the necessary components for appropriate project development, social assessment, presentation, monitoring and evaluation of projects.
- **The implementation of the Personal Income Tax**, with the entry in force of Law 4 673/12 in August 2012.
- **The reform of IRAGRO and implementation of Agricultural VAT**. Law 5 061/13 introduced important changes to the taxation of the agricultural sector, including its income taxation (IRAGRO) and its coverage by VAT, in order to formalise the sector and increase tax receipts.
- **The Fiscal Responsibility Law**, law 5 098/13, adopted in October 2013, seeks to achieve prudent management of public finances to ensure sustainability and macroeconomic stability in the medium term.
- **The Public Private Partnerships law**: adopted in November 2013, law 5 102/13 "For promotion of investment in public infrastructure and the expansion and improvement of goods and services provided by the State" seeks to promote public/private participation in public infrastructure investment.
- **Law on turnkey contracts**: Law 5 074/13, adopted in October 2013 modified and extended the public works regime. This reform allows the execution of turnkey infrastructure projects for which payment only takes place after the completion and delivery of the project.
- **The increase in the VAT rate for financial transactions**, from 5% to 10% for financial transactions carried out by entities regulated under the general banking law (law 861/96). This reform unified the rate between regulated and unregulated entities.
- **The extension of VAT to credit granted by cooperatives**, included in the reform of cooperative law (law 5 501/15, adopted in 2015). This reform seeks to improve the management of the collection and control of the tax.
- **The increase in the tax on tobacco**, the ceiling of the tax (ISC Tabaco) was first increased from 13% to 20% (Law 5 538/15). Decree 4 694/15 established a 16% tax applied from 2016.
- **The investment guarantee and employment generation law**, adopted in December 2015, law 5 542/15 seeks to encourage domestic and foreign capital investment in productive projects in the country, so as to invigorate the economy and contribute to sustainable development, though the generation of new sources of employment, growth in manufacturing and technology adoption.
- **The modification of the Personal Income Tax regulations**, in decree 6 650/16 and Resolution 104/16 which specify deductible expenses and investments in the context of the Personal Income Tax, in order to limit abuses and allow for a more equitable application of the law.

Source: Ministry of Finance, Paraguay.

Figure 2.15. Paraguay's central government spending is mostly concentrated on current expenditure



Note: * Preliminary figures.

Source: Ministry of Finance of Paraguay (2017b).

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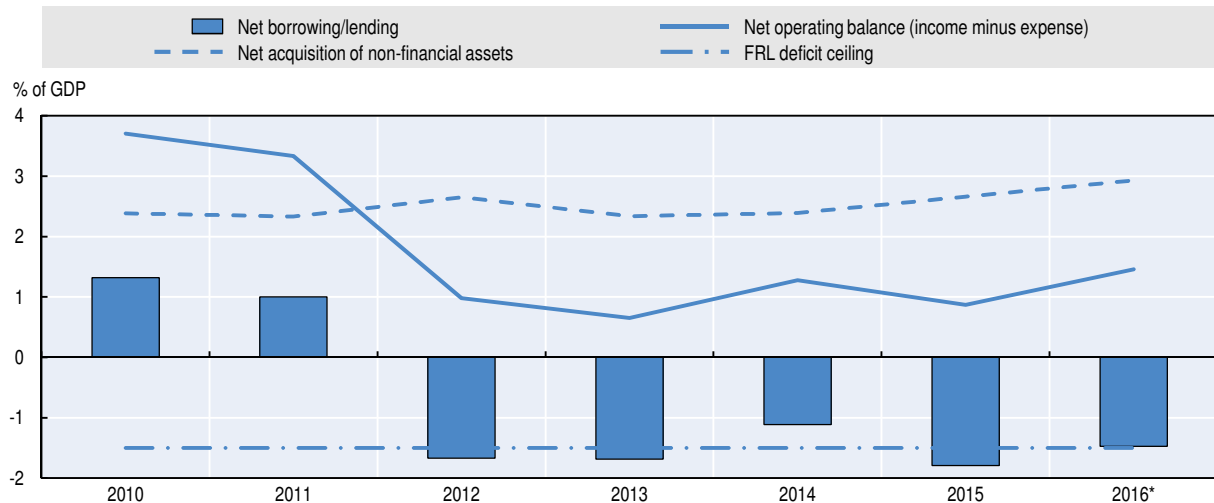
The implementation of the Fiscal Responsibility Law has been challenging

The introduction of the FRL and the Advisory Fiscal Council represents a major step in terms of fiscal sustainability. The FRL (Law 5098/2013) was passed in 2013 and has been in force since 2015, seeking to ensure the prudent management of public finances, sustainability and macroeconomic stability in the medium term. The FRL governs the preparation and approval of budgets, but not their execution. The law limits the central government deficit to no more than 1.5% of GDP (Figure 2.16). Escape clauses allow Congress to approve a deficit of up to 3% of GDP in cases of national emergency, international crisis or negative growth. In some cases, this increase would also require the approval of the national economic team. The FRL also stipulates that all public-sector real current primary expenditure growth rate must not exceed 4% and growth in public sector salaries must be in line with minimum wage developments. This law also requires a three-year fiscal programme not exceeding an average deficit (budgeted) of 1% of GDP (this rule only applies to the *ex-ante* medium-term budget plan). The Comptroller General is responsible for monitoring compliance.

In addition, by Decree 6498/2016 an Advisory Fiscal Council to the Ministry of Finance was created to contribute to the discussion, analysis and transparency and provide recommendations on fiscal issues. The council is a high-level and independent body, composed

of three experts in macroeconomic and fiscal issues from the private sector or academia, appointed for periods of up to three years. The effectiveness of fiscal councils relies on several factors, such as full autonomy, credibility and active and unrestricted dissemination of their analysis. Experience and empirical evidence suggest that independent fiscal councils can reduce macroeconomic forecasting bias and support the government's capacity to comply with a numerical rule. However, fiscal institutions are a necessary condition for achieving disciplined fiscal performance but not a sufficient one. Strong and sustained political commitment to a medium-term fiscal goal and to the fiscal council mandate are needed to achieve durable improvements in fiscal performance (Hagemann, 2010; IMF, 2013).

Figure 2.16. **The implementation of the FRL has been challenging**



Note: *Preliminary figures.

Source: Ministry of Finance of Paraguay.

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The FRL has helped to keep Paraguay's public deficit one of the lowest among benchmark countries and in the Latin American region. However, the implementation of the FRL has been challenging and its efficiency is being strengthened. In the first year of the FRL implementation, which came into force with the 2015 annual budget, the central government's overall balance recorded a deficit of 1.8% of GDP, above the 1.5% ceiling. However, excluding expenditures on infrastructure financed by sovereign bonds issued in the international capital markets, which was permitted only for 2015, the deficit recorded in the central government's overall balance stood at 0.5% of GDP, meeting the FRL's ceiling of 1.5% of GDP for 2015. In 2015, the difference with respect to the FRL ceiling (0.3% of GDP) was mainly explained by the carry-over of some transfers, namely Yacyreta dam's royalties transfers (USD 30 million) and the 4G bid (USD 60 million). In 2016, the budget was approved in accordance with the FRL targets and without exclusions of capital expenditures. The central government deficit for 2016 was 1.4% of GDP, while the operating balance (before deducting capital expenditure) was 1.5% of GDP (MH, 2015).

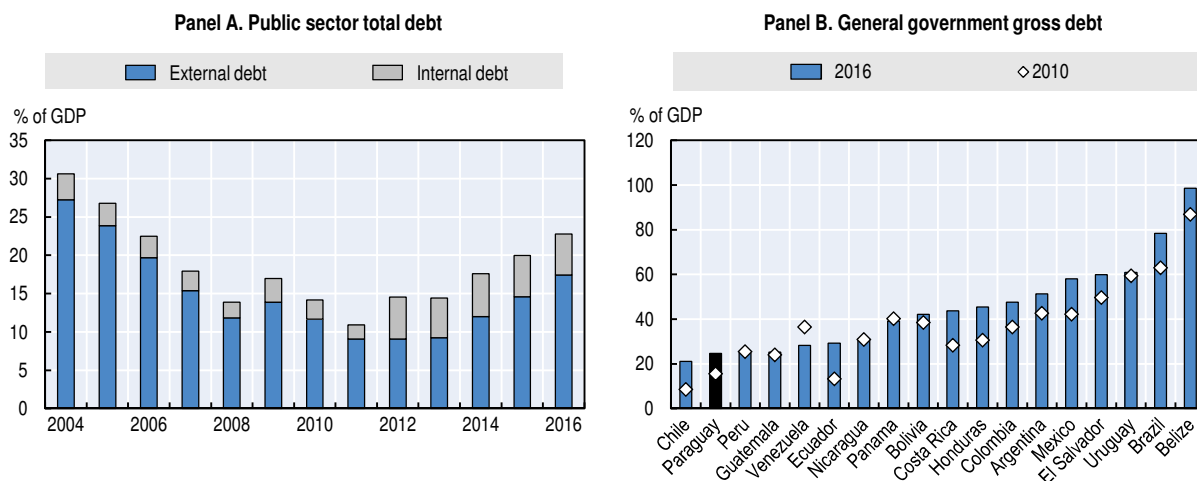
The authorities are exploring the possibility of amending the FRL as the current framework does not allow the implementation of counter-cyclical measures while the low level of the deficit ceiling could represent a constraint on public investment. Escape clauses seem limited and since the FRL applies only to the budget approval process, it might not prove effective in containing actual fiscal outcomes. Sanctions are based on personal accountability but there

is no clear understanding of who the responsible civil servants are or who determines the responsibility. Any changes to the current FRL should be considered carefully, should ensure debt sustainability, guarantee credibility, and should be clearly communicated.

Fiscal space has improved thanks to well-managed low levels of gross debt

Fiscal space exists in Paraguay thanks to well-managed low levels of gross debt (Figure 2.17). The main guidelines in the government's public debt policies are the ratio of total outstanding public-sector debt to GDP, and the ratio of total principal, interest payments and other financial costs (including interest, commissions and others) on public sector external debt to registered exports of goods. On 31 December 2016 those ratios were 23.1% and 3.4%, respectively (MH, 2017c). The central government's debt amounted to 19.9% of GDP in 2016, among the lowest in the region. Central government debt declined from levels of around 25.8% of GDP in 2004 to around 9.3% in 2011, although it has followed a rising trend since then.

Figure 2.17. **Paraguay's public debt is among the lowest in the region**



Source: Panel A: Ministry of Finance of Paraguay. Panel B: International Monetary Fund (2017), *World Economic Outlook* (database), <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/index.aspx>.

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Public debt was traditionally concentrated in loans from international financial institutions and bilateral credits (56% and 21% of total debt respectively in 2011). Beginning in 2012, as a result of good fiscal and economic conditions, funding sources were diversified with the issuance of sovereign bonds, which by 2016 accounted for 38.8% of total public debt, followed by multilateral loans with 34%. For the first time in 2013, the government issued sovereign bonds in the international market for USD 500 million (ten-year); in 2014 for USD 1 billion (30 year); in 2015 for USD 280 million; in 2016 for USD 600 million and in 2017 for USD 500 million (MH, 2017b). The level of exposure to risks related to changes in international interest rates has declined, as the share of loans contracted with fixed rates has been rising from 58% in 2011 to 70.3% by 2016 while the sovereign credit ratings have continuously increased (MH, 2017b; CADEP, 2017). Moody's improved Paraguay's rating from Ba3 in February 2014 to Ba1 in March 2015; Standard & Poor's rating improved from BB- to BB in June 2014; and Fitch improved the rating from BB- to BB in January 2015.

A high share of public debt is denominated in foreign currency, principally in US dollars. Despite a recent increase in the share of debt denominated in local currency, by the end of 2016, 76.5% of total public debt was denominated in foreign currency (72.1% in dollars, 2.9% in yen

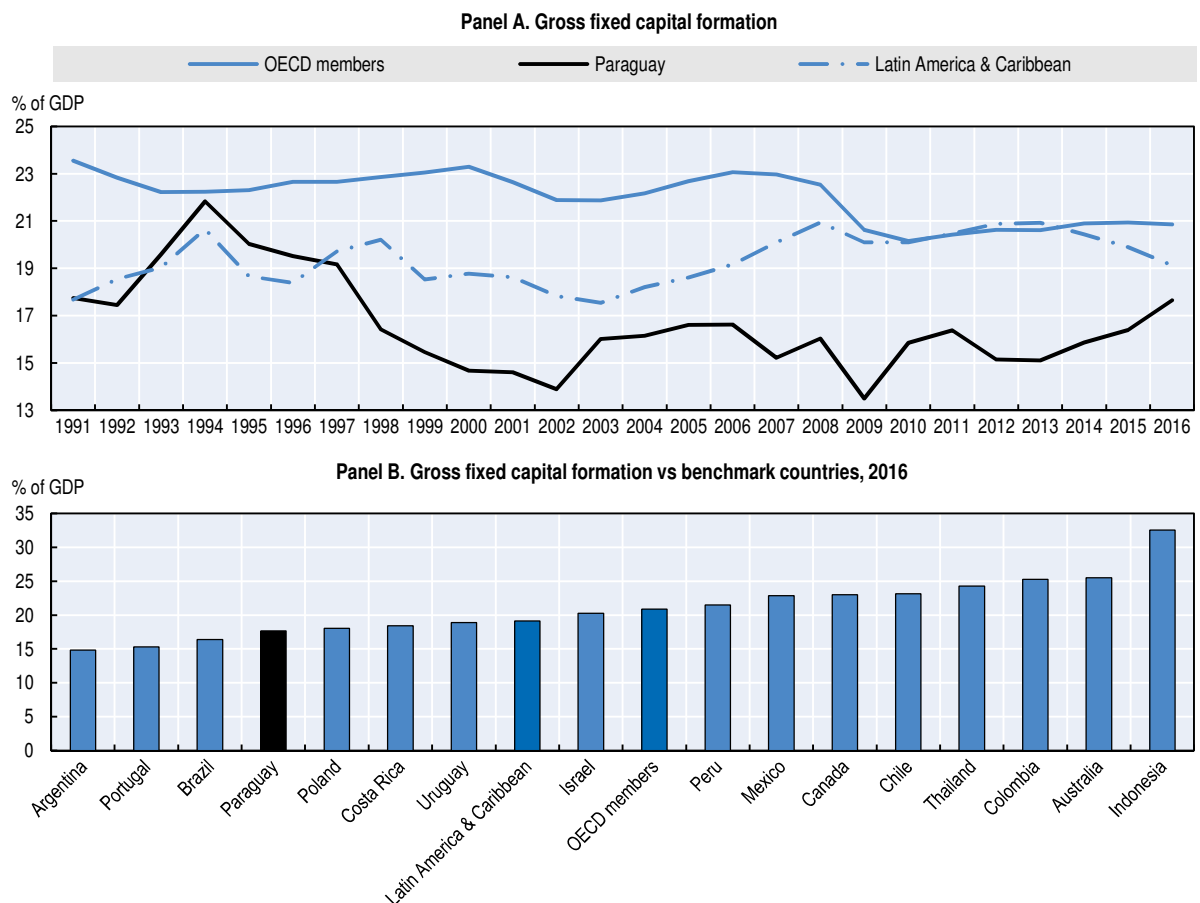
and 1.5% in other currencies) (MH, 2017c). The exchange rate risk is relatively low given that Paraguay's income in US dollars is greater than the annual debt payment amounts. This income comes from compensations and royalties from the binationals and from the sale of energy.

Efforts to further expand public investment should be strengthened

Although starting to pick up, investment has been very low

In the last decade, the level of investment in Paraguay has been considerably lower than in OECD and Latin American countries (Figure 2.18, Panel A). While investment in Paraguay was around 15.9% of GDP on average from 2005 to 2016, average investment in Latin American and OECD countries for the same period was about 20% of GDP. Paraguay's investment level in 2016 was slightly higher than that of 2005, showing a rising trend in recent years, while the average for Latin American countries has been declining. In spite of this recent recovery of investment after a decline in 2012, investment in 2016 was only about 17.6% of GDP, one of the lowest levels when compared to other benchmark countries (Figure 2.18, Panel B). Nevertheless, in respect of the source of composition of investment, although public capital expenditures increased from 2.4% of GDP in 2010 to 2.9% of GDP in 2016, they represent less than 20% of total gross fixed capital formation in the country. Some factors limiting public investment are the institutional and fiscal framework as well as low tax collection.

Figure 2.18. **Investment in Paraguay has been considerably lower than OECD and Latin American countries**

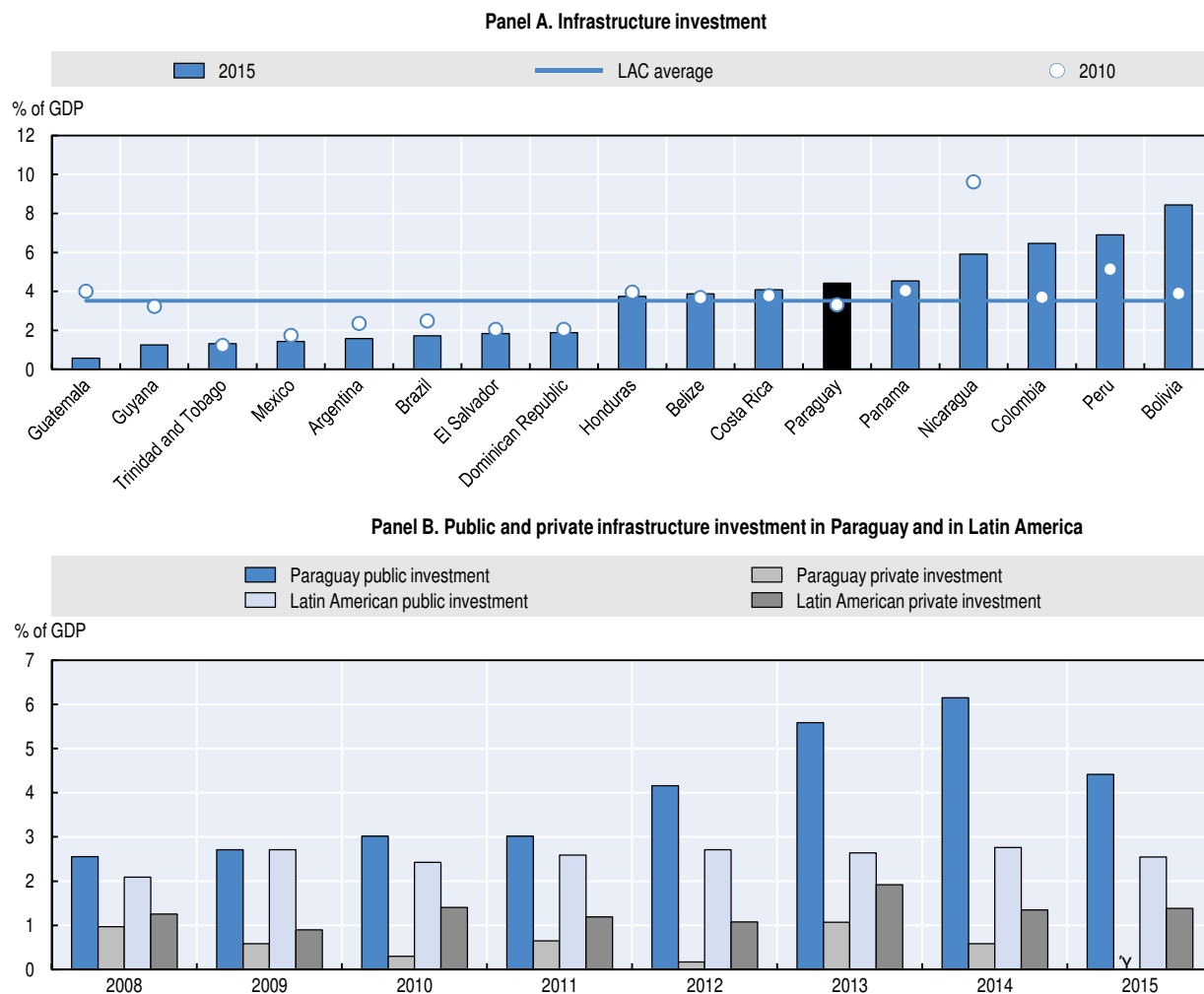


Source: World Bank (2017a), World Development Indicators (database), <http://data.worldbank.org>.

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Particularly in respect of infrastructure investment, Paraguay performs slightly better than the average of Latin American countries (Figure 2.19, Panel A) and managed to increase the level of infrastructure investment from 3.3% of GDP in 2010 to 4.4% of GDP in 2015, (Figure 2.19, Panel B) which is significantly higher than the Latin American average. On the other hand, private infrastructure investment in Paraguay (0.61% of GDP over the period 2008-14) remains below the average for Latin America (1.3% of GDP for the same period).

Figure 2.19. **Public investment in infrastructure is much higher than in the region**



Note: * No data is available for Paraguay in 2015.

Source: ECLAC/IDB/CAF (2016), INFRA LATAM Database, <http://en.infralatam.info/home> (accessed 23 May 2017).

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To reach the government target of expanding capital expenditure to the target of USD 1 billion per year (AIP, 2016), the Paraguayan government has taken advantage of low interest rates and has been quite successful in raising capital in international sovereign debt markets of USD 2.4 billion since 2013. These funds are intended to cover infrastructure and capital spending and to refinance part of the public debt in accordance with the Budget Law (70% has been used to finance investment and 25% to pay for debt). The Ministry of Public Works and Communications (MOPC) has received 42% of investment resources (mostly used for paving and building roads and bridges), followed by the *Administración Nacional de Electricidad* (ANDE) which has received 13% (MH, 2017a).

Some challenges remain in terms of management and budget execution of infrastructure projects

Low public capital reflects not only years of underinvestment, but also inefficiencies in infrastructure investment, in terms of institutions, management, and budget execution of infrastructure projects. According to Roldos, Santoro and David (2016), Paraguay could be developing more infrastructures for the same amount invested and there is considerable scope for enhancing its efficiency regarding project selection and evaluation, multiyear budgeting processes, and regulation of infrastructure companies (Roldos, Santoro and David, 2016).

In 2011, the process of setting up the bases for the National Public Investment System (SNIP) was initiated, establishing the creation of the Directorate of the Public Investment System (DSIP) to manage the SNIP and optimise the use of public resources intended for investment. The SNIP oversees the investment process, establishing clear regulations, ensuring compliance and co-ordinating efforts to execute projects. Since 2012, the SNIP has approved 119 new projects for a total amount of USD 5.5 billion, also providing training in the design, evaluation and management of investment projects to around 950 officials (SNIP/MH/GN, 2015).

Public investment projects are financed from three main sources: resources from the government (financial code FF10), primarily taxes and royalties; resources from public credit (code FF20), meaning government loans from international organisations as well as resources from bonds issuance; and institutional resources (code FF30), those generated and managed by the public institutions themselves. The latter includes projects of different public entities financed by the Fund for the Structural Convergence of Mercosur (FOCEM), a transferring mechanism of financial resources funded by member country contributions. The DSIP is responsible for co-ordinating, evaluating and monitoring projects financed by FOCEM (SNIP/MH/GN, 2015).

Paraguay still faces challenges in budgetary execution and management of public investment projects. The total budget for public investment reached PYG 8 922 billion (Paraguayan guaraní) in 2015. However, the budget execution reached only PYG 3 264 billion, which represents 37% of the total budgeted. Projects financed through FF10 are those with the higher rate of execution (SNIP/MH/GN, 2015). In spite of government efforts to provide training for officials linked to the development, evaluation and execution of investment projects, large gaps in institutional capacity are visible, varying among public entities. Whereas the Ministry of Public Works has improved in terms of capacity, other ministries and government entities still lack the staff and institutional capacity to carry out projects. There is considerable room for the country to improve the SNIP through clear and uniform regulation as well as technical assistance and capacity training. The existence of multiple institutional frameworks for prioritising and managing public infrastructure spending can generate inconsistencies and inefficiencies in the relevant processes. For example, social infrastructure funded by FONACIDE (see Chapter 3) follows a different process than projects in the SNIP and is under the responsibility of other ministries and agencies. There are ongoing changes in the health and education sectors to have the MOPC handle the execution of these projects (for example hospital construction). The OECD *Policy Framework for Investment* is a relevant tool as it provides a checklist of key policy issues for consideration by any government interested in creating and enabling environment for all types of investment (OECD, 2015).

Box 2.2. Building a governance framework for public investment: Portugal's experience

Since the 1980s, Portugal has been using European funds to cope with its infrastructure and development deficits. These resources have been an important financial resource to address the country's major development gaps. Originally driven by the need to manage EU structural funds, Portugal has developed a regional approach to public policy and a governance framework for public investment management that go far beyond the management of European funds.

Portugal has been one of the most significant recipients of the European Union (EU) Cohesion Policy, receiving more than EUR 50 billion of EU structural funds between 1989 and 2006 and broadly comparable budgets for the 2007-13 (EUR 21.5 billion) and 2014-20 (EUR 25 billion) periods.

In the early stages, coinciding with the integration of the country into European institutions, the emphasis in programming, management and resource allocation was on large independent projects. Major infrastructure projects with expected potential for economic growth, in particular in energy and transport absorbed most of the resources.

The strategic framework for public investment has developed gradually into an integrated programmatic framework. While formally framed by Regional Development Plans (*Planos Regionais de Ordenamento do Território*, PROT), the framework was originally limited in its reach, in particular in terms of specifying objectives and targets. The progressive integration into development programme logic has enabled greater attention to the requirements and complementarities between interventions and sectors, and the development of robust planning and prioritization mechanisms. For example, in the social arena, programmes framed to address skills needs and school drop-outs invested not only in building schools but also in the rationalisation of the network of schools, the diversification of offers and special programmes for priority areas. At the regional level, public investment is subordinated to regional strategies, defined and implemented with the involvement of local authorities in areas where they have responsibilities.

Operationally, the framework is organised in four national and cross-sectoral Operational Programmes (OP) on competitiveness and internationalisation, social inclusion and employment, human capital, and sustainability and efficiency in the use of resources. These are completed by seven regional OP for five continental regions and the two island autonomous regions (Açores and Madeira).

The global public investment framework is organised in three interconnected systems:

- A management system with management authorities for each OP that can delegate responsibilities to technical agencies and are overseen by a National Development Agency.
- An audit and control system, headed by a national authority (the General Inspection under the Ministry of Finance), with direct links to control departments in each OP, is supported by an autonomous branch of the National Development Agency.
- An evaluation and monitoring system, headed by another branch of the National Development Agency, based on an evaluation plan involving each OP and a system of indicators covering all the steps in each project, as well as aggregate financial, output and outcome indicators.

An integrated information system, certified by the audit and control authority, is the basis for all operations and gathers the necessary data for the whole framework.

In order to achieve more integrated governance, a new delivery framework was developed that involves a new layer of governance through co-ordination bodies. An inter-ministerial co-ordination commission has a political supervisory and co-ordination role at the national level. At the OP level, strategic advisory committees facilitate the involvement of different ministries into strategic decisions, increase political accountability and ensure clear separation of functions between strategic design and delivery and between management and political supervision.

Source: Authors on the basis of inputs provided by Portugal, Portugal 2020 (<https://www.portugal2020.pt/Portal2020/modelo-de-governacao>), and OECD (2010).

Public investment often involves different levels of government, whether through shared policy competencies or joint funding arrangements. Effective public investment requires substantial co-ordination across levels of government to bridge information, policy or fiscal gaps that may occur, as well as governance capacities at different levels to design and implement public investment projects. In this context, the *OECD Recommendation on Effective Public Investment across Levels of Government* would prove helpful for the government of Paraguay to orient the efforts or improve multilevel governance of public investment. Bolstering capacity at the subnational level deserves particular attention as in some cases financial resources, professional skills or institutional quality may be lacking. Good practices for budgeting and financial accountability should also be implemented and required (OECD, 2014).

Given the significant gap in infrastructure and financing resources, the law on “Promotion of investment in public infrastructure and the expansion and improvement of goods and services by the state” was approved in 2013, which permits projects under the form of public-private partnerships (PPP). In this context, there is an interinstitutional framework involving the Ministry of Finance (MH), the secretariat of planning for economic and social development (STP), the attorney general of the republic (PGR), and the Ministry of Public Works and Communications (MOPC), co-ordinated by the STP, in charge of evaluating and approving investment projects.

Finally, projects are approved by decree (SNIP/MH/GN, 2015; STP, 2017). The government has also encouraged foreign participation (e.g. Spain, South Korea, Argentina, Brazil) and currently, the portfolio of projects in public-private partnership (PPP) form has reached more than USD 2 billion with one signed contract of USD 500 million (extension of routes 2 and 7) and the modernisation of the international airport which is under review (STP, 2014; STP, 2017). Private sector participation can bring more benefits than additional capital alone; for instance, a more competitive environment, sharing of technological expertise and managerial competences. Paraguay would benefit from taking into account the *OECD Principles for Private Sector Participation in Infrastructure* which assists governments in assessing their policies in light of their own national circumstances and needs (OECD, 2007). Measures to ensure high standards of public and corporate governance, transparency, and rule of law would be essential to attract participation by the private sector. Likewise, authorities responsible for privately operated infrastructure projects should have the capacity to manage commercial processes while sharing objectives throughout all levels of governments and parts of the public administration.

Given the current fiscal framework, the government has sought alternative sources to fund investment

The FRL was implemented with the 2015 annual budget as part of Paraguay’s efforts to strengthen its fiscal framework in terms of discipline and transparency. However, the question has arisen as to whether the FRL design is adequate, given Paraguay’s large investment needs, mainly in infrastructure. The stock of public capital in Paraguay stood at 44% of GDP in 2015 against an average of 79% for emerging markets and 84% for Latin America (Roldos, Santoro and David, 2016). Paraguay’s minimum infrastructure investment needs require investment of about USD 1 billion annually.

In a context of debate about the appropriateness of the current FRL and the constraints it imposes on infrastructure investment in Paraguay, the authorities are analysing potential reform options and are currently receiving technical assistance from multilateral financial institutions to consider these options. Among the options that could be considered is the adoption of a structural balance rule to replace the current nominal balance rule, which would allow for a more stable path of current expenditure (Eyraud, David and Bardella, 2016). Given the investment gap that Paraguay faces, the country could also consider a reform that allows for greater capital expenditure. It has been suggested that it could consider reforming the deficit rule by excluding public investment expenditure from the deficit calculation. Any such rule would require, at the minimum, a debt ceiling, as it would not on its own, ensure debt sustainability, as noted by David and Novta (2016).

Likewise, the composition of expenditures would vary significantly under different rules. David and Novta (2016) estimate that capital expenditures would be less than what authorities would like to implement, based on the net domestic product (NDP), if real current primary spending grows at 4% and the authorities comply with an overall deficit ceiling. When primary current expenditures grow steadily at 4% in real terms and the deficit ceiling is 3%, then capital expenditures would decline from 4% of GDP in 2015 to about 2.5% of GDP in 2026. Levels of public investment would be even lower with a tighter 1.5% deficit ceiling, declining to 2% by 2026. The authorities could maintain higher levels of capital expenditure, but would have to reduce current primary spending to satisfy the overall balance of 1.5% or 3%, respectively (David and Novta, 2016). In this regard, Paraguay has been implementing other financing mechanisms such as public and private partnerships and tenders with financing (Law 5074).

An increase in investment would contribute to boosting growth

Investment is crucial for growth and sustainable development. An increase in investment allows the expansion of productive capacity, jobs generation and income growth. Investment in strategic sectors such as infrastructure is particularly essential. For instance, investment in roads would allow for a reduction in transport costs which have been estimated to have a considerable impact on GDP. Ludeña and Ruiz Díaz (2008) find that in Paraguay a reduction in transport costs of 54% would contribute to a 0.24% increase in GDP, an increase in exports and imports (by 1.38% and 6.35%, respectively) and an improvement of 3.88% in the terms of trade. Other studies show that an increase of 1% of GDP in public investment can spur up to 0.5% higher GDP or more after four years; in other words, a return of 15% a year (Roldos, Santoro and David, 2016). An increase in public investment would support demand and employment in the short run and catalyse private investment and innovation to increase potential output in the long term (Calderón and Servén, 2004).

Estimates by David (2017) of cumulative fiscal multipliers in Paraguay show that multipliers for capital expenditure are substantially higher than multipliers for current expenditure. Over long horizons, the cumulative response in GDP relative to the cumulative government spending increases to 0.2-0.5 for current expenditure and 1.4-2.1 for capital expenditure, although statistical significance varies on whether total GDP or non-agro, non-energy GDP is considered (Table 2.1).

Table 2.1. Capital expenditure multipliers are substantially higher than those of current expenditure

Estimates of government spending multipliers in Paraguay (cumulative)

	Total GDP	Non-agro non-energy GDP
Current expenditure		
t = 0	0	0
t = 8	0.2*	0.2**
t = 20	0.5**	0.5**
Capital expenditure		
t = 0	0.1	0
t = 8	1.4**	0.5
t = 20	2.1**	0.8

Note: * Indicates statistical significance at the 10% level. ** Indicates statistical significance at 5% level.

Source: IMF (2017).

Sustaining development and long-term growth would require strengthening productivity and competitiveness

Strengthening productivity and competitiveness is essential for sustaining long-term growth but several challenges remain

Although Paraguay has shown strong growth in recent years, the income gap remains high compared to OECD countries. For Paraguay, as well as other peer countries, most of the difference in GDP per capita with OECD countries is explained by labour productivity. The difference in income per capita can be broken down into gaps in labour productivity and gaps in labour utilisation (measured as employment as share of population). Labour productivity was close to 81% lower than in the top OECD economies in 2014, much lower than the Latin America region average labour productivity, which is around 70% lower than that of the top OECD countries and the lowest amongst other benchmark countries (Figure 2.20) (OECD/IDB/GFP, 2016).

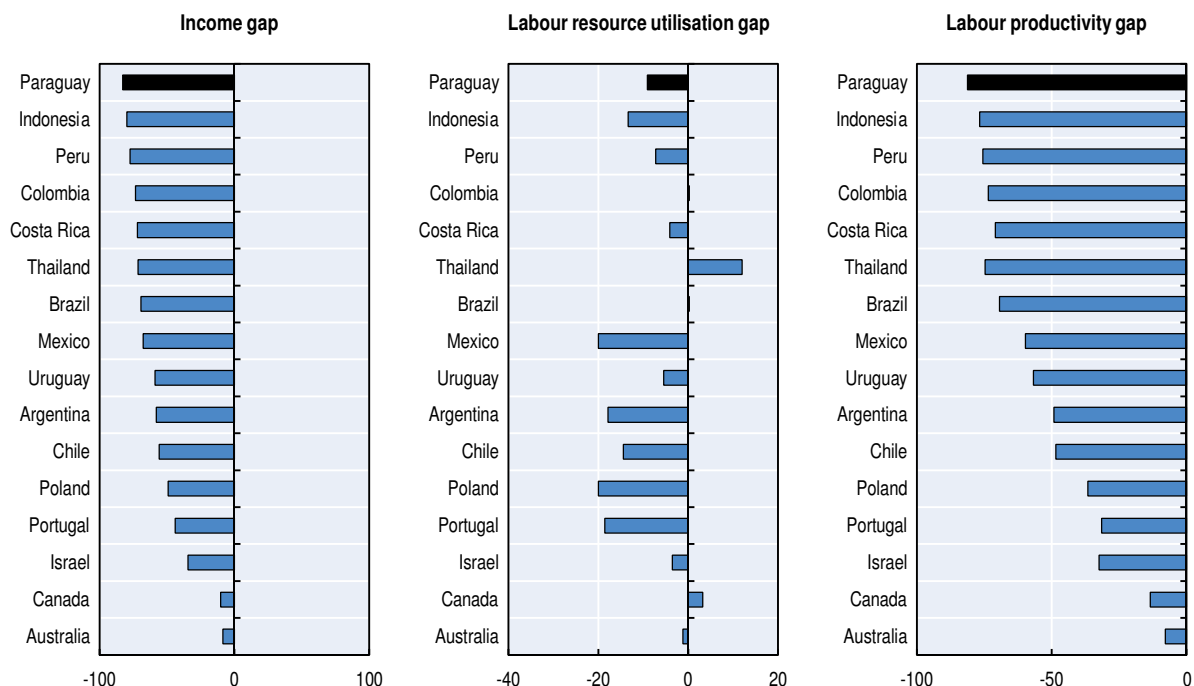
While labour productivity remains low compared with OECD countries, it has improved in very recent years (Figure 2.21). Although as measured as GDP per person employed in constant purchasing power parity it performs more poorly than the Latin America region average, in recent years it has shown a significant improvement. Most of the labour productivity gap is explained by the low performance in human capital. Labour productivity in Paraguay has experienced relatively high growth rates, on average 3.8% since 2004, mainly driven by total factor productivity (TFP) and capital accumulation per worker, while the contribution of human capital has been marginal. These high growth rates in TFP and capital accumulation have recently declined and have not been enough to close the gap with more developed economies. Improvements in the quality of human and physical capital and the promotion of policies enhancing the agriculture sector and a reallocation of resources from low-productivity to high-productivity industries are fundamental to boosting sustainable productivity and economic prospects in Paraguay (OECD/IDB/GFP, 2016).

However, several challenges remain to boost productivity and competitiveness. The general position of Paraguay in the Global Competitiveness Index has been improving, from a ranking of 124 in 2008 to 117 in 2016-17. However, relative to the Latin American average there are several dimensions in which Paraguay lags behind: innovation, infrastructure, institutions, technological readiness and higher education and training. The five most

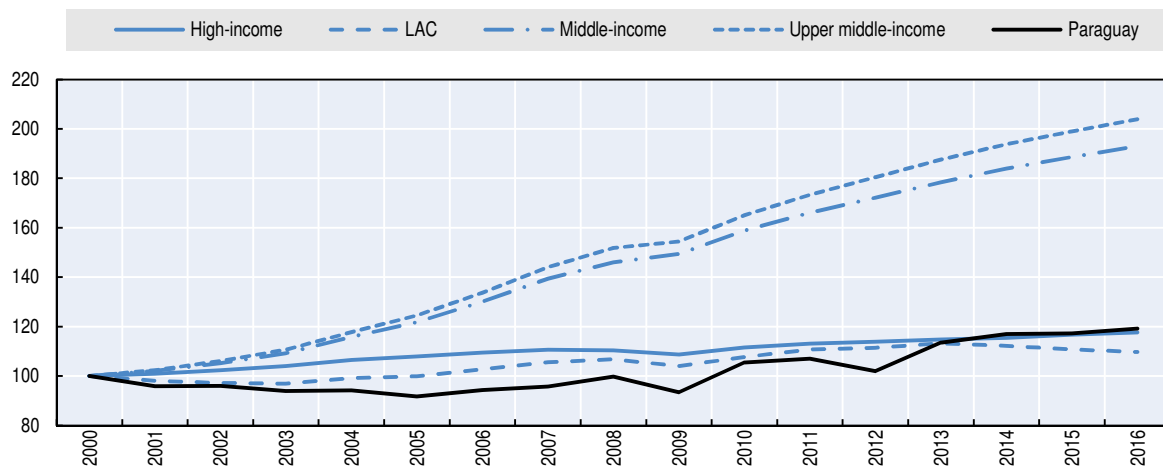
problematic factors for doing business are corruption, an inadequate supply of infrastructure, an inadequately educated workforce, inefficient government bureaucracy and access to financing (Figure 2.22) (WEO, 2016).

Figure 2.20. **Although Paraguay has shown strong growth in recent years, the income gap remains high compared to OECD countries**

Panel A. Sources of income per capita differences with the upper half of OECD economies, 2014



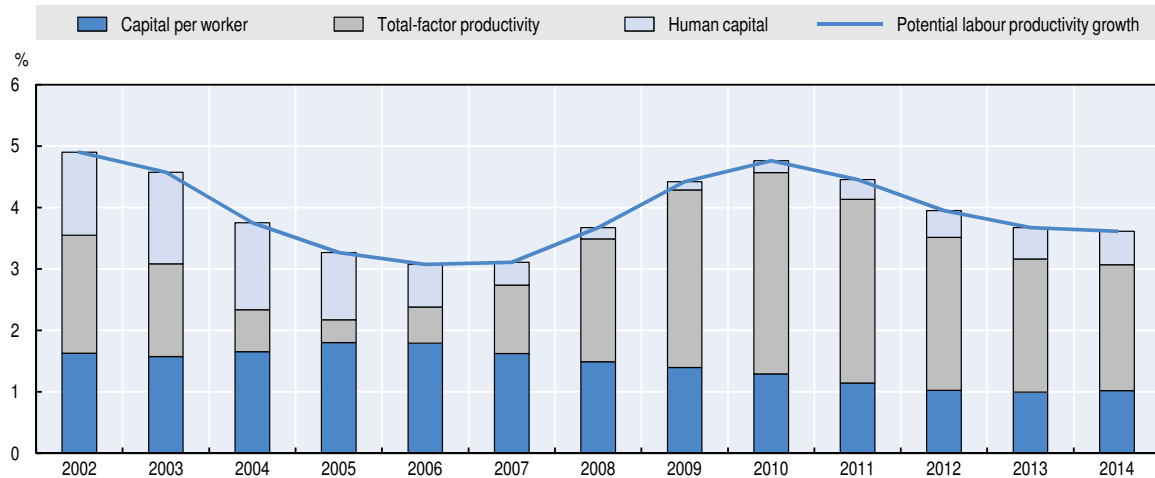
Panel B. GDP per person employed (constant 2011 PPP USD), index 1991=100



Source: Panel A. OECD calculations based on data from Penn World Tables PWT 9.0 (Feenstra, Inklaar and Timmer, 2015); Panel B: World Bank (2017a), World Development Indicators Database (database), Washington DC, <http://data.worldbank.org>.

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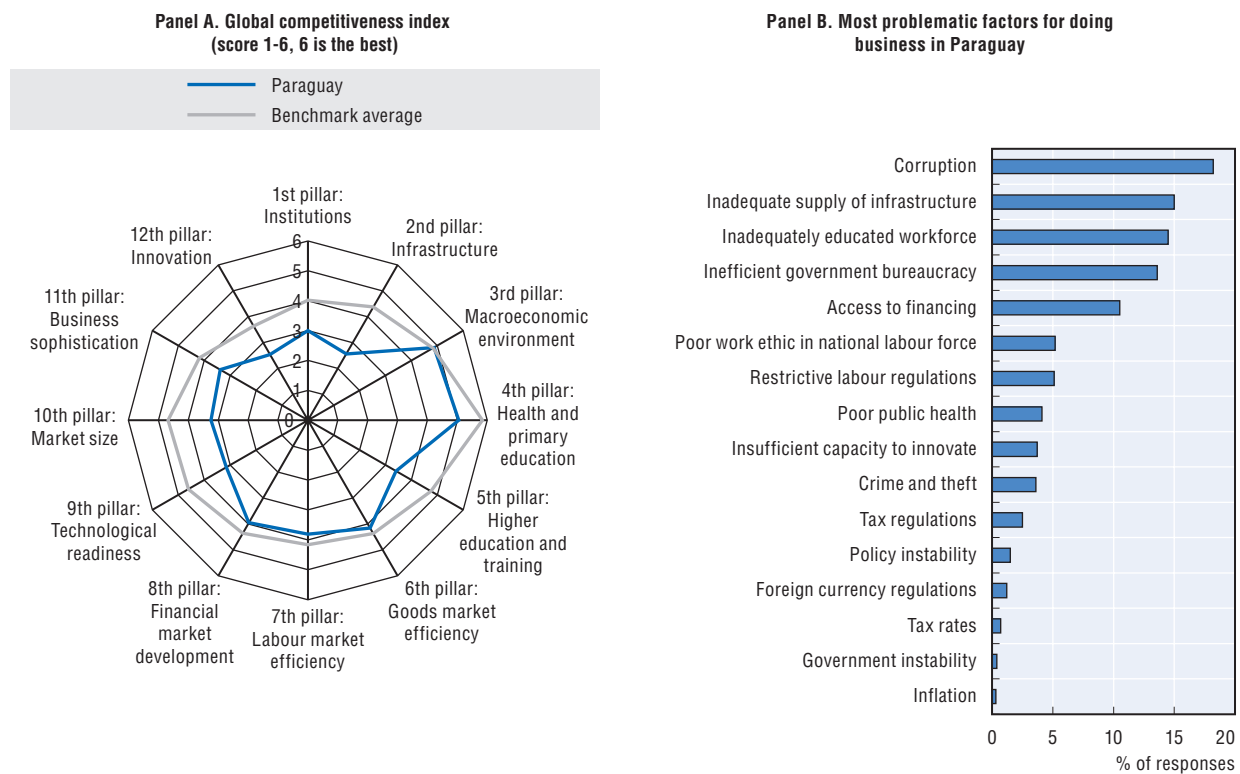
Figure 2.21. Labour productivity in Paraguay has experienced relatively high growth rates



Source: OECD calculations based on Feenstra, Inklaar et Timmer (2015), <http://www.ggd.net/pwt/> and Barro and Lee (2013).

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Figure 2.22. Several challenges remain to boost productivity and competitiveness



Note: Panel B: From a list of 15 factors, respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings.

Source: Panel A: WEF (2017), *The Global Competitiveness Report 2006-2016* (database). Panel B: WEF, Executive Opinion Survey 2016.

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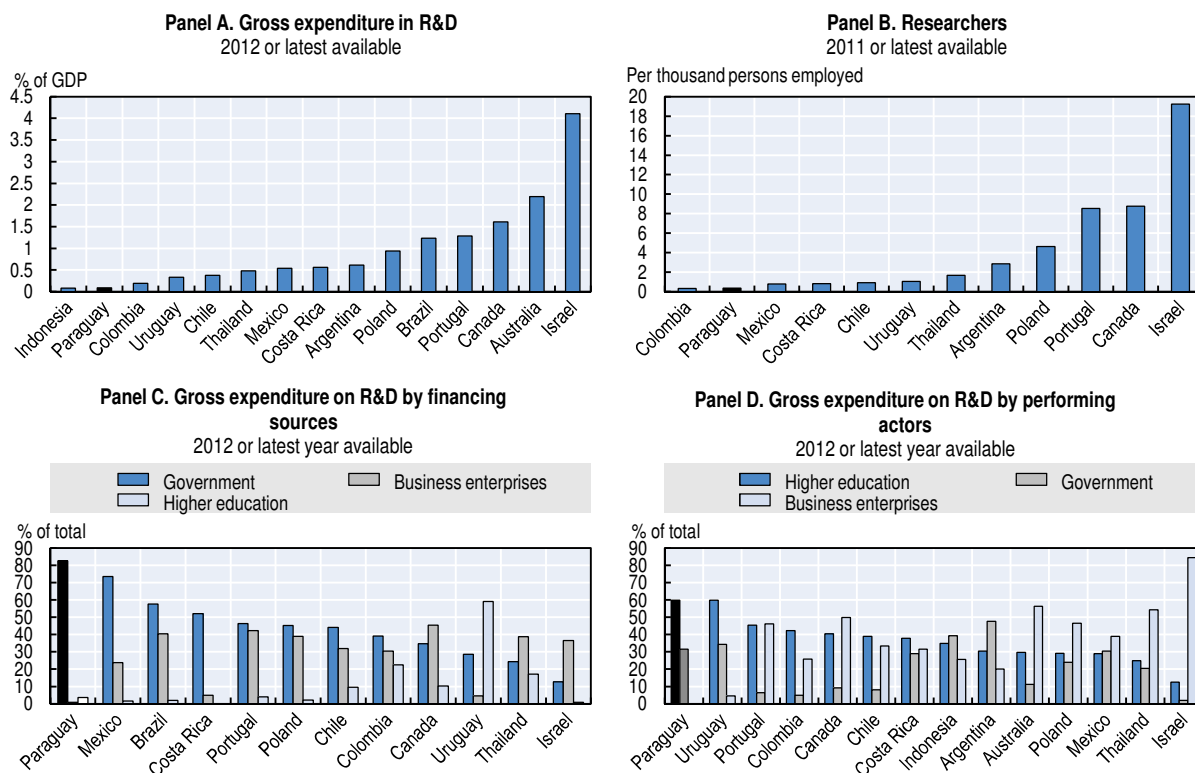
Greater investment in innovation could contribute to improving competitiveness

Among the limiting factors of competitiveness are the low capacity of technological development and the lack of innovation to diversify into more productive sectors and make processes more efficient. Empirical evidence shows that the application of technological

advances leads to a more effective use of resources and to the transformation of new ideas into new products, solutions, processes and services, generating competitive advantages for companies (Grazzi and Pietrobelli, 2016). Greater investment in innovation, combined with the development of complementary activities, such as information and communication technologies and training, can contribute to reducing productivity gaps and improving competitiveness (Crespi and Zuñiga, 2010; OECD, 2009).

Resources invested in gross expenditure on research and development (GERD) activities in Paraguay are low relative to benchmark countries while private sector investment and involvement should be strengthened (Figure 2.23, Panel A). Paraguay’s gross expenditure on research and development (R&D) by 2012 reached 0.09% of GDP (0.13% by 2015 based on National Council for Science and Technology [CONACYT] national data), far from the level of investment in other countries in the region (Peru 4.1% of GDP, Brazil 1.2% of GDP) (UIS, 2017). The level of human resources devoted to R&D is also amongst the lowest relative to benchmark countries, with fewer than one researcher per thousand employed (Figure 2.23, Panel B). Overall, this low investment and low level of human resources result in a significantly low number of patents applications. In respect of the private sector involvement in R&D activities, the business contribution to GERD is less than 1%, with more than 80% financed by the government (Figure 2.23, Panel C). Likewise, most of the resources are being used by higher education and government institutions (Figure 2.23, Panel D). The contribution of business enterprises both for financing and performing R&D investment is close to zero.

Figure 2.23. R&D resources are low relative to benchmark countries



Source: UIS (2017), UNESCO Institute for Statistics Database, <http://uis.unesco.org/>.

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In a context in which slightly more than half of Paraguayan companies carried out at least one innovation activity, the largest firms with export activity stood out for innovative effort. CONACYT, as the responsible entity for the design and implementation of Paraguay's innovation policy, together with the Inter-American Development Bank (IDB) and the General Directorate of Statistics, Surveys and Censuses (DGEEC), carried out the Entrepreneurial Innovation Survey 2010-12 (EIEP) and data from the period between 2013 and 2015 will be included in the forthcoming 2016 edition of this survey. According to the survey, 52% of Paraguayan firms performed some innovation activity in the period 2010-12 (higher for big firms, 72%), with an average investment of 2.6% of sales in 2012. Export orientation is also a factor driving innovative behaviour, as 71.8% of the exporting companies carried out innovation activity, compared to 49.7% for non-exporters (CONACYT/DGEEC, 2013).

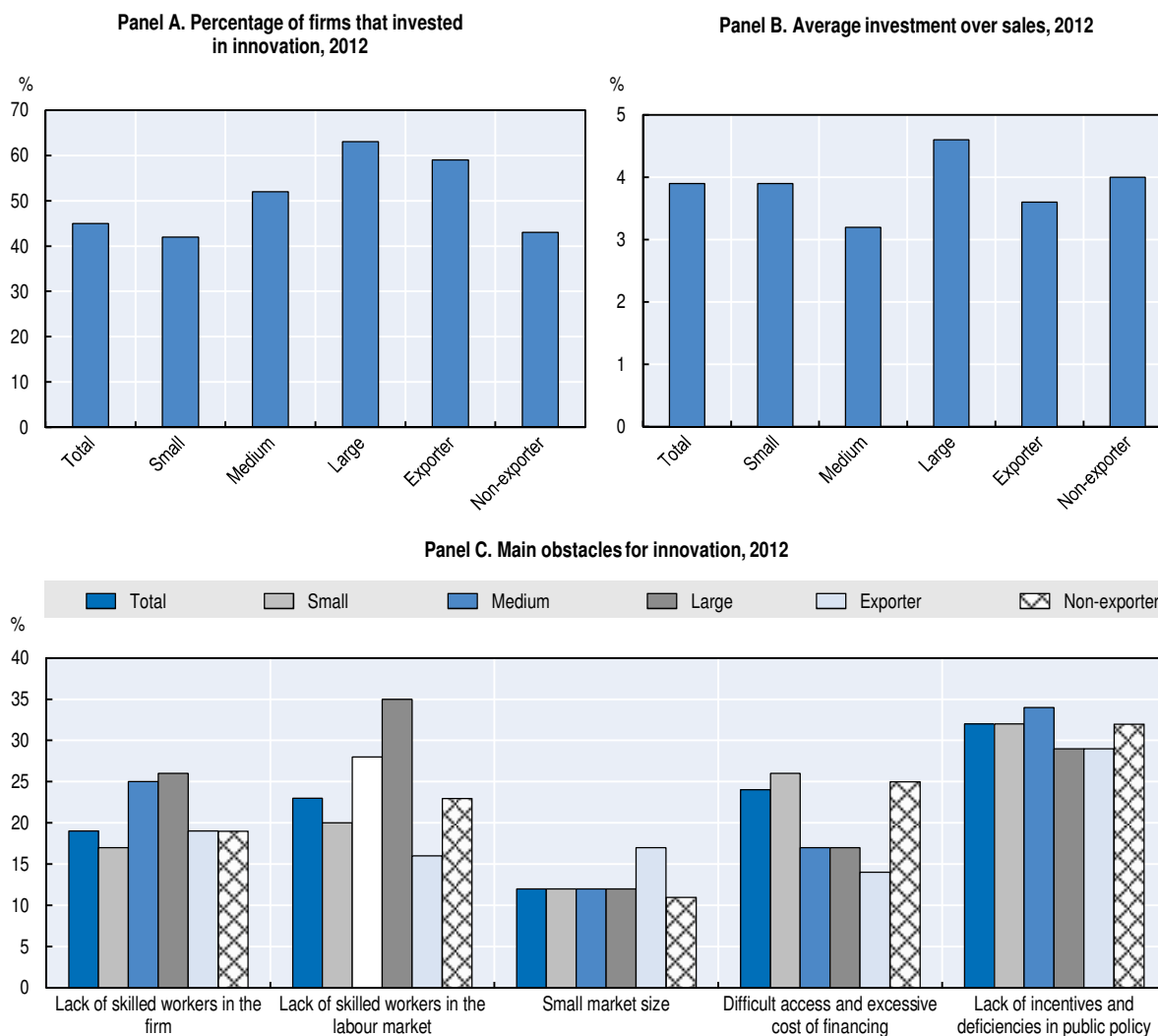
In terms of investment, almost half of the sampled firms invested in innovation (for big companies the proportion rises to more than 60%). However, in the composition of innovation investment of the Paraguayan companies, there was a large participation of activities with a very limited impact in the generation of knowledge, since 76.6% of the investments went to the acquisition of capital goods. On the other hand, activities of internal research and development were relatively low, with a share of just over 8%. As a percentage of sales, the average investment in 2012 was 3.9%, with noticeable differences according to size of firms; large companies registered one percentage point more than medium firms and 0.7 percentage points with respect to the small ones (Angelelli, Luna and Vargas, 2016). Those companies that do not trade in the international market invested more intensely in innovation. The main source of financing for innovation investment is the company's own resources, which represent 74% of the funds. The second most used source consisted of commercial banks with 21.4%, while the share of public sector participation was practically null (0.3%) (Figure 2.24) (CONACYT/DGEEC, 2013; Angelelli, Luna and Vargas, 2016).

Among the main obstacles to innovation in Paraguay, more than 30% of companies attributed high or medium importance to the lack of public policies and public support, followed by the shortage of skilled workers and the difficulties of access to financing. Large companies pointed to the shortage of trained personnel as the most frequent obstacle, while for small firms, financial difficulties and access to finance represented greater problems (Figure 2.24, Panel C) (CONACYT/DGEEC, 2013).

The low innovation capacity in Paraguay reflects a weak innovation model and institutional framework. Articulation between the various actors and institutions (firms, academic institutions, research centres, etc.) dedicated to promoting innovation, research and development is deficient. According to the EIEP 2013 survey (CONACYT/DGEEC) only a small number of companies claimed to maintain links with other actors or institutions to develop their innovation activities. As part of the objectives of the National Development Plan, CONACYT is making efforts to integrate private sector and academic priorities into the national innovation strategy. The National Development Bank (*Banco Nacional de Fomento*) is also playing a role in supporting start-ups, ecosystems, pre-incubators and incubators in different sectors, which are mostly linked to the public university system. One of the current difficulties of the National Innovation System is the identification of priority sectors/projects; through a sectoral assessment, the agency is currently identifying priority industries where innovation resources will be focused. In 2015, about 37% of R&D investment was devoted to agricultural sciences, 22.4% to medical sciences and 14.7% to technology and engineering (CONACYT, 2015). In terms of resources, CONACYT manages the fund for excellence in education and research (FEEL-FONACIDE) which provides resources to

13 programmes, including the Paraguayan programme for the development of science and technology – PROCIENCIA. CONACYT also manages a project for technological development, innovation and conformity assessment as part of the fund for the structural convergence of MERCOSUR (FOCEM).

Figure 2.24. **Eliminating remaining barriers would bolster firm-level innovation**



Source: CONACYT/DGEEC (2013), Encuesta de Innovación Empresarial del Paraguay 2010-2012, <http://www.dgeec.gov.py/eiep/>.
StatLink  <http://dx.doi.org/10.1787/888933749237>

Improving the quality of education and reducing skills mismatches would help to boost competitiveness and innovation

There is wide scope to boost productivity by improving the quality of education and reducing the skills mismatch. As mentioned above, the third most problematic factor for doing business in Paraguay according to the Global Competitiveness Index is the inadequately educated workforce. Although Paraguay has achieved an average per capita increase of 1.5 years of education over ten years (2004-14), completion of secondary and tertiary education is relatively low for adults of 30 to 64 years old (36.6% and 12.5%, respectively) compared to the Latin America regional average (38.6% and 13.4%, respectively) and the OECD average (76% and 34%, respectively) (OECD/CAF/ECLAC, 2016) (see Chapter 3). Some of the

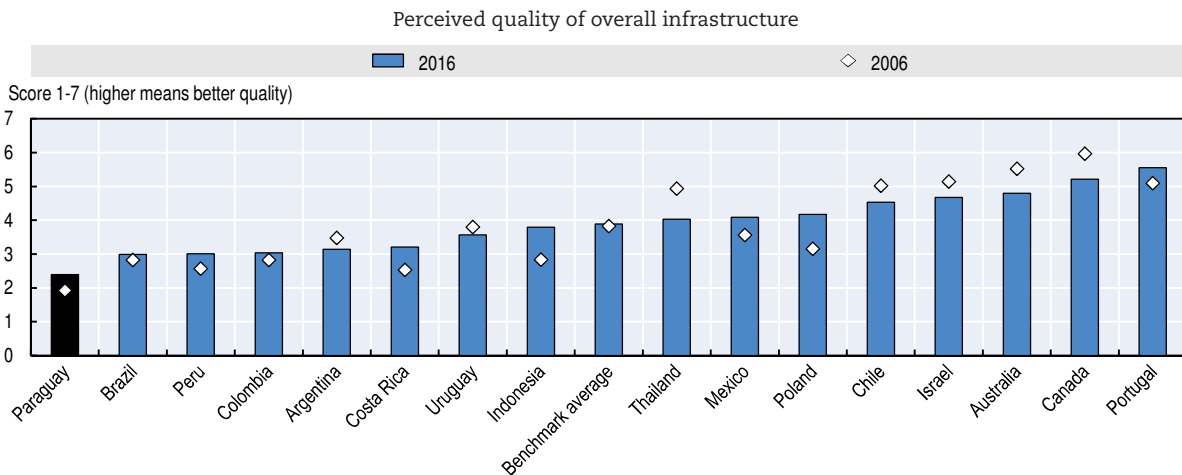
recent policies to develop skills in Paraguay include technical and vocational training aiming to promote and develop workers' training and specific skills. However, the number of students in secondary education enrolled in technical and vocational programmes by 2013 (15.6% of total secondary students) although larger than the Latin America average (14.5%) was still below the OECD average (26%). Efforts to introduce a dual education system and provide vocational training that matches the needs of those sectors being developed continue but should be strengthened and systematised.

Infrastructure and connectivity development faces several challenges

High-quality infrastructure and connectivity are fundamental to both raising productivity levels and improving social inclusion as they allow for lower costs, higher competitiveness and support the delivery of, and access to, public services. Such connectivity, as well as improved logistics performance, is also critical to reinforcing trade in goods and services across value chains, and thereby to spreading economic benefits from trade. As a landlocked country, Paraguay's competitiveness is heavily dependent on its own transport and logistics infrastructure and that of neighbouring countries to connect to regional and international markets (OECD, 2016b). More than 75% of Paraguay's exports are time-sensitive (OECD/CAF/ECLAC, 2014), which makes it extremely important to have appropriate transport connectivity. Although in past years Paraguay's investment in infrastructure has been similar to the average of Latin American countries, the quantity and quality of that infrastructure are still barriers to inclusive growth.

Assessing the quality and quantity is difficult as there are no comprehensive internationally comparable data based on objective criteria (Pisu, Hoeller and Joumard, 2012). Survey data on the perceived quality of infrastructure ranked Paraguay 122nd worldwide in 2016. The perceived quality of overall infrastructure has improved in the last decade but remains below that of OECD countries and among the lowest when compared with its benchmark economies. While overall perceived quality of infrastructure on average in benchmark economies improved by 1.6% between 2006 and 2016, Paraguay's perceived infrastructure quality increased by 24% in the same period (Figure 2.25) (WEO, 2016).

Figure 2.25. Perceived quality of infrastructure has improved but remains below that of OECD countries

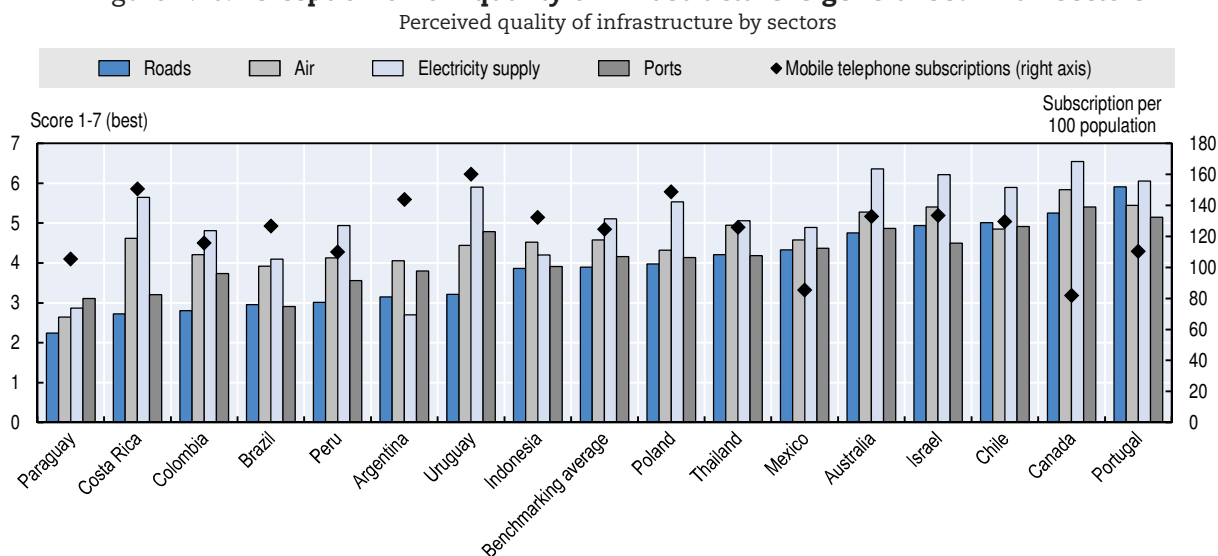


Source: WEF (2006), *The Global Competitiveness Report 2006-2007*, http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2006-07.pdf; WEF (2016), *The Global Competitiveness Report 2016-2017*, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf.

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In respect of the quality of different infrastructure sectors, Paraguay performs poorly relative to other OECD benchmark economies and, although to a lesser extent, to other Latin American benchmark economies. In all the sectors, Paraguay ranks at the bottom of benchmark economies except for mobile telephone subscriptions (Figure 2.26). However, the perceived quality of almost all sectors has improved since 2006 apart from air infrastructure and energy supply.

Figure 2.26. **Perception of low quality of infrastructure is generalised in all sectors**



Source: WEF (2016), *The Global Competitiveness Report 2016-2017*, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf.

StatLink <http://dx.doi.org/10.1787/888933749275>

Road quality perception is the lowest amongst benchmark economies (Figure 2.25) and the lowest compared to the quality of other infrastructure sectors in Paraguay. Table 2.2 shows the kilometres of roads by type of material. The total road network seems reasonable according to the regional averages. However, the number of kilometres of asphalted roads is relatively low (CAF, 2009). Paraguay has 74 251 km of national, departmental and local or rural roads, of which only 6 167 (8%) are asphalted and including enriched roads, paved roads total 8 307 (11%), while almost 89% of all roads are dirt roads which in times of rain present traffic difficulties. Consequently several localities in the interior are isolated, with no possibility of access to basic services.

Table 2.2. **Kilometres of asphalted roads are relatively low**

Road network (Inventoried)

	Paved (km)	Not paved (km)	Total
National	3 108	16	3 124
Departmental	3 879	9 696	13 575
Local or rural	1 320	56 232	57 552
Total	8 307	65 944	74 251
Share	11%	89%	100%

Source: Ministry of Public works and Communication (MOPC).

The 2013 National Development Plan reported that 89% of the roads may have traffic difficulties because of deterioration, rain, etc. while 18% of paved roads were severely damaged and only 30% of rural roads were subject to some conservation or improvement programmes (Gobierno Nacional, 2014). The case of local roads is alarming given that almost 97% consist of dirt roads on which traffic is non-existent in periods of rain. A new generation of contracts (*contratos CREMA*, [*Contratos de Rehabilitación y Mantenimiento*]) has aimed to cover both road rehabilitation and maintenance. These contracts are yielding positive results for road infrastructure. The road capacity in some cities such as Asunción has not increased significantly while the fleet of vehicles grows year by year. Despite the low quality of the road network, the total number of vehicles in circulation rose by more than 70% from 2006 to 2013 (DINATRAN, 2007; DINATRAN, 2014). According to the traffic lights control centre of Paraguay, the collapse of communication channels and the subsequent congestion around the capital city limit the maximum speed of access to main cities to an average of 11 kilometres per hour.

Rail transport disappeared because of the creation of the reservoir of the Yacyretá dam in 2010, financing problems and the lack of adequate technical capacity to reactivate the system (Gobierno Nacional, 2014). Starting in 2015, a passenger service between Posadas in Argentina and Encarnación in Paraguay was introduced (4.83km between the two stations). The number of passengers increased from almost 920 000 in 2015 to 1 336 000 by 2016, around 45%. (Railway Gazette, 2015). The line crosses the River Paraná by means of the San Roque González de Santa Cruz Bridge, where freight trains had resumed operating in 2012. The benefit of integrating rail systems with neighbouring countries would be substantial as it would enable a connection with ports, generating benefits to the country's foreign trade; it would help diversify its transport corridors of imports and exports, and complement road transport with a lower price option and ability to transport a higher volume (IDB/ MOPC, 2013).

River navigation is of the greatest importance for Paraguay's foreign trade. Approximately 75% of export and import cargoes are transported by the Paraguay-Paraná waterway connecting to the ocean ports of Buenos Aires and Montevideo. The main challenge lies in maintaining adequate navigability, especially on the Paraguay River. The most frequent obstacles are the lack of dredging and signalling that would allow navigation all year round (even during drought months) and at night (IDB/ MOPC, 2013). With the third largest fleet for navigation (*barcazas*) after the United States and China (MOPC, 2016a), Paraguay is focusing on its waterways infrastructure to become a connectivity hub in the region. A *barcaza* carries the equivalent of 60 trucks and 15 railway cars (Muñoz, 2012) per trip while it represents cost reductions, fuel savings and decongestion of traffic. Other means of transport should complement the Paraguay-Paraná waterway; land routes and railway lines must ensure a practical, fast and cheap access to both rivers. Paraguay has emphasised the development of multi-modality among different transportation systems, developing waterways and the land-water connection.

As in the case of ports infrastructure, Paraguay ranks at the bottom of the benchmark countries. However, the improvement in perceived quality has been impressive, increasing by almost 30% between 2006 and 2016, compared to around 12% for benchmark economies. Paraguay has had great growth in terms of investment in private ports. Until the mid-1990s, port activity was monopolised by the government through the National Administration of Navigation and Ports (ANNP). In 1994, a law on private ports was enacted which made it possible for the private sector to invest and operate ports. Since then, more than 40 private ports have been installed (there are also eight public ports) (IDB/MOPC, 2013). However,

the lack of an integrated and efficient transport policy generated a disorderly growth with many ports being established in the environs of the city of Asunción and creating urban development problems (Gobierno Nacional, 2014). This growth in port activity has not been accompanied by public transport infrastructure support, which currently creates traffic and urban development congestion in the region.

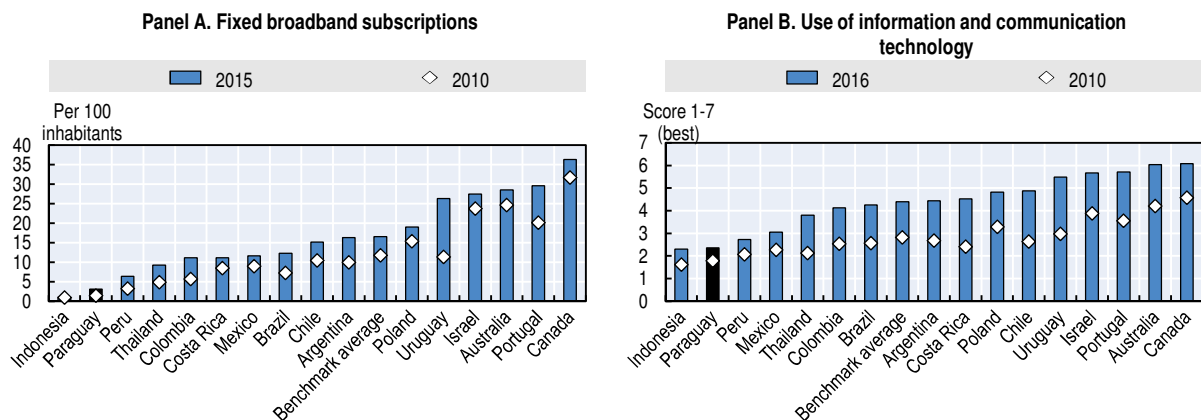
In terms of air transport quality, Paraguay ranks at the bottom when compared with benchmark economies and perceived quality decreased by 11% from 2006 to 2016, while the decrease in quality for average benchmark countries was of less than 2%. Paraguay has a serious shortage in its main air terminal as institutional problems in the sector make it difficult to adopt reforms that allow for modernisation of the airport infrastructure. In addition, international airlines that connected directly with airports in the United States and Europe (Gobierno Nacional, 2014) have abandoned their services. Still, in 2016, for the first time, more than a million passengers used the Silvio Pettirossi airport, an increase of around 14% relative to 2015.

The two international airports are the Silvio Pettirossi Airport serving the city of Asunción and the Guaraní Airport serving Ciudad del Este. The number of passengers at Silvio Airport Pettirossi for the year 2016 was 1 033 168, while at the Guaraní Airport there were 43 622. In respect of cargo the former handled 14 109 tonnes and the latter 6 506 tonnes (DINAC, 2016). Currently, a public-private partnership contract is being processed for the modernisation and expansion of the Silvio Pettirossi airport, which involves an investment of USD 150 million (MOPC, 2016b). The concession has not yet been implemented because of complaints of irregularities.

Paraguay has established a national transport strategy, but its implementation faces challenges. According to the National Development Plan 2030 the weakness of government, both in its planning and regulatory role, is a common factor in all modes of transport (Gobierno Nacional, 2014). This is perceived as the main cause of the delays in the provision of infrastructure and the poor quality of transport services. There is a National Transport Plan (*Plan Maestro de Transporte*) designed at the sectoral level which aims to organise the development of transport and logistics infrastructure, which was updated for the last time in 2012. There is also a National Logistics Plan with the aim of rationalising processes, increasing opportunities for exporters, and capturing regional supply and value chains through efficient logistics mechanisms and reduction of costs for commercial transactions. The extra costs coming from the import and export of goods represent a weakness for Paraguay's export competitiveness. Better institutional organisation will create a harmonised and strategic timetable of infrastructure works. Clear leadership from the government will also facilitate the regulation of public-private partnerships (see Chapter 6).

The telecommunications infrastructure has improved considerably in recent years, but further inclusiveness and improvements are needed. In Paraguay, mobile telephone subscriptions per hundred of the population increased almost four times from 30 in 2006 to 105 in 2015, an increase slightly lower than that of the Latin American region average. Broadband penetration is still very low, with only 1.1 subscriptions per 100 inhabitants while the average for benchmark countries is 16.5. Fewer than half of the population (44%) use the Internet, a similar level to the average of Latin American countries but lower than the 60% Internet users in benchmark economies (WEO, 2016). Although it has increased in recent years, the use of information and communication technology (ICT) in Paraguay remains well below that in the benchmark economies, including Latin American and OECD economies (Figure 2.27).

Figure 2.27. **Telecommunications infrastructure has improved in recent years, but there is further room for improvement**



Source: Panel A: International Telecommunication Union (ITU) Statistics (2017), <http://www.itu.int/en/Pages/default.aspx>. Panel B: WEF, The Global Competitiveness Report 2006-2016 (database).

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The National Telecommunications Plan 2006-16 developed by the National Telecommunication Commission (CONATEL) points that a concern for the government in coming years would be to provide connectivity to education, health and safety institutions while on the supply side, one of the main concerns is to provide good-quality connectivity through fixed-broadband as well as to decrease the cost of international connectivity (CONATEL, 2016). These connections today are provided at a very high cost, impacting on losses of competitiveness and limitations for access to the Internet, both for public services and for private enterprises.

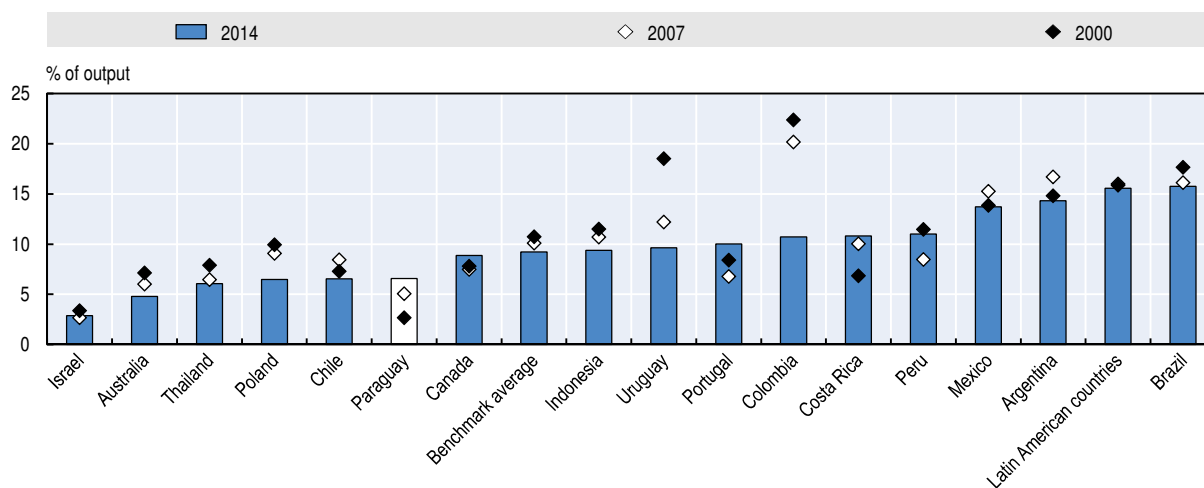
Paraguay's gross electricity production capacity (close to 64 000 GWh/year in 2016) is one of the largest in the world per capita (9 290 kWh per inhabitant in 2016) as a result of the production of binational hydroelectric plants. Electricity is an important export product to the partner countries of the Itaipú (Paraguay/Brazil) and Yacyreta (Paraguay/Argentina) binational hydroelectric plants; less than 16% is used by the national electricity market. The main national electricity company is the National Electricity Administration (*Administración Nacional de Electricidad*, ANDE) which participates in the generation, transmission, distribution and commercialisation of electric energy in the country. The other two public sector companies are the binational companies that operate the hydroelectric plants of Itaipú and Yacyreta, in which Paraguay participates through ANDE with the 50% of the capital in both cases. Electricity generated in Paraguay is mostly hydroelectric (MOPC, 2017).

Access to electricity is higher than the Latin American average and similar to the average of benchmark economies. According to latest comparable data, in 2014, 99% of the population had access to electricity (97.7% in rural areas, 99.9% in urban areas). In terms of electric power transmission and distribution losses, Paraguay ranks relatively well when compared to other Latin American countries, relative to its total electricity output (Figure 2.28). Paraguay registered losses of 6.6% of the output in 2014 while the average for the Latin America region was 15.6% and 9.2% for the average of benchmark economies. However, if only the domestic market is concerned and exports are excluded, losses are above those of all benchmark

countries, at 23.5% in 2015, the bulk of which are distribution losses. Regarding the quality of electricity supply, Paraguay ranks at the bottom relative to other benchmark countries while service interruption rates in the metropolitan area have worsened (ANDE, 2015). Quality perception decreased by 15% from 2006-16, while for benchmark countries it increased by around 1.5% (WEO, 2016).

Figure 2.28. **The government aims to expand and improve electricity supply**

Electric power transmission and distribution losses



Source: World Bank (2017a), World Development Indicators (database), <http://data.worldbank.org>.

StatLink  <http://dx.doi.org/10.1787/888933749313>

The government aims to expand and improve electricity supply to meet the country's requirements. To this end, within the Plan for Electrical Losses Reduction, in 2014, ANDE carried out several activities such as improvement of obsolete rural distribution lines, improvement of the quality of measurement and monitoring. ANDE has been granted several loans by multilateral organisations, treasury bonds, FOCEM funds, etc. Investments in the electricity sector are essential to help improve the performance of productive sectors and the country's competitiveness.

The institutional and regulatory framework should be set in a way that boosts competition

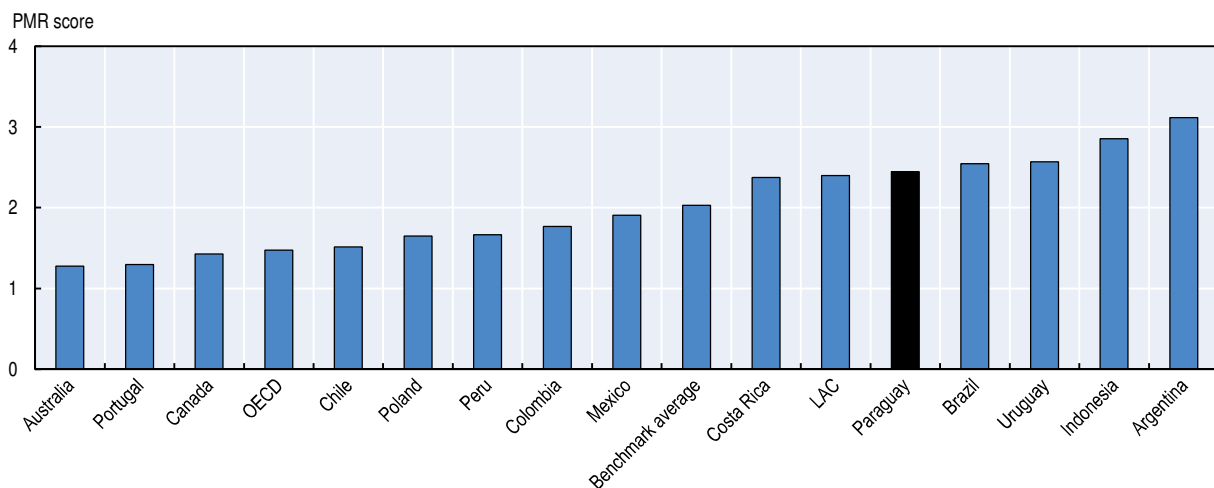
According to OECD's Product Market Regulation (PMR) indicator 2013 (Koske et al., 2015), regulation in Paraguayan product markets was slightly more stringent than the regional average and much more so than OECD average (Figure 2.29). Restrictions in the form of barriers to trade and investments were especially high (Figure 2.30). Markedly reducing barriers to trade and investment will broaden the scope for knowledge diffusion and technological transfers across borders and boost productivity through more efficient resource allocation. More specifically, among barriers directly hampering trade and investment, barriers to trade facilitation and barriers to foreign direct investment (FDI) were significantly higher than the OECD and Latin America average in 2013.

In recent years, there have been major efforts by the government to attract investment which include special regulations and fiscal regimes that promote a favourable environment for both local and foreign investment. They include the tax incentive scheme for national and


foreign capital investment (Law No. 60/90), the *maquila* Regime, the *zonas francas* Regime (Law No. 523/95) and the law on guarantees for investments and the promotion of employment and socio-economic development (Law No. 5542/2015), among others. According to the Ministry of Industry and Commerce, the number of *maquiladoras* (foreign-run factories) increased significantly from 46 in 2013 to 126 in 2016. The sectors with the greatest dynamism are automotive parts, plastics, textiles, and footwear. Important offices have also been opened, such as the one-stop shop for exporters (*ventanilla unica del exportador* – VUE) which aims to facilitate cross-border commerce, and the unified system for opening and closing businesses (*sistema unificado de apertura y cierre de empresas* – SUACE) which significantly shortens the time needed for administrative procedures.

Figure 2.29. **There is scope for easing regulation in product markets**

Product Market Regulation (PMR) stringency indicator (scale 0-6, higher is more restrictive), 2013



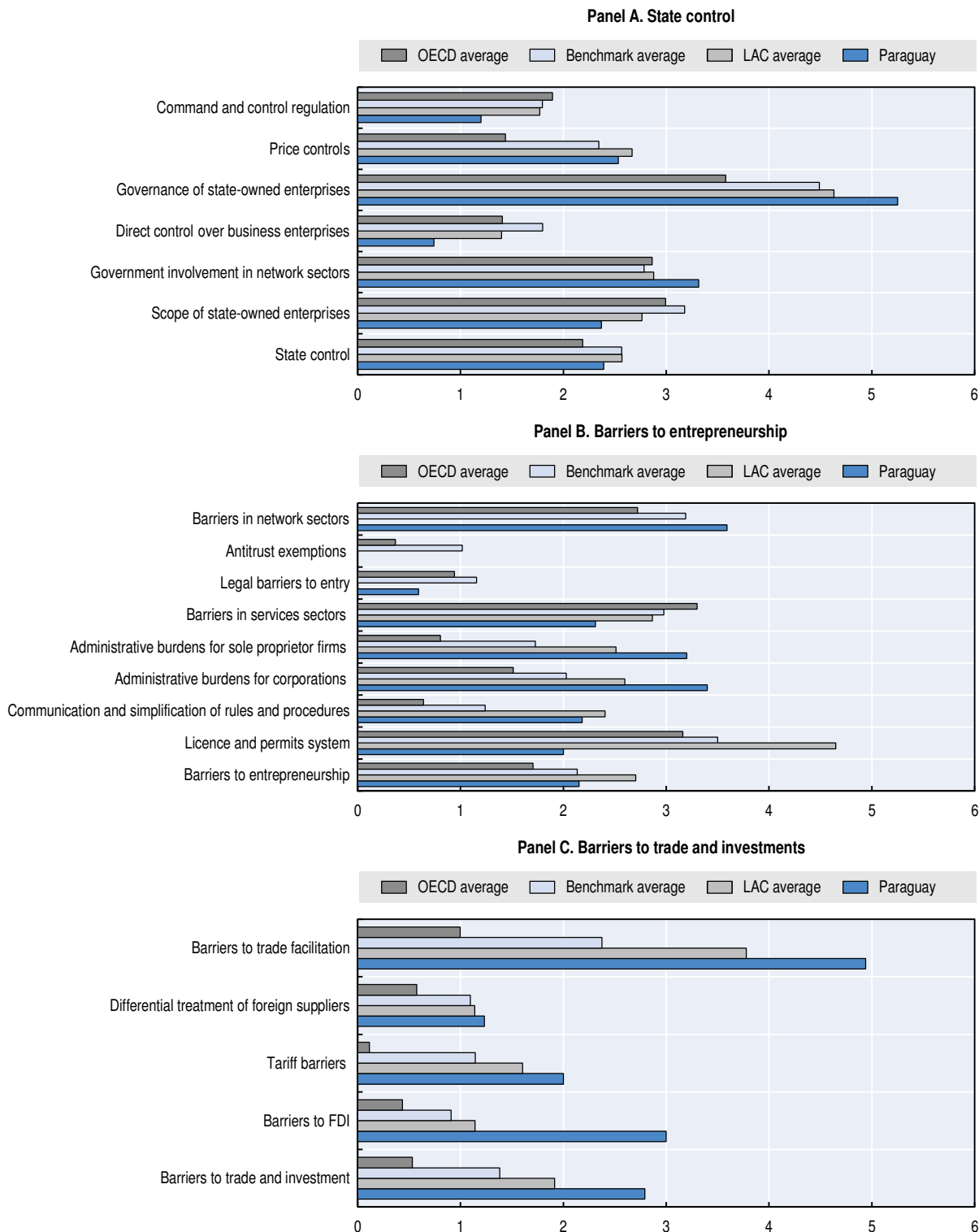
Source: OECD Product Market Regulation Indicators (database) available at <http://stats.oecd.org/Index.aspx?datasetcode=PMR>; Koske et al. (2015).

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Barriers to entrepreneurship in Paraguay seem to be lower than in the Latin American region as a whole. However, among barriers directly hampering entrepreneurship, administrative burdens for sole proprietor firms and corporations, as well as communication and simplification of rules and procedures were significantly higher than in the average of benchmark countries (OECD/IDB/GFP, 2016). Markedly reducing barriers to entrepreneurship will improve the business environment and enhance competitive pressures, in addition to reducing labour market informality. OECD best practices indicate that establishing one-stop agencies and adopting the “silence is consent” rule can significantly lower these barriers (OECD, 2016a). In this sense, the government of Paraguay recently created a one-stop-shop (*sistema Unificado de Apertura y Cierre de Empresas, SUACE*) as a unified system to reduce time and facilitate the opening and closing of companies. Regarding access to finance for small and medium-sized enterprises (SMEs), the government is working to launch credits with differentiated interest rates and repayment periods adapted to the specific needs of SMEs. The Ministry of Industry and Commerce is currently working on developing the regulation for a SMEs Guarantees Fund to facilitate access to credit by using this fund as collateral with the help of the *Agencia Financiera de Desarrollo* (AFD).

Figure 2.30. **Barriers to trade and investment as well as administrative burdens restrict competition**

Product Market Regulation (PMR) stringency indicator (scale 0-6, higher is more restrictive), 2013



Source: OECD Product Market Regulation Indicators (database) available at <http://stats.oecd.org/Index.aspx?datasetcode=PMR>; Koske et al. (2015).

StatLink  <http://dx.doi.org/10.1787/888933749351>

It is worth noting that overall state controls are less restrictive than in other benchmark and Latin American countries. However, government involvement in network sectors and poor governance of state-owned enterprises (SOEs) are particularly problematic. SOEs have played a significant role in the Paraguayan economy, accounting for roughly 9.94% of GDP and 23% of public sector expenditures in 2016 (Republic of Paraguay, 2017). The performance of SOEs has been affected by inefficient management and planning practices, lack of tariff adjustments, and low investment. Some of the sectors still operated by the government are electricity, telecommunications, and water. Because of their major role, Paraguay must establish clear governance models to allow SOEs to perform at the most efficient level with a strong commitment to accountability. In an effort to promote the efficient management of SOEs, the government of Paraguay created in 2013 the SOEs' national council (*consejo nacional de empresas públicas*, CNEP), made of representatives from the Ministry of Finance, the Ministry of Public Works, the Ministry of Industry and Trade and the Attorney General. The CNEP's role is to act as the SOEs' shareholder on the government's behalf and to supervise SOEs' corporate governance and financial and business management (Republic of Paraguay, 2017). It has promoted planning, management and control measures strengthening the institutional framework for supervision and seeking to ensure the sustainability of the implemented reforms. The CNEP's review of the status of existing corporate governance practices resulted in the issuance of Executive Branch Decree No. 6381/16 (Code Arandú), which formalises the mandatory adoption of uniform principles of corporate governance to ensure SOEs follow the highest international standards, such as the OECD *Principles of Corporate Governance for SOEs* and *Guidelines for Best Corporate Governance of CAF State Companies* (Republic of Paraguay, 2017). Paraguay is also a regular participant in the Latin American Network on Corporate Governance of State-Owned Enterprises and if sound corporate governance practices were applied, SOEs would become more transparent, more accountable and more efficient in their management.

The institutional framework for the implementation of competition policy in Paraguay is embryonic. Law No. 4956 defines the main pillars for a competition policy, but little support from a budgetary point of view has been given to the National Competition Commission (CONACOM) in charge (currently the agency has only ten staff). Recently established, the agency is in charge of investigating cases of abuse of dominant position, supervising mergers and acquisitions, and identifying anti-competition practices. The commission's board is composed of members from both the public and private sectors. Issues related to consumers' welfare and unfair competition are discussed elsewhere. The agency is currently identifying key sectors for intervention; the financial system, telecommunications, health and the hydrocarbons sectors are identified as sectors where the enforcement of competition law seems most urgent. Sanctions can be applied to companies for anti-competitive practices (with fines up to 150% of the illicit profits or up to 20% of the gross sales of products subject to the infringing practice in the relevant market, [Decree 1490/14]). In February 2017, after an eight-month process, CONACOM legislated on its first case of economic concentration since its creation more than three years ago (Sosa & Vera, 2016).

Notes

1. Paraguay's agricultural sector suffered a significant contraction in 2012 due to drought linked to the "la Niña" phenomenon, which affected the 2011/12 crop. Production and value added recovered in 2013. The year 2011 is chosen as a pivot year, as a more typical year.

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