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The Role of Services for Economic Performance in Brazil

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THE ROLE OF SERVICES FOR ECONOMIC PERFORMANCE IN BRAZIL

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This paper highlights the large contribution of services to the Brazilian economy and the under-exploited potential of services to sustain productivity gains and international competitiveness. The areas with the largest potential for regulatory reform include improvements in the general business and trading environment as well as specific policies in transport sectors, telecoms and financial services. Reforms targeting services that add value by favouring productivity and quality enhancements, as well as services that increase efficiency by reducing production costs, have strong potential to unlock manufacturing performance. The set of proposed recommendations emerging from this analysis underlines the importance of streamlining sector-level regulatory frameworks to encourage foreign entry and competition, and the role that cross-cutting improvements in the trade and business environment would play to render services providers more competitive.

Keywords: Brazil, trade policy, services, competitiveness, services trade restrictions

JEL: F13, F14, F6, L8, L9, O24, O54

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EXECUTIVE SUMMARY

Services are the main contributors to Brazil's GDP and job creation, but suffer from structural weaknesses and subpar international performance. Compared to countries of similar development, Brazil has a large services sector and has experienced significant growth of business and government services. Services inputs also account for nearly two-fifths of Brazil's manufacturing value added and an even larger share in the sectors prioritised for industrial development. However, Brazilian services are oriented towards serving domestic demand and underperform in export markets. Services inflation has been surging fuelled by a distorting tax system and productivity levels lagging behind other sectors of the economy. The growth of Brazil's services exports has not kept pace with other large emerging economies, leading to a widening services trade deficit. Flows of foreign investment have halted in recent years, though Brazilian services remain a significant destination for foreign investors aiming to serve the local market.

The areas with the largest potential for regulatory reform include improvements in the general business and trading environment as well as specific policies in transport sectors, telecoms and financial services. A detailed exploration of the trade policy framework with the OECD Services Trade Restrictiveness Index (STRI) tool highlights that Brazil's regulations in these areas tend to be more restrictive towards foreign services providers than in its Latin American peers. Transport, logistics and credit command a large share of expenses incurred by manufacturers on intermediate services, but suffer from severe deficiencies in infrastructure as well as inadequate competitive pressures. Royalties, technical assistance and outsourced business services face rising demand from manufacturers and require a stable, simplified general policy environment to grow. The Brazilian government has already undertaken a number of initiatives to boost private entry and improve the functioning of core services, many of which are under discussion or have been recently launched. The timely implementation of pro-competitive reforms and co-ordination between public stakeholders will be critical to ensure their effectiveness.

The link between Brazil's services trade patterns and regulatory restrictions in partner countries reveals the benefits of openness and co-operation with key trading partners. Exports, imports and offshoring of services are analysed using a novel dataset of Brazilian services trade at the transaction level. On the export side, Brazilian firms export more services to countries with low STRI scores in the services in question. On the import side, payments by Brazilian firms for services offshored abroad in relation to export contracts amount to nearly half of the overall value of services imports, demonstrating the role of services imports in supporting exports. Where the provision of services is outsourced to third countries, the privileged suppliers are those located in countries with regulatory environments that are more liberal and more similar to those of the final destination of the service. These patterns suggest that open services trade policy regimes and regulatory convergence with strategic markets would contribute to attracting offshored services, and in turn to developing market services.

Services reforms have strong potential to unlock manufacturing performance and productivity. Services that add value through differentiation, customisation and innovation, such as R&D, design, engineering or IT services, are associated with substantive productivity enhancements in industrial sectors. Efficiency in services that lower production costs, such as transportation and finance, is a pre-requisite for firms to compete domestically and internationally. Analysis of the relationship between services trade policies and downstream manufacturing exports show that restrictive policies in transport, banking, engineering and telecoms hold back export competitiveness in manufacturing sectors that are heavy users of such services. In addition, inefficient credit and shipping appear to hinder quality differentiation in downstream sectors, while the lack of competitive pressure in technology-related

services drive up manufacturers' input costs, crippling their price competitiveness abroad. Services reforms are expected to bring significant benefits in terms of developing, diversifying and upgrading Brazil's manufacturing base.

Box 1. Key proposed reforms

Sector-level regulatory frameworks to encourage foreign entry and competition

- Integrate the programs promoting private investments in transport and logistics infrastructure with efforts to improve clarity in the tendering process for concessions, as well as a development of the capacity and independence of regulatory agencies overseeing infrastructure owners and users.
- Move forward with the design of a new regulatory framework for telecoms towards an authorisation regime, and at the same time address the gaps in pro-competitive regulation on dominant suppliers of telecommunications services.
- Envisage measures to improve competition in the banking sector, such as harmonising the requirements for the establishment of foreign financial institutions with those of domestic banks, enhancing the independence of the Central Bank and continuing the work on developing a unified and easily searchable registry of security interests.
- Enhance flexibility in hiring and fee-setting in professional services, in particular for the provision of engineering services by foreign licensed professionals, to encourage technological upgrading in industrial sectors.

Cross-cutting improvements in the trade and business environment for services providers

- Provide legal certainty to providers and users of third-party services by finding a road for adoption of a legal framework on outsourcing services beyond “non-essential” tasks, with appropriate safeguards regarding workers' rights and working conditions. An updated legislation would be more in line with modern business realities, where services provided by third parties support manufacturing competitiveness.
- Gradually roll back local content requirements where the induced lack of competitive pressure curtails innovation in services and inflates manufacturing input costs, and avoid the introduction of new distorting domestic preference regulations.
- Alleviate the tax burden and distortions in supply chain organisation arising from the multiple taxation of intermediate services by allowing firms to claim full credit for indirect taxes paid on services inputs in lieu of the “physical credit” principle in ICMS and the absence of credit for inputs in ISS; and providing for equal tax treatment of imported technology services.
- De-emphasize narrowly targeted tax breaks and export incentives focused on “picking winners” in the export promotion strategy, in favour of broad-based improvements in the trading environment including the simplification of tax procedures and implementation of trade facilitation initiatives.

Introduction

The Brazilian economy has reached a stage where economic activity, investment and job creation happen first and foremost in services. The growth of business services, IT, finance or transport has been spectacular over the past decades, yet commercial services remain largely oriented towards the domestic market. Services performance at home and abroad has been curtailed by a productivity deficit and quickly rising prices, which not only limit the ability of Brazilian services suppliers to expand into global markets but can also act as a drain on the costs of manufacturers down the line.

As the development and diversification of the industrial sector has emerged as a priority for Brazil's economy, the contribution of intermediate services to the success of manufacturing industries is of particular interest. The growing preponderance of services in the global economy has been driven in part by the transformation of the manufacturing sector towards increasing integration of goods and services in production and sales. This trend, coined the "servicification" of manufacturing, has made it ever more difficult to disentangle where manufacturing ends and where services begin. As such, the contribution of services activities to industrial value addition is taking centre stage.

The Brazilian manufacturing sector faces an environment of many challenges: high production costs, extensive red tape, insufficient infrastructure, skill shortages, an overly complex tax system, which together make up the so-called "Brazil cost". At the same time, it has many assets to build on, starting with the benefits of scale from a large domestic market but also the opportunity to develop value chains from its existing areas of strong comparative advantage – such as the agro-food chain, minerals or pre-salt – to develop a more buoyant, more diversified, more sophisticated manufacturing base. This report highlights the role of promoting competitive services to enable and maximise the benefits from structural transformation.

The *OECD Services Trade Restrictiveness* database is used as a diagnostic and benchmarking tool, in combination with the current services policy agenda of the Brazilian government. The analysis aims to pinpoint where and how reforms can bring about much-needed improvements in services performance and lower prices for consumers and businesses. It identifies priorities in services reforms to make sure Brazil does not miss the opportunities to embark on industrial upgrading and GVC integration.

The report is organised as follows. Section 1 presents a panorama of the role of services in the Brazilian economy, their strengths and weaknesses, and their contribution to foreign trade and investment. Section 2 delves into the services trade policies in force, identifies priority areas for reform and examines current regulatory efforts. Section 3 analyses how trade policies shape the patterns of Brazil's services exports, imports and offshoring. Section 4 estimates how improving the performance of services would enhance productivity and international competitiveness in Brazil's manufacturing sectors. Finally, Section 5 draws conclusions and policy recommendations in light of the analytical results.

1. The contribution of services to economic activity, trade and investment in Brazil

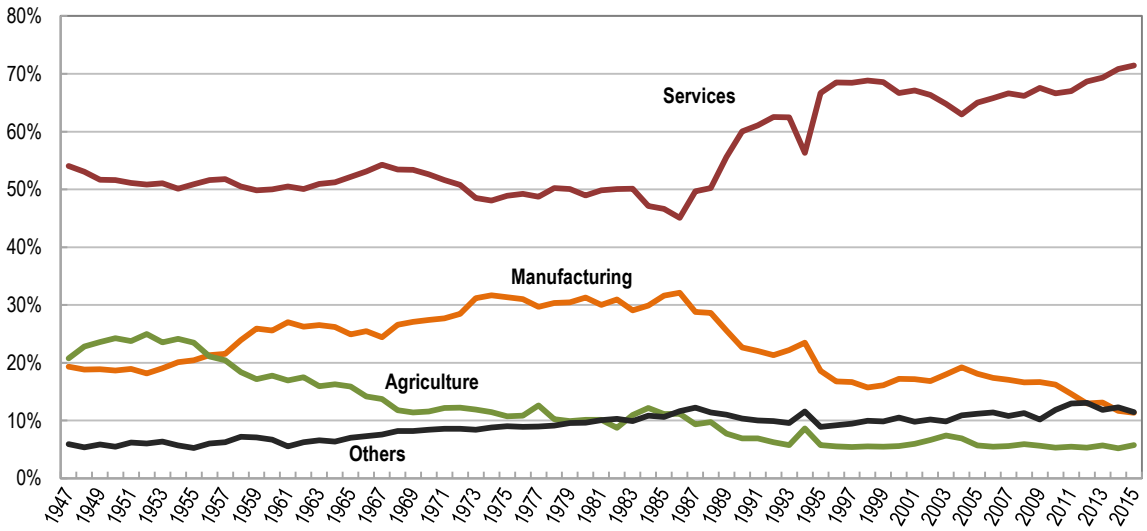
Services are the first sources of activity and jobs in Brazil. Services sectors are oriented towards a large domestic market and attract almost half of incoming foreign investments, but their export performance remains bleak. Brazilian services suffer from structural weaknesses, chief among which are low productivity and high inflation. With a high contribution of intermediate services to manufacturing value-added, the lack of productivity in services spills over to curtail manufacturing competitiveness.

1.1. A large but weakly productive services sector

Brazil's services sector is unusually large compared to countries of similar income

Services are the main contributors to Brazil's GDP. The service sector remained relatively stable at around 50% of GDP until the mid-1980s; at the same time the growth of the manufacturing industry was accompanied by an almost symmetrical decline of agriculture (Figure 1).[1] The industry share of total output peaked in the mid-1980s, at 32%. The economic structure then underwent profound changes as the services share grew rapidly at the expense of manufacturing, to reach 71% in 2015.

Figure 1. Sectoral participation in GDP



Note: The category "*Others*" is composed of *construction*, *mining* and *mineral extraction* industry, and *electricity, gas and water*. Data for 2015 comprises January-September.

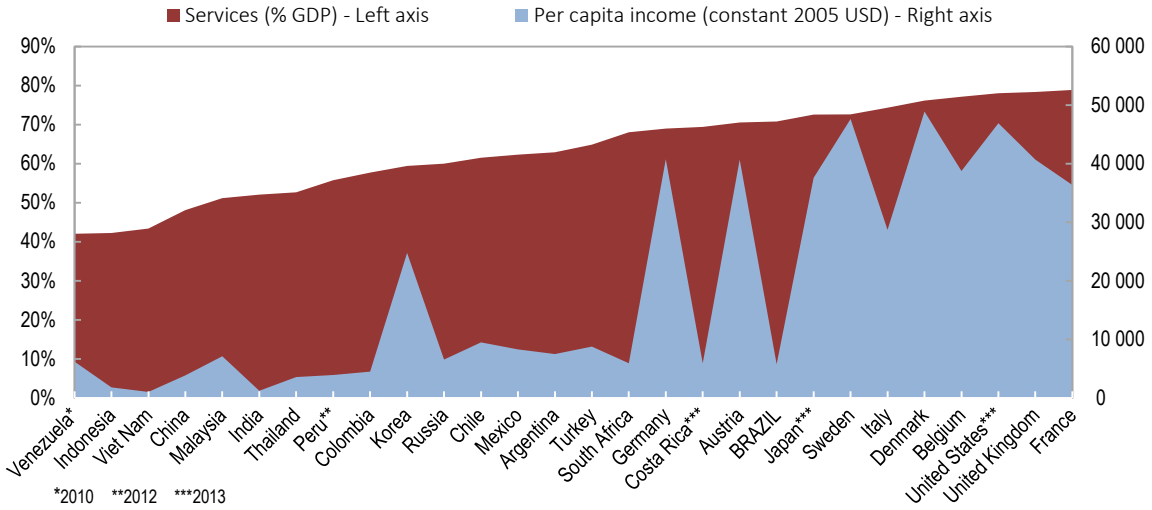
Source: Elaboration based on National Accounts, Brazilian Institute of Geography and Statistics (IBGE).

Not only has the contribution of services to Brazil's GDP been growing rapidly, but it also stands out as an exception among countries of similar development (Figure 2). Brazil's share is similar or higher than those of Austria and Germany, and much higher than in other emerging countries such as the People's Republic of China (hereafter "China") (48%). In Korea, whose GDP per capita is 2.4 times larger than that of Brazil, services account for 59% of GDP compared to Brazil's 71%. The Brazilian case seems to be an anomaly, linked to the decline of the industrial sector since the 1980s. While East Asian economies were able to take advantage of the increased integration of the world economy to build dynamic manufacturing industries, Brazilian

1. Note that the methodology to estimate the GDP has changed several times during the period presented. The current series starts in 1996, and there was no retroaction of the series.

manufacturers were caught unprepared for international competition after decades of protection and industrialisation through import substitution. The Brazilian economy thus appears unusually dependent on the performance of services for an emerging economy, and in dire need of restoring manufacturing competitiveness.

Figure 2. Income per capita and share of services in GDP, 2014



Source: Elaboration based on data from the World Development Indicators.

The service sector is also by far the country's main source of jobs. In 2014, it accounted for no less than 74.3% of total formal workers.[2] Meanwhile, the manufacturing and extractive sectors went from 20.8% in 1995 to 16.4% in 2014. Services play an even more prominent role in job creation: in recent years, 8.3 of every 10 new formal jobs created originated in the services sector.[3] It follows that the services sector virtually dictates the contours of the Brazilian labour market.

Business services, information and government services have been driving services output growth

The breakdown of services output over time shows several medium- and long-term trends (Figure 3). First, the share of public administration and public services such as health and education grew significantly in the past decades.[4] Second, while the contribution of retail remains high, the sector has lost in relative importance over time. Third, other services including business services gained in participation. Fourth, information services showed significant growth since the mid-1990s, which is related to technological innovation and technological changes. Fifth, the share of financial intermediation grew from the late 1960s to the mid-1990s, which may reflect the effects of the reform of the national financial system in the late 1960s as well as the "inflation tax" accruing to the

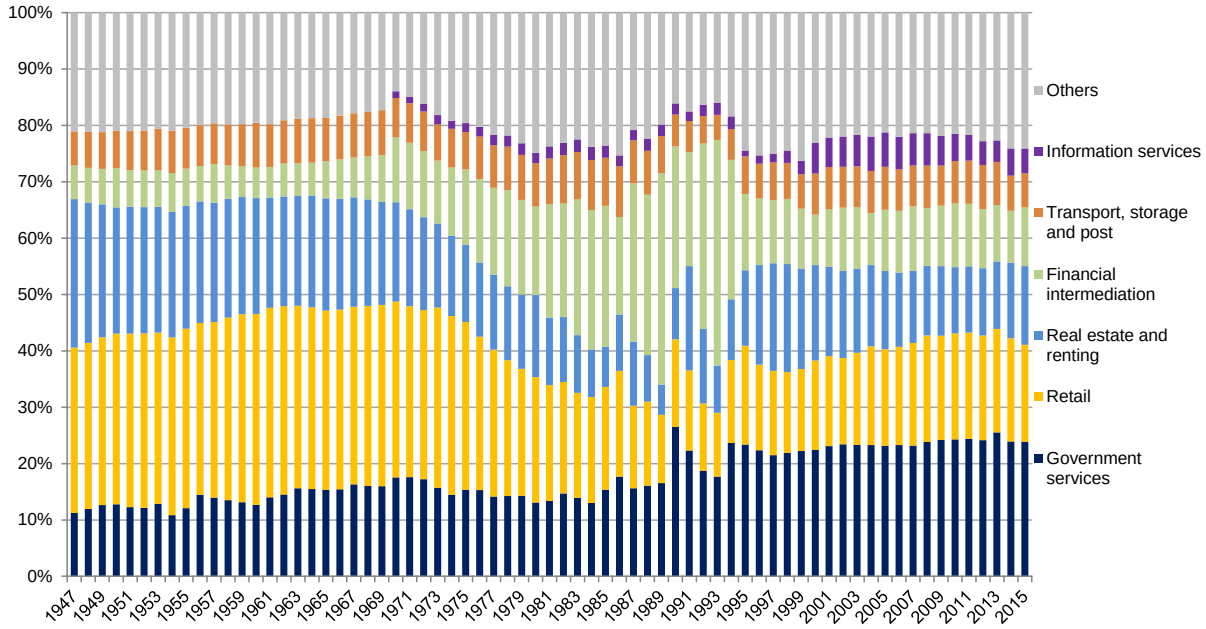
2. The figures cited in this and the next paragraphs are from General Register of Employment and Unemployment (CAGED), Ministry of Labour.

3. While the dynamism of the service sector boosted the labour market during expansionary times, it is now contributing to unemployment during economic reversals. In 2015, a year marked by a deep recession, the service sector has lost 350 661 jobs, which accounts for 34.1% of the total jobs closed. These figures refer to January-November 2015.

4. The tax burden in Brazil is much higher than in countries with similar per capita income. This allows Brazil to have proportionally higher expenditure on administration, health and education.

sector in the form of high interest rates during the high-inflation era; it has declined since but remains high at 10% of total services.[5]

Figure 3. Breakdown of services output



Notes: The category "others" is composed of maintenance and repair services, accommodation and food services, business services, private education and private health services. Information services account for telecommunication and computer services. Government services include public administration, education and health. Construction, electricity, water, sewage, gas and public areas maintenance are classified by the National Accounts as "Industry" and therefore are not included in the breakdown.

Source: Elaboration based on National Accounts, Brazilian Institute of Geography and Statistics (IBGE).

Market services are oriented towards a large domestic market

Brazilian households spend a higher share of their total expenditure on services than in other emerging countries, as shown in Table 1. In 2009, the share of their budgets allocated to services was 62%, well above China (55%) and India (50%). Brazil particularly differs from other emerging countries in the consumption of financial services and business services, which account for 13% of household expenditure but only 5% in China and 6% in India.[6] The depth of the domestic market partly explains the size of services sectors in Brazil despite low productivity and a lack of international competitiveness.

5. Some caution is warranted in interpreting small changes due to breaks in the methodology used to estimate GDP over time and difficulties in estimating service activity volumes in periods of high inflation.

6. The high share of financial services in Brazil is in part due to the high inflation and high banking market concentration, together with high interest rates.

Table 1. Services share of final household consumption, 2009

	Brazil	China	India	Russia	Indonesia
Electricity, construction and public services	3%	2%	2%	5%	2%
Retail, wholesale, hotels and restaurants	16%	15%	12%	22%	19%
Transportation	5%	2%	10%	6%	6%
Education, health and social services	11%	19%	10%	7%	12%
Post and telecommunication	3%	3%	0%	2%	3%
Finance	7%	4%	2%	2%	3%
Real estate	11%	9%	10%	7%	0%
Business services	6%	1%	4%	1%	0%
All services	62%	55%	50%	52%	45%

Source: OECD Perspectives on Global Development 2014, p. 157.

Productivity in services is low and stagnating

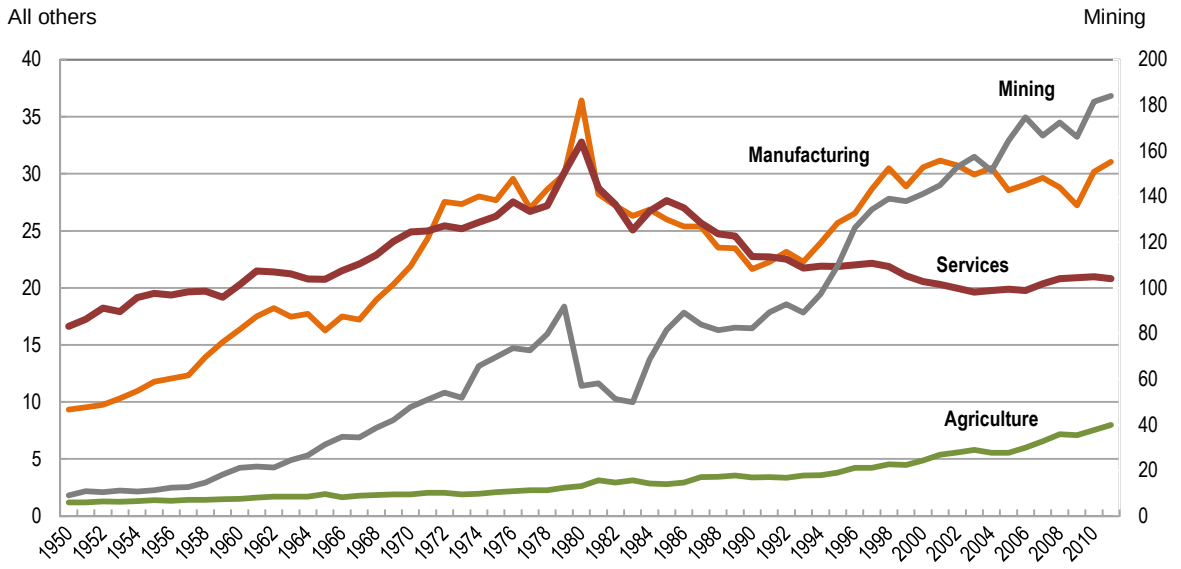
The main challenge of Brazilian services sectors is addressing their structural productivity deficit. The decoupling of labour productivity in services from that of other segments in the economy dates back to the 1990s (Figure 4). After reaching a peak around 1980, services productivity has been decreasing ever since and kept lagging behind while manufacturing productivity recovered in the mid-1990s.[7,8] Services are thus the main culprit behind Brazil's overall productivity stagnation.

Looking at productivity in an international comparative perspective also reveals a deficit in Brazilian services. Labour productivity in the aggregate services sector in Brazil is only about 19% of that of the United States, whereas Brazil reaches 32% of US productivity in manufacturing and 77% in extractive industries (Figure 5). Business services, such as financial intermediation and telecoms, have a smaller productivity gap.

7. It should be kept in mind that since manufacturing and especially mining include highly capital intensive activities, the gap in efficiency or total factor productivity is likely to be smaller than the gap in labour productivity. Nevertheless, at least part of the productivity differential between services and other sectors can be credited to differences in total factor productivity and technological changes. For a comparison of labour productivity and TFP changes in services and in manufacturing, see e.g. OECD (2014), p. 281.

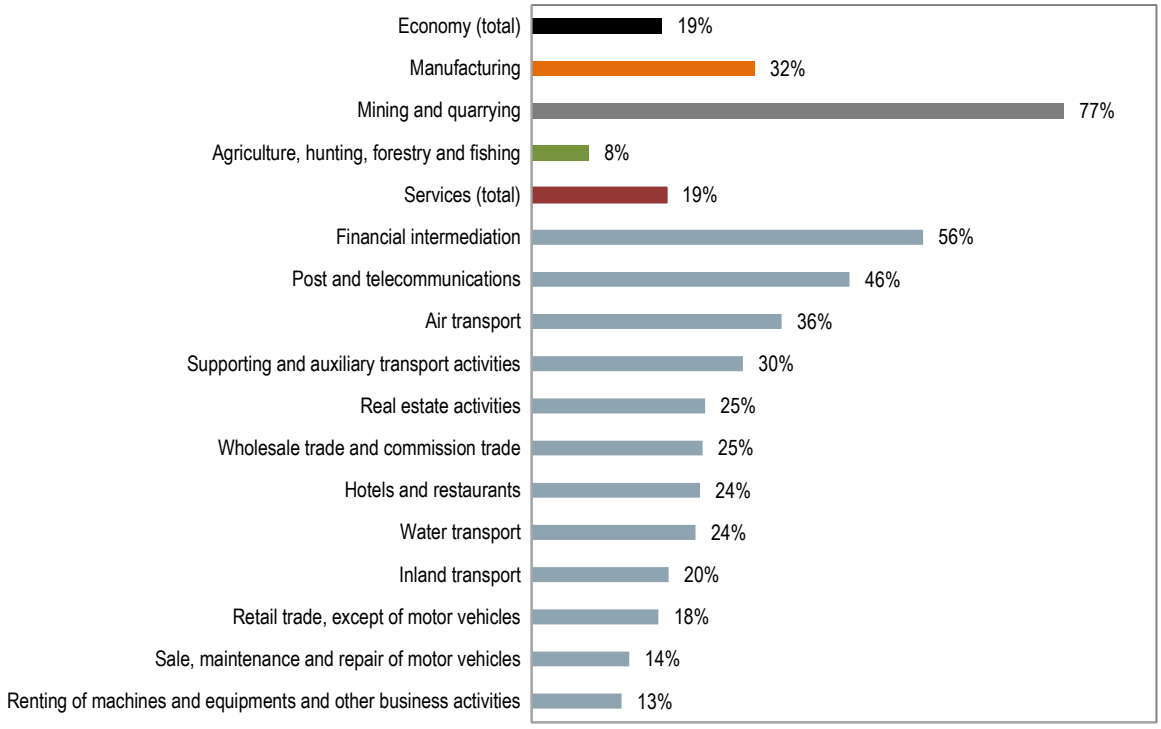
8. The high relative productivity of services in the 1950s and 1960s can be explained by low manufacturing productivity in the early stages of industrialisation as well as relatively high value added generated in the financial sector, government services and public utilities. See Bonelli (2005).

Figure 4. Evolution of labour productivity (in constant BRL 1 000)



Source: Elaboration based on data from the Groningen Growth and Development Centre.

Figure 5. Labour productivity in Brazil in selected sectors relative to the United States (in USD), 2011



Source: Elaboration based on data from Timmer (2012).

Two factors contributing to low services efficiency are illustrated in Table 2 (Panel A), which presents key characteristics of formal services firms.[9] First, services firms are relatively small. The average value added per firm per month, at about BRL 46,000, is much lower than in manufacturing and extractive industries. Services firms employ 8.5 workers on average.[10] Second, wages are rising faster than value added per worker, though they remain well below industrial wages. Net wages (excluding payroll taxes) are fairly high relative to value added per worker, in the order of 33%. Potential explanations for this evolution are the minimum wage, which has grown substantially more than inflation, and the deceleration of the working age population combined with the stagnation of labour force participation, which constrained the pool of workers seeking employment.[11] At the same time, job turnover in the service sector is about four times higher than in the rest of the economy. The high turnover discourages investment in human capital both by employees and by employers, thus contributing to the persistence of low productivity (see Gonzaga and Pinto, 2014).

Table 2. Characteristics of firms in services sectors constant BRL

A. Aggregate services and industry

	Services			Manufacturing and mining
	2007	2012	Growth 2007-12	2012
Value added by firm (BRL per month)	31 435	45 736	45.5%	340 906
Value added by worker (BRL per month)	3 576	5 380	50.4%	9 196
Firm size (Number of workers)	8.8	8.5	-3.5%	37.1
Wage (BRL per month)	1 153	1 793	55.5%	2 861

B. Selected segments (2012)

	Hospitality	Food and catering	Information technology	Air transportation
Value added by firm (BRL per month)	38 247	16 240	73 356	3 020 048
Value added by worker (BRL per month)	2 961	2 303	8 727	12 405
Firm size (Number of workers)	12.92	7.05	8.41	243.46
Wage (BRL per month)	1 236	972	3 655	5 428
Inter-industry wage differentials (% above/below weighted mean after controls)	-12.1	-11.9	24.2	50.5

Note: In order to estimate the inter-industry wage differentials we employed the methodology proposed by Haisken-De New and Schmidt (1997). Control variables in the models are: schooling age gender ethnicity firm size union affiliation region metropolitan area urban area tenure on the job experience and experience squared. Coefficients in the last line of the table are interpreted as the net wage premium (after taking control variables into account) earned by an individual affiliated to a given industry – this is also known as "industry affiliation-effect". For details see Arbache (2014).

Source: Elaboration based on data from the *Pesquisa Anual de Serviços* (PAS) and *Pesquisa Industrial Annual* (PIA) – Brazilian Institute of Geography and Statistics (IBGE). Note that the sampling design and composition differ between PAS and PIA. 1 USD ≈ 1.95 BRL in 2007 and in 2012; 1 USD ≈ 3.3 BRL in August 2016.

9. These figures are drawn from the Annual Services Survey (PAS) which does not cover financial intermediation. Credit institutions are therefore not included in the calculation of average characteristics.

10. The PAS sample used in this table comprises firms with five or more workers only. The average number of workers per firm in the original sample of PAS is 5.26. OECD (2014) shows evidence for Brazil and other countries that the smaller the service firm is, the lower its total factor productivity.

11 . For a detailed study on service sector productivity using PAS microdata, see Arbache (2015).

Firm and worker characteristics differ considerably across service segments (Table 2, Panel B). The value added created per employee in air transportation is several times larger than in the food and hospitality industries. Wages and firm sizes also vary substantially across sectors. Inter-industry wage differentials reflect these disparities. After controlling for variables such as schooling, age, size of firm, gender, among others, a worker in the air transportation sector earns 50% more than a worker with comparable traits but employed in other industries, while a worker in the hospitality segment earns 12% less. The notion of a unified service sector may therefore be misleading where high- and low-tech firms co-exist in the same market as well as high- and low-skilled workers. Developing effective policies for services taken in a general perspective is likely to be a major challenge for the government and the private sector alike, and an integrated services policy should take into account the specificities of how firms compete in different services sectors.

Services competitiveness is burdened by high prices and distorting taxes

Low services performance acts as a constraint to the dynamism of the whole Brazilian economy. In order to bolster industrial competitiveness, attract foreign investment and participate in global value chains, Brazil's economy requires quality services at competitive prices.

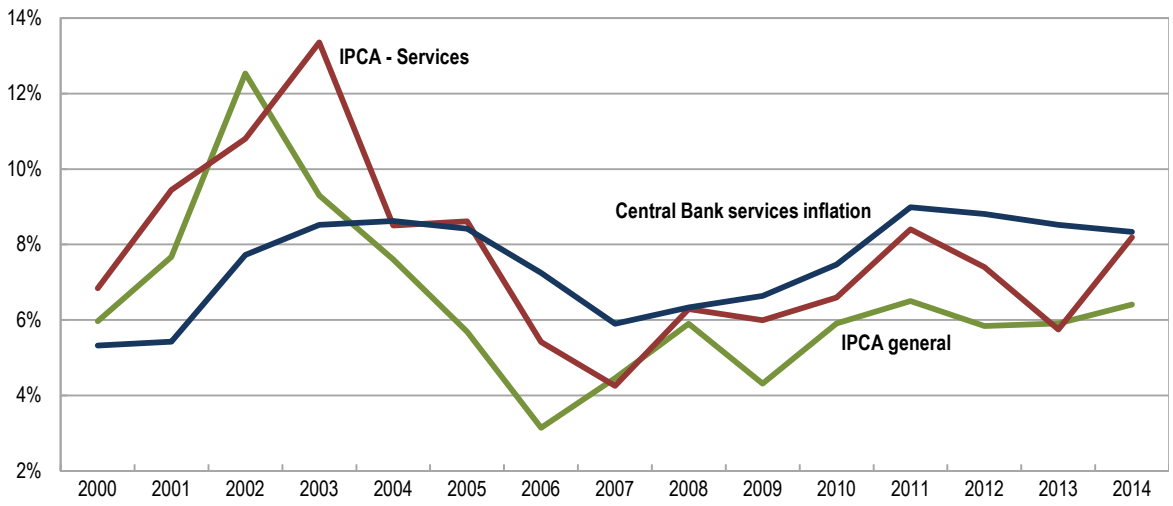
Yet services are not competitively priced compared to the rest of the economy. Figure 6 plots services inflation against overall CPI inflation (IPCA) in the period 2000-2015. The IPCA-services components inflation and the Central Bank services inflation rates were substantially higher than the headline index, adding up to services prices hikes of about 60 percentage points above general inflation over 15 years. Among potential explanations, one can cite insufficient productivity gains, lack of competitive pressure and lower sensitivity of consumption to prices for customised services than for goods.

Lastly, the tax burden on services is heavier than in other sectors. In 2013, taxes collected on non-financial private services amounted to 24% of their total revenue, the largest part consisting of taxes on income and property (CNS, 2014). While the average tax burden on the production and consumption of goods and services is 19.4%, it is much higher in the services segments most critical to other sectors of the economy: the tax toll exceeds 23% in transport and business services, 27% in IT services and over 30% in utilities (Figure 7).[12]

Transport and communication services are subject to the ICMS tax on value added, levied at the state level at high rates that act as disincentives to Brazil's insertion in global production networks. Additional sector-specific taxes levied on telecommunications firms include contributions for universal services (FUST), for technological development and research (FUNTTEL) and for the inspection of services (FISTEL). Other services are subject to the municipal ISS tax, which is levied at lower nominal rates but does not allow credit for inputs purchased and thus amounts to a sales tax. In both cases the federal contributions PIS/Cofins are applied to the value of the service including ICMS or ISS paid, and only allow credit to offset PIS/Cofins paid on goods and services inputs that are directly used in the production process. Furthermore where Brazilian enterprises contract with non-residents, the effective taxation of imported services can reach as much as 50% (CNI, 2013). The high and uneven rates as well as the complexity of taxes therefore contribute to the high cost of services in Brazil, and in turn to sluggish performance in manufacturing sectors that use those services as inputs.

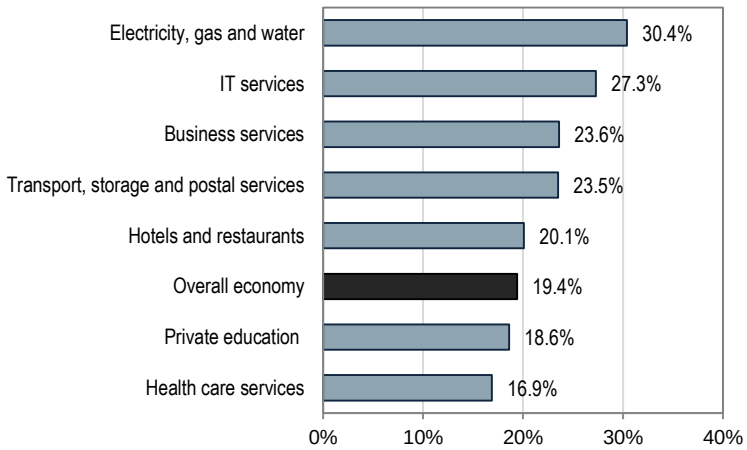
12. These numbers include taxes on production and consumption, but exclude direct taxes and social contributions paid by physical persons. The total federal and state tax burden in Brazil amounted to 32.7% of GDP in 2015 (RFB, 2015).

Figure 6. Services inflation rate, 2000-2015



Source: IBGE and Central Bank.

Figure 7. Tax burden in % of the price of goods and services, 2013



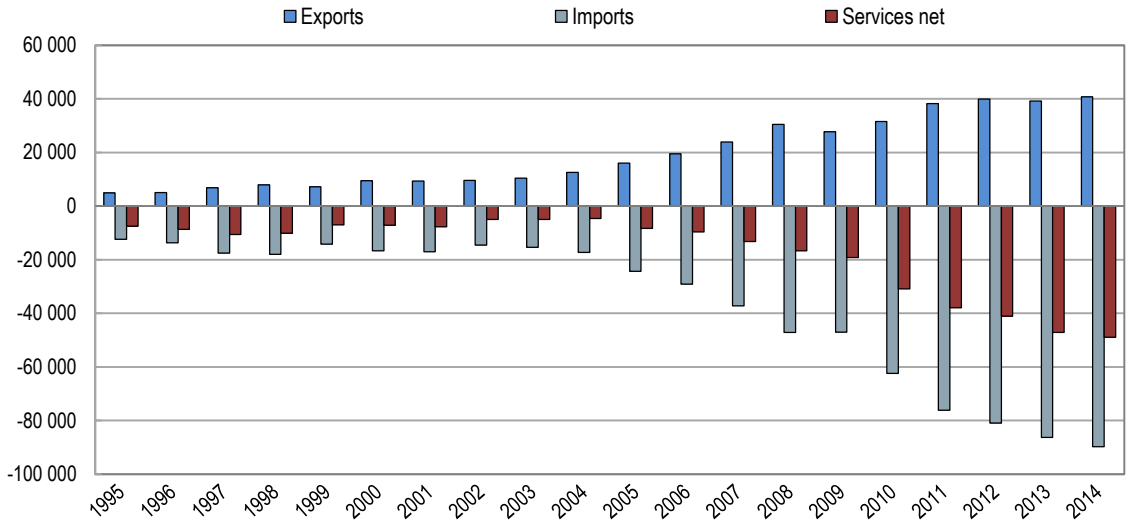
Source: CNS (2014).

1.2. International trade in services is growing but exhibits a large deficit

A widening services trade deficit

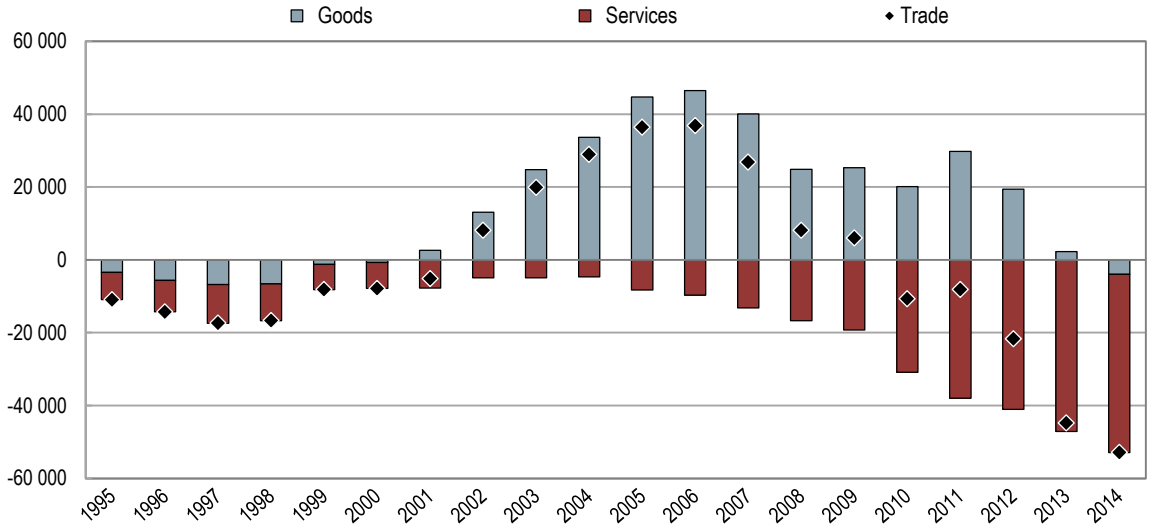
Brazil's services trade has increased substantially over the last two decades, particularly since the mid-2000s. Between 2005 and 2014, exports of services increased by an average 11% per annum, while imports of services grew at an annual average of nearly 16% (Figure 8). These trends have contributed to a widening services trade deficit and, in recent years, an increasing trade deficit, exacerbated by the exchange rate appreciation, the global commodity slump and a slowdown in Brazil's main trading partners. Brazil's recent currency depreciation may temporarily help improve the overall trade position – in 2015, the service trade deficit shrank by 23% over the previous year as a result of the exchange rate movements but also of the deepening recession. It remains that reviving the international competitiveness of Brazilian services in the long term will require tackling its structural determinants.

Figure 8. Brazilian services trade flows in USD million, 1995-2014



Source: Central Bank of Brazil, Balance of Payments, BPM5.

Figure 9. Brazilian trade balance in USD million, 1995-2014



Source: Central Bank of Brazil, Balance of Payments, BPM5.

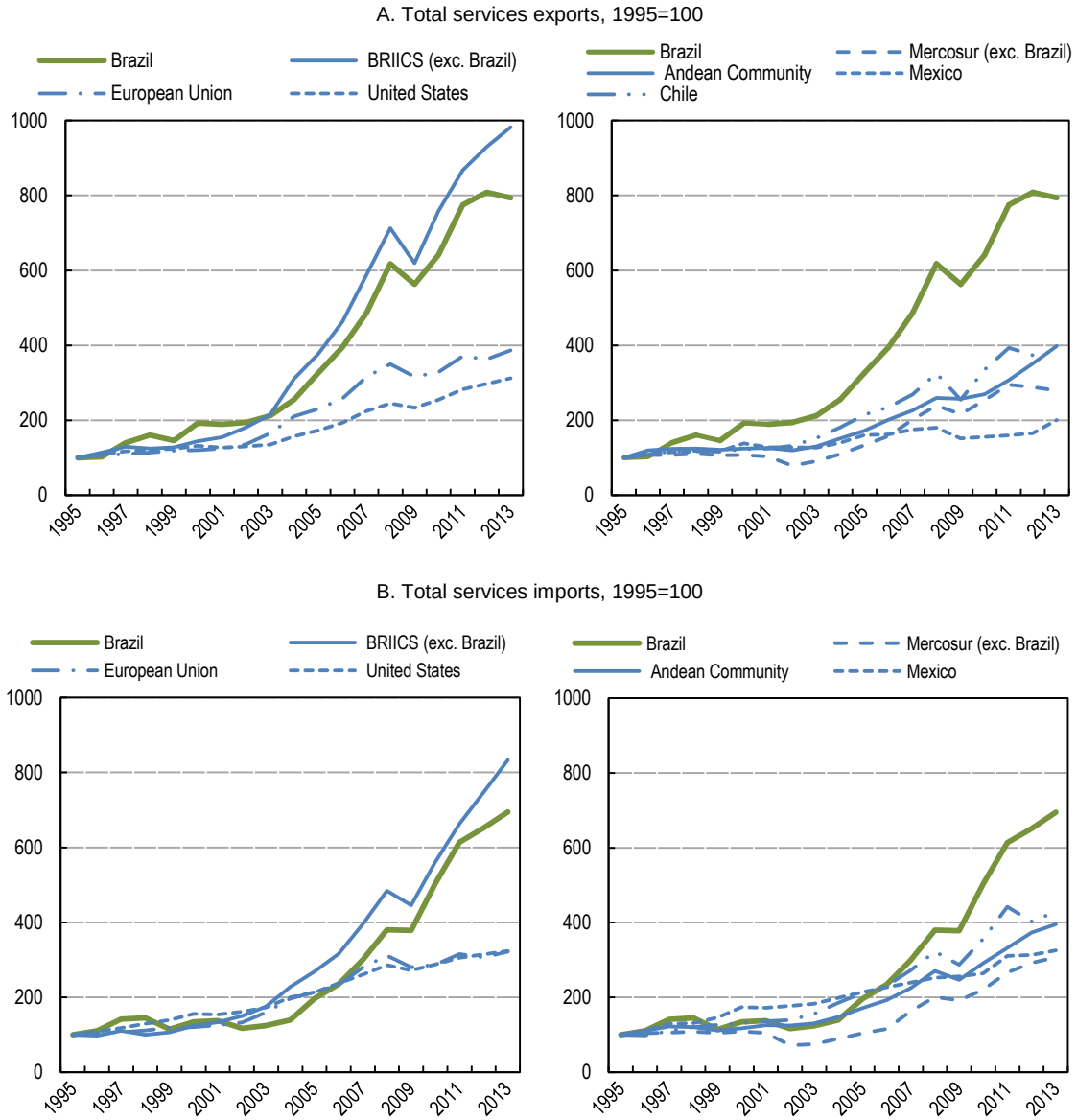
Services trade growth outpaces that of Latin America, but trails other emerging economies

Brazil's exports of services grew nearly eight-fold between 1995 and 2013, from around USD 5 billion to 39 billion. [13] Its services export growth has outpaced that seen in large big trading blocs – such as the European Union and the United States – and in other large Latin American countries. Nevertheless Brazil's share of overall exports in Mercosur in 2013 (65%) still fell short of its share of GDP (70%), and its services exports have not risen as fast as in other emerging economies such as India and China. Total exports of services amounted to only 2% of its GDP and around 1% of global

13 . These figures are extracted from the OECD/WTO Trade in Services Data, providing bilateral trade in services data broken down by services categories following the EBOPS 2002 classification; the data covered so far goes from 1995 to 2013, the latest year made available.

exports of services. Services imports grew seven-fold between 1995 and 2013, amounting to about 4% of GDP.

Figure 10. An international comparison of services trade growth



Note: Mercosur is composed of Argentina, Brazil, Paraguay, Uruguay and Venezuela; Andean Community includes Bolivia, Colombia, Ecuador and Peru; BRIICS stands for Brazil, Russia, India, Indonesia, China and South Africa. The EU bloc includes all 27 European member countries as of December 2013.
Source: OECD/WTO Trade in Services Data, EBOPS 2002, 2015; Central Bank of Brazil, Balance of Payments, BPM5.

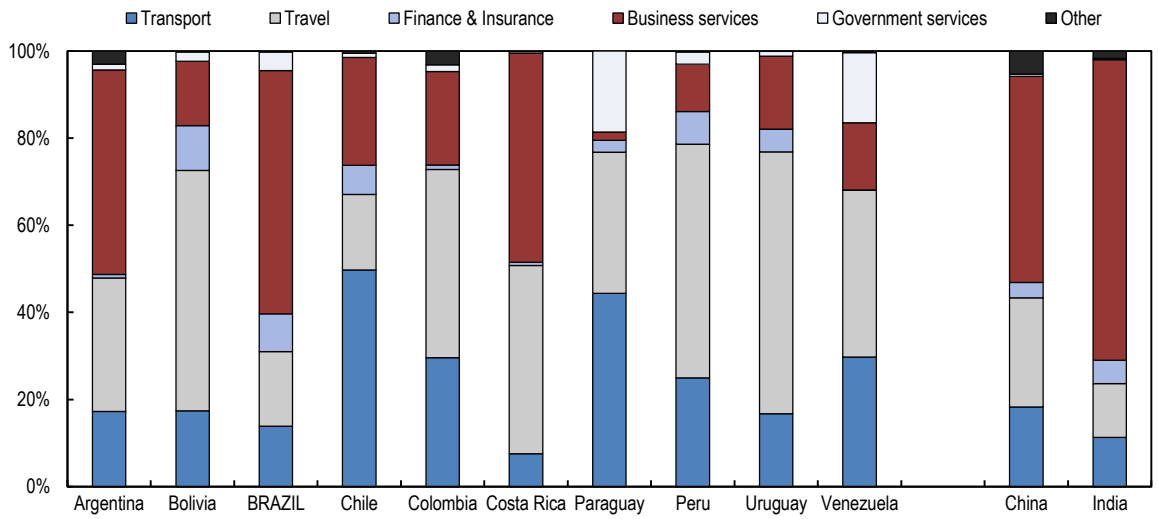
Business services stand out in Brazil's export profile compared to Latin America

Business services, *Travel services* and *Transport services* account for most of Brazil's services exports, with shares of 56%, 17% and 14% in 2013, respectively. While other large Latin American countries export mostly *Transport services* and *Travel services*, more than half of Brazilian exports are *Business services*, with large contributions from professional services such as *Architecture and urban planning, engineering and other technical services* as well as *Legal, accounting and*

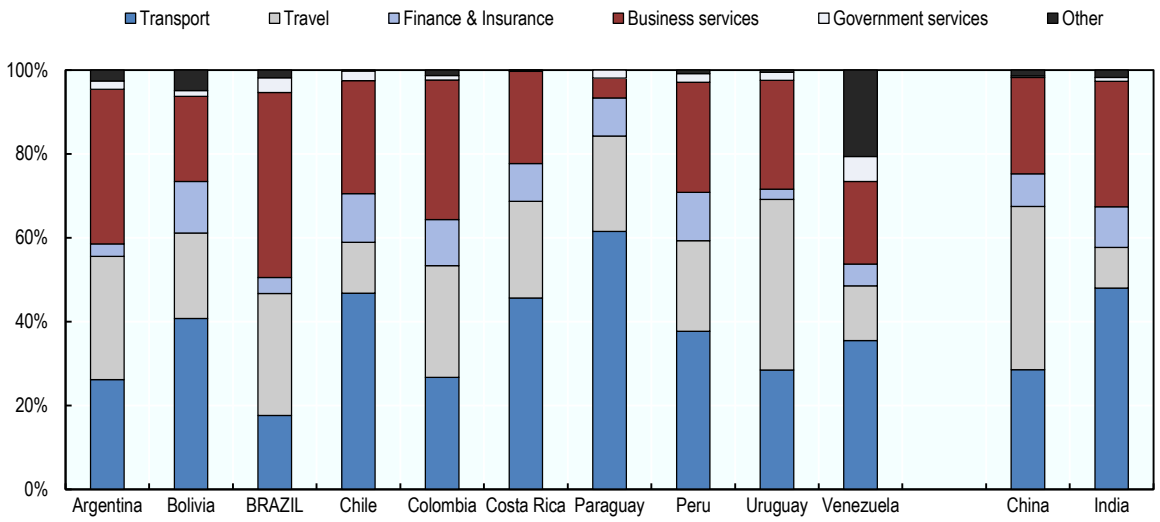
management consulting services.[14] The composition of Brazilian services exports is somewhat similar to that observed in other large emerging economies, such as China and India.

Figure 11. An international comparison of traded services

A. Exports, in % of total exports of services, 2013



B. Imports, in % of total imports of services, 2013



Note: The category *Business services* refers to: *Communication services*, *Computer & Information services*, *Royalties & License fees*, and *Other business services*. The category *Other* includes: *Construction services* and *Personal, Cultural & Recreational services*.

Source: OECD/WTO Trade in Services Data, EBOPS 2002, 2015.

14. These findings come from the OECD/WTO Balance of Payment Trade in Services statistics and are in line with the figures reported by Brazil's Ministry of Industry, Trade and Services, in their *2013 Overview of the International Trade in Services* publication, where Business services, Travel and Transportation services were also identified as Brazil's main exporting services.

Business services, *Travel services* and *Transport services* also play a significant role in Brazilian services imports, with shares of total services imports in 2013 of 44%, 29% and 18% respectively. Brazil's services import composition is less polarised than exports and more in line with that observed in the rest of Latin America. However, the share of *Business services* imports is relatively higher in Brazil than in other large Latin American countries as well as China and India. This peculiarity reflects in part the intensive use of business services in the mining sector. Brazil's imports of *Transport services* are mostly composed of maritime and air transport services, while land transport suffers from numerous infrastructure bottlenecks that Brazil has tried to address through public investment and private participation in infrastructure development, as part of its Growth Acceleration Program.[15]

Services exports show a large reliance on the US market and little regional integration

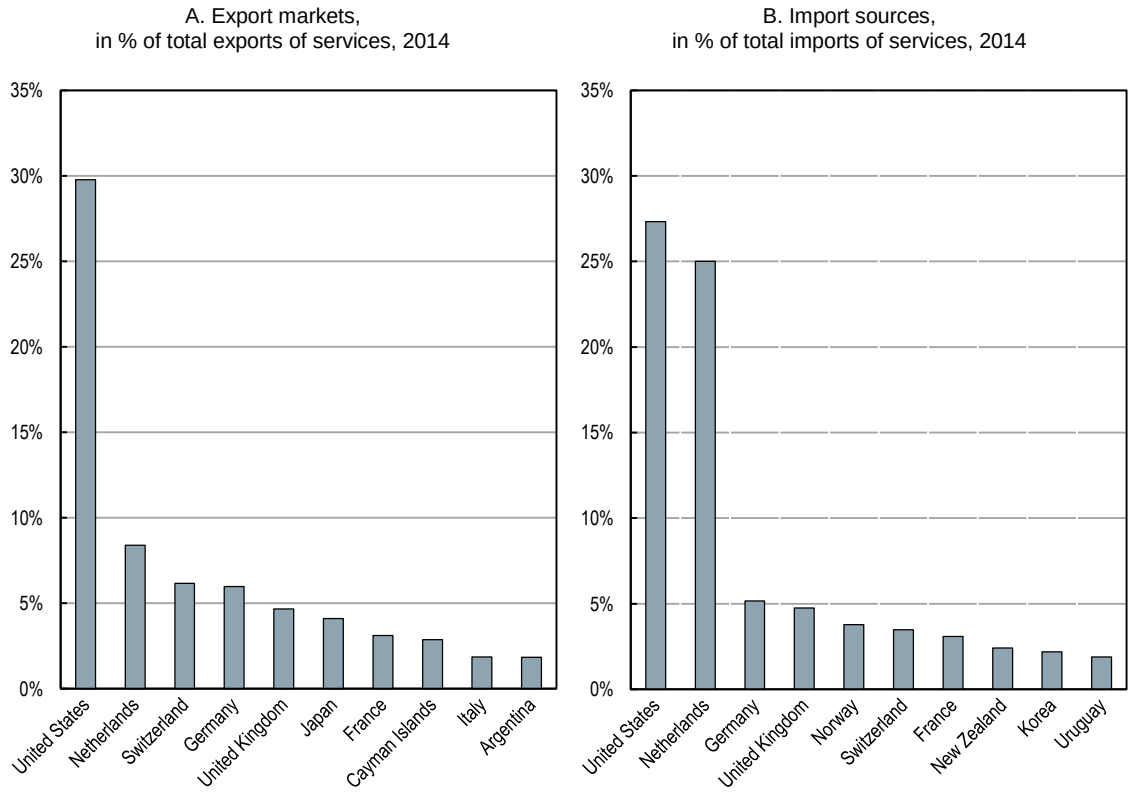
Brazil's services exports show very limited diversification across destinations. The United States is by far the main destination market for Brazilian services, absorbing 30% of services exports in 2014 and exposing Brazilian services to the risk of a downturn in US economic conditions. The United States together with the Netherlands, Switzerland, Germany and the United Kingdom purchased more than half of Brazil's exports of services in 2014. Argentina is the only Mercosur partner among the top ten destination markets.

The United States and the Netherlands are also the most important sourcing markets for Brazilian imports of services, accounting for 27% and 25% of Brazil's total imports of services in 2014, respectively. This, in very large part, is accounted for by *Rental of equipment*, perhaps as a result of fiscal incentives – through special taxation regimes such as REPETRO, REPEX and REPENEC[16] – granted to Brazilian firms renting machinery, instruments and equipment from foreign companies in order to perform extraction and refining of oil and/or natural gas. Amongst Latin American countries, only Uruguay is among the top ten sources of services imports.

15. Between 2011 and 2014, Brazil approved a series of infrastructure investment projects as part of the second phase of its Growth Acceleration Program (PAC-2). These projects included, inter alia, the expansion of Brazil's transport capacity via extension of highways and roads, railways, but also construction of new ports and airports while improving existing ones. Nevertheless, the realisation of these projects has not been very time-effective and results remain so far limited. More recently, Brazil has tried again to tackle its infrastructure bottlenecks by launching its Logistics Investment Program (PIL) to promote private investment in infrastructure projects through a series of concessions, leases and authorisations.

16. The Brazilian government has introduced two special custom regimes for the temporary import and the export of goods destined to the research and exploration of oil and gas (REPETRO) and for imports of crude oil and its products (REPEX), with the objective of stimulating investment in the oil sector. In addition to these special custom regimes, the Brazilian government has put in place a set of incentives for the development of the oil industry infrastructure in the North, North-East and Mid-West regions through the special regime REPENEC, with the objective of reaching levels of development similar to those observed in the Southern regions of the country.

Figure 12. Brazil's main trading partners in services



Source: Ministry of Industry, Foreign Trade and Services of Brazil, SISCOSERV (NBS), 2014.

1.3. Services dominate Brazil's inward and outward FDI

Brazil is an attractive destination for FDI in services but incoming flows have receded in recent years

Brazil is the largest recipient of foreign direct investment (FDI) in Latin America, absorbing 40% of the total flows directed towards the region; and the fourth largest FDI recipient in the world after China, the United States and the United Kingdom. Total inflows in Brazil rose quickly during the 2000s but have been on a declining trend since 2011, and fell by 2% in 2014 to USD 62.5 billion. Other large economies in the region, with the exception of Chile, also saw a decline in inward FDI in 2014. These downward trends may partly reflect the sluggish economic growth across the region and lower commodity prices. Brazil is also the country with the largest stock of FDI abroad in Latin America, although it has been reporting negative FDI outflows over the last four years.[17]

17. The negative FDI outflow of USD 3.5 billion in 2014 is due to the large net loans from subsidiaries abroad, USD 23 billion, while investments abroad are only USD 19.5 billion. This figure, compiled according to the methodology of the fifth Balance of Payment Manual (BPM5), would turn into a positive FDI outflow of USD 25.7 billion in 2014 if recorded according to the new methodology (BPM6) that the Central Bank of Brazil has just implemented, reflecting mainly changes in the way inter-company loans are dealt with.

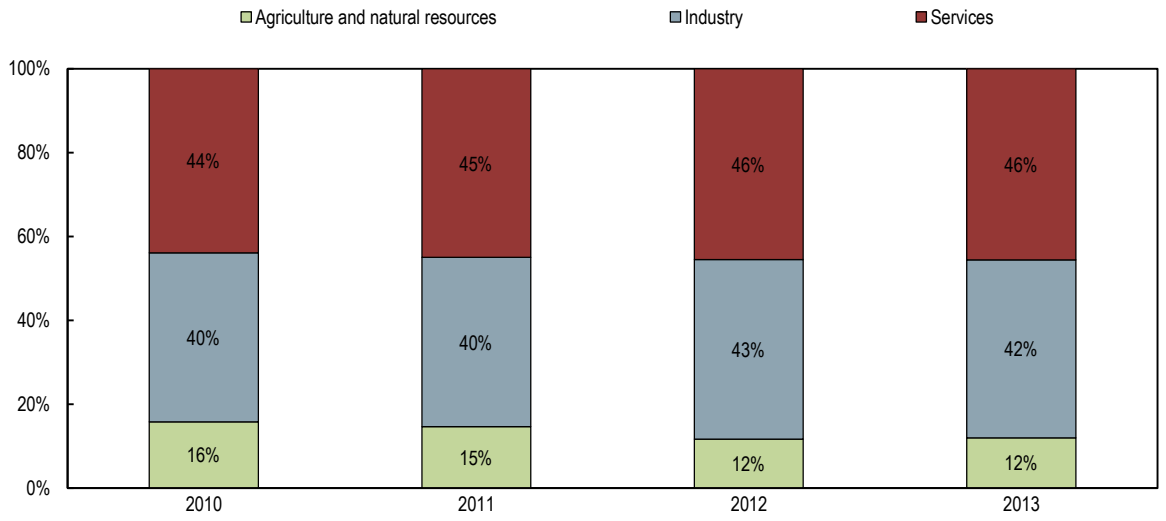
Table 3. Foreign Direct Investment flows in Latin America and selected economies (in million USD)

Inward FDI flows	2000-2005*	2006	2007	2008	2009	2010	2011	2012	2013	2014
Argentina	4 296	5 537	6 473	9 726	4 017	11 333	10 840	15 324	11 301	6 612
Brazil	19 197	18 822	34 585	45 058	25 949	48 506	66 660	65 272	63 996	62 495
Chile	5 111	8 798	13 178	16 604	13 392	15 510	23 309	28 457	19 264	22 002
Colombia	3 683	6 656	9 049	10 596	7 137	6 430	14 648	15 039	16 199	16 054
Mexico	23 521	20 982	32 321	28 610	17 679	26 083	23 376	18 951	44 627	22 795
Venezuela	2 546	-590	1 505	1 741	- 2 169	1 849	3 778	3 216	7 040	1 000
Latin America	**64 855**	**72 882**	**113 835**	**133 417**	**81 058**	**129 395**	**165 529**	**175 857**	**190 420**	**156 482**
Outward FDI flows	**2000-2005***	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Argentina	533	2 439	1 504	1 391	712	965	1 488	1 055	1 097	2 117
Brazil	2 513	28 202	7 067	20 457	- 10 084	11 588	- 1 029	- 2 821	- 3 495	- 3 540
Chile	1 988	2 212	4 852	9 151	7 233	9 461	20 252	20 555	10 308	12 052
Colombia	1 157	1 098	913	2 486	3 348	5 483	8 420	- 606	7 652	3 899
Mexico	2 909	5 758	8 256	1 157	9 604	15 050	12 636	22 470	13 138	5 201
Venezuela	809	2 076	43	1 598	2 236	1 776	- 1 141	2 460	2 152	-
Latin America	**10 010**	**41 921**	**23 192**	**36 946**	**13 019**	**44 788**	**40 719**	**44 226**	**31 971**	**21 053**

* Simple average, 2000 (or earliest available date) to 2005.

Source: European Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

Figure 13. Foreign Direct Investment stocks in Brazil, by sector, 2010-2013



Source: Central Bank of Brazil, FDI stock data (*Censo de Capitais Estrangeiros no País, anos base* 2010-2013).

Services receive the largest share of FDI stocks in Brazil, absorbing 46% of foreign capital participation in 2013 (Figure 13). This share has been growing steadily over the last few years, in part reflecting the decline of investment in sectors such as oil and gas exploration/exploitation and mining precipitated by declining commodity prices, but also as foreign companies have been attracted by Brazil's dynamic domestic demand. Within services, financial services constitute the largest recipient of foreign capital and the sector where most mergers and acquisitions take place (Table 4).[18] The telecommunication sector is another area characterised by substantial foreign participation.

Table 4. Decomposition of inward FDI stocks, by services sector (in million USD)

Services sector	2010	% share	2011	% share	2012	% share	2013	% share
Financial intermediation	109 368	42%	99 557	37%	104 933	37%	93 201	36%
Information and Telecommunications	45 167	18%	58 902	22%	55 578	20%	51 809	20%
Wholesale & retail trade; repairs of vehicles	28 059	11%	29 809	11%	34 673	12%	29 318	11%
Electricity, gas and water supply	30 068	12%	29 917	11%	29 432	10%	28 339	11%
Real estate activities	12 120	5%	13 124	5%	17 012	6%	17 710	7%
Professional, technical, and scientific activities	6 434	2%	7 961	3%	10 895	4%	13 037	5%
Administrative activities and complementary services	6 475	3%	6 420	2%	7 534	3%	8 109	3%
Transport	7 081	3%	7 989	3%	7 049	3%	8 023	3%
Construction	9 497	4%	8 275	3%	8 789	3%	6 794	3%
Hotels and restaurants	1 875	1%	2 282	1%	3 207	1%	3 034	1%
Health	161	0%	140	0%	311	0%	858	0%
Education	807	0%	650	0%	586	0%	648	0%
Personal, cultural and recreational services	609	0%	251	0%	374	0%	377	0%
Other personal services	338	0%	311	0%	263	0%	347	0%
Total services	**258 058**	**100%**	**265 589**	**100%**	**280 636**	**100%**	**261 605**	**100%**

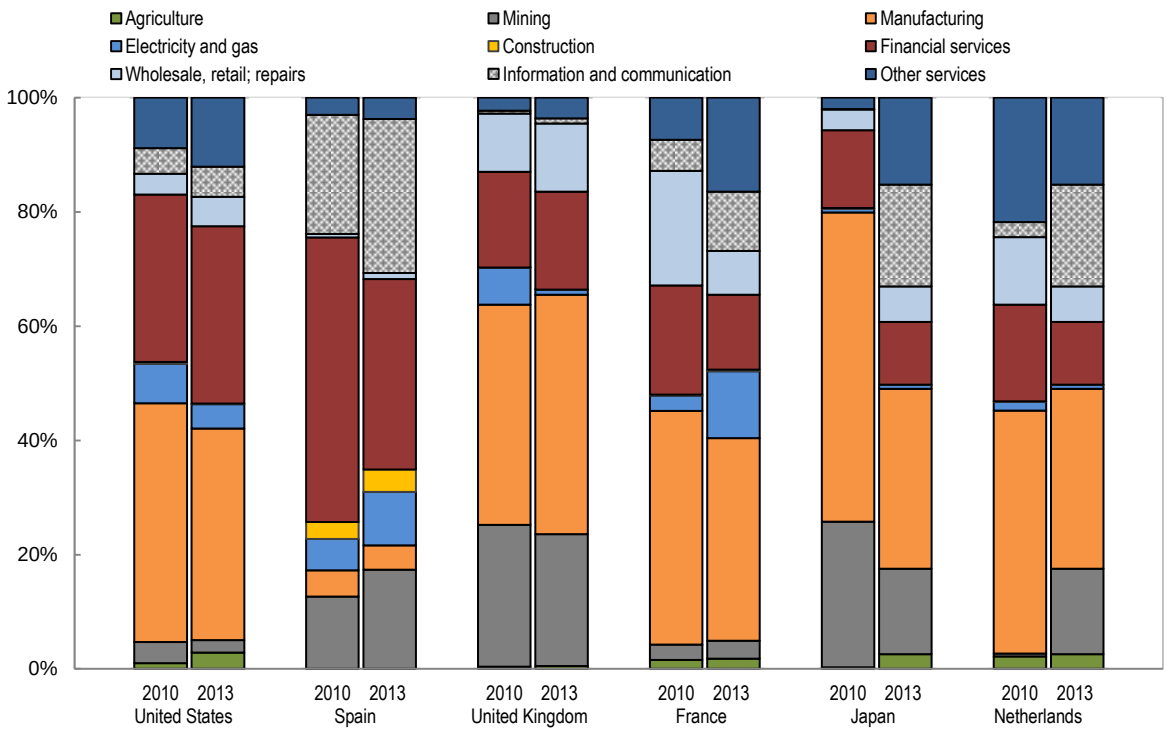
Source: Elaboration based on data of the Central Bank of Brazil (FDI stocks, capital contributions in Brazil). Sectoral aggregation is compatible with the IBGE classification, i.e. CNAE ver. 2.0.

18. For instance, in 2014, Spain's Banco de Santander acquired assets in its Brazilian subsidiaries for USD 3.2 billion, while China's China Construction Bank acquired a large portion of assets in Brazil's *Banco Industrial e Comercial* for USD 725 million – see ECLAC (2015).

Spain, Japan and the United States are the main investors in Brazilian services

In 2013, the United States was the largest investing country in Brazil, with FDI stocks of USD 116 billion, equivalent to 20% of the total.[19] Investments focused mainly on *Manufacturing* companies (USD 45.8 billion), *Financial Services, Insurance and Related Services* (USD 32.1 billion), and *Other Services* (USD 9.6 billion). The second largest investing country in Brazil was Belgium with a total capital participation of USD 63.6 billion, equivalent to 11% of the stock in 2013, concentrated almost exclusively in *Manufacturing* (USD 63.1 billion). Spain was the third largest investor with USD 61.2 billion, the main investing activities being *Financial Services, Insurance and Related Services, Information and Communication* and *Mining* (USD 20.4 billion, USD 16.5 billion and USD 10.6 billion, respectively). Together these three countries contributed nearly 40% of the total FDI stocks received by Brazil in 2013. The United Kingdom, France and Japan were the next largest contributors.

Figure 14. Foreign Direct Investment stocks, by investing country and sectors, 2010 and 2013



Note: The category *Other services* is composed of the following sectors: Transport and courier, Hotels and restaurants, Real estate activities, and Other personal services.

Source: OECD elaboration on the basis of information provided by the Central Bank of Brazil on FDI stocks, capital contributions.

19. The Central Bank of Brazil provides stocks of FDI distributed by non-resident investor country following two criteria, immediate investing country (IIC) and ultimate investing country (UIC). The distinction between the two criteria seeks to minimize the distortion caused by tax havens and financial centres. The UIC criterion considers the country of origin of the investment; in other words, where the final control of the direct investment enterprise is located. Using the UIC criterion, countries such as the Netherlands and Luxembourg, known as investment hubs in which MNEs pass investments through to other countries where the actual production takes place, are much less important. The figures reported in the main text refer to the UIC criterion; however, to provide some context, using the IIC criterion, in 2013, the Netherlands was largest investing country, with USD 163.3 billion (as opposed to USD 22.4 billion with the UIC criterion, ranking 8th), and Luxembourg the fourth, with USD 39.2 billion (but with USD 14.7 billion according to the UIC criterion and ranking 12th).

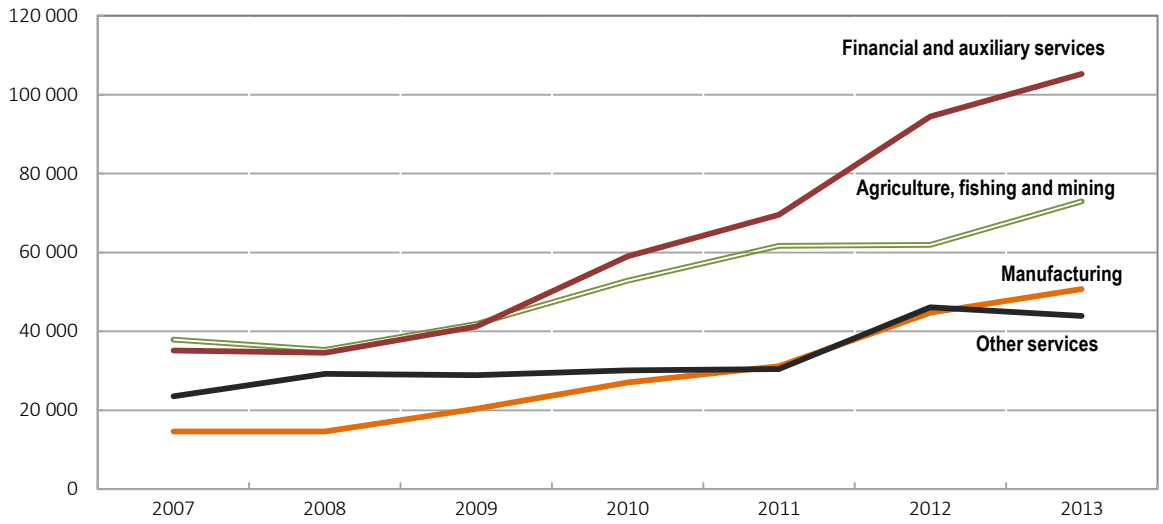
The ranking is slightly different when considering which countries are the main investors in services sectors. In 2013, for instance, the largest portion of FDI stocks allocated to services came from Spain, where services absorbed nearly 70% of its total investments in Brazil. The second and third largest contributors to services in 2013 were the United States and Japan, which allocated half or more of their total FDI stocks to Brazilian companies operating in the services sector. On the other hand, the United Kingdom invested less than a third of its total FDI stocks in services sectors, focusing instead on manufacturing and mining industries. Since 2010, the largest relative increase was recorded by Japan, raising its capital participation in Brazilian services by 31 percentage points over the last three years.

Financial services are the primary driver of Brazilian direct investments abroad

The total stock of Brazilian investment abroad amounted to USD 295.3 billion in 2013, up 11% from 2012 and twice as large as the amount recorded six years earlier.[20] Brazil's outward FDI is mostly concentrated in services, although in recent years the industrial sector has also gained importance, as investments in natural resources sectors including mining grew less fast. Figure 16 illustrates how *Financial and auxiliary services* has been the main sector driving Brazilian outward FDI in the services sector in recent years. It should however be noted that a large share of it is accounted for by flows to low-tax jurisdictions such as the Cayman Islands, British Virgin Islands, Bahamas and Luxembourg. Other services sectors have been more inward-looking, exhibiting less dynamic direct investments abroad.

Figure 15. Brazilian direct investment abroad, by sector

USD million, 2007-2013



Source: Elaboration based on data from the Central Bank of Brazil on Direct Investment Abroad, capital participation.

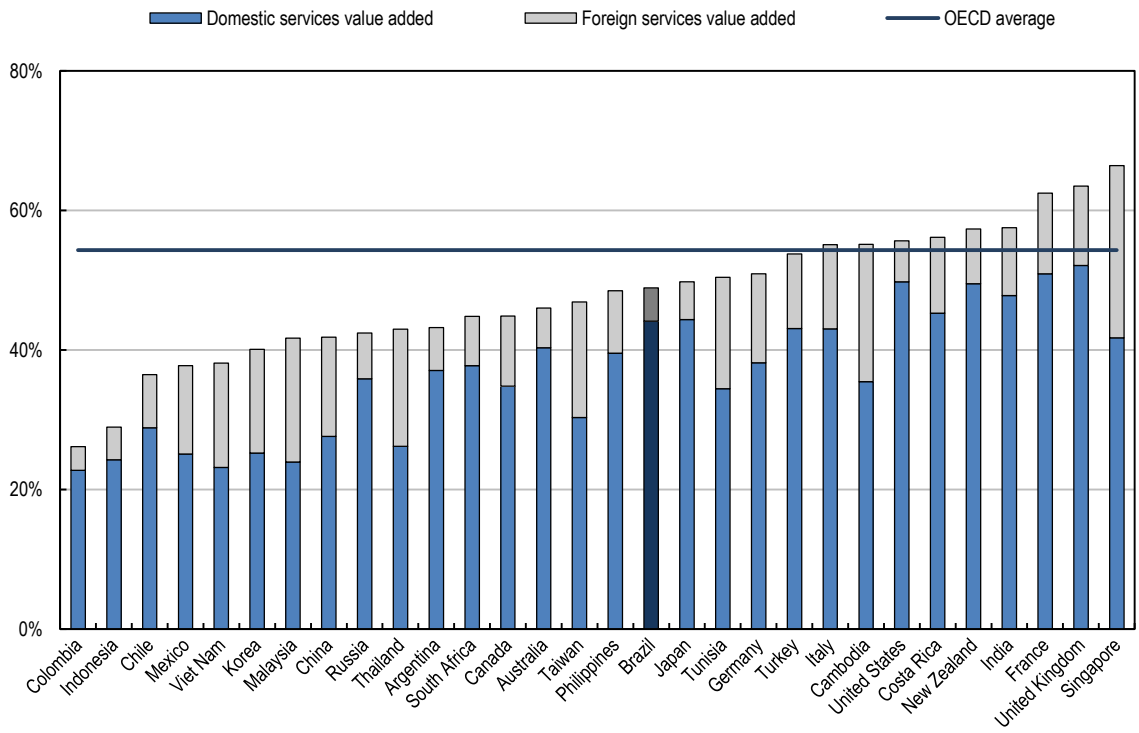
20. The majority of Brazilian direct investment abroad was composed of equities that Brazilian residents held in foreign companies, adding up to 92.4% of the total outward stocks in 2013, while the remaining 7.6% came from intercompany loans. These data come from the Brazilian Central Bank Outward FDI stocks (*Capitais brasileiros no exterior*) survey, years 2007-2013. The figures are calculated according to the methodology of the fifth Balance of Payment Manual (BPM5).

1.4. Intermediate services sustain merchandise exports

Services contribute to exports in their own right, but also as inputs into the production process of commodities and manufacturing exporters. Measuring trade in value-added terms reveals the underlying importance of competitive services for exports of extractive and manufacturing products. In Brazil, services contribute only to about a quarter of total exports when measured in gross terms. However, taking into account the indirect contribution of services inputs to industrial value addition paints a different picture (Figure 16). In 2011, the total service content of gross exports was just under a half (49%), above the same figure recorded in most of the larger Latin American countries and most of the BRIICS, but slightly below the OECD average (54%).

The recourse to foreign services providers to serve Brazilian manufacturers is considerably more limited than in other middle-income economies. Brazil has one of the lowest foreign services content of gross exports, with imported services contributing less than one-tenth of total services content. This partly reflects Brazil's large domestic market but is also likely to be an outcome of regulatory policies hampering foreign penetration in the services sector.

Figure 16. Services content of gross exports, by country, 2011

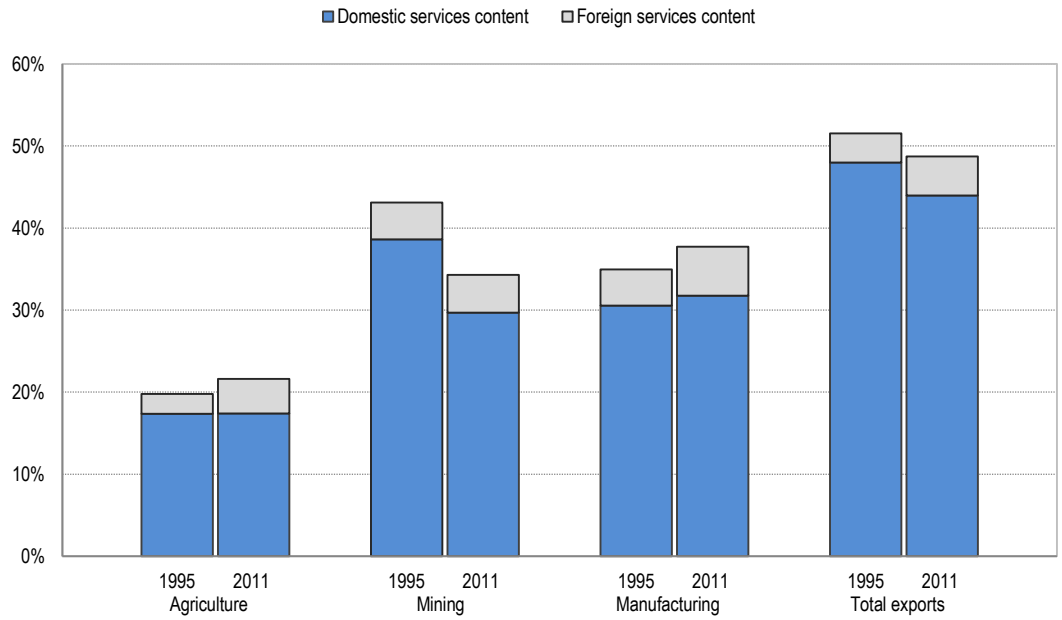


Source: OECD-WTO TiVA database, June 2015.

The contribution of services value added to Brazilian exports has decreased slightly since 1995, from 52% to 49% of total gross exports, as seen in Figure 17. This decrease was mainly driven by the decline of service content in the *Mining* industry, mostly from domestic suppliers, where the services content fell from 43% in 1995 to 34% in 2011.[21] By contrast, the share of services value added embodied in the exports of the *Agriculture* and *Manufacturing* industries increased by 2 and 3 percentage points, respectively, with a slight increase in the foreign services content in both industries. However the increase in the share of services value-added in agricultural and manufacturing exports is, at least in part, related to the rising price of services relative to other sectors experienced over the same period.

At the individual sectoral level, Brazil's main exporting industries reveal a relatively high service content of exports. Interestingly, the service content is particularly high in the manufacturing industries that have received special attention in Brazilian industrial policy as part of the Plano Brasil Maior, aimed at strengthening production and enhancing productivity in critical sectors such as *ICT*, *Chemicals and minerals*, *Textiles and apparel*, *Motor vehicles* and *Food products*. In these industries, services contributed to about 40% or more of the total value of gross exports. These same industries have fairly large contributions from *Business services*, which are associated with the ability to deliver more sophisticated and customised products. It follows that creating a durable competitive edge for those industries cannot be done without improvements in the quality and cost effectiveness of their services suppliers.

Figure 17. Brazil's services content of gross exports, by industry

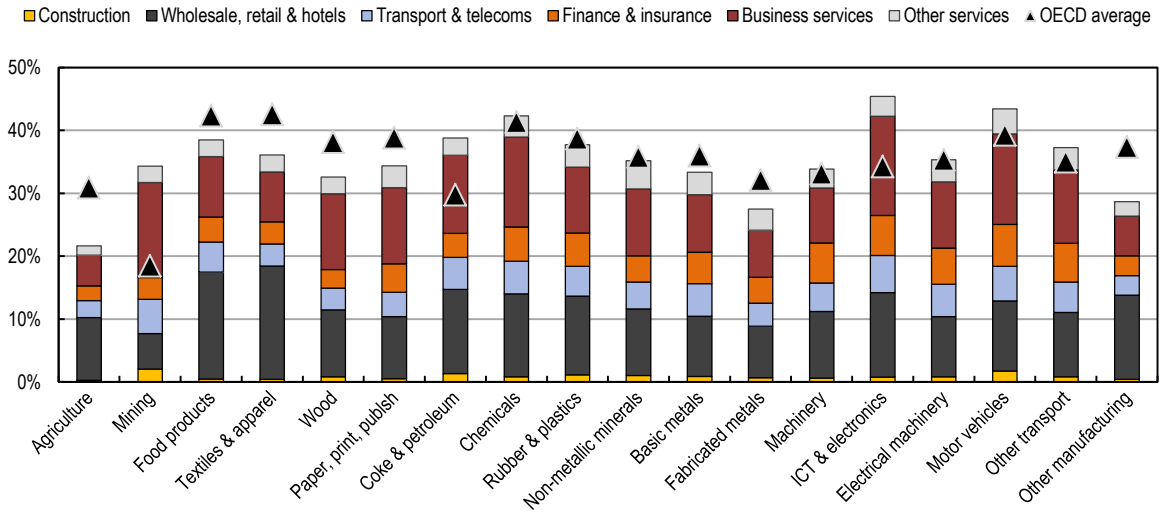


Source: OECD-WTO TiVA database, June 2015.

21. The decline in service content in the mining industry reflects the commodity price boom, which tends to raise the share of value added addressed to the mining industry itself through higher profit margins.

Figure 18.Brazil's service content of gross export, by exporting industry and service category

Percentage of gross exports by industry, 2011



Source: OECD-WTO TiVA database, June 2015.

2. The regulatory environment for Brazilian services: Priorities and recent initiatives

This section presents the Services Trade Restrictiveness Index data for Brazil, benchmarked to other Latin American and emerging economies. It then provides an assessment of priority areas to maximise the economic gains from services reforms, and presents on-going initiatives to improve the performance of various services sectors.

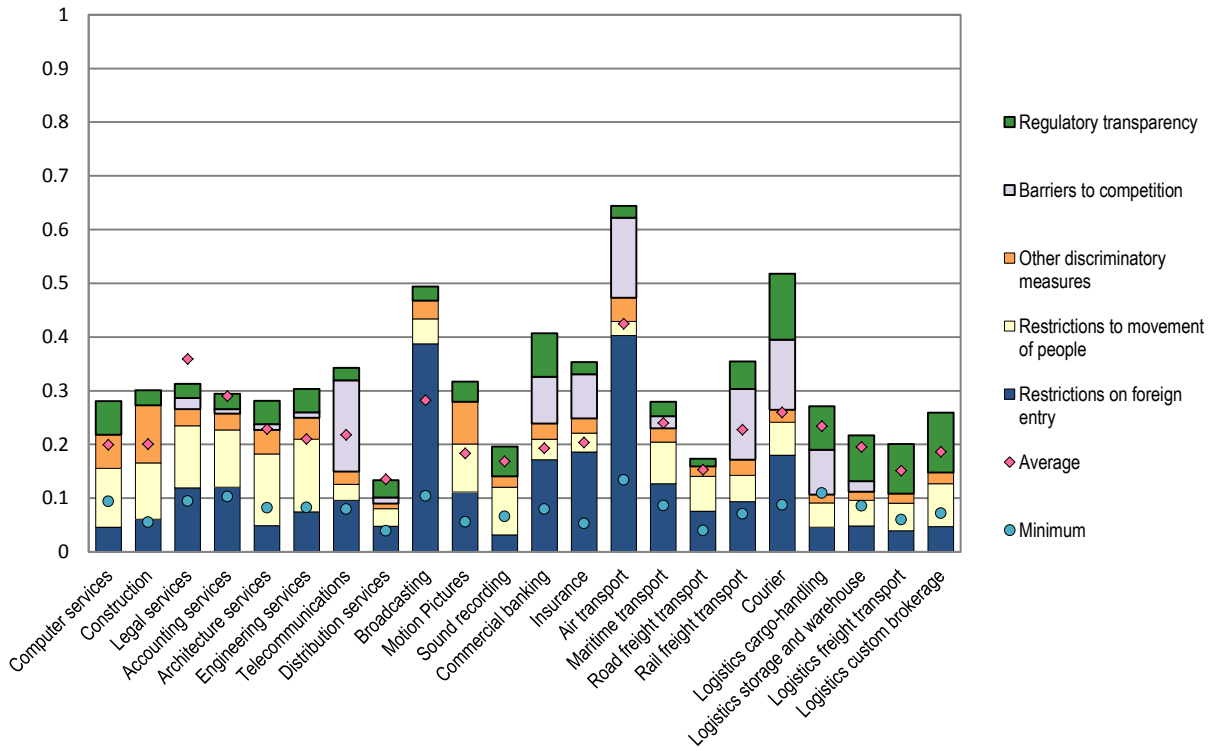
2.1. Services trade policies in comparative perspective: The STRI data

The OECD Services Trade Restrictiveness Index (STRI) helps identify which policy measures may act as impediments to trade and investment in services, and focus domestic reform on priority sectors and policies. Brazil's score on the STRI in the 22 sectors is shown in Figure 19, along with the average and the lowest score among the 42 countries included in the STRI database for each sector.[22] The indices are broken down into five policy areas reflecting different categories of restrictions and modes of supply.

Brazil has a higher than average score on the STRI in all sectors except distribution and legal services, a fact explained both by general regulations affecting all sectors and by sector-specific rules. Establishing a company is made costly in all sectors by the administrative burden: 11 separate administrative procedures are required to register a company, and obtaining the required permits and registrations takes over 100 days on average in São Paulo while the average of Latin American and Caribbean countries is less than 30 days. Simplifying and streamlining those procedures would benefit both domestic entrepreneurs and foreign investors.

22. The description is based on indices reflecting Brazilian sector-specific regulations as of mid-2016. For other countries, the indices reflect regulations as of 2015 for computer services, construction, professional services and telecommunications; and as of 2014 for other sectors. A full update of the STRI database and indices is planned for late 2016.

Figure 19. Brazil's STRI, by sector and policy area



Source: OECD STRI database, 2015. The STRI indices take values between zero and one, one being the most restrictive. They are calculated from the STRI regulatory database which contains information on regulation for the 35 OECD Members, Brazil, China, Colombia, India, Indonesia, the Russian Federation and South Africa. The STRI database records measures on a Most Favoured Nation basis. Preferential trade agreements are not taken into account. Air transport and road freight cover only commercial establishment (with accompanying movement of people).

Limitations on the temporary movement of people also can affect services providers in all sectors. Brazil imposes a labour market test for all categories of services suppliers, according to which foreign workers can only be hired if no potential Brazilian candidate has the required skills.[23] Furthermore, the managers of a joint-stock company must be resident in Brazil in all sectors, and two thirds of the employees of any given firm must be Brazilian nationals. These conditions can limit the access of foreign-owned companies to key personnel.

Limitations on cross-border trade in services include the tax treatment of imported services. CIDE (Contribution of Intervention in the Economic Domain) is levied at a rate of 10% on imports of specific services including royalty payments, technical services, compensation for technology transfers and technical or administrative assistance. The tax targets technology-related services which are particularly relevant to support upgrading and differentiation in manufacturing sectors.

The procurement law also opens the possibility of discriminating against foreign suppliers as it allows for margins of preference of up to 25% of the price for goods and services produced in Brazil. These margins are however not applied systematically, but are to be established for each good or

23. According to Brazil's Ministry of Labour, requests for employment authorisation are granted in the majority of cases, with average processing time of less than 30 days. However the existence of the labour market condition still adds to the procedural burden and introduces some uncertainty in the hiring process for foreign specialists supplying services on a project basis. During the establishment of a company, hiring foreign personnel is authorised provided a plan is presented to employ Brazilian workers once the company is fully established.

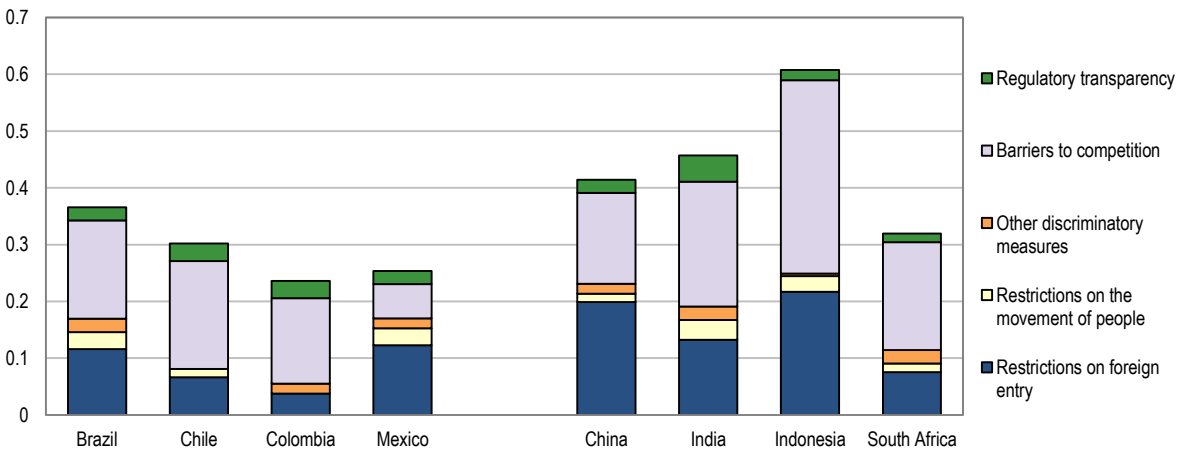
service considering, inter alia, the impact of local production on job and income creation and tax revenue.

Telecommunications

In the telecommunications sector, Brazil's regulatory framework is less favourable to foreign entry and competition than in the other Latin American countries included in the STRI database (Figure 20), which suggests that there is scope for pro-competitive reform. Its policies are about as restrictive as those of China and India but more open than in Indonesia and less so than in South Africa.

Brazil places more limitations on foreign entry than Chile, Colombia and South Africa, but less so than China and Indonesia where foreign equity is limited. There are no limits to the participation of foreign investors in the capital of telecom companies; however, telecommunications providers must be established under Brazilian laws and have the majority of their capital owned by natural or juridical persons domiciled in Brazil. Entry in the form of branches is prohibited.

Figure 20. STRI in telecoms



Source: OECD STRI database, 2015.

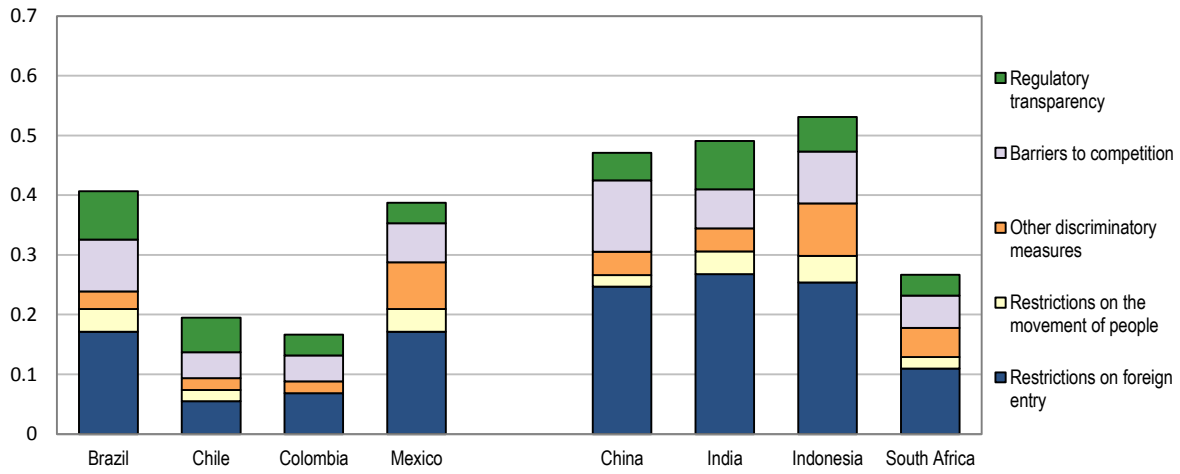
Comparing Brazil's index to Mexico's reveals the importance of having a pro-competitive regulatory framework in place to address possible anti-competitive practices by telecom operators with significant market power. Mexico has few barriers to competition as a result of its recent telecommunications reform, which brought the country's regulation of dominant suppliers close to best practice. Brazil's General Competition Plan (Resolution No. 600 of 2012) introduced pro-competitive asymmetric measures on operators with significant market power, but it could still make significant strides towards a more competitive environment by reviewing its telecom regulations. In particular, though firms that own essential facilities are demanded to accept interconnection, there is no overarching requirement in place in Brazil for access to and use of public telecom infrastructure.[24] The resale of public fixed line telecommunications services to other suppliers is not mandated either. These measures may add to the costs of entry for new telecoms suppliers that have not yet built an infrastructure network. Other areas where pro-competitive regulation is lacking include the absence of regulation on wholesale and retail roaming rates and the absence of provisions for the secondary trading of spectrum usage rights. Internet services are considered as a value-added service and are generally not regulated.

24. There is, however, a pro-competitive requirement in place that if a firm that owns telecom infrastructure sells or rent it, that firm must do it on a non-discriminatory basis.

Commercial banking

Figure 21 displays Brazil's STRI index in the commercial banking sector along with those of other Latin American and large emerging economies. Brazil's profile is similar to that of Mexico (before the implementation of Mexico's recent financial reform), but Chile and Colombia have markedly more liberal regimes towards foreign banks. Among the BIICS, China, India and Indonesia's regulations create higher impediments to trade than Brazil's, particularly in the area of restrictions on foreign establishment.

Figure 21. STRI in commercial banking



Source: OECD STRI database, 2015.

The Brazilian financial system is highly concentrated, with the five largest banks (the public Banco do Brazil and Caixa Econômica Federal, and the private Bradesco, Itau Unibanco and Santander) accounting for two thirds of banking sector assets and 80% of the deposit base.[25] The market share of foreign-owned banks is low, accounting for 17% of total banking assets. Government-owned banks receive half of deposits and issue 54% of total domestic loans, including directed credit for agriculture, housing and infrastructure. In addition the National Monetary Council is entitled to orient the allocation of resources of private financial institutions towards priority regions or sectors.

While Brazil allows foreign banks to establish wholly-owned subsidiaries, the admission of foreign participants to the local market or increases in the equity share of foreign investors in the capital of financial institutions headquartered in Brazil can only be granted by Presidential Decree. This requirement may add delays and red tape in the establishment of overseas banks, though in practice new foreign financial institutions have always been authorised. The establishment of branches of foreign banks is prohibited. To obtain the authorisation to open a local affiliate, a foreign financial institution must provide evidence of the importance of the project for the Brazilian economy and its expected contribution to the development of the financial system. Such conditions are not found in the other Latin American countries included in the STRI database, except for the general screening regulations on acquisitions of Mexican firms by foreign investors above a threshold of about USD 220 million. No cross-border trade in core banking services is allowed in Brazil without a local establishment.

Progress could be made in the area of competition and transparency, besides ensuring a level playing field between private and state-owned banks. In particular, the difficulty of obtaining

25. Central Bank of Brazil, as of December 2014.

information about borrowers and secured interests acts as a barrier to competition. Cadastro Positivo is a step in the direction of improved credit information. Collateral registries (Registry of Deeds and Documents and Real Estate Registry) remain based in each municipality, often in paper form, and are not linked across regions. Creating a nation-wide unified collateral registry – the first steps of which have been taken with Central Bank resolutions 4088/2012 and 4399/2015 – and making it searchable electronically would enhance the ability of lenders to obtain information about existing claims, reducing the risk associated with such loans and ultimately contributing to decreasing interest rates on mortgages and secured business loans.[26] Another issue is the lack of operational and management independence of the regulators. The Central Bank does not have independent funding sources, two out of three leading members of the National Monetary Council are Ministers and the members of the Board of the Central Bank have no fixed term appointment.

Transport

Brazil's STRIs in air, maritime, road and rail transport are depicted in Figure 22. In air transport, Brazil is on par with the other so-called BIICS and has a slightly higher index than Mexico, while Chile and Colombia have considerably more open regimes towards the establishment of foreign airlines. The difference is in part explained by the foreign equity limits, though recent legislation adopted in 2016 has raised the cap on foreign equity participation from 20% to 49% of voting shares, and envisages lifting this ceiling entirely in cases of reciprocity. The limit is 25% of capital in Mexico and there is no restriction on foreign equity holdings in Chile and Colombia. The lease of foreign aircrafts requires prior authorisation. Furthermore, the allocation of airport slots through grandfathering and the fact that commercial exchange of slots is not allowed contribute to favour incumbent carriers, as the availability of take-off and landing slots can represent a significant bottleneck in congested airports at peak hours.[27]

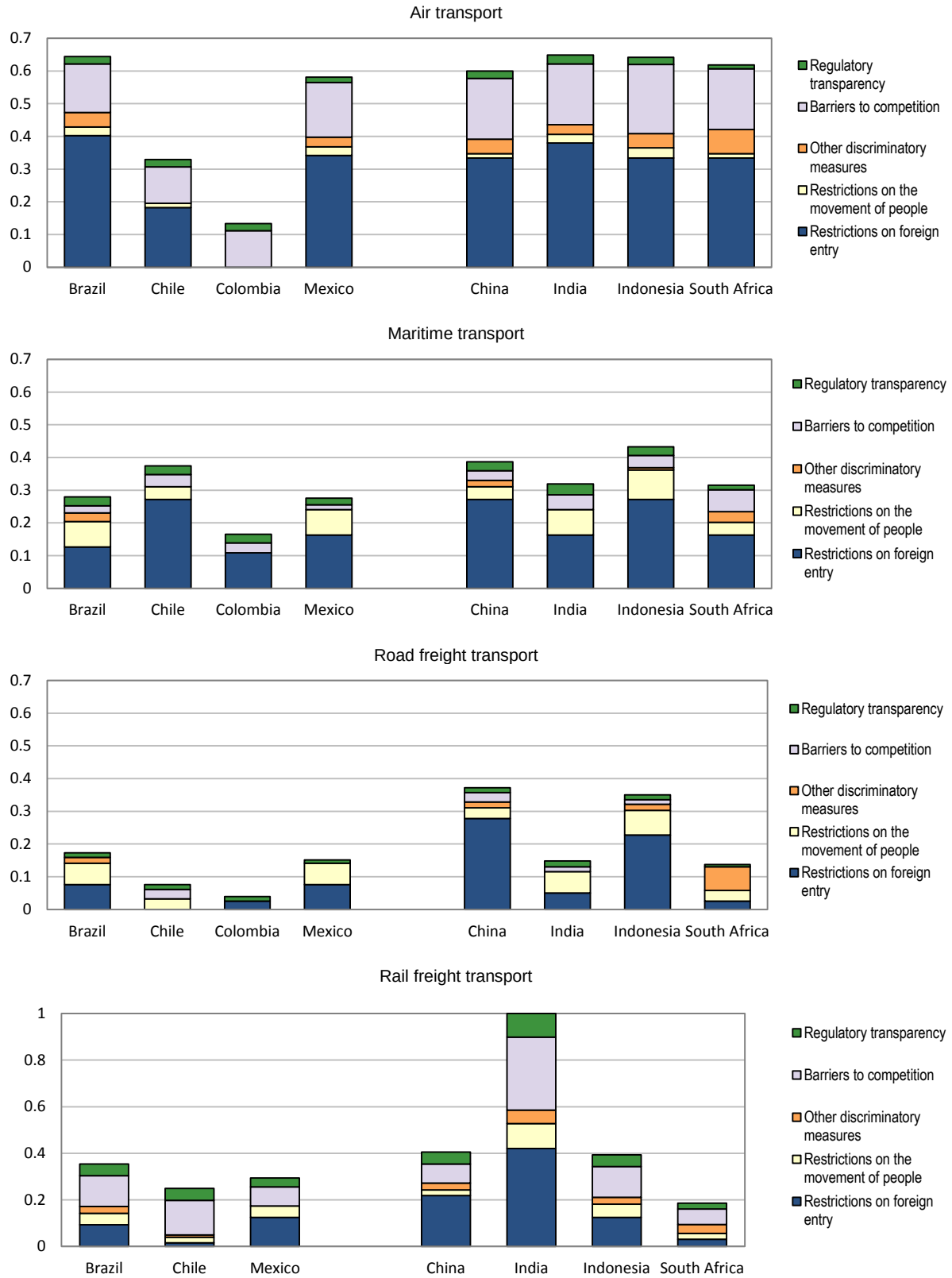
In maritime transport, Brazil does not impose foreign equity restrictions. In order to operate as a Brazilian navigation company, only a registration for legal persons is required, with representation and administration in Brazil. However foreign owners and vessels are restricted from engaging in cabotage. Foreign vessels have to be chartered by Brazilian shipping companies to operate in the Brazilian jurisdictional waters. Brazilian flag vessels, as a general rule, have priority to operate in such navigation activities, foreign vessels being only authorized to operate in case of non-availability of Brazilian flag vessels.[28] Moreover all cargo destined, directly or indirectly, to federal, state or municipal governments or state-owned enterprises, or financed partially or totally with public funds, must be transported by Brazilian flag vessels unless an exception applies. Foreign vessels that enter Brazilian ports are also charged a specific lighthouse tax, with exemptions for vessels under 1000t DWT and in cases of reciprocity under bilateral trade agreements.

26. Claessens and Sakho (2013), using data from Brazil's Investment Climate Assessment survey, find that lack of collateral is the most important source of financial constraints among Brazilian firms that have been denied a loan request. High interest rates are the main reason cited for firms not to apply for a loan.

27. Though grandfathering rights limit the number of slots becoming available, Brazilian regulation applies criteria such as punctuality and regularity to retain existing slots. At least half of additional slots are distributed among new entrants only.

28. Because of Brazil's small fleet and large demands, Brazilian flag vessels rarely cater fully to daily demands and about half of coastwise shipping tends to be carried out by foreign-flagged vessels. ANTAQ's online SAMA system allows clients to publish the requested cabotage service, shipowners to privately provide prices and conditions, and clients to choose, provided that no Brazilian flag vessel can cover the offer.

Figure 22. STRI in transport



Source: OECD STRI database, 2015. Air and road transport cover establishment only (with accompanying movement of people). Colombia does not have a railways system. The air transport indices do not yet reflect liberalisation occurred in 2016.

In road transport (not considering international traffic which is covered by bilateral agreements), Brazil is relatively more liberal than in other sectors, but remains less so than the other Latin American economies considered, largely as a result of general regulations. There is, however, a requirement for a local commercial presence in order to provide trucking services, a requirement also found in Colombia and Mexico.

In rail freight transport, Brazil is less liberal than Chile and Mexico (Colombia not having a railway infrastructure), but relatively more so than other large emerging economies, with the exception of South Africa. India is fully closed as its rail sector is not open to private investment, with no transit rights. Brazil has a state-owned railways operator, Valec, which is entrusted by the government to purchase capacity from the existing infrastructure and redistribute concessions to private rail freight operators. Nevertheless, the network remains limited in its scope, mainly concentrated in few exporting commodities, and in the speed at which freight can be moved from one place to another. In addition, Brazil does not grant access rights to railway carriers from neighbouring countries with the purpose of operating domestic or international cargo services, allowing only transit rights. Also, Brazil has not adopted so far any universal technical specification for interoperability, but discussions with the European Railway Agency on developing mutual recognition of technical requirements, conformity assessments and safety standards are under way.

Logistics

Logistic services complement air cargo, shipping and trucking in the distribution supply chain. When it comes to international trade in goods, the process of bringing goods from factory gates across borders and to markets is heavily reliant on the efficiency of auxiliary services and the speed of carrying out border procedures. In this respect, the STRI covers four types of logistic services: cargo-handling, storage and warehousing, freight forwarding and customs brokerage (Figure 23).

While progress has been made and new initiatives are underway to streamline customs procedures, much remains to be done to make importing and exporting less costly and less time-consuming. It takes on average four days to complete all the steps required to obtain customs clearance, more than twice as much as in Mexico or Chile. Pre-arrival processing of import documentation is not possible and Brazilian laws do not establish a *de minimis* regime for business-to-business or business-to-consumer transactions.[29] A notable improvement is being put in place with the creation of a single window in 2014, but it is not expected to be fully implemented until 2017; the timely deployment of this system would be valuable for internationally oriented businesses, and especially so for SMEs.

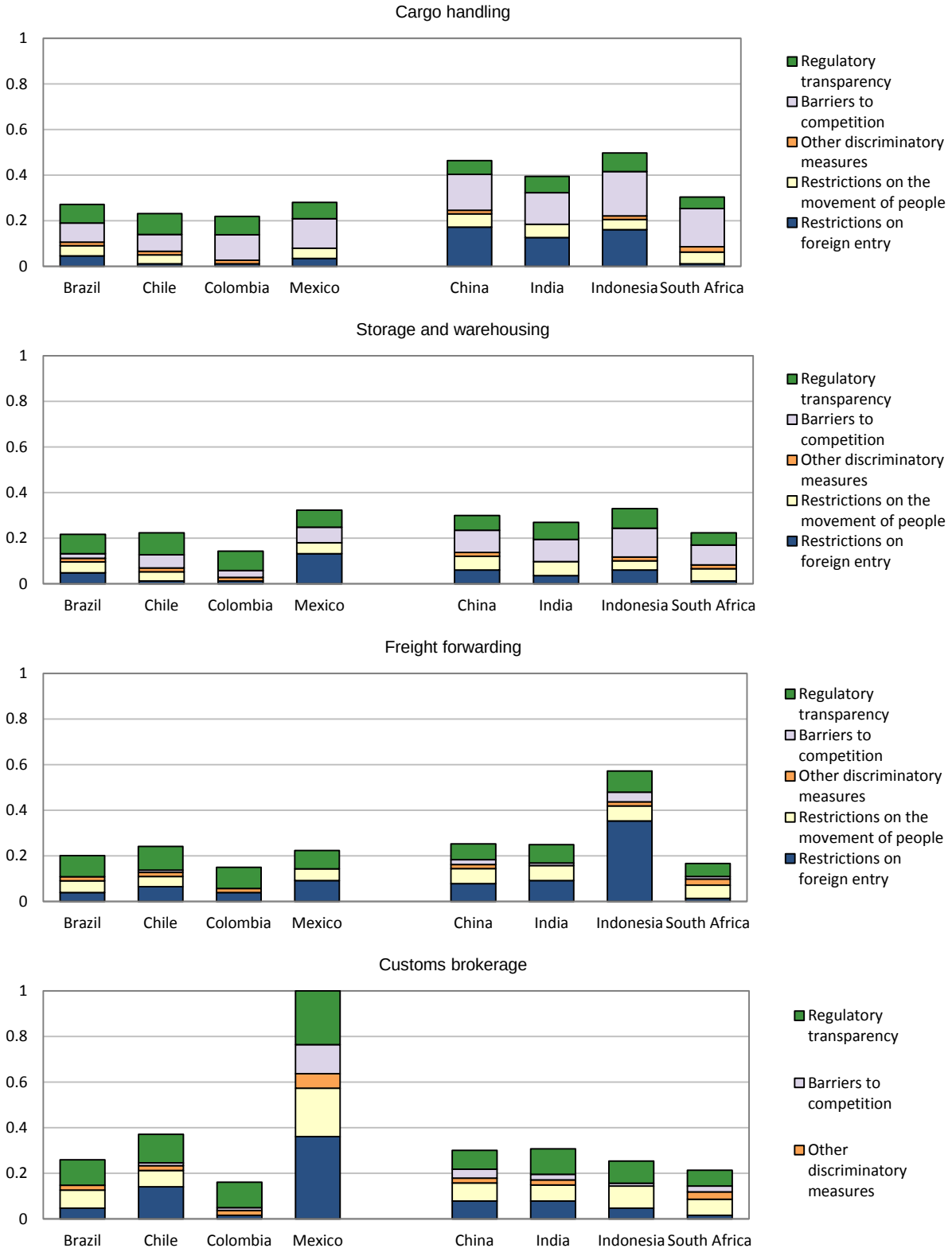
The state has a stake in some segments of logistics services. INFRAERO is a government-owned company that operates some of the main Brazilian commercial airports, including the provision of cargo-handling and storage services. The government has the right to own a minimum amount of share in order to keep control over decision making in the company. The general legal framework does not mandate the separation of accounts between services provided competitively or not, and does not prohibit cross-subsidisation between those activities. Since 2012 however, the management of five amongst the main airports has been given to public-private partnerships through concessions contracts, where INFRAERO retained a minority stake.[30] By the end of 2016, four additional major airports are expected to be controlled by a private operator. In these new concessions, INFRAERO will not retain shares in the winning consortium. The concession contracts allow both the concessionaries and third parties to provide ancillary services, and require that

29. For transactions between individuals, *de minimis* provisions apply to orders of up to USD 50.

30. The first round of concessions took place in 2012 and it concerned three airports: Aeroporto Internacional Juscelino Kubitschek in Brasília, Aeroporto Internacional de Viracopos in Campinas and Aeroporto Internacional de São Paulo in Guarulhos. The second round of concessions took place in 2014 and it concerned two additional airports: Aeroporto Internacional do Galeão in Rio de Janeiro and Aeroporto Internacional Tancredo Neves (Cofins) in Belo Horizonte.

concessionaries create a subsidiary and adopt separate accounts for each activity. The concession framework also avoids cross-subsidisation by regulating the charges of non-competitive activities.

Figure 23. STRI in logistics



Source: OECD STRI database, 2015.

Regarding customs brokerage, the main restriction is that the profession is closed to foreigners as only Brazilian nationals can be licensed customs brokers. In the case of bonded warehousing, companies must obtain a license for bonded warehouses in order to ship to customers, and then the goods can only flow from these designated warehouses. It implies that it is not possible to ship from an overflow warehouse (an intermediary storage) but instead, the goods must always go back to the main licensed warehouse. This raises costs and complicates supply chain management, particularly for foreign companies using customs warehouses.

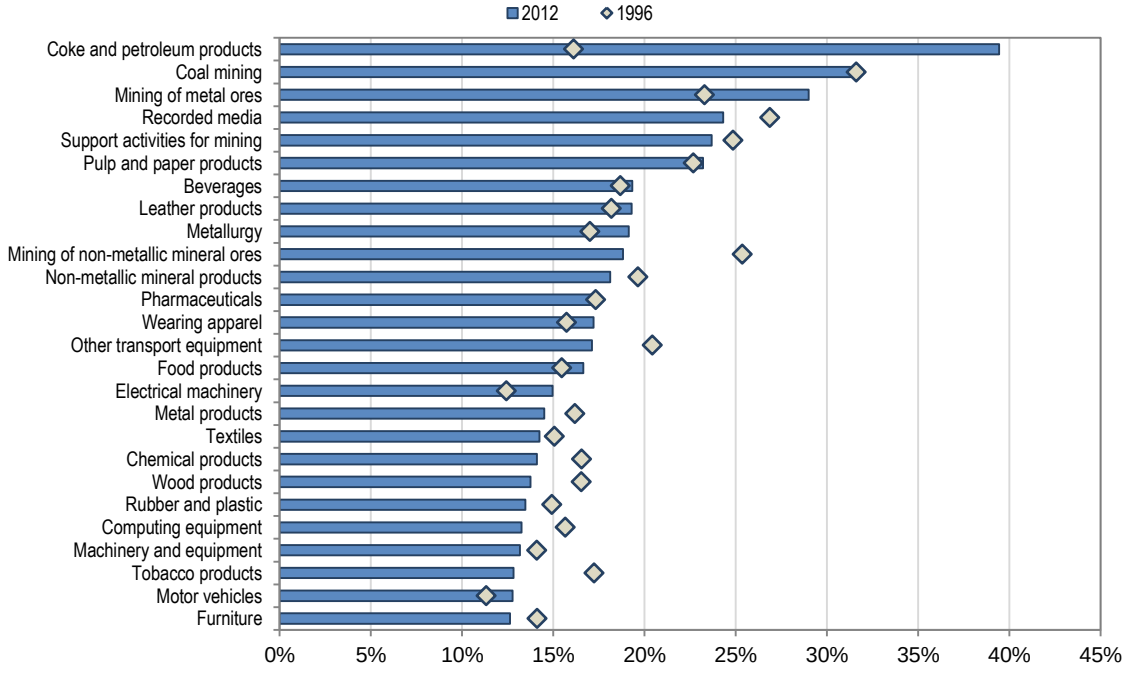
2.2. Identifying priority services sectors

Which services have the most impact on manufacturing competitiveness?

From poor logistics to public healthcare services, high cost of finance and slowness of the courts, services can be identified as one of the main factors behind the meagre competitiveness of the Brazilian economy. After benchmarking Brazil's regulations to comparable economies, the next step in identifying priority sectors for regulatory reforms is to assess which ones are critical services inputs for manufacturing and other sectors – or in other words which ones create the largest spillovers for the rest of the economy.

Services inputs play a strong role in manufacturing production processes in Brazil, as evidenced by a high share of services in manufacturing output compared to other emerging economies. Overall, 38% of the value added of manufacturing industries originated directly or indirectly in services in 2011 according to the TiVA database. The contribution of services to manufacturing is lower in China (31%) and India (34%) as well as in other Latin American economies such as Mexico (32%) and Chile (22%).

Figure 24. Services shares in gross operating revenue, by industry, 2012

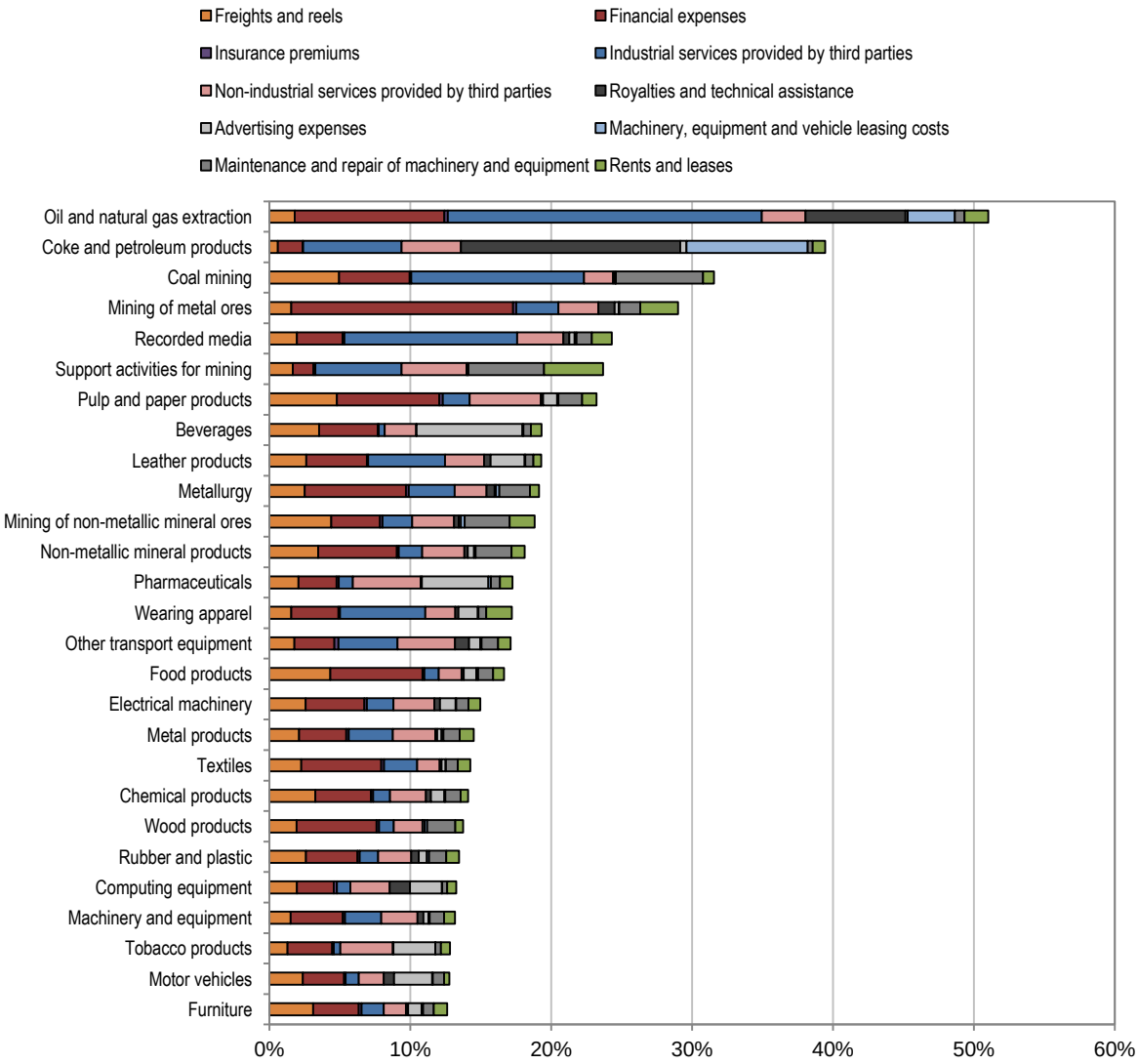


Source: Elaboration based on data from the Pesquisa Industrial Anual (PIA) – Brazilian Institute of Geography and Statistics.

There is significant variation across industries in their reliance on intermediate services. Figure 24 estimates the aggregate share of direct services inputs in gross operating revenue by industry. In general, services command a sizeable share – in 2012, it was about 24%. While services in coke, petroleum and derived products and biofuels accounted for 39% of the total in 2012, in motor vehicles they accounted for only 13%. Medium-low and low technology intensive industries

appear to spend relatively more on services and, therefore, tend to be more sensitive to changes in service sector markets.

Figure 25. Services shares in gross operating revenue, by industry and type of services, 2012



Source: Elaboration based on data from the Pesquisa Industrial Anual (PIA) – Brazilian Institute of Geography and Statistics. "Industrial services provided by third parties" refer to the montage and setting of industrial equipment and installations and recycling services. "Non-industrial services provided by third parties" refer to IT services, auditing, consulting, legal services, cleaning, security services, premises maintenance, etc.

Coke, petroleum and derived products and biofuels have experienced a very large increase in their reliance on services inputs since 1996, which may be explained by the leasing of platforms, drillings, vessels and other high-tech, costly equipment used in the exploration of the pre-salt layer in the coast of Brazil. Other industries, such as chemical products, experienced a decrease, which may be associated with the price of oil.

Apart from idiosyncratic and institutional reasons, such variations across sectors are often associated with a variety of factors at the industry level, including relative prices, openness, technology and type of services inputs most consumed. Where prices are constrained by factors such as competition, innovation and technology, all else constant the share of services in gross operating revenue tends to go up. Where intermediate consumption of more sophisticated services, such as

royalties and technical assistance, or of non-tradable services increase, all else constant the share of services also tends to rise (Arbache, 2014).

Figure 25 breaks the shares of services in gross operating revenue in 2012 into services segments. Overall, financial expenses, industrial services provided by third parties (such as installing industrial equipment), non-industrial services provided by third parties (including IT and professional services) and transportation account for more than 70% of total service expenses. A substantive share of costs is devoted to royalties and technical assistance in oil and gas extraction and refining, but much less so in other sectors. Leasing of machinery, equipment and vehicles also represent a significant share of costs for the oil and gas extraction and coke and petroleum industries, while it is almost negligible elsewhere.

Which services are gaining importance in shaping the competitiveness of manufacturing?

In the past two decades, the share of services inputs in manufacturing output has stagnated: it amounted to about 24% of manufacturing sectors' gross operating revenue in 1996 just like in 2012. However, the composition of services consumption by downstream sectors has been evolving, as some services have been gaining importance and others becoming less dominant in the input bundle.

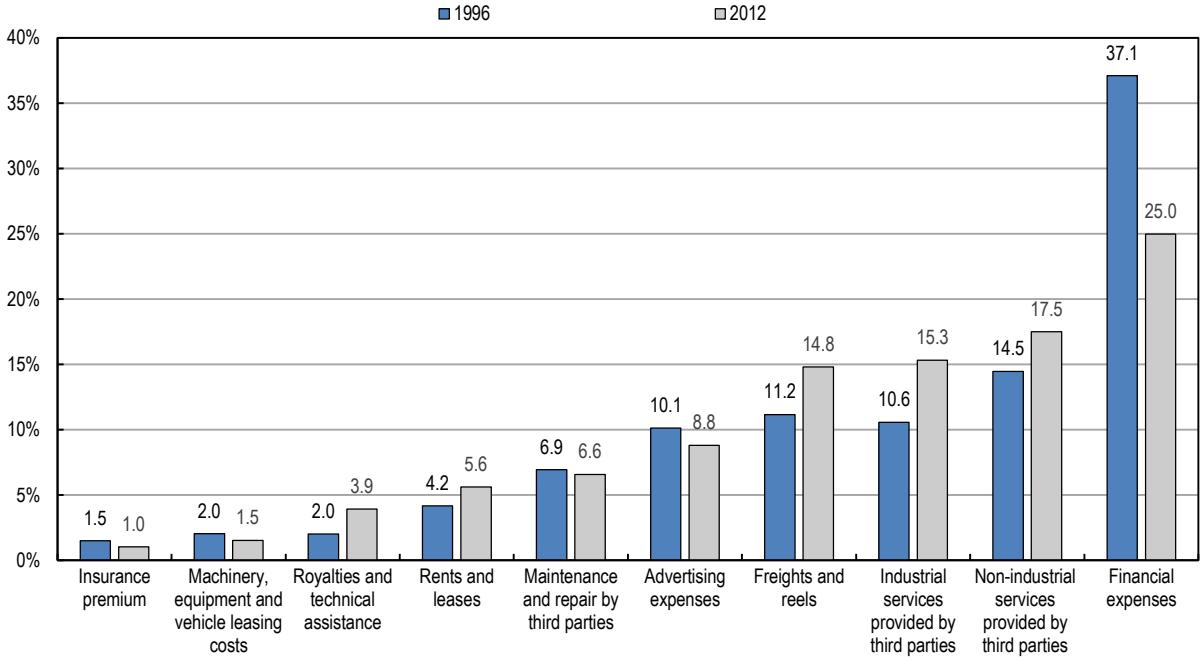
To explore this dimension, Figure 26 shows the decomposition of services in the total intermediate consumption of services by manufacturing industries in 1996 and 2012. The most striking change is the decline in the share of financial expenses, by more than 12 percentage points between 1996 and 2012. This can be attributed, at least in part, to the much lower real interest rates prevailing in 2012. At the same time, the shares of non-industrial and industrial services provided by third parties increased by respectively 3 and 4.7 percentage points, suggesting a rising trend of outsourcing services rather than providing them in-house. The share of freights and reels also increased, which may reflect the rise in oil prices over the period as well as the emergence of fragmented supply chains. Interestingly, despite departing from a low level, the share of royalties and technical assistance almost doubled. This indicates an effort to add value to manufacturing output, although it has remained so far concentrated in natural resources-dependent industries.

The reallocation of resources within services suggests two distinct, although complementary movements. The first one reveals the relevance of services that have a low current share, but are growing – they are mostly services that add value to output, such as patents and high-end IT services. The second one reveals the relevance of services with the largest current shares as inputs and that retained high contributions to manufacturing costs – they are mostly services related to production costs, such as finance, freight and outsourcing.

Policy reforms seeking to enhance manufacturing performance will have to address the importance of both groups of services. On the one hand, financial services, transport or IT services are the most critical to improve the cost competitiveness of manufacturing industries. On the other hand, royalties, technical assistance and technology-related services have the highest potential to sustain future manufacturing growth and upgrading.

Figure 26. Decomposition of services demanded by the manufacturing sector

Share in total intermediate consumption of services in manufacturing (%)



Source: Elaboration based on data from the *Pesquisa Industrial Anual* – Brazilian Institute of Geography and Statistics. "Industrial services provided by third parties" refer to the montage and setting of industrial equipment and installations and recycling services. "Non-industrial services provided by third parties" refer to IT services, auditing, consulting, legal services, cleaning, security services, premises maintenance, etc.

Where are the main inefficiencies in services sectors?

Among the sectors with large weight in manufacturing expenses, the financial sector deserves particular attention considering the burden of financing costs in firms' balance sheets. Brazilian banks charge high interest spreads between lending rates and the remuneration of deposits, and these spreads have been on a rising trend since 2013 (Figure 27). Part of this phenomenon can be attributed to inflationary pressures and volatility in macroeconomic conditions, but the regulatory framework and the lack of competitive pressure on major banks are likely to play a substantive role as well. Besides, the allocation of credit is distorted by the size of BNDES lending and other state-owned banks. The majority of BNDES loans are directed to large enterprises rather than SMEs. Inefficiencies in resource allocation are evidenced by the fact that low-productivity firms manage to grow faster than more productive firms (OECD, 2015). In contrast, one can cite the example of Mexico where a far-reaching financial reform was passed in 2014, having among its main objectives the promotion of competition among financial intermediaries, and has already delivered results in terms of reducing the cost of credit and expanding bank financing to the private sector.

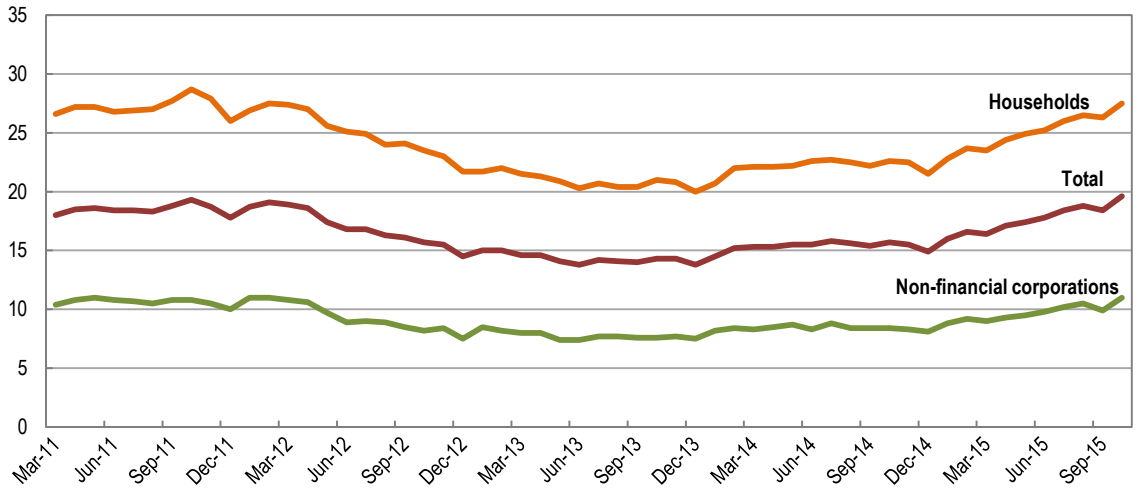
The transport and logistics chain is another core services segment in need of reform, suffering from long transit times, insufficient infrastructure and high internal transportation costs. Transport infrastructure is underdeveloped and costly. In a country as vast as Brazil, transport bottlenecks raise the cost of bringing products to and from markets and hold back the country's competitiveness. Public investments and private participation through concessions in the context of the Growth Acceleration Program and the Logistics Investment Program have aimed to address the deficiencies in the transport network, but their results remain so far insufficient. In the World Economic Forum's Global Competitiveness Report 2014-15, Brazil ranks 122nd in the world for the quality of roads and quality of port infrastructure, 95th for the quality of railroad infrastructure and 113th for the quality of

air transport infrastructure (out of 148 countries). Over 60% of freight transported in Brazil is carried by road, but only 13% of the road network is paved. [31]

Figure 28 compares the position of Brazil with Latin American and other emerging economies in global rankings of infrastructure. The poor rankings suggest that infrastructure services are likely to act as a drain on production and marketing costs. Infrastructure has particularly significant impacts on activities that rely strongly on logistics, including the commodity and natural resources intensive industries where investment has focused in the last decade. Brazil also ranks poorly on utilities. Power quality is particularly lacking, which is detrimental to industrial competitiveness in general and to energy-intensive sectors in particular.

As regards shipping, the lack of capacity at the port of Santos and other ports, coupled with inefficiencies in offloading trucks and loading vessels, lead to long delays in transit which hurt exporters. The costs associated with exporting a standard cargo of goods, including inland transport from a warehouse in São Paulo to the port of exit, exceeds that of most other Latin American countries and large emerging economies (Figure 29). It has risen nearly four-fold since 2005 from USD 630 to about USD 2 300, or equivalently from BRL 1 470 to about BRL 6 160 – in part as a result of rising fuel prices in Brazil despite a downward global trend. Transportation and logistics in large metropolitan areas are especially poor and costly, impacting production costs, productivity and the functioning of value chains.

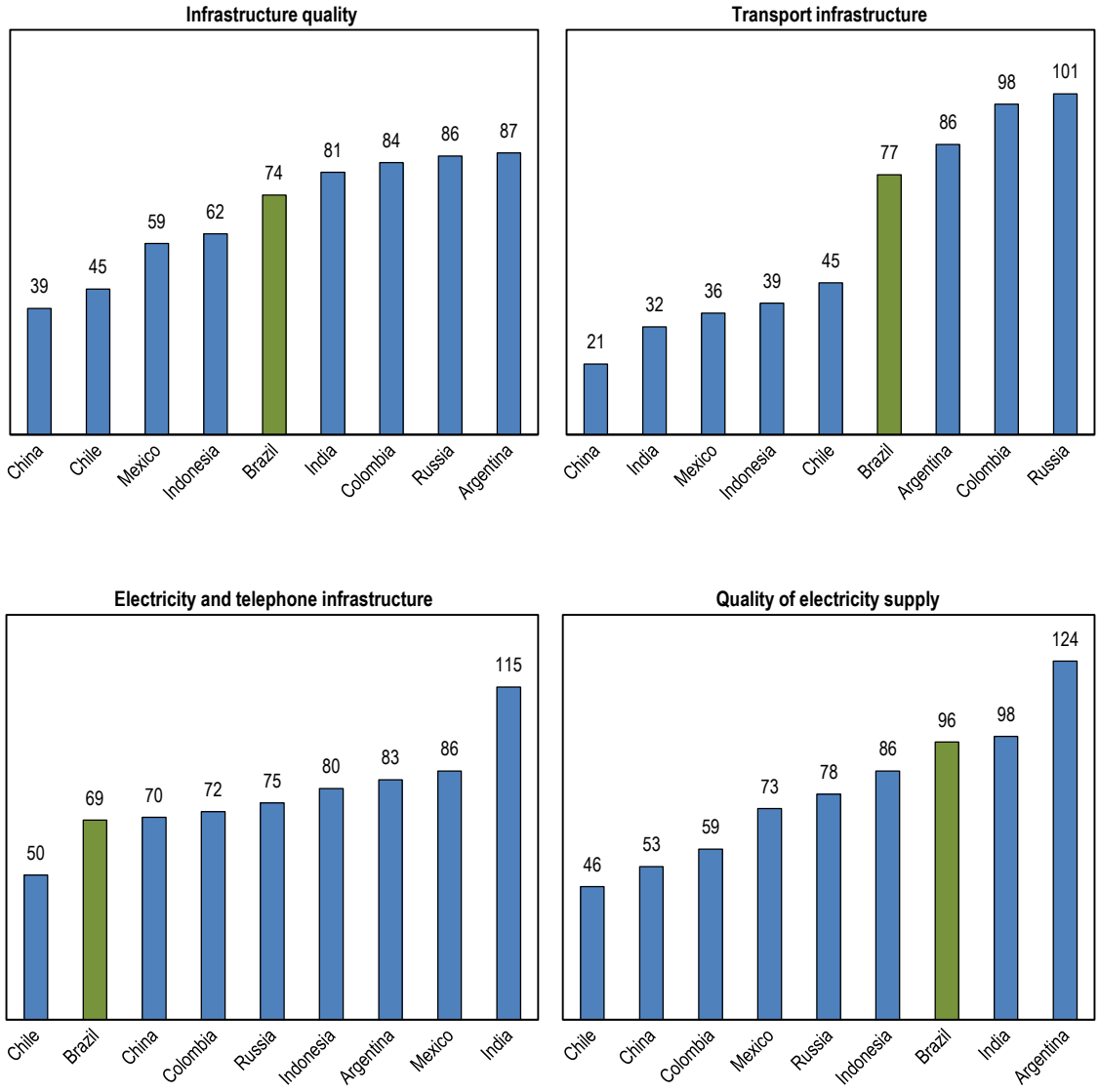
Figure 27. Average interest spread of new credit operations (in percentage points)



Source: Central Bank of Brazil.

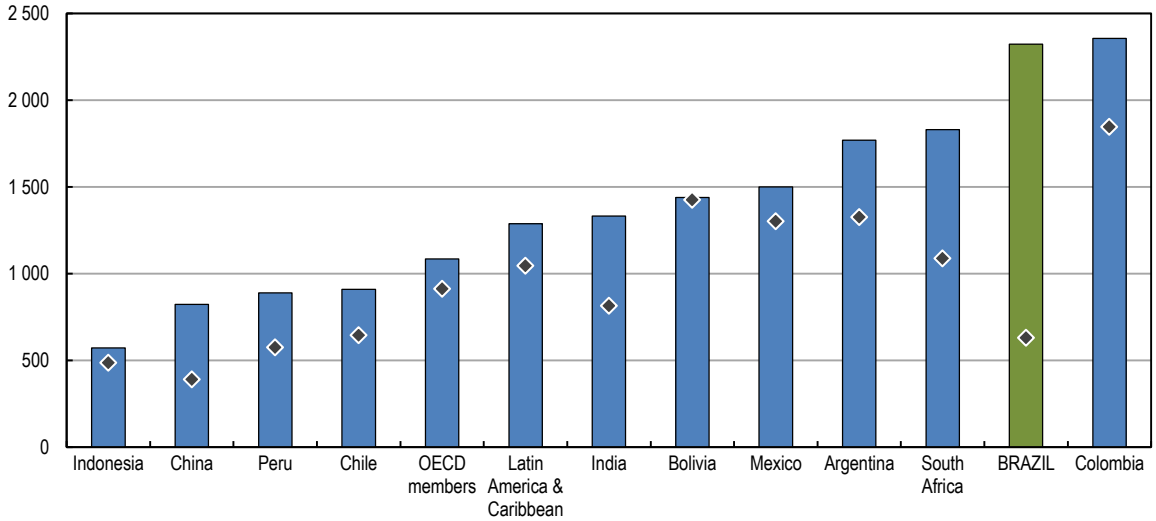
31. *Source* : Associação Brasileira de Concessionárias de Rodovias, www.abcr.org.br/Conteudo/Secao/43/estatisticas.aspx

Figure 28. Competitiveness indicators: Ranking of Brazil and selected countries (out of 148 countries)



Source: Global Competitiveness Report 2015-2016, World Economic Forum.

Figure 29. Cost to export (USD per container)



Source: World Bank Doing Business. Cost measures the fees levied on a 20-foot container in US dollars. All the fees associated with completing the procedures to export the goods are included. These include costs for documents, administrative fees for customs clearance and technical control, customs broker fees, terminal handling charges and inland transport. The cost measure does not include tariffs or trade taxes. Only official costs are recorded.

2.3. What reforms?

The Brazilian government has recently launched a series of reforms aimed at improving the performance of services infrastructure and delivery. This section highlights recently implemented and currently envisaged policy changes, and proposes avenues for reform to improve the competitive environment in key services sectors.

Overview of services policy developments

While many initiatives are currently under way or under development, the services agenda remains fragmented across Ministries and agencies. No integrated services policy has yet been defined at the central level of government. Hence the insufficient coordination across institutions in charge, the absence of commonly agreed policy objectives and the lack of systematisation of efforts create a risk of redundancies or inconsistencies. The Secretariat for Trade and Services in the Ministry of Industry, Foreign Trade and Services is leading a dialogue among services players in order to coordinate and articulate regulators and private entities in different services segments and develop a more overarching services agenda. Those efforts have great potential to enhance transparency and efficiency in the design and implementation of services policies.

This being noted, Table 5 provides an overview of the main recent and planned policy developments affecting services. Some policy changes under consideration would apply to services across the board, such as passing the bill authorising outsourcing of all business activities (rather than "non-core" activities only in the current framework), or extending the scope of export processing zones to include companies operating in services sectors. Other initiatives focus on one or several specific sectors; those regarding the telecom, transport and logistics sectors are detailed below. It is interesting to note several efforts to tackle emerging regulatory issues in e-commerce and the digital economy, though policy developments in these areas are still at a very early stage. Some new policies however go in the direction of lower openness to foreign services, such as software preference margins, a potential requirement of registration and local corporate tax number for online retailers if designed in a manner that *de facto* requires a local presence, and local services content requirements in oil and gas exploitation.

Table 5. Services policy developments

Policy	Description	Institution in charge	Current state
Measurement of services performance			
Brazilian Services and Intangibles Classification (*Nomenclatura Brasileira de Serviços e Intangíveis*, NBS)	Official classification of services and intangibles (based on the Central Products Classification of the UN). Useful instrument for informing policy.	Ministry of Industry, Foreign Trade and Services and Federal Revenue Secretariat (Ministry of Finance)	Launched in 2012; active
Integrated System of Foreign Services Trade (Siscoserv)	Electronic platform for officially declaring trade in services. Requires taxpayers to register transactions with non-residents involving services, intangibles and other operations that may result in a change in net worth. Useful instrument for informing policy.	Federal Revenue Secretariat (Ministry of Finance) and Ministry of Industry, Foreign Trade and Services	Launched in 2012; active
Monthly Services Survey (PMS)	Performance indicators for services sectors, including employment, revenue and output. Useful instrument for informing policy.	IBGE	Started in 2012; active
Cross-cutting policies			
Plano Brasil Maior (PBM)	Industrial policy. PBM recognizes that ITC, retail, logistics and service sector development, export and modernisation are key for industrial development. Proposes actions to improve investment and to modernise those sectors.	Brazilian Agency for Industrial Development and Ministry of Industry, Foreign Trade and Services	On hold; a new industrial policy is currently under discussion, including on service inputs
Export Processing Zones (ZPEs) for services exports	Inclusion of services as part of the allowed businesses in EPZs.	Ministry of Industry, Foreign Trade and Services	Under discussion
E-Social	Electronic platform for officially registering and recording labour contract relations and payroll tax payments	Federal Revenue Secretariat (Ministry of Finance)	Launched in 2015; active
Outsourcing legal framework	Regulatory framework for B2B outsourcing services. Current law outdated.	Federal Congress	Under discussion in the Congress
Sectoral policies			
Estratégia Nacional de Economia Digital (National Strategy on the Digital Economy)	Integrated policy to, first, govern the internet, data transfer, audio-visual production, and other digital content services taking into account the new business models that are emerging, and second, provide incentives for audio-visual and software production.	Chief of Staff (leading), Ministry of Communication and Ministry of Culture	Under development
E-commerce regulatory framework	Regulatory framework regarding compliance with the Brazilian Consumer Code, consumer data protection, tax legislation, registration and local presence requirements for retailers.	Ministry of Industry, Foreign Trade and Services	Under discussion
E-commerce tax management	Redistribution of the VAT proceeds collected on inter-state e-commerce (ICMS); destination states will get 40% in 2016, to be raised gradually to 100% by 2019.	Federal Revenue Secretariat (Ministry of Finance)	Just started; active

Table 5. Services policy developments (*cont.*)

Policy	Description	Institution in charge	Current state
Sectoral policies			
Software preference margin in public tender and CERTICS	Platform to certify whether software programs were created and developed in Brazil. This qualifies software developers to benefit from preference margins of 18% in government tenders.	Ministry of Science, Technology, Innovation and Communication	Launched in 2013; active
National Broadband Program (*Plano Nacional de Banda Larga* - REPNBL)	Provision and access to subsidised broadband internet for poor households and schools across the country, especially in poorer regions.	Ministry of Science, Technology, Innovation and Communication	Launched in 2010 (PNBL) and 2013 (REPNBL); active
Telecoms - new regulatory model	Update and major change in telecom regulatory framework including topics such as broadband service provision, concession contracts and universal service requirement. SEAE – Ministry of Finance understands that where natural monopolies have been challenged by new technologies, Brazil has therefore to move from a "concession regime" framework to an "authorisation regime" to operate in the telecom market.	Ministry of Science, Technology, Innovation and Communication	Under public consultation
Video on demand	The regulator ANCINE envisages introducing new rules on VOD, including on domestic content.	National Movie Council and ANCINE	Under discussion; no decisions taken
Ports regulatory framework	New framework seeking to deregulate, increase the number of concessions, modernise and improve competition and private investments in ports. Previous law outdated.	Ministry of Transport, Ports and Civil Aviation	Launched in 2013; active
Foreign investment in airlines	Increase in the limit on foreign participation in airline companies from 20% to 49%. Full participation by a foreign investor in a Brazilian airline can be allowed based on reciprocity in bilateral air agreements.	National Civil Aviation Agency (ANAC)	Launched in 2016; active
Logistics Investment Program (PIL)	Package of concessions, leases and authorisations to be granted to private investors related to infrastructure projects worth BRL 198.4 billion (~USD 50bn), with BRL 69.2 billion being invested from 2015 to 2018 and BRL 129.2 billion from 2019 on. BNDES will finance up to 70% of the amount to be invested in highways, ports and airports, and up to 90% in railways. The financing models are expected to ensure more private participation in project financing, encouraging the development of the capital market and generating opportunities for domestic and international investors. Investments are divided into four regulated sectors: Highways, Railways, Ports, and Airports.	Ministry of Planning	Launched in 2015; active
Monitored and price-controlled services	Several services, including electricity, gas, water and sewage and health insurance are closely monitored by a regulator. Price rises have to be approved.	Ministry of Finance and regulatory agencies	Active

Table 5. Services policy developments *(cont.)*

Policy	Description	Institution in charge	Current state
Sectoral policies			
Architecture services	CAU/BR regulates, based on Law 12.378/2012, architectural services provided by foreign professionals and firms. CAU Resolutions 26/2012, 35/2012 and 49/2013 establish the conditions for permanent and temporary licensing. The Council has signed MoUs with international architects' institutions, such as the Architects' Council of Europe and the International Council of Portuguese Speaking Architects, as well as with Portugal, Spain, United Kingdom, United States, Costa Rica, Angola and Cabo Verde. CAU is currently attempting to expand its relations with MERCOSUL parties, Peru, Mexico and Colombia to encourage professional mobility with reciprocity.	Council of Architecture and Urbanism in Brazil (CAU/BR)	Launched in 2012; active
Engineering services	Deregulation of engineering services. Currently, the Engineering Council (CONFEA/CREA) enforces rules that prevent professional competition from abroad and from foreign construction firms. SEAE – Ministry of Finance has asked CREA to remove or modify some anti-competitive provisions.	SEAE (Ministry of Finance)	Under discussion; no decisions taken
Professional services	Deregulation of legal and accounting services. SEAE – Ministry of Finance is seeking to remove minimum prices per service and to introduce more flexibility in the scope of functions and activities considered by Councils as exclusive of those professionals.	SEAE (Ministry of Finance) and professional councils	Under discussion; no decisions taken
Innovation law (*Marco Legal da Inovação - Lei do Bem*)	Tax breaks for firms investing in innovation and in technology development. Incentives for universities and research centres to partner and cooperate with private sector in R&D. Deregulation of the innovation framework.	Ministry of Science, Technology, Innovation and Communication	Launched in 2005; revised in 2016; active
Simples Nacional	Some service activities up to a determined annual gross revenue (micro and small firms) are allowed to migrate to a much simpler, less bureaucratic tax regime. Firms may also benefit from lower taxes. Wholesale trade, insurance, bus public transportation, dentist and medical services among benefiting segments.	Federal Revenue Secretariat (Ministry of Finance)	Launched in 2006; under revision; active
Payroll tax subsidy	Social security payroll tax break in exchange for a tax on gross earnings. Several sectors benefited, including many service industries such as ITC, call centres, design houses, hotels, retail, and vessel maintenance.	Ministry of Finance	Under revision; active

Table 5. Services policy developments (*cont.*)

Policy	Description	Institution in charge	Current state
Sectoral policies			
Special Tax Regimes	Tax breaks regimes to incentivise certain service activities including REPES (special tax regime for IT exports), REIDI (special tax regime for infrastructure development) and PADIS (special tax regime for the development of IT activities).	Federal Revenue Secretariat (Ministry of Finance)	Active
Local Content Policy	Services are part of the oil and gas local content policy; firms are expected to hire a minimum amount of services provided by local firms. Different requirements according to auctioned oil blocks.	Ministry of Energy and Oil National Agency	Under revision; active

Note: SEAE stands for *Secretaria de Acompanhamento Econômico*, the Secretariat for Economic Monitoring of the Ministry of Finance. SEAE has the mandate to improve or promote competition and to monitor price formation, but does not have the power to enforce its views or decisions. ANCINE (*Agência Nacional do Cinema*) is the national film agency in charge of regulating the sector.

Regulation on data protection and privacy

Brazil has not yet adopted a specific law on the protection of personal data. The Internet Law passed in 2014 (Marco Civil da Internet, Law 12.965/2014) established the principles to be applied on data privacy in particular to applications and internet service providers. The collection, use, storage or processing of personal data requires the user's express consent, but no localisation requirement has been imposed. Cross-border data transfers however cannot impair the applicability of the Brazilian law regarding rights to privacy, protection of personal data and the confidentiality of private communications and records as long as at least one operation is carried out in Brazil. The provisions of Brazilian law on data protection apply on an extraterritorial basis to foreign legal entities, provided that they offer a service to the Brazilian public or if they are part of a group that owns at least one establishment in Brazil. Breaches of data protection can be sanctioned with fines of up to 10% of revenues of the economic group in Brazil, as well as temporary suspension or prohibition of certain activities.

A draft bill on the protection of personal data (PL 5.276/2016) is currently under discussion, after a long debate and public consultation initiated in 2010. It would provide for the creation of a national authority responsible for the protection of personal data and condition cross-border data transfers on the assessment of equivalent protection in the foreign country or a specific authorisation. The bill is intended to follow the OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data and to meet the European Union's data protection standards.

A new regulatory regime for telecommunications

In telecommunication services, the Brazilian government is seeking input from stakeholders on how to reform the regulatory framework in order to better take into account issues that have arisen since the adoption of the General Law of Telecommunications (Law No. 9472 of 1997).[32] In particular, the reform should create a more favourable environment for investments to expand or improve the quality of broadband services. The consultation addresses the adequacy of the current separation between the private regime of provision (currently applied to mobile and internet) and the public concession regime (currently only applied to fixed line telephony), as well as accompanying universal service obligations and subsidies. The enquiry notes that the services supporting broadband

32. The telecom regulatory framework was updated by the General Competition Plan in 2012. The General Competition Plan requires operators with Significant Market Power (SMP) in fixed telephony and mobile termination to share their networks and infrastructure with smaller service providers, at reference offer prices to be approved by Anatel.

internet provision are currently provided on a private basis only, not being subject to universalisation and continuity requirements, but have yielded very positive results in terms of expanding access.

The position of the Ministry of Finance (SEAE) is that the system of telecommunication services concessions lost its raison d'être when telecom services lost their character of natural monopoly. The current thinking is to move from the concession to the authorisation regime for all services, while preserving policy space to promote universal access. The regime change would benefit fixed line providers in the form of a reduced regulatory burden. It would also be crucial to render investments in the telecom sector more attractive, given that under the concession regime some of the investments made by concessionaires are considered "reversible assets" which are handed over to ANATEL upon expiration of the concession. The current concessions are scheduled to end in 2025. There is however no consensus within the federal government on the necessity of a regime change.

Such a reform towards healthy competition and even incentives is likely to facilitate the provision of cost-effective telecom services to a larger share of the Brazilian population. As an illustration, suppose Brazil adopted a reform similar to that conducted by Mexico in 2014, adopting close to best practice regulation in fixed line services – such as mandating access to public infrastructure, as well as making it compulsory for fixed line providers with significant market power to resell services to other suppliers. These policy changes would reduce Brazil's STRI score in telecoms to 0.30, narrowing the gap with Mexico (which has a score of 0.25) and intensifying competition in the domestic market.

Overhaul of ports and railways regulations

In transport and logistics, the pressing issues are to upgrade the infrastructure networks and improve the cost efficiency of service provision. The main recent legislative changes occurred in the maritime sector. The new ports law[33] enacted in June 2013 overhauled the regulatory framework, in particular the concession and leasing regime for public ports and a simplified authorisation procedure for private terminals. Among the statutory ports, 159 terminal facilities were identified as leasable areas to the private sector. The reform is expected to enhance investment in the sector and put forward three key indicators to be taken into consideration in the award of contracts: higher cargo-handling capacity, lower fees and shorter cargo-handling time.

Three terminals for Santos/SP and one terminal for Vila do Conde/PA, part of Stage I in Block 1 of the tendering plan, have undergone auction and acquisition, whereas the tendering procedure for two passenger terminals (Recife and Salvador) has started, with auction calls underway. Stage 2 of Block 1 includes three terminals in Outeiro/PA, two terminals in Santarém/PA, and one terminal in Vila do Conde/PA. Although ANTAQ has published the required documents for tendering, a lack of interest from investors has temporarily delayed auctions.

In addition, the new framework relaxed the previous condition according to which private terminals could only handle their own company cargo, which directed excess cargo to statutory ports, clogging their ability to meet demand with limited capacity. As of 2015, private terminals handle more than 60% of total transported cargo in Brazil. This evolution is likely to ease the cost pressure on exporting cargo.

Expected investments in port modernisation enter into the wider Logistics Investment Program (PIL), the second phase of which was launched in 2015.[34] It followed the Growth Acceleration

33. Law No. 12,815/2013, regulated by Decree No. 8,033.

34. A new Federal Secretariat, the Program for Investment Partnerships (PPI), linked to the Presidency of the Republic, was recently created to boost concessions and privatization, attract investments and to coordinate public policy and actions in the field of infrastructure. A fully revised package of concessions, priorities and other actions is to be announced in the coming months.

Program – PAC-1 (2007) and PAC-2 (2010) – and the first stage of the PIL initiated in 2012. The PIL is intended to promote investments primarily in the modernisation of existing infrastructure, and investments in critical infrastructure bottlenecks, such as transmission lines, port and airport hubs, and key roads and railways. Although the Brazilian development bank (BNDES) will retain a leading role in infrastructure financing, the new PIL puts strong emphasis on private sector participation, including through the issuance of infrastructure debenture bonds. The new package of privatisation creates concession opportunities in highways, railways, ports and airports for domestic and foreign private contractors. To date, there has been no indication that the participation of foreign companies in auctions might be restricted. Foreign construction firms are also welcome to participate in tenders.

As regards railways, the PIL aimed to expand the transport capacity of the national rail network, redeem the railroad as an alternative logistics carrier and reduce road freight. To this end, the Government sought to develop a model of exploration able to provide broad access to the rail network so that various players could make use of the railway infrastructure (open or horizontal model). In view of the guidelines established by the federal government, the land transport regulator ANTT proposed a grant model in order to ward off the dealer's demand risk in an attempt to increase the participation of private capital in railway infrastructure projects. However because of the tax impacts and problems related to loss of efficiency in the existing horizontal model, the federal government revised its decision and re-established the vertical model for exploration of new railways.

Thus, the launch of the second stage of the investment program in PIL-2 Logistics in June 2015 foresaw a vertical concession model based on the following guidelines: ensuring the right of way with a view to integrating of existing and new concession networks; improving competition in the vertical operator model; increasing public investment in the North-South axis (BRL 12.7 billion over 1995-2014); using a Procedure of Expression of Interest (PMI) for feasibility studies; and adopting either a grant model or a public-private investment sharing model for tenders.

The efforts undertaken to revamp the regulatory framework in ports and railways go in the direction of increased competition and better incentives to invest. However the multitude of initiatives related to the transport and logistics chain also emphasises the need to develop a coherent strategy and coordination between Ministries and regulatory agencies along several dimensions. Within each transport mode, the procurement rules to grant concessions or authorisations, the financial incentive to build or upgrade infrastructure and the competition framework applying to existing infrastructure should be reviewed in an integrated approach to maximise their effectiveness. At the same time, a co-ordinated approach needs to take into account the complementarities of road, rail, maritime and air in multimodal transport to avoid improving one segment without addressing bottlenecks further down in the distribution chain. For instance, while airline, port and railways regulation move towards easier entry requirements and more competitive pressure, new regulation on international and interstate road transport has tended to restrict competition (with the passage of ANTT Resolution No. 4,770/2015). The PIL is a step in integrating strategies for different modes, but its implementation has been more dispersed and it does not address competition issues among existing operators.

Liberalisation of the engineering services market

There are ongoing initiatives for the mutual recognition of professional qualifications in engineering. For instance the Engineering Council (CONFEA) and Portugal's Engineering Council (OEP) recently reached an agreement allowing for mutual professional licensing of Brazilian and Portuguese engineers in each other's territory with their original registries, dispensing the need of revalidation procedures for titles and diplomas. Other mutual recognition agreements are under discussion between CONFEA and its counterpart professional bodies in Argentina, Australia, Canada, Spain and Uruguay.

Along the same lines, the Ministry of Finance (SEAE) began in late 2015 to advocate for work on improving competition with CONFEA/CREA, as these agencies require additional documentation for foreign companies to participate in bidding in Brazil (including the infrastructure concession tenders). The recommendation was for CONFEA/CREA to revoke such additional requirements which had been hindering the participation of foreign companies in auctions for concessions.

If Brazil moves forward with these reforms, the benefits of opening up the Brazilian market to further participation by foreign engineers and foreign infrastructure companies would be mutually reinforcing. To be effective in promoting further private participation in infrastructure improvement, levelling the requirements imposed on foreign and domestic firms would have to be complemented with enhanced clarity in the procurement rules, in order to improve transparency and competition in the tendering process for large-scale concessions. Beyond the construction sector, the gains from a more liberalised engineering market would be felt throughout innovative industries. More open regulatory regimes, as measured by the STRI for engineering services, are associated with higher shares of high-technology exports.[35] A careful review of the framework for hiring foreign engineers would therefore be well-timed as Brazil focuses on developing and upgrading its manufacturing base. A fast track or straightforward mechanism for the revalidation of major foreign diplomas could be established to facilitate the recruiting of foreign professionals on a project basis while guaranteeing they have appropriate qualifications. With the same goal, Brazil could also consider providing increased freedom of fee-setting to professional engineers, where fees are currently regulated by each CREA.

Opening the oil and gas sector to further investments

The natural gas industry, currently a monopoly of Petrobras, has great potential to unlock investments in Brazil for two main reasons. First, the entry of new players in the industry has been hindered by Petrobras participation in all links of the chain (production, transport and distribution). The partial exit of Petrobras from some segments – it sold 49% of its gas distribution unit Gaspetro to Japan's Mitsui in 2015 and is envisaging further disinvestments – coupled with the potential of the country in gas production, could bring new investment to the sector. A greater focus of Petrobras on its core business (exploration and production of offshore oil and gas) could bring new competition increase competition in the sector, increasing the supply of gas at competitive prices. Second, there is great room for investment in piped gas distribution services, which may only happen with the entry of new players and possibly with the privatisation of distribution companies. The expansion of the piped gas network could generate substantial public works.

A project of law is under discussion in the lower house of the Brazilian Congress to attract private and foreign investments in oil exploration and production. The new legislation would eliminate the requirement that Petrobras operates all pre-salt fields with a minimum 30% stake. Petrobras would however retain the right of first refusal to participate in new pre-salt blocks.

The National Export Plan

The Ministry of Industry, Foreign Trade and Services launched the National Export Plan (*Plano Nacional de Exportações*, PNE) in June 2015, with the objective of promoting and diversifying Brazil's exports of goods and services. The PNE is designed to last until 2018 and is organised around five strategic pillars, with implications for services trade highlighted below:

- *Access to markets*. This pillar includes seeking an expanded coverage of existing agreements, including Mercosur and its partnership with Mexico; concluding on-going bilateral and regional negotiations, such as with the EU and other Latin American countries; and launching

35. The relationship between regulatory restrictions in engineering services and competitiveness in innovative industries in analysed in Section 4 of this report.

new negotiations on trade and investment agreements, including an agreement on regulatory convergence and trade facilitation with the United States.

- *Trade promotion*. The PNE identifies 32 markets targeted as priorities for export promotion and the advancing of trade agreements. Among these markets, 18 countries are selected as priorities for Brazilian services exports. The plan purports to develop a method of business intelligence to undertake market studies in services sectors for these target destinations.
- *Trade facilitation*. This pillar revolves around the implementation of the WTO Trade Facilitation Agreement. It aims to streamline administrative and customs procedures, including by establishing progressively a single widow, eliminating the use of paper documents, simplifying the registration goods exports and imports in SISCOMEX and of services exports and imports in SISCOSERV, developing a unified system for the collection of taxes related to foreign trade operations and moving forward in the implementation of the Authorised Economic Operator program.
- *Export finance and guarantees*. This pillar foresees an extension of eligibility to and coverage of the BNDES' export credit instruments (EXIM pre-shipment and post-shipment), an expansion in the resources of the subsidised export credit program (PROEX) and improvements in the capacity of the public export credit insurance (SCE/FGE) with a focus on SMEs. Services exporters are in principle eligible to all three schemes. The guidelines also encourage the mobilisation of private funding for export credit, but fall short of setting specific goals in that direction.
- *Tax regimes supporting exports*. This pillar addresses the streamlining of tax regimes and tax refund mechanisms applying to exporters, such as Reintegra, drawback and RECOF (which apply only to goods) and PIS-COFINS (complex social contributions covering unemployment, retirement and health care). The need to harmonise the rates of interstate taxes on goods and transport and communication services (ICMS) to reduce distortionary effects is mentioned but no goals are set in this respect. The PNE does not foresee any new efforts to alleviate the taxes levied on imports of services[36] or to provide tax refund schemes for services exporters.

For each of the priority markets identified under the second pillar, a subset of services sectors has been selected as main business opportunities. Professional services, telecommunications, broadcasting and audio-visual services are among those most frequently cited, as well as innovation-related services (research and development, licensing of intellectual property). While this focus illustrates Brazil's effort to develop highly skilled services, export promotion conducted at such a detailed level risks introducing new distortions in the playing field between Brazilian firms. Those initiatives in the PNE that would provide for more wide-ranging improvements in the business environment for all firms and all exporters, such as the removal of red tape and simplifications in the tax system if successfully implemented, are considerably more promising avenues to improve and sustain Brazil's competitiveness abroad.

The plan defines four main indicators to monitor progress: volume and value of exports, value added in exports, number of new exporting firms and export concentration index. Regional plans following the PNE guidelines have been launched in several states (Minas Gerais, São Paulo,

36. Six different taxes may apply when importing services in Brazil: municipal services sales tax (*Imposto Sobre Serviços*, ISS), social contributions (*Programa de Integração Social and Contribuição para o Financiamento da Seguridade Social*, PIS-Cofins), income tax withheld (*Imposto de Renda Retido na Fonte*, IRRF), tax on payments abroad for royalties, technical services or technology transfers (*Contribuição sobre Intervenção do Domínio Econônomico*, CIDE) and tax foreign exchange operations (*IOF-Câmbio*). Depending on the service imported, these taxes can add up to as much as 50% of the gross value of the service; see CNI (2014). Some imported services benefit from exemptions or reduced rates; e.g. RFB Normative Instruction No. 1455/2014 for IRRF exemptions.

Pernambuco, Rio Grande do Sul) and should be established in the remaining states in the course of 2016. However so far, concrete steps towards the implementation of the PNE still remain to be taken and actions to meet the goals set for 2015 have been few and far between.

Some steps have been taken recently to move forward on Pillars 1, 2 and 3. Regarding the goal of diversifying trade partners, Brazil has concluded in April 2016 the negotiation of services and investment chapters within the Expanded Trade and Economic Agreement with Peru. It is Brazil's first trade agreement covering government procurement. In addition, Brazil has celebrated six Agreements of Cooperation and Facilitation of Investment (with Colombia, Chile, Mexico, Angola, Mozambique and Malawi). There are ongoing services negotiations with Mexico and financial services negotiations with Chile shall begin shortly; it will be the first time Brazil negotiates such a sectoral agreement. As regards trade promotion in services, there is an ongoing effort in the trade promotion units of Brazil's diplomatic missions to register opportunities for trade in services within an electronic system, in compatibility with the registration of trade operations by Brazilian companies in the Integrated System of Foreign Services Trade SISCOSERV.

3. Improving the international performance of domestic services

This section explores detailed patterns in Brazil's trade in services and their determinants. Exports and imports of services but also services offshored to fulfil Brazilian export contracts are considered in relation to trade policies in the different countries parties to the transactions. The analysis highlights implications for the benefits of services liberalisation, joint cooperation in trade agreements with key trade partners and regulatory convergence.

3.1. Brazil's network of foreign services suppliers supports its exports

The networks of Brazil's services suppliers and customers are analysed using a novel detailed dataset on Brazilian trade in services at the transaction level, as briefly introduced in Table 5. In late 2012, the Ministry of Industry, Foreign Trade and Services introduced a legal requirement for Brazilian companies to report in the Integrated System of Foreign Trade SISCOSERV any transaction between residents and non-residents involving services, intangibles and other operations that may result in a change of net worth. The publicly available dataset records sales and acquisitions of services and intangibles that take place between Brazilian companies and companies or individuals domiciled abroad. It further identifies the country from which the activity originates and the recipient country at the end of the value chain. This allows us to distinguish for instance, in the case of Brazilian exports, the country of residence of the company paying for the service and the country where the service is effectively delivered (Box 2).

To give an indication of the scale of outsourcing operations, in 2014, Brazilian companies recorded 8.5 million transactions in the acquisition module of SISCOSERV, amounting to USD 22 billion, but nearly half of the total value represented payments by Brazilians firms for services, intangibles and other activities offshored and delivered abroad.

Figure 31 shows both the total value and the number of transactions outsourced to foreign suppliers by Brazilian companies in 2014, broken down by sectors.[37] Brazil tends to offshore mostly maritime transport, linked to its merchandise exports and perhaps due to the inefficiency of its domestic infrastructure, and in the majority of cases it outsources to the same country where the service is to be delivered. Germany is the main destination market, mainly reflecting coastal shipping and long distance maritime transport, worth USD 835 million. Less than a quarter of offshored maritime transport involves third countries, such as Switzerland, Denmark and Germany, to which

37 . This figure is based on the reported services import transactions, excluding standard imports. In other words, it includes all transactions where Brazil is the importer (purchasing the service) but not the destination (receiving the service).

Brazil subcontracts ocean shipping services to reach markets such as Saudi Arabia, Venezuela, the Russian Federation and China.

Business services and travel services are the two other main categories of services outsourced abroad by Brazil, although in general these services tend to be offshored to the same country where the service is ultimately delivered.[38] The second panel of Figure 31 reports the number of transactions between Brazilian and foreign companies. While maritime services generally reflect multiple small transactions, especially when provided by third countries, fewer but larger transactions are recorded for business services, travel services and leasing and renting of equipment.

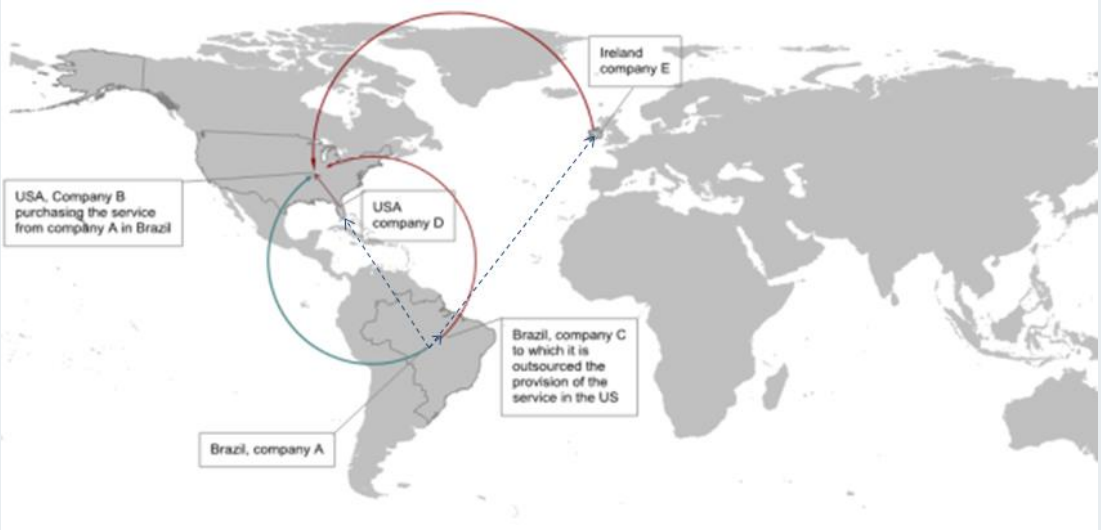
Box 2. An example of Brazilian transactions in SISCOSERV

In SISCOSERV, Brazilian companies are required to provide detailed information attached to a specific transaction, such as the start and end date of the provision of the service, the type of service traded, the mode of supply, the value of the transaction and the currency in which it takes place, the destination country, and the country where the transaction is concluded. In addition to straight-forward transactions where an activity is carried out and exported by a Brazilian firm, SISCOSERV makes it possible to identify cases where Brazilian firms outsource the provision of a particular service to foreign companies and to further identify in which country those services are ultimately provided.

The recorded transactions distinguish between the exporting country, the importing country and the destination country. In the export module (*venda*), Brazil is the exporting country, a foreign country is the importer, and the destination may be the importer (standard exports), Brazil or a third country (outsourcing). In the import module (*aquisição*), Brazil is the importing country, a foreign country is the exporter, and the destination may be Brazil (standard imports), the exporter or a third country (outsourcing).

For instance, company A in Brazil has a contract with company B in the United States for the delivery of a given service. Company A might decide to deliver the service itself or outsource it to a third company. This third company could be a Brazilian company C, another company D domiciled in the United States or a company E domiciled in a third country. In SISCOSERV, company A records the sale of the service to company B in the United States but also an acquisition if it decides to outsource the delivery of the service to a third company, whether domestic or foreign. Proximity or a more favourable regulatory environment are candidate explanations for why a Brazilian company chooses to outsource the delivery of a given service to a foreign company.

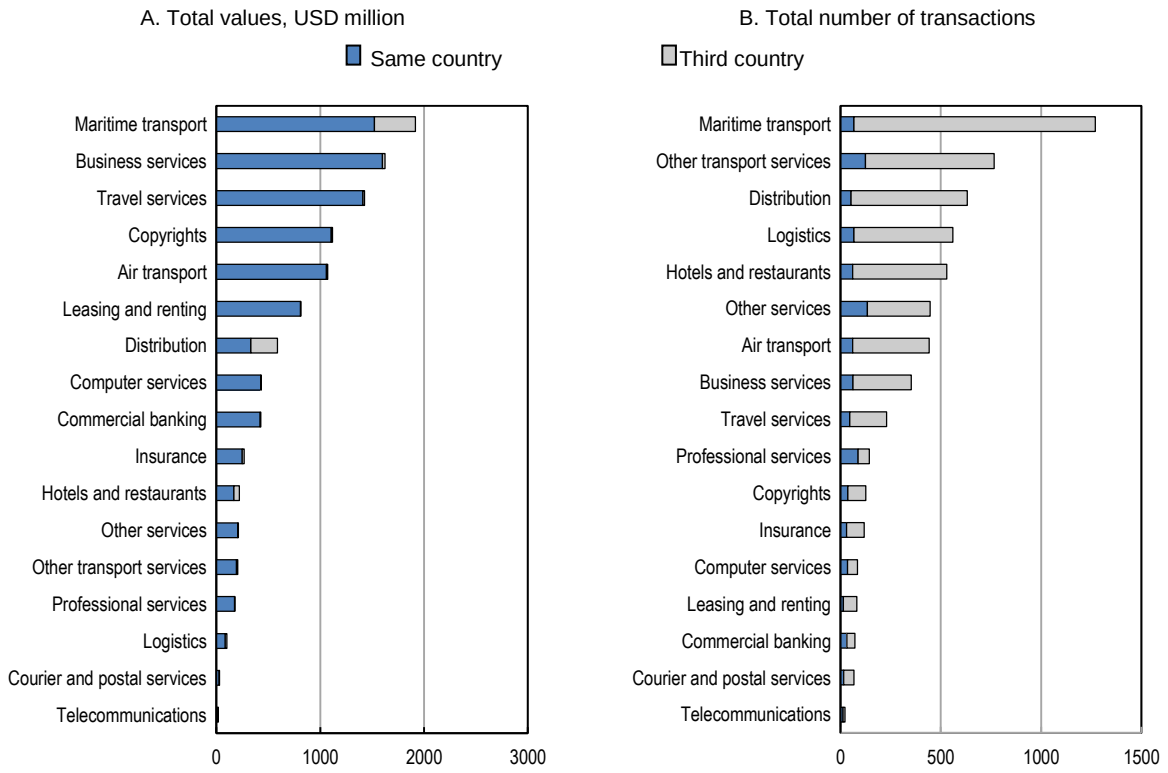
Figure 30. Brazilian transactions in SISCOSERV



Note: The dashed arrows represent the outsourcing relations of Brazil-based company A. The full red arrows represent the delivery of services to US-based company B by third companies sub-contracted by company A. The full green arrow represents pure exports by Brazil-based company A to US-based company B.

38. In the case of travel services consumed under mode 2 (consumption abroad), the country where the service is consumed is reported as both the exporter and the destination.

Figure 31. Services offshoring by Brazilian firms, 2014



Note: The category "Other services" includes: Real estate, Auxiliary services to financial institutions, Passenger transport services, Audiovisual services, Construction service, Personal, cultural and recreational services, Other non-commercial services.
Source: Elaboration based on data from the acquisitions module of SISCOSERV, MDIC.

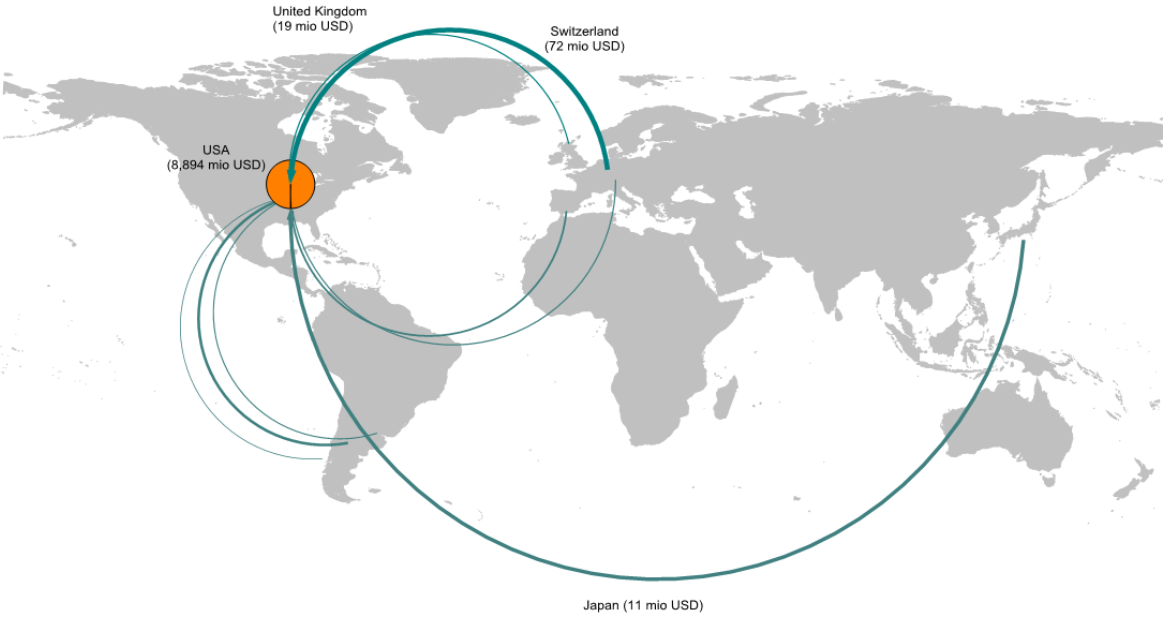
Of particular interest to Brazil are exports to the United States, its first services export destination and one of the top target markets in the National Export Plan in terms of differentiation and promotion of Brazilian services exports. SISCOSERV data show that in 2014, the United States accounted for USD 13.2 billion of Brazilian imports of services, but two thirds of those imports (USD 8.9 billion) represented payments for services outsourced to US firms in relation to Brazilian exports (Figure 32). These services were mostly business services, leasing and renting of machinery and equipment, commercial banking, computer services and transport services.

Moreover, in servicing the United States, Brazilian companies also outsourced a significant number of activities to companies in third countries. Switzerland (USD 72 million), the United Kingdom (USD 19 million) and Japan (USD 11 million) were among the main offshoring markets to which Brazil turned to, in order to deliver services linked to merchandise trade such as insurance, distribution and maritime transport, to the United States.

The analysis of services import, export and offshoring relations reveals a complex picture where outsourcing the provision of services abroad supports Brazil's exports of goods and services. Almost half of Brazil's recorded services imports are payments for outsourced or complementary services related to its goods and services exports. Offshoring services that are not part of a company's core business, or finding the most cost-effective provider abroad to fulfil a broader contract with a foreign customer, is in many instances embedded in the business model of successful exporters. In short, services imports matter for the competitiveness of exporting firms, and at times for the mere feasibility of export transactions. This fact suggests that rolling back impediments to foreign penetration in key services, including offshored business services, could help grow Brazilian exports. Indeed, analysis based on a large panel of countries has shown that policy barriers to imports and incoming FDI in services discourage services exports of the country imposing them even more than

services imports (Nordås and Rouzet, 2015). This channel is explored more systematically in the Brazilian case in the next section.

Figure 32. Brazilian services transactions with third countries, 2014



Note: The circle represents services offshored to US firms to serve the US market. The arrows represent services offshored to non-US countries to serve the US market.
Source: Elaboration based on data from the acquisitions module of SISCOSERV, MDIC.

3.2. Lessons from the pattern of services offshoring by Brazilian firms

The rich information contained in the SISCOSERV data can be used to analyse the determinants of Brazilian trade in services, in particular how they relate to policy choices of the direct partner country as well as of the final destination of traded services. We exploit several sources of variation: differences between various services types exported or imported to a given set of countries, which countries Brazil trades with, and finer offshoring patterns, i.e. where Brazilian firms choose to outsource the provision of services to a given destination. The methodology followed in this analysis in explained in Box 3.

Several insights emerge from the estimations. First, Brazilian services suppliers stand to gain from international cooperation towards joint liberalisation with their trading partners. Analysing the geographical and policy determinants of Brazil's exports of services reveals that trade policy barriers in the country purchasing services (*STRI(imp)*) limit the ability of Brazilian firms to serve those markets (Table 6). The effect is both statistically and economically significant. However regulatory restrictions in the country where the service is delivered (*STRI(dest)*), where different from the importer, do not appear to have a significant impact, indicating that impediments to the purchase of services are more detrimental to Brazilian exporters than impediments to their effective provision. We also find as expected that Brazilian firms export more to geographically closer partners, but not to their direct neighbours, perhaps reflecting the lack of integration of the South American market. The results are similar if we look at the number of transactions conducted instead of their total value (columns 5-8). They are not sensitive to restricting the sample to destinations outside Brazil (columns 3 and 7) or to offshoring to third countries (columns 4 and 8).

Box 3. Methodology: Services trade restrictions and Brazilian transactions

The analysis aims at estimating the impact of services trade restrictions on Brazilian services imports and exports as recorded in the acquisition (*aquisição* – imports) and sales (*venda* – exports) modules of SISCOSERV. The sample covers transactions taking place between 2012 and 2014, with partner countries and services sectors for which information on services trade restrictions is available.

The basic regression equation estimates the impact of services trade restrictions, as measured by the STRI index corresponding to the traded service category, on the transaction taking place between Brazil (denoted *B*) and country *j* at time *t*, for the delivery of service *k* to country *d*:

$$X_{Bjd,k,t} = \beta_0 + \beta_1 log(GDP_{j,t}) + \beta_2 log(GDP_{d,t}) + \beta_3 Y_{jd} + \beta_4 Z_{Bj} + \beta_5 V_{Bd} + \beta_6 STRI_{j,k} + \beta_7 STRI_{d,k} + \delta_{k,t} + \varepsilon_{Bjd,k,t}$$

This equation is run separately for services imports and exports, i.e. the transactions recorded in the acquisitions and sales modules in SISCOSERV. The dependent variable $X_{Bjd,k,t}$ is either the total transaction value (in log) between Brazil and country *j* in year *t*; or the total number of transactions recorded (in log), when estimating the extensive margin. Country *j* might also be the country where the service is ultimately provided. The explanatory variables include the log of GDP, in current USD million, of both the selling (or acquiring in the case of exports) and the destination country, and bilateral variables drawn from CEPII proxying cultural and geographical distances between the three country pairs. The specification is therefore based on the gravity model but adds an additional country dimension, made possible by the availability of information on where the service is eventually delivered.

The equation includes the STRI of the destination country and that of the country involved in the transaction, i.e. the selling country for the acquisition module and the purchasing country for the sales module. The equation also includes sector-time fixed effects to capture different dates of incorporation into the SISCOSERV reporting system and idiosyncratic sector characteristics. It is run on a pooled sample including financial services, logistics, professional services, transport, postal and telecommunication services, computer services, construction, distribution and audio-visual services. The regressions are estimated with OLS and standard errors are clustered by country pairs.

Alternative specifications disentangle the presence of Brazil among the destination countries (conventional imports or exports as opposed to services outsourcing) and whether the destination country is also the importer or the exporter. A regulatory similarity index based on the detailed STRI database is also introduced, as well as its interaction with the STRI of the destination country. The similarity index is based on the methodology of Kox and Nordås (2007) and describes how closely related are the regulations of a given country pair.

Second, domestic value generation and jobs induced by exports would be likely to increase if the final consumers of Brazilian services took concrete steps to reduce trade costs in services. The estimation results from the acquisitions data (Table 7) show that where regulatory restrictions are high in the destination country, Brazilian firms are more likely to outsource the provision of services to the destination itself or to third countries. As mentioned above, the acquisition module includes both standards imports of services, purchased from abroad and delivered in Brazil, and offshored services paid for by Brazilian firms to be delivered elsewhere in relation to a Brazilian export flow. Restricting the sample to the latter (columns 3 and 4) confirms that Brazilian companies are more likely to outsource services when serving less liberal destinations.

Third, an open regulatory environment creates a competitive advantage for countries endeavouring to attract offshored services. Where the provision of services is outsourced to third countries, Brazilian companies tend to pick suppliers from countries with a more open regulatory environment (as evidenced by a negative sign on the exporter's STRI in Table 7, column 4). This finding suggests that conversely, liberalising Brazilian services to foster a more competitive domestic environment would create a more favourable framework to integrate a larger portion of the services value chain, and thus to retain a higher share of the value created by exports.

Fourth, regulatory convergence with key markets contributes to developing a competitive edge as a service provider. An index measuring the similarity of regulations between the exporting and the destination country is introduced in columns 5 and 10 of Table 7. It emerges that Brazilian firms tend to favour third-country suppliers based in countries which have similar regulations to the countries they want to serve, when the destination country imposes relatively high trade barriers. An intuitive explanation is that providing services directly to countries where the regulatory burden is high and biased against foreign firms entails high fixed or operational costs for Brazilian providers. Firms established in countries with a regulatory framework more similar to that of the recipient of the service are better equipped to navigate complex requirements, making them the most cost-effective

Table 6. Services trade restrictions and Brazilian export transactions: Regression results

	Log of transaction values (USD million)				Log of number of transactions			
	All	All	dest is not Brazil	imp is not dest	All	All	dest is not Brazil	imp is not dest
Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log GDP (imp)	0.639***	0.637***	0.490***	0.525***	0.452***	0.449***	0.371***	0.350***
	(0.083)	(0.084)	(0.071)	(0.110)	(0.059)	(0.059)	(0.054)	(0.077)
Log GDP (dest)	0.371***	0.370***	0.405***	0.266***	0.315***	0.314***	0.349***	0.227***
	(0.064)	(0.064)	(0.064)	(0.065)	(0.043)	(0.043)	(0.046)	(0.042)
Log distance (BRA,dest)	-0.525***	-0.526***	-1.116***	-0.493***	-0.450***	-0.451***	-0.949***	-0.411***
	(0.030)	(0.030)	(0.237)	(0.035)	(0.021)	(0.021)	(0.162)	(0.025)
Contiguity (BRA,dest)	0.645	0.623	0.333	0.524	0.520*	0.496*	0.171	0.467
	(0.400)	(0.384)	(0.408)	(0.473)	(0.298)	(0.274)	(0.281)	(0.318)
Common official language (BRA,dest)	-0.464**	-0.482**	-0.737***	-0.620*	-0.390**	-0.409**	-0.466***	-0.489
	(0.201)	(0.206)	(0.194)	(0.345)	(0.177)	(0.185)	(0.151)	(0.340)
Log distance (imp,dest)	-0.698***	-0.636***	-0.642***	-0.304***	-0.571***	-0.505***	-0.516***	-0.200***
	(0.027)	(0.042)	(0.043)	(0.105)	(0.019)	(0.028)	(0.029)	(0.066)
Contiguity (imp,dest)	-0.592**	-0.491*	-0.580**	0.097	-0.382*	-0.274	-0.362	0.251
	(0.267)	(0.271)	(0.295)	(0.335)	(0.214)	(0.214)	(0.244)	(0.245)
Common official language (imp,dest)	-0.177	-0.195	-0.211	-0.179	0.077	0.057	0.036	0.059
	(0.228)	(0.228)	(0.229)	(0.228)	(0.156)	(0.157)	(0.160)	(0.149)
Log distance (BRA,imp)	-1.342***	-1.354***	-1.113***	-1.019***	-0.714***	-0.726***	-0.526***	-0.483***
	(0.275)	(0.273)	(0.219)	(0.278)	(0.185)	(0.185)	(0.153)	(0.169)
Contiguity (BRA,imp)	-1.484***	-1.499***	-1.778***	-1.445***	-0.765***	-0.781***	-0.899***	-0.707***
	(0.325)	(0.305)	(0.314)	(0.287)	(0.231)	(0.206)	(0.197)	(0.164)
STRI (imp)	-2.283***	-2.807***	-2.751***	-2.667***	-1.477***	-2.032***	-2.011***	-1.753***
	(0.574)	(0.584)	(0.685)	(0.617)	(0.352)	(0.354)	(0.375)	(0.352)
STRI (dest)	-0.207			-0.814	0.248			-0.199
	(0.596)			(0.569)	(0.386)			(0.346)
Not same country (imp,dest) * STRI (dest)		-0.833	-0.114			-0.422	-0.378	
		(0.559)	(0.562)			(0.342)	(0.347)	
Same country (imp,dest) * STRI (dest)		1.430	1.333			1.999**	1.543**	
		(1.144)	(1.129)			(0.786)	(0.767)	
Observations	2 609	2 609	1 976	1 933	2 616	2 616	1 983	1 940
R-squared	0.578	0.580	0.616	0.469	0.625	0.629	0.662	0.555
Sector-Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors clustered by country pair in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Brazil is the exporting country and *imp* and *dest* refer the importing country and the destination country. *"Same country"* is a variable taking value 1 if the importing and destination countries are the same. Specifications (1), (2), (5) and (6) include all services transactions sold by Brazilian firms to non-residents. Specifications (3) and (7) exclude transactions where Brazil is the destination country. Specifications (4) and (8) exclude transactions where the purchasing country and the destination country are the same. See Box 3 for methodological details.

Table 7. Services trade restrictions and Brazilian import transactions: Regression results

	Log of transaction values (USD million)					Log of number of transactions				
	All	All	dest is not Brazil	exp is not dest	exp is not dest	All	All	dest is not Brazil	exp is not dest	exp is not dest
Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log GDP (exp)	0.593***	0.595***	0.444***	0.484***	0.478***	0.483***	0.484***	0.389***	0.400***	0.397***
	(0.079)	(0.079)	(0.070)	(0.097)	(0.098)	(0.052)	(0.052)	(0.042)	(0.066)	(0.066)
Log GDP (dest)	0.582***	0.583***	0.630***	0.474***	0.473***	0.449***	0.449***	0.466***	0.369***	0.369***
	(0.061)	(0.060)	(0.065)	(0.064)	(0.063)	(0.035)	(0.035)	(0.038)	(0.037)	(0.037)
Log distance (exp,dest)	-0.610***	-0.552***	-0.521***	-0.265***	-0.236**	-0.482***	-0.420***	-0.392***	-0.160***	-0.143**
	(0.029)	(0.041)	(0.044)	(0.100)	(0.106)	(0.017)	(0.024)	(0.025)	(0.062)	(0.064)
Contiguity (exp,dest)	-0.872***	-0.788***	-0.873***	-0.229	-0.220	-0.592***	-0.503***	-0.512***	0.002	0.009
	(0.213)	(0.216)	(0.234)	(0.270)	(0.272)	(0.121)	(0.122)	(0.131)	(0.159)	(0.159)
Common language (exp,dest)	0.263	0.247	0.335	0.244	0.242	0.077	0.061	0.100	0.050	0.047
	(0.226)	(0.225)	(0.214)	(0.229)	(0.227)	(0.121)	(0.120)	(0.114)	(0.119)	(0.119)
Log distance (BRA,dest)	-0.528***	-0.531***	-0.864***	-0.486***	-0.493***	-0.396***	-0.399***	-0.381**	-0.359***	-0.363***
	(0.029)	(0.029)	(0.266)	(0.033)	(0.033)	(0.020)	(0.020)	(0.149)	(0.023)	(0.022)
Contiguity (BRA,dest)	0.820**	0.780**	0.528	0.822*	0.806*	0.675**	0.633**	0.606**	0.618**	0.603**
	(0.408)	(0.395)	(0.411)	(0.433)	(0.436)	(0.275)	(0.263)	(0.267)	(0.280)	(0.281)
Common language (BRA,dest)	0.250	0.251	0.162	0.422	0.403	0.269	0.269	0.237	0.322	0.309
	(0.338)	(0.333)	(0.315)	(0.424)	(0.426)	(0.191)	(0.187)	(0.172)	(0.235)	(0.235)
Log distance (BRA,exp)	-1.342***	-1.349***	-1.110***	-1.152***	-1.138***	-1.038***	-1.046***	-1.022***	-0.920***	-0.912***
	(0.206)	(0.206)	(0.217)	(0.224)	(0.227)	(0.150)	(0.150)	(0.141)	(0.165)	(0.167)
Contiguity (BRA,exp)	-1.417***	-1.427***	-1.806***	-1.189***	-1.184***	-0.929***	-0.939***	-1.238***	-0.840***	-0.839***
	(0.373)	(0.336)	(0.300)	(0.268)	(0.273)	(0.262)	(0.224)	(0.211)	(0.186)	(0.187)
STRI (exp)	-1.317***	-1.821***	-1.764***	-1.114**	-1.094**	-0.490	-1.028**	-1.326***	-0.656*	-0.650
	(0.488)	(0.546)	(0.661)	(0.550)	(0.554)	(0.330)	(0.402)	(0.438)	(0.392)	(0.396)
STRI (dest)	1.278**			1.697***		1.053***			1.016***	
	(0.537)			(0.623)		(0.302)			(0.364)	
Not same country (exp,dest)		0.672	-0.276				0.427	-0.291		
* STRI (dest)		(0.590)	(0.653)				(0.352)	(0.375)		
Same country (exp,dest)		2.849***	2.763***				2.731***	2.880***		
* STRI (dest)		(0.956)	(1.004)				(0.582)	(0.615)		
Similarity index (exp,dest)					2.590***					1.440***
* STRI (dest)					(0.929)					(0.543)
Similarity index (exp,dest)					0.023					-0.019
					(0.671)					(0.417)
Observations	3 289	3 289	2 650	2 628	2 628	3 300	3 300	2 661	2 639	2 639
R-squared	0.496	0.497	0.469	0.438	0.438	0.548	0.551	0.535	0.472	0.472
Sector-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors clustered by country pair in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Brazil is the importing country, *exp* and *dest* refer the exporting country and the destination country. *"Same country"* is a variable taking value 1 if the exporting and destination countries are the same. Specifications (1), (2), (5) and (6) include all services transactions purchased by Brazilian firms from non-residents. Specifications (3) and (7) exclude transactions where Brazil is the destination country, i.e. conventional imports Specifications (4) and (8) exclude transactions where the selling country and the destination country are the same. See Box 3 for methodological details.

recourse for outsourcing. Furthering international regulatory cooperation between Brazil and its strategic markets and taking more systematically into consideration international best practices in the domestic rule-making process (while also reflecting the national social and economic environment and specific public policy objectives) would benefit Brazilian firms by making them more attractive alternatives as services suppliers. It would also help create a more level playing field where comparative advantage is based on production efficiency rather than regulatory distortions.

Taking stock, the analysis conducted on detailed Brazilian services data highlights the importance of moving beyond the conventional, sometimes mercantilist conception of services trade and looking at the interdependence of services imports and exports in the international division of labour. In light of Brazil's trade promotion agenda outlined in the National Export Plan, the first pillar (seeking co-ordinated market opening through an expansion and deepening of trade agreements) deserves particular attention. It stands to reason that if Brazil obtains significant reductions in services trade restrictions from its partners, the impact on its services exports is expected to be substantial. But the other side of the coin should not be overlooked: Brazil's opening up its services to trading partners is likely to be just as critical. Encouraging competitive pressure to spur Brazilian firms towards higher efficiency and lower costs would increase the domestic spillovers from exports. Such regulatory reforms may also make Brazil a more attractive destination for services offshoring by foreign firms – much more so than imposing hurdles for foreign services suppliers to penetrate the Brazilian market, such as local content requirements which have had very limited success at developing Brazilian services sectors in part because they do not create incentives to excel. Lastly, the PNE is silent about seeking further regulatory convergence with international standards or key partners as an export promotion tool, but our results suggests that this would be an important avenue to explore.

4. Reforming services to make downstream industrial sectors more competitive

Improving manufacturing competitiveness is one of Brazil's main economic challenges and initiatives aimed at bridging the productivity and innovation gap feature prominently in the current policy agenda.[39] This section argues that services reforms are an essential stepping stone towards enhanced industrial performance. Two main categories of services are highlighted: "cost" services comprising primarily freight, logistics, credit and maintenance services; and "value" services contributing to innovation and branding.

4.1. Services that underpin product differentiation are the most productivity-enhancing

It is natural to expect that services regulation affect industrial competitiveness insofar as the cost and quality of services inputs shape the productivity of downstream manufacturers. Using industry-level data on industrial firms from the Brazilian Annual Industrial Survey, this channel is analysed for manufacturing industries to assess the extent to which intermediate services affect manufacturing performance. Then, we examine which of the services inputs are most productivity-enhancing. This exercise helps identify where services policy reforms are expected to yield the largest efficiency benefits in a range of manufacturing sectors.

As the effect of the rise of services on the performance of manufacturing depends on a wide range of factors, different industries might see different results depending on their characteristics and type of services inputs. To better understand the role of services improvements, it is useful to categorise them in smaller, more homogeneous groups. Arbache (2014) proposes a division of services based on their main purpose as inputs. For this purpose, services are classified into two different yet complementary families.

39. For a simulation of the impact of trade policy reform in the merchandise sector, see Araújo and Flaig (2016).

The first category, labelled *cost services*, refers to functions that affect production costs, including logistics and transportation, general infrastructure services, storage, repair and maintenance services, outsourced services in general, basic IT services, credit and financial services, travel, accommodation, food and catering, or distribution.

The second category, labelled *value services*, refers to functions that add value by differentiating and customising products and, therefore, raising their market price. The group is composed of services that usually require higher levels of human capital and other capabilities. It includes inter alia R&D, design, engineering and architecture projects and services, consulting services, software, specialised technical services, high-end IT services, branding, advertising and marketing.

Better and/or cheaper cost services can help a firm achieve greater production efficiency, but they do not usually contribute to product customisation or value creation in competitive markets. In principle, the longer the supply chain of a product, the greater the importance of cost services for its competitiveness. One may also expect that the more homogenous a product is, the more important low costs will be for competitiveness. Cost services are thus particularly relevant for commoditised goods such as corn and soybeans crops, iron ore, oil, economy cars, clothes, and textiles. Conversely, the more sophisticated and differentiated a product is, the greater the importance of value services. Competitiveness in customised products is more reliant on the quality of value services.[40]

To investigate whether and how the service sector is contributing to enhance productivity in Brazil, we draw from Arbache and Moreira (2015). The data used in this analysis come from PIA covering the years 1996 through 2012. The PIA dataset provides detailed information by sector on indicators such as intermediate consumption, revenues and number of workers, which allow us to examine the effect of services inputs on labour productivity. Labour productivity is calculated as value added per worker per industry (in log). Service is calculated as the share of services in intermediate consumption per industry. Among the PIA categories, royalties, technical assistance, advertising and marketing expenses are categorised as value services. Cost services are all others.

To start with, Figure 33 shows the correlation coefficient between labour productivity and the share of services in intermediate consumption in manufacturing. The correlation is positive, meaning that higher shares of services inputs are associated with higher productivity levels. When the calculation is made using only the share of value services, the coefficients turn higher, suggesting a stronger association of this category of services with productivity enhancements. There is also indicative evidence that this relationship has become stronger over time.

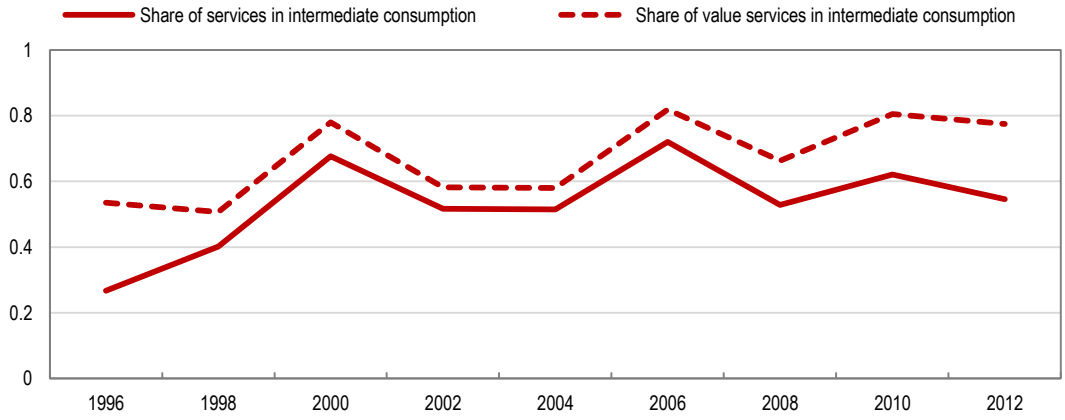
While the correlation suggests that services and productivity are linked, little is known about the mechanisms behind this relationship and potential reasons abound. Changes in relative prices of services and goods, rising per capita income, the spread of information and communications may have influenced that relationship over time. We therefore adopt an agnostic approach and run lowess plots, i.e. locally-weighted regressions which use a function that attaches less weight to points further away from the mean.[41]

40. There is not, however, a simple and direct correspondence between types of goods and families of services. Consider the case of the pre-salt oil in Brazil, whose production requires highly sophisticated and advanced scientific and technological services in geology, engineering, physics and chemistry for the identification, development of fields, equipment development, extraction, logistics systems and mitigation of environmental risks. Despite all the sophistication and skilled personnel concerned, those services do not add value because oil is a commodity. The analysis of the correspondence between goods and services should be done on a case-to-case basis. See Arbache (2016) for more details.

41. Scatter-diagram smoothing such as lowess involves drawing a smooth curve on a scatter diagram to summarise a relationship between two variables. It is related to non-parametric regressions in which the objective is to represent the relationship between a response variable and a predictor variable in

Figure 33. Correlation coefficient between labour productivity and share of services in intermediate consumption in manufacturing

In %, calculated at the two-digit industry level



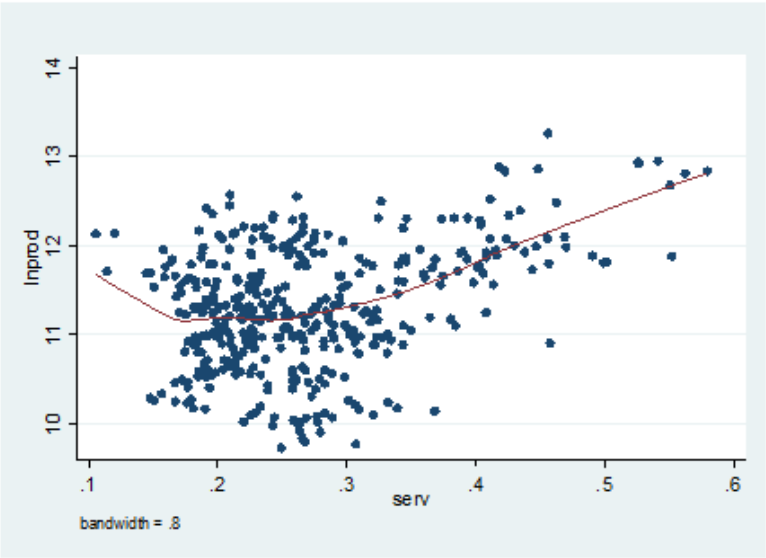
Notes: All coefficients are statistically significant at the 5% level of significance, except that of share of services in intermediate consumption in 1996.

Source: Elaboration based on data from the Pesquisa Anual de Serviços (PAS) – Brazilian Institute of Geography and Statistics.

Looking at services inputs as an aggregate category, Figure 34 (Panel A) suggests that slopes vary substantially according to service consumption and that the relationship between services consumption and productivity appears to have a non-monotonic shape of a cubic form.

Figure 34 Relationship between share of services in intermediate consumption and productivity

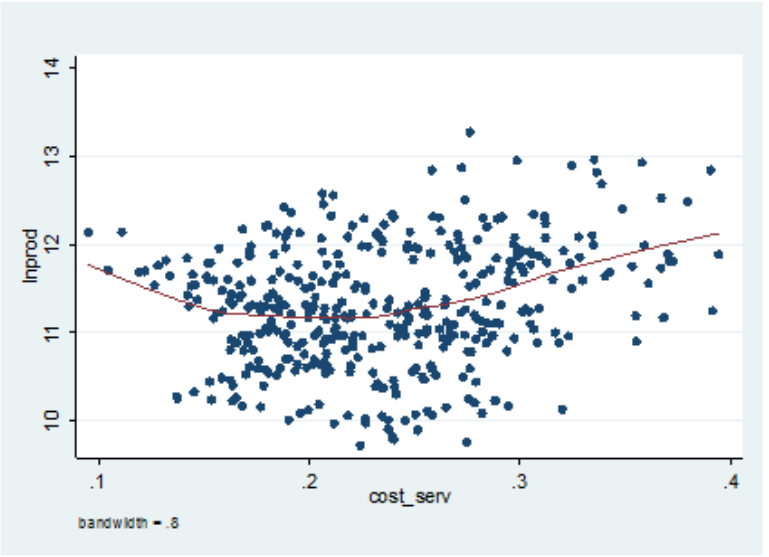
A. All services



Source: Elaboration based on data from the Pesquisa Industrial Anual – Brazilian Institute of Geography and Statistics. serv is the total share of services in intermediate consumption by manufacturing industries (defined at the 2-digit level). lnprod is the log of value added per worker. The line is a lowess smoother.

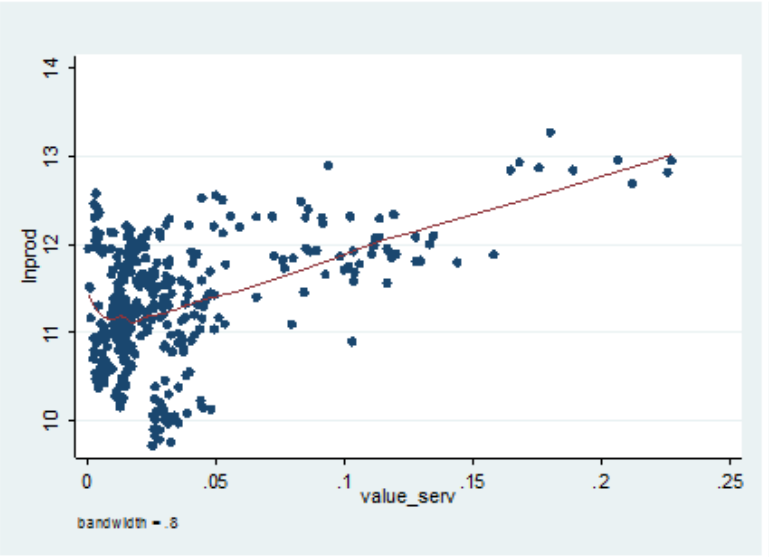
way that makes few assumptions about the form of the relationship and its strength. In contrast to standard linear regression analysis, no assumption is made that a straight line represents the relationship.

B. Cost services



Source: Elaboration based on data from the Pesquisa Industrial Anual – Brazilian Institute of Geography and Statistics. Value services are royalties, technical assistance, and advertising and marketing expenses. Cost services are all other categories in PIA data. The line is a lowess smoother.

C. Value services



Source: Elaboration based on data from the Pesquisa Industrial Anual – Brazilian Institute of Geography and Statistics. Value services are royalties, technical assistance, and advertising and marketing expenses. Cost services are all other categories in PIA data. The line is a lowess smoother

Panels B and C of Figure 34 distinguish between cost and value services to show the relationship between industry-level labour productivity and each of these two categories of services inputs. While the input shares of value services are highly concentrated around a low mean, the share of cost services has a substantively higher mean and is more widely spread. The plots also reveal that while a large portion of data points in the cost service chart is in an almost flat slope section, a large portion of data points in the case of value services is in a section with a positive slope. It thus appears that value services are those most strongly associated with higher productivity.

In order to check whether services are indeed associated with productivity and to explore that relationship further, we estimate regressions with three powers of the service variables using the following specifications:

$$\ln productivity_{it} = \alpha + \beta_1 X_{it} + \beta_2 services_{it} + \varepsilon_{it} \quad (1)$$

$$\ln productivity_{it} = \alpha + \beta_1 X_{it} + \beta_2 cost_services_{it} + \beta_3 value_services_{it} + \varepsilon_{it} \quad (2)$$

Each industry is represented by the subscript *i* and years are represented by *t*. X_{it} represents a vector of specific characteristics that may affect labour productivity. The control variables at the industry level are workers' average years of schooling, tenure on the job, industry technology intensity (according to the OECD classification), import coefficient, size of firms, and share of imported inputs in intermediate consumption. These variables are drawn from the Brazil's Ministry of Labour, IBGE and the Brazilian National Confederation of Industry.

Table 8 shows a compilation of the main regression results.[42] In a simple linear specification (columns 1 and 2), services are still positively associated with productivity after controlling for other determinants of labour efficiency. This qualitative result is robust to different model specifications, time spans, and sets of control variables. When disentangling the contributions of value and cost services (columns 5 to 8), it emerges that higher shares of value services are positively associated with productivity, while cost services appear to have at best a weak influence and possibly a negative one.

Table 8. Productivity and services inputs: regression results

	Dependent variable: Labour productivity							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Services	3.02	0.89	-25.79	-10.12				
Services (square)			74.93	29.12				
Services (cube)			-57.59	-23.26				
Cost services					(-0.12)	(-0.18)	32.66	(-7.55)
Cost services (square)							117.69	28.32
Cost services (cube)							(-133.31)	(-34.19)
Value services					8.47	3.41	(-49.9)	(-3.59)
Value services (square)							160.75	88.86
Value services (cube)							-481.56	-282.93
Industry fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
R^2	0.141	0.928	0.215	0.933	0.229	0.933	0.262	0.935

Notes: All coefficients are statistically significant at the 5% level of confidence, except those in brackets. The dependent variable is labour productivity at the two-digit industry level. Services are calculated as the share of services in intermediate consumption. Value services are royalties, technical assistance, and advertising and marketing expenses. Cost services are all others in PIA data. The coefficients on control variables are not shown.

42. Arbache (2005), Goedhuys (2007) inter alia have already identified the relevance of innovation and technology indicators such as patent registrations and R&D investment share in gross operating revenue to manufacturing productivity enhancement in Brazil, but none of these papers have looked at the association between services and productivity.

The coefficients in column 8 would imply that holding constant the control variables listed above as well as any other time-invariant industry characteristic, increasing the intermediate consumption of value services would contribute to improving productivity as soon as a modest level of consumption of those services is reached (about 5% of total input consumption) and for the whole range of values observed in the data above that threshold. The very low levels of value services consumption are likely to correspond to commoditised goods where in the absence of differentiation of the final product, firms are least able to add value through customisation or branding – making the services that serve this purpose least relevant. The contribution of value services to labour productivity reaches its maximum, holding other factors constant, where the share of value services is slightly below 20%, corresponding to a high reliance on sophistication and differentiation.

Considering the relevance of cost services to manufacturing and the increasing share of some of these services in intermediate consumption, their lack of significance in the regression results may perhaps be surprising. However, a likely explanation is that the consumption of such services is a pre-requisite in many manufacturing sectors and thus relatively inelastic to prices. In that case, an inflated share of cost services inputs indicates high service prices – which may reduce firms' margins and therefore be detrimental to productivity measured with a value added criterion – rather than the consumption of a large quantity of services.[43] Overall in the realm of cost services, the priority is to bring down the price of such services, including by upgrading the infrastructure to reduce delays and waste, and by fostering higher competition across providers of core services.

More generally, more widely available and better quality cost services contribute to level the playing field but do not necessarily turn into higher relative productivity. In the days of global value chains and regional production networks, efficient transportation and finance are a necessary condition for a firm to compete, but they may not suffice to bring industrial firms' performance to the next level. Innovation, technology, design, branding, marketing and other differentiating services are those most likely to create value and change firm prospects.

Our results suggest that policies that help firms deploy more and better value services have the potential to improve productivity and contribute to economic growth. These policies may include measures such as encouraging R&D investments, increasing product innovation, modernising patent legislation and patent office, improving the competitive environment in ICT infrastructure and services, improving service-specific advanced skills, opening markets, and getting firms access to state-of-the-art professional services.

4.2. Services performance bolsters growth and diversification in manufacturing exports

Brazil has established a solid comparative advantage in natural resources sectors, and its exports have been largely reliant on the high competitiveness achieved in commodities. At the same time, the international performance of Brazil's manufacturing firms has been lacklustre and Brazil's integration into global value chains beyond the extractive industries remains embryonic. Between 2005 and 2014, according to the World Bank World Development Indicators (WDIs), manufacturing exports grew by 24%, as opposed to 215% in China and 187% in India (WDI).

43. This is likely to be the case for financial services where, as mentioned previously, the periods in which the largest shares of financial services in manufacturing consumption were observed were those with the highest prevailing interest rates. Indeed Claessens and Sakho (2013) estimate that loan demand by Brazilian firms is fairly inelastic to interest rates within loan categories.

Table 9. Brazil's top 20 exported products (HS 2002 6-digit level), 2013

HS 2002	Description	Sector (ISIC rev. 3, 2-digit)	Export value in million USD	Share in Brazil's goods exports	Largest partner	Share of largest partner
260111	Iron ores and concentrates	Mining of metal ores	26,489	10.7%	China	57.8%
120100	Soya beans (whether or not broken)	Agriculture	22,944	9.3%	China	74.8%
270900	Petroleum oils and oils obtained from bituminous minerals (crude)	Oil and gas extraction	13,137	5.3%	China	30.7%
170111	Cane sugar (raw sugar not added flavouring or colouring matter)	Food products and beverages	9,239	3.7%	China	15.4%
890520	Floating or submersible drilling or production platforms	Other transport equipment	7,851	3.2%	Panama	50.8%
230400	Oil-cake, solid residues resulting from extraction of soya-bean oil	Food products and beverages	7,106	2.9%	Netherlands	31.3%
260112	Iron ores and concentrates (agglomerated)	Mining of metal ores	6,638	2.7%	Japan	12.3%
100590	Maize (not seed)	Agriculture	6,362	2.6%	Japan	14.9%
470329	Chemical wood pulp, semi-bleached or bleached, non-coniferous	Paper and pulp products	5,287	2.1%	China	25.5%
90111	Coffee (not roasted, not decaffeinated)	Agriculture	4,940	2.0%	United States	18.5%
271000	Petroleum oils, oils obtained from bituminous minerals, preparations thereof	Oil and gas extraction	4,786	1.9%	Netherlands	34.8%
20230	Meat of bovine animals, frozen, boneless	Food products and beverages	4,359	1.8%	Russia	26.8%
20714	Meat and edible offal of poultry, cut, frozen	Food products and beverages	4,179	1.7%	Japan	23.1%
870323	Other vehicles, spark-ignition engine of a cylinder capacity exceeding 1 500 cc but not exceeding 3 000 cc	Motor vehicles	3,761	1.5%	Argentina	85.5%
880240	Airplanes and other aircraft, of an unladen weight exceeding 15,000 kg	Other transport equipment	3,214	1.3%	United States	26.4%
20712	Meat and edible offal of poultry, not cut in pieces, frozen	Food products and beverages	2,814	1.1%	Saudi Arabia	34.7%
170199	Other cane or beet sugar, chemically pure sucrose	Food products and beverages	2,744	1.1%	UAE	14.9%
240120	Tobacco (partly or wholly stemmed)	Agriculture	2,624	1.1%	China	17.2%
710813	Gold in other semi-manufactured forms	Basic metals	2,308	0.9%	Switzerland	35.9%
220710	Ethyl alcohol (alcoholic strength 80 degrees or more)	Food products and beverages	1,936	0.8%	United States	57.9%

Source: Elaboration based on UN Comtrade. Products classified as manufacturing goods are shaded.

Box 4. Methodology: Services trade restrictions and manufacturing exports

The analysis exploits the variation across sectors in their sensitivity to services performance to assess the impact of policy restrictions on downstream industries. Not all sectors are affected in the same way by a lack of competitiveness in credit supply, as some are more dependent than others on external financing for reasons inherent to the technology and production process (e.g. size of fixed costs, intensity in intangible capital, length of the production cycle). Similarly, some sectors are likely to intrinsically require fast and reliable transport more than others. Delays or unpredictability in transport times are most damaging to perishable agricultural products, but also to products where competitiveness depends on firms' ability to react quickly to shifts in consumer demand (e.g. fashion). Effective transport and logistics are also likely to be more detrimental in sectors characterised by long supply chains. In the same fashion, technology-related services such as engineering, they are expected to have a disproportionate impact of high-tech innovative industries.

The sensitivity of a sector to credit conditions in 29 manufacturing sectors is measured by two indicators following Manova (2013). External finance dependence is the share of capital expenditures not financed with cash flows from operations and measures the reliance of investments on external funds. Asset tangibility records the share of net property, plant and equipment in total book-value assets and assesses the ability to provide collateral. These variables are constructed from micro-level data on US firms. As for transport services, Hummels and Schaur (2013) provide an estimation of the time sensitivity of 110 categories of goods. They derive a tariff equivalent of time in transit from the premium paid for air shipping relative to slower ocean shipping, based on US import data. We use the tariff equivalents as the indicators of goods sectors' reliance on efficient transport. Lastly to capture sector reliance on telecom and engineering services, linked to the complexity and information intensity of the production process, we use the ratio of R&D expenditure to value added from the OECD STAN database. In all cases, the measures of services dependence are derived from a benchmark country (the United States) rather than being taken as country-specific to avoid endogeneity issues. A necessary assumption is that the ranking of industries along these characteristics reflects intrinsic technological characteristics of the manufacturing process in each sector and does not vary significantly across countries.

The main hypothesis tested in the analysis is that within countries: trade in more time-sensitive products is expected to be more responsive to the STRIs for various transport modes than trade in less time-sensitive sectors; trade in more financially dependent sectors is more responsive to the restrictions recorded in the commercial banking STRI than trade in less financially dependent sectors; and trade in technology-intensive products is more sensitive to competitive conditions in engineering and telecommunications than trade in less innovative industries. The focus is therefore on how services restrictions affect the composition of manufacturing exports, i.e. specialisation in specific segments of merchandise trade.

The regression equation for export performance from country *i* to country *j* in manufacturing sector *k* is:

$$X_{ijk} = \exp\left[\alpha_0 + \alpha_1 STRI_i \times services_dep_k + \alpha_2 STRI_j \times services_dep_k + \alpha_3 Z_{ij} + \beta_i + \gamma_j + \delta_k + \varepsilon_{ijk}\right]$$

In this equation, $STRI_i$ is the STRI index for the relevant service sector in the exporting country *i*, $services_dep_k$ is the indicator of dependence on transport, financial or technology-related services in sector *k*, and gravity effects are controlled for with distance, whether the countries share a border and have a common language, and whether the countries are both part of the European Economic Area or NAFTA. The direct effect of STRI (common to all sectors) and services dependence (common to all countries) are picked up respectively by country and sector fixed effects. Similarly country fixed effects absorb the exporter and importer's other country-specific characteristics, including GDP, expenditure levels and remoteness. The coefficients summarised in the main text refer to α_1. To gauge the importance of the importer's services environment along with that of the exporter, the interaction $STRI_j \times services_dep_k$ is also included. The trade flow specifications are estimated with a Poisson pseudo-maximum likelihood estimator and standard errors are clustered by country pair.

The dependent variables X_{ijk} is either the value of bilateral exports by manufacturing sector in million USD, or the normalised free on board export unit prices of these exports which indicate whether firms are able to charge relatively higher prices in certain segments of their exports. The analysis is carried out on 2013 bilateral export data among the 42 countries included in the STRI database, where trade flows are aggregated at the industry level of the relevant services dependence variables. Trade in goods and unit values at the detailed HS 6-digit level are drawn from the CEPII BACI and Trade Unit Value databases, which are based on original data from UN Comtrade. Normalised unit prices are expressed as standard deviations above or below the mean of all country pairs within 6-digit products, after dropping extreme values, and are aggregated at the industry level using export weights. The regressions are run separately for total manufacturing products, consumption goods and intermediate goods.

In the whole economy, less than 0.5% of formal-sector firms are exporters; in other words, Brazil has the same number of exporting firms as Norway, a country whose population is 40 times smaller (Canuto et al., 2015). Despite the small number of existing exporters, firms' entry into exporting is also much less frequent than in comparable countries, and declining, suggesting that the fixed costs of entering global markets are prohibitive in many instances.[44] Most of those fixed costs come in the form of establishing business relationships, acquiring information about foreign markets, researching market potential, developing distribution networks, organising a logistics chain towards the target destination, obtaining export finance, advertising and marketing abroad, etc. In short, the required operations associated with becoming an exporter are typically intensive in services, and conversely deficiencies in services can be decisive bottlenecks when it comes to improving Brazilian firms' export participation rates.

Another fragility of Brazil's merchandise trade lies in the composition of the export mix. The product concentration of its goods exports has increased in the 2000s, though the export basket remains somewhat more diversified than in other countries with similar income per capita (Canuto et al., 2013). Natural resources play a prominent role in determining what is exported, as evidenced by the prevalence of mineral and oil-related products and foodstuffs in the main exported products (Table 9). The top 10 products account for 45% of total goods exports. High-tech exports have been underperforming compared to the rest of the manufacturing sector, growing only by 6% between 2005 and 2013 – as opposed to 600% in India and over 800% in China. The share of high-tech exports in total manufactured exports thus fell from 12.8% to 9.6% over the same period, according to the World Bank WDIs (WDI). Bringing domestic performance closer to world-class in information services, R&D and professional services would be an important step towards building a more diversified and more sophisticated manufacturing base.

The role of services sustaining international competitiveness in manufacturing along these different indicators is analysed more systematically by differentiating between industries that are more or less heavy users of some types of services for technological reasons. We first focus on those services that we have identified as critical to support price competitiveness in Brazil: credit, transport and logistics. Not only is poor performance in those services expected to depress manufacturing exports in general, but it is also likely to shift the composition of exports away from high-end industries that are most reliant on obtaining financing for innovation, or on delivering their products in a timely and predictable manner. We then analyse the role of technology-related or value services. As Brazil strives to develop internationally competitive industries in technology-intensive segments such as machinery and equipment, aeronautics or chemicals, the degree to which these industries require efficient services to operate and grow is a key parameter. This competitiveness channel is explored using data on bilateral trade by industry in 42 countries in 2013 and following the method outlined in Box 4.

Financial services

We first analyse the contribution of a competitive banking sector to manufacturing trade performance. Looking at total exports at the industry level confirms that countries with high STRIs in commercial banking export less in financially vulnerable sectors (Table 10, top left cell).[45] In other words, restrictive policies towards foreign and new banks depress exports in sectors that rely on bank credit for their investments and operations. The effect is concentrated in intermediate products,

44. See Fernandes et al. (2015) using the Exporter Dynamics database. Brazil has the lower rate of entry into exporting among the 45 countries in the database.

45. This finding holds even after controlling for financial development and the net interest margin in the exporting country, suggesting that not only the overall availability and the cost of finance matter but also the impact of regulation on the allocation of credit within a country, e.g. how much of the available credit is directed to SMEs vs large firms, private vs state-owned firms, new entrants vs established firms, etc.

lending support to the notion that trade in fragmented value chains is more sensitive to credit constraints than trade in final goods. Taken together, the results suggest that overall, high restrictions in banking induce specialisation away from credit-dependent sectors; but within those sectors, they encourage specialisation in consumer goods segments of each industry rather than participation in regional or global value chains.

Table 10. Services restrictions and trade in credit-dependent manufacturing goods

Summary of regression coefficients

	Total industry exports	Consumption goods	Intermediate goods
STRI commercial banking			
Export value	-	+	-
Export unit price	-	-	-

Notes: The regressions are run on trade between 42 countries in 29 industries in 2013. The sign reported refers to the coefficient on the interaction between the importing country's STRI for commercial banking and the sector's financial dependence. The results are very similar using the two financial dependence measures. Other variables include distance (in logs), common border, common language, EEA and NAFTA dummies, an interaction between the importing country's STRI for commercial banking and the sector's financial dependence, as well as exporter, importer and industry fixed effects.

Source: Analysis based on the CEPII BACI and Unit Value databases. See Box 4.

It is worth noting that Brazil's manufacturing trade is primarily concentrated in sectors with low sensitivity to credit constraints. For instance, the food industry, iron and steel products and industrial chemicals rank low on measures of financial dependence – i.e. a large proportion of the assets of firms in these sectors can typically be used as collateral and a high share of their investments are financed by retained earnings. Brazil's comparative advantage in these industries builds first and foremost on the country's rich natural resources, and their low reliance on external funds has enabled their strong export performance to be sustained despite a lack of competitive finance.

However, looking forward, many of the industries flagged as priorities for the development of a dynamic and innovative manufacturing base are markedly more sensitive to prevailing credit conditions. Among the sectors that were targeted by Plano Brasil Maior, we find automobiles, semiconductors and medical equipment, all of which are highly dependent on effective credit intermediation. Reviewing the regulatory framework in a direction more favourable to competition in the banking sector would significantly contribute to making it possible for those innovative industries to grow.

The regression results imply that if Brazil implemented reforms removing trade and competition impediments in the financial sector, the resulting increase in competition in the credit market could yield substantive benefits for manufacturing exports. For instance, lifting the screening requirement to obtain a Presidential Decree for any foreign investment in the financial sector, creating a unified collateral registry and granting full independence to the banking regulator could end up boosting exports of transport equipment by up to 4%, exports of electric machinery by 10% and exports of professional and scientific equipment by 12%.[46]

Lastly, the second row of Table 10 indicates that less open regulatory regimes in banking services are associated with lower unit prices, and all the more so as exports relate to products whose production is financed by bank credit. Efficient credit provision helps fund the upfront costs of R&D and innovations in processes that enable firms to upgrade the quality of their products. It therefore comes as no surprise that a pro-competitive environment in financial services favours vertical differentiation through the development of higher-quality, higher-priced products.[47] Conversely, this

46. Over and above any general impact common to all sectors.

47. Some caution in the interpretation is warranted as unit prices are an imperfect measure of quality and also reflect production costs and mark-ups. However, the inclusion of fixed effects in the regressions

finding implies that financial reform would create more favourable conditions for Brazilian manufacturing firms to invest in branding and quality upgrading and in turn enhance their global competitiveness in high-end products.

Transport services

We next turn to the role of transport services in shaping manufacturing trade. Table 11 reports a summary of results linking policy restrictions in air, road and rail transport and courier services to export performance in time-sensitive industries. Regulatory restrictions in transport sectors are associated with lower exports of time-sensitive products across the board. This finding suggests that where countries impose regulatory restrictions to foreign transport operators, their own ability to export goods is reduced, especially in industries where fast and reliable shipment is a core determinant of competitiveness. Such sectors include perishable food products such as dairy (where each day in transit is equivalent to a 14% tariff) but also petroleum products (9% tariff equivalent), automobile parts (up to 8%), chemicals (5%) or plastic materials (4%).

Table 11. Services restrictions and trade in time-sensitive manufacturing goods

Summary of regression coefficients

	Total industry exports	Consumption goods	Intermediate goods
STRI Air transport			
Export value	-	-	(-)
Export unit price	(-)	-	-
STRI Maritime transport			
Export value	-	-	-
Export unit price	(-)	-	(-)
STRI Road transport			
Export value	-	-	-
Export unit price	+	+	+
STRI Postal and courier			
Export value	-	-	-
Export unit price	(+)	+	+

Notes: The regressions are run on trade between 42 countries in 110 industries in 2013. The sign reported refers to the coefficient on the interaction between the importing country's STRI for the transport mode and the sector's time sensitivity. Brackets indicate non-significant coefficients at the 10% level. Other variables include distance (in logs), common border, common language, EEA and NAFTA dummies, an interaction between the importing country's STRI and the sector's time sensitivity, as well as exporter, importer and industry fixed effects.

Source: Analysis based on the CEPII BACI and Unit Value databases. See Box 4.

As regards Brazil's trade, the highly time-sensitive sectors that are most affected by inefficient transport fall into two categories. On the one hand, Brazil's natural comparative advantage in some sectors such as foodstuffs and petroleum products is sufficiently large that their export performance remains strong despite the costs and delays incurred in moving goods from one location to the next. Nevertheless, an inadequate transport and logistics chain imposes a heavy toll on those industries and is likely to slow the pace of their growth. On the other hand, Brazil is pursuing the development of industries such as the automobile sector and chemicals but faces difficulties when it comes to having its firms emerge as competitors in the global marketplace, beyond the protected Mercosur market. Our analysis suggests that improvements in the regulatory framework of transport services are likely to facilitate the emergence of competitive players in those sectors. For instance, with respect to ocean

nets out the impact of common factors in the exporting country, such as minimum wages or general deficiencies in competition enforcement.

freight shipping, the liberalisation of greenfield port concessions combined with that of cargo reservations could boost exports of automobile parts by 5 to 10% and exports of chemical products by 6%.[40]

In addition, there appear to be complementarities in the performance of different transport modes. Multi-modal transport services enable multiple suppliers to move components seamlessly from one production stage to the next and eventually to their foreign destination. Trade-restrictive regulation in postal and courier services – which integrate modes and provide the last mile of delivering goods – also discourages exports in industries where lead time matters most.

Looking at export unit prices reveals a more complex picture. The pattern associated with air and maritime transport services is the same as for financial services: policy barriers in these transport sectors are associated with lower export prices in industries that depend on them. This confirms that the production of customised and sophisticated goods hinges on reliable supply chain links. One explanation is that a lack of efficiency and reliability in the freight transport system serving distant destinations may force firms to reduce the number of links in their production networks and to source inputs from geographically close suppliers, rather than obtaining higher-quality inputs from more distant sources, resulting in lower output quality.

For road transport and courier services, however, the opposite pattern holds. Combined with the negative results on export values, this suggests that less pro-competitive regulations on trucking acts as a per-unit cost that makes exporting overall less profitable in exposed industries, but induces them to ship relatively higher-priced products to recoup the transport cost.[48] Taken together, the results indicate that improving the regulatory environment and infrastructure for air and ocean freight is a priority to help Brazilian firms climb up the quality ladder both within and across industries, while more efficient road freight and courier services would contribute mostly to diversifying the export product mix.

Technology-related services

As highlighted in the previous section of this study, finance and transport account for the highest expenses of the industrial sector on intermediate services, but intellectual or technology-related services should not be overlooked. Their importance as manufacturing inputs is growing fast and is expected to play a key role in the Brazilian industry's ability to add value through innovative products and processes. A fast transmission of information across production locations, efficient IT systems to detect and eliminate defaults, cutting-edge engineering services to design premium products enhance non-price competiveness, which is just as important to break into foreign markets as low costs – or even more so in the case of high-tech customised products.

The performance of engineering and telecom services should matter more in sectors that rely on innovation to compete, and that continuously need to develop new products or to upgrade their existing offer to stay in the game. We therefore take each sector's R&D intensity as an indicator of its dependence on technology-related services. The empirical results summarised in Table 12 confirm that innovative sectors lose their edge on export markets when the regulatory environment limits competitive pressure in telecoms and engineering.

More precisely, exporters of technology-intensive products set higher export prices where services regulation restricts the provision of these services, but earn lower export revenues. This indicates that higher export unit values are likely to reflect higher factor costs without the benefit of higher quality. In other words, where a pro-competitive framework is lacking in technology-related services, high-tech manufacturers are not able to develop differentiated products and enhance their non-price competitiveness sufficiently to compensate for the cost disadvantage.

48. At the same time, the FOB price at the port of dispatch includes the cost of domestic road and courier services, which are likely to contribute to higher export prices and lower price competitiveness for identical products.

Table 12. Services restrictions and trade in technology-intensive manufacturing goods

Summary of regression coefficients

	Total industry exports	Consumption goods	Intermediate goods
STRI Telecommunications			
Export value	(-)	-	-
Export unit price	+	(+)	+
STRI Engineering			
Export value	-	-	-
Export unit price	+	+	+

Notes: The regressions are run on trade between 42 countries in 18 industries in 2013. The sign reported refers to the coefficient on the interaction between the importing country's STRI for telecoms or engineering and the sector's R&D intensity. Brackets indicate non-significant coefficients at the 10% level. Other variables include distance (in logs), common border, common language, EEA and NAFTA dummies, an interaction between the importing country's STRI and the sector's R&D intensity, as well as exporter, importer and industry fixed effects.

Source: Analysis based on the CEPII BACI and Unit Value databases. See Box 4.

Some of Brazil's main export industries – food products, basic metals, coke and petroleum products – feature among the least intensive in R&D and thus among the least affected by deficiencies in those services underlying innovation. Yet the issue comes to the fore if Brazil's manufacturing export basket is to try and move up the technology ladder. The sectors most reliant on innovation are medical and professional equipment, aircrafts, chemicals and automobiles. While Brazil has developed a competitive aeronautics industry, its export performance in the other three sectors has lagged behind despite focused efforts to improve their international standing. The analysis suggests that supply-side policies to intensify competitive pressure in technology-related services may be more effective at creating a vibrant export base in these complex industries than targeted tax breaks and export incentives.

5. Conclusions and key recommendations

The analysis conducted in this report highlights the large contribution of services to Brazil's economy, but also the under-exploited potential of services to sustain productivity gains and international competitiveness throughout the economy. Two services categories have been distinguished to identify where improving their efficiency and quality would create large spillovers to manufacturing growth. On the one hand, core "cost services" such as transport and finance suffer from high prices and bottlenecks in their availability to manufacturers, related to infrastructure deficiencies and inefficient credit allocation. On the other hand, "value services" linked to technology transfers, advertising and more generally to branding or innovation are essential to upgrade manufacturing activities, but are burdened by heavy and complex taxation and a lack of clarity in the legal framework. Some key areas for reform emerge for Brazil to consider:

- Continue the efforts undertaken to coordinate Ministries, services regulators and private stakeholders with a view to developing a coherent services reform agenda. Such dialogue helps reduce the fragmentation of policy initiatives, which has great potential to make the design and implementation of services policies both more transparent and more effective.
- Integrate the programs promoting private investments in transport and logistics infrastructure with efforts to improve clarity in the tendering process for concessions, as well as a development of the capacity and independence of regulatory agencies overseeing infrastructure owners and users.
- Move forward with the design of a new regulatory framework for telecoms towards an authorisation regime, and at the same time address the gaps in pro-competitive regulation on dominant suppliers of telecommunications services.

- Envisage measures to improve competition in the banking sector, such as harmonising the requirements for the establishment of foreign financial institutions with those of domestic banks, enhancing the independence of the Central Bank and continuing to work on developing a unified and easily searchable registry of security interests.
- Enhance flexibility in hiring and fee-setting in professional services, in particular as regards the provision of engineering services by foreign licensed professionals, to encourage technological upgrading in industrial sectors.
- Provide legal certainty to providers and users of third-party services by finding a road for adoption of a legal framework on outsourcing services beyond "non-essential" tasks, with appropriate safeguards regarding workers' rights and working conditions. An updated legislation would be more in line with modern business realities, where services provided by third parties support manufacturing competitiveness.
- Gradually roll back local content requirements where the induced lack of competitive pressure curtails innovation in services and inflates manufacturing input costs, and avoid the introduction of new distorting domestic preference regulations.
- Alleviate the tax burden and distortions in supply chain organisation arising from the multiple taxation of intermediate services, by allowing firms to claim full credit for indirect taxes paid on services inputs in lieu of the "physical credit" principle in ICMS and the absence of credit for inputs in ISS; and providing for equal tax treatment of imported technology services.
- De-emphasize narrowly targeted tax breaks and export incentives focused on "picking winners" in the export promotion strategy, in favour of broad-based improvements in the trading environment including the simplification of tax procedures and implementation of trade facilitation initiatives.

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