

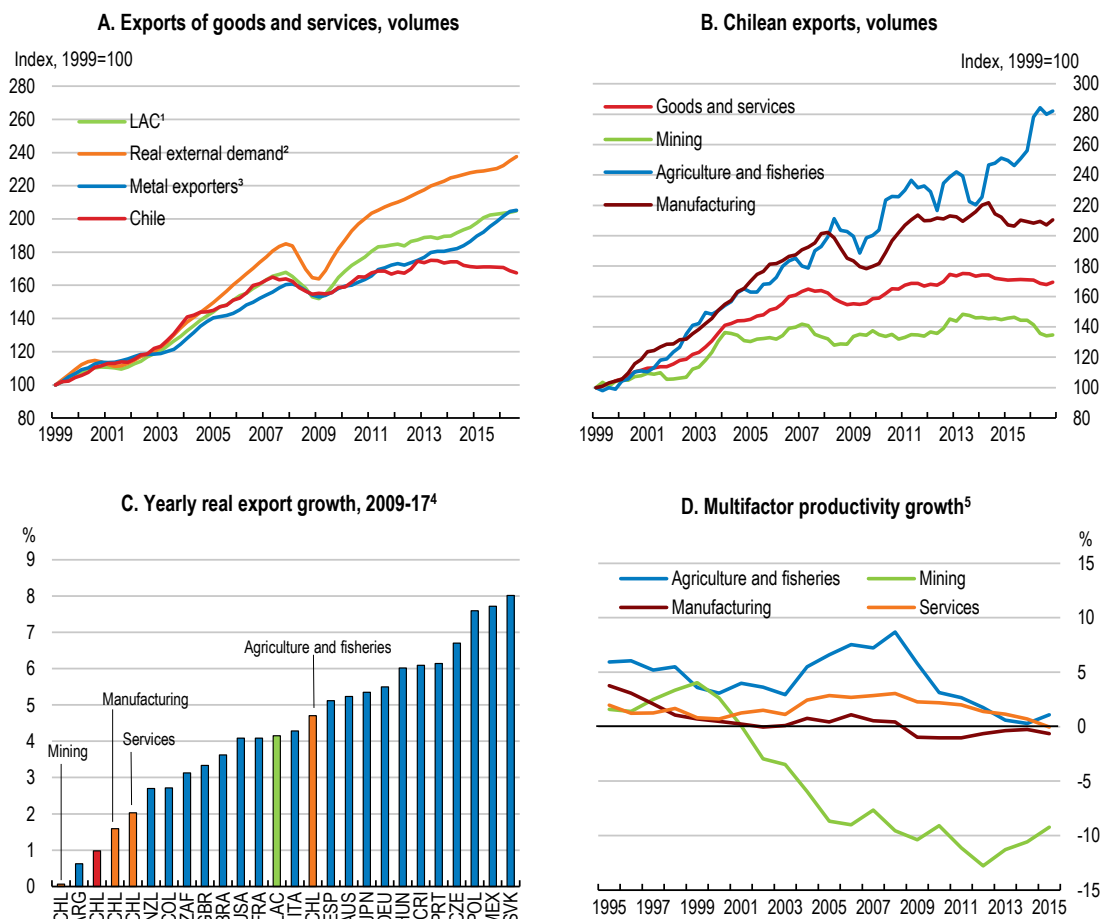
Chapter 1.

Boosting Export Performance in Chile

Over the past three decades, Chilean exports have contributed to higher growth and well-being, supported by a stable macroeconomic framework, bold structural reforms, such as trade and investment liberalisation, and buoyant natural-resource sectors. However, export performance has disappointed since the global financial crisis. The commodity boom hid weak non-commodity exports and low productivity. Exports remain concentrated in terms of goods, firms and destinations. Many micro and small firms have low productivity and the quality of the public and private capital stock is lagging, which weighs on potential new exporters and export performance. The regulatory framework remains complex, infrastructure gaps hamper exports and competition is limited in some key sectors affecting competitiveness. Recent measures have aimed at simplifying the opening of new businesses, improving competition and energy supply and easing trade procedures. Additional reforms are needed to offset the geographical remoteness and improve exports and productivity over the medium term. This includes further enhancing competition and increasing investment in innovation, removing barriers to capital and labour reallocation, promoting railway and international connections and increasing benefits from agglomeration by improving urban planning.

Over the past three decades Chile has grown faster than most OECD countries, thanks to sound macroeconomic policies and strong natural-resource based exports, particularly of copper and copper-related products. However, Chile was hit hard by the meltdown of international trade following the 2008 global financial crisis and the plunge in commodity prices (Figure 1.1, Panels A to C). Mining and manufacturing exports stalled, and services exports remained low. Lower external demand and declining multifactor productivity (MFP) growth affected most sectors (Panels A and D). In addition, negative supply shocks, such as salmon diseases, algal bloom, high ocean temperatures and bad weather conditions, affected exports of agro-food sectors. Mining exports have also lately been influenced by higher costs of extraction from the need to dig deeper in the mines (CNP, 2017).

Figure 1.1. Exports and productivity have stalled

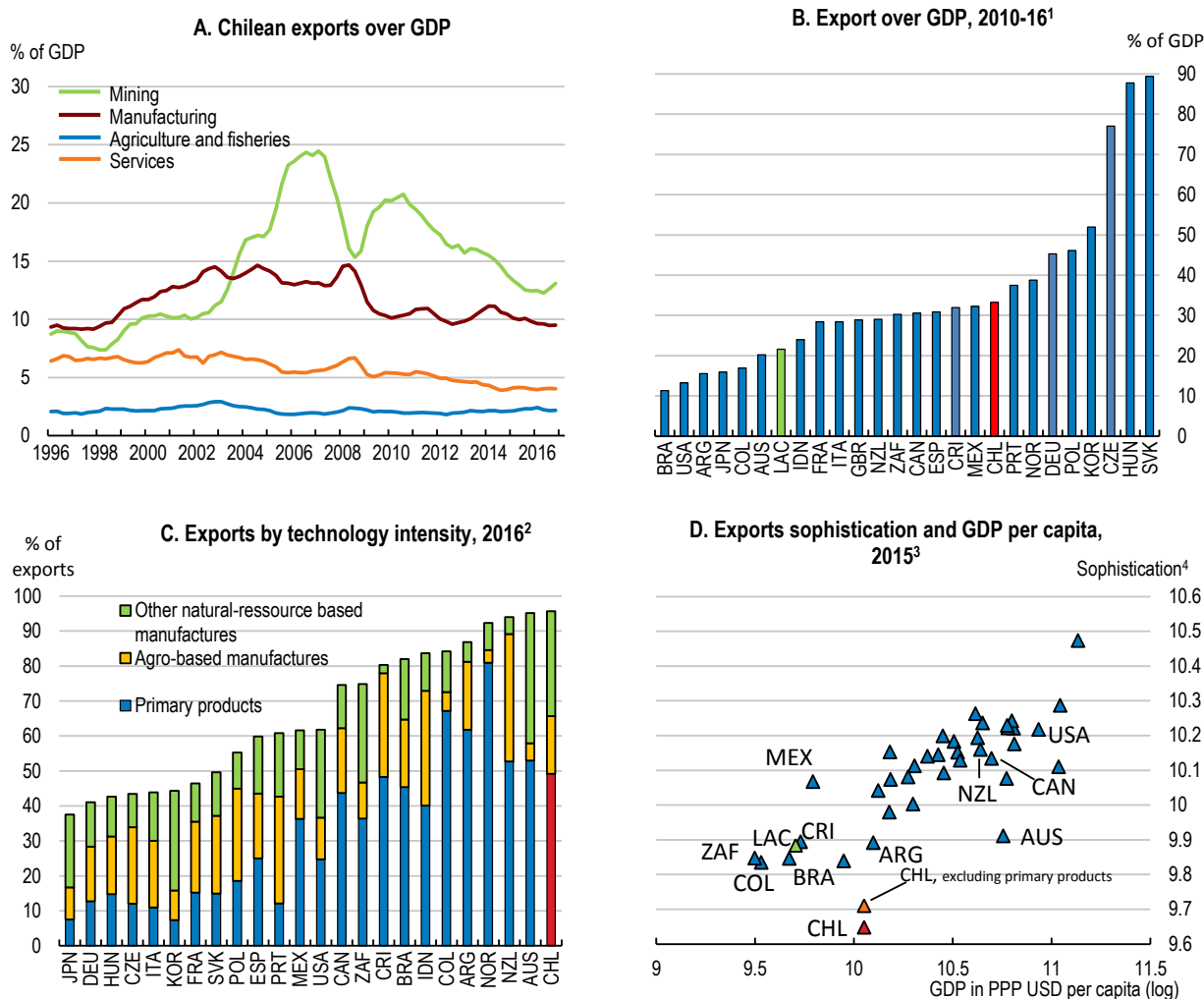


1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.
2. Export markets' growth for goods and services, in volume terms (unweighted average of Argentina, Brazil, Chile, Colombia, Costa Rica and Mexico with export market shares as of 2010).
3. Metal exporters is the unweighted average of Australia, Canada and Peru.
4. Annualised growth between 2009 and the last four available quarters.
5. Five-year moving average. Multi-factor Productivity is adjusted for human capital and hours of work (CNP, 2017).

Source: OECD (2017), Economic Outlook 102 Database; Central Bank of Chile (2017), Statistical Database; Central Bank of Peru (2017), Statistics database; CNP (2017), *Informe de Productividad Anual 2016*, Comisión Nacional de Productividad and OECD calculations.

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Figure 1.2. There is room to raise exports and their sophistication



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. According to Lall (2000)'s classification.

3. OECD countries, excluding Belgium and Luxembourg, and Argentina, Brazil, Colombia, Costa Rica and South Africa.

4. Export sophistication is defined as an average over Chilean exported goods as in Hausmann et al., (2007). For each good, a proxy for its sophistication is the average GDP per capita (in 2015 in PPP terms) of its destination markets. Computations use 180 destination countries and 6-digit good classification (1992 - HS6 classification). Primary products are defined as in Lall (2000).

Source: OECD (2017), National Accounts Database. OECD calculations based on CEPII (2017), BACI Database and World Bank (2017), World Development Indicators; Comtrade Database and Lall, S. (2000), "The technological structure and performance of developing country manufactured exports, 1995-1998", *Oxford Development Studies*, No. 28 (3), pp. 337-369.

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The export intensity of the economy has declined since 2008 (Figure 1.2, Panels A and B). Multilateral tariffs are low and an extensive network of preferential trade agreements has brought the average paid tariff to internationally low levels. The OECD FDI restrictiveness index also shows few restrictions to inward FDI (OECD, 2017a). However, the end of the commodity boom did not lead to changing export patterns. Natural resource-based sectors, including agro- and mining-based remain the bulk of

exports (Panel C), and exports are still relatively less sophisticated than those of its Latin American neighbours, even after disregarding primary products (Panel D; Hausmann et al., 2007).

The reasons for the persistent weakness of exports since the global financial crisis are both cyclical and structural. Exports have been affected by lower external demand, notably for mining and manufactured exports (Fornero et al., 2017). Weakened competitiveness also played a role. The nominal and real effective exchange rates have remained historically high, weighing on cost-competitiveness (Figure 1.3, Panel A), though the stronger peso reflects the recovery in copper markets and sound macroeconomic fundamentals (IMF, 2016). In addition, Chile's relative unit labour costs have outgrown most other Latin American countries. Wages outpaced productivity in most sectors, as the labour market remained relatively tight and domestic demand for construction and services was dynamic (Panel B). High and volatile energy prices further complicated firms' adjustment until 2015.

Investment has also weakened weighing on productivity growth and export performance. Overall investment has been strongly related to copper prices and exports (Figure 1.3, Panel C). FDI inflows, which represented one third of investment over the past ten years, have recently decreased (Panel D), as declining rates of returns of new investments in the mining sector due to lower profitability were only partly compensated by higher investment in renewable energies (OECD, 2017b). In non-mining sectors, investment has also been stagnant for the past four years (Figure 1.4, Panel A). The overall investment rate of non-financial corporations remained high until 2015, due the investment-intensive mining sector (Panel B). Weak investments on business research and development (R&D) and in the manufacturing sectors are worrisome, given their links with higher labour productivity growth (Panels C to D).

Export performance is further influenced by structural factors. The geographical distance to large export markets and advanced economies partly hinders integration in global value chains. Moreover, the business environment remains complex despite recent reforms to ease entrepreneurship and increase competition. Infrastructure bottlenecks also tend to reduce flexibility of economic structures making it difficult for new firms to enter and thrive. These raise adjustment costs for workers and firms, preventing capital and labour to move to more productive sectors and new export opportunities, influencing cost and non-cost competitiveness. Reducing these bottlenecks would not just help export performance, but raise productivity, notably by allowing firms to grow, which would allow for more inclusive growth and quality jobs.

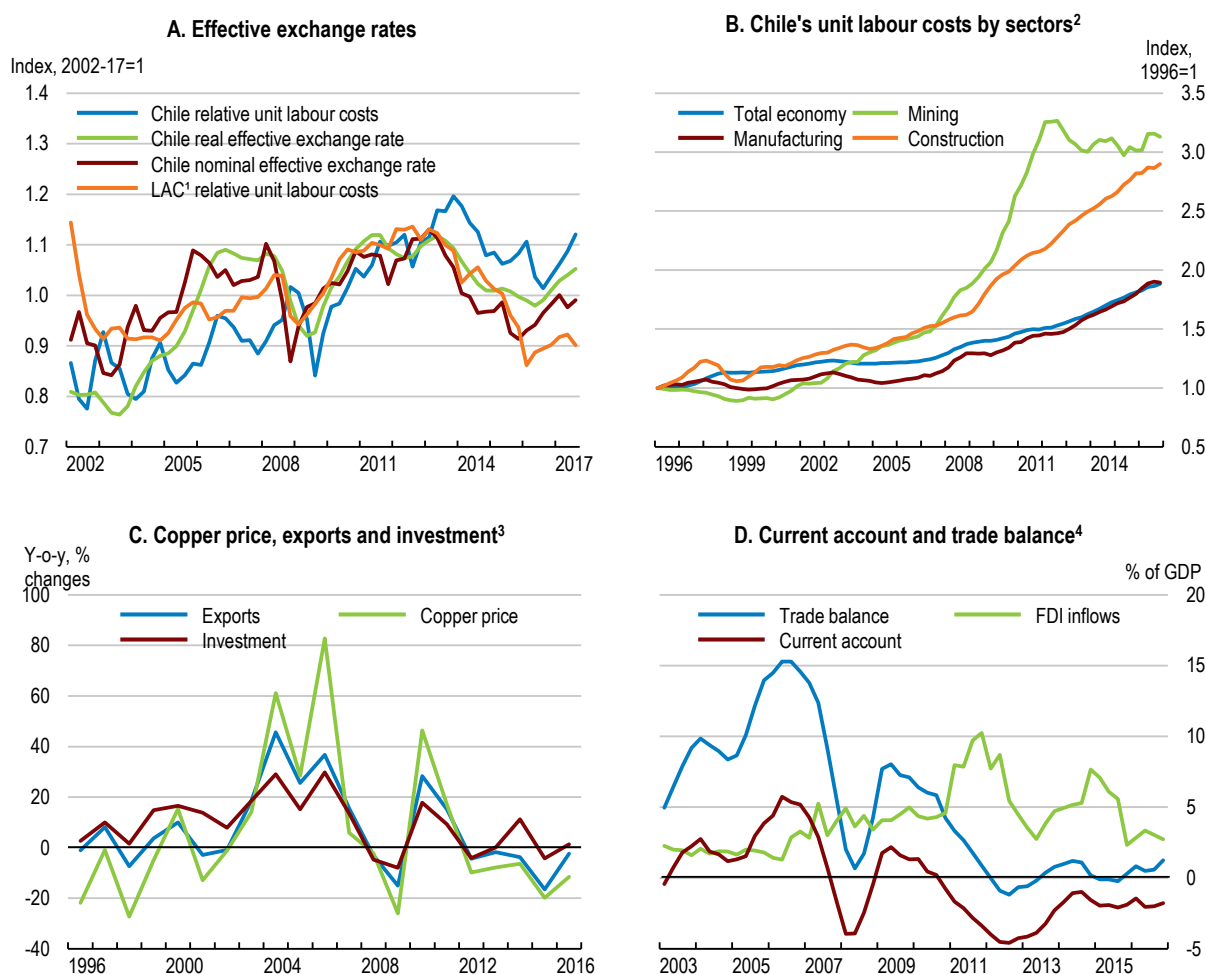
This chapter discusses in more detail what can be done to raise export performance. The main challenges are:

- Raising productivity. Mining and non-mining exports have lagged since the global financial crisis and the end of the commodity boom. Chile is also facing environmental and social challenges from its high specialisation in natural-resource based goods and exports, while intraregional trade and participation in global value chains are low.
- Reducing regulatory barriers and stepping up efforts of to improve productivity and innovation would raise broader-based export performance. Since 2014, administrative business and trade procedures have been somewhat simplified (Box 1.1), and funding of R&D and innovation activities increased. However, many regulations and taxes, such as municipal business licenses and entry restrictions in maritime transport and custom brokerages, restrict firm entry and

growth. Regulatory reform would also raise inclusiveness as it helps reduce informality and create better quality jobs.

- Lowering trade and adjustment costs for workers and firms would raise inclusive growth and promote better skill matches between workers and jobs. The ongoing strengthening of training and mentoring for smaller firms, and the development of the digital infrastructure would help smaller and younger firms to reach more easily foreign markets. However, capacity bottlenecks remain in key sectors, such as infrastructure and transportation services. Promoting retraining and active labour market policies (Chapter 2), lowering bankruptcy costs, raising second chance policies for entrepreneurs and developing the rental sector for low-income households would facilitate adjustment of labour and capital to changing export opportunities and increase productivity.

Figure 1.3. Development in copper prices and cost competitiveness



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. Yearly moving average of hourly nominal wages over real labour productivity by sectors.

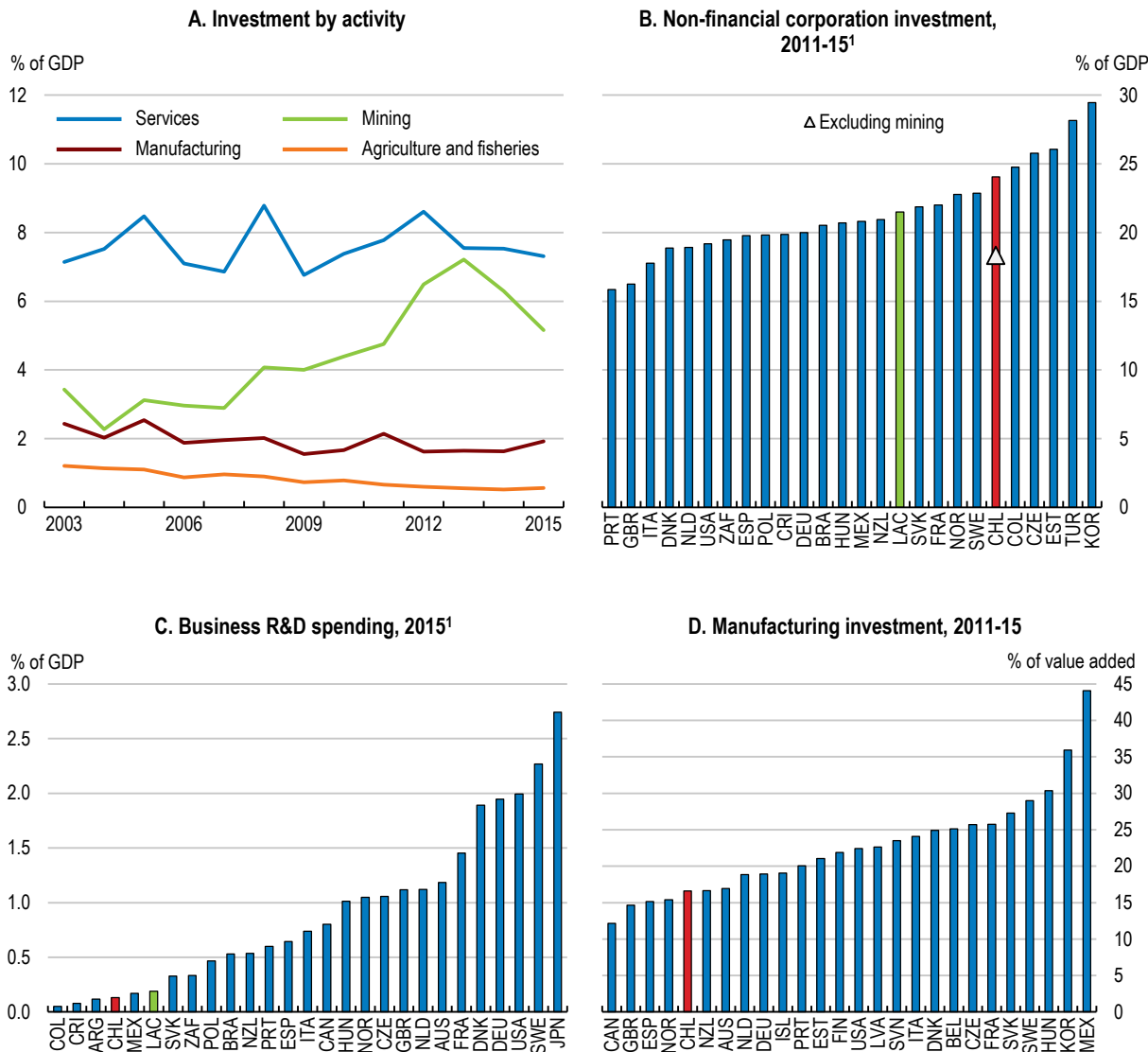
3. All values are in current US dollars.

4. Four-quarter moving average.

Source: OECD (2017), Economic Outlook 102 Database; Central Bank of Chile (2017), Statistical Database.

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Figure 1.4. Investment has weakened



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

Source: OECD (2017), National account database and Science, Technology and R&D Statistics; Central Bank of Chile (2017), Statistical database.

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Box 1.1. Recent measures to improve productivity and exports

Chile adopted a productivity and innovation agenda in 2014. The agenda focuses on promoting the diversification of the economy, boosting sectors with high growth potential, the expansion of programmes for early-stage start-ups, improving competitiveness and attracting new investments.

The agenda has seven pillars: (1) strategic investments and sectoral development plans (Box 1.2); (2) infrastructure; (3) funding and management support for SMEs; (4) boosting entrepreneurship and innovation; (5) efficiency in regulation and in the provision of public services; (6) improved markets; and (7) new institutional framework, notably with the creation of the productivity commission in 2015. It focused on developing public-private co-operation. In particular, the agenda launched:

- A digital one-stop shop (*Escritorio Empresa*) that is progressively integrating municipalities, private institutions and public agencies;
- A new investment fund (*Fondo de Inversión Estratégica - FIE -*) to manage projects in six strategic sectors: healthy food; solar industry; intelligent industry; sustainable construction; technological and sustainable mining; and sustainable aquaculture. Over 2015-18, its public funding amounted to about USD 163 million – 0.05% of 2015 GDP - for total investment worth USD 865 million or 0.3% of 2015 GDP.

In 2016, 22 additional measures were introduced to expand financing for companies, promote services exports and simplify administrative procedures.

A foreign trade facilitation unit was created in 2016. It leads, coordinates and manages public and private initiatives aimed at promoting trade. The facilitation unit has two areas of action in support of foreign trade:

- A digital single window for international trade transactions (SICEX) that allows to export and import goods through a single online portal, and aims to simplify and streamline customs, sanitary, health and tax procedures associated with exports and imports;
- The promotion of services exports. In 2016, the productivity law provided benefits for services exporters, notably to limit the double taxation of services exports and to exempt from VAT services that are used abroad.

A public committee for services exports was created in 2015. It is finalising a USD 35 million loan with the Inter-American Development Bank to promote foreign direct investment and capital-market development from 2018.

In 2016, the authorities also reformed the investment promotion agency, InvestChile. In addition, they created 16 regional centres for small and medium-sized firms through ProChile to ease their access to foreign markets.

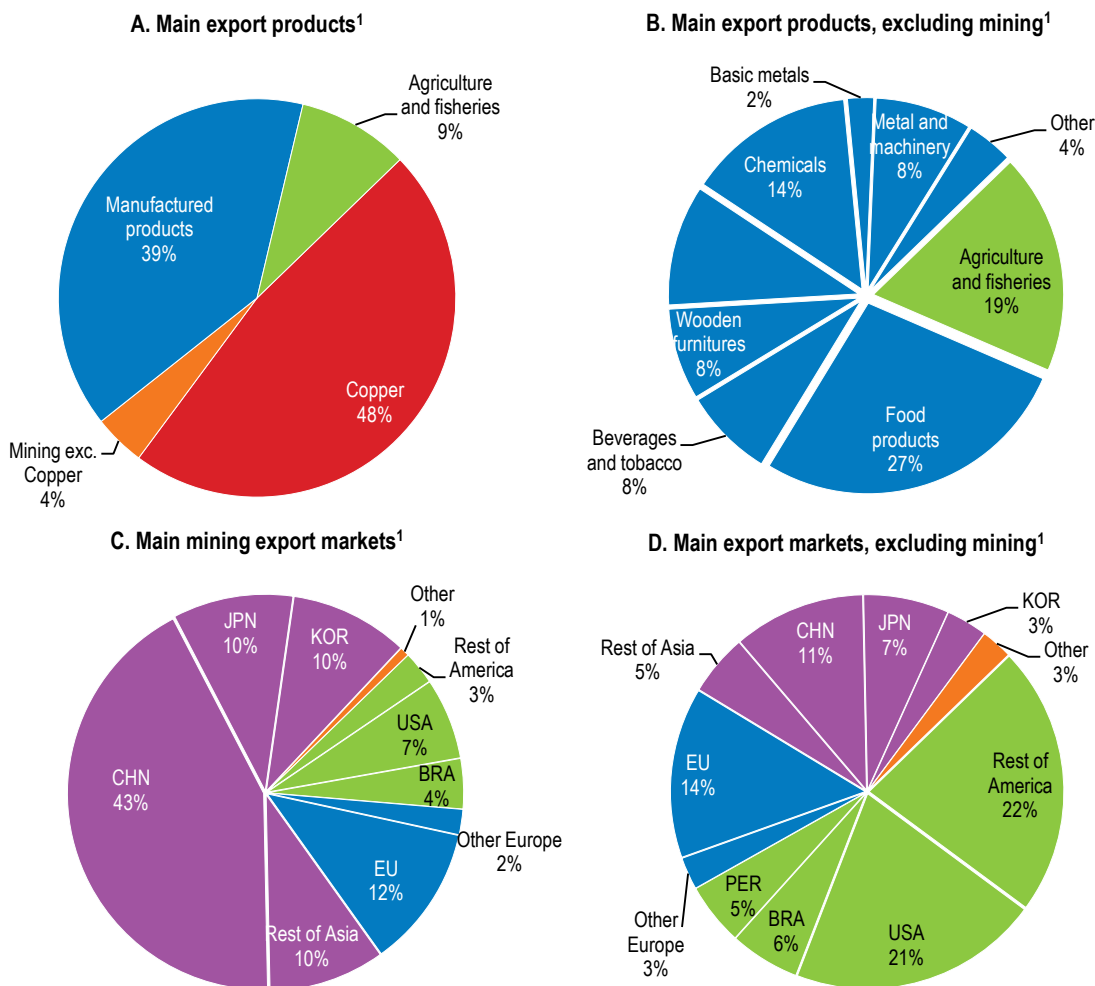
A snapshot of the structure of exports

Export patterns and integration in global value chains

Goods exports are highly concentrated in a few key sectors and markets (Figure 1.5 and Table 1.1). Refined copper and mining industries account for half of exports, notably

towards China and Asia. Natural-resource based manufactures such as the processed food and wood products dominate non-copper exports mainly to countries in the region.

Figure 1.5. Exports remain highly specialised, 2015-16



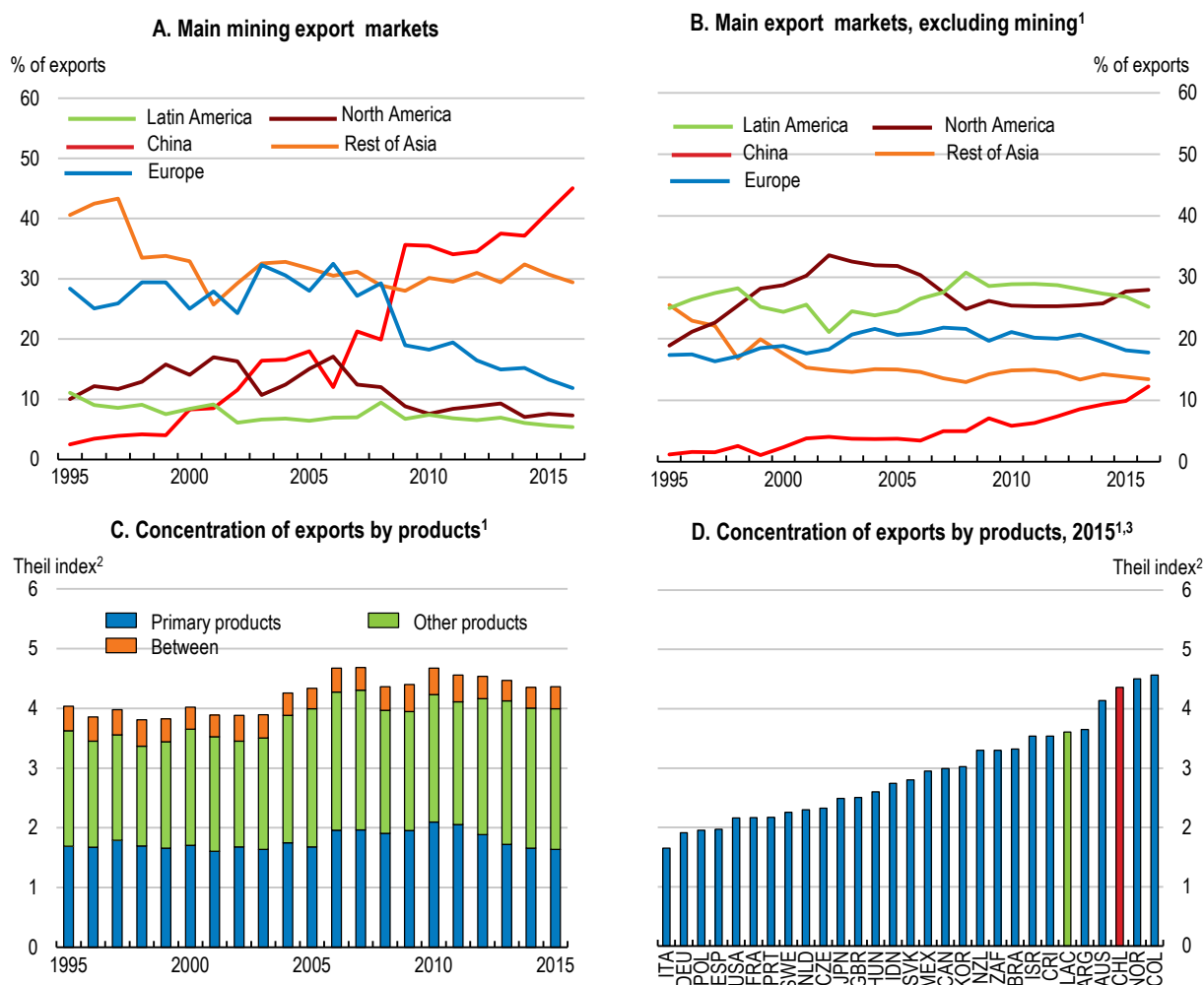
Note: Average percentage shares over 2015-16 for trade in goods.

Source: Central Bank of Chile (2017), Statistical Database.

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Before the global financial crisis, dynamic non-mining exports were mainly explained by an expansion of export markets across countries (Figure 1.6, Panels A and B) and an increase in exporting firms, but the number of exported products remained much below other Latin American countries (Claro, 2017; World Bank, 2017a). In turn, the end of the commodity boom did not lead to rebalancing of exports towards non-traditional products and services. The diversification of goods exports, as measured by the Theil index across 5 000 products, has even decreased since 1995 in primary and non-primary products, notably with increasing concentration of exports of food and wood products (Panels C and D). The number of products whose exports exceed USD 50 million that was growing with the increasing demand for Chilean goods prior to the crisis, has been stagnant since 2010 (Ministry of Finance, 2017).

Figure 1.6. Exports diversification has been limited



1. For trade in goods.

2. Higher values of the index indicate higher concentration of export products. The Theil index is computed over export values in a 6-digit good classification (HS6 1992 classification) with 5,039 products per year. Panel C decomposes the Theil index (T) between primary (p) and non-primary (np) products and a between term describing shift in exports between the two categories, such that $T = s_p \times T_p + (1-s_p) \times T_{np} + T_{between}$, where s_p is the share of primary export products in value.

3. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

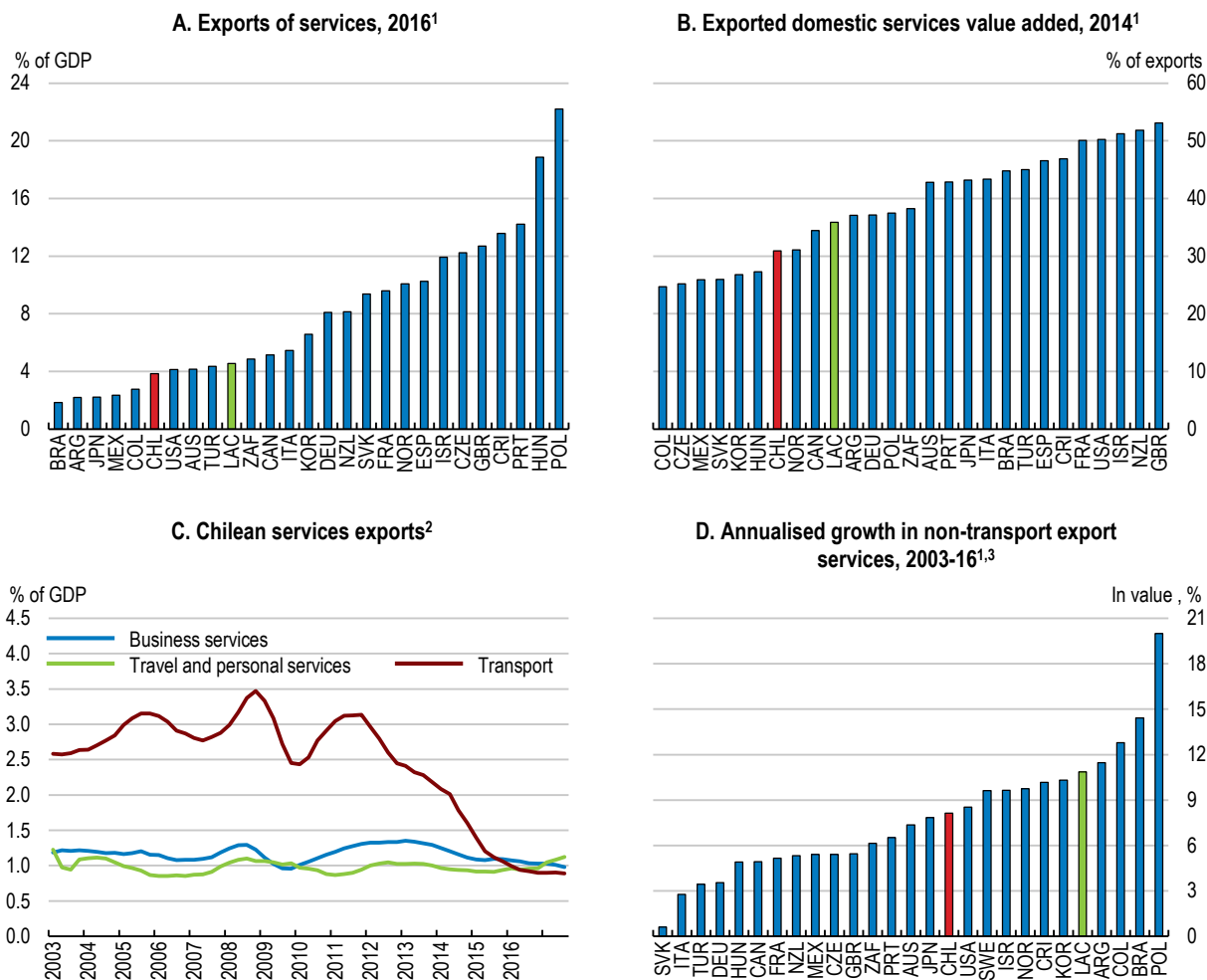
Source: OECD (2017), International Trade by Commodity Statistics; OECD calculations based on CEPII (2017), BACI Database.

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Competitiveness in the services sector is hampered by various restrictions and has weak links to international trade (Figure 1.7, Panel A). Value added of domestic business services incorporated in other products, such as engineering services related to mining consulting and customer relationship management, remains low in exports (Panel B). Over recent years, despite a fast increase in international visitors, the tourism sector, for which the country's climate, coastline and cultural assets provide a natural competitive advantage, remained constant as a share of GDP. Indeed, the share of tourism in employment, at 5.1% in 2016, remains lower than in the average of Argentina, Brazil,

Colombia, Costa-Rica and Mexico (6.8%; OECD, 2017c). The growth of personal and business services has also been below that of other Latin American countries (Panels C and D). However, a common time-zone with the USA, the development of Information and Communication Technologies (ICT) and availability of high skilled personnel and ongoing measures (Box 1.1) could raise services exports, notably to Latin American neighbours and the United States (Direcon, 2016).

Figure 1.7. Services exports remain relatively low



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. Four-quarter moving average.

3. Growth in current USD value. 2003-16 or nearest available years.

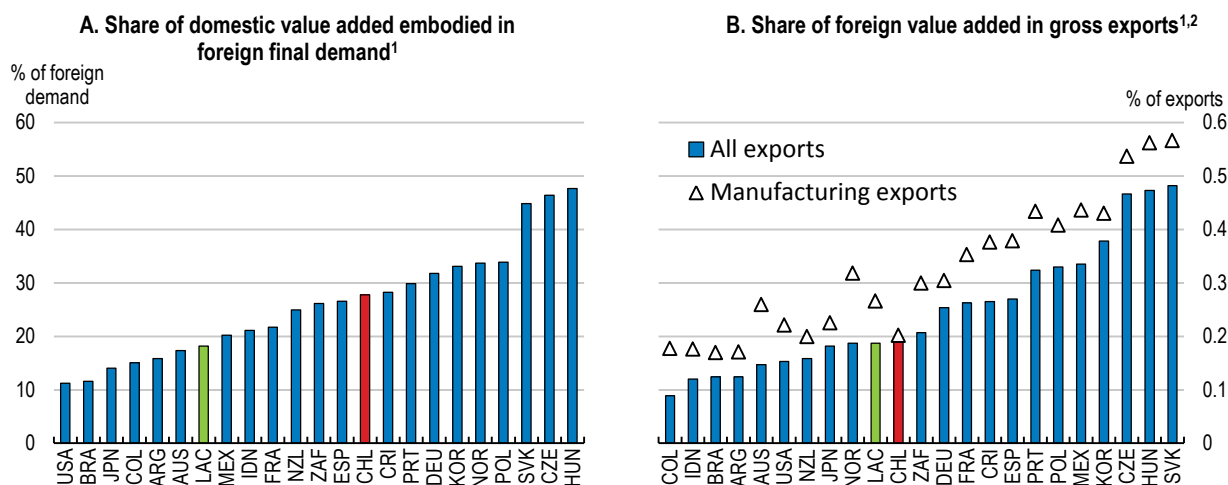
Source: OECD (2017), Trade in Services Database; Central Bank of Chile (2017), Statistical Database; World Bank (2017), World Development Indicators and IMF (2017), Trade in Services Database.

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Integration in global value chains (GVCs) that often help boost higher value-added exports and diversification, remains limited. The share of domestic value added embodied in foreign final demand is relatively high, linked to the high level of commodity exports and natural-resource intensive manufactured products, such as refined copper and food products (Figure 1.8, Panel A; OECD, 2015a). By contrast, the foreign value added

content of exports is low (Panel B), as sectors typically associated with dynamic downstream GVC participation like transport and electrical equipment are little developed (Table 1.1).

Figure 1.8. Chile is positioned upstream in global value chains, 2014



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. The foreign value added content of Chilean exports does not capture the extent to which foreign intermediates enter supply chains for products eventually absorbed by Chile's domestic demand. Chilean firms import a significant part of their intermediate inputs, notably machinery and equipment.

Source: OECD (2017), TiVA nowcast estimates Database.

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Table 1.1. Structure of exports by sectors

	2003	2007	2012	2016
A. Gross exports of goods and services				
Exports as a share of GDP (%)	36	45	34	29
Share of goods in gross exports (%)	81	88	86	86
B. 10 main exported products (% of goods exports)				
Copper and articles thereof	25	37	34	25
Ores, slag and ash	15	27	24	24
Edible fruit and nuts; peel of citrus fruit or melons	9	5	6	10
Fish and crustaceans, molluscs and other aquatic invertebrates	7	4	5	7
Pulp of wood or of other fibrous cellulose material	4	4	3	4
Wood and articles of wood; wood charcoal	6	3	3	4
Beverages, spirits and vinegar	3	2	2	3
Inorganic chemicals	2	2	2	2
Natural or cultured pearls, precious or semi-precious stones	2	2	3	2
Meat and edible meat offal	1	1	1	2
C. Services exports (% of services exports)				
Transport	53	57	51	31
Travel and household services	22	20	21	33
Business services	25	24	28	36

Source: OECD (2017), International Trade by Commodity Statistics (ITCS) – Harmonised classification 2002; Balance of payment statistics; National account database; Central Bank of Chile (2017), Statistical database.

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Geography and natural resources partly explain the lack of diversification

Geography and natural resources are important factors in Chile's export structure. Beyond its comparative advantage in natural resources, the productivity gap and participation in GVCs can partly be explained by remote access to markets and suppliers and high international trade costs (Figure 1.9, Panels A and B; Boulhol and de Serres, 2010; OECD, 2015a). Chile's trade with its neighbours is affected by the Andes and transport and insurance costs with close neighbours, such as Argentina, are high (Miao and Fortanier, 2017). As in other Latin American countries, intra-regional trade remains weak, notably for non-primary products, with a low development of joint production networks and regional value chains in manufacturing (Panels C and D; Cadestin et al., 2016).

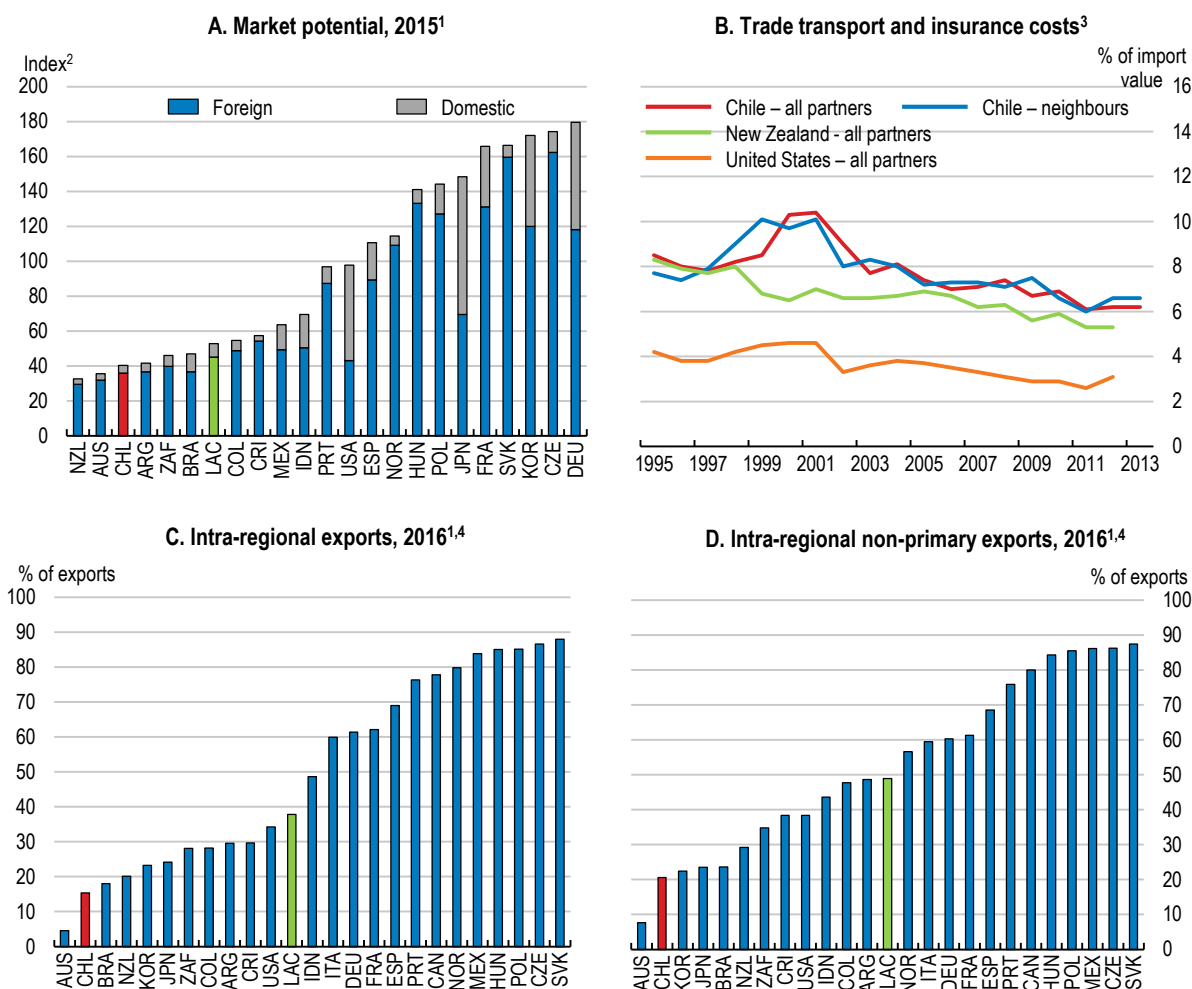
Internal geography also plays a role. In particular, Chile's copper mines are close to the sea, making it potentially more profitable to export concentrates rather than to process ores in distant manufacturing plants at high inland transport and energy costs (Jouanjean et al., 2017). This hampers up-scaling and up-skilling in mining-related services. Moreover, internal geography and natural resources tend to concentrate economic activities and settlement patterns in a few geographic areas, contributing to very high levels of regional inequality (OECD, 2014a and 2017d and e). This creates challenges for managing connections among individuals, firms and regions, and developing accessibility and connectivity to international markets.

Natural resources could offer new opportunities in the lithium industry. The demand for commodities needed for battery manufacturing, such as lithium, cobalt and other materials required by future battery technologies is increasing with electric vehicles. Chile holds around 85% of the worldwide reserves of lithium (Ministry of Finance, 2017), while the electric car fleet is set to rise from around 2 million vehicles in 2016 to between 9 and 20 million in 2020 and between 40 and 70 million in 2025 (OECD/IEA, 2017). Electric cars require lighter inputs and more efficient and long-lasting batteries and will open new opportunities for Chile if it manages to leverage its natural advantages and enter into more sophisticated parts of the battery value chain.

A closer look at the characteristics of exporting firms and productivity across sectors

To understand better the issues with export performance it is useful to look at firm characteristics. Exporting firms are different from average firms, even within narrowly defined sectors (Bernard and Jensen, 1999). In Chile as in other OECD countries, it is typically only a few high-performing firms that become successful exporters (Table 1.2; Pavnick, 2002; Arellano and Astorga, 2015). Exporters tend to be larger than non-exporting firms, more capital intensive and more productive, even in agriculture or professional services. The academic literature has traced this back to the existence of fixed costs of entering foreign markets which only the most productive firms can recover once they become exporters (Melitz and Ottaviano, 2008).

Figure 1.9. Market potential and trade costs



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. Foreign market potential of a country (i) is the sum of all other countries' GDP (in 2015 USD PPP) weighted by the inverse of their bilateral distance to i. The domestic component is i's GDP divided by the average internal distance based on i's surface area.

3. Import weighted difference between merchandise imports reported including cost, insurance and freight (CIF) and free on board (FOB), as a % of their FOB value (Miao and Fortanier, 2017).

4. Based on goods exports.

Source: OECD calculations based on CEPII (2017), Distance dataset and World Bank (2017), World Development Indicators; Miao, G. and F. Fortanier (2017), "Estimating Transport and Insurance Costs of International Trade", *OECD Statistics Working Papers*, 2017/04, OECD Publishing; and OECD (2017), International Trade by Commodity Statistics (ITCS) Database.

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Table 1.2. Basic characteristics of firms by export status and sectors, 2015

	Exporters, % of:		Average non exporter			Average exporter		
	Firms	Employees	Employees	Capital/ worker ¹	Labour productivity ¹	Employees	Capital/ Firms	Firms
Agriculture and fisheries	16.9	32.6	10.2	112.0	18.8	24.1	120.0	30.7
Mining	6.8	62.6	17.2	85.6	17.2	397.6	1068.7	45.9
Manufacturing	5.4	44.1	13.2	30.0	13.0	183.8	123.8	26.2
Construction	0.2	3.7	24.1	27.7	9.0	419.9	109.5	15.6
Wholesale and retail trade	2.7	17.2	7.2	20.6	15.1	54.3	109.7	39.8
Transport and storage	2.2	9.8	11.7	55.2	26.9	56.4	161.5	77.2
Personal services ²	2.9	3.6	15.7	23.9	12.8	19.4	59.0	13.7
Professional services ³	6.2	23.4	12.3	40.5	13.9	56.9	74.3	36.3
Financial services	1.7	3.5	33.1	366.2	58.8	71.7	72.0	88.0
Electricity, gas and water	4.3	1.5	133.6	1615.8	29.0	46.4	49.5	21.4
Total sample	4.4	17.4	13.5	65.0	16.6	62.4	118.9	34.2
Direct exporters⁴	2.9	15.2	13.5	65.0	16.6	80.7	117.9	41.2

1. In thousands of 2015 USD. Capital is fixed assets (land, buildings and machineries). Labour productivity is value-added per employee, computed as in Arellano and Astorga (2015).

2. Accommodation, catering and recreational services.

3. Professional services are information and telecommunication services and professional, scientific and technical services.

4. The calculations exclude indirect exporters and compare direct exporters to non-exporting firms.

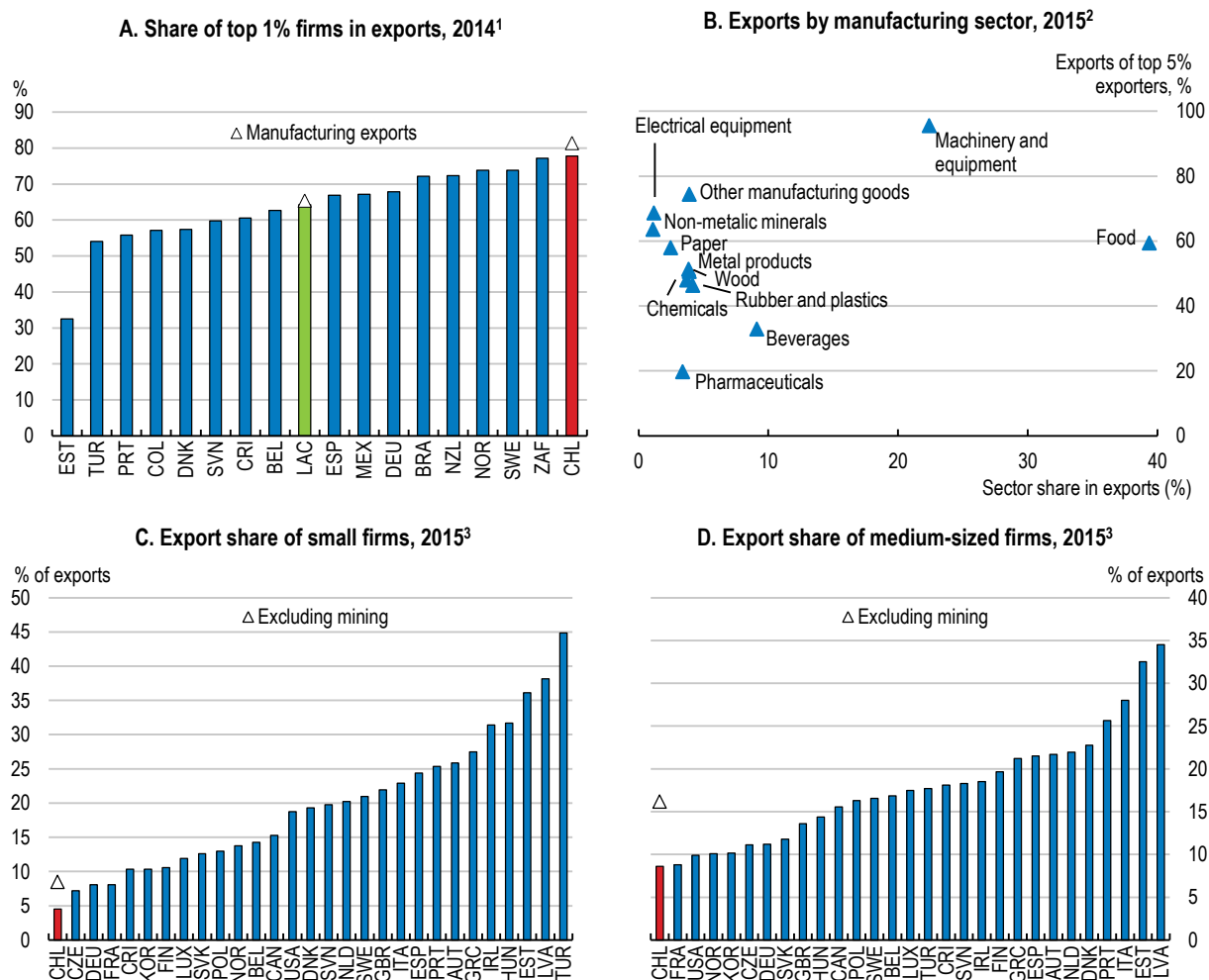
Source: OECD calculations based on the Encuesta Longitudinal de Empresas (ELE-4) and Arellano, P. and R. Astorga (2015), Informe de resultados: Productividad laboral sectorial y por tamaño de empresa a partir de microdatos Tercera Encuesta Longitudinal de Empresas, Ministerio de Economía, Fomento y Turismo.

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In practice, potential exporters in Chile appear to face fixed costs related to the need to collect information about export markets, establishing commercial contacts, hiring multi-lingual staff or adapting products to be sold abroad, that are particularly binding for smaller firms (Morales et al., 2014). The geographical position of Chile may also particularly unfavourable for small firms that do not have the size to invest in the knowledge and capabilities that are required to export. However, some of the difference between exporters and non-exporters is also explained by “learning by exporting”: Chilean exporters have managed to leverage their experience in international markets to raise their productivity and R&D spending (Bas and Ledzema, 2010; Bravo-Ortega et al., 2014).

A few firms dominate exports of goods, even within the Chilean manufacturing sector (Figure 1.10, Panel A). According to firm-level data from the manufacturing census *Encuesta Nacional Industria Anual* (ENIA) covering around 4 000 firms in 2015, exports of the main export products, such as food and machinery and equipment, are highly concentrated across establishments (Panel B). This structure implies higher business cycle sensitivity to exports, as the largest firms contribute the most to aggregate output fluctuations (di Giovanni and Levchenko, 2012). Moreover, the share of SMEs in exports is particularly low (Panels C and D), while 98.5% of firms were classified as SMEs in 2014 (OECD, 2017f). Only about 2% of SMEs participate in international trade compared to around 25% in the EU (EC, 2017).

Figure 1.10. A few firms concentrate most exports



1. Or latest available year. LAC is the unweighted average of Brazil, Colombia, Costa Rica and Mexico.

2. In panel B, firms are defined as establishments, excluding micro-firms. Each observation is a 2-digit ISIC4 sector.

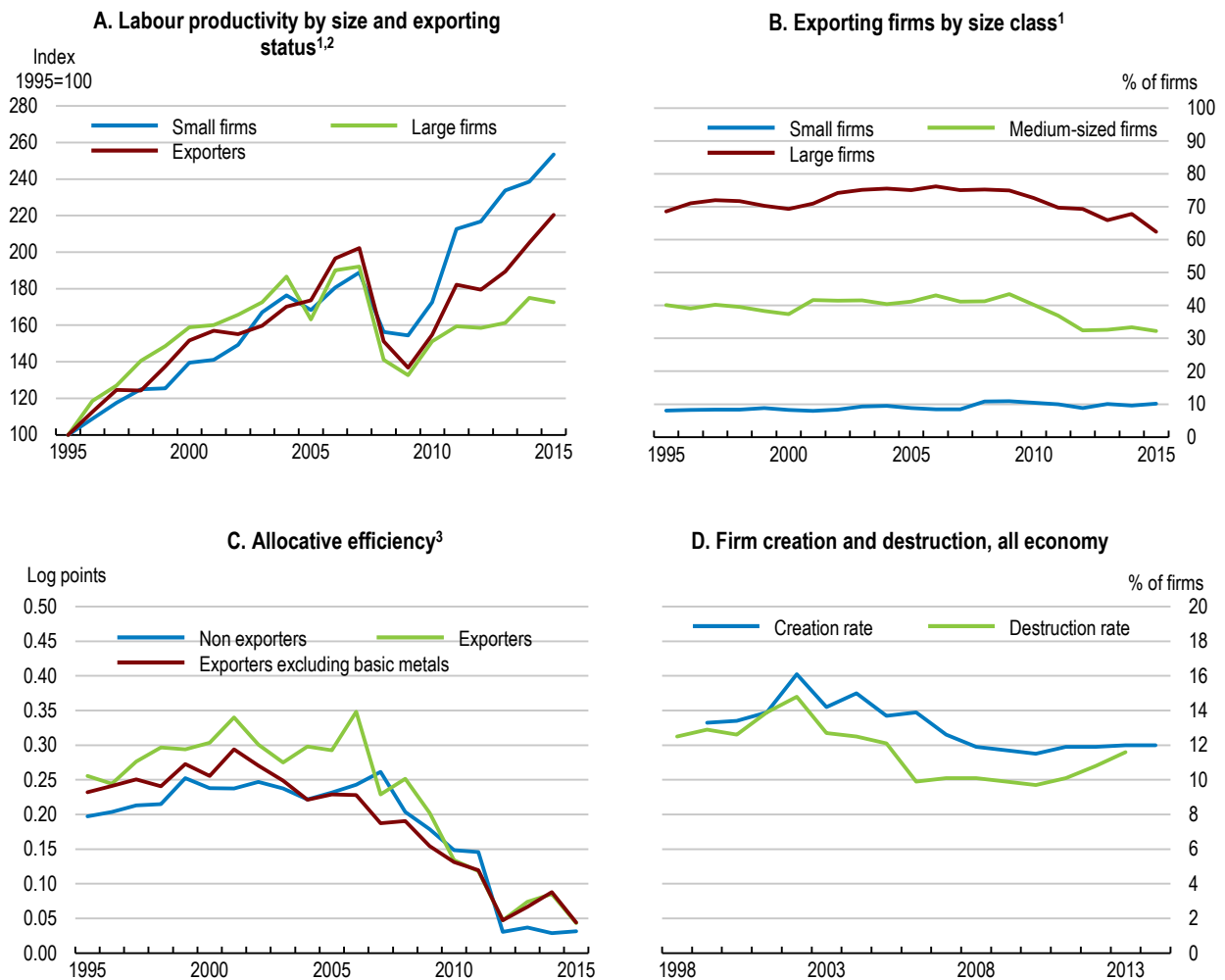
3. Small firms have less than 50 employees. Medium-sized firms have between 50 and 250 employees. OECD calculations based on ELE4 for Chile. Mining corresponds to mining and quarrying activities as defined in the international standard industrial classification (ISIC rev4).

Source: OECD (2017), TEC Database and OECD calculations based on ELE4, World Bank (2016), Exporter Dynamics Database and the Encuesta Nacional Industria Anual (ENIA).

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In manufacturing, contrary to most OECD countries (Berlingieri et al., 2017), productivity among the largest firms has declined more than that of smaller firms (Figure 1.11, Panel A) which was also reflected in the diminishing share of medium and large-sized exporters (Panel B). The ability of exporting firms to adjust to shocks appears limited: their productivity only regained their pre-crisis level in 2015. Older firms and exports markets, the intensive trade margins, appear as the main reasons for the non-mining exports slowdown since the global financial crisis (Claro, 2017).

Figure 1.11. Exports and productivity in the manufacturing sector



1. Exporting firms sell directly some of their production abroad. Small firms have less than 50 employees, medium-size firms between 50 and 199 employees and large firms have 200 employees or more.

2. Nominal value-added over employment.

3. Allocative efficiency is computed as the difference between the aggregate level of productivity and the sum of the simple average of firm-level productivity. This corresponds to the Olley-Pakes covariance term. If there were no systematic relationship between productivity and the size of firms, the covariance term would be zero, and the higher it is, the larger is the market share held by more productive firms.

Source: OECD calculations based on the *Encuesta Nacional Industria Anual (ENIA)*. Arellano, P. and E. Jiménez (2016), “Dinámica Empresarial Brechas regionales y sectoriales de las pymes en Chile - Periodo 2005-2014”, *Working paper Ministerio de Economía, Fomento y Turismo*, February 2016.

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Rigidities in resource allocation between firms have reinforced the export slowdown. This is reflected in a decline in the ability of more productive manufacturing firms to attract larger shares of aggregate employment (allocative efficiency) even among exporters (Figure 1.11, Panel C). Most of the 2009-15 productivity deceleration can be attributed to growing input misallocation in the manufacturing sector: the distribution of resources between heterogeneous firms is increasingly skewed towards low labour productivity firms. The number of firm creations and destructions also declined, pointing

to the particular output costs of labour- and product-market rigidities in a persistent growth slowdown (Panel D).

Reinvigorating export performance through productivity gains

Putting in place policies that constantly promote activities in which firms and workers are competitive would help reap additional gains from trade (OECD, 2017g). The concentrated structure of the economy makes it difficult for young firms to enter some markets and compete. This is partly because large incumbents are able to take advantage of economies of scale and scope (Schwellnus, 2010) and the regulatory burden particularly weigh on smaller and younger firms growth. Lowering market power in some sectors would reduce rents that allow companies to block new competitors from entering the market, with positive effects on employment and labour market inclusiveness (Gal and Theising, 2015; Causa et al. 2015).

Reducing administrative costs for potential exporters

The burden of anti-competitive regulations has substantially decreased since 2008, according to the Product Market Regulation (PMR) indicators developed by the OECD (Koske et al., 2015). In particular, starting up a business has significantly eased (Figure 1.12, Panel A). New laws in 2010 and 2011 reduced red tape for SMEs (*Estatuto Pyme*) and regulatory barriers for start-ups, including by facilitating the use of temporary licenses and the payment of taxes, and by streamlining notification requirements. The perceived burden of government regulations is among the lowest in Latin America (Panel B; WEF, 2017). However, the burden of regulations is considered as high in comparison to other potential business barriers such as the skills of the workforce, the macroeconomic framework or tax rates (Panel C). This is notably due to the system of municipal licenses and environmental permit procedures (Panel D).

A number of restrictions remain in key services sectors, such as customs, maritime and telecom services (Figure 1.13, Panel A). Though discrimination against foreign firms is in general relatively low (OECD, 2017h), weak regulatory transparency and complex administrative procedures tend to add to firm operational expenses, ultimately borne by consumers and downstream business customers (Panel B). For example, barriers to trade in the maritime freight transport and telecommunications in Chile were estimated to be equivalent to a 21% and 16% sales tax, respectively (Rouzet and Spinelli, 2016). This setting weigh particularly on SMEs and potential exporters, in goods and services sectors, as larger firms are better equipped to succeed in complex regulatory environments because of their broader resources, in-house legal expertise, existing networks of business partners at home and abroad, and the benefits of scale to absorb overhead costs (Rouzet et al., 2017).

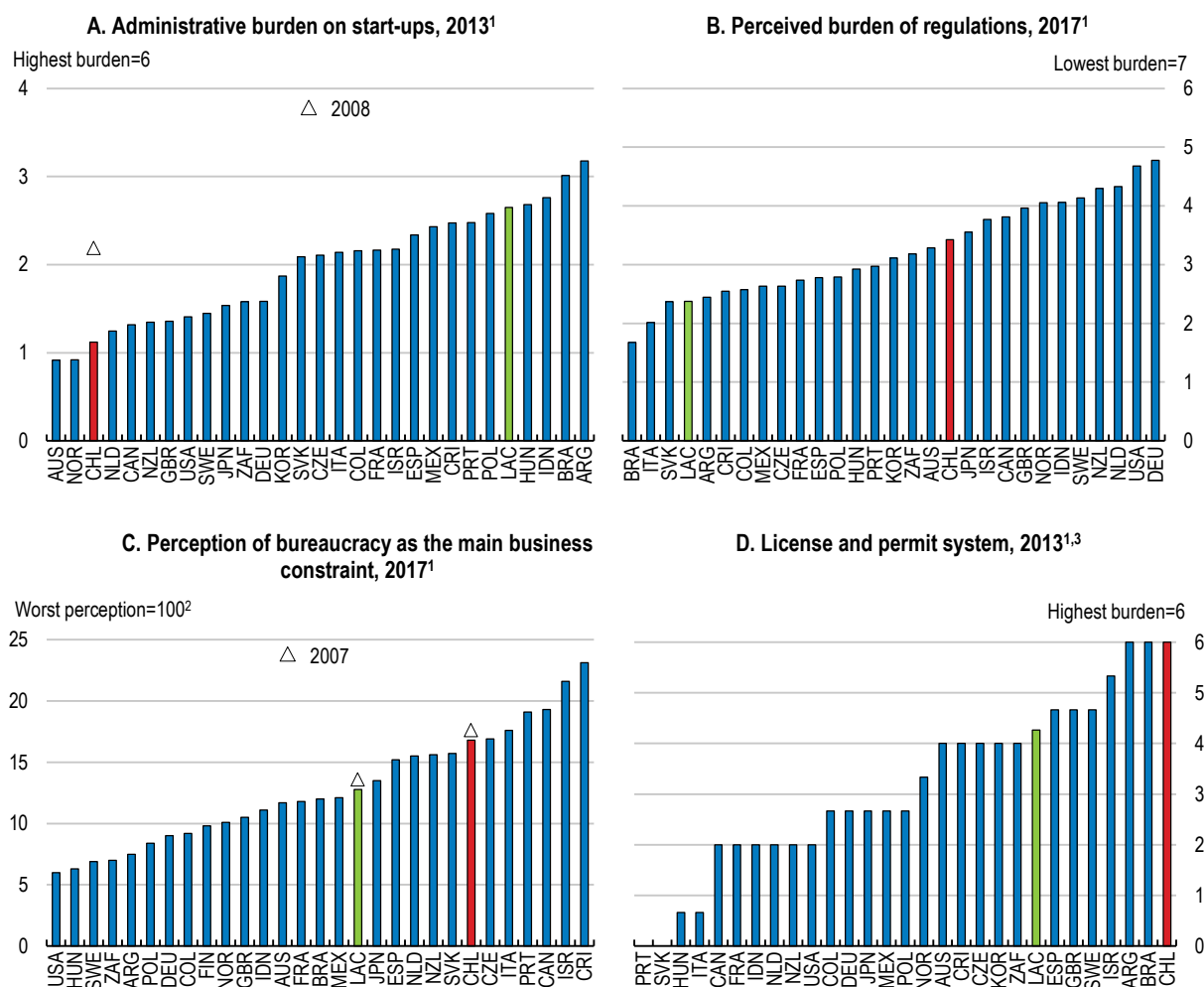
Some recent reforms are going the right direction (Box 1.1. Recent measures to improve productivity and exports). The 2014 structural reform agenda introduced 47 measures to boost competitiveness and productivity. 22 additional measures were introduced in 2016. In particular, since 2015, the productivity commission (CNP) advises the Government in competitiveness and productivity. This consultative independent entity includes members from academia and professionals from different backgrounds. Following its assessment and OECD recommendations (OECD, 2016a), nine ministries of the economic sphere will have to submit a productivity impact assessment for their new legislative proposals. The productivity commission also released a first enquiry on productivity in the mining sector in 2017. However, the productivity commission has a limited duration up to July

2018 (Renda and Dougherty, 2017). It is also subject to uncertainty regarding data access and the collaboration of government agencies (OECD, 2017i). Making the mandate of the CNP permanent would help support public-private dialogue on policy initiatives and strengthen the regulatory framework. It would also help to articulate productivity and innovation policies that remain fragmented. As in the case of Australian Productivity Commission, its role could be expanded to providing ex post analysis of the effectiveness of regulatory policies and programmes and the simplification of existing regulations (Figure 1.14, Panel A; OECD, 2016a).

Moreover, firms and households engagement in the elaboration of regulations and laws could be strengthened (Figure 1.14, Panel B). There are specific requirements to engage with stakeholders on matters related to indigenous people's rights, some environmental issues and international trade, but consultations are not generally required, and they are not systematically used in practice (Querbach and Arndt, 2017). The Open Government portal (*Gobierno Abierto*) is used to solicit comments on draft regulatory proposals, but Chile would benefit from using consultation more systematically, by introducing formal requirements and guidelines to raise the transparency of the regulatory process. Recent laws – such as the law creating the Financial Markets Commission and the Banking Law, introduced mandatory consultation mechanisms for regulatory authorities. However, there is still no standardised practice on how to conduct regulatory consultation, including its length, scope, timing and procedures.

The process of approving or rejecting large projects would benefit from more effective and earlier involvement of local communities. Environmental permitting procedures, including related lawsuits, may be lengthy and uncertain, notably in the mining and water sectors (CNP, 2016 and 2017). Business and infrastructure projects are subject to environmental impact declarations and to a full environmental impact assessment for the largest ones. However, mandatory public participation occurs at an advanced stage of project development. Improving the environmental impact assessment process to ensure it guarantees timely public participation at early stages and includes meaningful consideration of project alternatives, could avoid late rejection and oppositions by local communities. In addition, defining more effective mechanisms for addressing the special rights of indigenous communities would strengthen the approval procedures for large projects, limit socio-environmental tensions, and support local economic development (OECD, 2014a; 2016f; 2016j).

Figure 1.12. Regulatory complexity remains relatively high



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. Weighted answers to the World Economic Forum's survey, business executives were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5.

3. The assessed burden of the license and permit system is based on the absence of "a silence is consent" rule for administrative procedures and the absence of single contact points for information about and the issuance of licenses in 2013.

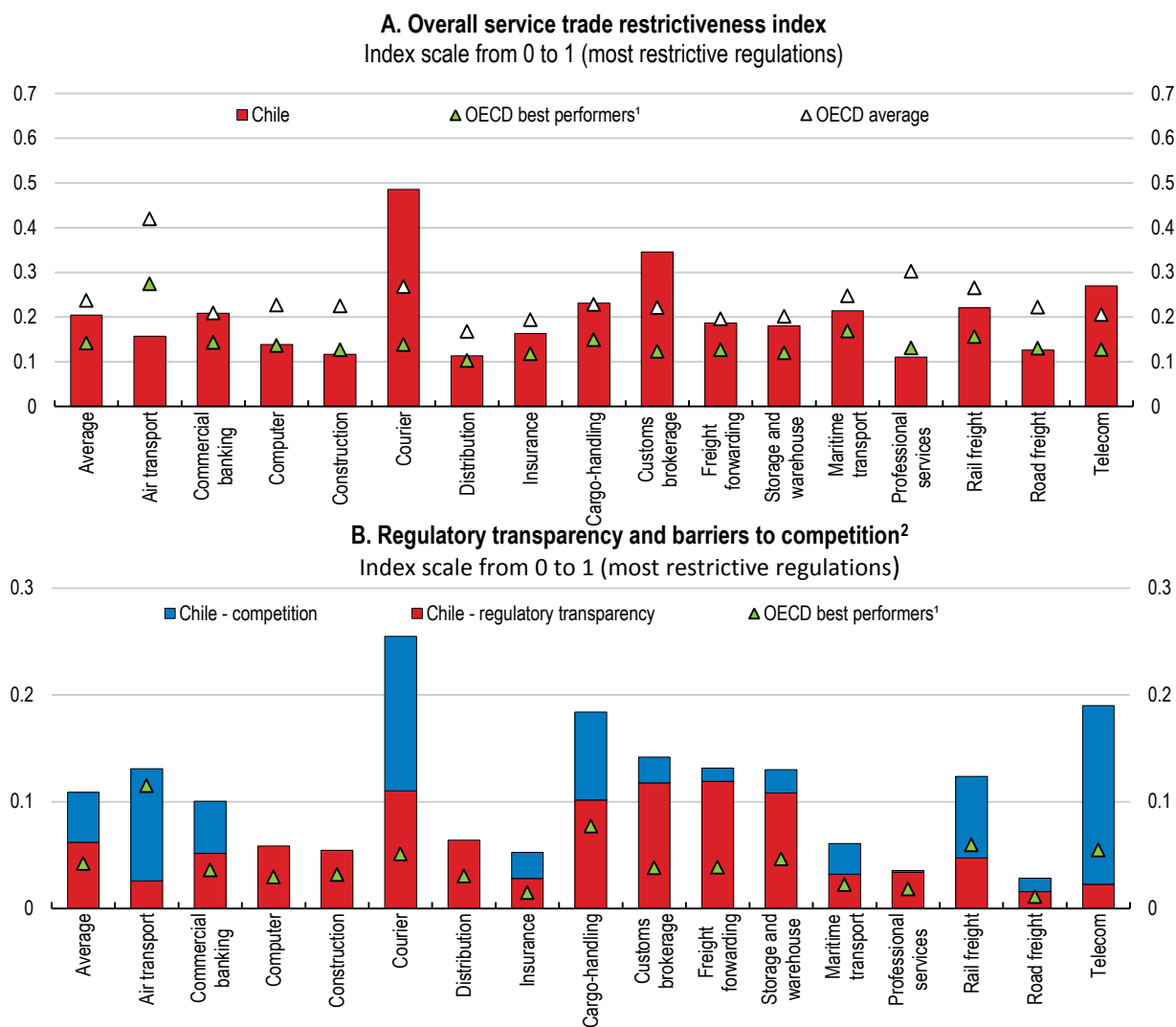
Source: OECD (2017), Product Market Regulation Database; and World Economic Forum (2008 and 2017), The Global Competitiveness Reports 2017–2018 and 2007–2008.

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At the national level, building on earlier efforts to coordinate different public agencies (*Plataforma Integrada de Servicios Electrónicos del Estado*, PISEE), Chile has developed since 2015 an integrated platform of public electronic services (*Escritorio Empresa*) for different administrative procedures for firms, that is progressively integrating municipalities. In 2015, 818 business procedures administrated by 89 institutions had been identified (Barraza, 2015). Electronic communication integrates through PISEE the different administrative procedures for firms in a single electronic platform for 55 institutions that offer 87 information services and contribute to carrying

out 379 formalities (OECD, 2016a). This avoids duplicating requests for information from businesses, such as birth certificates. In addition, for the payment of taxes, advances in e-invoicing have been made in the last few years and online pre-filled VAT forms were introduced in 2017 to reduce compliance costs.

Figure 1.13. Service trade barriers remain important in some key sectors, 2017



1. The OECD best performers is the average of the five OECD countries with the regulations the most conducive to trade.

2. Most of the measures recorded as barriers to competition and issues related to regulatory transparency apply equally to domestic and foreign firms.

Source: OECD (2017), Services Trade Restrictiveness Index.

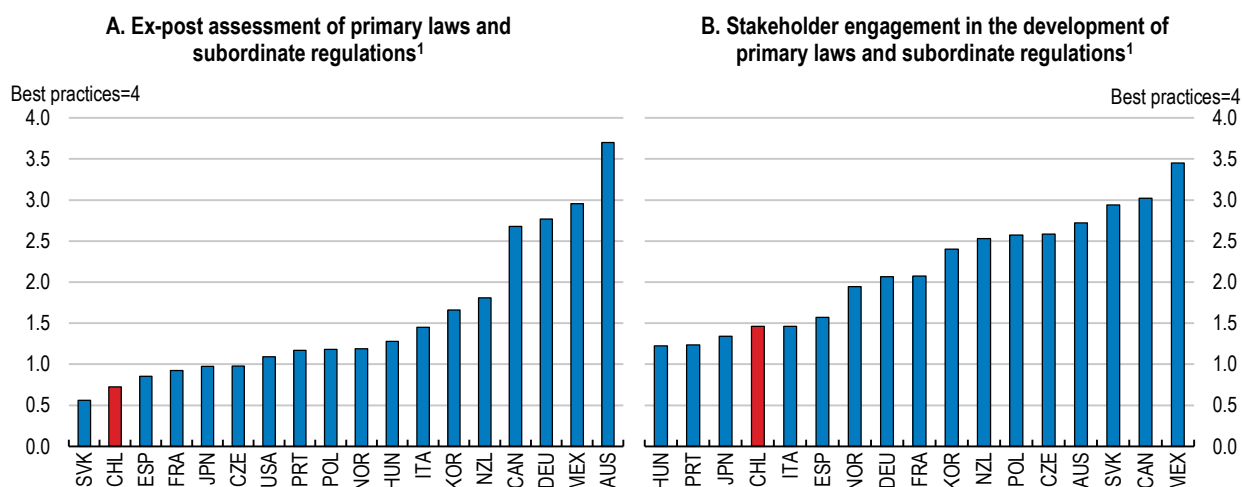
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The single-window digital platform for businesses, *Escritorio Empresa*, should be strengthened. As of 2017, *Escritorio Empresa* offers 50 on-line procedures with 18 public agencies and 114 municipalities out of 346, and handles nearly 20 000 procedures per month. Integrating more municipalities may be challenging. In 2011, before the single-

window digital platform, 96% of 345 municipalities had a website, but licensing procedures for retail and manufacturing plants could be completed online in less than 14% of them and only 36% of them had planned to develop the use of digital systems (SINIM, 2011). Building on the 2017 experimentation, a study of municipal best practices could help less advanced municipalities to catch up. Moreover, speeding up bureaucratic procedures would require improving the interoperability of information systems between the state agencies to ease exchange of electronic documents (Microsystem, 2017). In the medium term, the system could also integrate with national sanitary permits to speed up procedures, notably in the food industry (CNP, 2016). These simplified procedures would allow for starting or modifying certain economic activities with a simple declaration through a single electronic point of contact.

Introducing “zero licensing procedures”, as was done in Portugal (OECD, 2014b), could delay the administrative burden on start-ups and focus on ex-post control, easing firm entry and formalisation (OECD, 2016a). Indeed, municipal licensing and authorisation still impose significant administrative burden to firms, notably SMEs. Municipalities grant the municipal licenses (*Patentes Municipales*) for commercial activity, according to local rules. In addition, for specific activities subject to health, hygiene and safety rules, additional preliminary permits are required from central entities and intertwined with local authorisations (CNP, 2016). A municipal licence is granted for a period of one year except for independent activities, which are not controlled by municipalities. For micro family businesses, simplified rules have been developed. However, the efficiency of municipal governments and the delays involved in obtaining licenses varies widely across municipalities (OECD, 2017e).

Figure 1.14. Regulatory impact assessment and engagement of stakeholders, 2016



Note: 2016 for Chile and Mexico, 2014 for the other countries.

Source: OECD (2017), Indicators of Regulatory Policy and Governance (iREG) and iREG for Latin America 2016.

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A number of regulations also differentiate across firms depending on the size of the firm and such regulations may hamper the capacity of dynamic firms to scale up and carry out exporting and innovative activities, as in France or Spain (Garicano et al., 2015; Almunia

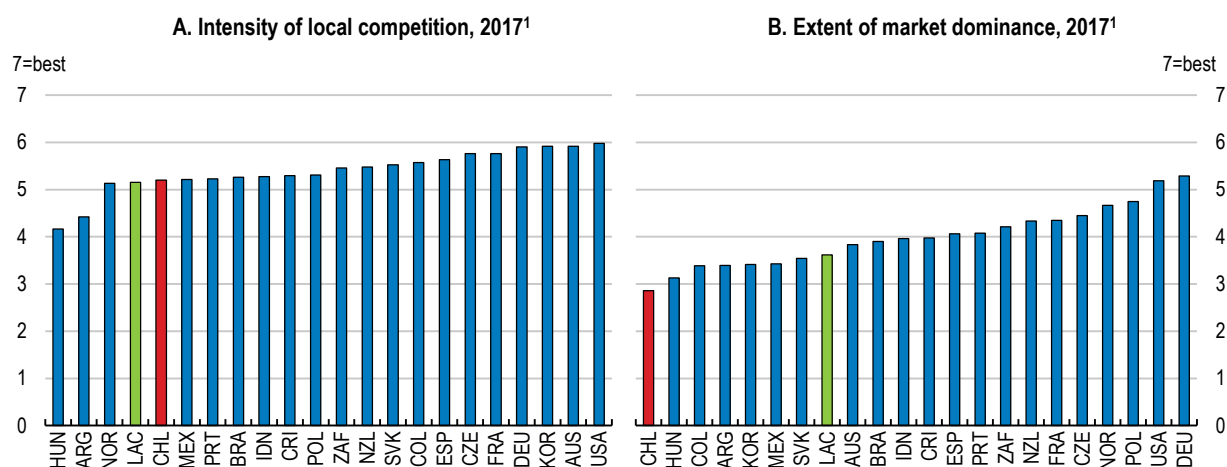
and Lopez-Rodriguez, 2013). The main size-dependent regulations relate to the hiring of foreign workers, the provision of child care and firm-level bargaining. Restriction on foreign workers requires that at least 85% of hired workers are Chilean nationals if the firm employs 25 or more individuals, though specialised technical personnel are not subject to this rule. Moreover, firms have to provide funding for child care services whenever they have 20 or more female workers. Evidence suggests that a relevant fraction of small firms have 19 female employees (Escobar et al., 2017), while foreign workers quotas appear to complicate the adjustment of manufacturing plants when they are hit by a shock, notably for high-productivity firms that rely on highly-skilled personnel for which the labour market is tight (Micco and Repetto, 2014). In addition, different regulations apply to union formation in firms with less than 50 employees and above 250 employees. As a first step, childcare should be financed by general revenues, replacing the current implicit tax on employment for medium sized and large firms, as well as lowering barriers to female employment (Chapter 2). Size-dependent policies should be carefully streamlined to avoid detrimental effects on firms' growth dynamics. In general, the emphasis should be on ensuring that policies support the needs of SMEs, rather than progressively tightening regulatory requirements with size.

Strengthening further the regulatory framework surrounding competition

Exports could benefit from stronger competitive pressures that are perceived as weak according to international investors (Figure 1.15). Stronger competition would spur the adoption of better management practices and re-allocation of resources to the best managed firms (Bloom et al., 2017a), thus increasing productivity growth and lowering input costs for potential exporters. Rising competition from these low levels would also put pressure on firms to upgrade their technologies and innovate (Aghion et al., 2005).

The competition framework has improved in recent years. According to the OECD Competition Law and Policy (CLP) indicators (Alemani et al., 2013), the competition framework lagged best practices in a number of areas until 2015. Chile adopted a new competition law in 2016 which strengthened the competition framework. The law introduced criminal sanctions for hard-core cartels, improved the merger regimes, the leniency programme, and increased fines against anti-competitive behaviours (OECD, 2016b). Under the new law, the competition tribunal (TDLC) can now decide on follow-on action pursuing damages arising from anti-competitive conducts. The law also grants the competition authority (FNE) specific powers to carry out market studies, including provisions for mandatory co-operation from private parties. It establishes a new division within the competition authority responsible for market studies and grants the authority the power to make recommendations to the Chilean government. The authority launched two market studies on the annuity market and notaries in 2016-17. In addition, the functioning of the consumer protection agency (SERNAC) was reformed in 2017. The reform eased follow-on actions for anticompetitive behaviours, raised consumer information to limit the impact of unduly complex or restrictive regulations, and increased fines against violations of consumer law.

Figure 1.15. Perceived competitive pressures are low



1. LAC refers to the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

Source: World Economic Forum (2017), Global Competitiveness Index dataset.

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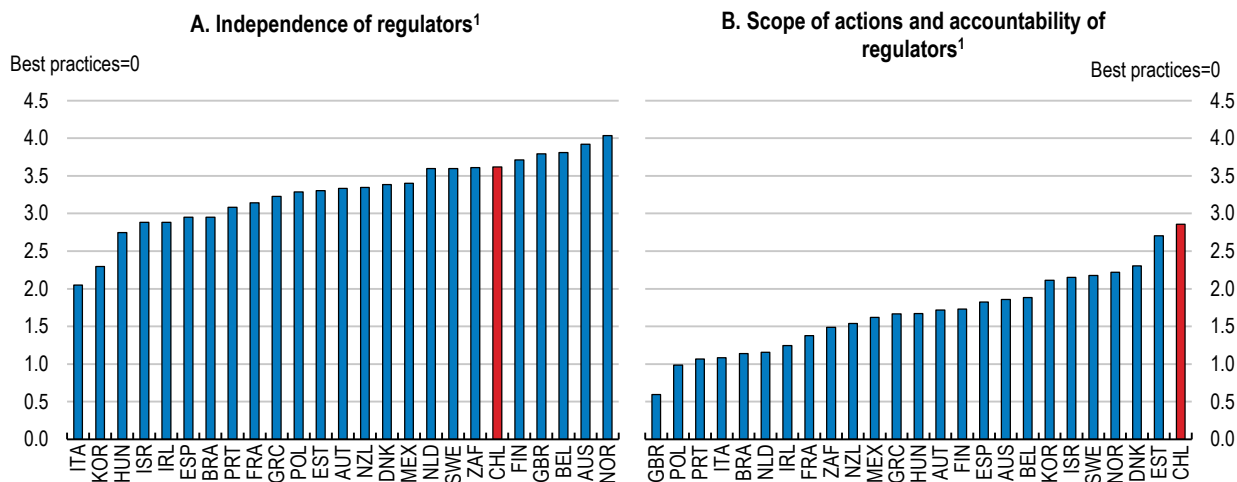
Ongoing market studies hold strong potential to raise competitiveness and exports. In particular, reforms of the notary profession could ease significantly the administrative burden for firms and households. Chilean notaries are involved in more than 200 procedures, such as starting up a firm, getting an electricity contract, certifying bank guarantees or concluding real estate sales, but they are unequally spread across municipalities, lengthening procedures, and appear to frequently overcharge for their services (FNE, 2017). Efforts to raise competitive pressures should continue by targeting other key sectors of the economy, such as telecommunication and maritime services, in line with the guidelines OECD's Competition Assessment Toolkit (OECD, 2016c).

Strengthening the role of the competition authority as an advocate for competition would further improve the competition framework. The government should be required to consult the authority on draft laws and regulations, particularly those that risk engendering anticompetitive effects, for example, those designed to regulate prices or restrict competition. Moreover, the government does not have to reply to the recommendations of the competition authority, unless the authority attempts judicial action. Now that the authority is empowered to provide the government with recommendations stemming from its market studies, the government should give careful consideration to its recommendations. Deviation from the authority's recommendations should require a public explanation to enhance transparency in decision-making, and raise awareness of competition issues amongst both the private sector and general public.

The independence of some regulators and public managers is insufficient and should be further improved. The restrictive regulatory stance in some key sectors such as maritime transport services, state involvement and barriers on entry in the railway and telecommunication services weigh on integration in global value chains and investment (see below). Regulatory management practices are not in line with OECD best practices (Figure 1.16; Koske et al., 2016). In particular, there is scope to reinforce the independence of the main network regulators to lower regulatory uncertainty. The level of transparency required of politicians and magistrates is relatively high and has been strengthened, which is conducive to preventing and detecting illicit conflicts of interest

(OECD, 2010; Djankov et al., 2010). However, expanding as planned the “cooling-off periods” for senior civil servants leaving the public sector would reduce revolving-door opportunities. In addition, all regulators should have fixed-term, non-renewable mandates during which they cannot be dismissed without fault and which prevent revolving-door opportunities.

Figure 1.16. Regulatory management practices could improve, 2013



1. Average over four network sectors: airports, electricity, gas and telecommunications.

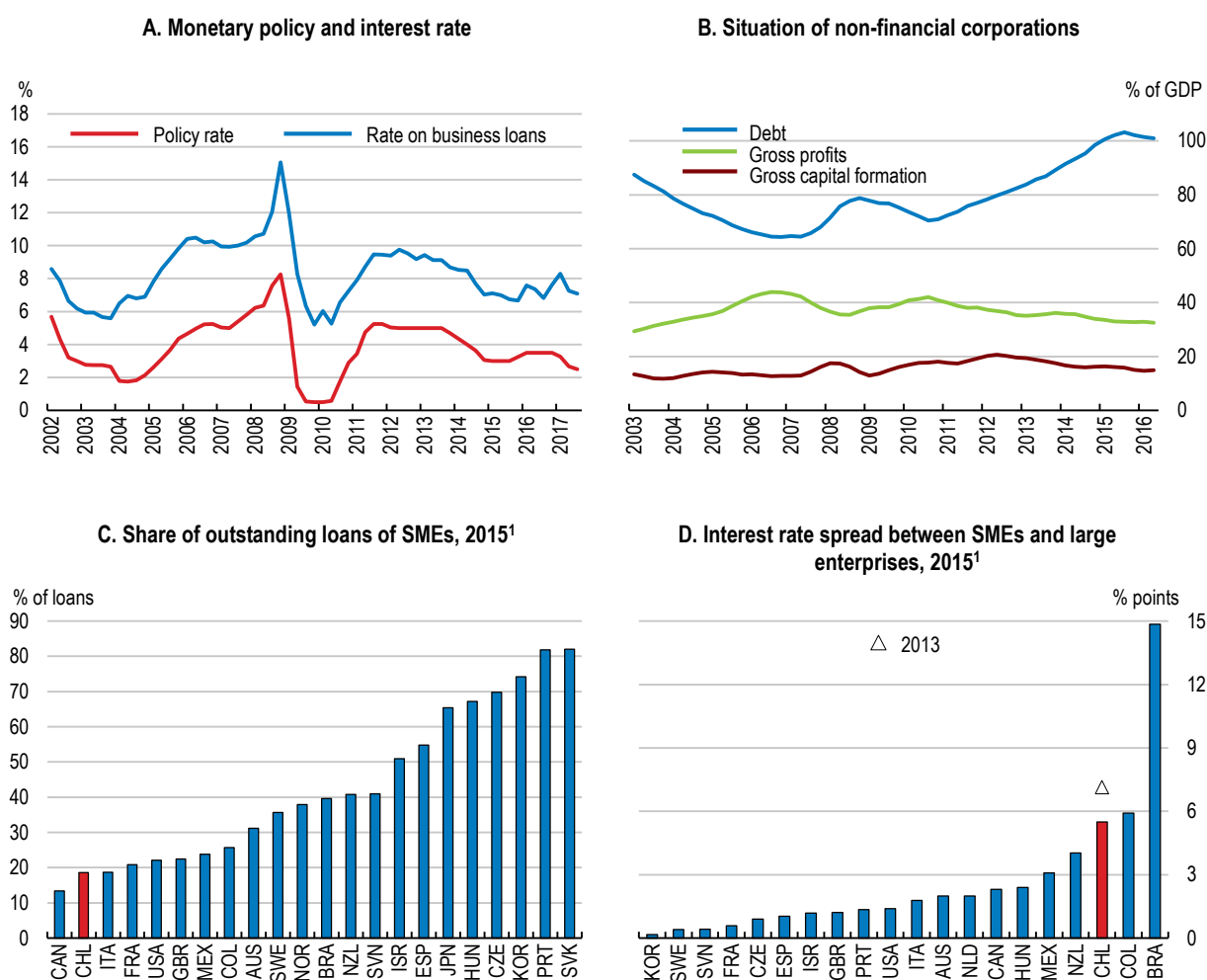
Source: OECD (2016), Regulatory Management Practice Database.

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Easing access to finance for potential exporters

Financing conditions are also perceived by firms as a key barrier to their growth and internationalisation (OECD, 2016a and 2017c). The cost of credit has recently declined, mainly thanks to an expansionary monetary policy (Figure 1.17, Panel A). However, credit conditions for large firms and SMEs appear tighter than in 2010-11 according to the executives of financial institutions in charge of credit (Central Bank of Chile, 2017a) and profits have declined, while corporate debt is historically high (Panel B). Micro and small firms, notably informal ones, have constrained access to bank financing, as they lack a payment history, standardised financial statements and collateral (CFPE, 2015; OECD, 2017f; Panels C and D). This may hamper formalisation, firm growth, innovation, export upgrading, and the discovery of new markets (Álvarez and López, 2013; Bas and Ledzema, 2010). Moreover, the welcome introduction Basel III capital requirements over the next ten years could also restrict credit supply (Wehinger, 2012).

Figure 1.17. Developments in firm financing have been mixed



1. Or latest available year.

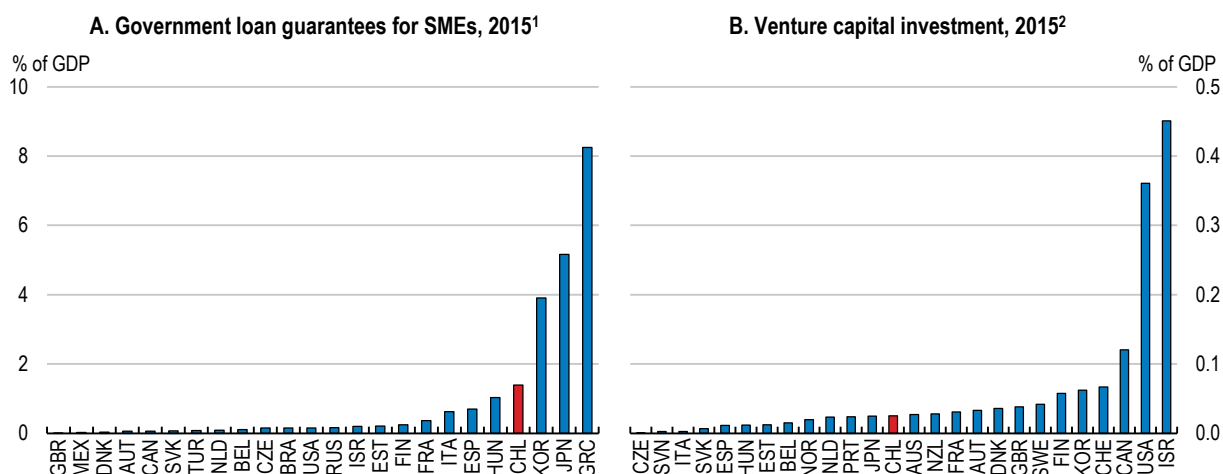
Source: Central Bank of Chile (2017), Statistical Database; OECD (2017), *Financing SMEs and Entrepreneurs 2017: An OECD Scoreboard*, OECD Publishing.

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A government-owned bank, *Banco Estado*, and programmes funded by the development agency, *CORFO* (*Corporación de Fomento de la Producción*; Box 1.2), help financing small and micro enterprises, and innovative firms. Public guarantee for SMEs are relatively high (Figure 1.18, Panel A). *Banco Estado* is the largest lender to smaller companies in Chile. Through a recapitalisation of USD 450 million (0.1% of GDP) in 2015, it expanded its lending to 25 000 new clients, mostly SMEs and riskier firms. Moreover, *Banco Estado* manages a credit guarantee scheme (FOGAPE) for SMEs. The FOGAPE scheme provides guarantees to financial intermediaries, responsible for analysing the risk of loans, through an auction process. The guarantees are allocated to the bidding institution demanding the lowest public guarantee rights (coverage ratio) for specific loans. Cowan, Drexler, and Yañez (2015) find that Chile's FOGAPE increased lending to micro and small firms, and that the programme achieved additionality.

Moreover, FOGAPE's returns on investment have so far covered all administrative costs and claims (de la Torre, Gozzi, and Schmukler, 2017).

Figure 1.18. Public support for SME loans and development of alternative financing instruments



1. Or latest available year.

2. 2016 for Chile.

Source: OECD (2017), *Financing SMEs and Entrepreneurs 2017*, OECD publishing. CORFO (2017), *Informe Público de Capital de Riesgo Resultados Acumulados al 31 de diciembre de 2016*, Corporación de Fomento de la Producción.

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CORFO also supports credit guarantee schemes and the development of alternative forms of finance. In 2015, CORFO provided 66 038 credit guarantees worth USD 2 billion or 0.6% of GDP (OECD, 2017f). The main guarantee programme, FOGAIN, concentrates 95% of CORFO's guarantee operations and is addressed to firms that do not qualify for FOGAPE (Agosin et al., 2010). It provides guarantees to financial institutions for SMEs applying for credit, leasing, factoring or lease-back. In addition, CORFO has developed private mutual guarantee societies (SGR) that help SMEs get financing by issuing certificates of guarantee that firms can offer in turn as collateral to secure loan obligations; reducing the potential loss lenders face in case of defaults. In late 2015, loan guarantees for long-term innovative investments (*Cobertura pro-inversión*) are available through selected banking institutions.

According to qualitative interviews, 84% of the beneficiaries of CORFO's guarantees report positive effects on their company (CORFO, 2014). However, it is a source of some concern that CORFO's guarantees programs have only partly been evaluated through experimental and non-experimental evaluation methods (Griffith-Jones et al., 2015). Improving systematic evaluations of support schemes would ensure they are constantly improved based on experience. Defining ex ante the timing of the evaluation would allow efficient adjustment of the schemes and reduce incentives for firms to delay their investments. This could be done by identifying a permanent independent body to monitor innovation policies, such as the productivity commission, and by encouraging the participation of all stakeholders and promoting independent econometric evaluations.

Over the medium-term, such large government interventions run risk of favouring the survival of low-productivity firms and should be reduced by addressing directly market failures in firm financing. In 2016, the authorities announced the creation of a unique registry and new regulations to ease the use of movable assets, such as machinery and inventory, as collateral. This could lower the reliance of banks on real estate collateral and boost SMEs investment and productivity (Calomiris et al., 2016; Love et al., 2016). However, some regulations restrict access to finance. The stamp duty on credit and loan transactions, as well as issuance of fixed-income securities, increases the cost of loans for SMEs, and family-run businesses for which bank lending may be the only source of external financing (OECD, 2007). A gradual reduction in the statutory rates would lower borrowing costs and smooth the impact on fiscal revenues, given that revenues of stamp duties accounted for 0.3% of GDP in 2016 and were set to rise to around 0.4% of GDP with the implementation of the 2014 tax reform (OECD, 2015a). Improved information about SMEs would also be essential to allow banks to develop risk analysis of SMEs and improve access to credit (Diaz et al., 2014; Pacheco and Rojas-Suarez, 2017). Increasing the use of simplified standardised financial statement reports (*FECU Pyme*) could ease SMEs applications to bank loans, as well as the evaluation of firms and their projects. This would require to simplify them (CFPE, 2015) and would complement the possibility for any taxpayer to digitally transfers its official tax and financial records to financial institutions since 2015.

Further measures would help diversify the financing of SMEs and innovative firms at a time when bank financing could be scaled down (OECD, 2015d). Chile displays a high level of financial development according to internal investors (WEF, 2017) and the level of development of venture capital has increased rapidly thanks to CORFO initiatives that developed the start-up scene, such as Start-up Chile (Figure 1.18, Panel B; OECD, 2016d). However, funding through capital markets remains largely closed to SMEs. The cost of issuing domestic debt in Chile is high due, in part, to the stamp tax levied on financial transactions, which limit small debt issuance (Didier and Schmukler, 2013). Private equity is still limited, while non-traditional asset-backed finance, such as factoring and leasing remain marginal for smaller firms (ABIF, 2017). For larger firms, improving the transparency of corporate governance would help develop further capital markets and financing for long-term investment (IMF, 2016). For smaller firms, the Inter-American Development Bank Credit provided CORFO in 2016 with line of credit for USD 120 million (0.04% of GDP) available for non-bank financial institutions such as credit unions, leasing, factoring, and microfinancing companies can help access to finance. The authorities also plan to facilitate the use of paper and electronic invoices as payment titles to develop factoring. These measures are set to significantly increase the supply of finance.

Box 1.2. The development agency, CORFO

CORFO started promoting venture capital funds and incubators in the late 1990s. Between 2012 and 2014, CORFO supported 240 start-up ventures per year through different programmes and channeled USD 12.5 million through incubators, accelerators and pre-seed financing (World Bank, 2017). CORFO also runs a network of incubators, angel investors and coworking spaces, among others. This has generated some success with an estimated 1 200 start-ups incubated through CORFO programmes in high-technology industries such as financial technology, mining technology, bio- and agro-technology and information technology services. In particular, Start-up Chile had a positive impact on raising capital. However, the program did not have a statistically meaningful impact for the projects in term of generating profits, exports, or employment (Verde, 2016).

CORFO has recently determined three areas of intervention: productive diversification, support to innovation and entrepreneurship, and foreign and national investment promotion. In 2014, CORFO launched smart specialisation programmes to stimulate public-private partnerships, identify competitive advantages and raise technological innovation, while building social capital. The resulting Transforma agenda defines eight priority industries: mining, agro-food, construction, health services, tourism, creative industry, fishing and aquaculture, and global services, as well as five horizontal priorities: logistics, solar energy, water supply, smart industries and advanced manufacturing. However, it has a relatively limited budget (around 0.1% of 2015 GDP over 2014-18).

In 2015 CORFO had assets worth around 2.6% of GDP. The total stock of debt granted by CORFO to private companies represented only 0.5% of the total domestic credit to the private sector. This makes CORFO significantly smaller in scale, compared to the size of the Chilean economy, and to total domestic credit to the private sector, than development banks in other countries, such as KfW in Germany and BNDES in Spain (Griffith-Jones et al., 2015).

Source: Griffith-Jones, S., M. Luz Martínez Sola and J. Petersen (2015), The role of CORFO in Chile's Development: Achievements and Challenges, http://policydialogue.org/files/events/Future_of_National_Development_Banks_-_Chile.pdf; Verde (2016), *Evaluación del Programa Start-Up Chile de CORFO*, <http://www.economia.gob.cl/wp-content/uploads/2016/08/Resumen-Ejecutivo-Start-Up-Chile-Abril-2016.pdf>; World Bank (2017), "The Republic of Chile, Systematic country diagnostic (P157088) – Transitioning to a prosperous society", *Document of the World Bank*, No. 107903-CL, The World Bank.

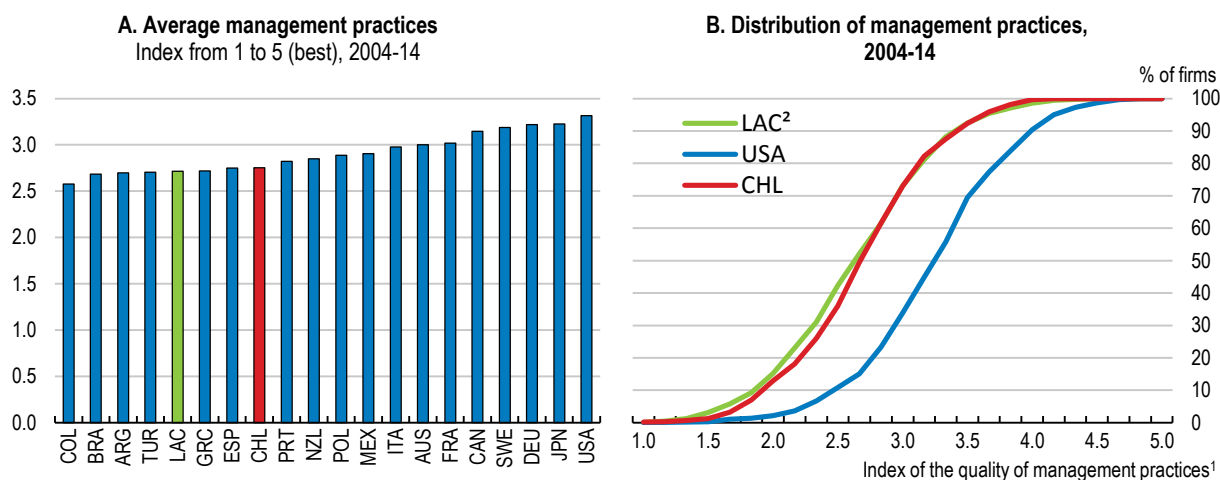
Increasing innovation and skills

Good management is often necessary to adopt new technologies, gain export market shares and manage organisational change (Bloom et al., 2017b). Chile has a larger share of poorly managed firms than the United States, close to other Latin American countries (Figure 1.19). Adopting US management practices could boost firm productivity (MFP) by more than 8% (Syverson, 2014).

CORFO and SERCOTEC coordinate programmes and services to support entrepreneurs. The government's Technical Cooperation Service (SERCOTEC) provides support and training for small and micro businesses and encourages networking, by making special provisions for cooperative ventures in its financing programs. In addition, a network of small business development centres (*Centros de Desarrollo de Negocios*) has gradually

been rolled out across the country to act as support points for SMEs since 2015. This created more than 50 centres offering assistance and networking opportunities with the involvement of business associations, universities and training centres. New programs, such as *Almacenes de Chile*, also seek to strengthen micro enterprises' capabilities through personal advice and mentoring and training courses. *Barrios Comerciales* uses similar approaches to promote cooperation, management skills and revitalisation within urban commercial districts. This is welcome as earlier programmes, such as CORFO's mentoring programme had positive effects on start-up performance. *Yo emprendo semilla* that provided training, support and financing for the business plan of micro-entrepreneurs, had significant positive effects, beyond financing (Gonzalez-Uribe and Leatherbee, 2017; Martínez et al., 2017). Broadening these experiences, by sponsoring international business trips for entrepreneurs and SMEs could further diffuse the adoption of best management practices, help build knowledge networks, and raise awareness of potential of participation in GVCs. At the firm level investments in collaboration capital, in particular hiring foreign consultants, as well as participation in international wine fairs, have been strongly correlated with export growth in the wine industry (Dutz et al., 2014).

Figure 1.19. Management practices are unequal in the manufacturing sector



1. Index from 1 to 5 (best management practices).

2. LAC is the unweighted average of Argentina, Brazil, Colombia and Mexico.

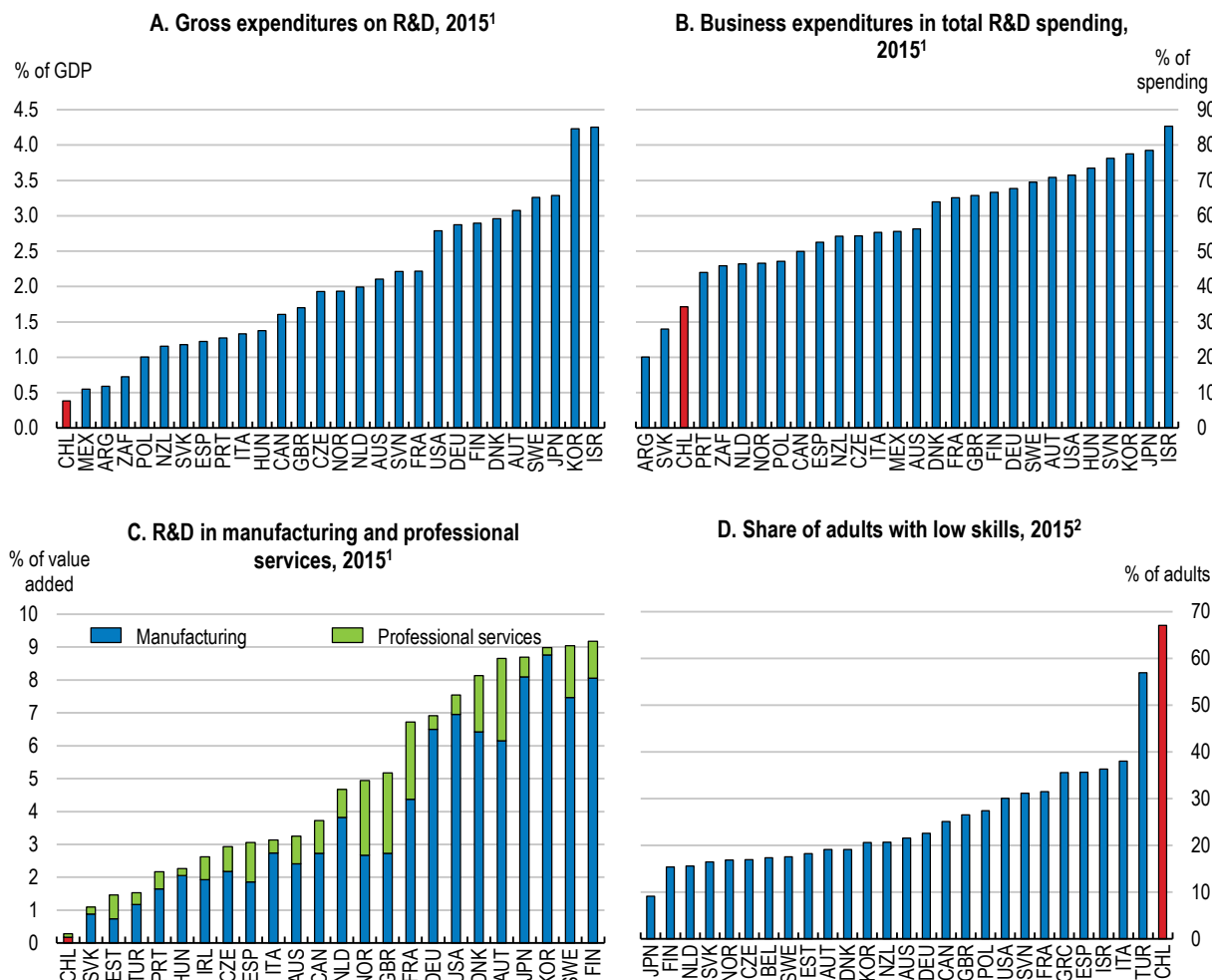
Source: World Management Survey Database and OECD calculations.

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Strengthening innovation policies would raise productivity and expand export prospects. Spending on research and innovation is one of the lowest of the OECD, and the gap is especially pronounced for business R&D (Figure 1.20, Panels A and B). R&D spending is low in manufacturing and professional services (Panel C). According to firm survey data, SMEs introducing innovation in products, processes, organizational or marketing during 2013-14 remain rare (MEFT, 2016a). The quality of scientific publications, science-industry collaborations and per capita patenting activity, though improving, are also well below most OECD countries (Pinto et al., 2017), while cooperation between firms and universities is low (OECD, 2016e). The low level of skills of a large share of the working-age population is a key impediment to R&D and innovation (Panel D) and strengthening the relatively poor skills of the Chilean workforce will be crucial to get

them into good jobs and to boost productivity and exports (Chapter 2). Indeed, Alvarez et al. (2012; 2016) find evidence that the marginal return to R&D may be substantial in Chile in the manufacturing and services sector.

Figure 1.20. R&D spending and skills are low



1. Or latest available year.

2. 2015 for Chile, Greece, Israel, New Zealand, Slovenia and Turkey, 2012 for other countries. Low-performing adults are defined as those who score at or below Level 1 in either literacy or numeracy. The OECD aggregate refers to the unweighted average of the 28 OECD countries that participated in the OECD Programme for the International Assessment of Adult Competencies (PIAAC). Data for Belgium refers to Flanders. Data for the United Kingdom refer to England.

Source: OECD (2017), Research and Development Statistics and National Accounts databases. OECD (2016), Skills Matter: Further Results from the Survey of Adult Skills.

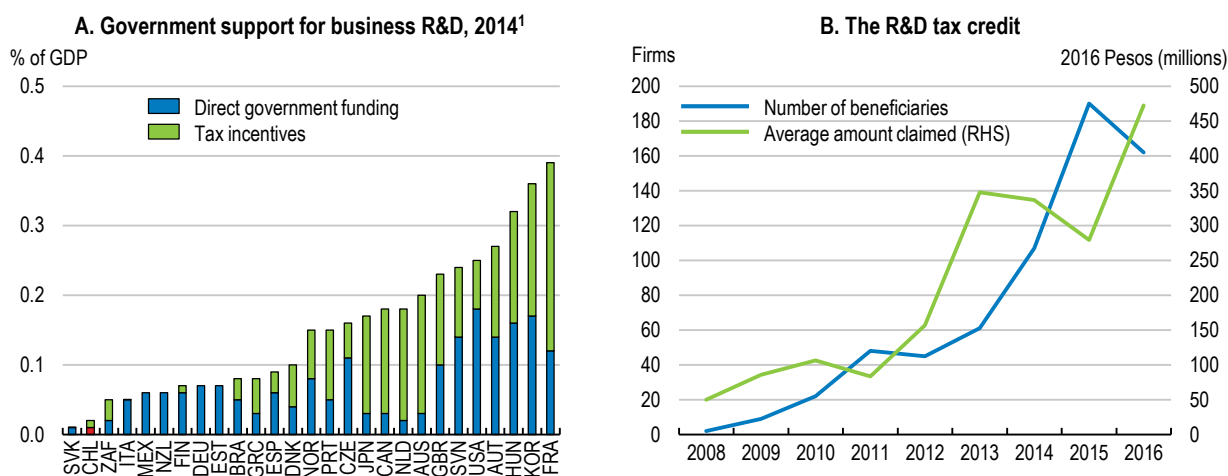
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Acknowledging that innovation is a key pillar for the new economic model, the authorities have put forward an ambitious innovation plan in 2014-18 (Box 1.1; MEFT, 2015). New governance structures and funding mechanisms for innovation have been put in place with the creation of a National Innovation Council for Competitiveness and an Inter-ministerial Committee for innovation. The National Innovation Council is entrusted

with the mission of proposing guidelines for a long-term national innovation strategy. Strengthening of the inter-ministerial committee on innovation with an explicit legal framework, and the national council of innovation (CNID), which helps set longer-term strategy, seems warranted. A draft law would also create a new ministry of Science and Technology and could be a positive step to integrate science and innovation policies.

The scale and take up of innovation programmes have remained limited (Figure 1.21, Panel A). The reform of the 2008 R&D tax credit in 2012 broadened the scope of eligible R&D investments to internal expenditures, increased the annual tax ceiling, simplified administrative requirements and eased domestic and international collaborations. This significantly raised the eligibility and the take-up of the programme, notably for large firms (Panel B; Intelis, 2017). The R&D tax credit is generous for smaller firms and it can be carried forward indefinitely (OECD, 2017j). However, further progress is possible, as its take up remain low. Refundability could be beneficial for young, innovative firms. At the same time, adding incremental incentives for larger firms based on their past R&D spending could improve effectiveness (Appelt et al., 2016). Additional training for firms and the compilation of a common list of qualified costs would also reduce uncertainty about eligible costs, as 19% of tax-credit applications were still rejected in 2014-15. Moreover, developing public information about public research centres would encourage collaboration with firms, notably SMEs, and ease applications to the programme (Intelis, 2017).

Figure 1.21. Public support for innovation has increased



1. Or latest available year.

Source: OECD (2017), R&D Tax Incentive Indicators. Intelis (2017), *Informe Final Evaluación Ley I+D*, Universidad de Chile. CORFO (2016), *Informe de Gestión 2016*, Corporación del Fomento de la Producción.

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Higher innovation grants could play a significant role to develop business innovation and raise exports for smaller firms, as they remain limited. CORFO is the main actor in the business sector providing seed capital, accelerator programmes and venture capital (OECD, 2016c), but its budget is relatively small (Box 1.2). In 2014, it introduced innovation vouchers to support public-private research partnerships and the commercialisation of public research that remained weak (MEFT, 2015). The Chilean

government introduced a Smart Specialisation Strategy with the aim of developing public-private collaboration in strategic economic areas. Since 2015, a public fund (*Fondo de Inversiones Estratégicas*, Box 1.1) also finances initiatives aimed at improving productivity and diversifying the economy in six sectors defined by the Government: healthy food, solar energy, smart innovations in industry, as well as sustainability and innovation in construction, mining and aquaculture. Its public resources reached USD 104 342 million over 2015-18 (0.06% of 2016 GDP), leveraged by private funds.

Another challenge is to move from a list of targeted technologies to a learning process allowing diffusion, and to develop exit procedures for activities that do not have the anticipated potential. Beefing up programme evaluation would help. Evaluations of other innovation programmes have not been systematic and with few exceptions they have been qualitative in nature rather than attempting to quantify the economic effects of public support. Improving monitoring mechanisms by collecting outcome indicators and diffusing them to independent researchers as well as building in pre-determined evaluation mechanisms in some programmes to identify good practices would be a prerequisite. Integrating the different support programmes for applied innovation and exports through local one-stop shops and a unique national website would strengthen the coherence of business support measures and ease firm access and monitoring.

Increase coordination across governmental agencies in charge of innovation and business support would raise competitiveness and ease policy evaluation. Current programmes focus in solving a large number of alleged market failures, but assigned very few resources, and are therefore costly to access for firms and to manage. Streamlining the multiplicity of programmes managed by Corfo, Prochile, Sercotec, Conicyt and local governments would help the coordination of the different policy objectives and their evaluation by coordinating institutions such as the innovation council and the inter-ministerial committees for innovation and exports, as the current governance framework tends to consider issues of exports and innovation separately. In a first step, creating a unique repository of all programmes, funds and competitions that exist in multiple public entities would reduce the administrative costs for SMEs that may contribute to unequal access because of different practices of the plethora of agencies and local governments in charge of the support systems (OECD, 2016a). For example, Spain integrated and unified all existing one-stop shop networks into one network for entrepreneurs in 2015 to ease their administrative procedures and other OECD countries, as Germany, promote export activities of SMEs in technology-oriented export initiatives.

Further improving the insolvency framework to ease labour and capital re-allocation

Improving the insolvency framework could help restructure companies that suffer from external-market shifts and international competition but are still viable. Also faster liquidation procedures could reduce loss of capital in companies that may need liquidation. This could prove valuable in the case of a prolonged slowdown, as the average profitability of firms has declined since 2011, while corporate debt has increased rapidly (Central Bank of Chile, 2017b). The 2014 reform of the corporate insolvency regime eased restructuring and liquidation procedures for firms (Figure 1.22). It assigned insolvency cases to special courts rather than civil judges, broadened the regional dimension of insolvency proceedings, eased the rapid discharge of debtors and aimed at limiting the burden of non-litigious cases on judges by introducing non-judicial simplified reorganisation procedures. The main characteristics of Chile's insolvency framework, such as the time to discharge, creditors' ability to initiate restructuring, the presence of

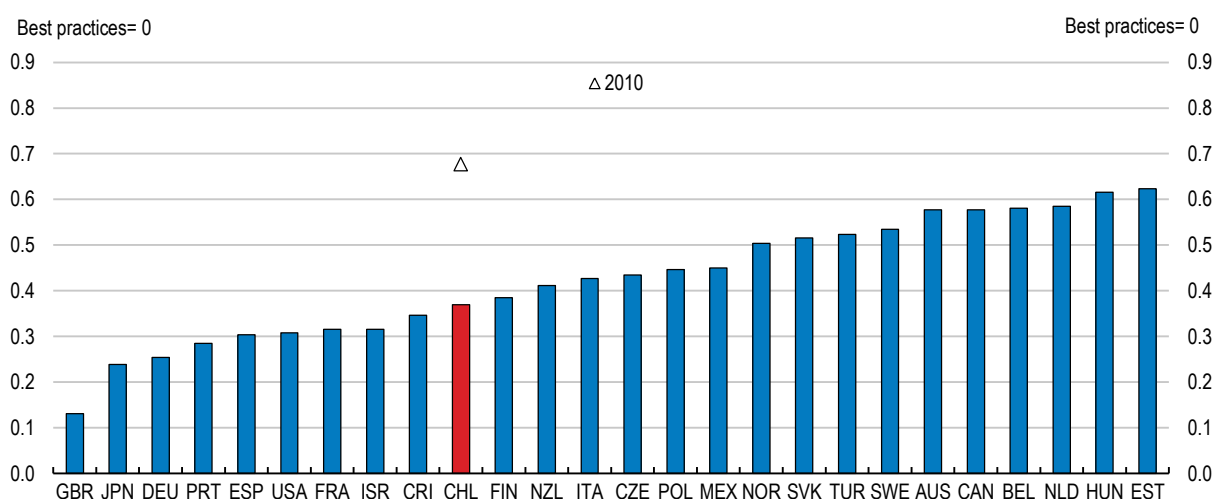
pre-insolvency regimes, the possibility and priority of new financing or the possibility to 'cram-down' on dissenting creditors, are now in the OECD average (Adalet McGowan, et al., 2017).

However, the average recovery rate remains low and the time needed to deal with insolvency cases remains long. Since 2014, formal firm restructuring and liquidation procedures have increased significantly, but only 4% of the cases, mostly large firms, concerned business restructuring over the last nine months (Superir, 2017). Faster and more efficient insolvency and restructuring procedures are likely to contribute to higher private investment and exports. They would facilitate the reallocation of capital and other resources to more productive companies (Andrews and Saia, 2017).

Facilitating the exit of non-viable firms would require developing early warning systems, such as self-assessments, call centres and training courses, and giving the possibility for creditors to initiate restructuring would be a positive step. Creditors are not given the right to request information from the insolvency representative and may file for insolvency of the debtor, but for liquidation only. For example, in Portugal, firms can perform a self-assessment of their economic and financial situation (*Autodiagnóstico financeiro*) using a digital platform since 2015. Such measures could reduce bankruptcy procedures for SMEs, as they tend to possess limited financial buffers and face high risks of being exposed to customers' or suppliers' insolvencies. In addition, developing further training programs for failed entrepreneurs could help them to launch more quickly new and improved projects (McKenzie and Woodruff, 2014). For example, a number of European countries, notably Belgium, France and Germany, have developed guidelines and second chance coaching and education, to actively promote business re-entry and support entrepreneurs in their new ventures. This could allow developing a new culture of preventive restructurings and limit the stigma associated with failed entrepreneurs (GEM, 2015).

Figure 1.22. Bankruptcy procedures remain long

OECD indicator of insolvency regime, 2016



Note: Index scale from 0 (most efficient) to 1 (least efficient).

Source: M. Adalet McGowan, D. Andrews and V. Millot (2017), "Insolvency Regimes, Zombie Firms and Capital Reallocation", *OECD Economics Department Working Paper*, No. 1399, OECD Publishing.

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Box 1.3. Depth and characteristics of Chile's preferential trade agreements

The depth index of preferential trade agreements (PTAs) is based on the Design of Trade Agreements (DESTA) database and combines seven dimensions potentially included in PTAs to liberalise trade between the parties (Dür et al., 2014). The first sub-index focuses on tariffs and is equal to 1 if all tariffs (with limited exceptions) are to be reduced to zero. The remaining six sub-indices capture areas other than tariffs that contribute to trade liberalisation between the parties: service trade, investment, standards, intellectual property rights, public procurement and competition. The respective sub-indices take the value of 1 if a substantive provision for the respective dimension is contained in the agreement and 0 otherwise. The depth-index of PTAs is obtained as the sum over these seven dimensions and ranges accordingly from 0 to 7 for each country pair.

According to the DESTA database, Chile has negotiated 35 PTAs, including specific protocols and extensions to additional countries, up to 2016. Most of these agreements include more than three dimensions, notably provisions for a free trade zone, product standards, trade of services and bilateral investments, according to DESTA definitions. As a result, the average depth of PTAs is higher for Chile than for most other developing countries (Figure 1.23).

Source: DELSTA (2017), *The Design of Trade Agreements (DESTA)*, March 2017; Dür, A., Baccini, L. and M. Elsig (2014), “The design of international trade agreements: Introducing a new dataset”, *The Review of International Organizations*, Vol. 9, No. 3, pp. 353-375.

At the same time, developing arbitration and limiting courts' involvement in the different stages of both liquidation and restructuring procedures could reduce the courts' burden and speed up procedures. This would also reduce bankruptcy costs for creditors and avoid unduly prolonging the exit of weak firms. Court involvement, directly or through court-appointed practitioners, is important in guaranteeing the rights of different parties involved. However, court involvement can come at a cost – particularly for smaller firms that lack scale to cover the associated fixed costs (Bergthaler et al., 2015) – so it is essential to: i) limit court involvement to only those cases where it is absolutely necessary; ii) improve the expertise of the courts to deal with complex insolvency cases where their intervention is required; and iii) effectively design the compensation schemes for insolvency practitioners (Adalet McGowan, et al., 2016).

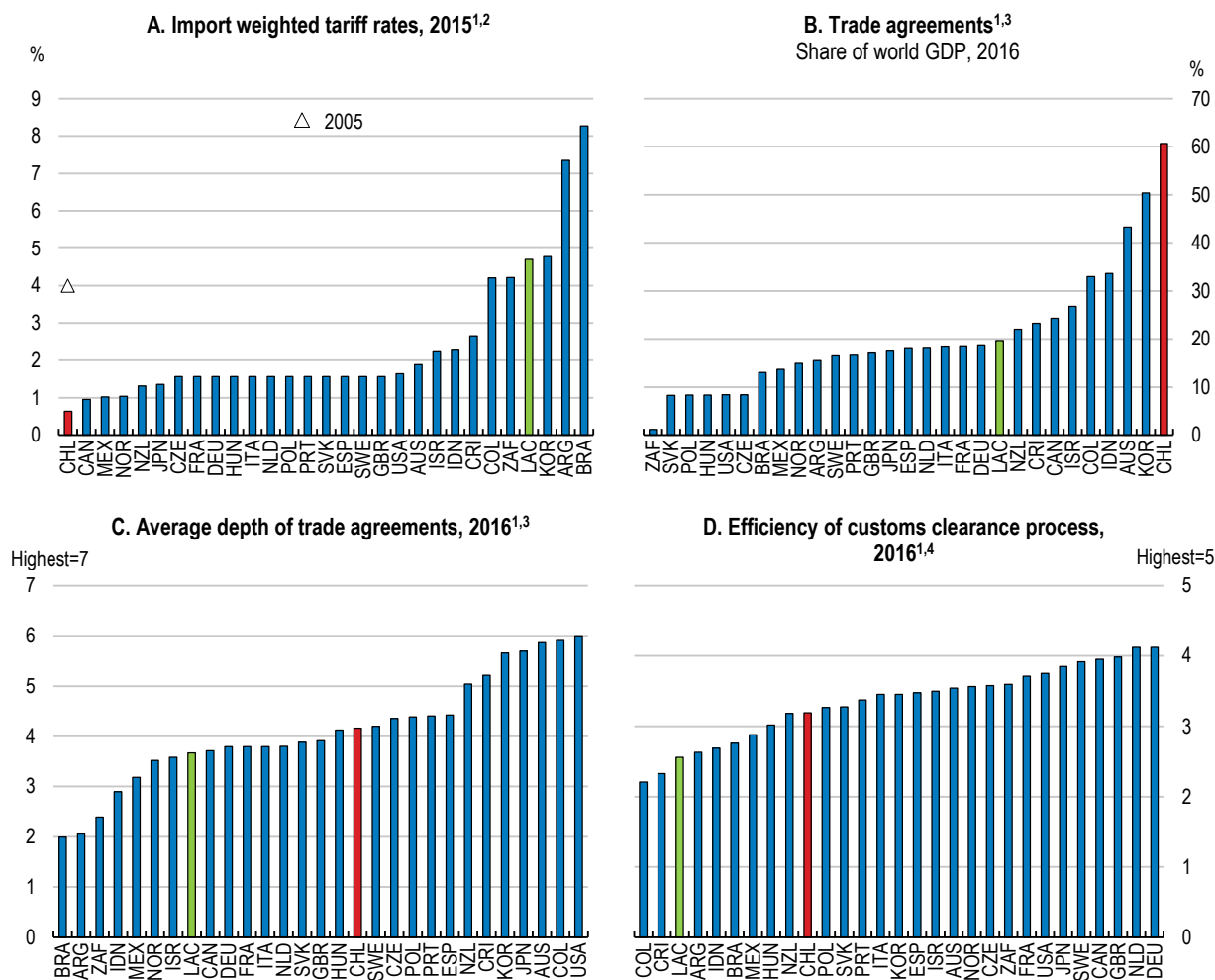
Easing international trade procedures and lowering input costs for exporters

Trade facilitation has improved

Chile's trade policies are supportive of export performance and productivity growth. Import tariffs are generally low (Figure 1.23, Panel A). In addition, Chile has 24 bilateral or regional preferential trade agreements (PTAs) with 63 partners and a high average depth (Panels B and C, Box 1.3). These agreements covered around 94% of Chilean exports in 2015 (OECD, 2015d). This wide-ranging network of preferential trade agreements led to low tariffs and higher trade, GDP per capita and employment (Schmidt-Hebbel, 2017). The Trans-Pacific Partnership could lead to further gains (Petri and Plummer, 2016). Chile signed in 2016 the Trans-Pacific Partnership (TPP) agreement with eleven other countries to promote more inclusive and sustainable economic growth

and lower trade barriers such as tariffs, and establish an investor-state dispute settlement mechanism.

Figure 1.23. Tariffs are low but further improvements are possible



1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. Or latest available year. Weighted tariffs are the averages of effectively applied rates weighted by the product import shares corresponding to each partner country.

3. As measured by Dür et al. (2014), see Box 3. Trade agreements are weighted by partner countries' GDP in PPP US dollars. In Panel B, the computations exclude the domestic country GDP.

4. Efficiency of the clearance process of border control agencies, including customs, as perceived by private operators.

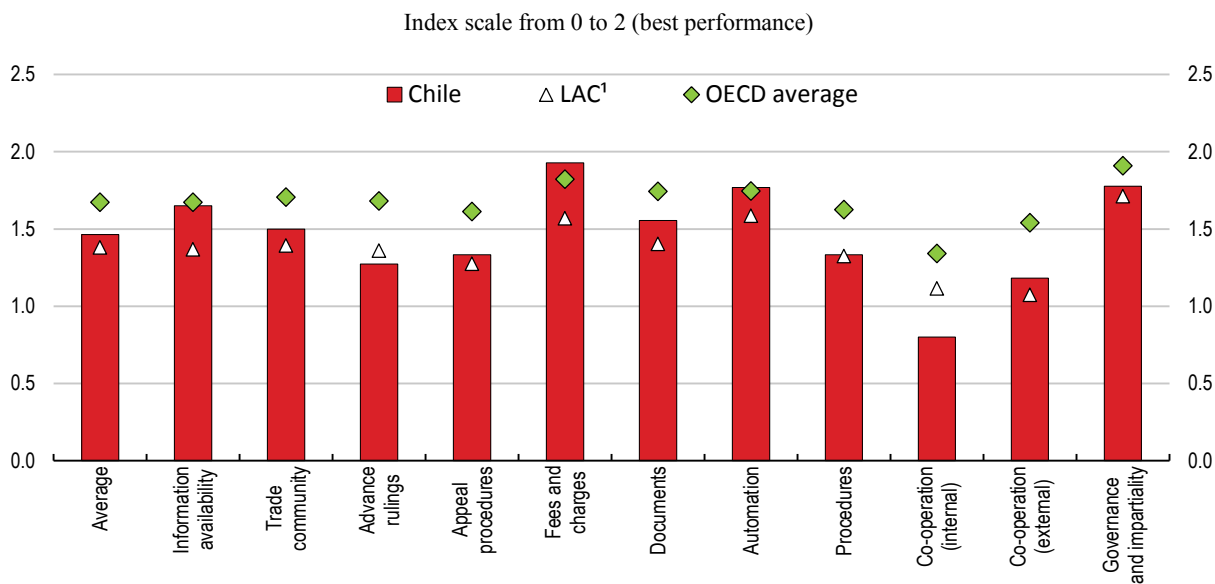
Source: World Bank (2017), World development indicators and Logistic Performance Index Survey; OECD calculations based on DELSTA (2017), The Design of Trade Agreements (DESTA), March 2017.

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However, border and custom procedures could be improved according to the perceptions of private operators (Figure 1.23, Panel D). Continuing to modernise and simplify customs procedures is fundamental, as OECD cross-country evidence show it improves the capacity to export and import high-quality inputs (Moïse and Sorescu, 2013). Reducing the costs required to import abroad has been associated with an increased number of exporting firms and higher export intensity (Lopez and McQueeney,

2017). Chile performs well in terms of the OECD trade facilitation indicators compared to other Latin American countries (Figure 1.24). However, compared to the OECD average, there is room for improvement in specific areas such as of advance rulings and border agency co-operation. The authorities have developed a voluntary single window operator (SICEX) since 2010 and launched its export and import module in 2012 and 2017, respectively. A 2017 reform also gave new powers to national customs services, improved auditing procedures and strengthened penalties for counterfeit goods, and tax facilities for exporting SMEs. Moreover, the government reformed the tax and customs justice to streamline tax and custom judicial procedures, by creating a conciliation process. In particular, a new welcome authorised economic operator scheme (AEO), will initially be available to customs brokers and exporters. Authorised firms will benefit from simplified customs procedures. This scheme could significantly reduce physical and documentary controls and shorten goods release time, and it should be extended to importers.

Figure 1.24. There is scope to raise trade facilitation in some areas, 2017



Note: LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

Source: OECD (2017), Trade Facilitation Indicators.

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Despite these significant improvements, SICEX covered only 5% of exports transactions and around 32% custom agents for goods and services in May 2017 (SICEX, 2017). The authorities expect its coverage to reach 50% of exports at the end of 2017. The progressive development of interoperability of Single Window schemes within the Pacific Alliance Agreement (Chile, Colombia, Mexico and Peru) and the recent reforms, notably the AEOs, should help. Beyond these measures, completing the various modules and functionalities of SICEX to reduce further the times of the export and import cycle should be a priority, notably its integration with logistics portals. The creation in May 2017 of a foreign trade facilitation unit in the Ministry of Finance could increase the use of SICEX and export of services and its integration with other governmental online procedures. The unit will coordinate public and private initiatives for business and export facilitation.

Additional reforms of border procedures and services would contribute to boost export performance by providing wider market access and facilitate integration into GVCs. Importers are still required to use the services of a Chilean customs agent for inward clearance of goods and foreign ownership ceilings at 49% of equity shares also apply to custom brokerage services (WTO, 2015; OECD, 2016e). This could be liberalised further to foreign providers. In addition, improving infrastructure and logistics would play a key role (see below).

Deepening regional integration

Chile's trade intensity is highly dependent on international trade liberalisation (Haugh et al., 2016). Simplification and regulatory convergence would help reduce non-tariff barriers for Chile and other Latin American countries. Chile and other members of the Pacific Alliance tend to have "deep" trade agreements with the world's largest economies (Figure 1.23). At the international level, within Latin America, this wide-ranging network of trade agreements might give cause for concern: regional trade integration appears lagging (Figure 1.9), while the export structure of certain countries in the region matches the import demand composition of other countries (IMF, 2017).

Preferential trade agreements have added complex rules of origin (Cadestin et al., 2016; Bown et al., 2017). Together with the wide diversity of quality and safety standards and regulations, this can be a major barrier to trade, notably for smaller firms, multi-product and multi-destination exporters, as compliance needs to be coordinated at each stage of production and for each market ultimately supplied (Cadestin et al., 2016). Simplification of and more cooperation on regulations such as rules of origin technical barriers to trade and sanitary measures and public procurement competition across the complex web of regional preferential trade agreements would help. Such measures of regulatory harmonisation have been associated with significant increase in trade and FDI across OECD countries (Nordås, 2016; Fournier, 2015). While further regional integration in the short run is most likely with a selected group of countries, such as in the Pacific Alliance, a region-wide integration in the long run should try to integrate as many partners as possible (Cadestin et al., 2016).

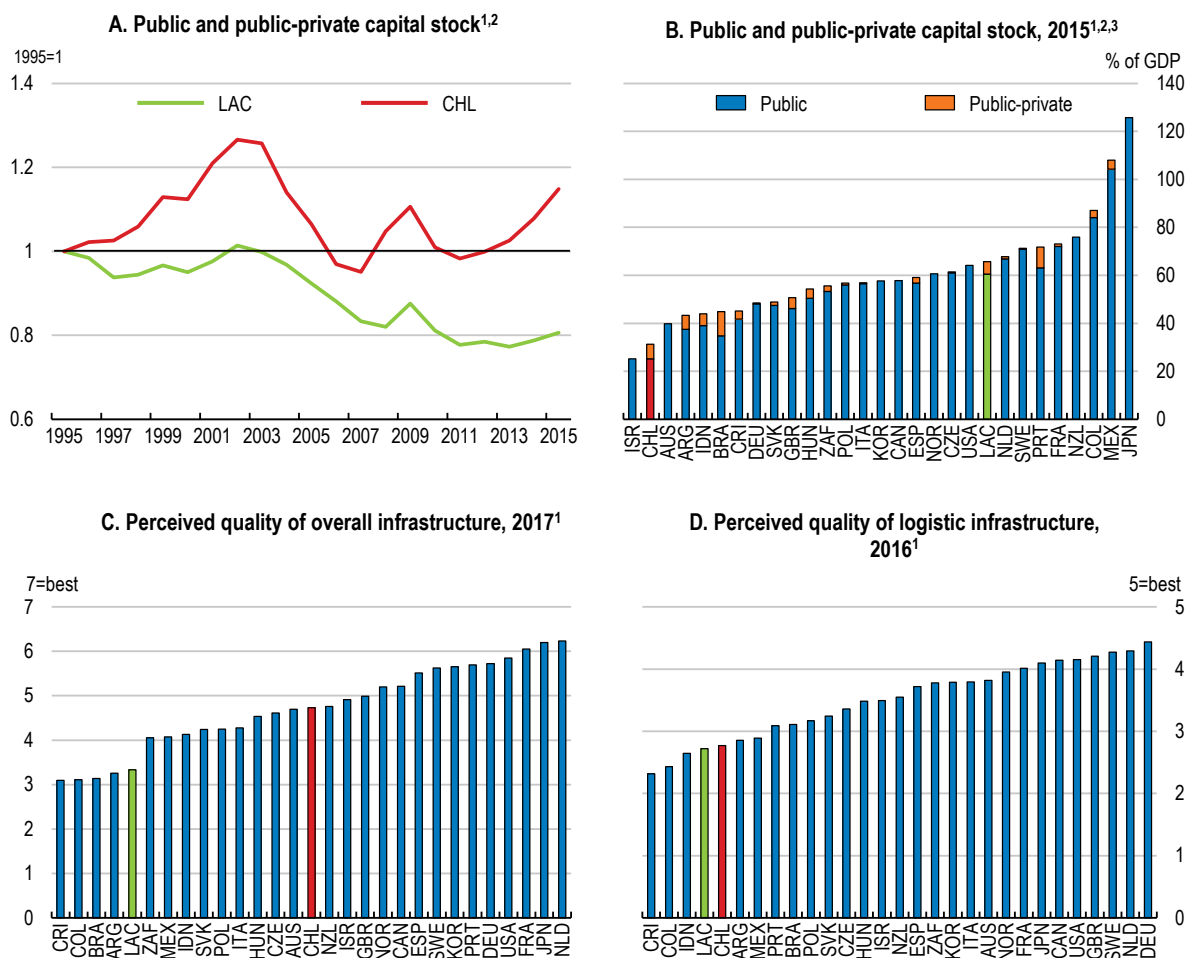
Engaging in further mutual recognition agreements would also facilitate trade. According to OECD's Product Market Indicators, there is room to pursue such agreements in areas such as construction, distribution, banking, insurance or hotels and administration. Such agreements would be particularly useful to foreign professional service providers if they not only recognise foreign qualifications (degrees, certificates, practice) but also if licenses and registrations are covered by these agreements. Indeed, Chile doesn't have an established procedure to recognise foreign qualifications prior to arrival, which increases uncertainty for foreign professional services providers. This would also ease immigrant integration (OECD, 2017k). Likewise, requiring regulators to use internationally harmonised standards and certification procedures would be beneficial. Manufacturing, construction and professional services such as legal, engineering or architecture, are areas where harmonisation is currently lacking. This would also help boost intra-regional FDI investments.

Improving infrastructure and network services

Chile's infrastructure has improved considerably over past decades. Concession-based public-private partnerships have helped attract large private investment in the upgrades of motorways, ports and airports: total road infrastructure spending averaged 1.35% of GDP

over 2008-2013 above the OECD average, and container port capacity doubled between 2004 and 2013 (OECD, 2017d). Public transport in Chilean cities has also improved. The public and public-private capital stock has increased in relation to GDP over the last decade (Figure 1.25, Panels A and B). The fiscal framework monitors annually contingent liabilities stemming from public-private programmes (OECD, 2017d). The quality of infrastructure is perceived as higher than in other Latin American countries (Panel C). However, recent OECD evidence points towards some infrastructure gaps (OECD, 2017d). Some bottlenecks remain in logistic infrastructure, which partly reflects the lack of interoperability of ports with railways, and missing road connections and intermodal terminals for combined transport (Panel D). Chile’s geography also impose higher spending: mountainous terrain makes building new infrastructure and maintaining existing ones expensive.

Figure 1.25. Some infrastructure gaps remain



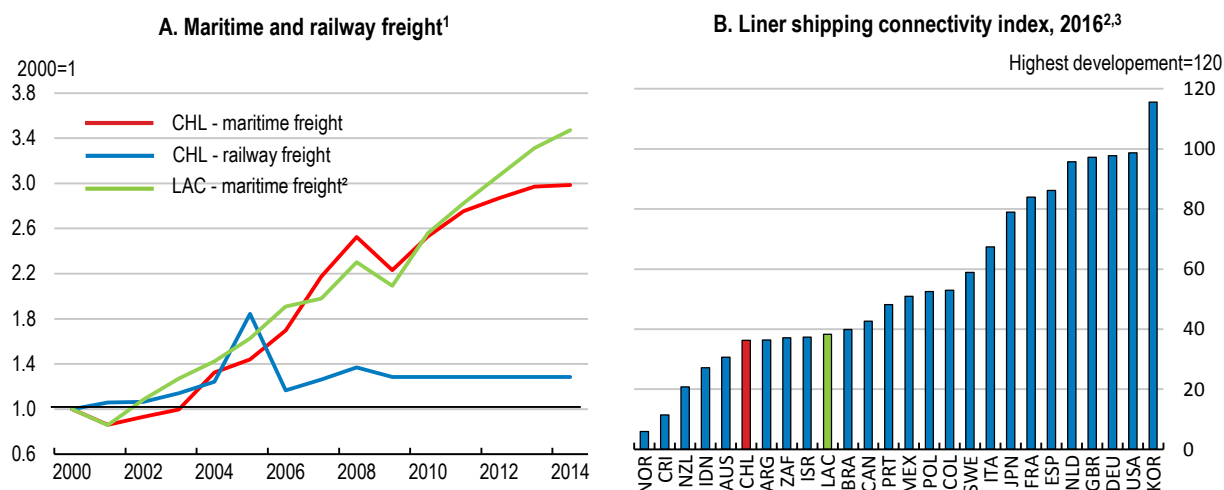
1. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.
 2. The measure of the capital stock as a share of GDP (IMF, 2017) depends on assumptions on the rate of depreciation of capital and on the level of disaggregation at which the calculation is made. These estimates can thus differ from national sources.
 3. Data on the public-private capital stock are missing for Australia, Canada, Israel, Japan, Korea, New Zealand, Norway and the United States.
 Source: IMF (2017), Investment and Capital Stock dataset; World Bank (2017), Logistics Performance Index; World Economic Forum (2017), The Global Competitiveness Report 2017-2018.

Better transport connections, in line with improved land and urban planning, could increase gains from agglomeration economies and local knowledge flows across more distant neighbours boosting productivity growth and exports. First, this would boost the productivity of private inputs because of complementarities with labour and the private capital stock. For example, developing transport infrastructure could raise business investment and competitiveness in remote regions by reducing the costs to move goods, and encourage workers upskilling. Second, improving infrastructure would facilitate both internal and external trade, and ease labour reallocation. Third, the higher productivity of the private capital stock would continue to boost private investment.

To raise export performance and global value chain integration, new infrastructure developments should take into account connection with neighbours and domestic hinterland linkages (Cadestin et al., 2016). Chile's 90 ports handle approximately 96% of goods exports (CAMPORT, 2017) with domestic supply chains relying heavily on road transport. Internal transport costs constitute an obstacle for exporters of products other than copper (OECD/ITF, 2016a). Some ports in the north of Chile specialise in exports of mining products: a significant proportion of non-mining exports from these regions is first transported to the middle of the country (Mesquita Moreira et al., 2013). Similarly imports destined to northern regions tend to transit in central ports and then be distributed by long truck journeys to the north.

Major investment in rail and road, as well as the development of interconnections with sea freight ports appears needed to avoid road congestion and reduce environmental damages. Many of Chile's ports lack connections to the country's high-quality motorway network (Figure 1.26, Panel A). Truck movements directly affect urban traffic as ports are located in cities, in close proximity to the city centres, where trucks are travelling through narrow urban streets (OECD, 2017d). A new major port on the central coast of Chile will serve growing demand for container traffic in Central Chile. However, it is also important to develop hinterland transport infrastructure. This could involve developing freight rail services, as the new port is likely to generate sufficient traffic to justify investment in a dedicated rail freight connection to logistics centres inland. Co-ordination of land-use and transport planning will be essential to ensure the long-term success of such an investment. The recent Red Logística de Gran Escala joint initiative between the Ministry of Public Works and the Ministry of Transport and Telecommunications with the State Railway Company, will focus on developing logistics centres and the rail link to San Antonio port. However, many other ports lack well-designed railway connections.

The regulations of ports and inland transport should be reviewed. The largest ports are publicly owned, and the public sector's role is to manage and develop ports and terminals, either directly or through concessions to private terminal operators. However, infrastructure investment in areas that currently lie outside port authorities' jurisdiction is needed to promote the integration of port systems in multi-modal transportation networks and to improve market access and the fluidity of trade (OECD/ITF, 2016a). In 2017, in line with OECD recommendations (OECD/ITF, 2016b) the authorities launched a logistics observatory (Observatorio Logístico) with a team at the Undersecretariat of Transport to integrate and synthesise information about logistics and facilitate access to data and public information.

Figure 1.26. Port interconnections and maritime transport are perfectible

1. Container port traffic in twenty-foot equivalent units (TEU) providing a standardised measure of containers of various capacities, and goods transported by rail (tonnes-kilometres).

2. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

3. The Liner shipping connectivity index captures how well countries are connected to global shipping networks. It is computed by the United Nations Conference on Trade and Development (UNCTAD) based on five components of the maritime transport sector: number of ships, their container-carrying capacity, maximum vessel size, number of services, and number of companies that deploy container ships in a country's ports.

Source: World Bank (2017), World Development Indicators; UNCTAD (2017), Liner Shipping Connectivity Index.

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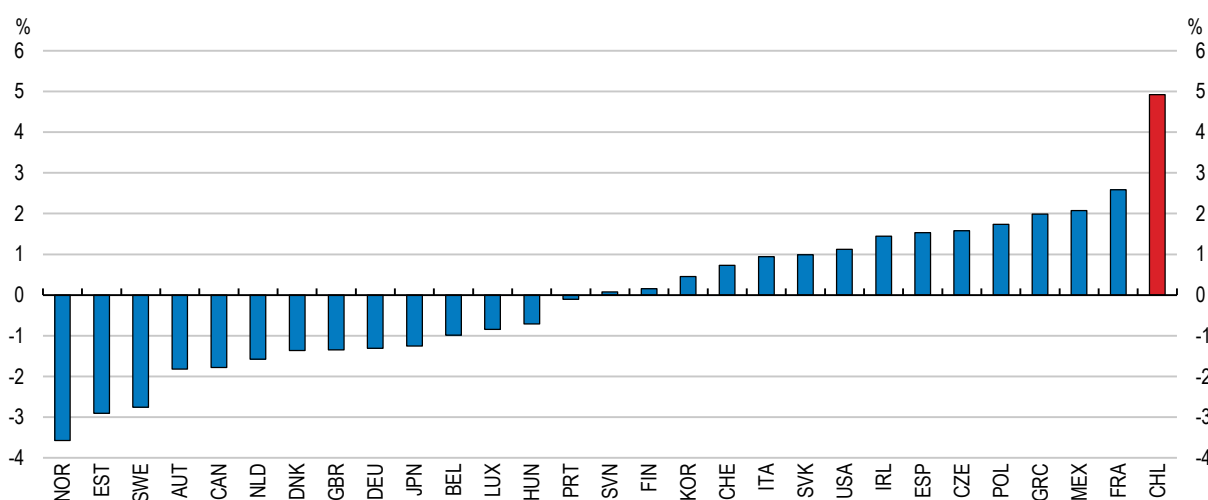
However, a more ambitious reform could review the supervision of the whole transports sector and develop a unified logistic and transport strategy (OECD, 2017d). In France, the 2015 “growth, activity and equal economic opportunity” law established an intermodal regulator that covers both the rail sector and road passenger transport (OECD, 2015e). Such measure could help create a level playing field for all transport modes. Indeed, developing the railway sector would also require removing barriers in access to infrastructure and to create an efficient and independent regulator, as the lack of clear accounting separation and widespread public ownership may hamper investment (Égert, 2009). In addition, as large remaining infrastructure needs remain across different sectors, progressively incorporating a systematic approach towards selecting the appropriate delivery modality for each projects and expanding the public-affordability assessments that have been developed for certain projects such as road concessions would also be good moves (OECD, 2017d).

The restrictive regulatory stance towards maritime freight transport services should be eased to develop maritime freight and coastal shipping within Chile – cabotage - (Figure 1.26, Panel B). Chile maintains a foreign equity limit of 49%, along with nationality requirement for board members, for establishing a shipping company being able to register vessels under the local flag. Domestic vessels are partly shielded from competition in coastal shipping. For cargo that weights more than 900 tons, foreign participation in the cabotage market is restricted to Chilean-flag vessels and to strict case-by-case authorisations (OECD/ITF, 2016a). Liberalising the cabotage market would allow shifting some freight from trucks to more environmentally sustainable transport.

Policies governing land use could also be improved (Figure 1.27). The current land use planning approach has a number of weaknesses, including the long time it takes to develop or amend a land-use plan and a lack of integration with regional and local development strategies. This has resulted in a potential lack of coherence between spatial plans, long-term development strategies and regional infrastructure plans (OECD, 2013a and 2013b) and urban sprawl. Urban investment at the national level is highly fragmented, putting at stake the metropolitan administration, notably in transport. Chile had no general urban development policy until 2014 (*Política Nacional de Desarrollo Urbano*). Moreover, current territorial planning instruments cover only 68% of municipalities.

Figure 1.27. Land planning should be strengthened

Increase in urban sprawl, 2001-11



Note: Change in population decentralisation within metropolitan areas (Veneri, 2015).

Source: P. Veneri (2015), "Urban spatial structure in OECD cities: Is urban population decentralising or clustering?", *OECD Regional Development Working Papers*, No. 2015/13.

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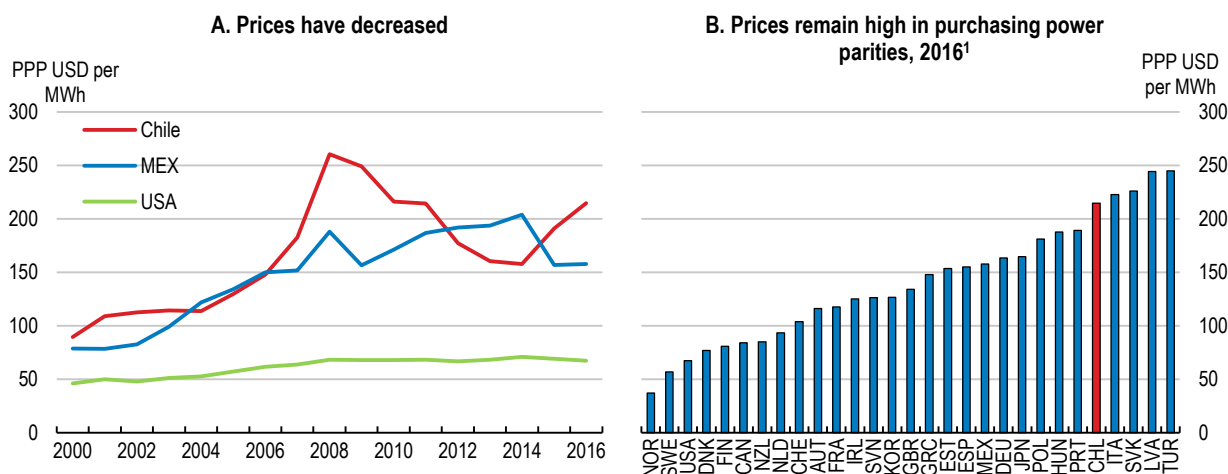
Enhancing the infrastructure governance framework and urban planning would allow efficiency gains. Existing zoning plans are often unable to effectively link different elements such as land use to transport or public works to funding systems. At the same time, municipalities do not have the right incentives to co-operate, even within metropolitan areas (OECD, 2017e). OECD cross-country evidence suggests that increasing such integrated management of metropolitan areas could have sizeable positive long-term effects on labour productivity (Ahrend et al., 2014), notably by improving transport linkages. In particular, Santiago has for decades struggled with its public transport system and could envisage the creation of a transport authority as a means of building capacity for managing the region's transport system at the metropolitan scale. The example of the Auckland Council in New Zealand in charge of developing the Auckland Plan can be useful. With important urban hubs and vast rural areas, governance structures that enhance the linkages between those areas would also help maximising potentials for development (OECD, 2017d).

Ensuring a level playing field between transport modes would require integrating more fully environmental and health damages in road pricing and general taxation (OECD, 2013c; 2016f). Congestion charges, as well as logistic demand management tools, should be developed together with updated local Pollution Prevention and Decontamination Plans (PPDA) at the metropolitan level to reduce excessive traffic and pollution at peak hours in ports and cities, and incentivise the use of railways and public transports.

The energy and water sectors

Chilean firms face challenges from the energy sector, despite significant recent improvements in the electricity and gas sectors. Electricity accounts for around 8% of the operational costs at mining companies (Mining Council, 2017). Despite significant new investment in renewables and increasing gas-fired capacity, fossil fuels still account for nearly 60% of electricity generation. Blackouts also remain relatively frequent (Ministry of Energy, 2016). Electricity prices are volatile, with Chilean firms still facing some of the highest prices of OECD countries (Figure 1.28).

Figure 1.28. Electricity prices for firms remain relatively high



1. Or latest available year. 2016 for Chile.

Source: IEA (2017), Energy Prices and Taxes Database.

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Positive steps have been made in the electricity and gas sectors. New power auctions, the 2016 transmission law, additional network connections and the publication of the 2050 roadmap for the energy sector strengthened investment incentives for renewables – excluding the large hydropower sector. The Energy 2050 Roadmap lays out the plans for the electricity and energy sector and foresees to reach a share of 70% of renewables in the electricity mix in 2050. It fixes ambitious objectives for renewable energy sources, energy efficiency for firms and local governments, international connections (Ministry of Energy, 2016).

The 2016 Transmission Law also introduced effective measures to impact the challenges of high prices of electricity and lack of proper transmission infrastructure to meet demand. The major changes include a merger of the two main transmission lines along with transferring the cost of transmission service to consumers. New long-term power auctions also aim at securing lower and more stable electricity prices and supply for consumers. Investment in cost-competitive wind and solar power already took off and

electricity prices declined by around 12% in real terms for households and firms over the 2011-16 period. At the same time, Chile has invested heavily to develop capacity to import liquefied natural gas (LNG) with the construction of a new terminal in 2014 to secure supply and reduce reliance on more polluting forms of generation, such as coal and diesel.

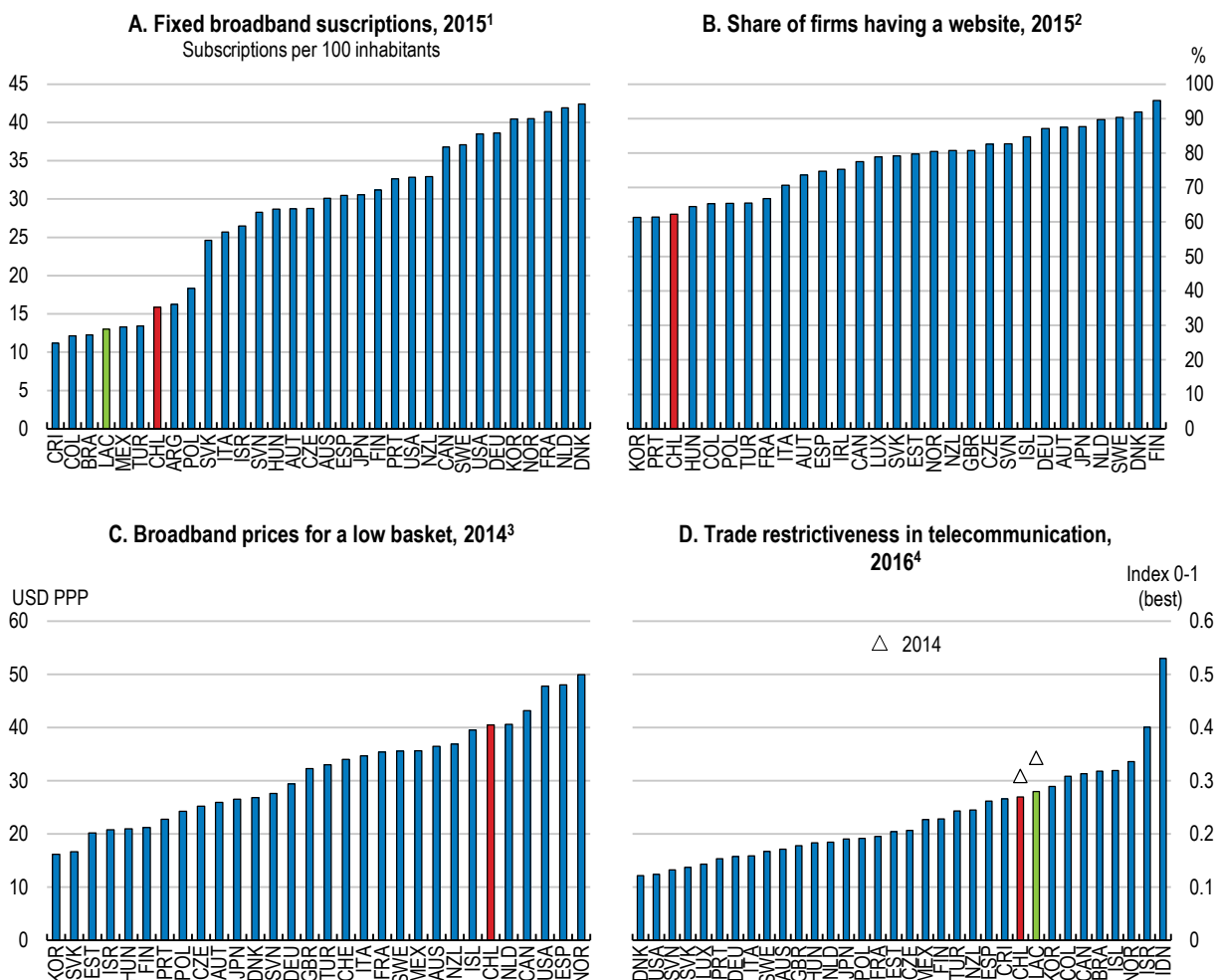
Water policies should be further strengthened to ensure a greener development, as demand is set to rise with the high degree of specialisation in water-intensive sectors. Reform proposals for water rights go in the right direction and new techniques such as desalination plants have been developed to raise water supply. Discharge sites and energy costs need to be monitored to avoid potential negative impact on ecosystems and energy resources. A long-term water strategy and a reform of water pricing are needed to take into account externalities and incentivise more sustainable infrastructure and business projects as well as efficiency of water supply and irrigation (OECD, 2016f and 2017j). At the same time, systematic assessments of the risks from soil and water contamination from mining and agricultural activities are currently limited, as is the capacity for testing and assessing risks from industrial chemicals.

Boosting the digital network and trade

Reducing information and search costs could also increase exports and productivity growth. Higher use of internet and other information and communication technologies (ICTs) could reduce further international trade barriers like distance, time and reputational costs (Lendle et al., 2016). As firms and consumers learn more about non-local products and services, high quality firms would gain market share and productivity would increase (Jensen and Miller, 2017). New ICT tools can also facilitate cross border e-commerce and participation in global markets for smaller and new firms and be an effective way to go global and become competitors in niche markets. Digital trade, or “e-commerce” has grown rapidly in Chile as in other OECD countries. Chile’s digital infrastructure appears well positioned among Latin American countries (OECD, 2016g; BBVA, 2016; Figure 1.29, Panel A). However, fixed broadband subscriptions remain relatively low and the number of firms having their own website is limited (Panel B). Indeed, the price of broadband Internet subscriptions exceeds the OECD average (Panel C).

Chile’s 2020 Digital Agenda could improve digital infrastructure and the use of ICTs. The agenda would extend connections to reach 90% of homes and 100% of schools with broadband, push adoption of public Wi-Fi areas in 90% of subnational governments and targets an average Internet access speed of 10Mbps (Gobierno de Chile, 2015). It also promotes e-procedures at the national and subnational levels. The Agenda includes measures to increase business innovation and productivity, especially for SMEs. It aims to push at least one-third of smaller firms to use new technologies, such as buying and selling via internet in 2020. In particular, training programmes (*Chile Exporta Digital*) would focus on developing more efficient use of e-commerce platforms for exports. This is welcome as digital skills remain weak (OECD, 2016h). Since 2016, a committee of Ministers for Digital Development is managing the agenda’s progress.

Figure 1.29. Internet development, price and regulations



1. Data refer to December 2016, except for Argentina, Brazil, Costa Rica where data are for 2015. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

2. OECD calculations based on the ELE4. The sample consists of firms in the SII in 2014 and whose Sales exceeded 800.01 UF. For consistency with other countries firm with less than 10 employees are dropped from the sample.

3. Average price over four standard low-quality fixed broadband bundles: 5 GB/month and 0.250 Mb/s and above; 5 GB/month and 1500 Mb/s and above; 10 GB/month and 10.240 Mb/s and above; 15 GB/month. 25.600 Mb/s and above.

4. LAC is the unweighted average of Brazil, Colombia, Costa Rica and Mexico.

Source: OECD (2017), OECD Broadband Statistics; World Bank (2017), World Development database. OECD calculations based on the ELE4.

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Some reforms could ease the implementation of the 2020 Digital Agenda. Foreign ownership of telecommunications operators is not restricted and Chile has recently made significant strides to bolster competition in the market, in particular as regards interconnection regulation and number portability. However, the rules applying to the dominant supplier in fixed line services need to be further strengthened (Figure 1.29, Panel D). Indeed, access to the incumbents’ public telecommunications networks is not yet mandated and, although there has been an increase in transparency requirements

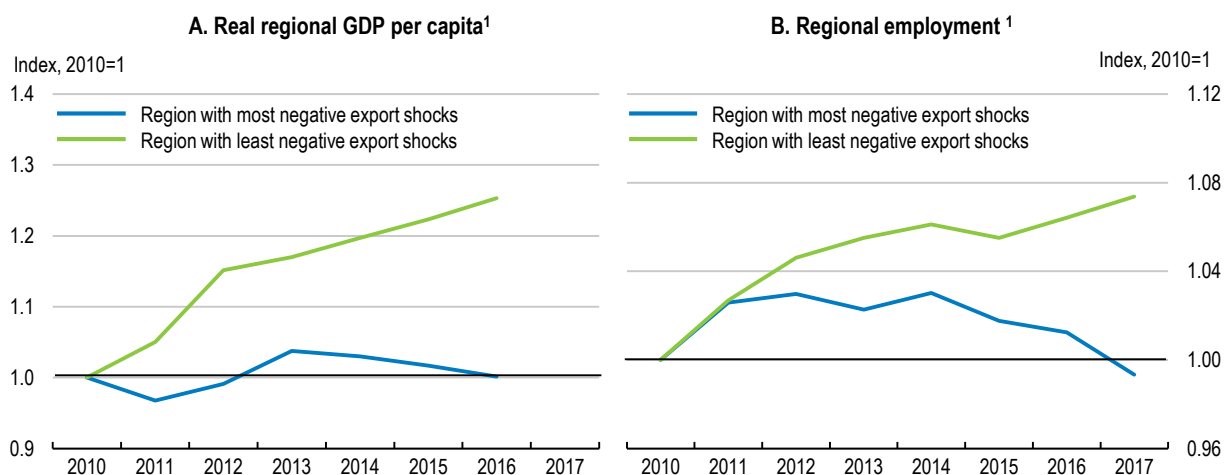
imposed on the incumbent operators, local loop unbundling is still not foreseen by the general telecommunications law (OECD, 2016e). In the mobile services market, the setting of access charges and interconnection prices by the regulator rather than market forces is only beneficial to competition to the extent that the general competition framework does not entirely prevent coordinated price-setting by large incumbent operators. Eliminating the current competition restrictions in telecoms to the level of the United States could reduce price-cost margins by around 9 percentage points, yielding tangible gains for downstream firms and households (Nordås and Rouzet, 2015; Rouzet and Spinelli, 2016). In this context, the *Plan Nacional de Infraestructura de Telecomunicaciones* (PNIT), that aims to develop the availability and quality of telecommunication infrastructure – through public private partnerships – and guarantee open and non-discriminatory access to infrastructure, is welcome.

Reforms are also needed in postal and digital payment services to boost firms' and consumers' choices. In courier and postal services, Chile maintains a monopoly on the admission, transport and delivery of letters and postcards, which essentially closes the letter segment to private competitors. The state-owned incumbent operator, *Correos de Chile*, also enjoys preferential treatment on the application of VAT and other exemptions, and no regulation is in place to avoid cross-subsidisation of competitive and uncompetitive activities. In addition, a single acquirer of digital payments (TransBank) is vertically integrated with card issuers (banks). Transbank takes the merchant discount that it charges merchants and passes it on in full to the issuers, who pay Transbank a fee per transaction to cover costs. More competition could reduce merchant discounts, raise e-payment coverage, and boost new forms of payment (OECD, 2017i).

Ensuring a fair sharing of trade gains and adjustment costs

Reducing trade adjustment costs for workers would improve equity. The adjustment to the end of the commodity price boom has been long. Regions more exposed to the negative trade adjustment process experienced stagnant GDP per capita growth and employment (Figure 1.30, Panels A and B). Goujard and Stampi-Bombelli (2017) show that over 2010-16 local labour markets faced large asymmetric shocks and that the most affected provinces had significant employment losses in the tradable sector, associated with higher inactivity rates for low-skilled workers who were unable to adjust to local employment opportunities through migration. Municipal spending that is responsible for some active labour market policies and municipal investment were unresponsive in the most affected provinces.

Beyond raising the effectiveness of retraining programs and reducing the strong labour market segmentation (Chapter 2), strengthening housing market and transportation policies, territorial equity, as well as exit strategies for firms would improve the distribution of adjustment costs and trade gains. This would significantly raise well-being and long-term growth, as skill mismatches are particularly large in Chile and the efficiency of labour allocation has recently declined in the manufacturing sector. Reducing skill mismatches by adopting OECD best practices could boost labour productivity by 14% in the long term (Adalet McGowan and Andrews, 2017).

Figure 1.30. Regional developments at the end of the commodity price boom

1. The figure displays the unweighted average growth rate and unemployment rate of the four regions with the most negative (Atacama, Antofagasta, Coquimbo and Tarapacá) and the least negative (Aysén of General Carlos Ibáñez del Campo, Los Lagos, Maule, Magallanes and Antártica Chilena) export shocks, respectively. The 2017 average in Panel B takes into account data up to June 2017.

Source: OECD calculations based on INE (2014), Actualización de población 2002-2012 y proyecciones 2013-2020; INE (2017), Encuesta Nacional de Empleo; Central Bank of Chile (2017), Statistical Database.

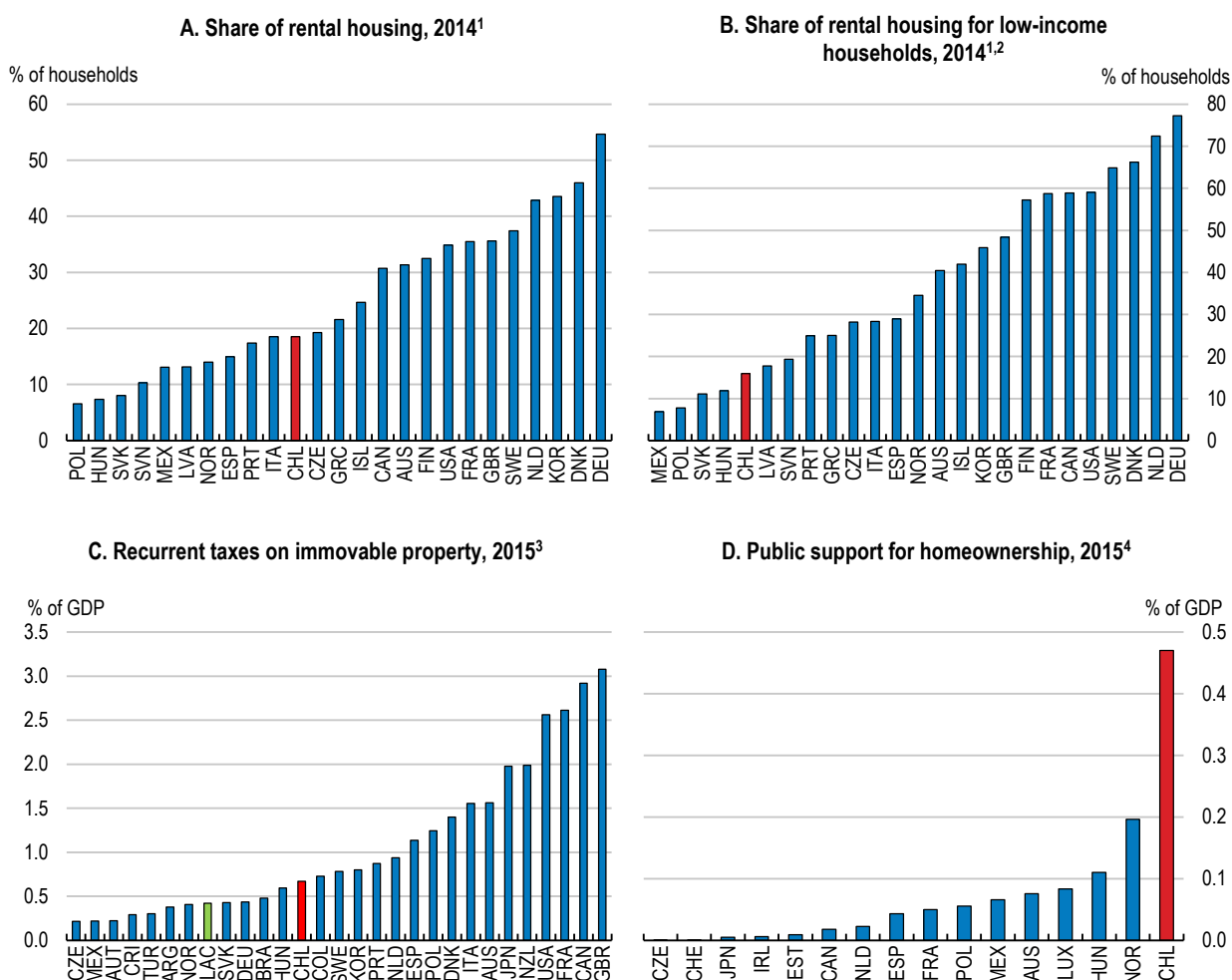
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Improving housing policies and territorial equity

Enhancing the responsiveness of housing supply to demand would help ensure there is a good match between housing construction and demand, easing labour market adjustments and avoiding that public support gets capitalised into housing prices. Compared to other OECD countries, Chile is characterised by small rental housing sector, high housing costs, notably for low-income households, and low geographic mobility (Figure 1.31, Panels A and B; Salvi del Piero, 2016).

Chilean housing policies have improved the supply of affordable dwellings and average housing quality and the rate of homeownership, but have led to residential segregation and partly ignored the side-effects on residential mobility. Past social housing programmes have excessively focused on volume, partly neglecting quality, location and co-ordination with public transportation and other urban land use policies (OECD, 2013a). The recent Programa de Integración Social y Territorial includes welcome minimal requirements in terms of access to social services for new social dwellings (MVU, 2016). However, it remains based on homeownership and subsidised long-term social loans that may lock-in lower income groups in areas of declining economic activity. Chile should consider providing support to develop a social rental housing sector to improve access to housing for vulnerable households. For example, as in most OECD countries, non-profit or public organisations could provide social rental housing. Means-tested rental cash allowances coupled with more balanced tenant-landlord regulations would strengthen the rental market, thus enhancing residential mobility and potentially reducing segregation (Caldera Sánchez, 2012).

Figure 1.31. The rental sector is small while taxes on property are low



1. Or latest available year.

2. Low-income households to the bottom quintile of the income distribution.

3. Or latest available year. LAC is the unweighted average of Argentina, Brazil, Colombia, Costa Rica and Mexico.

4. Or latest available year. The estimate for Chile in Panel D is a lower bound. It includes the “Solidarity Fund for Housing Choices” and “Integrated Housing Subsidy System”, but spending on the “Extraordinary Programme for Economic Re-launch and Social Integration” is not included.

Source: OECD (2016), Affordable housing database; OECD (2017), Revenue statistics and Affordable housing databases; OECD/ECLAC/CIAT/IDB (2017), Revenue Statistics in Latin America and the Caribbean 2017, OECD Publishing.

StatLink  <http://dx.doi.org/10.1787/888933672287>

Taxing housing so that owning is not favoured over renting would also reduce distortions, strengthen exports, and make the tax system more favourable to low-income households (Blöchliger, 2015). Recurrent taxes on housing are low, while support for homeownership is particularly high (Figure 1.31, Panels C and D). In the pre-crisis context of favourable external conditions, sustained economic growth and improved financing conditions, this may have helped unleash housing finance together with constraints on housing supply from imperfect urban planning and land administration (Figure 1.27). Household debt has increased by 14 percentage points of GDP and real house prices by 18% since 2008. The

strong profitability in the construction industry, led by rising house prices and reinforced by the investment needs of the mining sector, and may have diverted capital and labour from other export-intensive industries (Égert and Kierzenkowski, 2014).

Shifting public support away from home ownership could make investment in the rental market and firms more attractive and reduce wage pressures on the manufacturing, primary and tertiary sectors. In a welcome move, the 2014 tax reform eliminated the VAT exemption on the customary sale of new or used property in 2017. It also included a tax on the sale of residential property acquired after 2004. Over the lifetime of each taxpayer any capital gain over around USD 310 000 is taxed. This could mitigate the negative impact on the residential mobility of households. Large exemptions of housing tax and inheritance tax for housing and mortgage interest deduction should also be progressively eliminated (Figure 1.31, Panel D) as they tend to be capitalised into real house prices. This would redistribute income from insiders to new entrants in the housing market and lower-income households, and would avoid overly penalising newly indebted households through a sharp decline in housing prices.

Ensuring more equal access to economic opportunities is also important to a fair sharing of trade gains and adjustment costs. In particular, low intergenerational mobility is a potential constraint on Chile's development and a persistent source of inequality (OECD, 2015b). Economic specialisation leaves many areas exposed to sectorial shocks. Reducing regional disparities in education, sanitation and health infrastructure (OECD; 2014a and 2017d; World Bank, 2017b) would help convergence in employment opportunities, disposable income and well-being, and ensure that trade shocks do not become entrenched through long-term employment and inactivity. This would likely require higher fiscal autonomy and fiscal redistribution across municipalities, as potential efficiency gains from the lowest develop municipalities are low (Pacheco et al., 2013).

Recommendations to boost export performance in Chile

Increase entrepreneurship dynamism and competitive pressures

Key recommendations:

- Strengthen existing national e-procedures for firm registration and authorisation, and focus on ex-post controls for businesses that have low associated sanitary and environmental risks.
- Involve stakeholders further in the design of regulations through early consultation procedures. Conduct systematic ex-ante and ex-post evaluations of regulations, notably through the existing productivity assessments.
- Systematically review competitive pressures in key sectors, such as telecommunications and maritime services, by conducting market studies and applying the guidelines of the OECD's Competition Assessment Toolkit.
- Ensure that all public entities have to comply with the Competition Agency recommendations or to publicly explain their decisions.
- Streamline permits and their process to encourage investment and simplify regulations that depend on firm size, such as childcare provision, to limit their impact on firm growth.
- Improve further technical assistance and mentoring to small businesses, building on the new local business centres.

Improve export procedures and export prospects.

Key recommendations:

- Continue efforts to fully integrate the single window mechanism with the domestic logistic infrastructure and with regional partners.
- Reduce further non-tariff barriers on intra-regional trade by simplifying regulations of preferential trade agreements, such as rules of origins requirements, building on current efforts within the Pacific Alliance.
- Develop national, regional and metropolitan long-term infrastructure strategies. Integrate the regulation of public and private ports.
- Fully integrate the environmental and health damages of transport modes in taxes and road pricing to ensure fair competition.
- Reduce barriers to entry in maritime services and railways.

Other recommendation:

- Increase public investment in digital infrastructure and impose local loop unbundling on operators, to raise competition in digital services and ease the administrative burden.

Develop innovation and ease financing for entrepreneurs

Key recommendation:

- Strengthen policy evaluation by beefing-up data collection, systematic reviews and independent studies. Expand R&D support programmes that are proven to work, and close down or adjust inefficient one.

Other recommendation:

- Raise the links between researchers in universities and the private sector. Allow refunds of research and development (R&D) tax credits for SMEs.

Improve the efficiency of adjustments to trade developments*Other recommendations:*

- Further improve bankruptcy procedures by: developing early warning indicators, notably for smaller firms; allowing creditors to initiate restructuring procedures; and developing second-chance support for entrepreneurs.
- Lower mobility costs by developing the rental market and lowering support for homeownership.

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