

## Chapter 1. The importance of services in the Australian economy

*Chapter 1 assesses the role of the services sector within the overall economy of Australia. It presents a statistical overview and breakdown of the Australian sector, identifying the sectors and partner countries that most contribute to Australia's services trade balance and setting out the main drivers of Australia's services growth, competitiveness and productivity.*

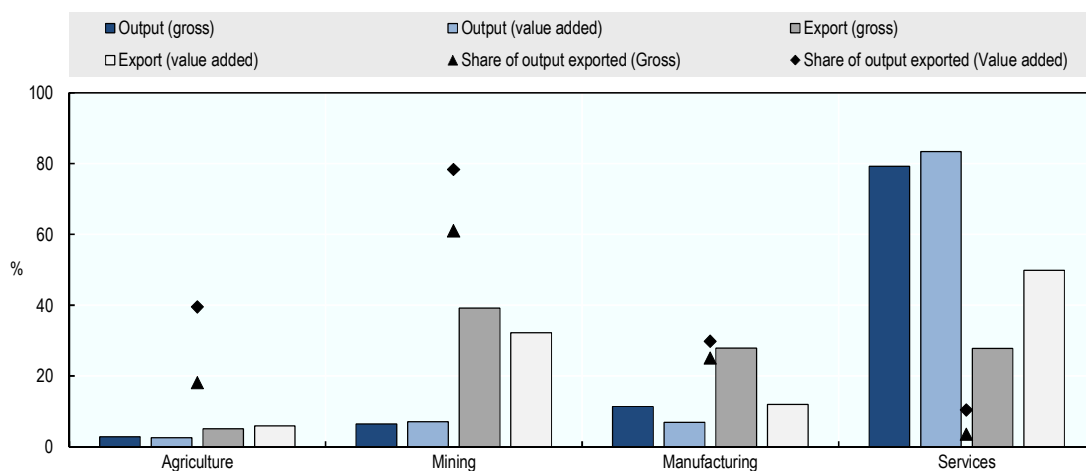
## Australia's services industries are a key driver of economic growth and competitiveness

The importance of services in the Australian economy reflects its level of development, sectoral strengths and geography. Economic development is associated with a structural transformation from agrarian to industrialized economies in which the services share of GDP increases over time and as incomes rise. The case of Australia reflects this experience.

### *Size and international orientation of Australia's services sector*

The contribution to Australia's total production and export of the services sector differs significantly from that of the agriculture, mining and manufacturing sectors. As in other industrialised economies, services account for about 80% of Australia's domestic production, both in gross and value added terms (Figure 1.1).<sup>1</sup> Yet, since only 3.6% of the services produced in Australia (valued in gross terms) are exported – far less than for agriculture (18%) and manufacturing (25%) – services account for a little over a quarter of Australia's total gross exports. The largest contribution to Australia's gross exports comes from the mining sector (60% of production exported), which amounts to nearly 40% of total gross exports (mainly exports of iron ore and coal).

**Figure 1.1. Production and export shares (%), 2014-2015**



*Note:* The “Agriculture” aggregate in Figure 1.1 includes Forestry and Fishing; whereas the “Mining” aggregate covers Fuels. More detailed data in Annex C, Table C.1.

*Source:* Own calculations on ABS, Australian National Accounts: Input-Output Tables, 2014-15, catalogue.

However, since services are often used as intermediate inputs in producing goods that are then exported, services contribute indirectly to Australian gross exports of other sectors. Taking this contribution into account reveals that half the value added of goods and services exported by Australia originates in domestic services sectors, followed by mining (32%), manufacturing (12%) and agriculture (6%).<sup>2</sup>

Table 1.1 compares each sector's contribution to Australia's production and trade with that in other OECD countries in 2014.<sup>3</sup> It should be borne in mind that the share of a sector's output that is exported tends to be lower the larger the domestic market and as the country's geographic remoteness increases.<sup>4</sup>

**Table 1.1. Comparing Australia against OECD average: Production and export shares**

In value added terms, 2014

Sector	Share of production			Share of export			Share of output exported		
	AUS	OECD	OECD non-EU	AUS	OECD	OECD non-EU	AUS	OECD	OECD non-EU
Total economy							17.5	19.6	15.0
Goods	16.7	18.8	19.1	48.5	40.9	43.5	50.5	41.3	33.3
Agriculture, hunting, forestry and fishing	2.8	1.7	1.8	5.3	2.4	2.5	33.5	27.6	23.7
Mining and quarrying	5.8	2.0	2.7	30.4	5.4	7.5	91.8	49.7	40.0
Manufacturing	8.2	15.1	14.8	12.7	33.1	33.4	27.1	39.9	31.8
Services	83.3	81.2	80.9	51.5	59.1	56.5	10.8	15.3	11.4
Electricity, gas and water supply	2.0	2.1	1.9	1.4	1.8	1.3	12.5	20.5	12.7
Construction	8.2	5.2	5.1	2.3	1.0	0.7	4.8	4.4	2.4
Wholesale and retail trade; repairs	10.1	11.2	11.5	14.5	16.3	16.7	25.1	30.3	23.8
Hotels and restaurants	2.5	2.9	2.8	1.7	1.9	1.7	12.0	13.7	10.3
Transport and storage	5.2	4.4	4.2	8.8	8.1	8.0	29.5	38.5	32.0
Post and telecommunications	2.2	2.2	2.5	1.4	1.5	1.4	10.9	16.4	10.1
Financial intermediation	8.8	6.9	7.6	4.4	6.3	6.3	8.6	19.3	13.7
Real estate activities	13.7	11.1	10.9	3.9	3.0	2.5	5.0	6.1	4.1
Renting of machinery and equipment	0.6	0.8	0.8	0.7	1.6	1.8	21	37.3	32.3
Computer and related activities	2.8	2.1	2.0	1.5	2.1	1.8	9.1	21.3	14.9
R&D and other business activities	7.7	9.0	8.9	7.1	11.8	10.8	16.0	27.9	20.1
Public admin. and defence; compulsory social security	4.6	6.8	7.0	0.6	0.7	0.7	2.4	2.5	1.9
Education	4.8	5.1	5.0	2.4	0.8	0.8	8.8	2.9	2.4
Health and social work	7.0	7.2	6.8	0.1	0.2	0.2	0.2	0.9	0.9
Other community, social and personal services	3.0	3.9	3.7	0.9	2.1	1.7	4.9	12.4	8.0
Private households with employed persons	0.0	0.2	0.1	0.0	0.0	0.0	-	0.2	0.3

*Note:* The OECD average includes 35 OECD countries, weighted by total value added. To reduce the bias caused by different sector weights, the OECD's share of output exported is calculated using Australian sector weights at the most disaggregated level of the TiVA database. Note: data reported in this table are not directly comparable with those reported in Table C.1 in Annex C (based instead on the ABS Input Output tables).

*Source:* Own calculations based on OECD-WTO Trade in Value Added (TiVA) database (June 2017).

The Australian economy produces and exports more in primary sectors (especially mining) and less in manufacturing than does the average OECD country. In fact, the services sector absorbs a larger share of domestic production in Australia and is more oriented towards the domestic market than in all other OECD countries. This pattern occurs in most services categories, and particularly so for financial intermediation and business services (including professional services), which have been growth areas of advanced economies' services trade. However, output shares exported in sectors linked to the visitor economy are comparable with non-EU OECD averages.<sup>5</sup> The relatively strong performance of Australia's education sector is particularly notable.

The smaller share of services sector output exported by Australia compared with the rest of the OECD area emerged in the early 2000s and the gap has widened in recent years. In

fact, this share in value added terms was higher for Australia (about 13.5%) than for the average OECD non-EU country (about 10%). Since then, however, exported output shares for the OECD country group have gradually increased, except for a small dip associated with the financial crisis in 2008-09, whereas for Australia the share has fluctuated around a slight downward trend, reaching about 11% in 2014 compared with over 15% for the OECD area. This trend merits further investigation.<sup>6</sup>

### *Services traders are Australia's gateway to the world*

#### *Direct services exports and imports*

Australia's official trade statistics record the main contributors to direct exports and imports of services over time.<sup>7</sup> They cover all economic transactions that occur between residents and non-residents, but exclude services delivered by Australian subsidiaries or branches established overseas or foreign counterparts established in Australia, respectively, as they are considered resident enterprises. Thus, Mode 3 (of the four "Modes of supply" defined in the GATS, see Box 1.1), is excluded. Moreover, so too are situations (under Mode 4) where natural persons become residents of the Australian economy.<sup>8</sup>

Figure 1.2 plots Australia's trade in services in 2000 and 2016, broken down into seven main services sector aggregates: transport, business travel, education-related travel and other personal travel services, business services, finance and insurance services and other services.

#### **Box 1.1. Modes of supply in the General Agreement on Trade in Services (GATS)**

The GATS recognises four categories of services trade, depending on the territorial presence of the supplier and the consumer at the time of the transaction:

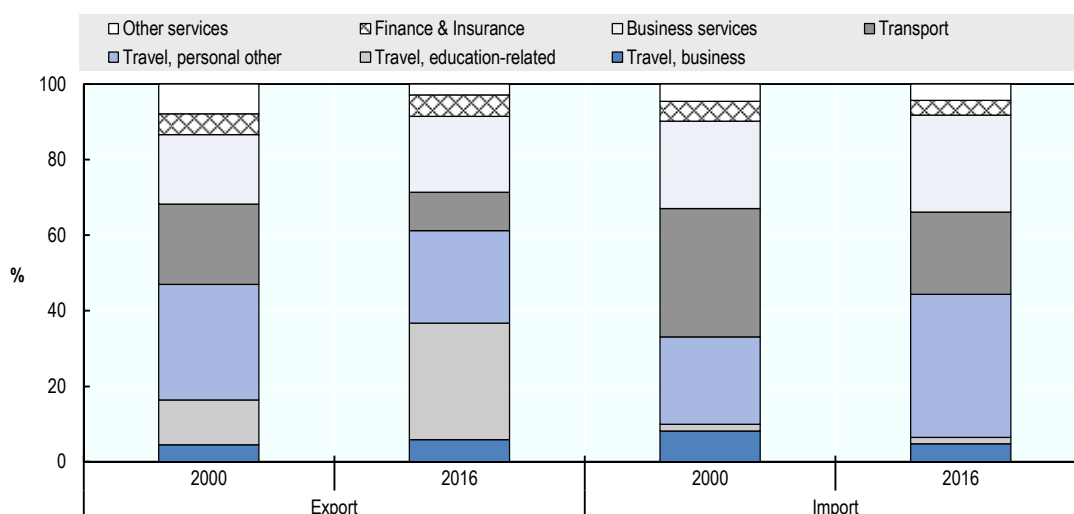
*Mode 1:* Cross-border (from the territory of one country into the territory of another country). Example: users in country A receive services (such as consultancy or market research reports, tele-medical advice, distance training) from abroad through the telecommunications or postal network.

*Mode 2:* Consumption abroad (in the territory of one country to the service consumer of another country). Example: nationals of country A travel abroad as tourists, students, or patients to consume the respective services.

*Mode 3:* Commercial presence (by a service supplier of one country, through commercial presence, in the territory of another country). Example: the service is provided in country A by a locally established affiliate, subsidiary, or office of a foreign-owned and -controlled company (bank, hotel group, etc.)

*Mode 4:* Movement of natural persons (by a service supplier of one country, through the presence of natural persons of a country in the territory of another country). Example: A foreign national provides services in country A as an independent supplier (e.g. consultant, health worker) or employee of a foreign service firm (e.g. workers in hospital, construction company, etc.).

*Source:* GATS (1994).

**Figure 1.2. Australia's trade in services by main aggregate (%), 2000-2016**

*Note:* The “Business services” aggregate includes: Manufacturing services on physical inputs owned by others; Maintenance and repair services n.i.e.; Charges for the use of intellectual property n.i.e.; Telecommunications, computer, and information services; and Other business services. The “Other services” aggregate is composed of Construction; Personal, cultural, and recreational services; and Government goods and services n.i.e.

*Source:* Own calculations on OECD International Trade in Services Statistics by Partner Country (ITSS), EBOPS 2010.

In 2016, Australia’s largest service export was *travel services*, valued at AUD 43.6 billion (Figure 1.2, left side). *Travel services* can be further broken down into *business travel* (6%), *education-related travel services* (31%) and *personal-related travel services* (24%).<sup>9</sup> The latter reflects tourism and health-related travel. *Travel services* have always been an important component of Australia’s total services export; their importance has increased further in recent years, from 47% of total services exports in 2000 to over 60% in 2016. *Education-related travel*, which covers all expenditure by non-resident students, including tuition fees and course materials, grew the most, from AUD 4 billion in 2000 to nearly AUD 22 billion in 2016.

The second largest exporting category after *travel services* is *business services*, accounting for 20% of total services exports in 2016, up from 18% in 2000. The largest contributors to this category are *other business services* (professional services and management consulting, technical and trade-related services, and other business services), and *telecommunication, computer and information services*. *Financial services* accounted for nearly 6% of total services exports in 2016, one percentage point higher than in 2000. Exports of *transportation services*, by contrast, declined from 21% of total services exports in 2000 to 10% in 2016.

Figure 1.2 (right side) shows that *travel services* are also an important component of services imports, with a 44% share (worth AUD 34 billion) in 2016, mostly reflecting the expenditure by Australians travelling abroad (i.e. *personal-related travel*, accounting for 38%). Other significant import categories are *business services* and *transport services*, with 26% and 22% of total services imports, respectively; with shares shifting over time from the latter to the former. Finally, imports of *financial services* accounted for 4% of total services imports in 2016, more than one percentage point less compared to the share

in 2000. Growth of imported *travel services* follows the same pattern observed on the export side, with an increase in import shares from 33% to 44% between 2000 and 2016.

### *Indirect services exports*

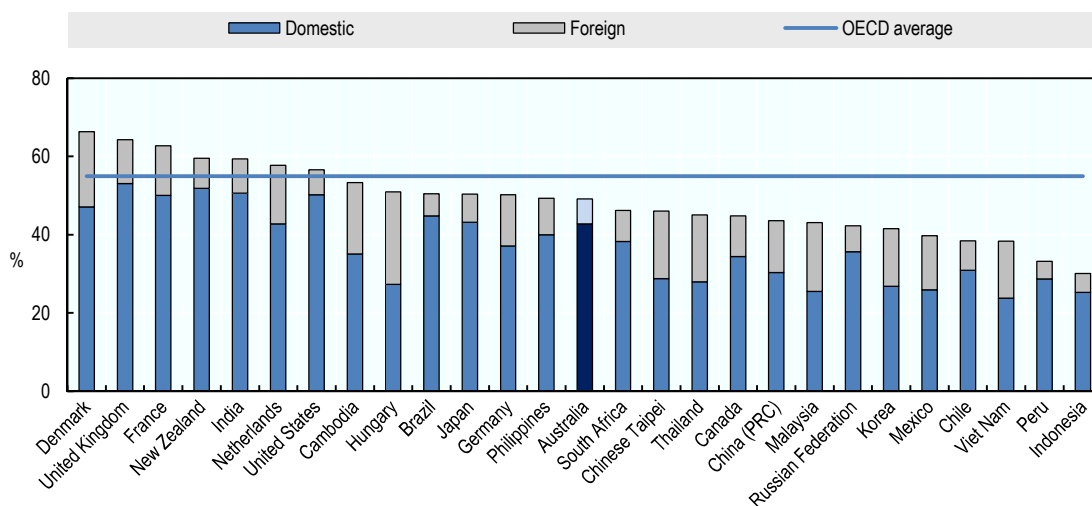
Gross trade flows do not fully capture the international dimension of the Australian services sector. In 2014, services value added contributed to half of Australian total gross exports (Figure 1.3). Although below the OECD average (55%), the Australian service share of gross exports was still higher than in other resource-intense economies like Canada, Chile, Indonesia, Peru, the Russian Federation and South Africa. Australia also had one of the highest domestic services content of gross exports, highlighting a lower degree of dependence on foreign services inputs.

Regarding exports of manufactured goods alone, 40% of their total value reflected services sector value added, marginally above the OECD average (38%). Most of this services content was value added sourced domestically. At the individual sector level, the service content of exports was highest in the *Pulp, Paper and Printing* industry with over half its value (53%) reflecting services value added, well above the OECD average (Figure 1.4). The next highest shares of services value added were found in the *Electronic Machinery* (46%) and *Motor Vehicles* (45%) industries. For most categories of manufactured exports, a high share of the services value added came from wholesale and retail trade, transport and business services.

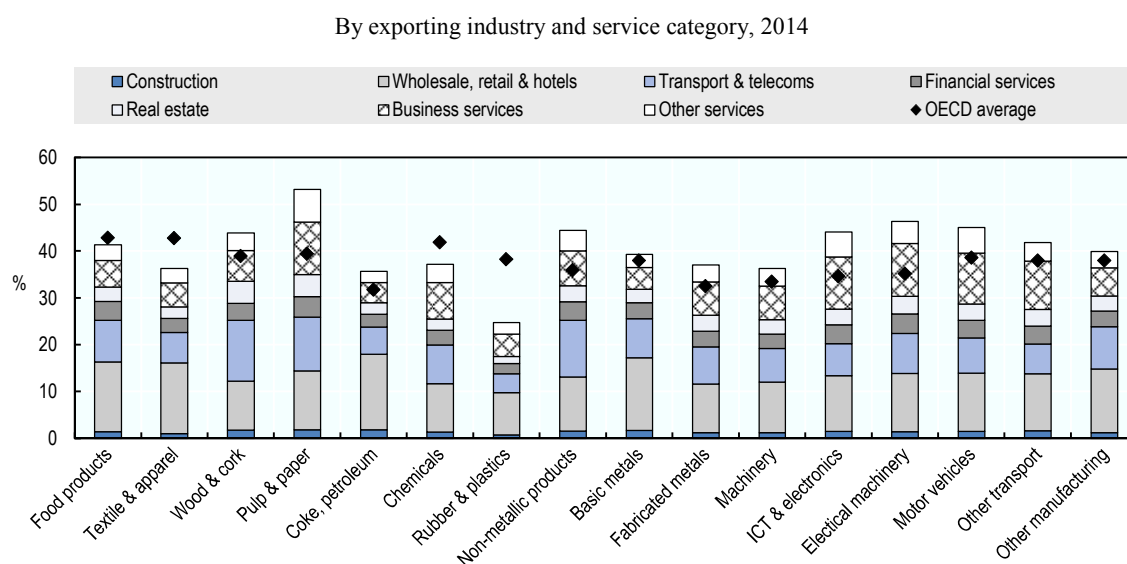
A clear picture of the value added to output and exports by Australia's services industries is crucial for understanding their full contribution to export performance. Moreover, tracing inter-sectoral linkages is essential when analysing services-related policies and their effects on the Australian economy. Input-output analysis has been used to do this, thus shedding light on which export sectors most depend on upstream services inputs.<sup>10</sup>

**Figure 1.3. Services content of gross exports by country**

In value added terms, 2014



Source: Own calculations based on OECD-WTO TiVA database (June 2017).

**Figure 1.4. Australia's services content of gross manufactured exports**

Source: Own calculations based on OECD-WTO TiVA database (June 2017).

Industries that export services indirectly as intermediate inputs can be identified by following the domestic supply chains forward to the point of export. Table 1.2 shows the decomposition of the total value added exported in 2014-15. In the Australian economy, 46% of all domestic value added in goods and services sold to foreign markets represents intermediate inputs from other industries (sum of the indirect value added exports in the last four columns of Table 1.2). For example, only 27% of the value added by the goods-producing sector that is exported reflects the value added embodied in parts and components sold to other domestic industries further down the value chain. By contrast, indirect exports account for 66% of all services value added that is exported; this reflects intermediate services supplied to domestic downstream firms selling abroad. In other words, Australian services are primarily sold abroad as intermediate inputs into other exported products.

The last four columns of Table 1.2 break down the indirect contribution of value added according to the sector exporting the product at the end of the domestic value chain. The mining sector is the largest indirect exporter of services, with 22% of exported services value added being embodied in mining products. Roughly speaking, mining exports incorporate half of all exported construction services value added, one-third of all exported value added of financial services and one-quarter of all exported value added from professional and technical services. This reflects the importance of large-scale construction works, financial resources and highly specialised engineering services involved in mining activities. Other services-producing industries account for 21% of exported services value added upstream, due to their high reliance on ICT services as well as administrative and support services, followed by the manufacturing industry (19%) and lastly, the agriculture, forestry and fishing industry (3%).

**Table 1.2. Export of domestic value added (%), 2014-15**

Industry	Direct value added exports (share of total value added exports in %)	Indirect value added exports by exporting industry (share of total value added exports in %)			
		A	B	C	D-S
Total economy	53.7	2.7	14.6	16.9	12.1
Goods	73.0	2.0	7.4	14.8	2.8
Agriculture, forestry and fishing	40.6	12.0	2.1	41.0	4.2
Mining	81.4	0.2	7.4	10.2	0.8
Manufacturing	66.4	2.0	10.0	14.1	7.5
Services	34.4	3.4	21.9	18.9	21.4
Electricity, gas, water and waste services	2.7	6.2	27.7	43.0	20.5
Construction	3.5	4.6	48.7	22.6	20.6
Wholesale trade and retail	52.6	3.7	13.4	18.5	11.7
Accommodation and food services	49.9	2.5	13.3	17.1	17.2
Transport, postal and warehousing	72.3	1.0	11.5	7.6	7.6
Information and communication	31.7	2.3	14.8	16.6	34.6
Financial and insurance services	17.3	5.2	32.1	19.7	25.8
Real estate activities	20.8	3.6	23.1	18.2	34.2
Professional, scientific and technical activities	23.0	3.5	26.7	20.2	26.7
Administrative and support services activities	14.2	3.6	21.7	21.8	38.8
Public administration and defence; social security	9.2	2.4	33.8	26.3	28.3
Education	92.9	0.2	2.3	1.8	2.7
Human health and social work activities	67.2	1.2	5.1	15.7	11.0
Arts and recreation services	54.5	1.2	12.3	7.4	24.5
Other services	5.6	3.6	37.1	27.2	26.5

*Note:* Final exporting industries are defined as follows: Agriculture, Forestry and Fishing (A), Mining (B), Manufacturing (C) and Services (D-S). Percentages reported in the last four columns represent the break-down of the indirect value added exported by industries other than the producing one (in the first column), hence direct value added plus sum of the last four columns equal 100%. Estimates of direct services exports, notably for wholesale and retail activities, also include “indirect” services provided to transport goods to the customs frontier. This reflects differences in basic (factory gate) prices, the price basis for IO tables, and free on board (FOB) export prices.

*Source:* Own calculations based on ABS, Australian National Accounts: Input-Output Tables, 2014-15, catalogue 5209.0.55.001, Tables 3 and 5.

### *Inputs contributing to services production*

Figure 1.5 shows that 56% of Australian output reflects the primary factors of the producing industry itself. The remaining 44% is value added sourced from upstream industries, over one-third (34%) reflecting domestic intermediate inputs and 10% representing foreign intermediate inputs.<sup>11</sup>

The direct value added share of services output (58%) is higher than in goods-producing industries (47%), although this varies across services sectors. Moreover, services industries use fewer imported inputs than goods-producing industries (8% compared to 16%). Nearly two-thirds of manufacturing value added depend on inputs from outside the sector (with one-fifth imported from foreign suppliers).<sup>12</sup>

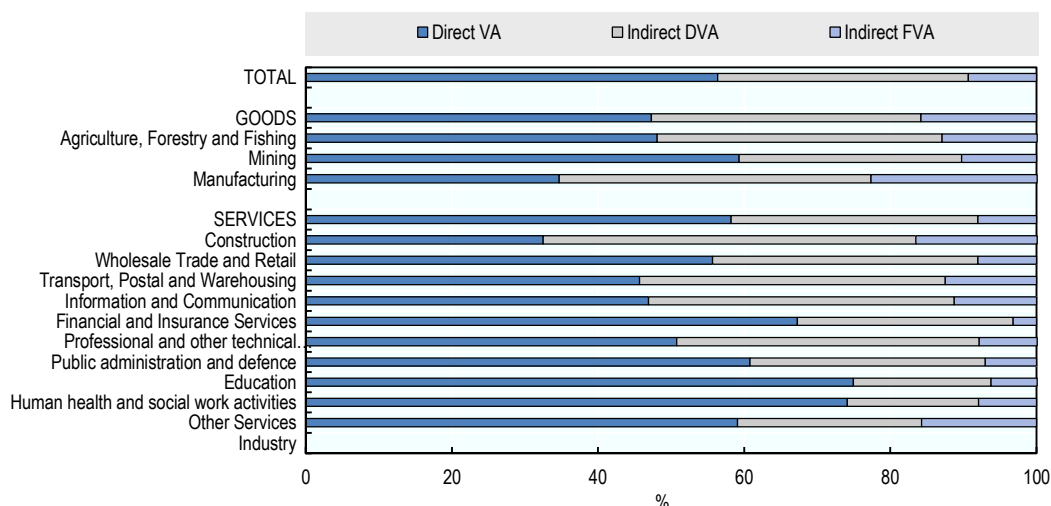
Figure 1.6 shows the upstream industries where inputs are sourced, distinguishing between domestic and foreign suppliers. Two striking facts emerge. First, domestic services value chains are important, as local producers in all sectors have strong linkages to upstream services (Figure 1.6, Panel A). For instance, domestic services inputs purchased at various stages of production represent 28% of manufacturing output.



Australian services are also the largest supplier of inputs into the production of other services-producing sectors, mining and agriculture.

Second, services tend to be sourced locally by all Australian industries, while manufacturing inputs tend to be sourced globally. Parts and components that make up a final product, and manufactured products used for services delivery, are largely imported from foreign suppliers (Figure 1.6, Panel B). Foreign manufacturing inputs contribute 6% (in services) and 12% (in manufacturing) of the total value of Australian products.

**Figure 1.5. Decomposition of gross output into value added (%), 2014-2015**

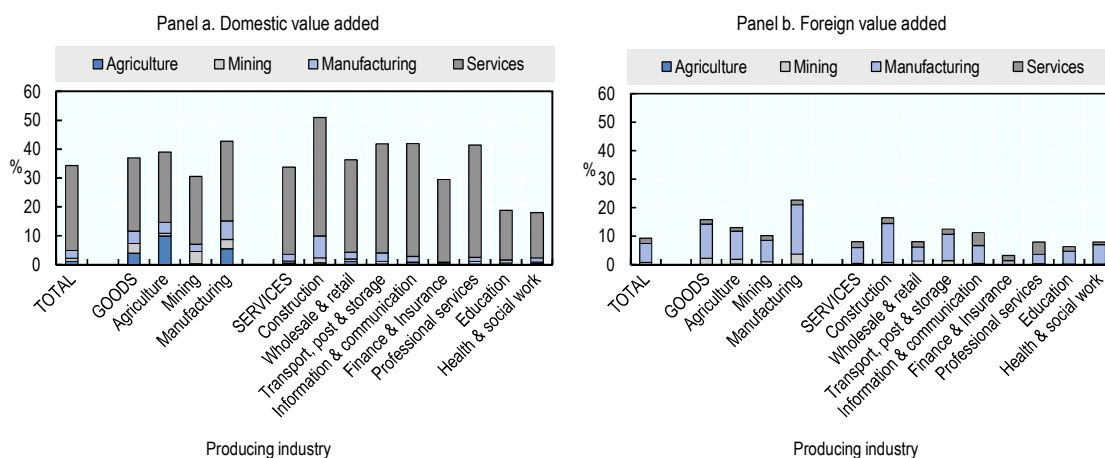


*Note:* More detailed sectoral information is reported in Annex C, Table C.2. FVA stands for foreign value added (imported inputs) and DVA for domestic value added (domestic inputs).

*Source:* Own calculations based on ABS, Australian National Accounts: Input-Output Tables, 2014-15, catalogue 5209.0.55.001, Tables 3 and 5.

**Figure 1.6. Domestic and foreign intermediate inputs to gross output**

By industry, percentage, 2014-2015



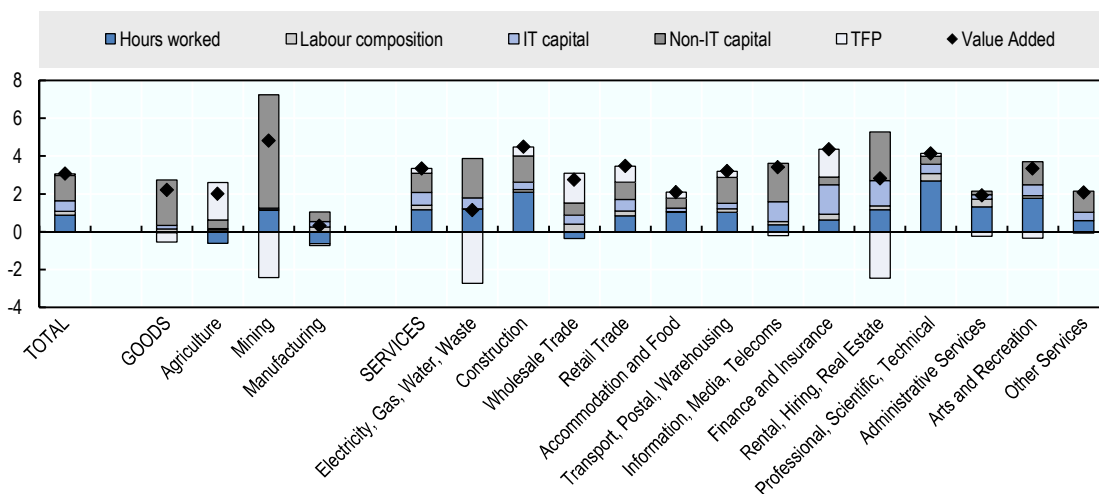
*Source:* Own calculations based on ABS, Australian National Accounts: Input-Output Tables, 2014-15, catalogue 5209.0.55.001, Tables 3 and 5. For further details see Table C.3 in Annex C.

## Services, productivity and economic growth in Australia

Given the importance of services in the Australian economy described above, it is useful for policy-makers to better understand the sources of growth in the services sector and interlinkages to productivity improvements, including the sector's productivity growth comparable with that of other sectors in the Australian economy, and that of services sectors elsewhere in the OECD area.<sup>13</sup>

Figure 1.7 decomposes the average real growth rates for the 17 sectors included in Australia's KLEMS database. Value added, in volume terms, throughout all services industries, was growing at an average annual rate of 3.3% between 2000 and 2015, compared to 2.2% for the goods-producing industry. The average annual growth of value added across the entire economy was 3.1%. Of the annual growth rate in services, 1.2 percentage points (pp) came from additional labour inputs, measured in number of hours; 0.2 pp resulted from a change in the educational composition of the labour force, making workers on average more productive; 0.7 pp came as a consequence of investments in information and communication technologies; 1.0 pp are due to investment in other capital assets, such as office buildings and transport equipment.

**Figure 1.7. Decomposition of value added growth, average 2000-2015**



*Note:* Sectors are aggregated into Total, Goods and Services by share of gross value added. For more information on the "growth accounting" methodology, see Annex B.

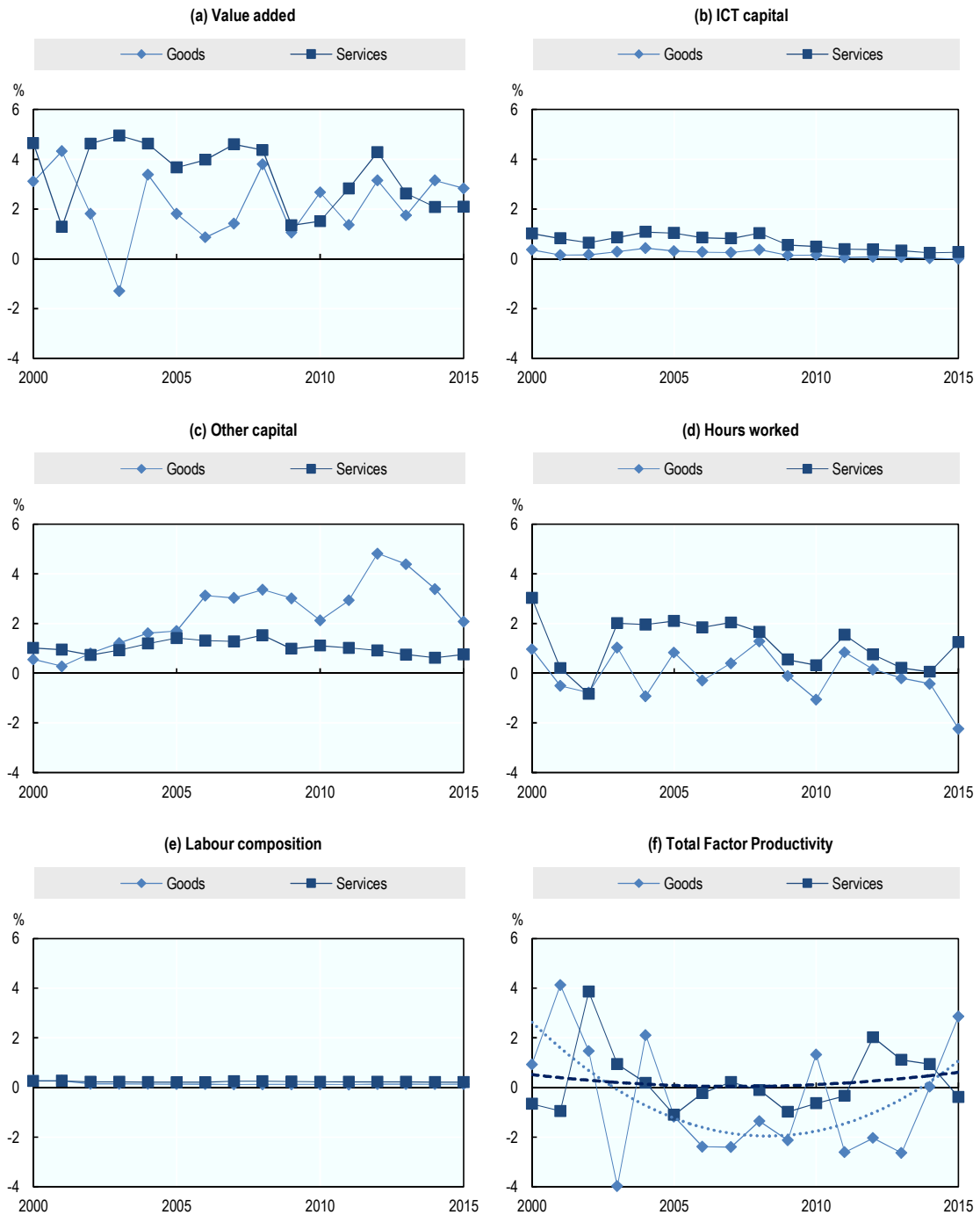
*Source:* Own calculations based on ABS, Experimental Estimates of Industry Level KLEMS Multifactor Productivity, 2014-15, catalogue no. 5260.0.55.004.

The difference between real value added growth and real growth in inputs of the primary production factors is 0.2 pp, which is attributed to growth of total factor productivity (TFP) in the services sector. Among all services sectors, TFP growth was highest for wholesale trade and financial and insurance services.

Figure 1.8 plots the growth accounting results for 2000-2015, including estimated growth trends (the dotted lines), with goods-producing industries serving as a benchmark. Value added growth in services industries appears to be slowing down, while it is relatively constant or even slightly increasing in goods-producing industries, driven largely by investment in machinery and other non-ICT assets.

**Figure 1.8. Decomposition of value added growth**

For the goods sector and the services sector, 2000-2015



*Note:* Growth accounting is done at the sector level and subsequently aggregated into goods or services using the value added shares of the constituent sectors of each aggregate. Dotted trend lines estimated as second order polynomial regression.

*Source:* Own calculations based on ABS, Experimental Estimates of Industry Level KLEMS Multifactor Productivity, 2014-15, catalogue no. 5260.0.55.004.

Growth rates in inputs of hours fluctuate around zero in the goods-producing industries, while they are slightly positive for services. Changes in the educational composition of the workforce do not have any measurable effect on value added growth. TFP growth fluctuates a lot in both sectors, but even more so in the goods sector than for services. The dotted trend line shows negative growth rates during the global financial crises in 2008-09 and a recovery thereafter, which is particularly pronounced for the goods sector. However, TFP growth in Australian services industries seems to have performed well compared to domestic goods-producing industries.

A comparison of Australia's performance in services with that of other OECD countries produced the following insights.<sup>14,15</sup> Services value added growth in Australia has consistently outperformed that of the benchmark economies. During the economic crisis of 2009-2010, when services value added growth in the benchmark area became negative, Australia retained a small positive growth rate. However, Australia's strong performance was not due to stronger TFP growth compared to the benchmark economies. Rather, the most important contribution to Australia's value added growth came from growth in the labour supply component, which was positive and higher than for the benchmark group in almost all years during the period under analysis. Other favourable, but less important, contributors to Australia's services growth were investment in ICT capital and in other capital, which were slightly higher than in the benchmark economies in most years between 2000 and 2015, contributing to labour productivity improvements. By contrast, Australia's TFP growth for services overall was similar to that in other OECD countries, although with stronger TFP performance than its peers in some services industries (e.g. finance) and weaker performance in others (e.g. information and communication).

### Concluding remarks

Services are a structural driver of Australia's economic growth and competitiveness, and are more important for Australia's international trade than the official trade statistics, expressed in gross values, suggest. In gross terms, the services sector (including construction) contributes about 28% of total exports, whereas in value added terms, allowing for services embodied in other exported products, the services sector accounts for half the exported domestic value added. Yet Australian services are more oriented towards the domestic market, and, with the exception of education, most services export orientation rates remain below those observed in other OECD economies. Foreign services are only of minor importance to Australia's exports. However, there is evidence that Australian services suppliers are starting to face increasing competition, which might negatively affect indirect exports of Australian services value added. However, access to state of the art services, whether local or foreign, is an important factor in enhancing competitiveness in downstream industries.

Overall, Australia's productivity performance is on par with its peers. Policy-makers should be attentive, however, to indications that Australia's relatively strong growth in services value added appears to be conditional on input growth. Moreover, services productivity outperformed goods-producing sectors during 2000-2015. This implies that "push" factors in Australia do provide the necessary support for a strong export performance.

With these findings in mind, chapter 2 examines the regulatory environment for services in Australia and how this relates to trade and productivity performance. Chapter 2 seeks to identify factors within Australia that impact on the competitiveness of Australian firms but also on the participation of foreign firms in the Australian market. Reform in these areas can improve the performance of Australian services and boost the integration of Australian services providers in global value chains.

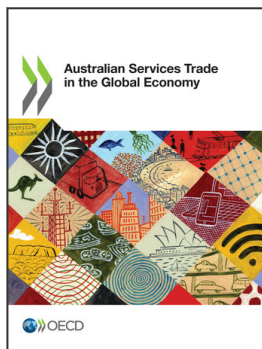
## Notes

1. Specifically, drawing on ABS Input-Output data, 79% of output in gross terms, and 83% in value added terms. In gross terms, the entire value of a production chain is attributed to the final industry of the production chain. In value added terms, only the value generated by a specific industry is considered, whether or not the value remains in that industry or is embedded in the production process of other industries. The value added perspective is closest to GDP shares.
2. The full sectoral decomposition of the 114 sectors of the Australian I-O table is reported in Annex C.
3. Table 1.1 compares each sector's contribution to Australia's production and trade with that in other OECD countries in 2014. It should be borne in mind that the share of a sector's output that is exported tends to be lower the larger the domestic market and as the country's geographic remoteness increases. Table 1.1 shows each sector's share of total domestic value added going in total gross exports. Note that Figure 1.1 and Table 1.1 compare each sector's contribution to Australia's production and trade with that in other OECD countries in 2014. It should be borne in mind that the share of a sector's output that is exported tends to be lower the larger the domestic market and as the country's geographic remoteness increases. Data in Table 1.1 are sourced from different databases. Differences include: Australian I-O data are for fiscal year (2014-15), whereas the OECD-WTO TiVA estimates refer to the calendar year (2014); the sector composition differs: Australian I-O data are more detailed than TiVA data; the Australian I-O data follow the Australia New Zealand Standard Industrial Classification (ANZSIC) 2006, while TiVA data are based on a slightly different industry classification (ISIC, Rev. 3.1).
4. To alleviate these effects of country heterogeneity, figures for non-EU OECD economies (i.e. excluding Australia and the European Union from the group of OECD countries) are also given in the table to provide a more comparable benchmark for Australia.
5. The visitor economy covers activities undertaken by travellers (such as accommodation, restaurants, transport and attractions).
6. The trend between 2000 and 2012 mirrors a concurrent exchange rate appreciation relative to the US dollar. The Australian dollar started to depreciate again in the first half of 2012 and more sharply in the second half of 2014 until January 2016.
7. Trade statistics are sourced from Balance of Payments (BoP) data. The BoP definition of services trade does not include commercial presence abroad. The ABS Balance of Payments statistics follow the Extended Balance of Payment Statistics (EBOPS 2010) classification (see the sixth edition of the IMF's Balance of Payments and International Investment Position Manual (BPM6)).
8. The exclusion of services delivered through a commercial presence abroad means that some services trade may be underestimated in BoP statistics. For example, this might be the case for those financial services where commercial establishment abroad represents the main Mode of entry into foreign markets, and some professional services.

9. *Business travel* covers personal expenditure in the host economy on goods and services by seasonal and other non-resident foreign workers whose main purpose of travel is for business in the economies where they are employed. It might also cover travellers visiting from abroad on a sales trip, market exploration, mission or meeting, to carry out installation work or other such purposes on behalf of a non-resident enterprise. *Education-related travel* refers to all expenditure on tuition, food, accommodation, local transport and health services, acquired by non-resident students. *Other personal travel* covers both health-related expenditure and the expenditure of those travelling neither for health nor for education as their primary purpose. This last category is usually the largest component of travel in other countries (except Australia), as it includes all persons going abroad for holidays, recreational and cultural activities, visits, pilgrimages, etc. For more details see the *Manual on Statistics of International Trade in Services 2010* (United Nations, 2010).
10. Because Australian Input-Output data present exports on the basis of the exporting industry (e.g. exports by the service sector) rather than the exported product (exports of services as in the Balance of Payments), care is needed when comparing data from these two sources
11. Some of the value added embodied in imported inputs may include Australian value added that returns home after foreign processing.
12. Inputs provided by resident foreign affiliates cannot be identified, as I-O tables do not distinguish domestic companies from foreign branches or subsidiaries. Therefore, the share of the domestically sourced inputs that is actually generated by foreign affiliates located in Australia cannot be assessed.
13. The “growth accounting” method underlying the results shown assesses the contribution of an individual input to the growth of output over a given period by multiplying the cost share of the input by the volume growth of that input. Any residual growth in output above the growth in inputs is attributed to general productivity growth, referred to as total factor productivity (TFP). The analysis reported uses KLEMS data, where the acronym stands for the five categories of inputs used in the production process: Capital (K), Labour (L), Energy (E), Materials (M) and Services (S). In KLEMS, intermediate inputs are divided into energy, materials and services inputs. The ABS publishes KLEMS estimates in gross output terms, which can be transformed into value added terms using the value added shares of output. That approach is followed here, since much of the reference data in the literature are in value added terms. Furthermore, the benchmarking exercise with OECD countries also requires growth accounts expressed in value added terms (to date, the only available growth and productivity accounts from EU KLEMS).
14. Detailed results available in the Annex.
15. The benchmark group consists of Austria, Denmark, Finland, France, Germany, Spain, the United Kingdom, and the United States. Complete time series were available only for these countries in the EU KLEMS database (September 2017) at the time of writing.

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