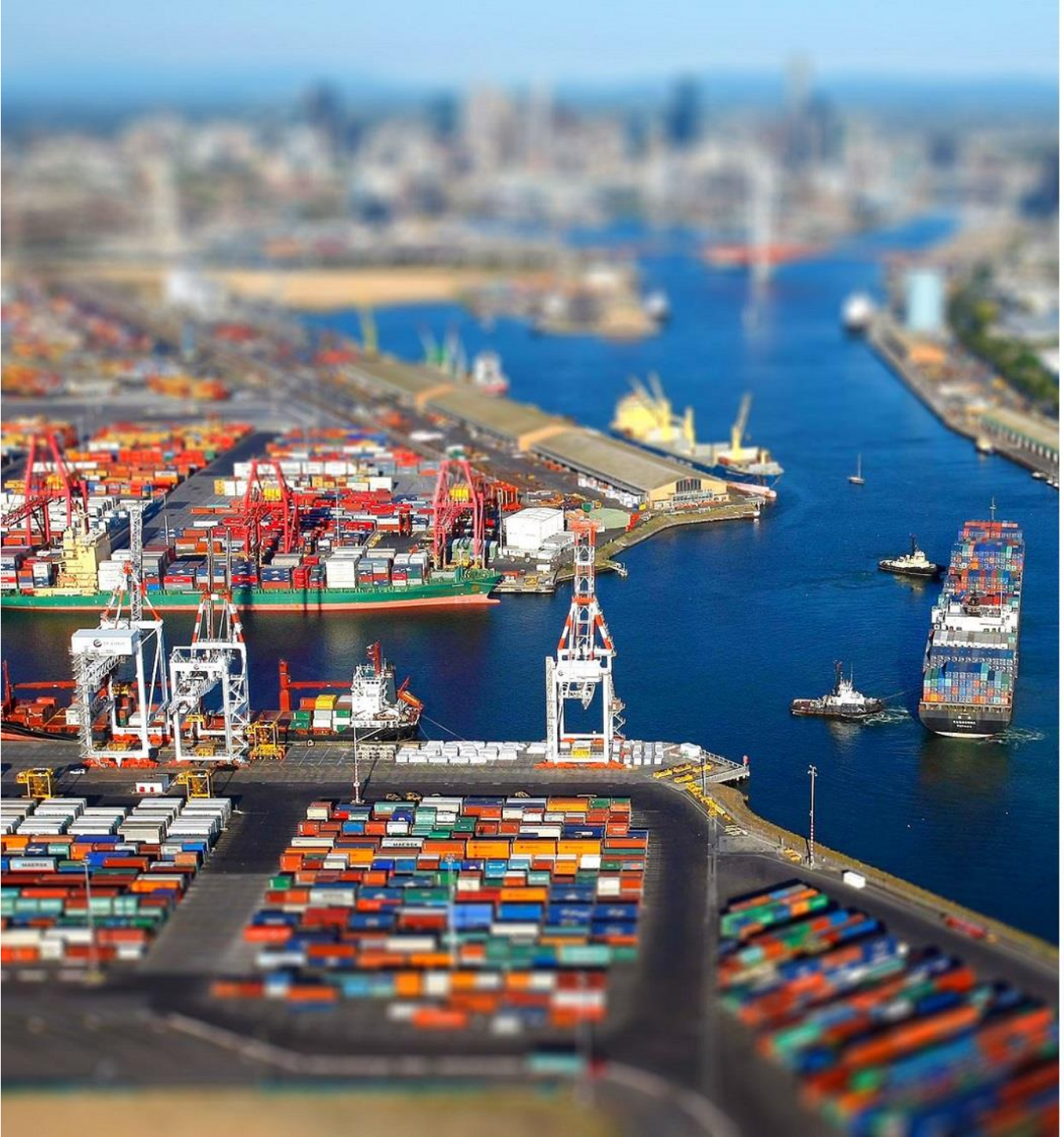
BIS OXFORD ECONOMICS

PORT OF MELBOURNE TRADE FORECASTS

DETAILED OUTLOOK TO 2020

12 APRIL 2019



Contents

Overview
Forecast approach

For each trade category, we follow the same basic logic

Step 1
Acknowledge Common Characteristics

Major Australian container terminals tend to have the same basic characteristics:

1. The dominant full container trade flow tends to be imports (Burnie and Adelaide being the exception).
2. Each tends to be the only container terminal servicing an individual state, centred on the major population centre of that state (Burnie being the exception).
3. Strong growth between the 1990s and mid-2000s, with slower growth since the GFC.

These common features inform BIS Oxford Economics' trade analysis.

- For containerised imports, the outlook tends to track the national macroeconomic outlook with state-specific demand factors.
- Similarly, for containerised exports, we overlay national production outlooks with local specialisation within the Port of Melbourne

Step 2
Identifying drivers

As a rule, we would expect import (or export) volumes to track demand (or production) taking into account changes in domestic substitutes (or demand).

This ratio should be 1:1 over the past 20 years with few exceptions.

Major shutdowns of domestic manufacturing (historically has included cement factories, motor vehicle manufacturing) can be used to calibrate the substitution effect between domestic demand and overseas imports. This adds rigour to the outlooks regarding the future structural changes.

Note that there are some questions around data quality, but as expected, these appear to be most evident when the trade is examined at finer levels of categorisation. Accordingly, BISOE has grouped imported commodities according to a small number of broad categories linked with common drivers to minimise the chance of a historical mis-categorisation creating a spurious result in the historical time series.

Step 3
Explaining variances from drivers

Sudden shifts in volumes at the Port of Melbourne that deviate from this principle reflect either a change in modal choice, port facilities, or local production factors.

These are rigorously examined to explain historic variances and then re-examined to see if there should be any changes over the forecast horizon.

These tend to be particularly relevant for exports as opposed to imports.

Step 4
Applying macroeconomic drivers

Once the relationship between the trade volumes and the macroeconomic drivers are established, and future structural changes are identified, the forecast trade volumes simply leverage off of the forecast macroeconomic outlook.

This report will explicitly identify the macroeconomic drivers used for each trade and then reference back to a section in Appendix A report for further information.

Overview

Wharfage volumes: Annual Growth Rates	Measure	Jun-17	Jun-18	Jun-19	Jun-20
Containerised - Full - outward	TEU	7.7%	7.3%	-7.7%	4.7%
Containerised - Full - inward	TEU	3.1%	8.5%	5.6%	2.0%
Containerised - Full - Bass Strait	TEU	-0.7%	6.2%	5.1%	2.5%
Containerised - Empty	TEU	-5.2%	9.1%	28.4%	-0.7%
Containerised - Empty - Bass Strait (incl transhipment)	TEU	-2.9%	24.7%	-4.4%	-0.4%
Containerised - Empty returns	TEU	1.4%	24.7%	-4.4%	-0.4%
Non-containerised / general	tonne or cm	5.0%	26.4%	5.3%	3.6%
Accompanied passenger vehicles	tonne or cm				
Motor vehicles	tonne or cm	1.2%	6.9%	-4.7%	5.3%
Liquid bulk	tonne or cm	-0.6%	10.2%	-2.3%	2.1%
Dry bulk - inwards - overseas and coastal	tonne	-3.5%	13.4%	-1.3%	-2.7%
Dry bulk - outwards - overseas and coastal	tonne	272.2%	-6.3%	-91.4%	384.6%
Transhipment - Full - outward	TEU	5.5%	18.1%	15.1%	2.0%
Transhipment - Full - inward	TEU	4.8%	8.7%	23.5%	2.9%
Transhipment - Full - Bass Strait	TEU	2.9%	5.2%	9.9%	3.1%
Transhipment - Containerised Empty (excl Bass Strait)	TEU	6.6%	-18.1%	-14.1%	0.0%
Transhipment - Motor vehicles and break bulk	tonne or cm	59.2%	535.3%	41.9%	0.0%
Transhipment - Non-containerised / general	tonne	-66.5%	682.7%	20.7%	0.0%

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CONTAINERISED IMPORTS (EXCL. BASS STRAIT)

Full Imports
Why do imports grow faster than demand?

Substitution. This can be either by substituting a domestically made product for one made overseas, substituting repairs and maintenance for new products, or even substituting between product types.

A decline in manufacturing

Much of Australia's manufactured goods used to be either directly consumed by end users, or were inputs into the construction industry or general business, with relatively small volumes exported.

Over the past decade, the growth of manufacturing has failed to keep pace with Australian demand for either consumer goods or construction/general business activity. Accordingly, import volumes grew more strongly than demand to fill that gap.

Examples of where imports have fallen because of a decline in manufacturing has tended to be the exception rather than the rule (motor vehicle parts into Melbourne and Adelaide, for example).

Examples of where imports have substituted for domestic manufacturing are processed industrial supplies and consumer food and beverages.

Basket changes

Consumers have an ever changing consumption basket, with the ability to shift the composition of that basket to reflect relative prices.

Imported goods tend to experience lower price escalation than domestically produced items (in part due to improving economies of scale and increased specialisation for overseas manufacturing). These lower prices in turn shift the consumption basket more towards imported goods.

Furthermore, the relative decline in the costs of imported goods increase the frequency at which goods are cycled, replaced as opposed to repaired (with repair costs tending to grow at above inflation level, i.e. in line with wages).

Both of these support the increase in the import share of (non-food) consumables.

As a point of reference, about three-quarters of new passenger car sales in Australia serve to replace deregistered motor vehicles, which are retired at an average age 18 years. Most consumables do not have the same longevity, and would tend to have a higher replacement rate.

Can the import share continue to grow?

Yes.

While we have the import share for intermediate goods reach saturation within a decade, for consumer goods, import volumes can continue to outpace the domestic demand for these same goods for the next 30 years, as so long as the price escalation of imported goods continues to grow more slowly than that of domestic goods and/or labour (i.e. repair) costs.

There are circumstances in which the import share may not grow, but these would tend to be temporary and are unlikely to be sustained throughout the forecast period. This could include

- significant falls in the exchange rate (temporarily raising import prices),
- significant falls in Australian energy prices (as compared of the rest of the world, for either gas or electricity) improving Australian manufacturing competitiveness, and
- recessions in Victoria (i.e. falling domestic demand tends to impact imports disproportionately).

Full Imports
Technical Note – Mapping to BoPBEC

BISOE's methodology behind imports is to first look at import volumes at all international container ports using the same categorisation, which can then be used to understand trends and market share.

Australian Transport Freight Commodity Classification (ATFCC)

Not all ports record trade in the same way, which makes its difficult to directly compare the imports into the major container ports.

However, most ports (other than Port Botany) do use a system which has its origins in a coding system developed in the early 1980s (called the Australian Transport Freight Commodity Classification, or ATFCC), which was the last time there was a concerted effort to generate a standardised classification of goods transported to, from and within Australia. It has been designed for use in the capture and presentation of data by organisations responsible for recoding information on Australian cargo or freight movements.

In practical terms, what happened was each of the major Australian Ports selected a subset (typically 100) of these classifications to report container volumes on, and have generally maintained this system ever since.

The structure of the ATFCC is based on the Standard International Trade Classifications (SITC) Revision 3, with adjustments to suit Australian requirements, but this ended up being superseded by a new system in 1988, but most ports remained on the older system.

Harmonised System & Customs Codes (HS)

International classification developments aimed at the harmonisation of commodity statistics led to the development of the Harmonised System in 1988 for the collection and dissemination of foreign trade statistics. Australian customs have expanded upon the international 6-digit HS codes to become 10-digit imported customs codes.

Imports are recorded in international trade statistics in the calendar month in which the import entries are finalised by the Australian Customs Service. Normally this is within a few days of discharge of cargo although, on occasion, import entries may be delayed before being passed on to the ABS. For that reason, recorded imports for a particular month do not necessarily represent either entries lodged or commodities actually imported during that month. Analysis of recorded imports data has shown that, in aggregate, about 90 per cent of imports by value recorded for a particular month actually arrive during that month; of the balance, the majority have actually arrived during earlier months, with the remainder yet to arrive. For individual commodities, the percentage by value representing actual arrivals in a month can vary considerably.

Balance of Payments Broad Economic Categories (BoPBEC)

General merchandise goods debits (imports) are broken down into three 'end-use' categories—*consumption goods, capital goods* and *intermediate and other goods*—in broad accordance with the United Nations' *Classification By Broad Economic Categories (BEC)*, with further refinements by the ABS (combining the BEC with Standard Industrial Trade Classifications (SITC) Revision 4) as the Balance of Payments Broad Economic Categories (BoPBEC).

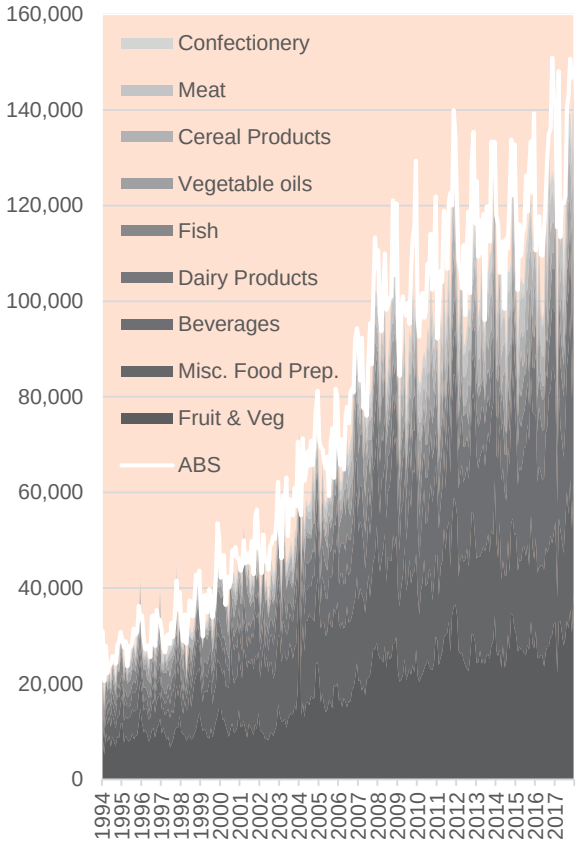
There are 26 such categories at the 2-digit level, with detailed data available from the ABS on monthly imports into each ports and airport measured in tonnes and dollar value going back to the 1988.

BIS Oxford Economics uses this information to recut the Port's trade volumes into the BoPBEC, first in tonnes and then into TEUs, and uses this information to establish eight time series of imported TEUs (two of which are less than 1% of imports**).**

Full Imports
Checking BoPBEC against the Port of Melbourne

The correspondence from the Port of Melbourne commodities to the BoPBEC are not perfect for all broad categories.

Food & Beverages
monthly imports, tonnes



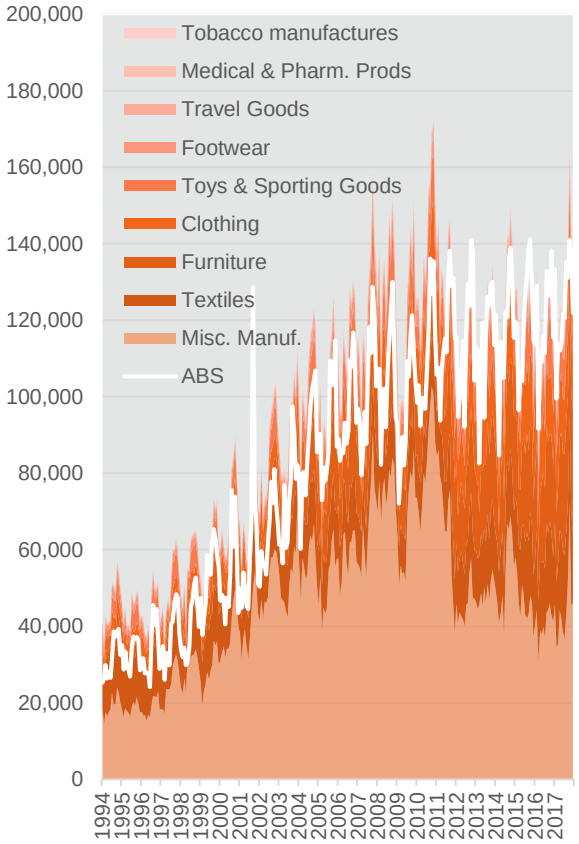
Structural Breaks

For Food and Beverages between 1994 and 2017, the mass of imports as measured by the ABS are within 1% of that recorded by the Port of Melbourne, with difference month-to-month due to differences in when customs and the Port of Melbourne records a shipment having arrived.

For Other Consumer Goods, the difference prior to 2012 is because of a single category “Misc. Manuf.” which appears to have had a broader definition and included what is believed to be Processed Industrial Goods.

Historical volumes (in TEUs) of Other Consumer Goods and Processed Industrial Goods prior to 2012 are therefore derived using an alternative calculation.

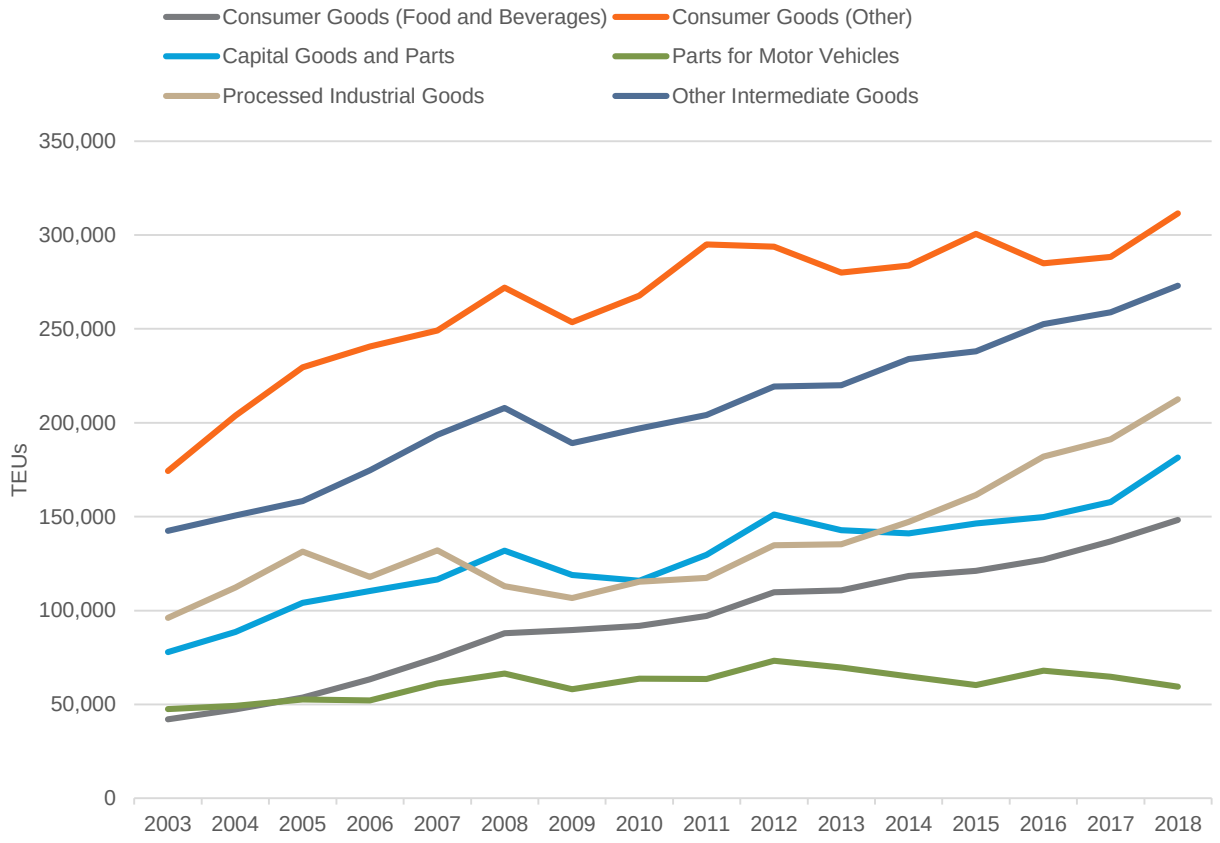
Other Consumer Goods
monthly imports, tonnes



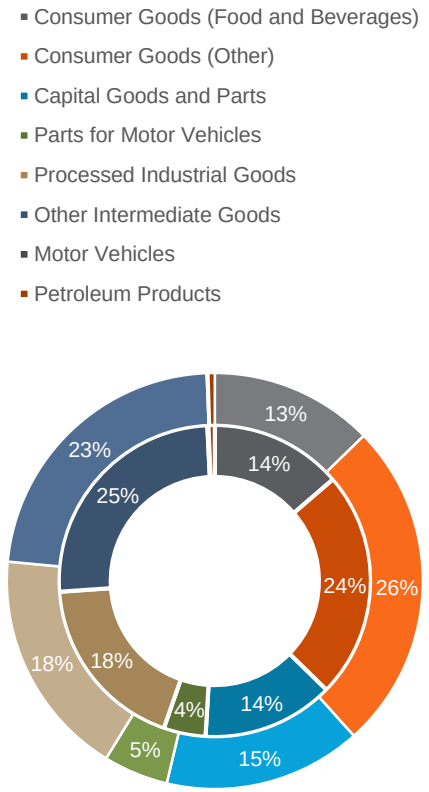
Full Imports (excl. Bass Strait) History and Composition

After recutting the import volumes into Broad Economic Categories, we find that the trade volumes have different historical narratives, which are explained by different macroeconomic drivers.

Historical Growth by Balance of Payment Broad Economic Categories
Financial Years, TEUs



Full International Containerised Imports
(FY2018, inside containers, outside TEUs)



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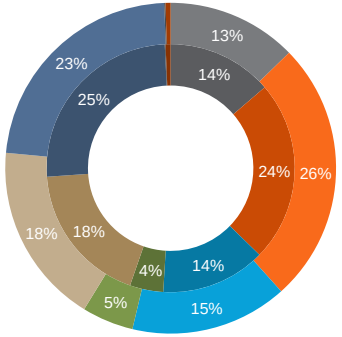
Full Imports (excl. Bass Strait) Forecast Methodology

We use a mix of national and state-specific drivers to forecast each subset of imported containers.



Intermediate Goods

Our working assumption is that the demand for intermediate goods should generally track that of State Final Demand for Goods, assuming no compositional changes in the economy.

However, the Australian economy *has* experienced a significant relative decline in the importance of Manufacturing. This has had two distinct impacts:

1. There are goods that are not longer required as imports because they were inputs into the Manufacturing process. **MV Parts** are an example of this.
2. There are goods that now must be imported because they are not produced in sufficient quantities to meet the demands of the domestic economy. **Motor Vehicles** are a prime example of this.

The remaining **Other Intermediate Imports** roughly track State Final Demand for Goods, and **Processed Industrial Supplies** roughly track **Building Construction**.

Note that while **Parts for Capital Goods** are technically part of the Intermediate Goods section, they have been forecast alongside Capital Goods.

Capital Goods

Historically, the import volumes (in TEUs) of **Capital Goods** (mostly Machinery and Equipment) track Victorian expenditure on Machinery and Equipment.

This relationship is assumed to hold over the forecast horizon.

Note that the same relationship also holds for **Parts for Capital Goods**.

Definition:

State Final Demand for Goods is the sum of:

1. Retail Turnover (including Motor Vehicles)
2. Construction (Dwelling and non-dwelling)
3. Government Consumption Expenditure (part of)
4. Public Investment
5. Machinery and Equipment (gross capital formation)

Consumer Goods

Current modelling of Consumer goods use a combination of the outlook for Retail Turnover and Import Penetration.

Note that the import penetration is exchange rate sensitive.

Currently two versions of consumer goods are considered.

1. **Food and Beverages**. This is a less mature market for imported products. There is some evidence that the increase in import penetration has coincided with a decline in manufacturing of food and beverage products, however, the manufacturing outlook for food and beverages is not used to calculate the import penetration going forward, rather it is assumed to increase at a linear rate over the forecast horizon.
2. **Non-Food consumer goods**. This is a more diverse market. While the decline in manufacturing has coincided with an increase in import penetration, this isn't so clear cut as it is for food and beverages, and most of the increase seems to be due to increasing rates of replacement and substitution between product types.

*__State Final Demand__ comprises of both Goods and Services, and is calculated as the sum of consumption plus investment plus government expenditure.
*__State Final Demand__ plus exports minus imports equals __Gross State Product.__

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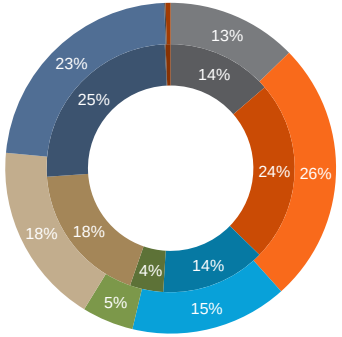
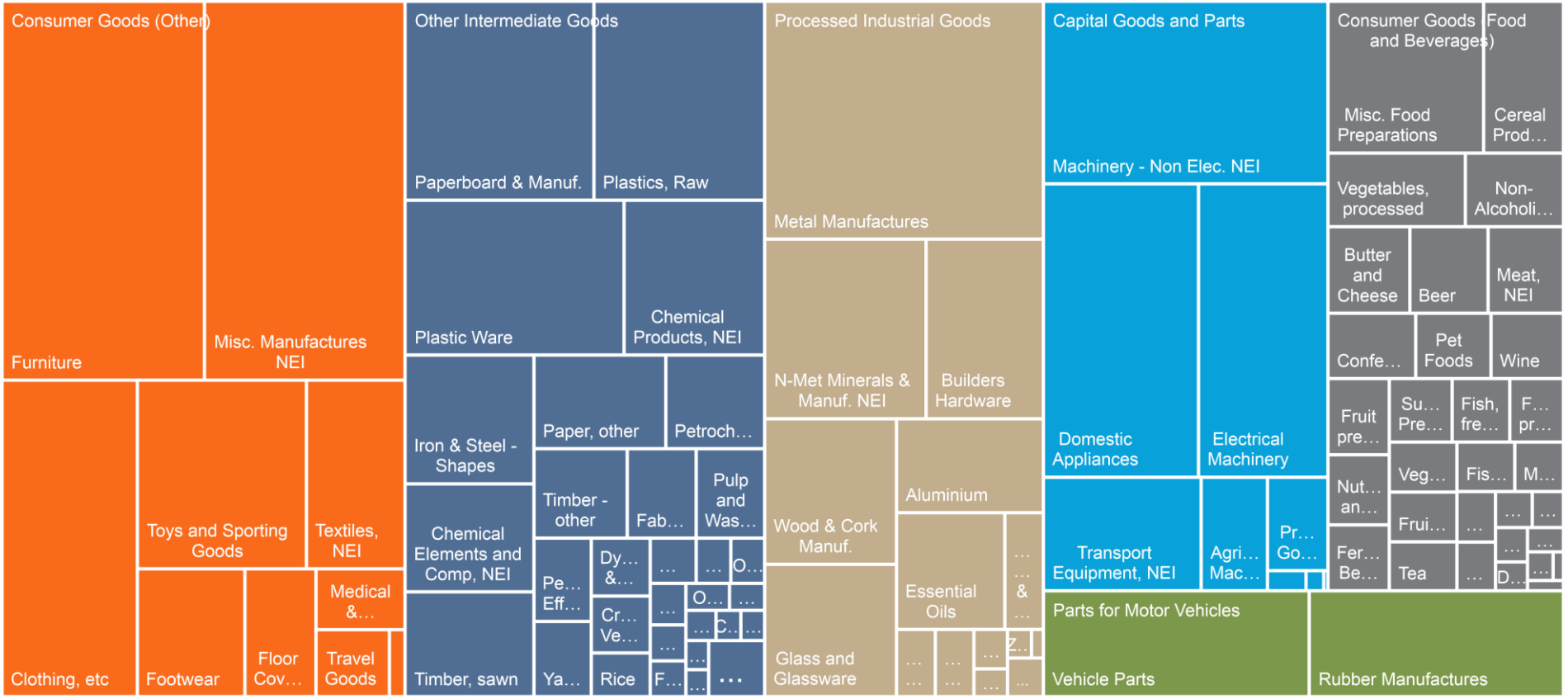
Full Imports (excl. Bass Strait) Composition

Compared to other Australian capital city ports, the Port of Melbourne is more heavily weighted towards capital goods and parts for motor vehicles.



FY18 Imports by BIS Code and Port of Melbourne Categories



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Australian Overview
Imported Consumer Goods (Food & Beverages)

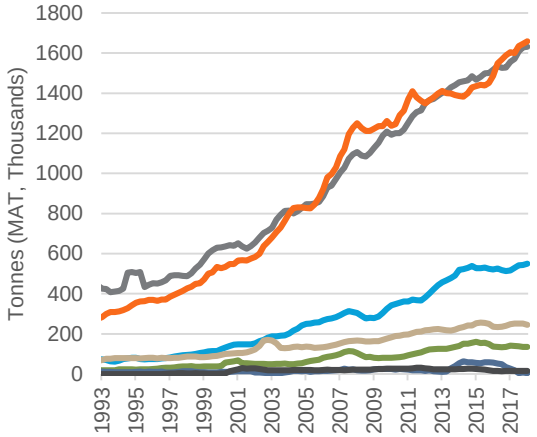
Roughly 78% of food and beverages arrive via the Port of Melbourne and Port Botany. This reflects the concentration of the distribution network for the food and beverage industry within these states, rather than local demand.

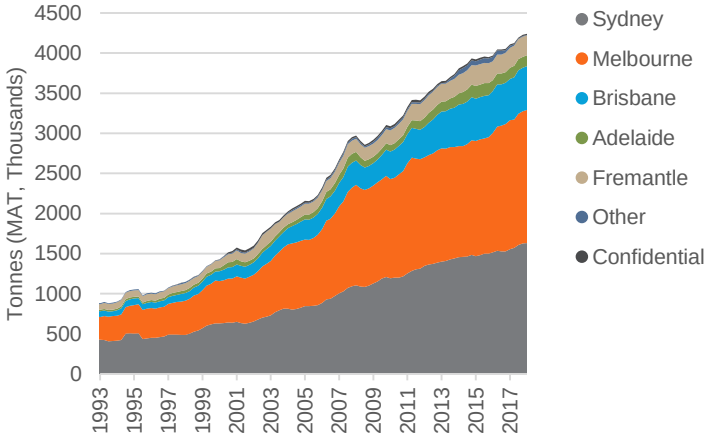
These two states make up roughly 58% of the Australian population, suggesting that a significant volume of imported food and beverages per annum are moved via road and rail out of New South Wales and Victoria.

Until the last few years, the Port of Brisbane's share of food and beverage imports have been growing generally in line with Queensland's increasing population.

Sustained growth in imports outpace retail turnover reflecting an increasing import penetration for food and beverages expenditure. This can be seen throughout the past two decades, with a compound annual growth rate of 7% vs a retail turnover growth averaging 4%.

Imports are exchange rate sensitive, with generally stronger growth with an appreciating AUD/USD, and vice versa.

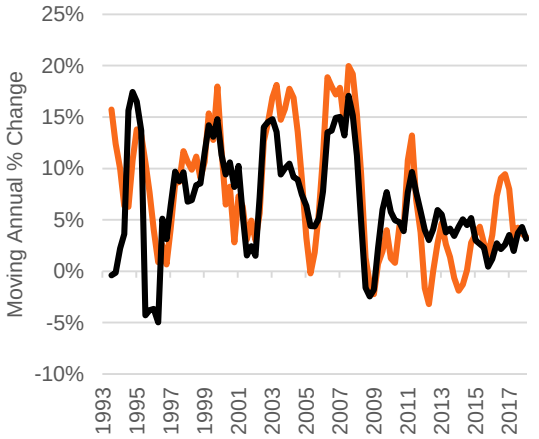




Annual % Change
(year-on-year, quarter-on-quarter)

	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Total	2.0%	3.7%	4.3%	3.2%
	1.7%	7.4%	3.4%	0.9%
Sydney	2.2%	5.3%	6.6%	4.7%
	3.5%	11.0%	5.4%	0.4%
Melbourne	3.4%	4.2%	3.6%	3.4%
	-1.1%	9.9%	2.7%	2.8%
Brisbane	0.7%	4.8%	6.1%	6.6%
	11.0%	10.7%	1.4%	4.0%
Adelaide	3.1%	3.7%	0.4%	-4.3%
	-2.5%	-5.2%	-7.0%	-2.9%
Fremantle	7.2%	6.5%	4.5%	-1.3%
	5.4%	-0.7%	-0.1%	-8.2%
Other	-63.3%	-90.3%	-76.7%	-82.7%
	-96.6%	-96.5%	955.6%	-91.7%

Grand Total (Black) vs Melbourne



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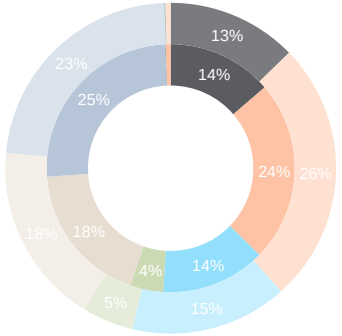
Full Imports (excl. Bass Strait)
Consumer Goods (Food and Beverages)

Making up 13% all TEU imports (and 14% of containers), the driver is retail turnover and a growing import share and changing container composition.



FY18 Imports (PoM classifications) TEUs

Increasing import penetration

For food and beverages, our working assumptions are as follows:

- Food retail for Australia grows by 3% over the next two years.
- Trend growth in the $ of retail turnover per TEU continues as:
  - Imports (measured in tonnes) trend up from 35 tonnes per $ of food retail turnover.
  - The Port of Melbourne's market share for food and beverage imports holds at 39% (it has been between 33% and 42% for two decades, averaging 38%).
  - The share of imports in 20ft containers falls from 55.1% in 2018.
  - Tonnes per container hold at 17.0 for 40-ft containers, and continue to fall by 0.5% p.a. for 20s.

The net outcome is that TEU growth is projected to grow by an average of 3.2% p.a. in FY2019 and FY2020.

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Australian Overview
Imported Consumer Goods (non-food)

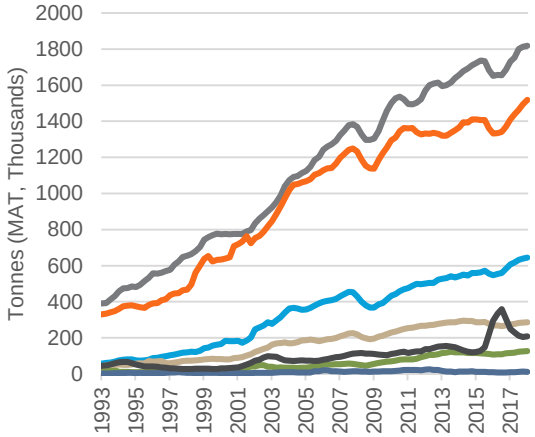
Changes in ABS classification have increased the number of goods for which the port is not identified (labelled as 'Confidential') in 2016.

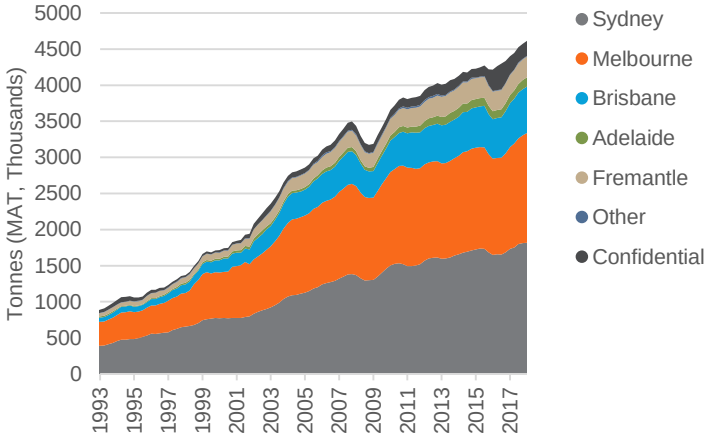
Total consumer imports are increasingly focused on Port Botany, with the market share for consumer goods increasing (at the expense of Melbourne) for the past decade.

Import volumes move sharply in line with major movements in the AUD/USD.

Consumer goods are increasing at a rate outstripping retail turnover for the past two decades (7% p.a. vs 4% p.a.), reflecting an increasing import penetration for consumer goods.

Weak growth since 2012 reflect both the lower dollar as well as anaemic consumer spending (and wage price growth).

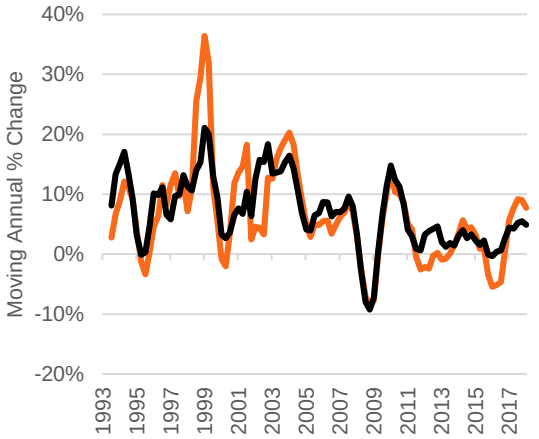




Annual % Change
(year-on-year, quarter-on-quarter)

	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Total	4.2%	5.2%	5.5%	4.9%
	4.5%	7.6%	4.3%	3.6%
Sydney	5.8%	8.7%	7.7%	5.0%
	5.3%	11.5%	3.1%	0.9%
Melbourne	7.7%	9.2%	9.0%	7.7%
	8.8%	7.9%	7.9%	6.5%
Brisbane	11.7%	12.8%	9.7%	6.2%
	8.1%	9.8%	4.9%	3.2%
Adelaide	8.4%	11.8%	9.5%	9.1%
	8.0%	15.8%	6.1%	7.9%
Fremantle	3.4%	6.8%	5.7%	4.3%
	4.2%	9.0%	1.7%	3.0%
Other	22.2%	28.8%	44.5%	21.3%
	22.3%	33.2%	51.9%	-7.1%

Grand Total (Black) vs Melbourne



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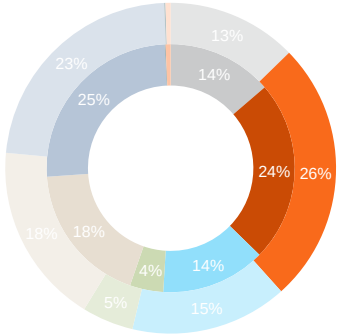
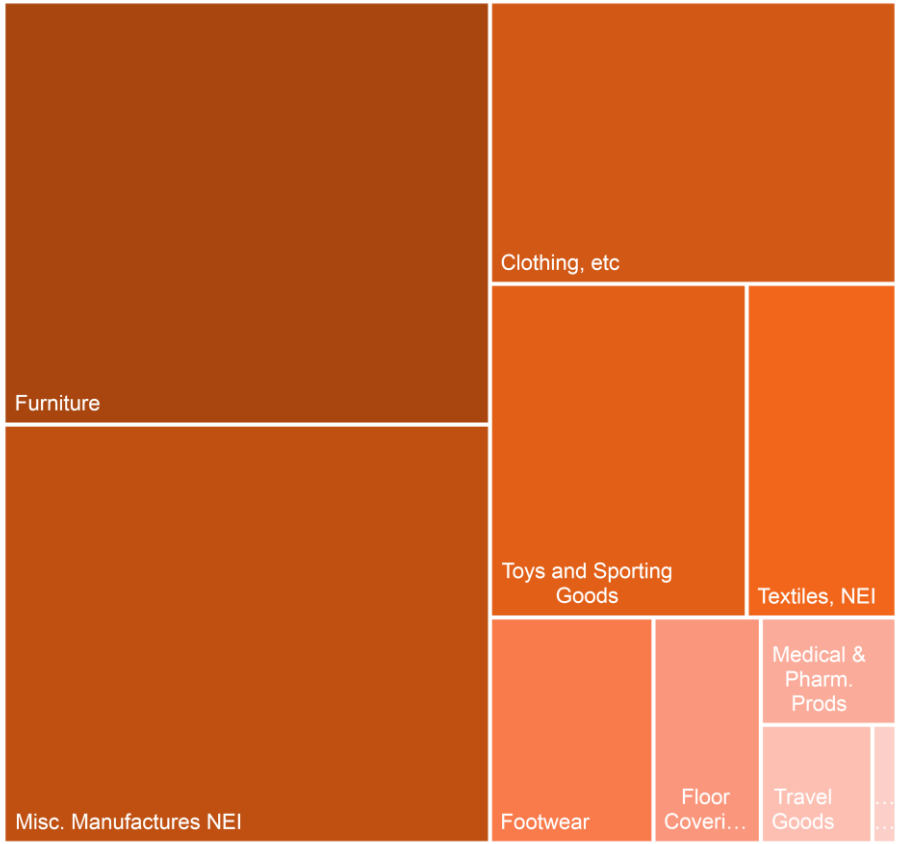
Full Imports (excl. Bass Strait) Consumer Goods (non-food)



Making up 26% all TEU imports (and 24% of containers) the driver is AUS retail turnover, a growing import share, and changing container composition.

FY18 Imports (PoM classifications) TEUs



Increasing import penetration

For non-food consumer goods, our working assumptions are as follows:

- Non-Food Retail Turnover in Australia grows at an average of 4.9% p.a. over FY2019 and 2020.
- Trend growth in the $ of retail turnover per TEU continues as:
  - Imports (measured in tonnes) grow from 15.7 tonnes per $ of non-food retail turnover to 29.3 tonnes per TEU.
  - The Port of Melbourne's market share for food and beverage imports holds at 37% (it has been between 35% and 49% for two decades, averaging roughly 40%).
  - The share of imports in 20ft containers holds at 27%.
  - Tonnes per container hold at 8.4 for 40-ft containers and 6.9 for 20-ft containers.

The net outcome is that TEU growth is projected to grow by 6.7% p.a. between 2019 and 2020.

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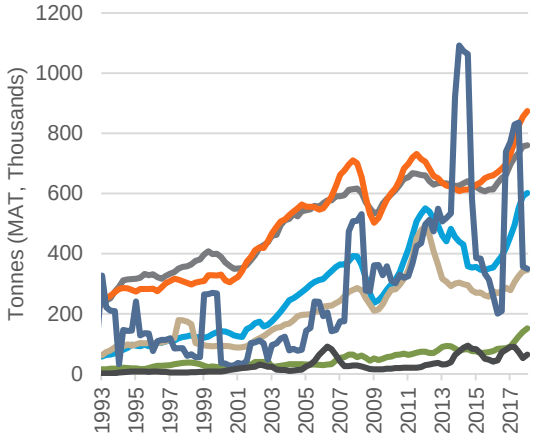
Australian Overview
Imported Capital Goods / Machinery & Equipment

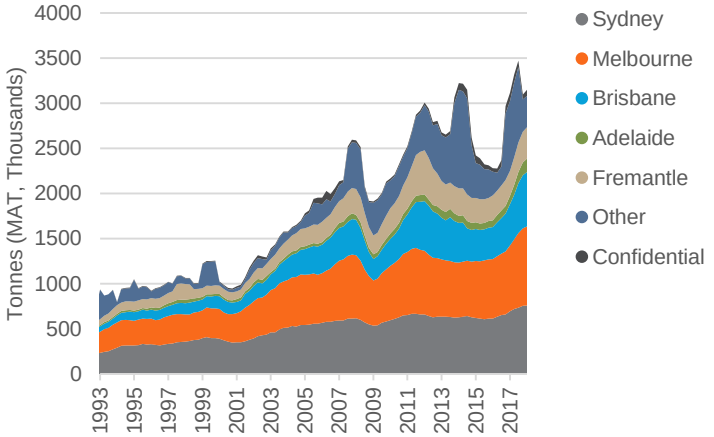
Evidence of the mining boom are reflected in peak in volumes in 2013, with a spike in volumes arriving into not only Fremantle and Brisbane, but also Melbourne.

Machinery and equipment arriving via small ports as once-off projects remain important to aggregate volumes, with Darwin, Dampier, Broome and Port Kembla playing host to large movements.

Modelling by BIS Oxford Economics suggest that the box counts for Machinery and Equipment are dramatically lower than non-food consumer goods, despite similar volumes (in tonnes).

This reflects not only the higher share of import volumes arriving via bulk ports, but also the mixed modes of cargoes arriving via the container ports, both within containers and as break-bulk or roll-on roll-off.

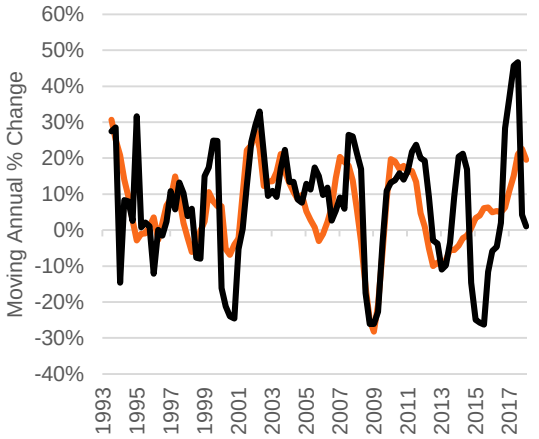




Annual % Change
(year-on-year, quarter-on-quarter)

	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Total	45.7%	46.7%	4.3%	1.0%
	36.8%	24.7%	-31.8%	7.0%
Sydney	13.5%	12.7%	14.4%	9.3%
	15.2%	8.8%	12.6%	2.0%
Melbourne	15.1%	21.0%	22.6%	19.6%
	25.6%	31.3%	15.1%	9.3%
Brisbane	32.2%	41.0%	41.3%	31.6%
	40.0%	57.1%	31.6%	7.3%
Adelaide	29.9%	47.1%	63.7%	67.1%
	75.8%	77.7%	80.0%	42.0%
Fremantle	13.7%	18.2%	19.6%	24.1%
	44.1%	32.4%	21.9%	3.7%
Other	313.2%	299.8%	-51.7%	-54.7%
	121.6%	10.1%	-82.6%	-8.7%

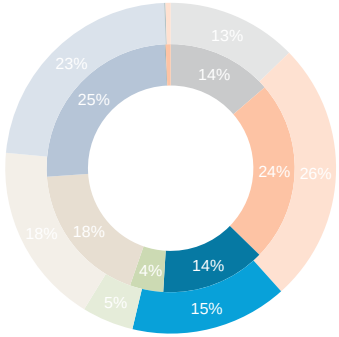
Grand Total (Black) vs Melbourne



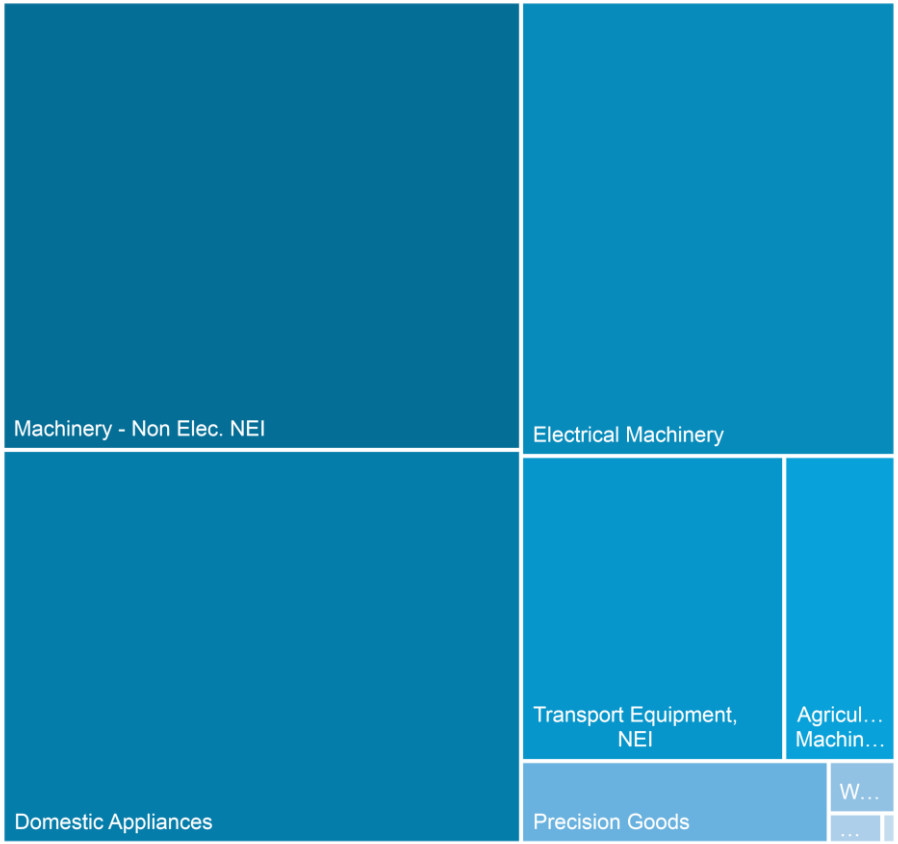
BIS OXFORD ECONOMICS

Full Imports (excl. Bass Strait)
Capital Goods, Parts for Capital Equipment

Making up 15% all TEU imports (and 14% of containers) the driver is VIC machinery and equipment expenditure.



FY18 Imports (PoM classifications) TEUs



Strong and Stable Relationships

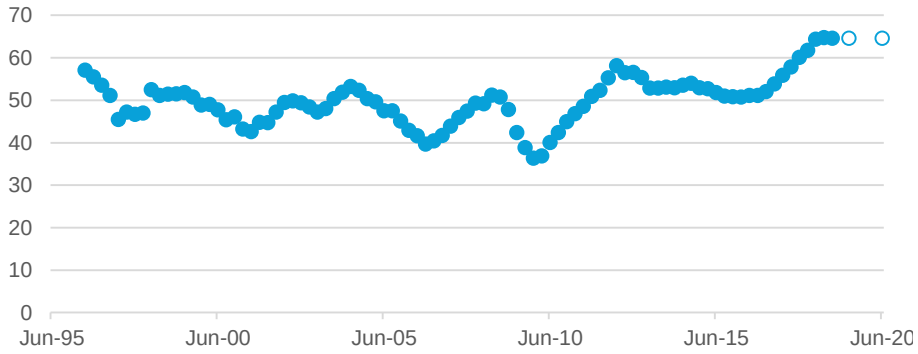
The growth profile continues to be directly related to Machinery and Equipment Expenditure in Victoria.

The share of M&E that is containerised (as opposed to break bulk) is not expected to change over the forecast period. For goods that are containerised, BISOE is projecting a small shift away from 20s into 40s, as a result TEU growth is projected to outpace container growth.

Tonnes/container are not projected to change over the forecast period (holding at 8.0 and 9.5 for 20s and 40s respectively).

The net outcome is that TEU growth is projected to grow by 8.6% p.a. in FY2019 and 2020.

tonnes per $ million of VIC Machinery and Equipment Expenditure
(chain volume measures)



BIS OXFORD ECONOMICS

Full Imports (excl. Bass Strait)
Capital Goods – Large Scale Solar PV installations

Large volumes of Solar PV started being imported through the Port of Melbourne in Q1 2018, and the pipeline of new projects in the South East is expected to maintain import volumes at roughly steady, but elevated levels through to 2020.

These projections are based on the pipeline of projects known as of August 2018.

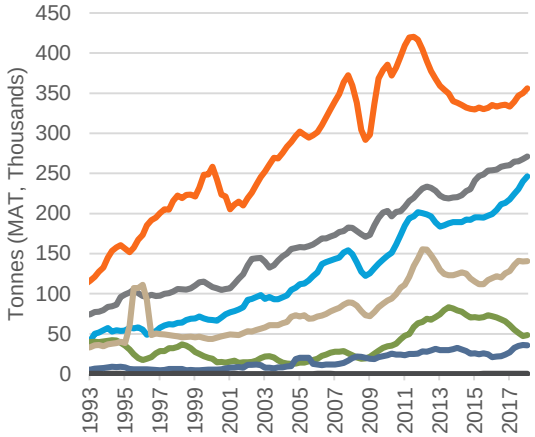
Australian Overview
Imported Parts for Motor Vehicles

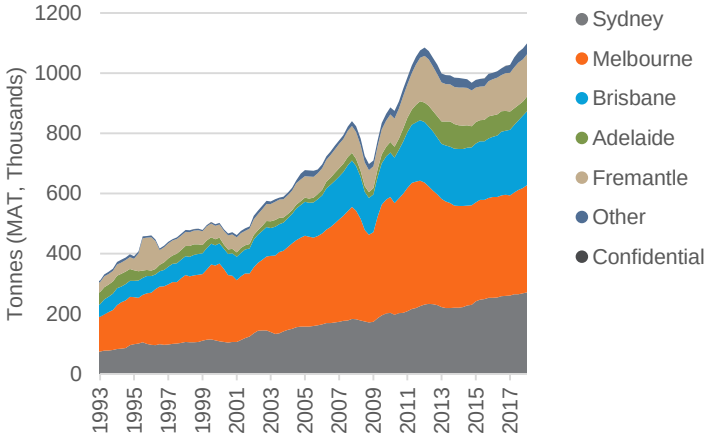
Falls in import volumes at the Ports of Melbourne and Adelaide were expected given the closure of their domestic manufacturing facilities.

Melbourne's continued dominance of imported motor vehicle parts suggests that the distribution networks for parts (which are split roughly evenly between tyres and other parts) retains a legacy of our manufacturing past, with as many as 10% of the imports into Melbourne then travelling to New South Wales to service motor vehicles in that state.

Historical strong growth in volumes in import volumes in 2002 and 2010-2012 mirrored closures of domestic tyre manufactures (first Thomastown, Footscray, Somerton, and lastly Bridgestone).

The long-run forecast is for import volumes to now roughly track the increase in motor vehicle stock, which has been mildly outpacing population in each state.

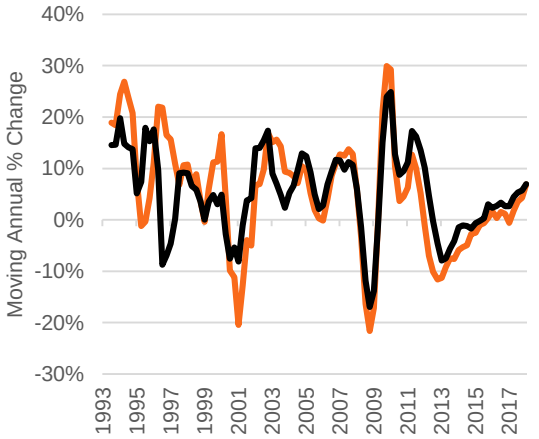




Annual % Change
(year-on-year, quarter-on-quarter)

	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Total	4.5%	5.3%	5.7%	6.9%
	10.0%	6.7%	4.7%	6.5%
Sydney	3.9%	2.6%	3.2%	4.2%
	6.9%	0.9%	4.4%	4.8%
Melbourne	1.8%	3.6%	4.3%	6.9%
	7.6%	9.1%	3.5%	7.5%
Brisbane	9.7%	8.8%	12.5%	13.1%
	12.8%	10.2%	18.4%	11.5%
Adelaide	-21.9%	-24.5%	-27.7%	-20.7%
	-35.0%	-22.7%	-23.4%	8.5%
Fremantle	11.5%	17.0%	11.9%	9.5%
	26.0%	16.2%	-1.3%	1.1%
Other	48.6%	58.4%	49.9%	34.2%
	107.6%	36.1%	20.9%	-4.4%

Grand Total (Black) vs Melbourne



BIS OXFORD ECONOMICS

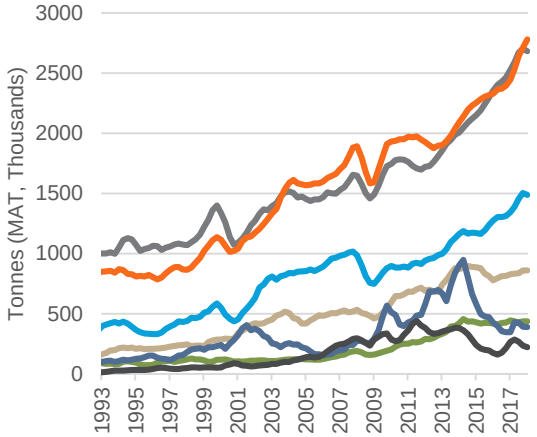
Australian Overview
Imported Non-bulk Processed Industrial Goods

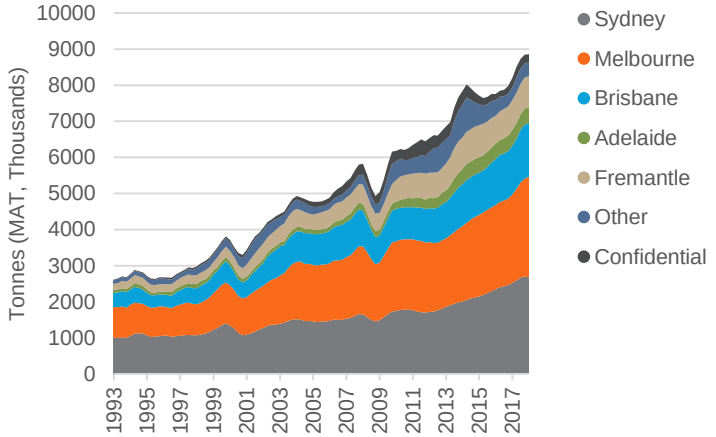
Processed industrial goods are a mix of both containerised and non-containerised goods, with the later predominately dry bulky goods, such as cement clinker and gypsum.

Containerised volumes include products such as sinks, baths, lights, windows, wood panelling, lamps, tiles, bricks, tiles, pavers, aluminium articles, and articles of iron and steel.

As such, the dwelling and non-dwelling building cycles within each state drive trade volumes, with Sydney and Melbourne having reached new heights following their respective booms. Correspondingly, Fremantle volumes peaked in the 12 months to September 2015, which coincided with the peak in building activity in Western Australia.

The building cycle in Brisbane can only partially explain the uptick in 2016 and 2017, with much of the outperformance attributed to the Port of Brisbane capturing market share vis-à-vis Port Botany and/or Melbourne.

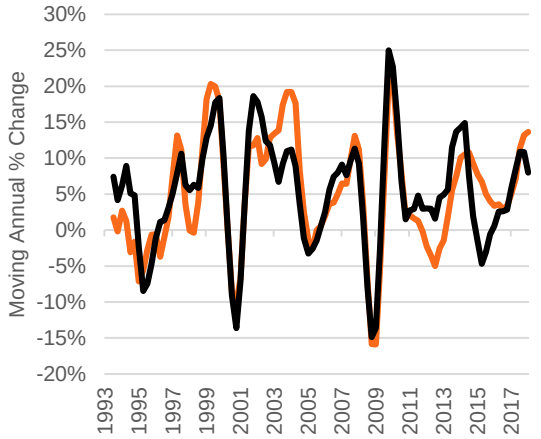




Annual % Change
(year-on-year, quarter-on-quarter)

	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Total	8.5%	10.9%	10.8%	8.0%
	15.3%	11.7%	5.2%	0.7%
Sydney	7.9%	10.0%	9.7%	6.1%
	10.9%	13.4%	4.5%	-3.1%
Melbourne	7.1%	11.4%	13.2%	13.6%
	15.0%	18.4%	10.9%	10.7%
Brisbane	6.6%	11.7%	14.7%	10.7%
	14.6%	22.2%	13.2%	-4.6%
Adelaide	6.2%	0.9%	2.1%	-1.8%
	-7.0%	-8.2%	9.2%	0.3%
Fremantle	4.8%	3.0%	5.6%	4.1%
	2.9%	1.4%	12.8%	0.4%
Other	8.1%	20.4%	12.6%	12.9%
	95.2%	-5.7%	-33.1%	-1.3%

Grand Total (Black) vs Melbourne

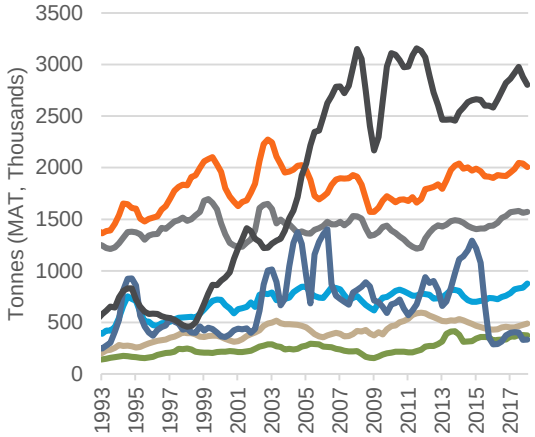


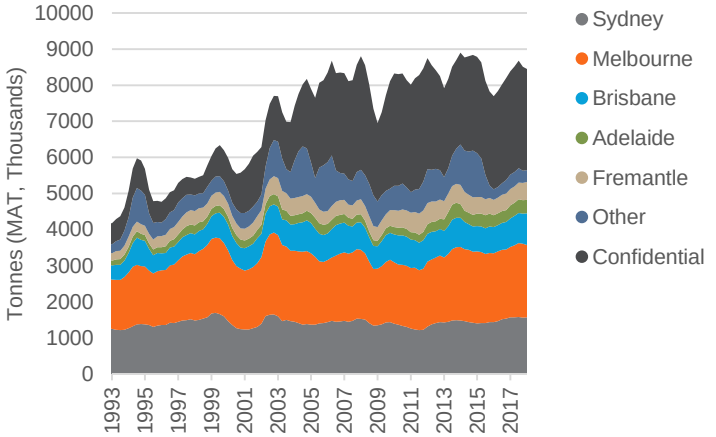
BIS OXFORD ECONOMICS

Australian Overview
Other Intermediate Goods (non-bulk)

Historically, volume growth in most states has been slower than economic activity due to the successive closure of a number of import competing domestic manufactures.

The remaining domestic manufacturing industries are now heavily oriented towards the export market, or are able to compete against imports, suggesting that the future outlook will be strongly tied with underlying economic activity.

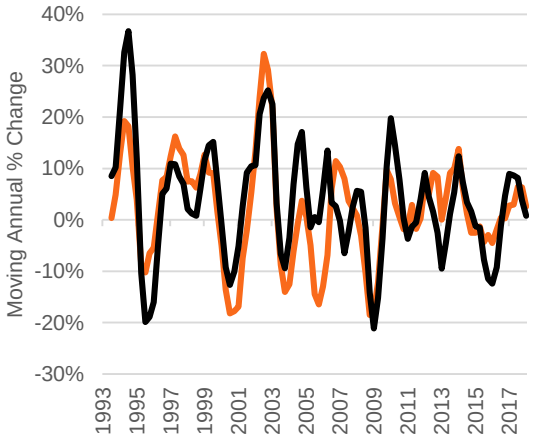




Annual % Change
(year-on-year, quarter-on-quarter)

	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Total	8.6%	8.2%	3.8%	0.8%
	6.4%	8.1%	-7.8%	-2.6%
Sydney	7.4%	4.6%	2.2%	0.2%
	1.8%	2.1%	-4.5%	1.8%
Melbourne	3.0%	6.4%	6.4%	2.6%
	6.9%	13.7%	-1.2%	-6.8%
Brisbane	12.9%	11.4%	10.2%	11.5%
	19.5%	6.1%	2.8%	19.0%
Adelaide	8.9%	13.0%	12.6%	3.0%
	-1.7%	16.4%	0.0%	-1.3%
Fremantle	4.1%	2.9%	4.5%	8.4%
	0.0%	11.4%	11.8%	11.0%
Other	39.1%	27.2%	-11.5%	-16.5%
	5.8%	-3.9%	-51.8%	2.3%

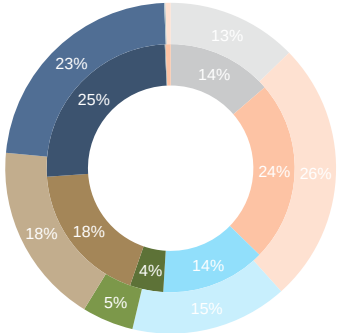
Grand Total (Black) vs Melbourne



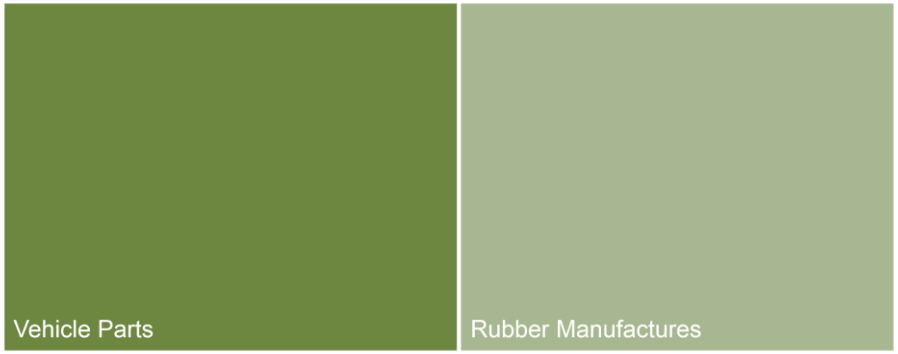
BIS OXFORD ECONOMICS

Full Imports (excl. Bass Strait)
Other Goods (Industrial/Intermediate)

Making up remaining TEU imports, the driver is a combination of Victoria state final demand, construction activity, and changing container composition.

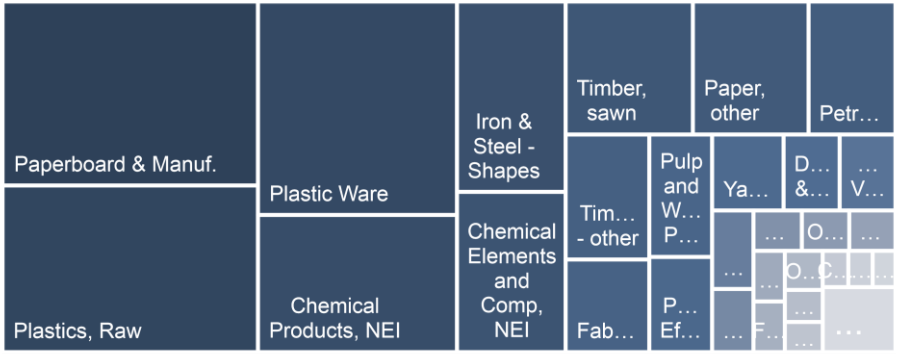


FY18 Imports (PoM classifications) TEUs
Parts for Transport Equipment



FY18 Imports (PoM classifications) TEUs
Processed Industrial Goods

FY18 Imports (PoM classifications) TEUs
Other Intermediate Goods



Outlook

Industrial and intermediate goods imports are strongly related to Building (Dwelling and Non-Dwelling) Construction in Victoria as well as general economic activity (state final demand). The residential building downturn has commenced and the pace of declines is ramping up. In the September quarter Victorian dwelling starts fell 28% y/y. This will negatively impact the volume of processed industrial goods imported into the Port of Melbourne over the coming years.

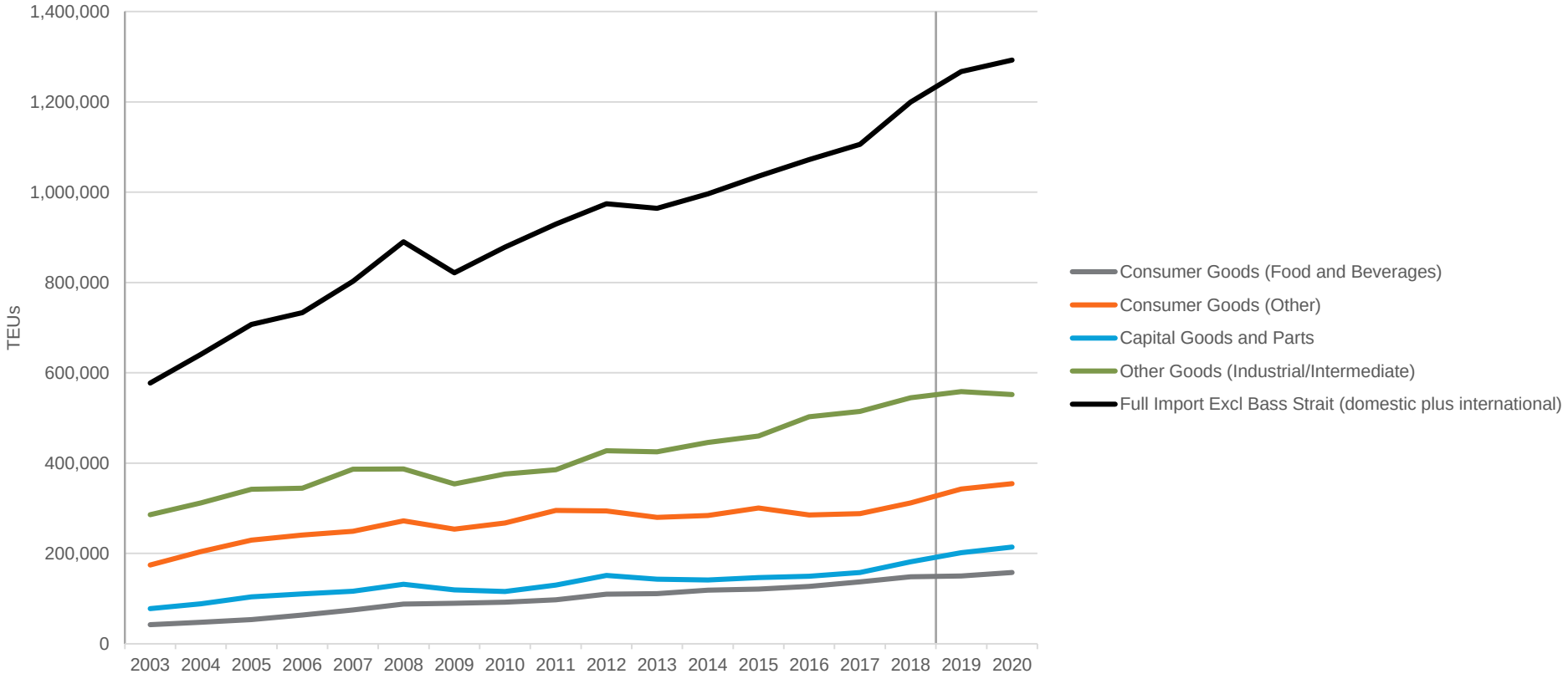
Partially softening the poor outlook is a shift away from 20s into 40s and growth in demand for intermediate goods in Victoria. **The net outcome is that TEU growth is projected to grow by and average of 0.6% p.a. in FY2019 and 2020.**

BIS OXFORD ECONOMICS

Full Imports (excl. Bass Strait) Outlook

BIS Oxford Economics is forecasting easing growth rates over FY2019 and 2020

Forecast Imported Container Volumes by category



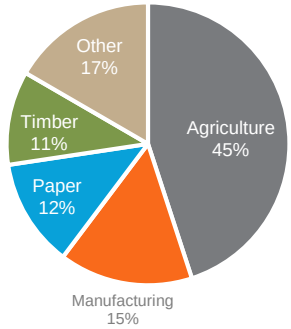
BIS OXFORD ECONOMICS

02

CONTAINERISED EXPORTS (EXCL. BASS STRAIT)

Full Exports (excl. Bass Strait) Classifications and Mapping

Similar to how we mapped containerised imports to a BoPBEC, we categorised each of the Port of Melbourne exports into a sets with common drivers.



Drivers

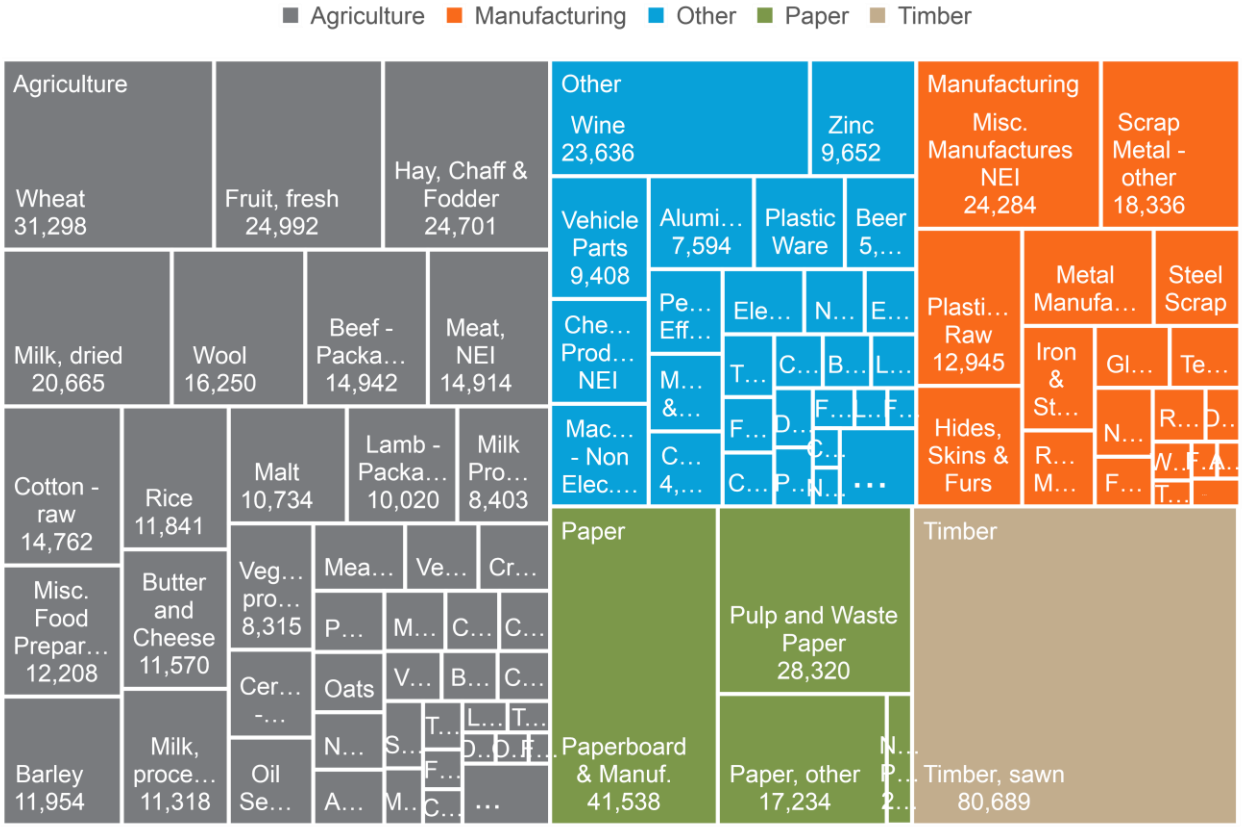
1. **Agriculture**
2. **Manufacturing**
3. **Other**
4. **Paper**
5. **Timber**

Historically, these drivers have proven to be a very good reflection of the growth in export volumes out of the Port of Melbourne.

Agriculture is driven by World or Asian demand

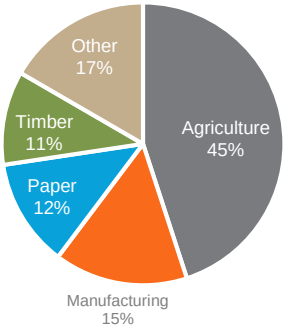
CAGR		1980-2015	2015-2065
World	Population	1.4%	0.7%
World	Cereal Demand	1.5%	0.7%
Australia	Cereal Exports	3.1%	
Asia	Population	1.5%	0.3%
Asia	Meat Demand	2.3%	1.0%
Australia	Meat Exports	2.2%	
Asia	Dairy Demand	4.8%	1.6%
Australia	Dairy Exports	4.4%	
Asia	Other Food Demand	3.7%	1.3%
Australia	Other Food Exports	4.4%	

CY18 Full exports by Driver (TEUs)



Full Exports (excl. Bass Strait) Different Drivers

Full exports each have very different historical trajectories.



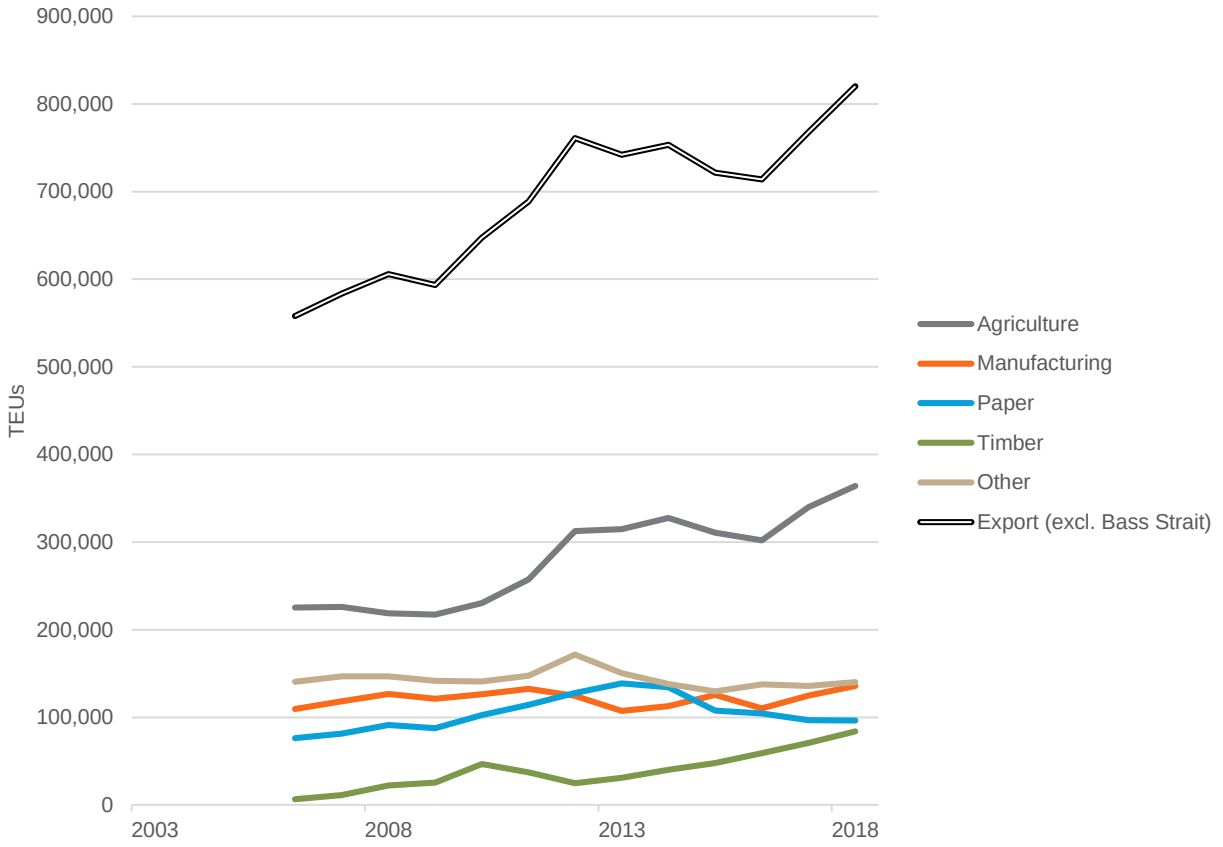
Broadly speaking, exports have been characterised by:

1. Slow growth in non-cereal rural exports
2. Strength in non-commodity manufacturing
3. Volatility in cereal exports (and an uplift in the late 2000s coinciding with increased containerisation.
4. Weakness in Other Manufacturing during the period of the high dollar.

Note that the volatility of cereals tends to drive year-to-year volatility in the aggregate export volumes. While this is expected to continue over the forward outlook, BISOE has assumed cereal exports will reflect average wheat yield.

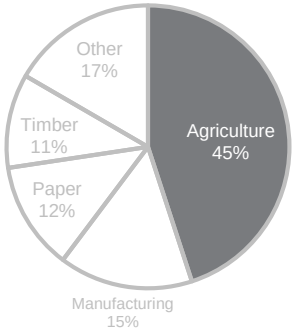
Note that there is no disconnect between the narrative that there is a decline in Australian manufacturing and strength in manufactured exports, as the declines experienced have been overrepresented in the import-competing sectors of the economy, while areas in which Australia retains a competitive advantage have tended to remain unscathed.

Historic International Full Exported Container Volumes by Driver



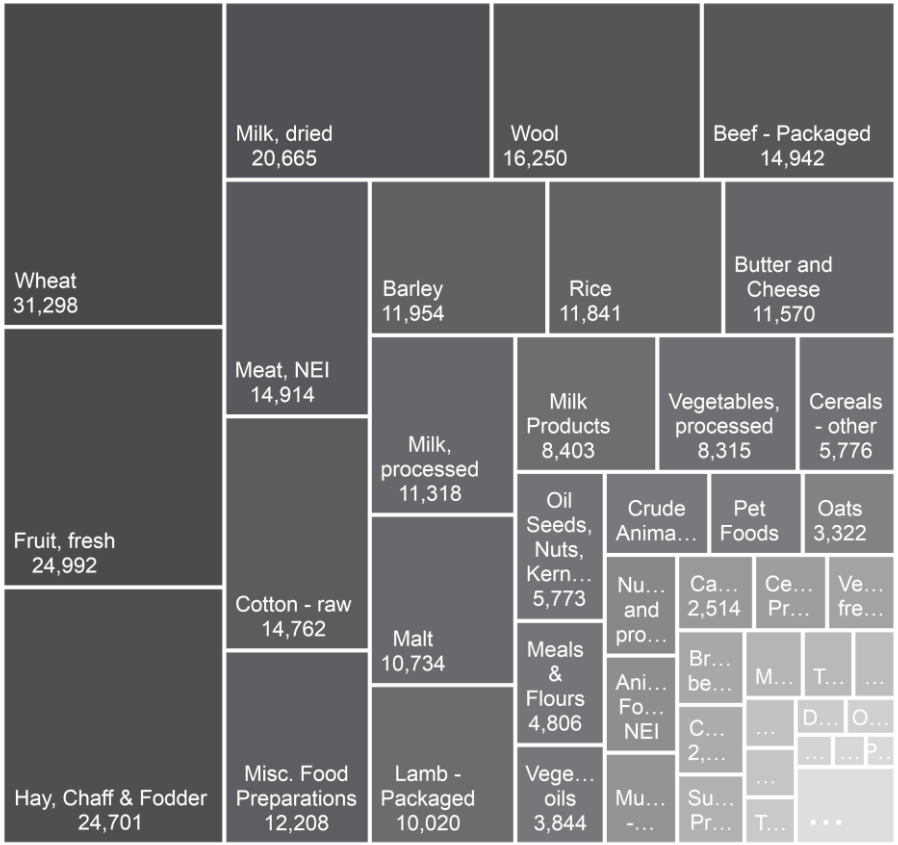
BIS OXFORD ECONOMICS

Full Exports (excl. Bass Strait)
Agriculture Exports

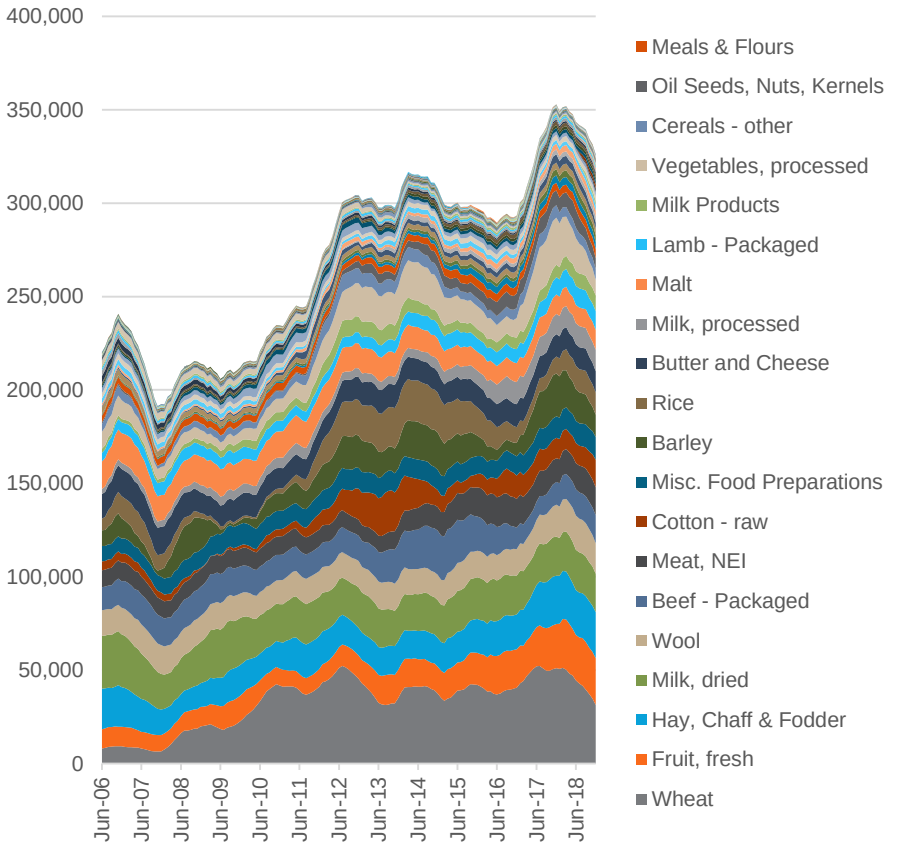


Recent strength was from Barley, Wheat, Hay and Processed Vegetables, but all have been impacted by weather conditions (and India's tariffs on chickpeas)

CY18 Rural Exports
(Port of Melbourne classifications) TEUs



Historical volumes



BIS OXFORD ECONOMICS

Full Exports
ENSO Outlook

The BOM has developed an alert system for the El Niño–Southern Oscillation. The current status is El Niño WATCH, which we use to determine that the most probable yield is 84% of that of average.

Using the ENSO outlook

The purpose of the ENSO Outlook is to look ahead and assess the likely evolution of the El Nino-Southern Oscillation as it transitions through the different phases of ENSO (El Niño, La Niña and Neutral). It aims to forewarn the Australian community using a staged approach based on changes in the likelihood or risk of an El Niño or La Niña occurring.

The three stages of the ENSO Outlook are designed to reflect the level of confidence that climatologists and oceanographers have that an ENSO event may occur in the season ahead.

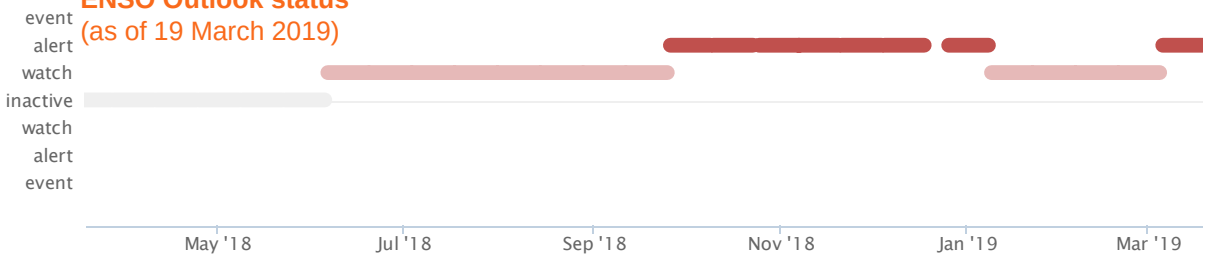
An El Niño WATCH, for example, does not guarantee that an El Niño will develop – rather it indicates that the tropical Pacific Ocean is showing some signs that an El Niño may develop.

Current status

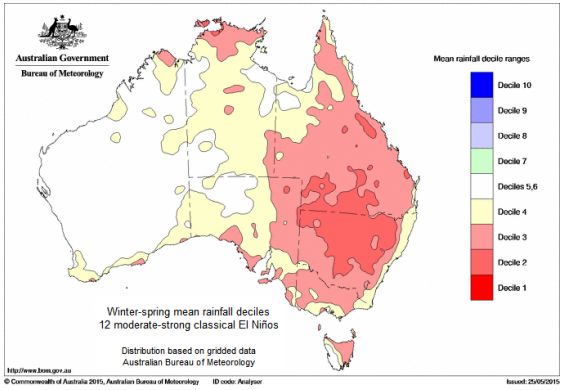
The ENSO Outlook remains at El Niño **ALERT**. An El Niño ALERT means there is around a 70% chance of El Niño developing in the coming season, which is about double the normal likelihood.

Sea surface temperatures in the tropical Pacific Ocean have continued to warm, touching on El Niño thresholds in the last week. The Southern Oscillation Index (SOI) has also recently reached into El Niño territory. However, the SOI can be significantly influenced by transient tropical activity at this time of year, with the 90-day SOI currently neutral at −2.2. Most, though not all, international climate models indicate the warming pattern in the tropical Pacific Ocean will continue, with El Niño thresholds likely to persist throughout the outlook period.

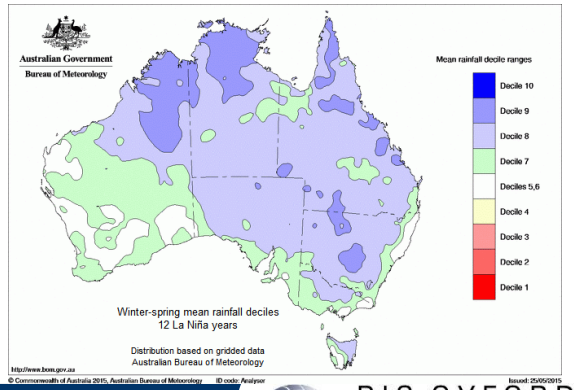
ENSO Outlook status
(as of 19 March 2019)



Winter/Spring mean rainfall deciles across Australia for twelve El Niño years.



Winter/Spring mean rainfall deciles across Australia for twelve La Niña years

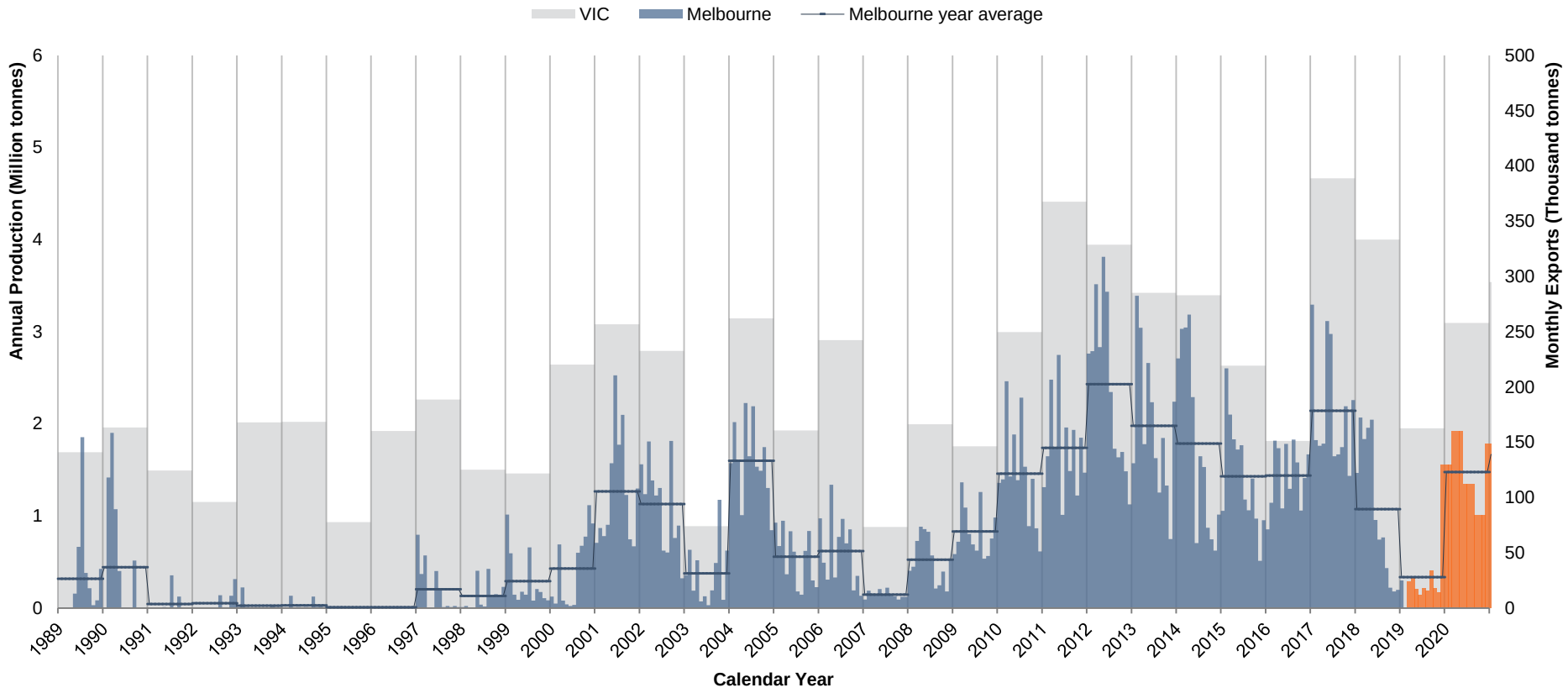


BIS OXFORD ECONOMICS

Full Exports (excl. Bass Strait)
Cereal Exports (wheat)

Since 2007, Port of Melbourne export volumes have roughly* tracked VIC production of cereals. 2019 will be an exception, as more wheat will be diverted to NSW due to drought conditions in the state. 2020 has a 70% chance of being an El Niño year, and 2021 a return to trend.

VIC Wheat Production and Port of Melbourne Wheat Exports (historical and forecast)

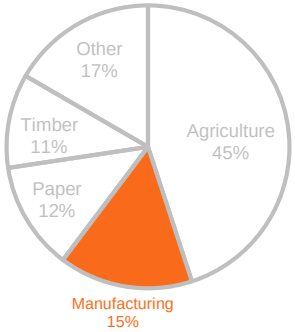


* with domestic consumption of cereals generally stable over time
El Nino current status available at http://www.bom.gov.au/climate/enso/outlook/#tabs=Outlook

BIS OXFORD ECONOMICS

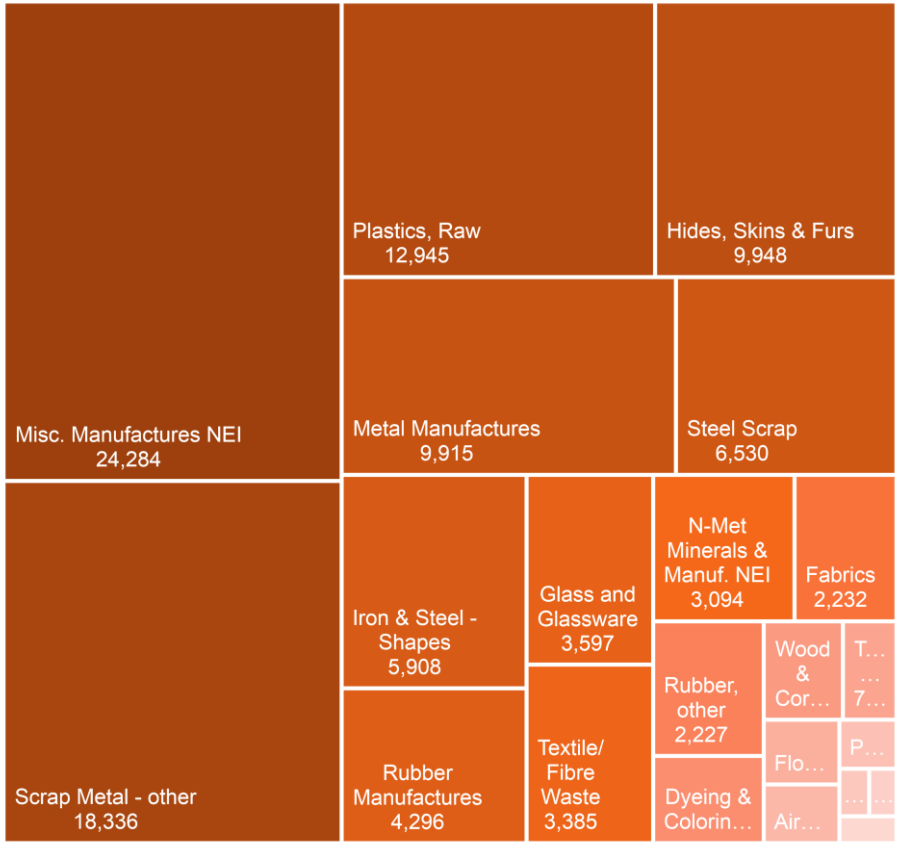
Full Exports (excl. Bass Strait) Manufacturing

Making up 15% all full container exports, “Manufacturing” tends to be internationally competitive and exchange rate sensitive.



CY18 Manufacturing Exports

(Port of Melbourne classifications) TEUs

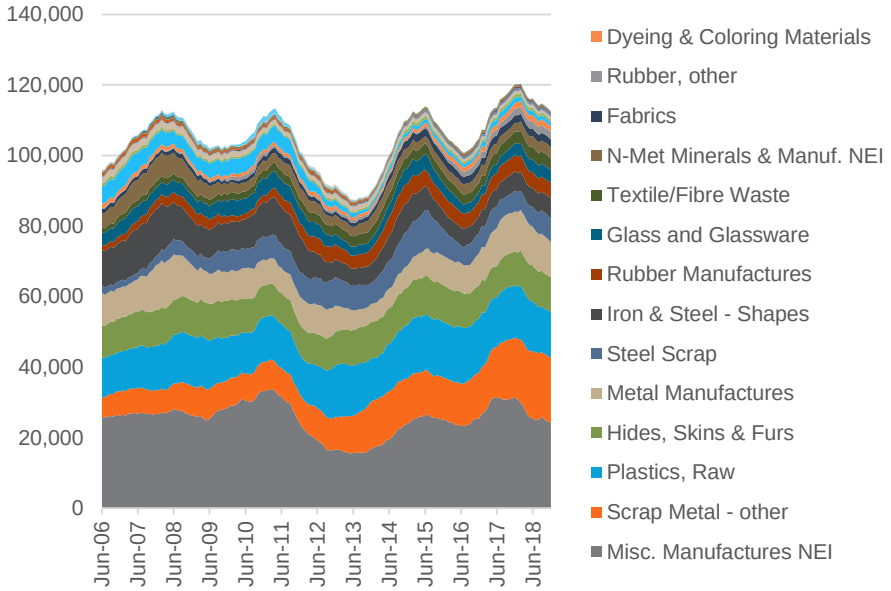


Trading Partner Exposed

Broadly speaking, other manufacturing services the export market, and grows in line with trading partner economic activity (mostly developing countries for these goods, i.e. New Zealand and the United States). While the dollar was high through the mining boom, exports were less competitive, and Victorian exports were particularly impacted with a weaker local economy to sell into.

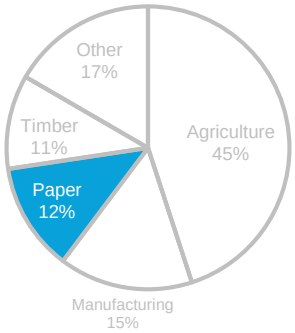
Historical TEU volumes

Moving Annual Total



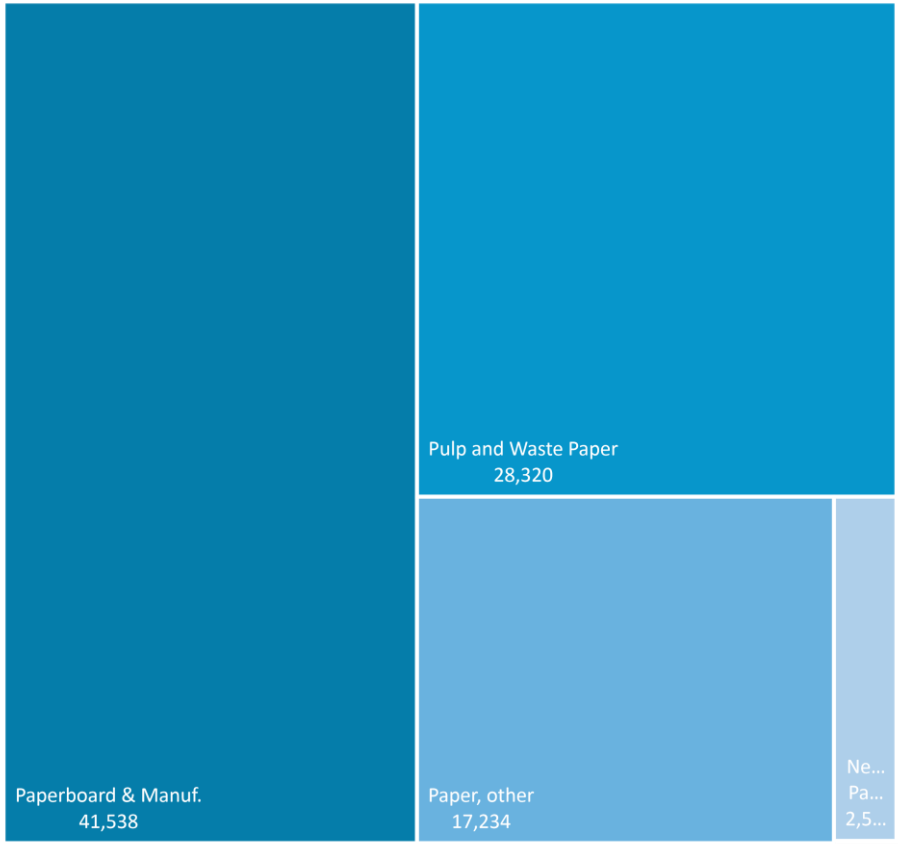
BIS OXFORD ECONOMICS

Full Exports (excl. Bass Strait)
Paper



Making up 12% all full container exports, “Paper” is constrained by available softwood lumber, overseas demand, and competitive tensions between ports.

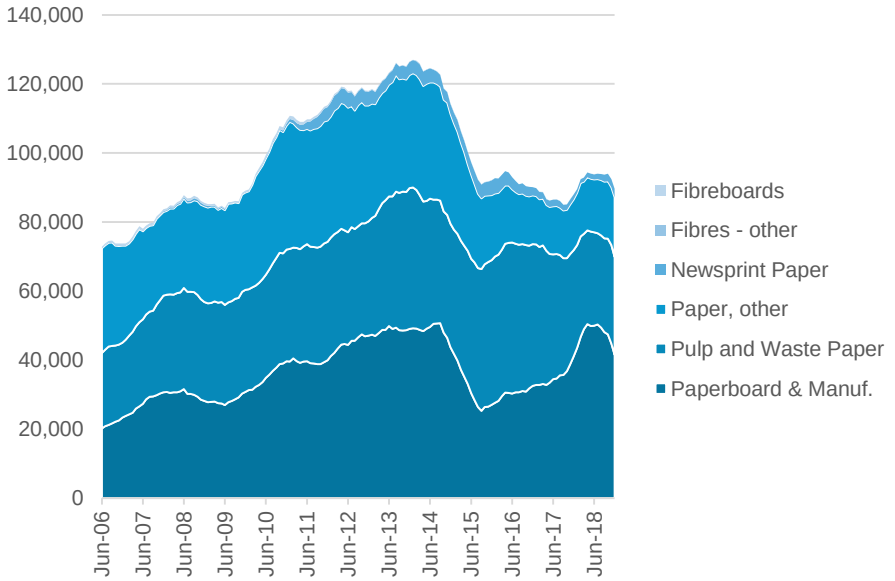
CY18 Paper Exports
(Port of Melbourne classifications) TEUs



Trading Partner Exposed

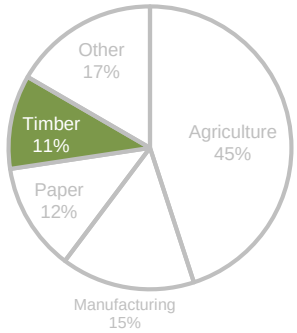
Forecast growth for the next 50 years is highly informed by estimates of the available planation softwood for harvest, with five-year estimates of key regions published out to 2055, and the national outlook for paper milling. Volumes fell back in FY15 with the loss of VISY paper products to Port Botany, but was recovered briefly due to temporary changes in rail routes in FY18.

Historical TEU volumes
Moving Annual Total



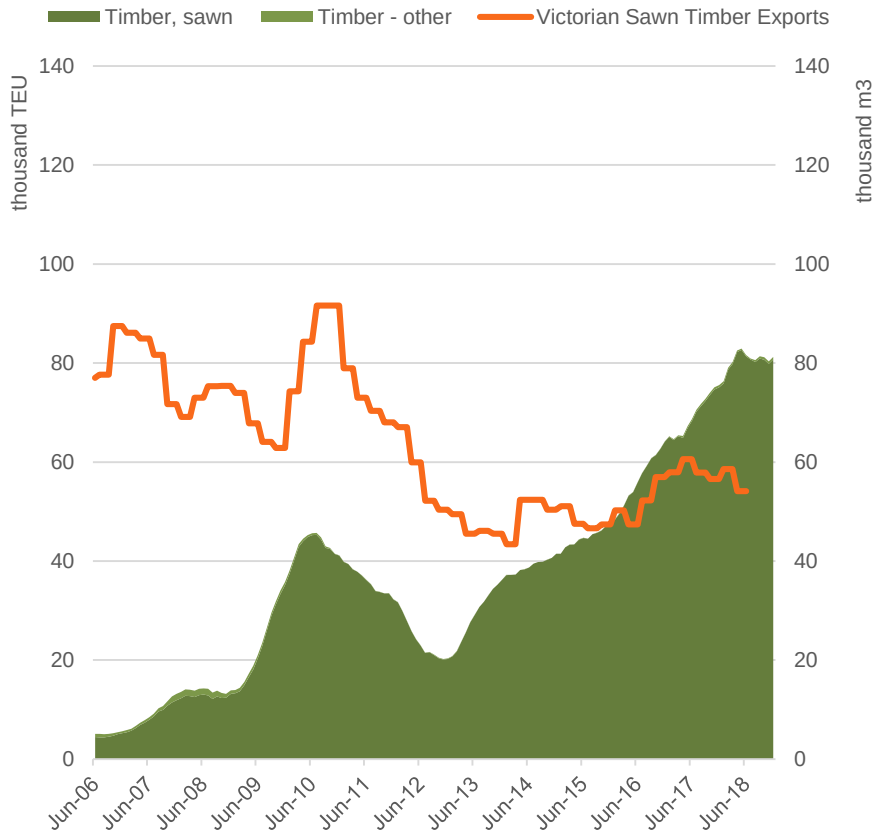
BIS OXFORD ECONOMICS

Full Exports (excl. Bass Strait)
Timber



Making up 11% all full container exports, Timber is constrained by available plantation stock, overseas demand, and competitive tensions between ports.

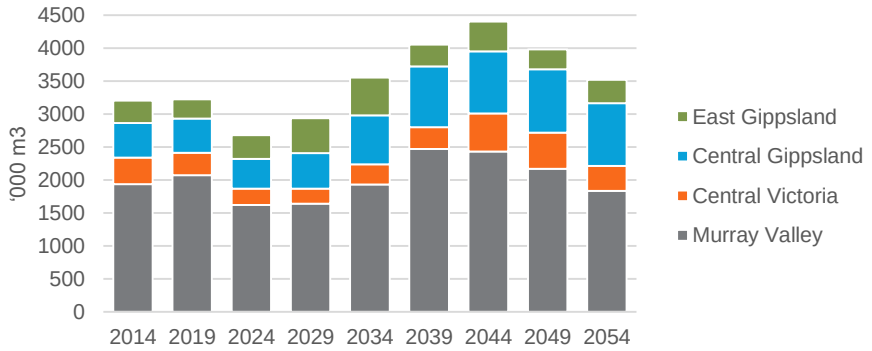
Sawnwood Exports by State of Origin (Left Hand Axis)
Port of Melbourne Exports (TEUs, Right Hand Axis)



Trading Partner Exposed

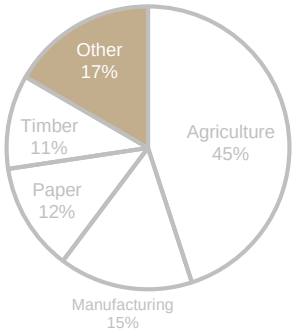
- OneFortyOne has advised that half of the current exporters through the Port of Melbourne are liquidating current stock at unsustainable rates.
- Demand from China is supporting prices, but it is expected that volumes will transition to a level of about half current exports, before eventual return to long-term production outlooks (i.e. the ABARES production forecasts by catchment).

ABARES Production Forecasts by Catchment



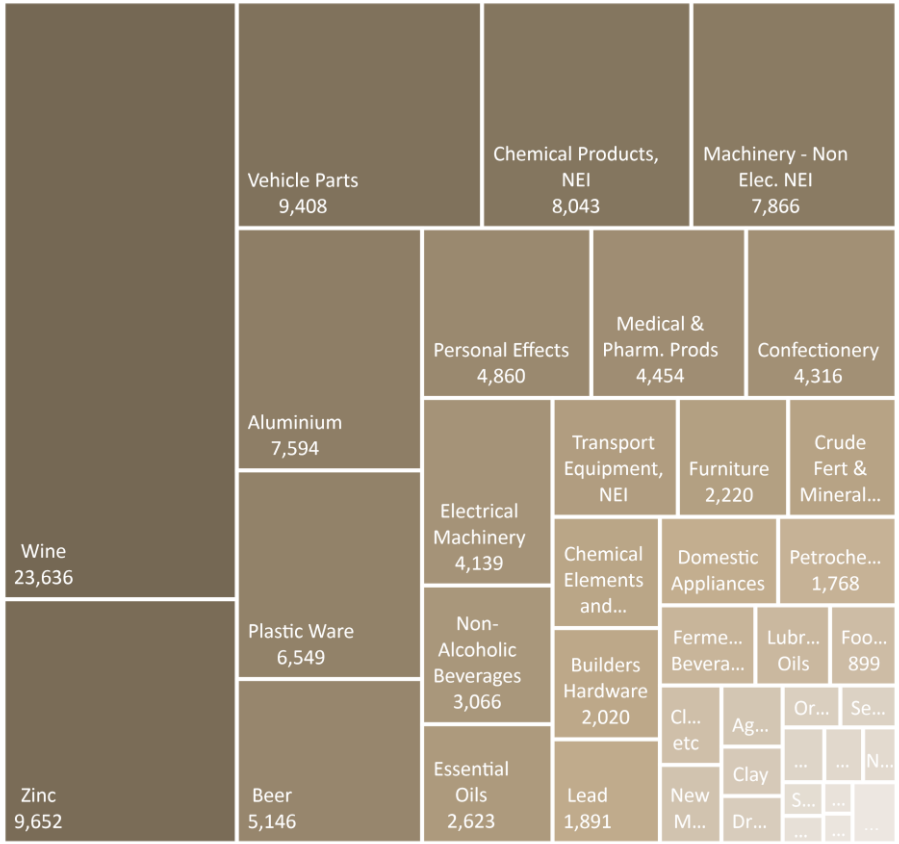
BIS OXFORD ECONOMICS

Full Exports (excl. Bass Strait)
Other

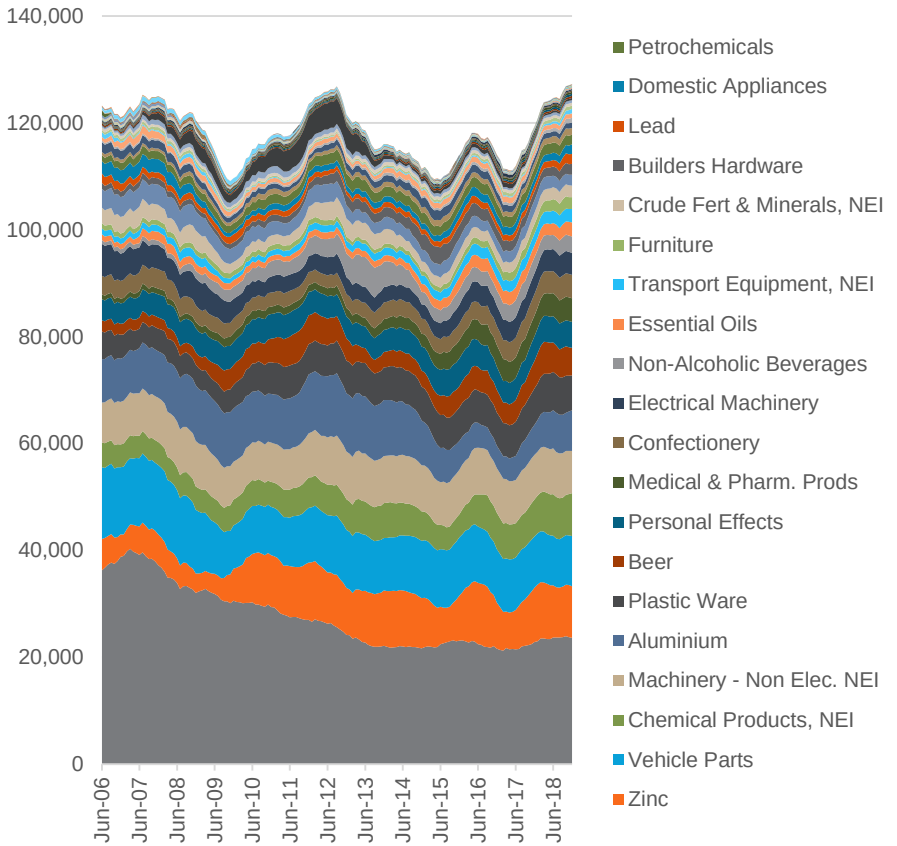


Making up 17% all full container exports, “Other” is a mixed bag, but has easing up since the fall in the AUD/USD.

CY18 Other Exports
(Port of Melbourne classifications) TEUs



Historical TEU volumes
Moving Annual Total



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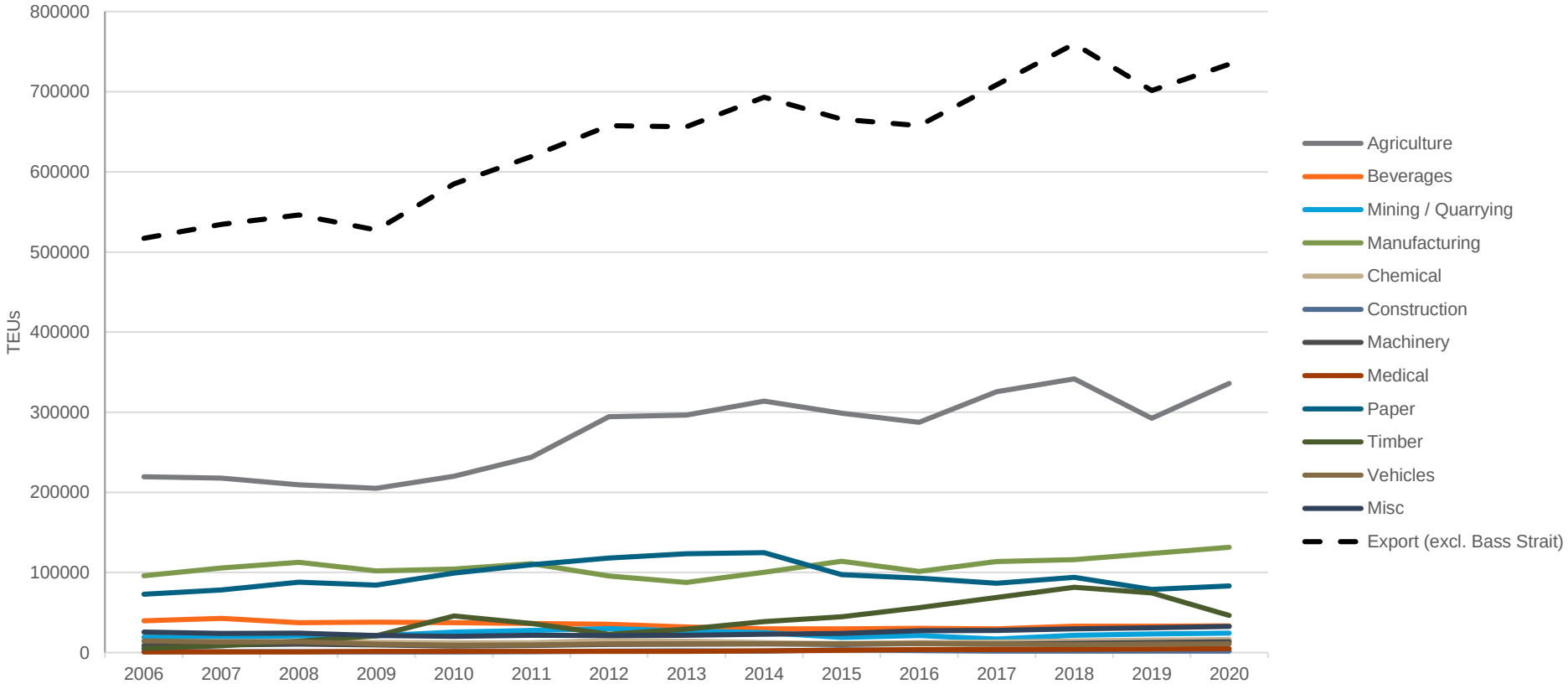
Full Exports (excl. Bass Strait)
Medium term outlook

Agricultural exports will continue to drive the volatility in containerised exports, with a drought in NSW impacting cereal exports in 2019, and a higher-than-usual chance of an El Nino event this coming Winter and Spring reducing the outlook for the 2020 harvest.

Sectoral Outlook

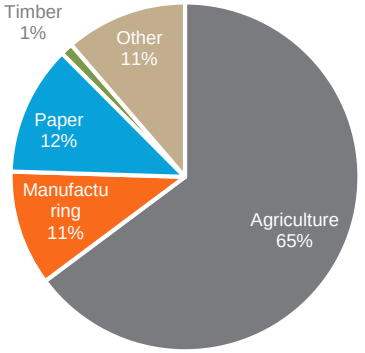


BIS OXFORD ECONOMICS

03

BASS STRAIT TRADE

Bass Strait Imports



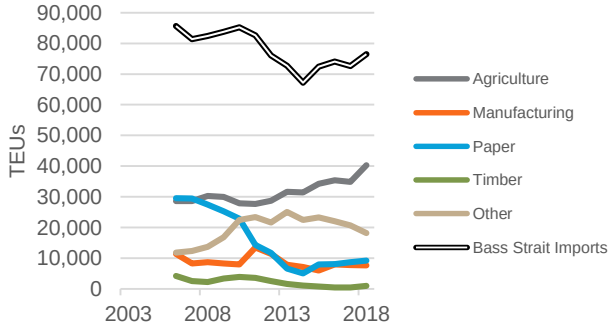
We can examine containerised imports from Tasmania in the same fashion as containerised exports from Victoria.

Drivers

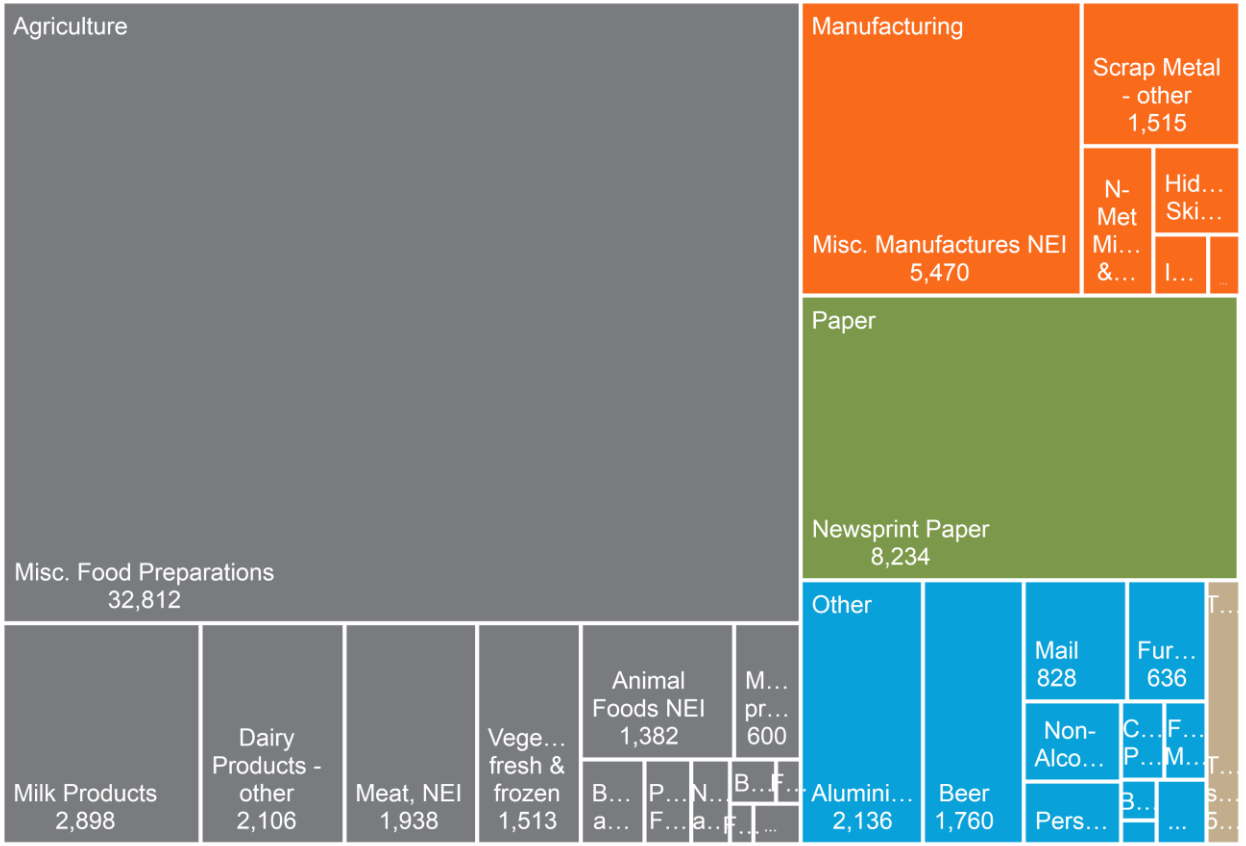
Using the conventions that we have from international trade into Australia (demand for imports driven by demand for goods, and exports driven by production levels), we flip it around to explain trade with Tasmania.

All containerised trade going through Tasmania travels through Melbourne, either directly from Victoria, or transhipped at the port itself.

Imports from Tasmania have eased back in recent years because of falling paper and newsprint production in the state. Over the past two decades, food (fresh fruit and vegetables or manufactured food preparations) has become the dominant export commodity.

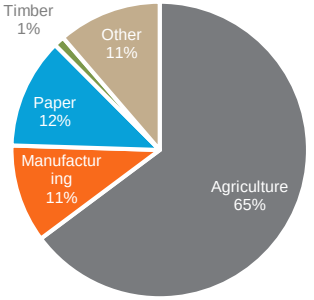


CY18 Full exports by Driver (TEUs)



BIS OXFORD ECONOMICS

Bass Strait Imports
Agriculture Goods



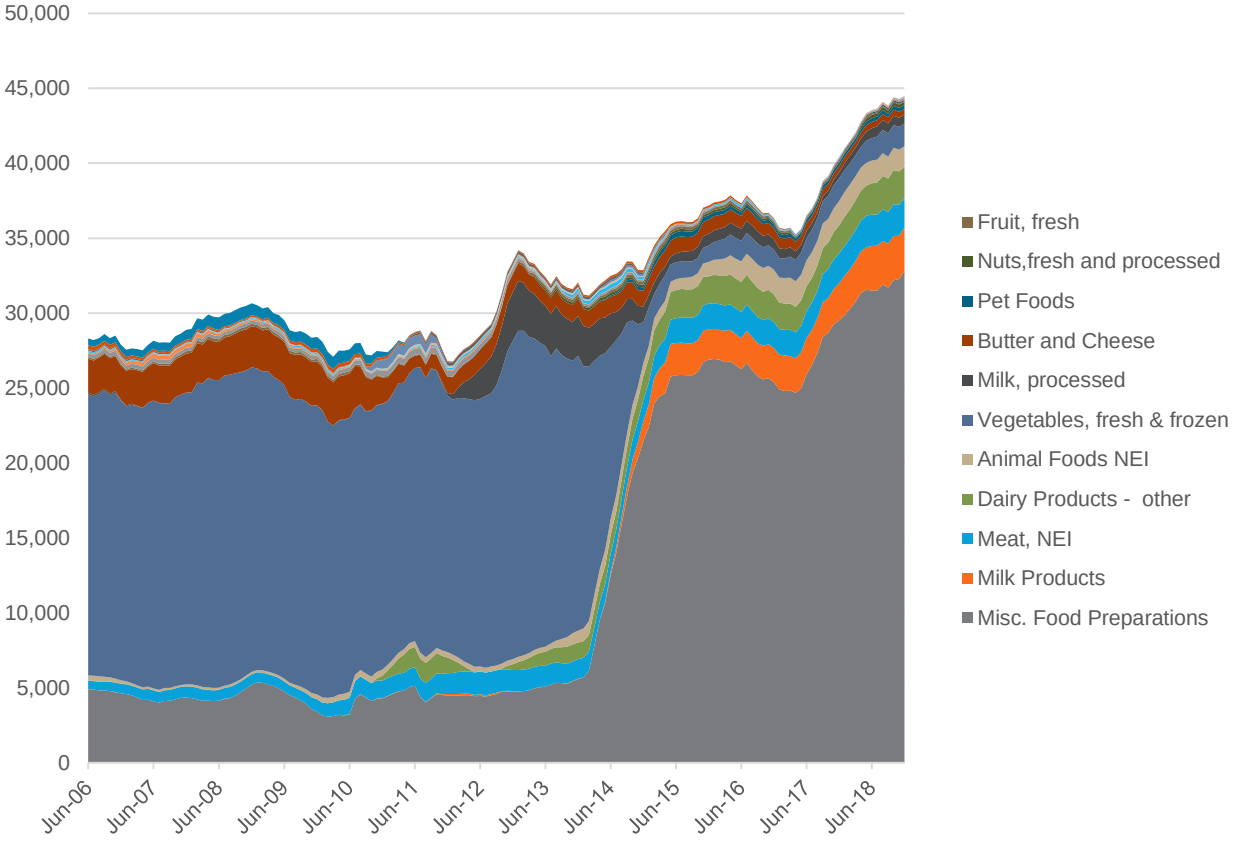
Imported Agriculture from Bass Strait strongly resembles the aggregate Rural Exports profile for Australia, which in turn is driven by international demand.

The rapid growth in imports from Tasmania coincided with the fall in the Australian dollar and the sudden surge in food manufacturing which is very exchange rate sensitive.

Current trade is dominated by fruits and vegetable products, which with recent free trade agreements, growing international demand, a competitive dollar, and low shipping costs, continue to go from strength to strength.

Current projections by ABARES are for Australian exports of fruit and vegetables to grow by an average of 8% p.a. over the next five years.

Bass Strait Imports – Agriculture
(TEUs)



BIS OXFORD ECONOMICS

Bass Strait Exports

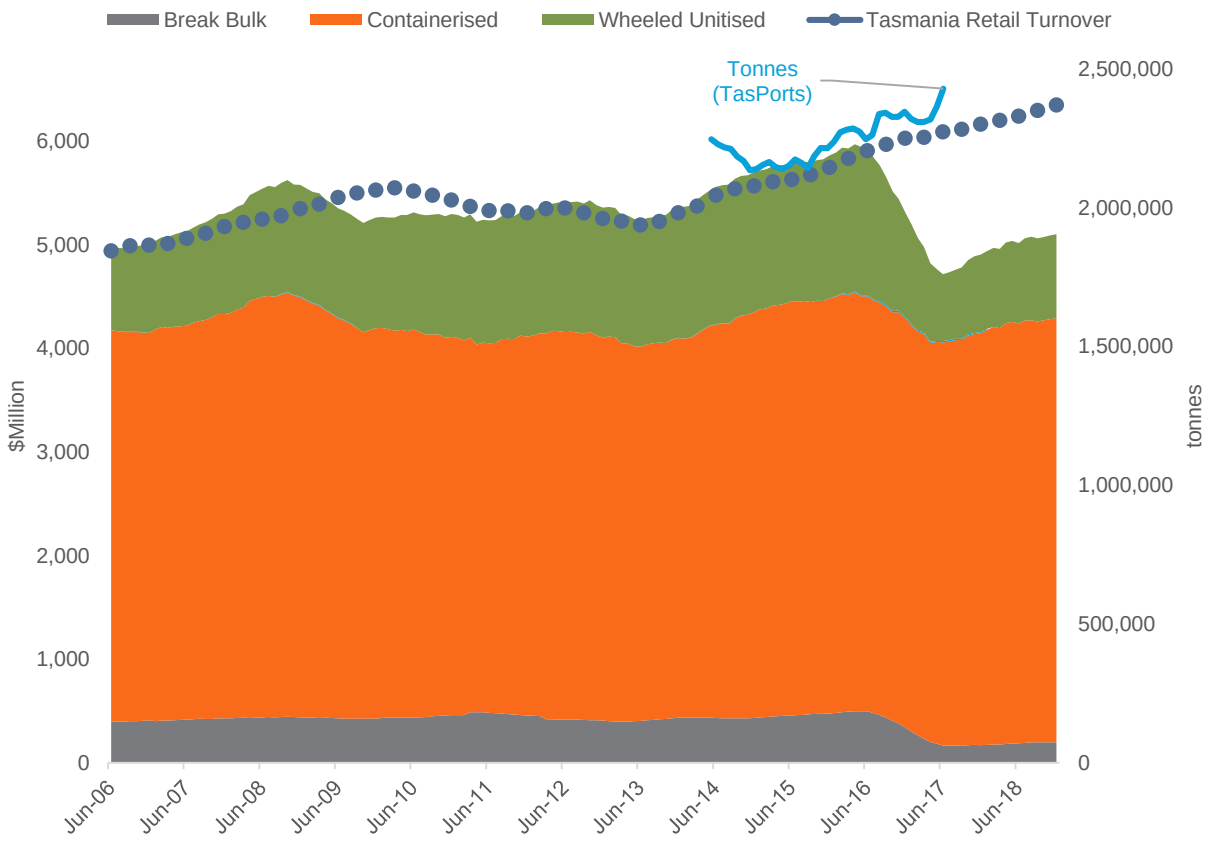
Retail turnover remains a solid driver of exports to Tasmania, with the drop off from FY16 explained by Station Pier volumes being removed from Port of Melbourne statistics.

Tonnes/TEU from Tasmania have recently fallen to an all-time low of 10.9.

Over the forecast horizon, the split between Wheeled Unitised, Break Bulk, and Containerised is unchanged from CY18.

Data provided by TasPorts reveals a different mass measure of cargo movements, but it has also grown consistently in line with retail activity through the period when the Port of Melbourne ceased recording Station Pier movements.

Exports to Tasmania
(all Modes)

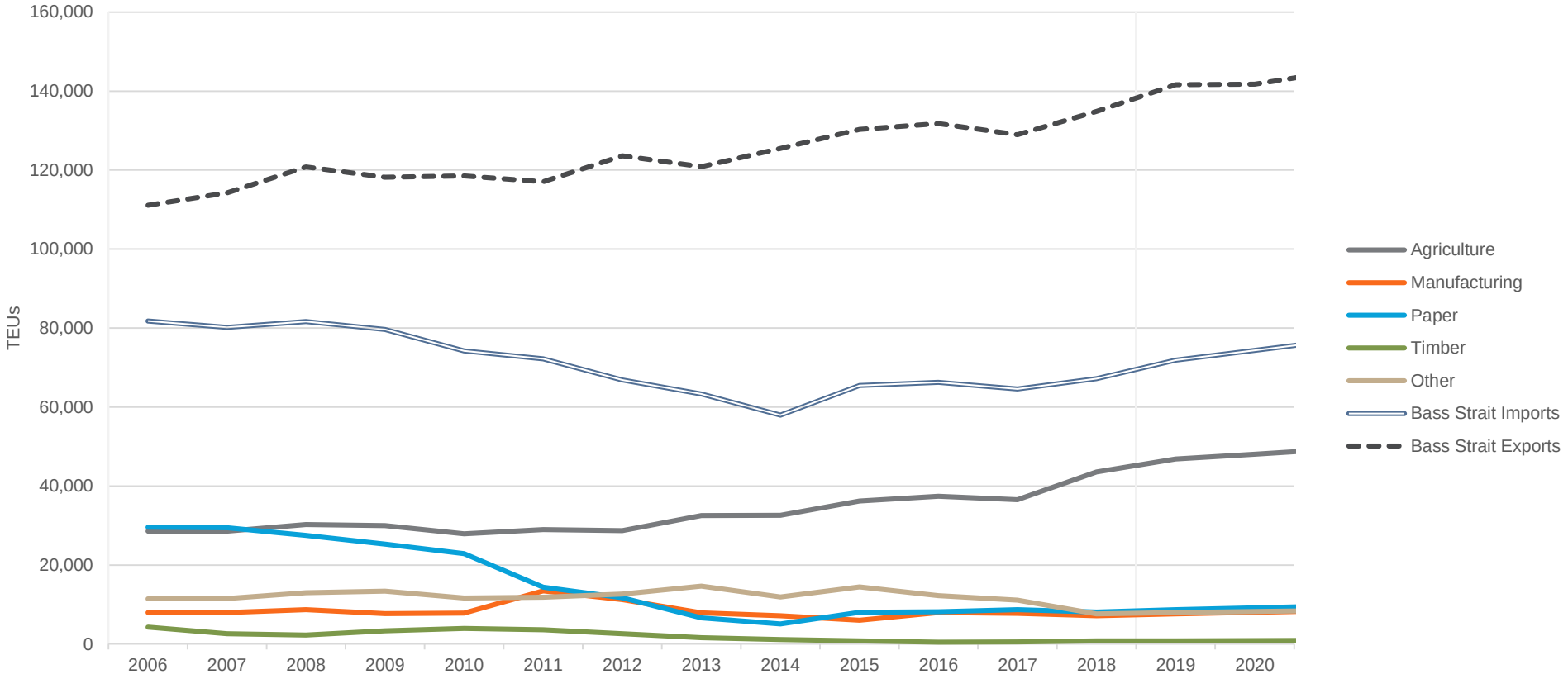


BIS OXFORD ECONOMICS

Bass Strait

Bass Strait Exports are constrained by the growth in Retail Turnover, which is a function of employment growth, productivity, and retail turnover's share of wages.

TEU forecasts of Bass Strait Trade



BIS OXFORD ECONOMICS

04

EMPTIES AND TRANSHIPMENTS

Transhipments

Bass Strait

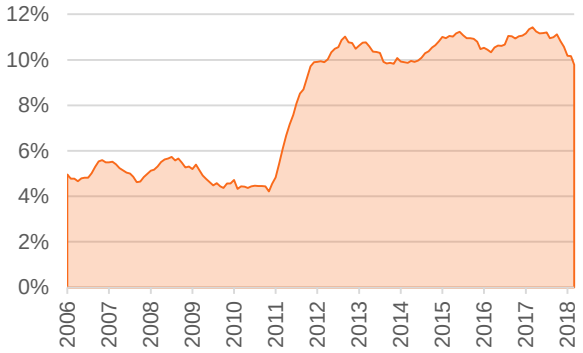
Currently, transhipment exports to Tasmania make up about 10% of full exports. This is expected to continue throughout the forecast period.

Currently, transhipment imports from Tasmania make up about 40% of full imports. This is expected to continue throughout the forecast period

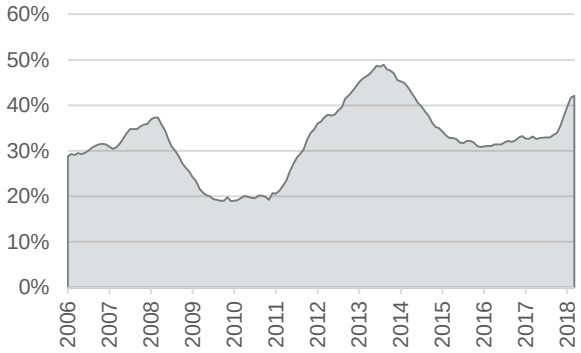
Excluding Bass Strait

Transhipment imports make up less than 4% of full mainland and overseas imports. This is expected to continue over the forecast period.

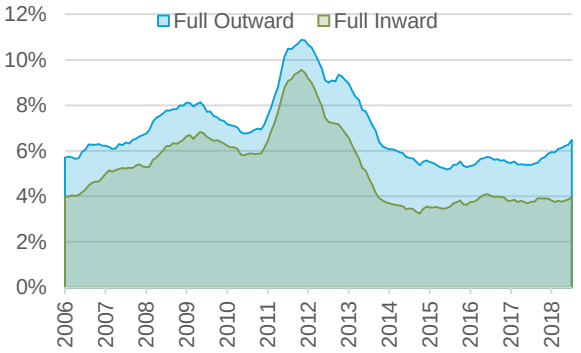
Outbound Transhipment
Bass Strait, Share of Full Bass Strait Exports



Inbound Transhipment
Excl. Bass Strait, Share Full Imports



Excl. Bass Strait
Share Full Imports



BIS OXFORD ECONOMICS

Empties

The dominant container types are 20’ and 40’ containers, both in dry and refrigerated (reefer). For each container type, trade flows tend to balance out between imports and exports.

Reefers

With significant agricultural exports, the Port of Melbourne exports more full reefers than it imports (in most years).

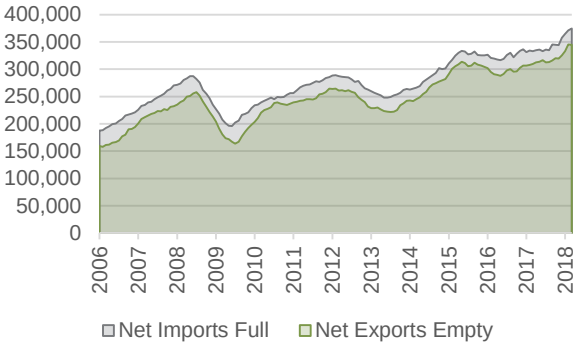
There is a slight differential between net full and net empty trade volumes (more containers are exported than are imported), but this can be explained by reefers being sourced from other import terminals (namely Botany) before being loaded for export through Melbourne.

Dry Containers

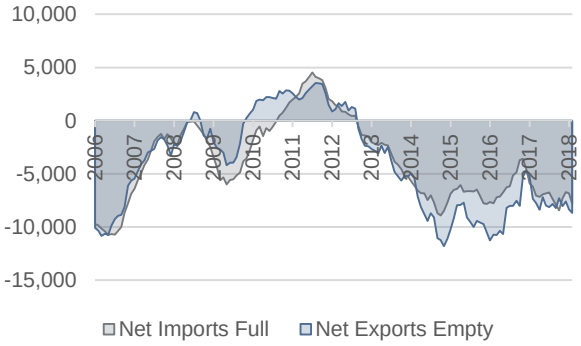
The major container ports in Australia import more full containers than they export. This is particularly the case for 40ft containers, which are ideal for the consumer and light-weight intermediate goods imported from overseas, but sub-optimal for the heavier (denser) items that Australia tends to exports (preferring instead 20ft containers, which are being generally phased out along most trade routes.

Over the forecast period, BISOE maintains the difference between full and empty containers as observed in 2018 and maintains this over the forward outlook, running it off of the modelled full exports and imports.

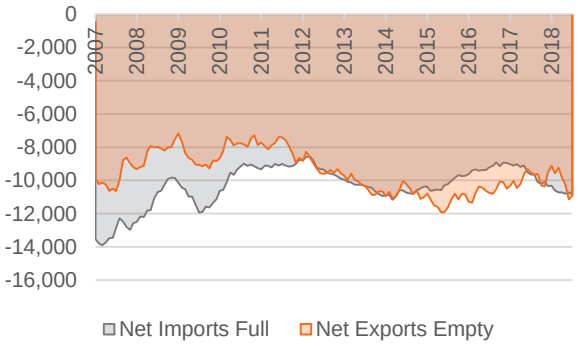
40’ Dry Net trade flows



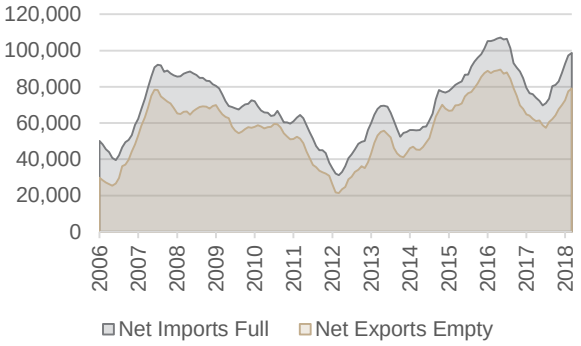
40’ Reefer Net trade flows



20’ Reefer Net trade flows



20’ Dry Net trade flows



BIS OXFORD ECONOMICS

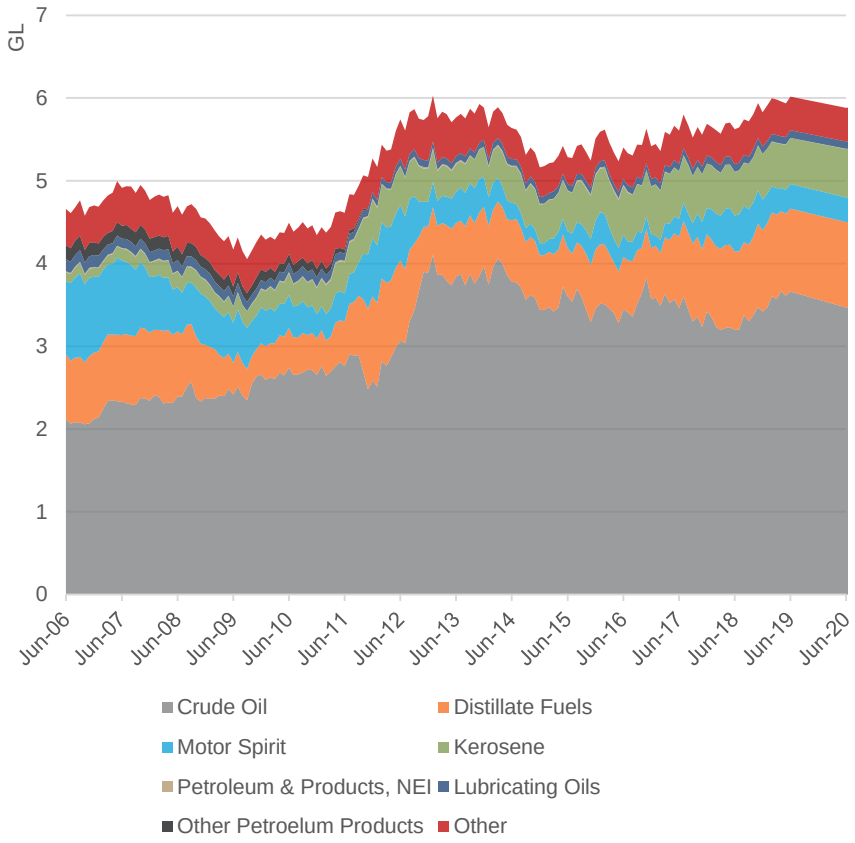
05

BULK LIQUID

Bulk Liquids
Overview

Petroleum Products Relating to Motor Vehicles Form the Majority of Bulk Liquid Imports into the Port of Melbourne

Port of Melbourne Bulk Liquid Imports



Forecasting approach:
Underlying demand in Victoria

Petroleum products into Victoria are for one of four sectors of the economy:

1. Passenger Cars (LPG and Automotive Petrol)
2. Commercial Freight (Diesel)
3. Jet Fuel
4. Non-transport

These sectors each have markedly different drivers.

Passenger Cars demand has been weakening since the mid-2000s, primarily due to engine efficiency standards put in place in the US and Europe. This is expected to continue for at least another decade for new cars and another 30 years as the fleet composition changes.

Diesel demand has been climbing to reflect the requirements to move goods. There was also some growth from a shift towards diesel in the passenger car market up to 2010.

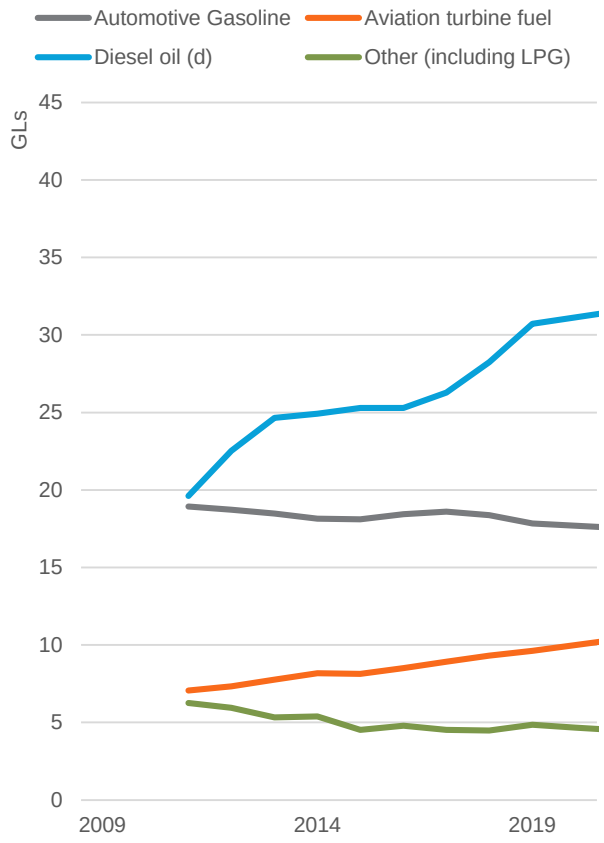
Jet Fuel has had a strong run for the past decade, in large part because of increased overseas flight distances (which increases the fuel uplift for outbound flights). This too will continue for at least another decade to reflect the new aircraft fleet and desired stoppage route into China and the Middle East.

Non-transport demand tends to reflect broad economic activity.

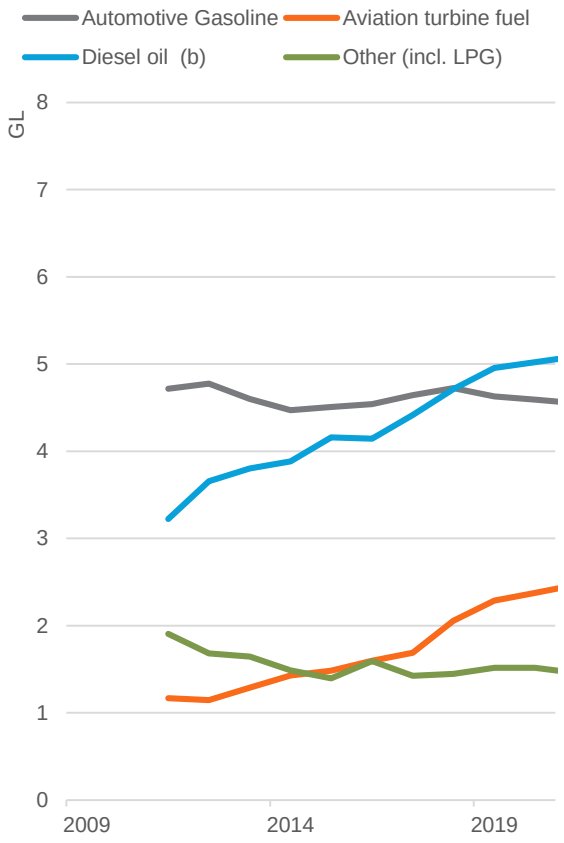
Bulk Liquids
Recent History and Forecasts

Aggregate demand by petroleum product.

AUS Sales of Refined Petroleum
MAT



VIC Sales of Refined Petroleum
MAT



Based on Estimates from the Department of the Environment and Energy, Australian sales of petroleum fuels have started to grow again since declining in 2015.

Increases in **jet fuel** consumption (driven by rising tourism) and **diesel** (due a rise in the use of diesel vehicles and, more significantly, the mining boom) have been balanced out to some degree by falling demand for **petrol** (due to rising efficiency) and **LPG**.

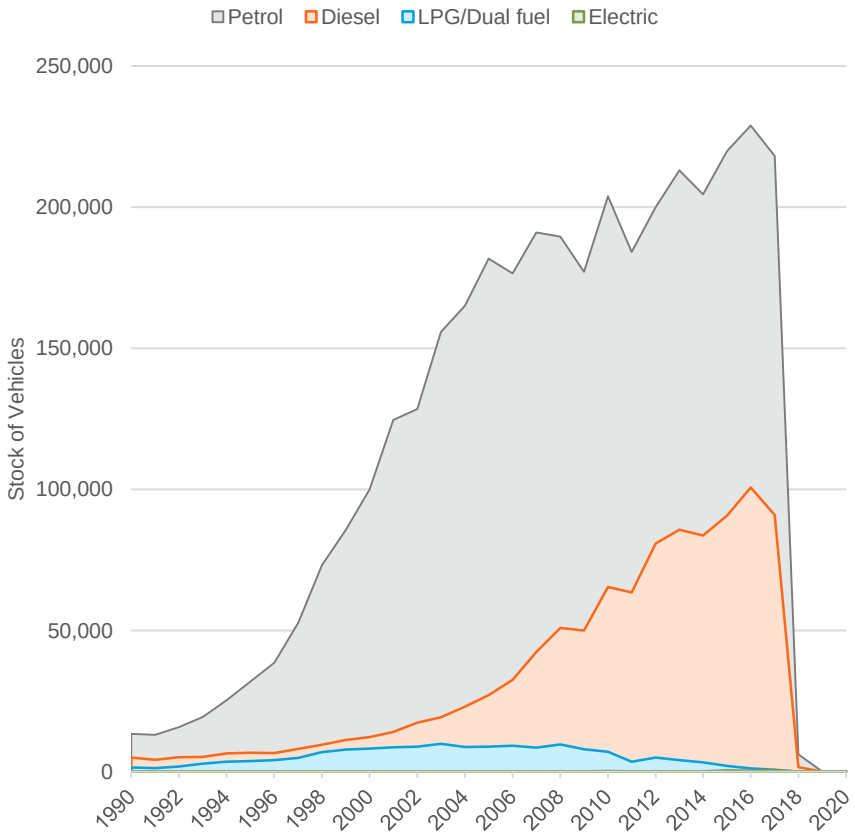
Imports of these refined petroleum products however have grown significantly, approximately doubling since 2009/10.

Source: Department of the Environment and Energy (Australian Petroleum Statistics)

Bulk Liquids
Drivers: Motor Vehicle Fuels

Rising Fuel Efficiency and a shift to diesel is Resulting in Falling Petrol Consumption.

Stock of Motor Vehicles by Age by Fuel Type
Total Victoria, 2018 ABS Survey



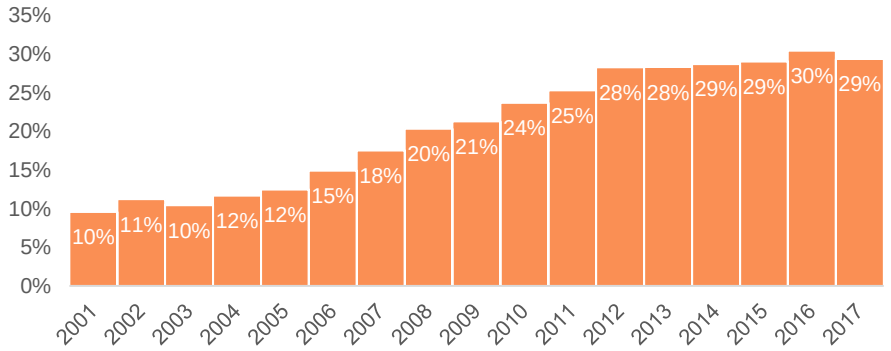
Growth drivers

While BIS Oxford Economics is forecasting growth in the number of vehicle kilometres travelled in Victoria, we expect motor vehicle fuel consumption to trend due to rising fuel efficiency.

More stringent rules on emissions in Europe and elsewhere will mean motor vehicles sold in Australia (a much smaller market) will feature similar efficiency improvements.

Petroleum consumption (a fuel used almost exclusively for motor vehicles) is already declining in consumption despite continued increases in motor vehicle use.

New Motor Vehicles Sales that are Diesel
Total Victoria



Source: 2016 ABS Motor Vehicle Census

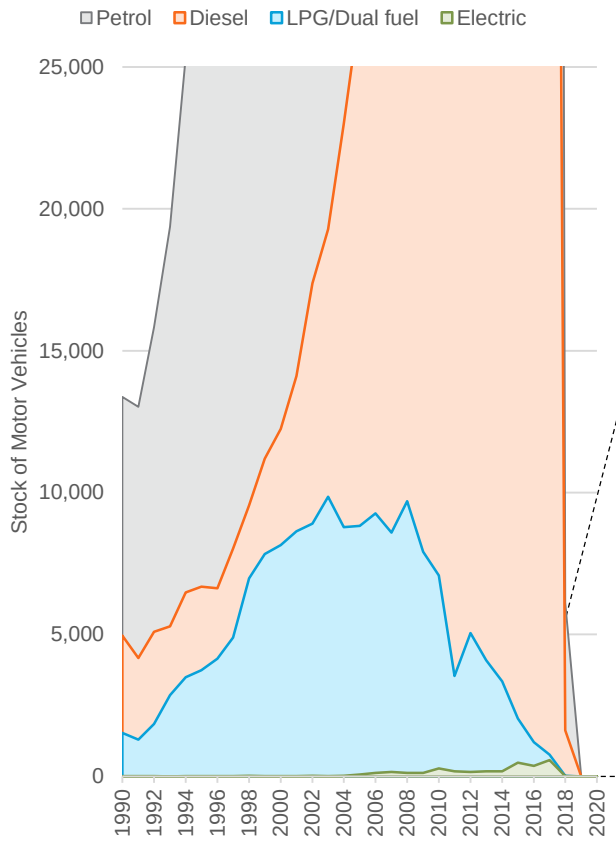
BIS OXFORD ECONOMICS

Bulk Liquids
Drivers: Motor Vehicle Fuels

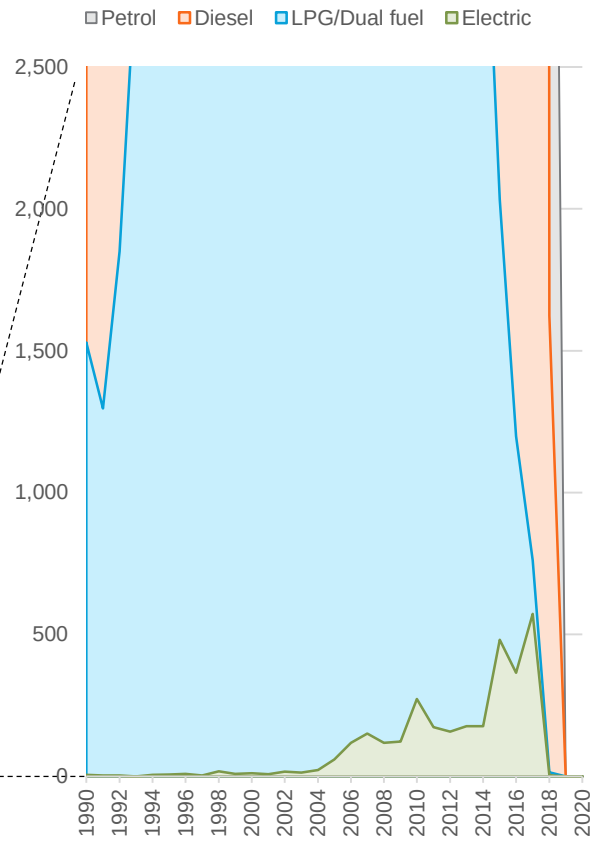
We Forecast Some Switching Away from Higher Emission and LPG Technologies.

Stock Vehicles by Year of Manufacture

10% sample, focus on LPG



1% sample, focus on Electric



Non-Petrol motor vehicles are primarily made up of LPG and Diesel vehicles.

We expect **LPG** vehicle sales will fall to near zero in coming years. The vast majority of LPG vehicles in Australia are between 9 and 21 years old. Estimates of the life of motor vehicles suggests the LPG vehicles currently in stock will approach retirement in the next two decades.

We estimate approximately 85% of motor vehicles do not reach 30 years of age.

Source: 2017 ABS Motor Vehicle Census

BIS OXFORD ECONOMICS

06

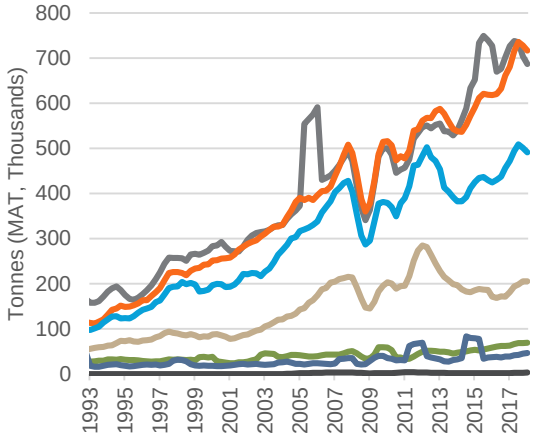
BREAK BULK, WHEELED UNITISED, MOTOR VEHICLES

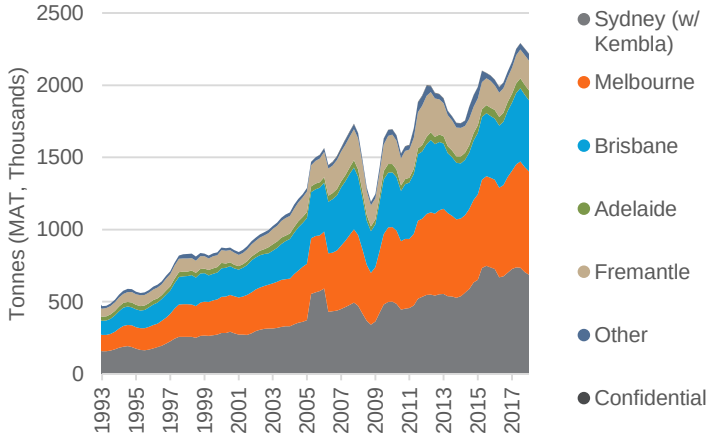
Bulk Imports
Roll-on Roll-off –Australia

The last Australian made passenger car rolled of the line in October 2017, with Holden's Elizabeth plant in South Australia closing down, following Toyota's closure in Altona earlier that month and Ford's closures of facilities in Geelong and Broadmeadows in Victoria. All three cited the lack of government assistance for the reason for the closure, but the sustained high Australian dollar during the mining boom provided the impetus behind the (unsuccessful) funding requests.

At late as 2015, 7% of domestic motor vehicle sales were Australian manufactured. These 80,000 or so vehicles per annum are now sourced from overseas

New South Wales imports shifted from Sydney Port to Port Kembla in between 2007 and 2009.

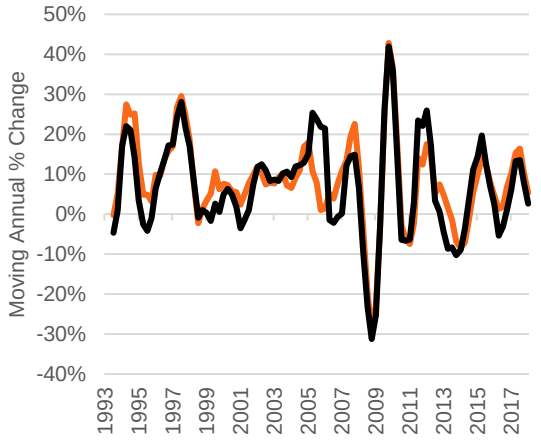




Annual % Change
(year-on-year, quarter-on-quarter)

	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Total	13.2%	13.5%	7.7%	2.6%
	18.5%	7.4%	-6.3%	-6.4%
Sydney (w/ Kembla)	10.1%	8.7%	0.3%	-5.5%
	6.8%	-1.4%	-15.9%	-9.3%
Melbourne	15.3%	16.4%	10.1%	5.4%
	23.6%	12.5%	-4.3%	-6.1%
Brisbane	14.9%	16.3%	9.7%	4.1%
	20.8%	12.4%	-6.3%	-8.1%
Adelaide	10.4%	9.7%	10.6%	11.2%
	31.2%	9.3%	3.9%	4.1%
Fremantle	15.2%	15.4%	20.0%	13.5%
	32.4%	9.7%	16.4%	-0.7%
Other	9.6%	14.6%	16.5%	19.6%
	34.4%	5.0%	24.9%	16.4%

Grand Total (Black) vs Melbourne

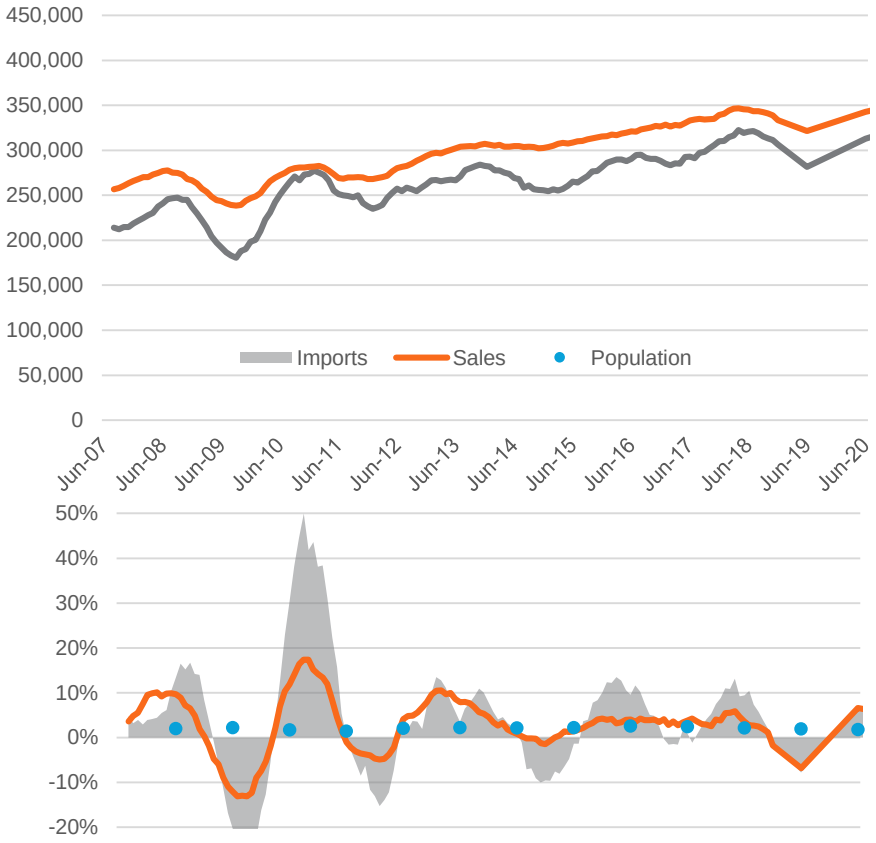


BIS OXFORD ECONOMICS

Break Bulk
Motor Vehicle Import Overview

Imports of Motor Vehicles are constrained by domestic sales, domestic manufacturing, and logistics.

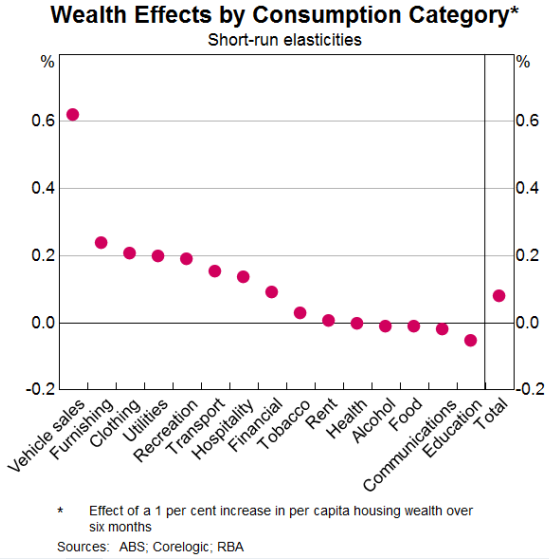
PoM Imports and VIC Sales
(units, Moving Annual Total – top; Annual % change - bottom.)



Current sales downturn

Currently, there is a strong cyclical downturn in sales of motor vehicles, underpinned by declines in property prices in Melbourne.

It is anticipated that the bottom of the property market will turn in FY20, restoring consumer confidence in what is generally the largest lumpy household purchase. A recent speech by the Reserve Bank cited how motor vehicle sales are the consumer good most impacted by changes in housing wealth.*



The fundamentals in terms of the aging of the fleet and number of vehicles per capita, BISOE has seen no change in current trends, which mean that the below average sales currently experienced will require a pickup in above-average sales (and imports) in the coming years.

* *The Housing Market and the Economy*, Philip Lowe, Governor, Address to the AFR Business Summit, Sydney – 6 March 2019
https://www.rba.gov.au/speeches/2019/sp-gov-2019-03-06.html

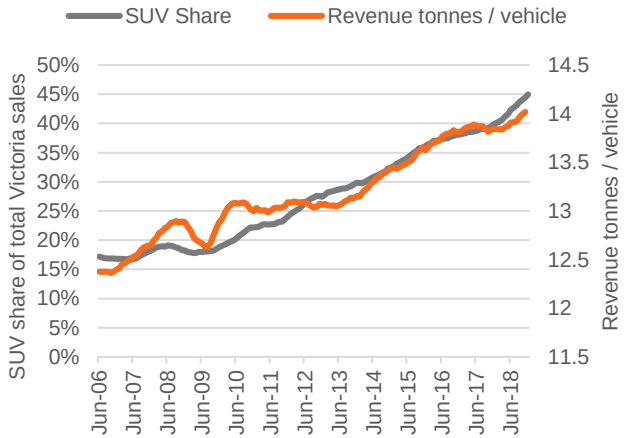
Break Bulk
Motor Vehicle Imports

Steps undertaken to forecast imported vehicles.

1. Lifecycle analysis

We estimate the rate of turnover of existing stock by looking at the depreciation rates of vehicles in each class using the Motor Vehicle Census, which provides an annual report of the number of motor vehicles by year of manufacture and make/model. Current assumptions are that the depreciation schedule does not change.

SUV Share of total Victoria MV purchases
(moving annual total)



2. Increase in stock

Sales which are not replacing stock turnover reflect changes in the demand. We measure this as both changes to the population and utilisation (or motor vehicles per capita). Note that since Light Commercial Vehicles have been increasing utilised as passenger cars (think of Toyota Hilux's) and as such now outnumber traditional utes and panel vans, we now combined the two in our analysis. We are continuing the long-term trend of an increase in the number of vehicles per capita over the forecast period.

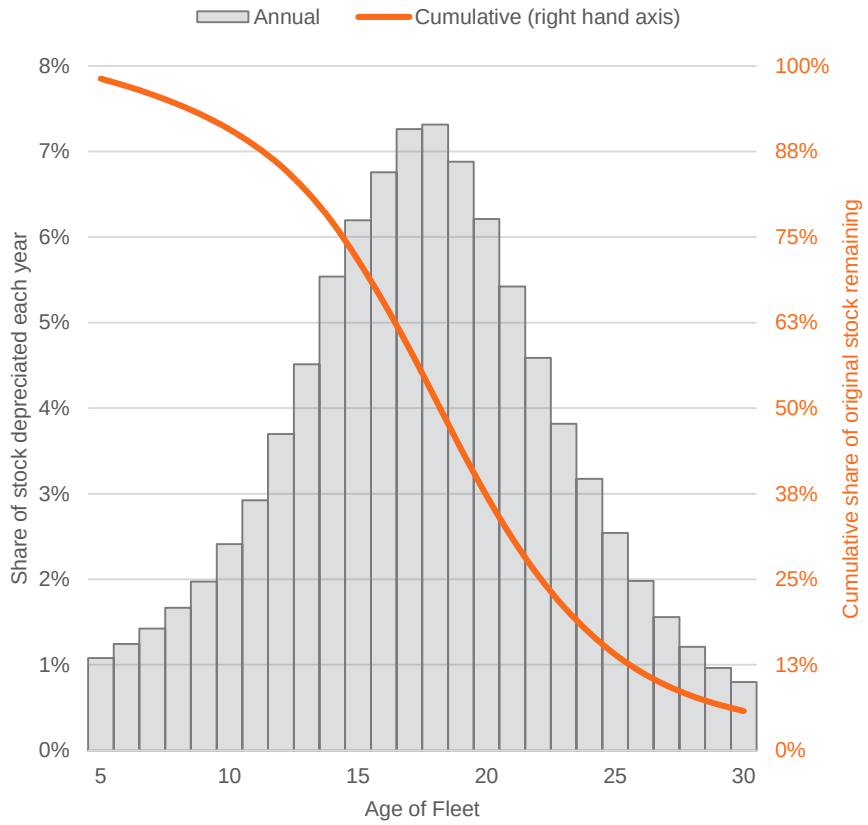
3. Domestic Manufacturing

Historically, Australia manufactured over seven different models over the past 20 years. We have analysis the propensity to purchase these vehicles, and noted that Victoria and South Australia had the highest concentration of these vehicles at 8% and 9% respectively, while the other states and territories had about the same concentrations (i.e. about 6% of 2015 sales were Australian manufactured models).

Break Bulk
Victoria sales of Motor Vehicles

The primary driver of motor vehicle sales is stock replacement of existing vehicles and growth from increasing population (and even increases in motor vehicles per capita).

Retirement of Motor Vehicles by Age



Sustainable Growth drivers

Just over two-thirds of all motor vehicle sales are replacement of existing stock.

The current average stock age in Australia has been largely unchanged since 2015 at 10.1 years.

The current stock of motor vehicles has an average replacement age of 17.4 years (i.e. the age at which the vehicle is removed from the motor vehicle registries).

BISOE's analysis based on the current depreciation schedule, sales to replace retired stock will grow faster than sales due to net increase in stock (driven by population and motor vehicles per capita) for the next decade.

$$net\ increase\ in\ stock = sales\ - depreciation$$

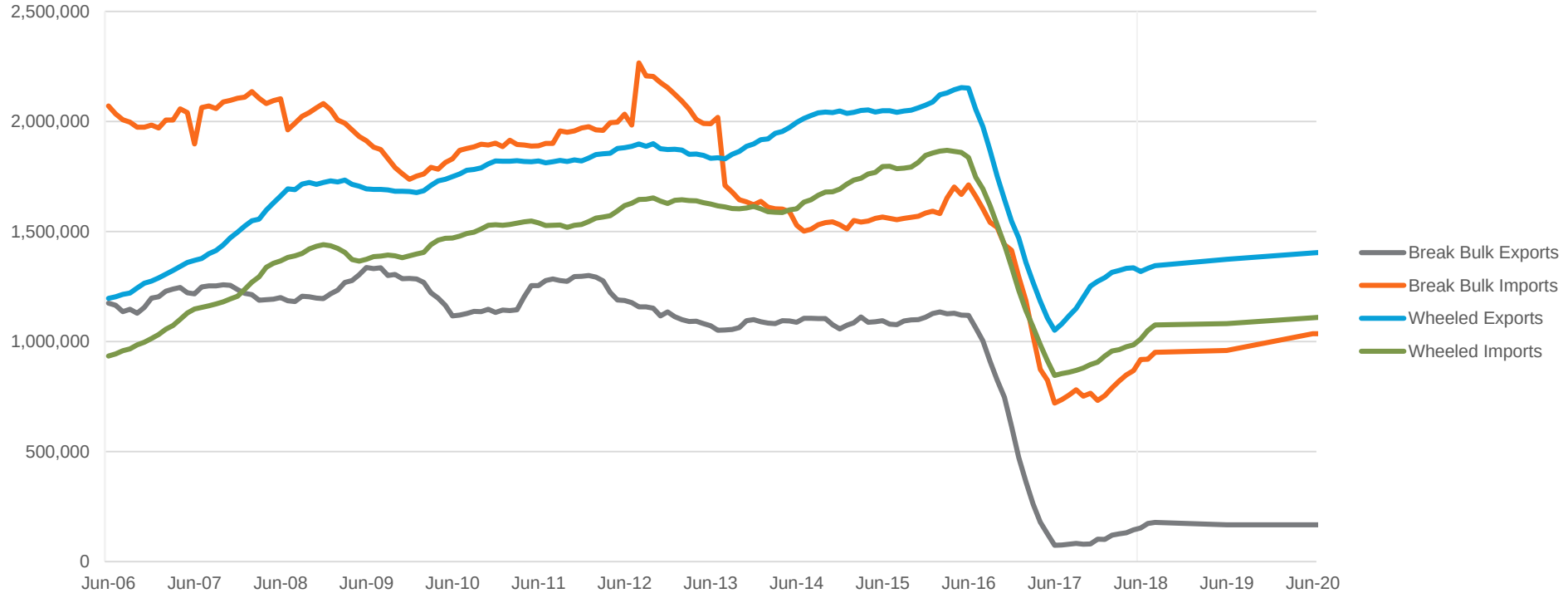
$$sales = net\ increase\ in\ stock + depreciation$$

Note that imports measured in revenue tonnes (or cubic meter basis) outpace the growth in the number of units, due to the current trend towards SUVs.

Break Bulk
Non-containerised/general cargo

Following the closure of the domestic manufactures, small volumes of MV exports continue to be exported to Tasmania and to a lessor extent other mainland states, which are first imported into Victoria. Moving forward, BISOE is forecasting the volumes of Wheel Unitised to roughly track containerised Bass Strait volumes, and for Break Bulk volumes to remain roughly unchanged from current levels.

Non-containerised/general cargo imports and exports



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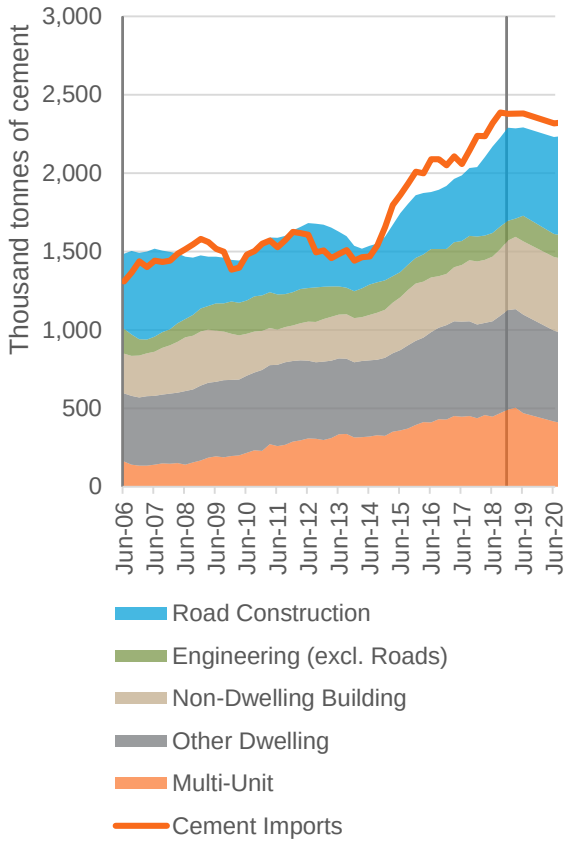
07

DRY BULK

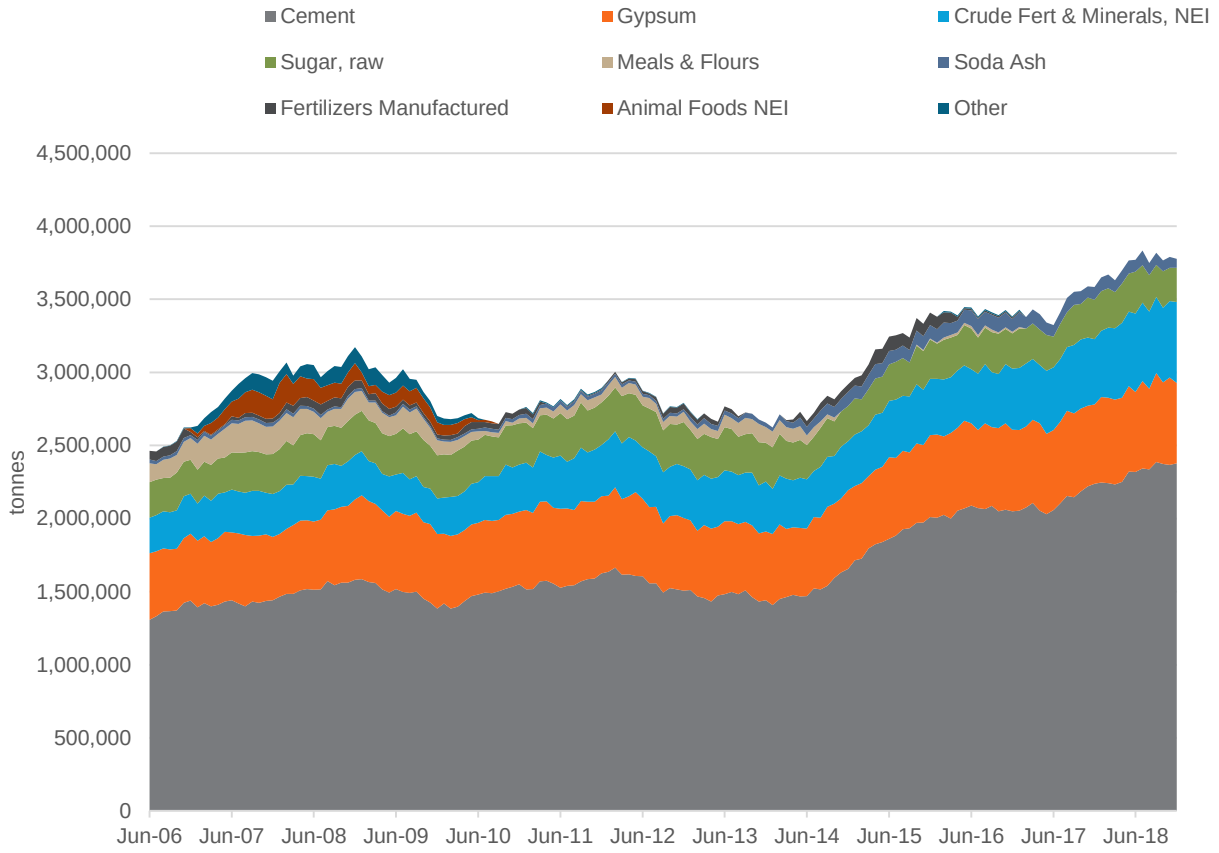
Dry Bulk
Imports

Three of the top dry bulk imports are inputs into the building industry. As a demand driver, the fall in dwelling building will more than offset the boom in road construction over the next three years.

Demand for Cement



Port of Melbourne Dry Bulk Imports



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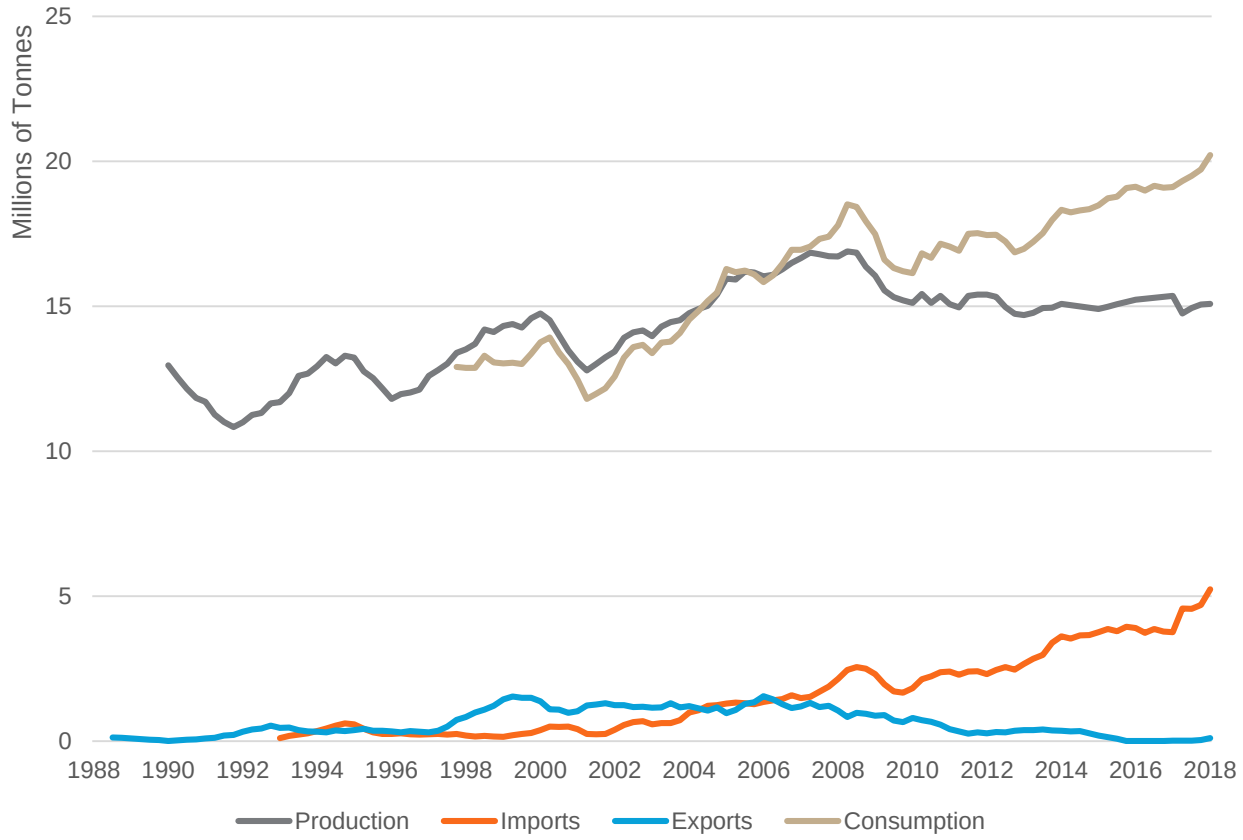
Dry Bulk
National Trends in Cement Imports

National imports of cement and clinker have grown in recent years while production has been flat.

Cement and Clinker Imports vs Local Production: Australia
Moving annual totals



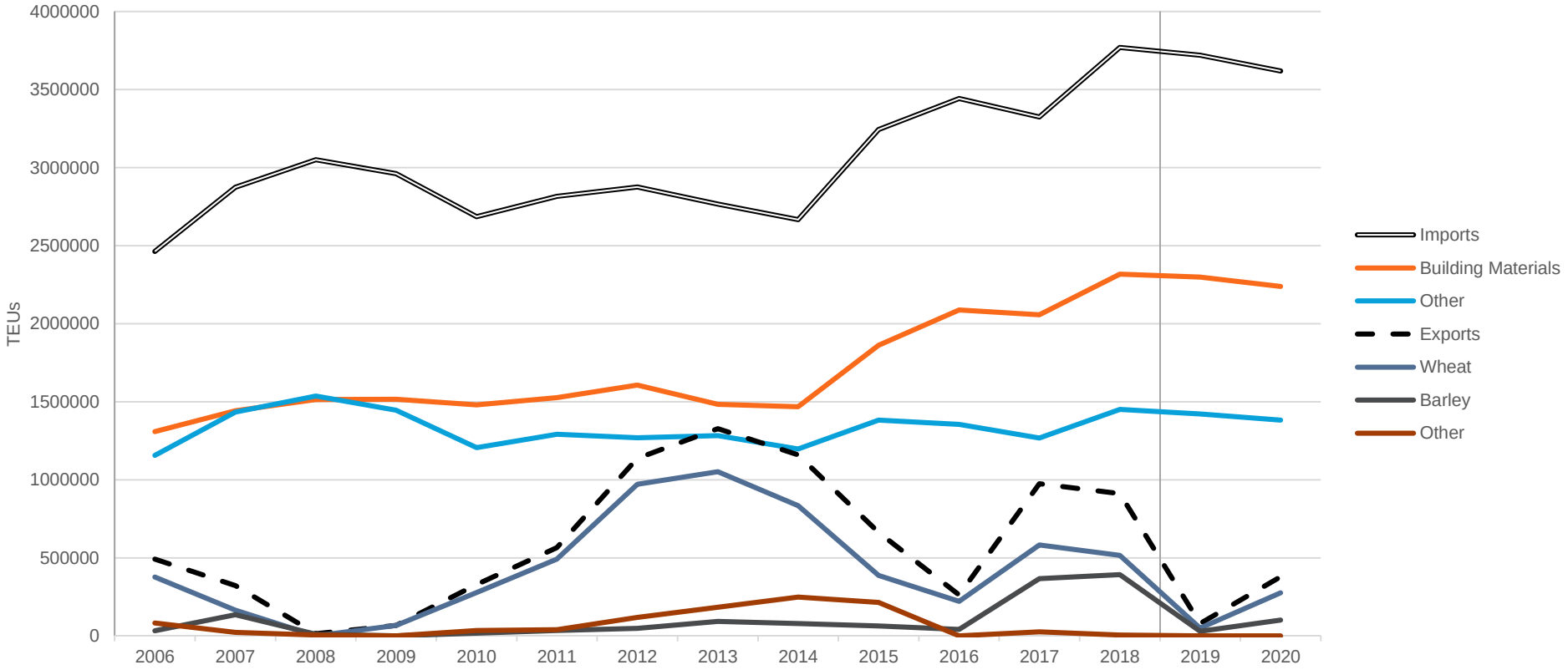
Production data from the ABS and the Cement Industry Federation suggests that cement and clinker production has remained relatively flat post-GFC.

Exports of cement and clinker have fallen to near zero as producers have focused on servicing strong domestic growth. The gap has been made up by international imports.

Dry Bulk

Dry bulk imports predominantly relate to the building industry. Soda Ash trade has ceased at the Port of Melbourne as it has shifted to Geelong. Exports relate to wheat and barley.

Port of Melbourne Dry Bulk Imports and Exports



BIS OXFORD ECONOMICS

A

MACROECONOMIC OUTLOOK

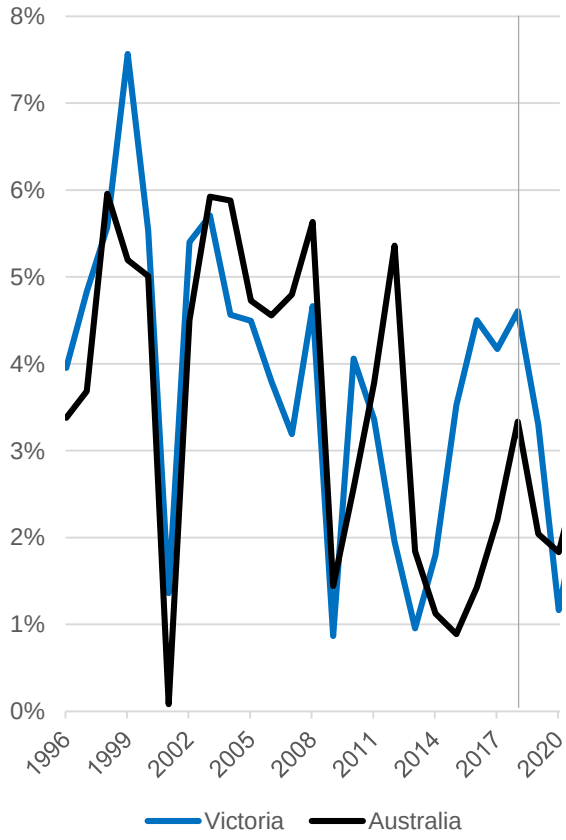
Macroeconomic Outlook
Recent History and Short Term Outlook

State Final Demand (Annual % Change)

The Victorian economy continues to perform at a stellar pace. State Final Demand (SFD) expanded by 4.6% in FY18 against domestic demand growth for Australia of 3.3% - the fourth consecutive year of outperformance for the state. Gross State Product (GSP) growth was somewhat weaker at 3.5%, but still above Australian GDP growth of 2.8%. Employment growth has remained strong, up 3.7% through 2018, well above the 2.2% result for Australia, with Victoria's unemployment rate in December well below the 5.0% national average.

The sources of the robust growth have been broad-based, but a key factor has been relatively strong population growth in the state, averaging almost 2.4% over the past five years – which was 0.8% above the national average. Combined with healthy employment growth, this underpinned strong household spending averaging 3.4% over the past 3 years, easily the fastest of all the states and well above the national average of 2.6% over the same period. Within this strong household spending has been robust increases in retail turnover, averaging 3.9% over the past three years to FY19 inclusive. Higher population increases have also driven solid growth in dwelling investment. Very strong government spending – both recurrent and capital – has been a key growth driver, funded by asset sales, booming real estate stamp duties, healthy payroll tax receipts and Commonwealth road funding. Export volumes have shown good increases (particularly tourism and other services), while business investment rebounded strongly in FY18 (+9.4%) after only modest growth in the previous two years. Interstate trade in goods and services has been the weak link, detracting around 1% from state GSP over the three years to FY18.

Victoria State Final Demand Growth (A%Ch)



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Macroeconomic Outlook
Components of Growth

Growth to slow sharply in near term.

However, we are forecasting Victoria's economic growth to slow sharply over the next 2-3 years, with SFD and GSP averaging around 2.3% and 2.5% respectively over FY19 and FY20:

1. Dwelling investment has peaked, and although work done is expected to sustain another year of growth in FY19 (+4%), as projects are completed and alterations and additions activity rebounds from the FY18 weakness. However, new dwelling commencements are already falling and with pockets of oversupply occurring in the apartments market, the end result will be a steep decline of -18% (cumulative) over the FY20 and FY21.
2. Population growth is now slowing and is projected to gradually ease to 1.7% by FY2021. Combined with slower employment growth and continued weak wage increases, the result will be much slower household spending growth. Declining property prices are also expected to impact consumer confidence and discretionary spending, including household purchases of motor vehicles and areas of retail spending. Retail turnover volumes are forecast to ease from 4.4% in FY18 to 3.4% in FY19 (although this will still be considerably higher than the expected national average of 1.8%), before slowing to 2.1% in FY20 (in line with the national average).
3. Public investment is now close to a peak and, after moderate growth in FY19, is expected to decline in FY2020 as a number of major projects wind down to completion, including the NBN, major road and rail projects, and non-dwelling building projects. Meanwhile, government recurrent expenditure is also expected to ease, as the rapid pace of spending growth of the past three years is not sustainable in the face of weaker residential stamp duties and slower growth in payroll taxes.
4. Healthy rises in business investment are expected to provide some offset to weakness elsewhere. Private non-residential building has already enjoyed a long upswing, and we expect that to continue for a few years yet, apart from a modest decline in FY20 due to a gap in projects. Private engineering construction rebounded in FY2018 and is forecast to experience another strong rise in FY19, before a temporary setback in FY20 as electricity-related and telecommunications construction fall back. Thereafter, it is set for solid rises through to the early 2020s, driven by increases in roads construction and mining-related investment. Equipment and software expenditure have picked up, with further moderate rises expected over the next three years.

Macroeconomic Outlook
Victoria Population

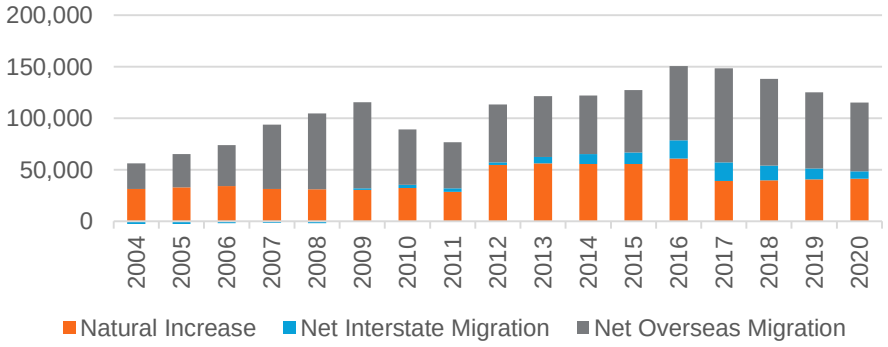
Victoria's population growth has outpaced all other states and territories for the past 5 years to FY2018. Population growth is now set to decelerate.

Population Outlook for Victoria

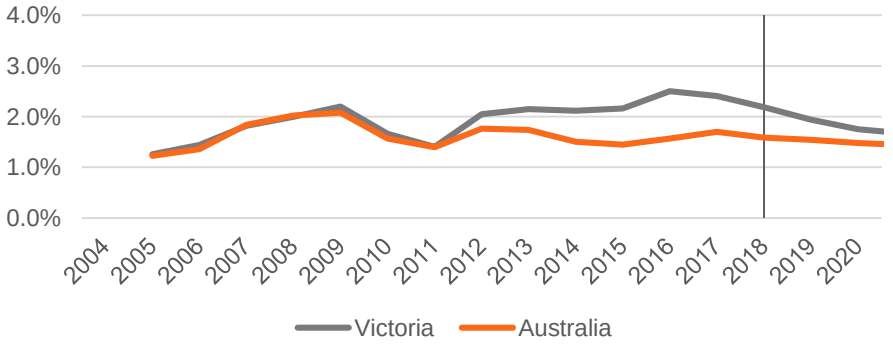
Population growth in Victoria has outpaced all other states and territories between FY2014 and FY2018, recording growth in the range between 2.2% and 2.5% per annum. Between FY2014 and FY2018, net overseas migration accounted for 53% of the increase in population, natural increase accounted for 37% and net interstate migration accounted for 10%. Population growth has been underpinned by a relatively strong economy attracting migrants, higher fertility rates and increasing life expectancy supporting natural increase, and rising costs of living in New South Wales and perceived job opportunities boosting net interstate migration.

Population growth however has stated to decelerate. This is expected to continue over the forecast outlook. Following an increase of 2.2% in FY2018, we forecast a rise of 1.9% in FY2019, 1.8% in FY2020. Net overseas migration is forecast to continue to be the major contributor to population increase

Victoria Annual Population Increase by Source, Persons



Australia and Victoria Annual Population Growth



Source: BIS Oxford Economics/ABS data/Haver

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Macroeconomic Outlook
Victoria State Final Demand

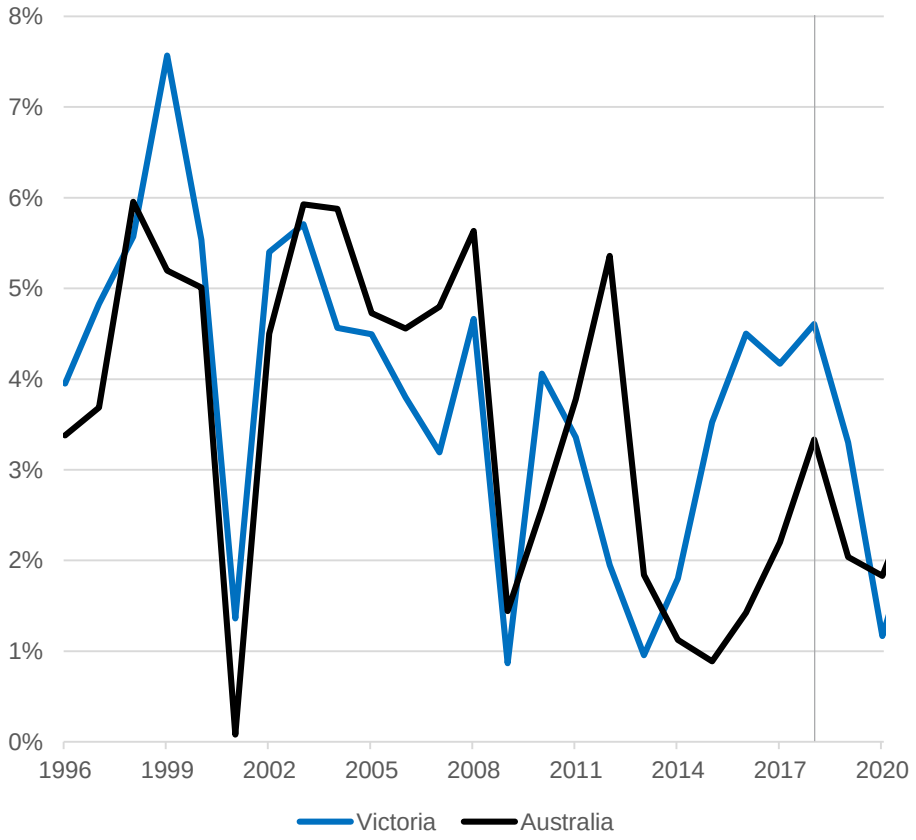
Victoria's strong economic performance over the four years to FY2018 is not expected to be sustained.

Economic Outlook for Victoria

The Victorian economy has experienced strong growth over the four years to FY2018, due to strength in population growth, consumer spending and government spending on schools, hospitals, transport and other infrastructure. Victoria's State Final Demand grew by 3.5% in FY2015, 4.5% in FY2016, 4.2% in FY2017 and 4.6% in FY2018.

Victoria's economic growth is forecasted to slow over FY2019 (+3.3%) and FY2020 (+1.2%). Tighter lending policy by banks and a falling dwelling stock deficiency is starting to push residential building into a downturn. Non-residential building is also expected to weaken from FY2019. Consumer spending is forecast to decelerate and Victoria's exports to other states will be affected by weak national growth. Public investment will start subtracting from growth in FY2020 as key transport infrastructure projects approach completion.

Victoria State Final Demand Growth (A%Ch)



Source: BIS Oxford Economics/ABS data/Haver

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Macroeconomic Outlook
Victoria Retail Turnover

Victorian Retail Turnover is expected to fall back in FY2019 and FY2020 as economic growth slows.

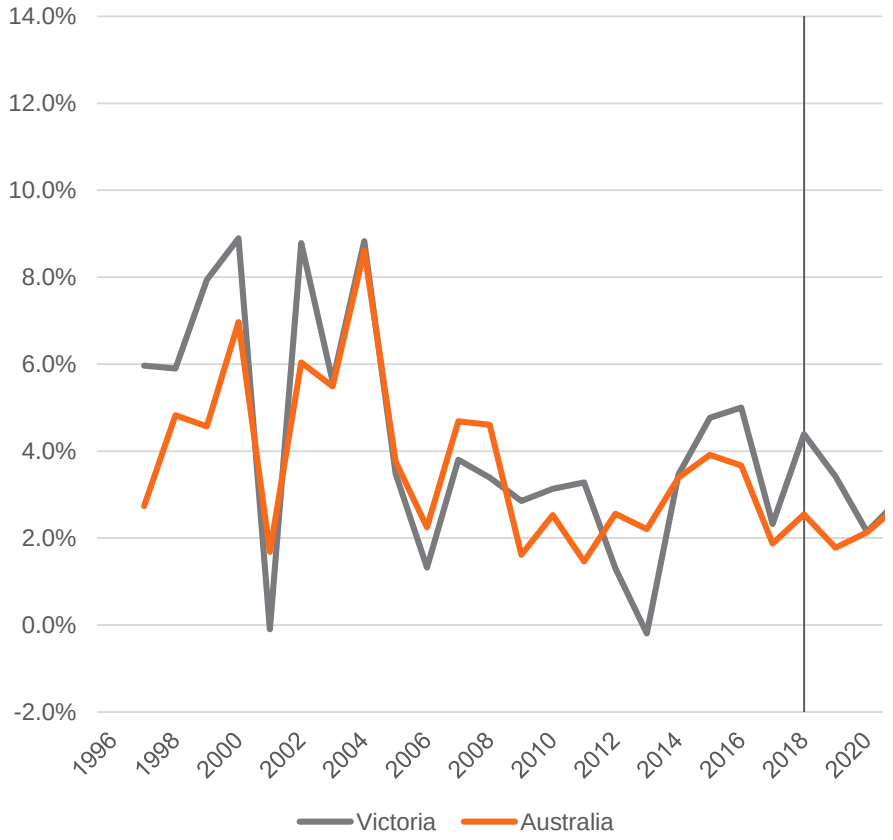
Retail Turnover Outlook for Victoria

Victoria retail turnover picked up markedly between FY2013 (-0.2%) and FY2016 (+5.0%), supported by low interest rates, population growth and higher house prices. The following two years have been volatile. Retail turnover growth fell back to 2.3% in FY2017, still above the national average of 1.9% before rising 4.4% in FY2018.

The combination of rising prices for essential services such as health care and electricity, and weak wage growth is now reducing discretionary spending.

Retail turnover growth is expected to fall back to 3.4% in FY2019 and 2.1% in FY2020, due to stagnant wages and lower economic growth.

Victoria Retail Turnover Growth



Source: BIS Oxford Economics/ABS data/Haver

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Macroeconomic Outlook
Victoria Machinery & Equipment Investment

Growth in machinery & equipment investment in Victoria will resume.

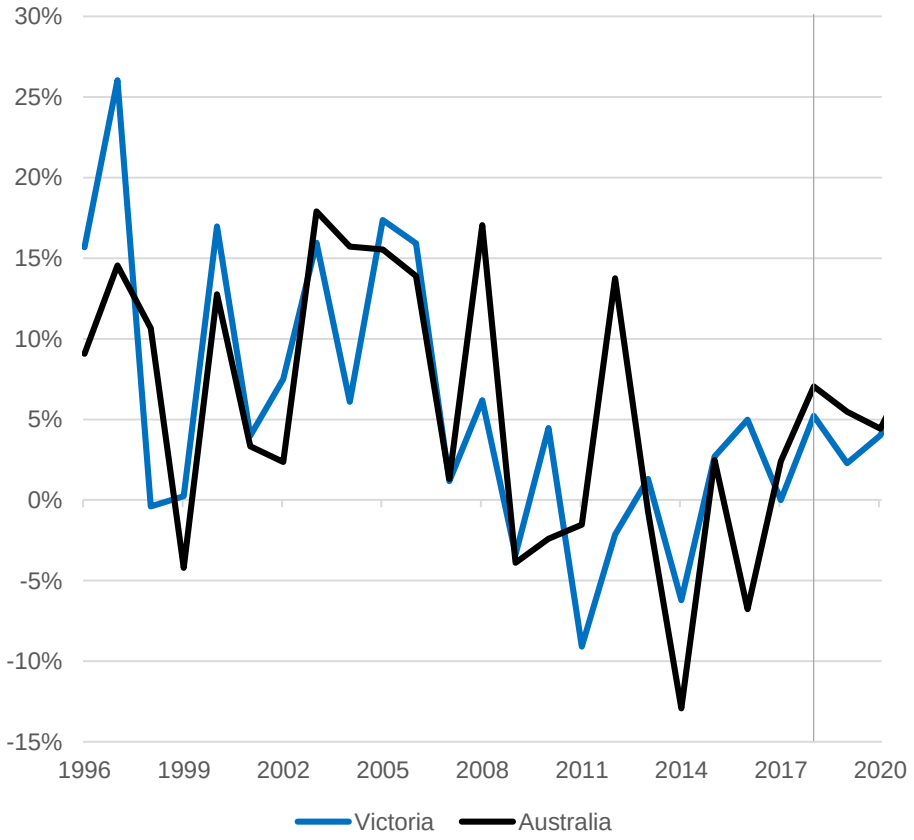
Machinery & Equipment Outlook for Victoria

Following no change in machinery and equipment investment in FY2017, investment is forecasted to pick up to 5.2% in FY2018. After dipping slightly to 2.3% in FY2019, growth will accelerate to 4.0% in FY2020.

We expect a broad based non-mining investment recovery, boosting machinery and equipment investment. BISOE expects the initial surge is deferred investment, as companies need to renew capital spending following fairly weak non-mining investment since the Global Financial Crisis. Capacity will also be increased to meet anticipated expansions in demand.

Improving business confidence and increasing capacity constraints will drive further investment in plant and equipment. Manufacturing machinery and equipment investment will pick up, in response to capacity constraints and the need to renew investment following the closure of a number of factories.

Victoria Machinery and Equipment Investment Growth



Source: BIS Oxford Economics/ABS data/Haver

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Macroeconomic Outlook
Victoria Building Construction

A three year dwelling investment downturn from FY2018 will be the main negative detracting from growth from FY2018 to FY2020.

Dwelling Building Construction Outlook for Victoria

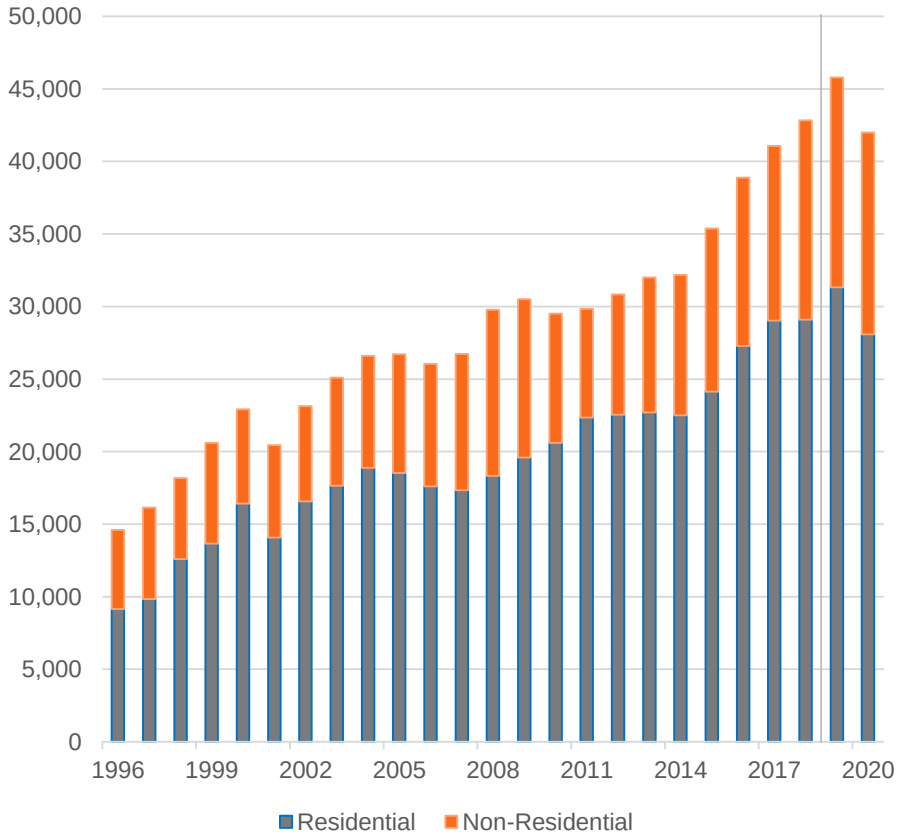
After being a key growth driver in FY2015 (+7.2%), FY2016 (+13.1%) and FY2017 (+6.4%), and a short-lived spike in FY2019, growth in residential building is expected to decline significantly over the following two years.

Growth in recent years has run down the dwelling stock deficiency, creating the environment for a downturn. Furthermore, tighter lending policy by the banks has begun impacting off-the plan sales to investors.

Non-dwelling building meanwhile has seen comparatively stable growth post-GFC. Recent growth has been driven by a combination of social and institutional building (health and education) and commercial and industrial building (offices and warehousing).

A gap in projects is expected to see a dip in non-dwelling activity in FY2020.

Victoria Dwelling and Non-Dwelling Construction



Source: BIS Oxford Economics/ABS data/Haver

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Macroeconomic Outlook
Tasmania Population

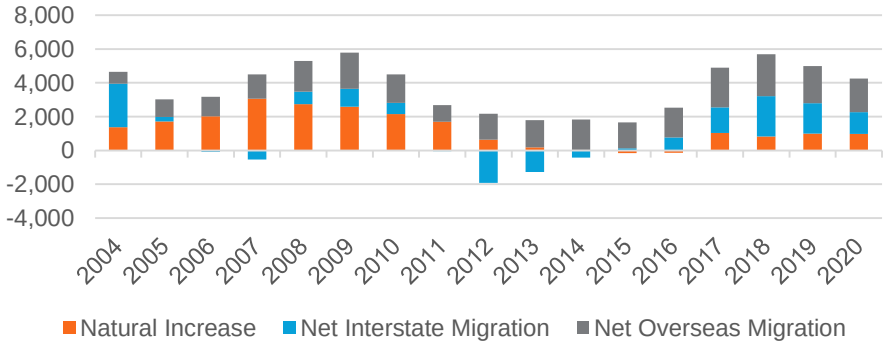
Low population growth will continue to be a key problem for Tasmania.

Population Outlook for Tasmania

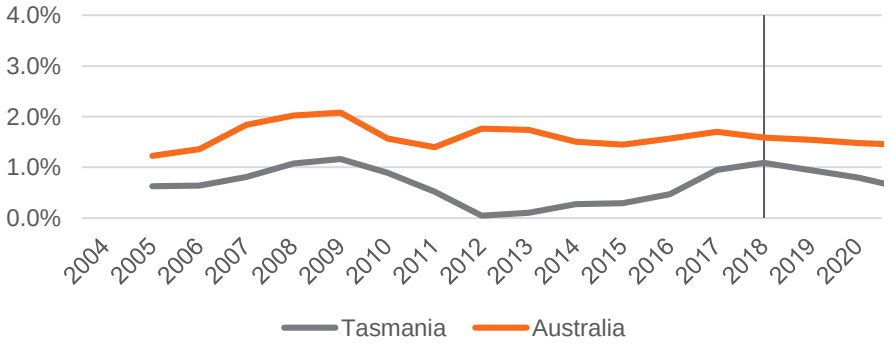
Low population growth and the loss of young Tasmanians to mainland Australia is an ongoing problem for Tasmania. However, population growth has picked up from 0.1% in FY2013 to 1.1% in FY2018.

Growth is now expected to gradually ease over the forecast horizon. The Tasmanian government has created the 'Tasmanian Population Growth Strategy', which aims to increase the population to 650,000 by 2050, from 520,000 in FY2017. Additionally, housing affordability concerns in other parts of Australia may contribute to inflows in the future. BISOE forecasts that Tasmania will experience net interstate inflows in the following three years to FY2021. The state's low population growth affects all components of state final demand, including household spending and private investment, particularly dwelling investment.

Tasmania Annual Population Increase by Source, Persons



Australia and Tasmania Annual Population Growth



Source: BIS Oxford Economics/ABS data/Haver

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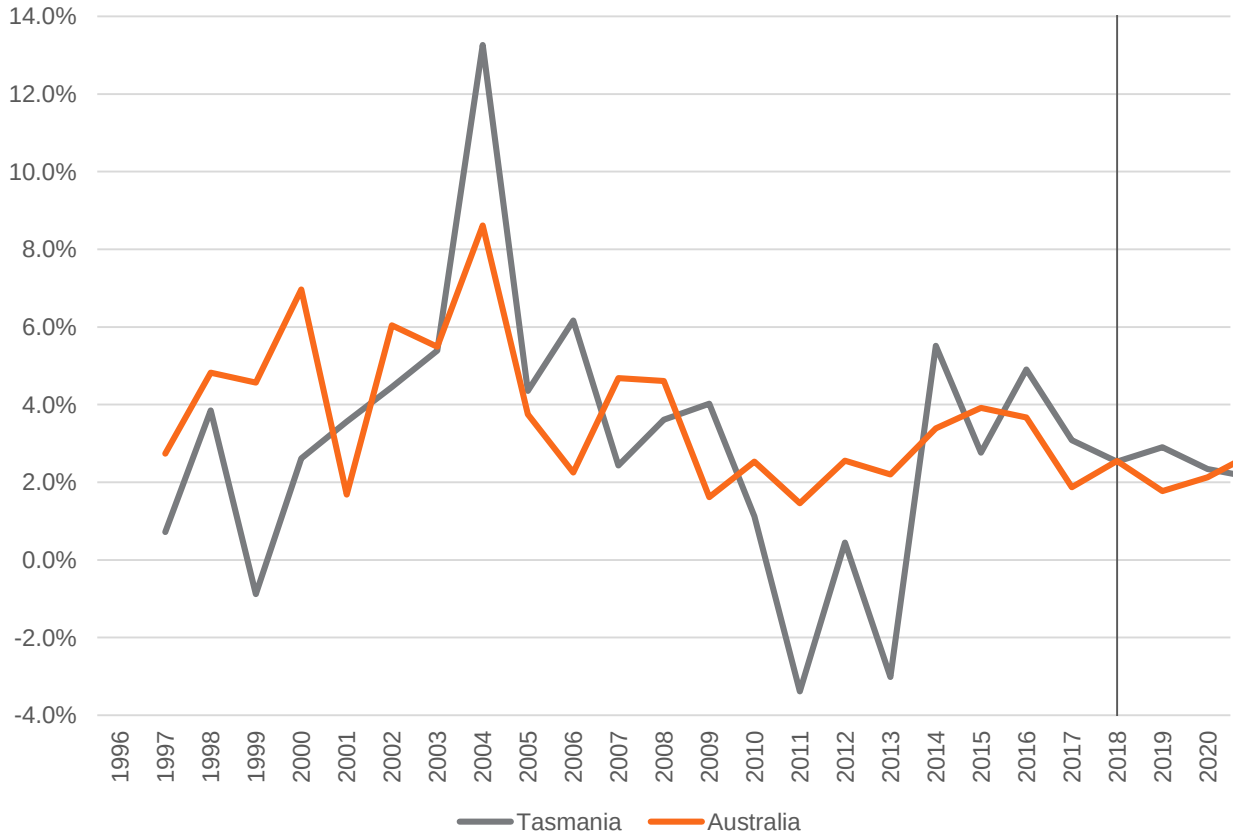
Macroeconomic Outlook
Tasmania Retail Turnover

Tasmanian retail turnover has been strong, running ahead of the national average since FY2016. However, growth is expected to weaken and fall behind the national average from FY2020.

Retail Turnover Outlook for Tasmania

Tasmania retail turnover growth overtook the national average in since FY2016, following a period of contraction driven partly by weak population growth. The increase post FY2016 was largely driven by a pick up in employment and strength in tourism.

Tasmania Retail Turnover Growth



Source: BIS Oxford Economics/ABS data/Haver

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