

TRADE FORECASTS

PORT OF MELBOURNE
SUMMARY REPORT

16th May 2023



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Summary of findings – containerised trade

In the baseline forecasts developed by Deloitte Access Economics, container trade, including all categories, is forecast to grow at 3.2% CAGR from FY23 to FY28

Summary

The forecasts highlight a positive outlook for container trade with continued growth in container trade over the forecast period to FY28.

The level of total container trade through PoM is forecast to increase to 3.8 million TEUs in FY28 and the largest component of container trade will continue to be containerised imports from overseas. The strong growth in overseas imports relative to exports over the medium term results in strong growth in empty container trade.

Total container trade volumes fall in FY23 reflecting challenging economic conditions in Australia and globally. Containerised trade recovers in FY24 across all categories.

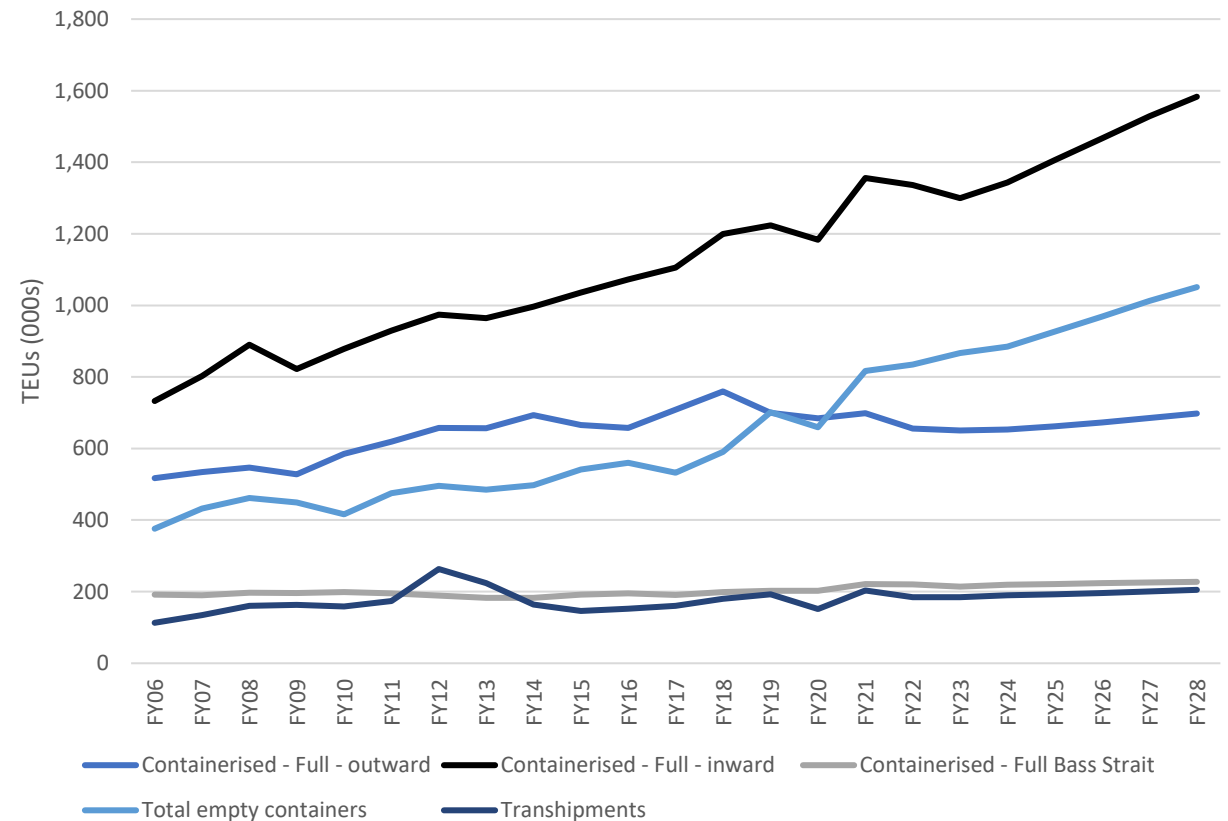
Table 1: Medium term growth outlook, FY23 to FY28

| Trade Category | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY23 - FY28 CAGR |
|---|--------------|-------------|-------------|-------------|-------------|-------------|------------------|
| Containerised - full - outward | -0.9% | 0.4% | 1.4% | 1.6% | 1.8% | 1.8% | 1.4% |
| Containerised - full - inward | -2.7% | 3.4% | 4.7% | 4.3% | 4.2% | 3.6% | 4.0% |
| Containerised - full Bass Strait | -2.7% | 2.5% | 0.9% | 0.9% | 0.8% | 0.9% | 1.2% |
| Total full containers | -2.2% | 2.4% | 3.4% | 3.2% | 3.2% | 2.9% | 3.0% |
| Total empty containers | 3.9% | 2.1% | 4.8% | 4.5% | 4.5% | 3.8% | 3.9% |
| Total containers | -0.5% | 2.3% | 3.8% | 3.6% | 3.6% | 3.1% | 3.3% |
| Transhipments | -0.1% | 2.7% | 1.4% | 2.0% | 2.1% | 2.5% | 2.1% |
| Total containers (direct and tranship) | -0.5% | 2.3% | 3.6% | 3.5% | 3.5% | 3.1% | 3.2% |

Source: Deloitte Access Economics



Chart 1: Forecasts of container volumes, Baseline Scenario, Port of Melbourne, TEUs (000s)



Source: PoM, Deloitte Access Economics

Summary of findings – non-containerised trade

In the baseline forecasts developed by Deloitte Access Economics, non-containerised trade, including all categories, is forecast to grow at 0.8% CAGR from FY23 to FY28.

Summary

The forecasts highlight a mixed but overall positive outlook for non-containerised trade with aggregate growth over the forecast period to FY28. Total trade volumes are forecast to moderate from recent highs in the near term before returning to growth over the medium term.

Measured in tonnes, the level of total non-containerised trade through the PoM is forecast to increase to 12.6 million tonnes by FY28 at a CAGR of 0.8%.

Dry bulk imports experience the strongest growth in volumes over FY23 to FY28. Trade in motor vehicles, wheeled unitised (general), and non-containerised transshipment continues to be strong into FY23 as heightened trade observed during the COVID-19 period persists in the near term.

Table 2: Medium term growth outlook, reporting units of measurement, FY23 to FY28

| Trade Category | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY23 - FY28 CAGR |
|--|--------|--------|--------|--------|--------|--------|------------------|
| Non-containerised/general [^] | 10.1% | 1.5% | 0.4% | 2.1% | 2.9% | 3.0% | 2.0% |
| Motor vehicles [^] | 12.2% | -4.1% | -3.0% | -2.3% | 0.7% | 1.7% | -1.4% |
| Liquid bulk [^] | 2.9% | -1.7% | 3.9% | 3.3% | 1.4% | 1.2% | 1.6% |
| Dry bulk – Outwards [*] | -22.8% | -18.6% | -6.5% | -3.4% | -1.6% | -0.5% | -6.4% |
| Dry bulk – Inwards [*] | -1.3% | 2.8% | 3.3% | 2.8% | 2.6% | 1.8% | 2.7% |
| Non-containerised transshipment [^] | 6.8% | -23.2% | -23.2% | -27.0% | -25.5% | -23.1% | -24.4% |

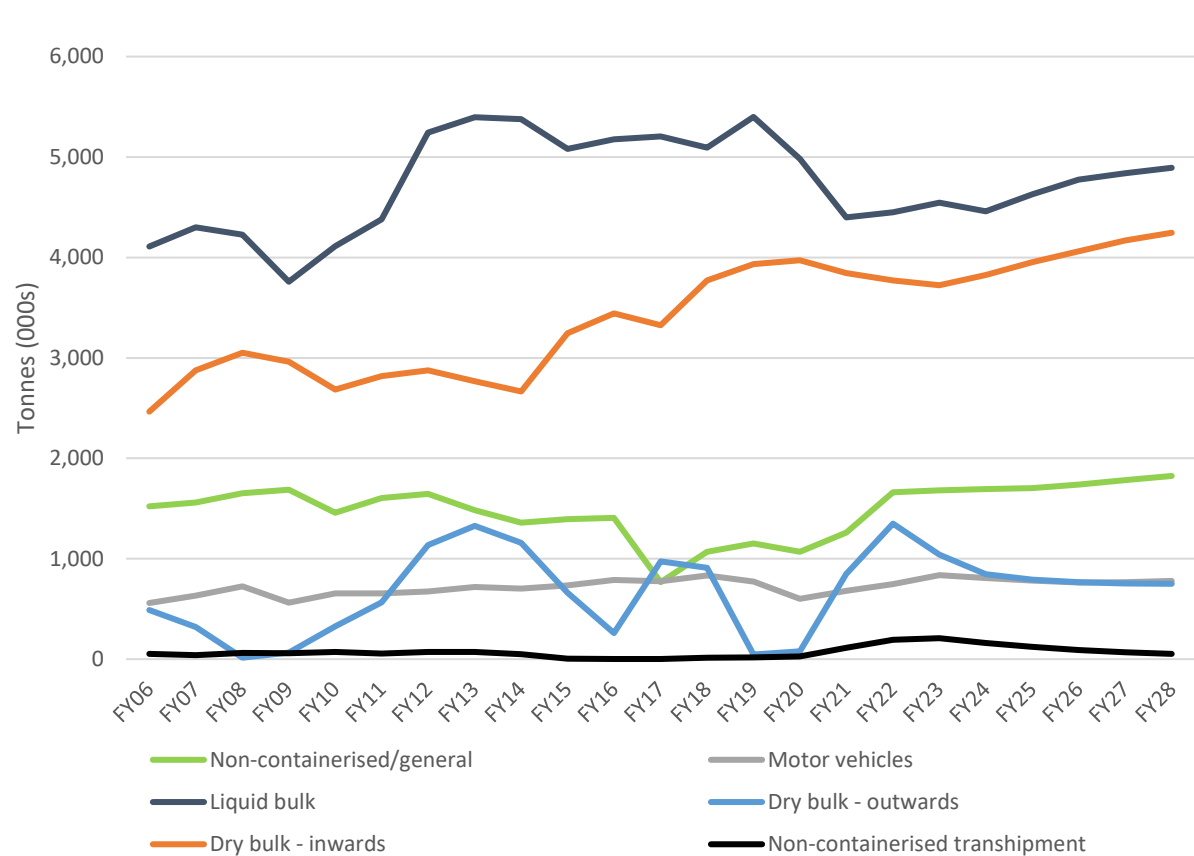
Source: Deloitte Access Economics

[^]Growth rates calculated with respect to measurement in revenue tonnes

^{*}Growth rates calculated with respect to measurement in tonnes

Totals not shown in table above due to difference in units of measurement. Total non-containerised trade volumes, measured in tonnes, grow at 0.8% CAGR from FY23 to FY28.

Chart 2: Forecasts of non-containerised trade volumes, baseline scenario, Port of Melbourne, tonnes (000s)



Source: PoM, Deloitte Access Economics

Macroeconomic context - Australian economic snapshot

The sustained increase in global inflation has led to the tightening of interest rates across most advanced economies, impacting disposable income and consumer spending in both Australia and abroad. These trends have implications for PoM trade

Economic growth

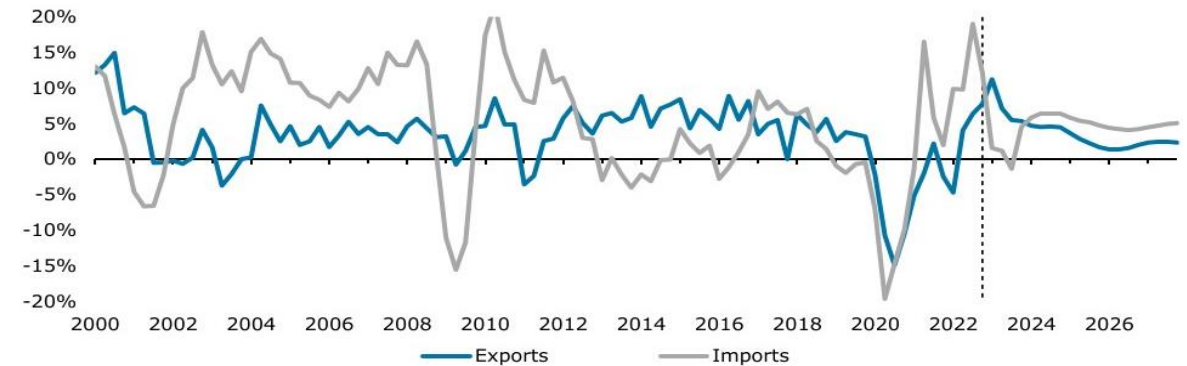
The two further cash rate increases in 2023 - after the eight straight rises from May 2022 - will likely contract economic performance due to weaker household consumption and dwelling investment. Deloitte Access Economics has revised down expectations for Australian economic growth in 2023 and 2024 to 1.5% and 1.2% respectively. If realised, this would be the weakest rate of growth outside of the pandemic since the recession of the early 1990s. Australians will likely draw on savings in the wake of falling housing prices, rising interest rates, high inflation, low levels of consumer confidence and negative real wage growth. The population outlook is positive with a faster than expected rebound in net overseas migration in 2022. That said, the pandemic will have long term effects on the size of Australia's population, with a projected 567,000 fewer people living in Australia than there otherwise would have been without the pandemic in 2025. Australia's key economic forecasts to FY2026-27 are presented in Table 2.1.

Australian industry output will reflect slowing global and domestic economic conditions, including the effects of weaker household spending. However, some sectors of the economy are better positioned to face the slowdown than others. Deloitte Access Economics expects retail and construction to mostly reflect the subdued outlook, with agriculture to also pull back despite recent highs.

Exports and imports

Net exports were the key driver of growth in the Australian economy in late 2022. Although exports rose, weak imports were the key contributor. Looking ahead, import volumes are forecast to grow through 2023, but the slowdown in domestic demand is set to limit the pace of these gains. Exports rose for the third consecutive quarter in December 2022, with the driver of this growth changing from commodities to services. This has seen services exports driving gains in total exports. According to the Department of Industry, Science and Resources, however, the value of these exports is forecast to fall by almost 10% in 2023 and 15% in 2024 as commodity prices moderate. This adjustment is already underway, with prices easing alongside the slowdown in the global economy and an improvement in the supply of energy commodities.

Chart 3: Growth in exports and imports to 2026, change over previous 12 months, calendar year



Source: Deloitte Access Economics; Australian Bureau of Statistics

Table 3: Australia's key economic forecasts, FY22 to FY28

| | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 |
|--------------------------------------|------|------|------|------|------|------|------|
| Real GDP | 3.7% | 3.1% | 0.9% | 1.6% | 2.0% | 2.4% | 2.5% |
| Population Growth | 0.7% | 1.7% | 1.5% | 1.4% | 1.4% | 1.3% | 1.3% |
| Employment Growth | 3.3% | 3.8% | 1.0% | 1.1% | 1.5% | 1.6% | 1.4% |
| Wage Price Index | 2.4% | 3.5% | 3.7% | 3.3% | 3.0% | 3.1% | 3.3% |
| Trade Balance (ratio to nominal GDP) | 5.8% | 5.7% | 4.4% | 3.9% | 3.4% | 3.0% | 2.5% |
| AUD/USD exchange rate | 0.73 | 0.67 | 0.68 | 0.71 | 0.71 | 0.71 | 0.70 |

Source: Deloitte Access Economics

The forecasts in Table 2.1 assume that inflation will return to the mid point of the RBA's target band from late 2024.

Macroeconomic context - Victorian economic snapshot

A return to population growth shows positive signs for Victoria's economy however subdued growth is expected for 2023

Economic growth

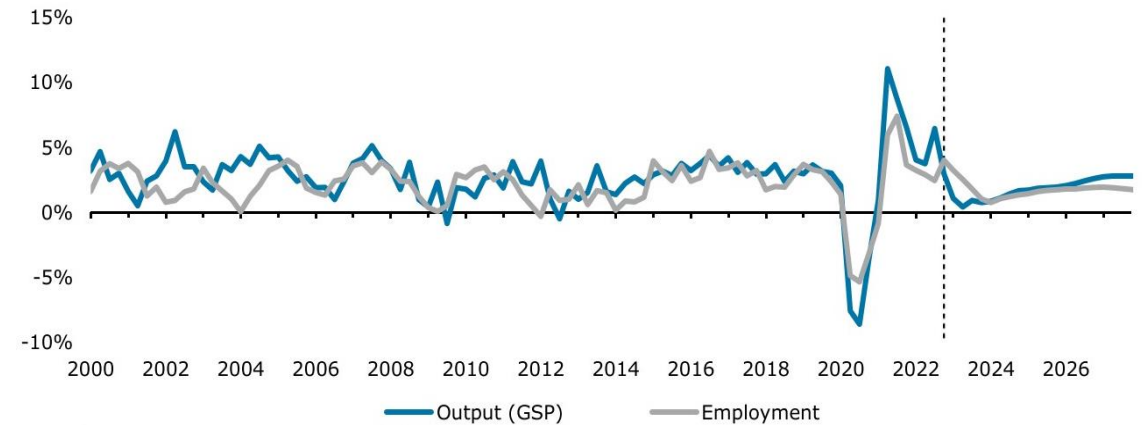
Quarterly household consumption growth in Victoria slowed to just 0.4% in the December 2022 quarter as the momentum of post-lockdown spending was slowed by cost-of-living pressures. Discretionary items such as clothing, recreation and culture were impacted in terms of spending as households attempt to balance their budgets. Cost-of-living pressures are unlikely to be alleviated soon, meaning consumption growth will continue to be slow. Additionally, many households are feeling the pressure of increased mortgage repayments resulting from consecutive cash rate increases from the RBA. However, there is potential upside for consumption growth resulting from an increase in the number of households, rather than spending per household, as population growth returns after stagnating in Victoria through the pandemic period. Victoria's economy should continue to benefit from business investment growth in the medium term. The expected rebound in population growth, and subsequent demand for both public and private infrastructure, will likely boost business confidence and willingness to invest in the state.

Industry and trade

Goods exports from Victoria are forecast to experience mild growth over the next few years. The volume of exports has returned to roughly on-par with 2019 levels, with less capacity for growth than was the case during the pandemic recovery. Service exports remain well below 2019 levels but experienced a fifth consecutive quarter of significant growth in December 2022 with the recovery of both the tourism and international education industries.

Business investment in Victoria grew marginally in the December 2022 quarter and is stabilising slightly above 2019 levels. The Victorian government has committed to a large pipeline of health, education and transport infrastructure. However, this activity is not expected to offset headwinds acting to slow growth in demand from households and businesses. Recent data shows a slowdown in both dwelling and non-dwelling construction. The number of houses and other residential unit approvals both fell to monthly lows not seen since the pandemic-related lockdown. The outlook for housing overall is a contraction in 2023.

Chart 4: Victorian economic growth and employment, change over previous 12 months, calendar years



Source: Deloitte Access Economics; Australian Bureau of Statistics

Table 4: Victoria's key economic forecasts, FY22 to FY28

| | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Gross State Product | 5.7% | 2.7% | 0.9% | 1.7% | 2.0% | 2.7% | 2.8% |
| State share of Australian output,% | 23.2% | 23.1% | 23.1% | 23.1% | 23.1% | 23.2% | 23.3% |
| Population Growth | 0.3% | 2.0% | 1.9% | 1.6% | 1.6% | 1.6% | 1.5% |
| Real Final Demand | 7.1% | 3.5% | 1.0% | 2.4% | 3.0% | 3.3% | 3.5% |
| International Exports | -1.0% | 14.8% | 13.6% | 6.9% | 3.4% | 3.6% | 4.0% |
| International Imports | 8.5% | 7.9% | 4.1% | 6.3% | 4.6% | 4.7% | 5.6% |

Source: Deloitte Access Economics

Macroeconomic context - major trading partners

Australia's major trading partners face a challenging year ahead as global conditions weaken off the back of inflationary concerns and lagged effects of monetary policy

Global economy

Global economic growth will be subdued in 2023 as efforts to control inflation come to a head in several economies. Emerging economies, including India and China, will continue to be affected as they face higher costs of food and higher interest payments on dollar-denominated debt. Deloitte Access Economics forecasts moderate growth in United States, Japan, Eurozone and a contraction in the United Kingdom. Forecast for economic growth in major economies is illustrated in Chart 2.3 (based on calendar year).

China

The latest forecasts for China are filled with uncertainty in the previous quarter as the country saw an end to its zero-COVID era. Expectations of a sharp rise in infections and deaths played out in January, however supply-side bottlenecks and price pressures have not yet materialised. Early data shows that China's reopening had a relatively modest impact on the global economy to date. Initial economic data shows that China's reopening is gathering momentum with a rise in consumer spending, investment and manufacturing output. However growth in 2023 is forecast around 5%, which is the lowest in decades and highlights the uncertainty that lies ahead.

USA

In the United States, the Federal Reserve's aggressive tightening of monetary policy is expected to begin to take hold. Job vacancies have stayed elevated and continue to exceed the number of unemployed persons in the US by a large margin. Continued tightness in the labour market is expected to keep nominal wage growth higher than the level consistent with 2.0% inflation over the short term. Higher interest rates are likely to eventually weigh on the labour market, consumer spending, and on elevated corporate earnings. Construction and manufacturing are also likely to come under pressure. Weaker consumer spending is likely to weigh on imports, but exports are also expected to deteriorate through the year due to weakness in key export destinations.

Eurozone

The economic outlook for the Eurozone, which was until now centred around the outlook for energy prices, is beginning to take another direction. Concerns have shifted to the risk of cross-Atlantic tremors in the banking sector, the persistence of core inflation, and labour strikes. Annual growth is forecast to be lower than 1% and while several factors will contribute to disinflation in the latter half of the year, price growth is likely to stay well about target in 2023.

UK

The outlook for the UK economy remains particularly weak relative to both the Eurozone and the US. The labour market remains tight with the unemployment rate at historical lows and wage growth at historical highs. The UK economy is forecast to contract in 2023 (refer Chart 2.3).

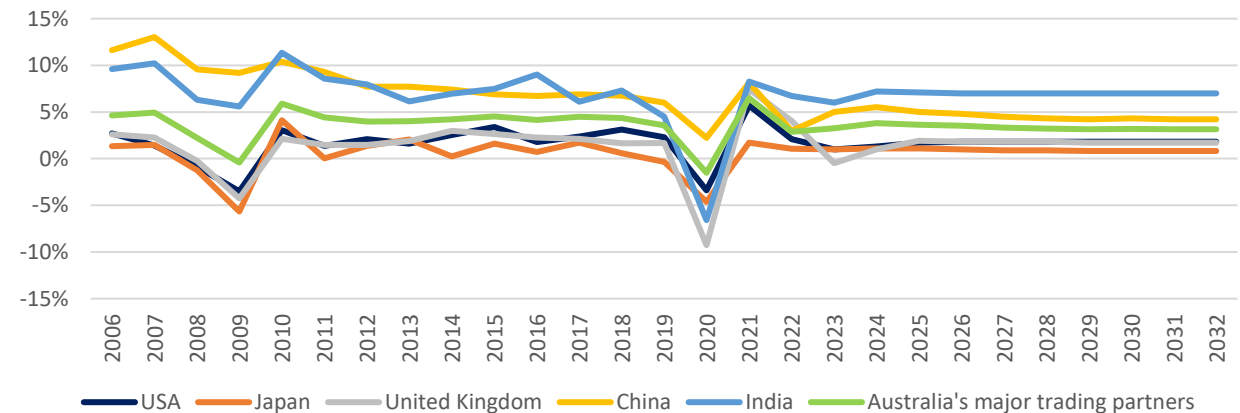
Japan

Higher prices, along with a very tight labour market, have pushed nominal wages up in Japan. This has resulted in a slight rebound in consumer confidence; however, sentiment remains very low as real wages continue to fall. Consumer spending and business investment remained very weak in the final quarter of 2022. Japan's exports, though supported by a weak yen, are likely to come under pressure from weaker global demand in 2023 and export growth will be subdued.

India

India remains a relatively bright spot in the global economy. The country continues to benefit from largely domestically driven growth. However, navigating 2023 is likely to be challenging. A recent slowdown in consumer spending and business investment due to sticky core inflation and higher interest rates is becoming evident. However growth is forecast to be solid in India at around 6%.

Chart 5: Historical and forecast economic growth in major economies, 2006-2032, calendar years



Source: Deloitte Access Economics; International Monetary Fund

Introduction

Introduction

The Port of Melbourne is the nation's busiest port, handling over one third of Australia's containerised trade each year. As the largest general cargo and container port in the Southern hemisphere, the Port of Melbourne is a significant economic asset to Australia as both a major employer and a facilitator of trade.

Deloitte Access Economics was engaged by the Port of Melbourne (PoM) to develop forecasts of trade volumes through the Port of Melbourne. Deloitte's forecasts are robust, arrived at on a reasonable basis and represent the best estimation possible given the current data and available information at the time the forecasts were developed.

Deloitte Access Economics' Business Outlook for FY23 Q2 and all associated datasets have been used to identify macroeconomic drivers that affect Port of Melbourne trade volumes. These drivers include trends in population, average weekly earnings, Gross Domestic Product (GDP), Gross State Product (GSP), and Trade Weighted Index (TWI).

Deloitte Access Economics has combined these macroeconomic inputs with PoM's most recent trade data to develop forecasts for all trade through the Port of Melbourne - across 18 trade categories defined by PoM.

Purpose of this document

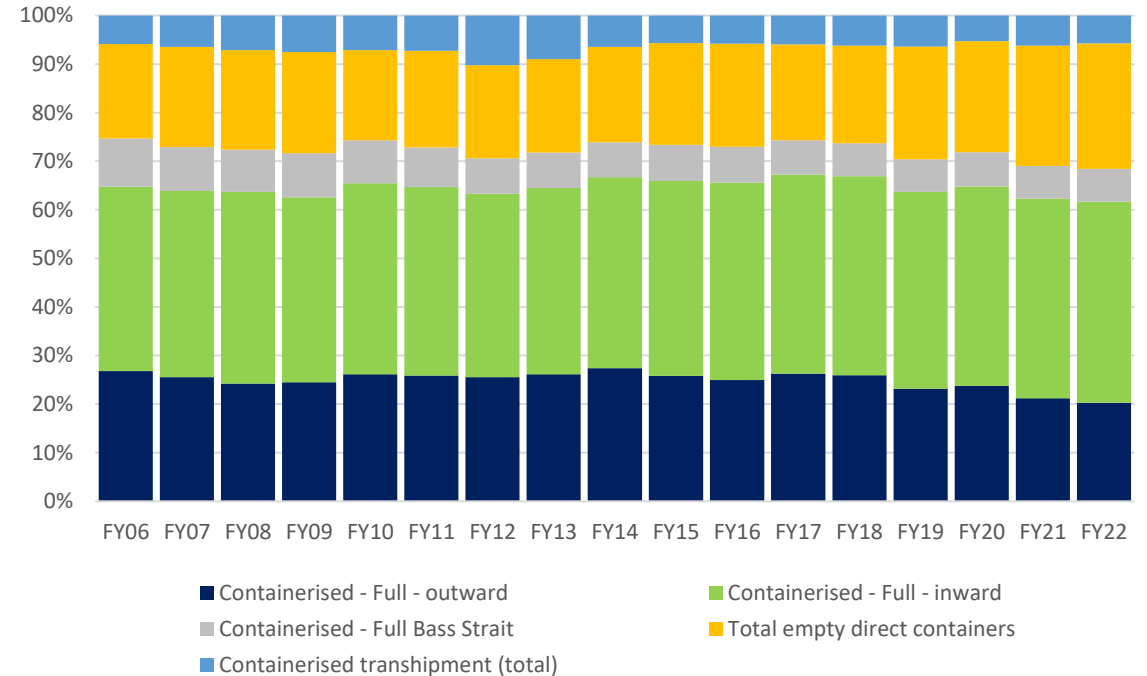
This purpose of this report is to provide a summary of the FY23 to FY28 trade forecasts produced by Deloitte Access Economics for PoM. Details of Deloitte Access Economics' methodology, model specification and limitations are not included in this summary report.

Historical trends in containerised trade

Containerised imports have historically made up the largest share of all container trade, with an increasing share of total container trade over time. Before COVID-19, between FY06 and FY19, containerised imports grew at a CAGR of 4.0% whilst exports grew at a CAGR of 2.4%.

Global supply chains were significantly disrupted by COVID-19, causing a noticeable impact on trade flows at the Port between FY20 Q4 to FY22 Q4. The extent of this impact varied across the different commodity groups examined.

Chart 6: Historical share of container trade, FY06 to FY22

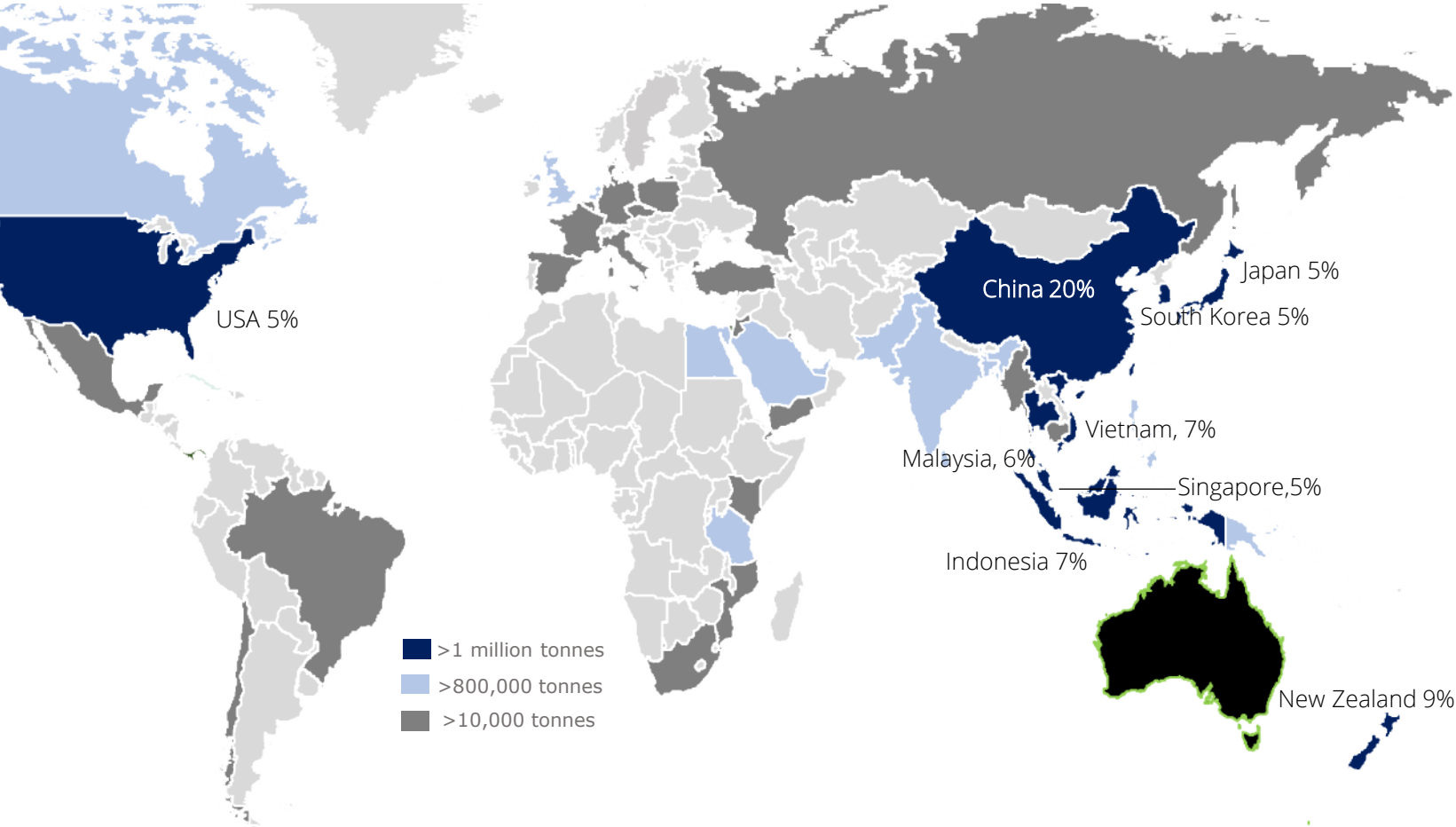


Source: PoM, Deloitte Access Economics

The Port of Melbourne – exports snapshot

Between 2021 and 2022, 26 million tonnes were exported from the Port of Melbourne to overseas markets, with 20% of all international exports going to China

Chart 7: Map of international export destinations from the Port of Melbourne



From the Port of Melbourne in In 2021 and 2022:

 87% of international exports were containerised


In 2021 and 2022, agricultural goods made up the largest share of international exports

 4,000,000 tonnes of wheat were exported

 900,000 tonnes of Barley were exported

 800,000 tonnes of Hay, chaff and fodder e were exported

The Bass Strait between 2021 and 2022:

 4,400,000 tonnes were exported from PoM to Tasmania

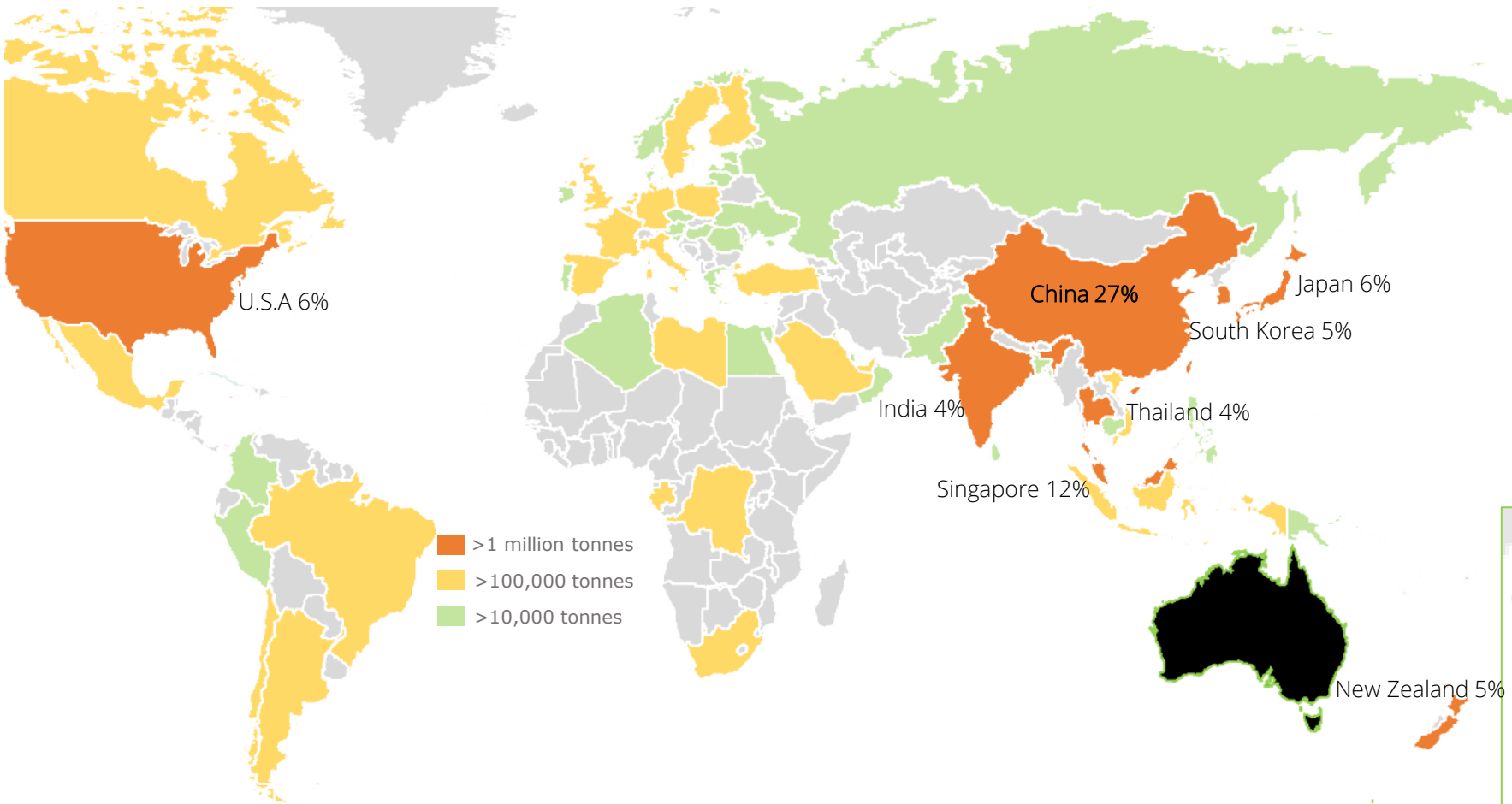
 Miscellaneous manufacturing products had the highest share of exports (40%)

 Cereals had the second highest share of Bass Strait exports (12%)

The Port of Melbourne – imports snapshot

Between 2021 and 2022, 34 million tonnes were imported from overseas markets to the Port of Melbourne, with 27% of all international imports coming from China and 12% coming from Singapore

Chart 8: Map of international import origins going to the Port of Melbourne



From overseas markets to the Port of Melbourne In 2021 and 2022:



67% of all imports were containerised and 23% were liquid bulk

In 2021 and 2022, fuel products and manufacturing products made up the largest share of international imports:



2,700,000 tonnes of distillate fuels were imported



2,200,000 tonnes of motor spirit were imported



1,500,000 tonnes of crude oil were imported

The Bass Strait between 2021 and 2022:



6,580,000 tonnes were imported from Tasmania to the PoM



Cement was the most imported good, with a 35% share of total Bass Strait imports



Miscellaneous food preparations had the second highest share of Bass Strait imports (11%)

Source: Deloitte Access Economics, PoM historical trade data *infographic is a snapshot of the sum of trade in 2021 and 2022 **includes containerised and non-containerised imports

Approach overview

Approach

The approach was governed by the purpose of the engagement - to create robust, reasonable forecasts with a replicable method and traceable data

Approach overview

Deloitte Access Economics took a data-driven, bottom-up approach to developing robust forecasts for 18 trade categories defined by PoM. An overview of Deloitte Access Economics' approach is provided below.

1. Thorough examination of the detailed trade data provided by PoM, which was then mapped to trade categories using advanced software capable of handling large data sets.
2. Bottom-up statistical analysis of trade patterns over time was conducted, with a focus on the most detailed commodity classifications.
3. Commodities were grouped into sensible bundles based on similarities in characteristics and mutual relationships with macroeconomic factors. Caution was taken to ensure that the inclusion of the specific commodity did not materially dilute the statistical pattern of the bundle.
4. Commodities with significant volume shares and unique trends were isolated.
5. Econometric analysis was carried out to produce robust statistical models capable of forecasting trade activity over the short to medium term, with a revision of previous steps as necessary.
6. Key findings from relevant literature informed the approach, including guidance on forecasting empty container volumes outlined by the Bureau of Infrastructure, Transport and Regional Economics; and previous trade forecasts, informed by stakeholder consultation, produced by Deloitte Access Economics for Freight Victoria (2023).[^]
7. Trade forecasts were produced using forecasts for relevant explanatory macroeconomic variables sourced from Deloitte Access Economics Quarterly Business Outlook, December Quarter 2023.

[^]Deloitte Access Economics, January 2023, Victorian Commercial Port Strategy: Trade and Industry Trends Report.

Containerised trade forecasts

Containerised full direct – exports vs imports

Exports (mainland and overseas)

Containerised exports are forecast to grow at a CAGR of **1.4%** between FY23 and FY28.

- Forecasts have been derived from an analysis of the following commodity groupings: wheat (-6.0% CAGR), other agricultural commodities (2.8% CAGR), and household, intermediate and capital goods (1.2% CAGR).
- Containerised export volumes are mainly driven by economic growth in major export markets. Total volume is expected to fall -0.9% in FY23, reflecting deteriorating global economic conditions in the near term.

Chart 9: Containerised exports forecast growth, FY23 – FY28, % change

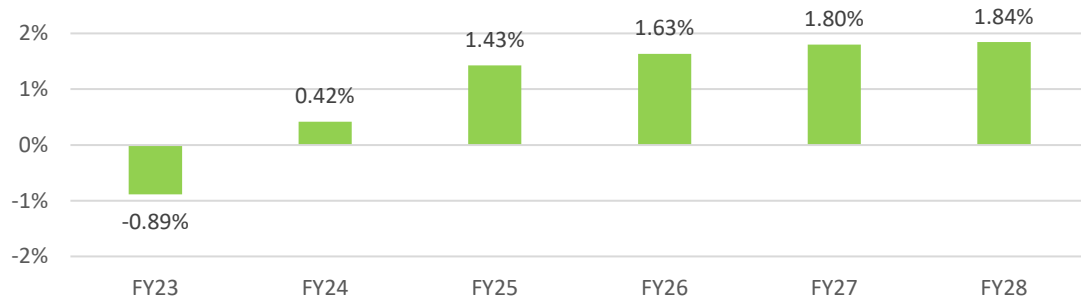
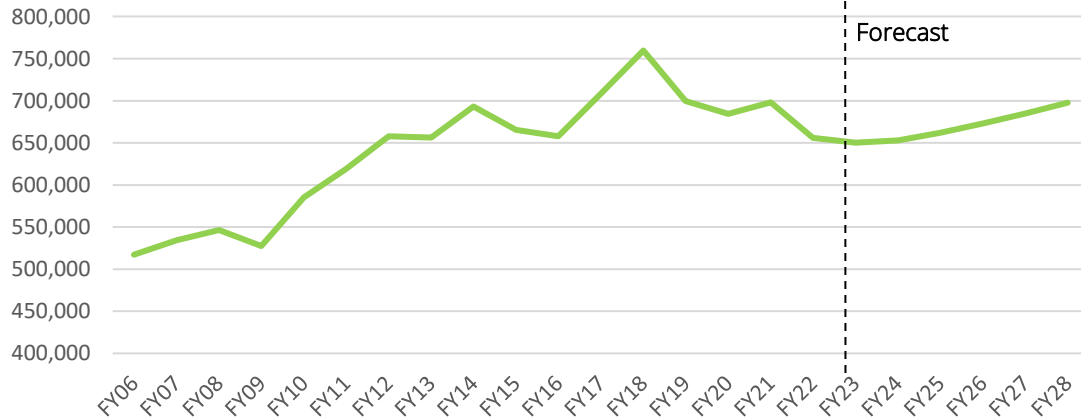


Chart 10: Containerised exports historical and forecasts by FY, TEU



Source: PoM, Deloitte Access Economics

Imports (mainland and overseas)

Containerised imports are forecast to grow at a CAGR of **4.0%** between FY23 and FY28.

- Forecasts have been derived from an analysis of the following commodity groupings: consumer goods (3.2% CAGR), and intermediate and capital goods (4.8% CAGR).
- High-volume commodity groups in this category include building materials, manufacturing products, plastics, and other goods associated with capital investment and industrial production. Total volume is expected to fall -2.75% in FY23 due to weak domestic conditions reflected by subdued economic growth.

Chart 11: Containerised imports forecast growth, FY23 – FY28, % change

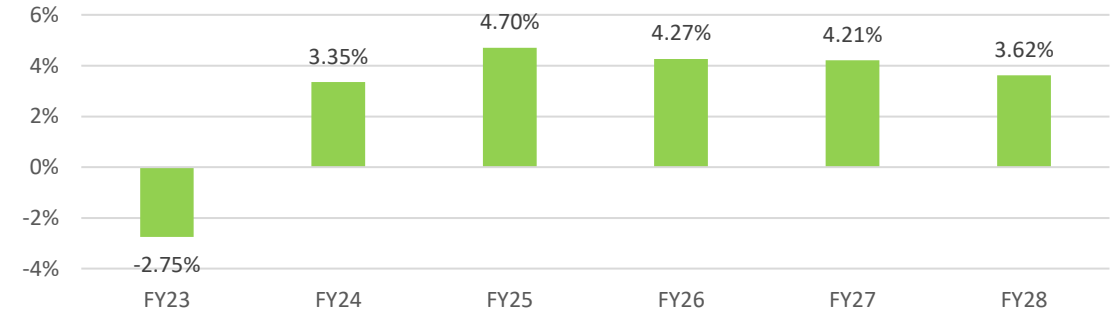
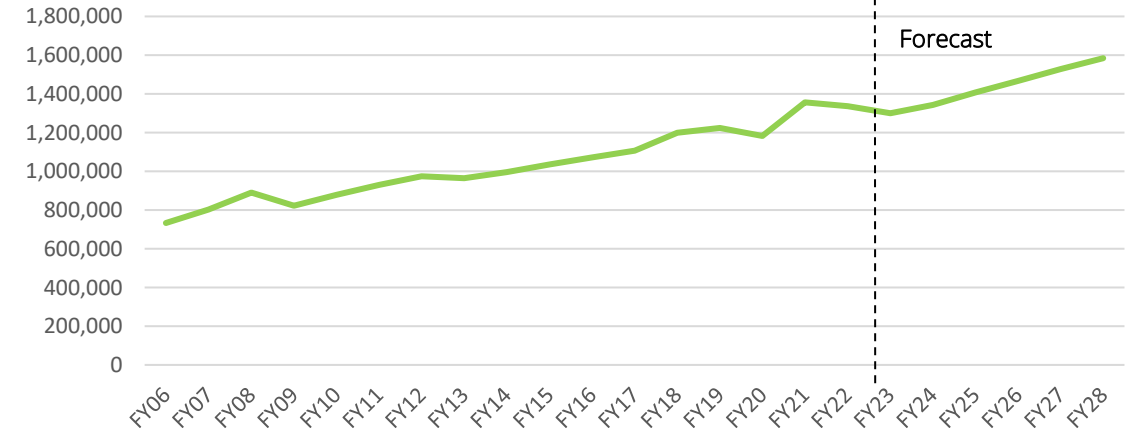


Chart 12: Containerised imports historical and forecasts by Financial Year, TEU



Source: PoM, Deloitte Access Economics

Containerised full direct - exports vs imports, Bass Strait

Exports (Bass Strait)

Bass Strait exports are forecast to grow at a CAGR of **1.0%** between FY23 and FY28.

- Commodities with high trade share volumes in this category include manufacturing materials, cereal grains, food products, non-ferrous metals and newsprint paper.
- Tasmanian domestic final demand and Tasmanian total employment affect Bass Strait exports. Export volume is expected to fall **-1.58%** in FY23 due to a weak near term economic outlook.

Chart 13: Containerised Bass Strait exports forecast growth, FY23 – FY28, % change

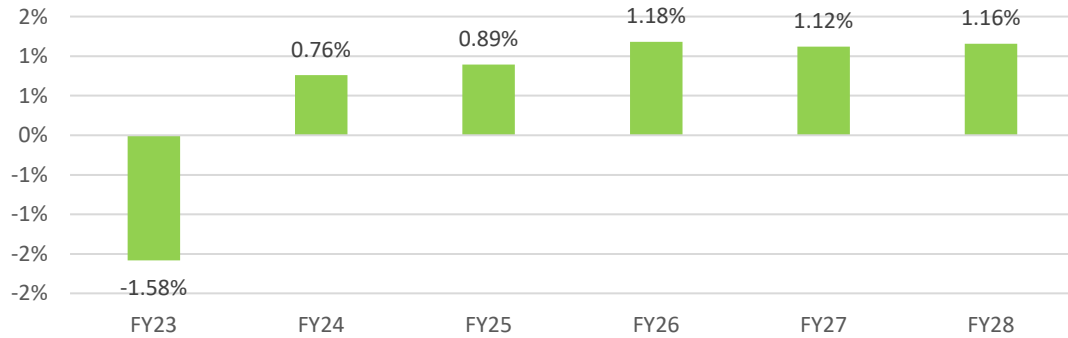
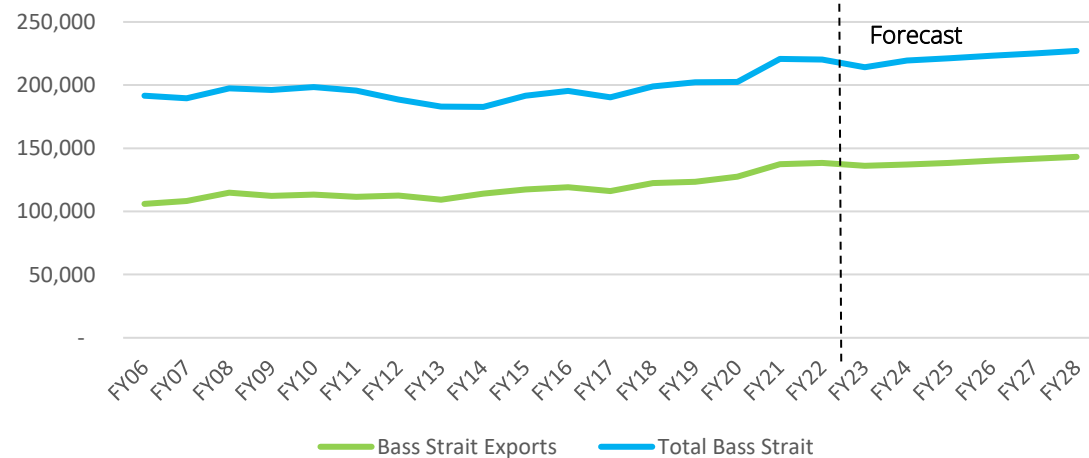


Chart 14: Containerised Bass Strait exports historical and forecasts by Financial Year, TEU



Source: PoM, Deloitte Access Economics

Imports (Bass Strait)

Bass Strait imports are forecast to grow at a CAGR of **1.5%** between FY23 and FY28.

- Commodities with high trade share volumes in this category include paper, scrap metal and dairy products.
- Victoria's consumption expenditure and industrial production affect Bass Strait imports. Import volume is expected to fall by **-4.68%** in FY23 due to weak domestic conditions and subdued consumption expenditure.

Chart 15: Containerised Bass Strait imports forecast growth, FY23 – FY28, % change

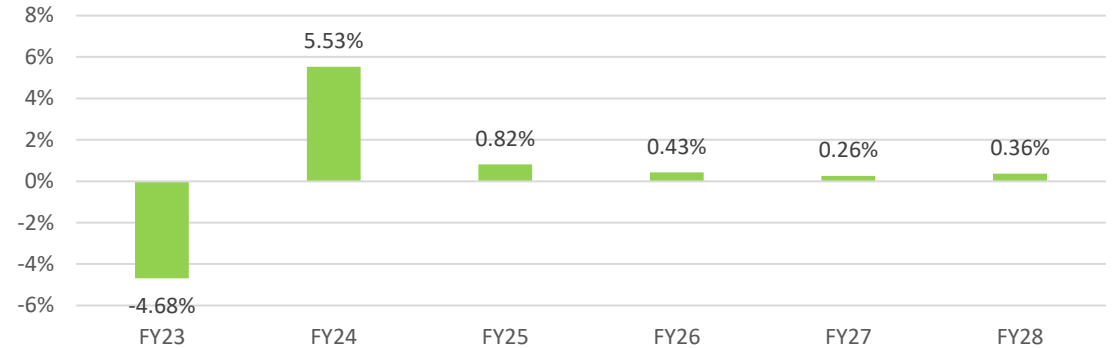
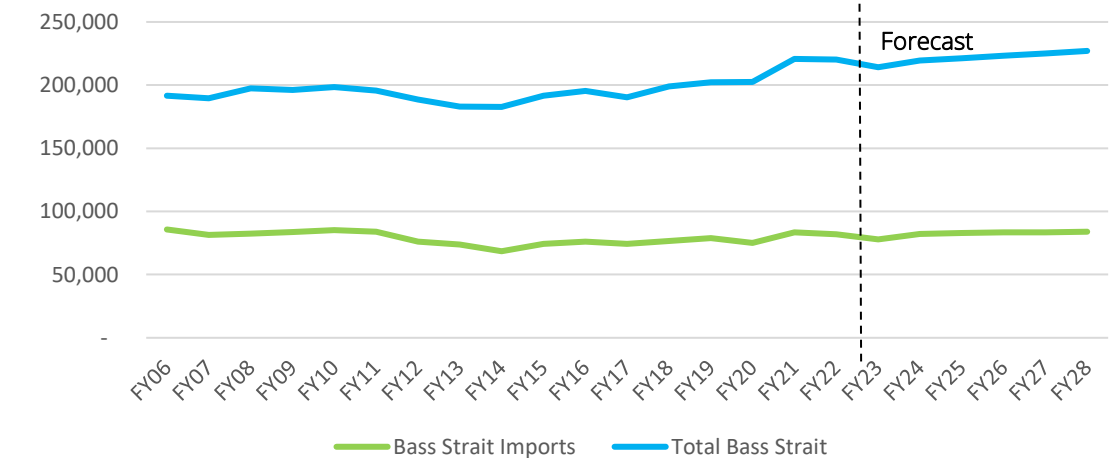


Chart 16: Containerised Bass Strait imports historical and forecasts by Financial Year, TEU



Source: PoM, Deloitte Access Economics

Containerised transshipment - exports vs imports

Exports (mainland and overseas)

Transhipped full exports are forecast to grow at a CAGR of **1.4%** between FY23 and FY28.

Chart 17: Containerised transshipment exports forecast growth, FY23 – FY28, % change

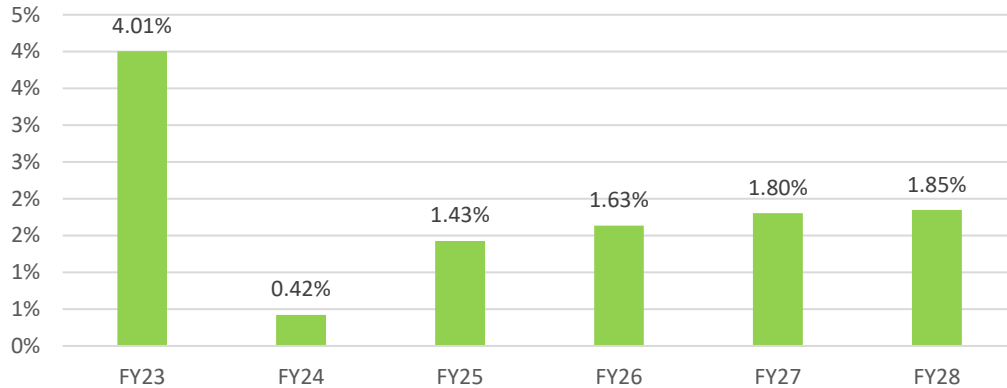
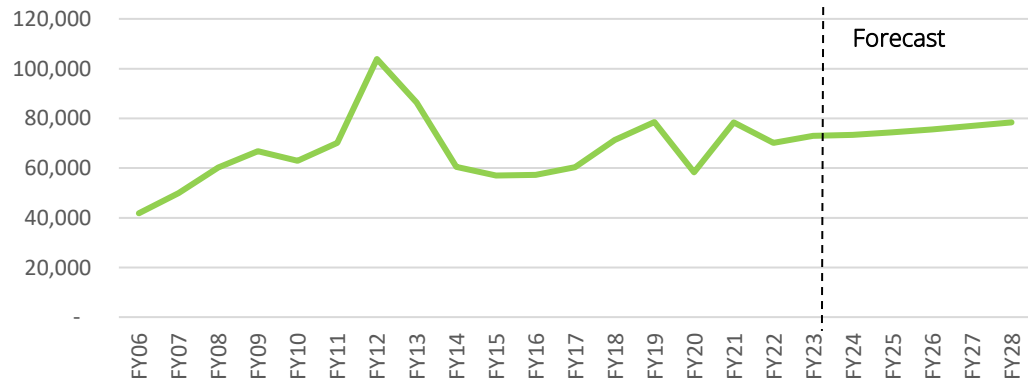


Chart 18: Containerised transshipment exports historical and forecasts by FY, TEU



Source: PoM, Deloitte Access Economics

Note: Export and import forecasts are a function of direct containerised exports forecasts and assumptions regarding the ratio between direct and transhipped containerised exports over the forecast period.

Imports (mainland and overseas)

Transhipped full imports are forecast to grow at a CAGR of **4.0%** between FY23 and FY28.

Chart 19: Containerised transshipment imports forecast growth, FY23 – FY28, % change

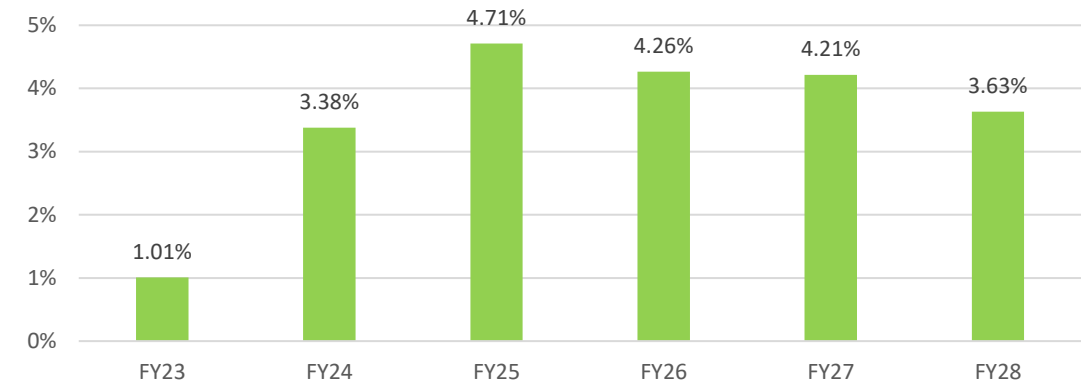
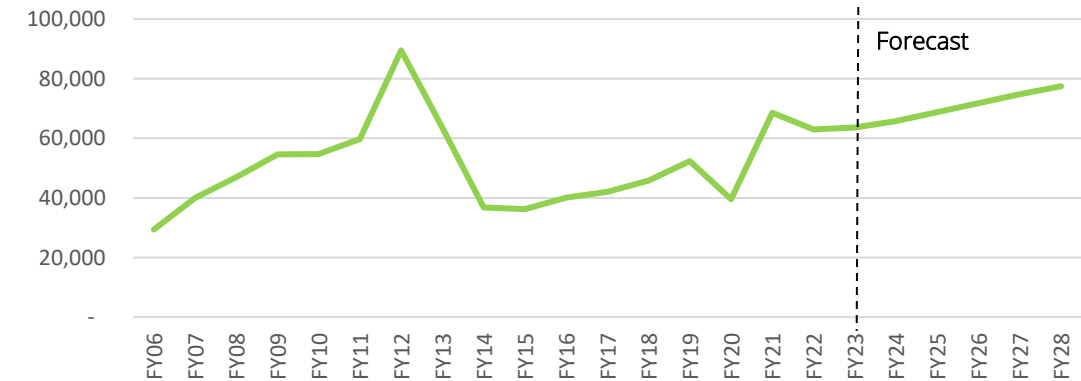


Chart 20: Containerised transshipment imports historical and forecasts by Financial Year, TEU



Source: PoM, Deloitte Access Economics

Containerised transshipment - exports vs imports, Bass Strait

Exports (Bass Strait)

Transhipped full exports are forecast to grow at a CAGR of **1.0%** between FY23 and FY28.

Chart 21: Containerised transshipment exports forecast growth, FY23 – FY28, % change

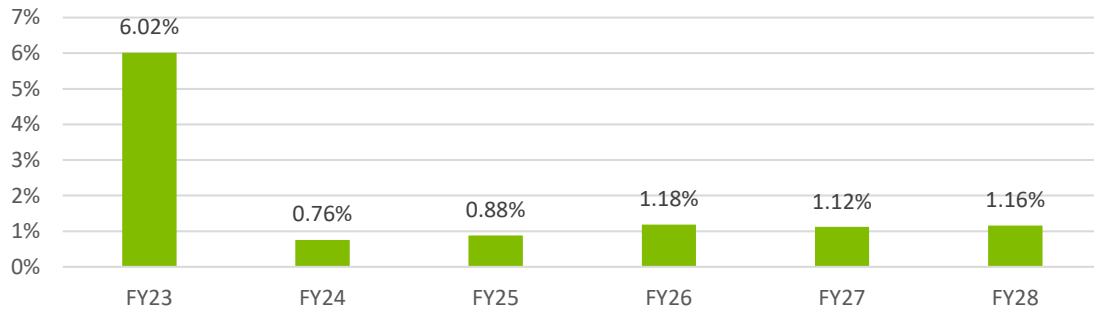
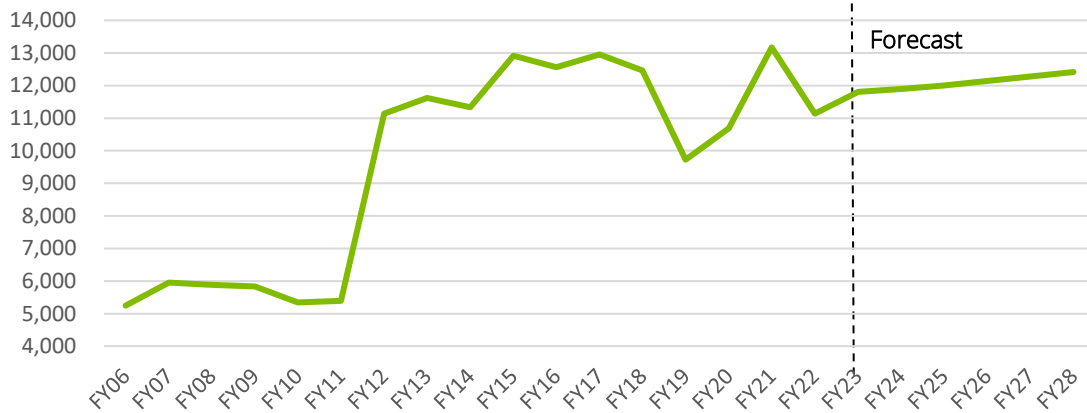


Chart 22: Containerised transshipment exports historical and forecasts by FY, TEU



Source: PoM, Deloitte Access Economics

Imports (Bass Strait)

Transhipped full imports are forecast to grow at a CAGR of **1.5%** between FY23 and FY28.

Chart 23: Containerised transshipment imports forecast growth, FY23 – FY28, % change

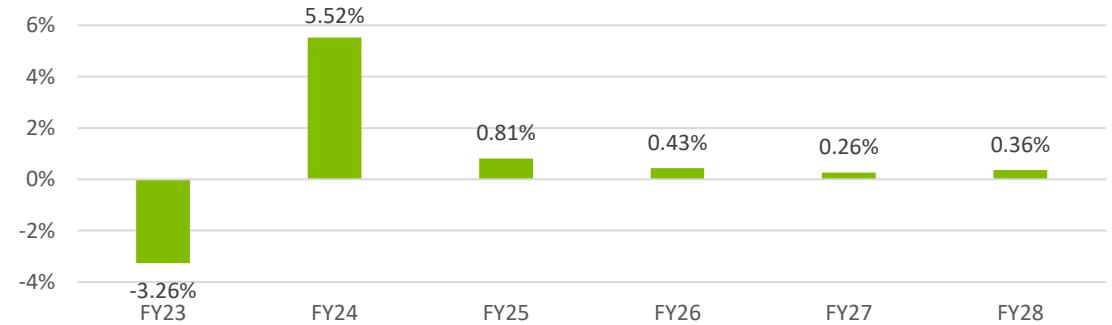
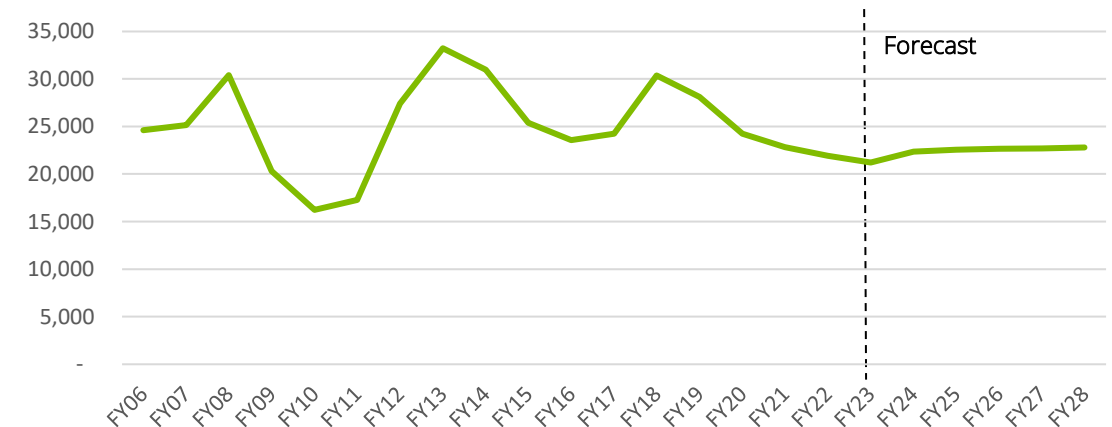


Chart 24: Containerised transshipment imports historical and forecasts by Financial Year, TEU



Source: PoM, Deloitte Access Economics

Empty containers – total trade

The Port of Melbourne is a net exporter of empty containers due to the high volume of full imported containers received relative to full exported containers. The Port's net export position continues to grow wider over the forecast period.

Direct (imports and exports)

- Mainland and overseas direct empty containers are forecast to grow at a CAGR of **4.2%** between FY23 and FY28.
- Bass Strait direct empty containers are forecast to grow at a CAGR of **1.9%** over the same period

Chart 25: Empty containers forecast growth, FY23 – FY28, % change

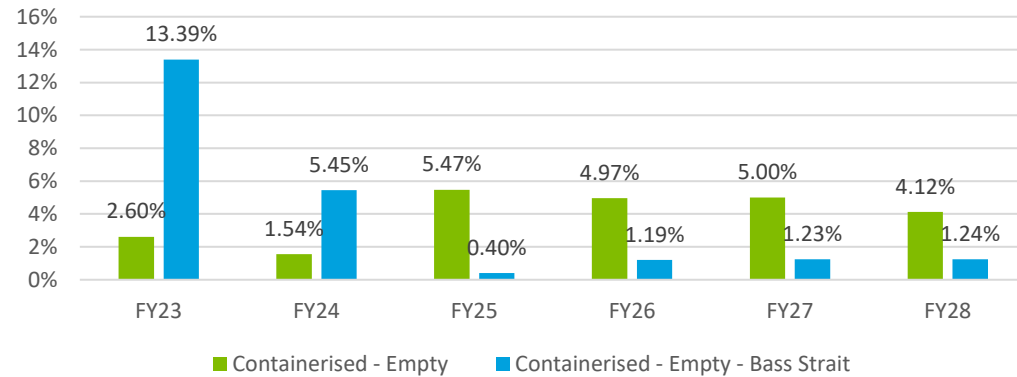
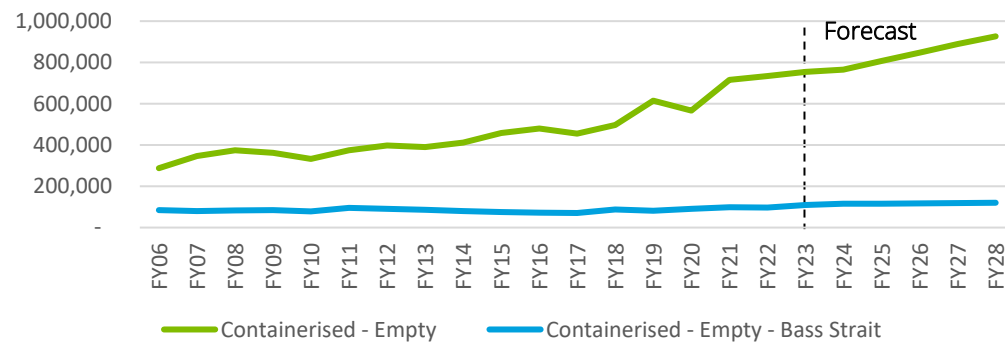


Chart 26: Empty containers historical and forecasts by Financial Year, TEU



Transshipment (imports and exports)

- Mainland and overseas transhipped empty containers are forecast to decline at a CAGR of **-1.5%** between FY23 and FY28.
- Bass Strait transhipped empty containers are forecast to grow at a CAGR of **1.4%** over the same period

Chart 27: Empty containers transshipment forecast growth, FY23 – FY28, % change

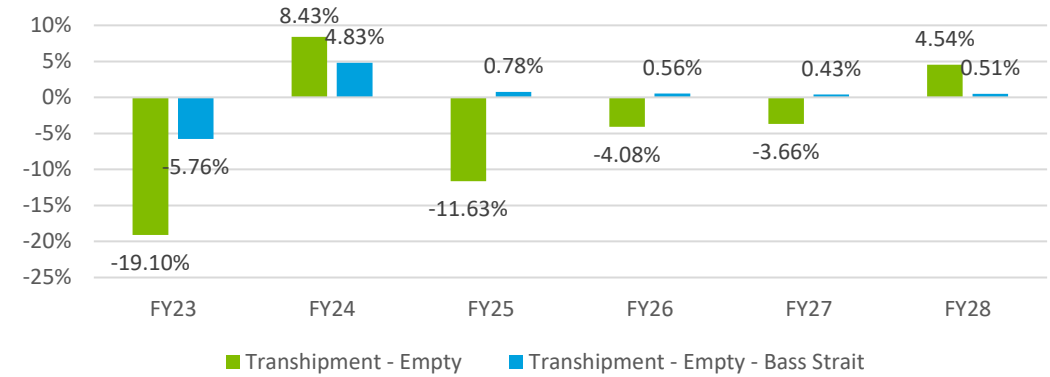
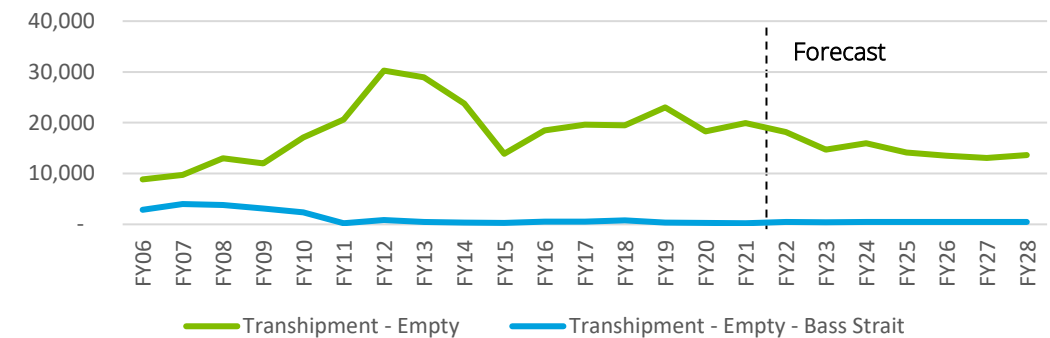


Chart 28: Empty containers transshipment historical and forecasts by Financial Year, TEU



Containerised returns – total trade

Direct (imports and exports)

- Mainland and overseas empty returns are forecast to grow at a CAGR of **4.3%** between FY23 to FY28.
- Bass Strait empty returns are forecast to grow at a CAGR of **1.9%** over the same period.

Chart 29: Empty returns forecast growth, FY23 – FY28, % change

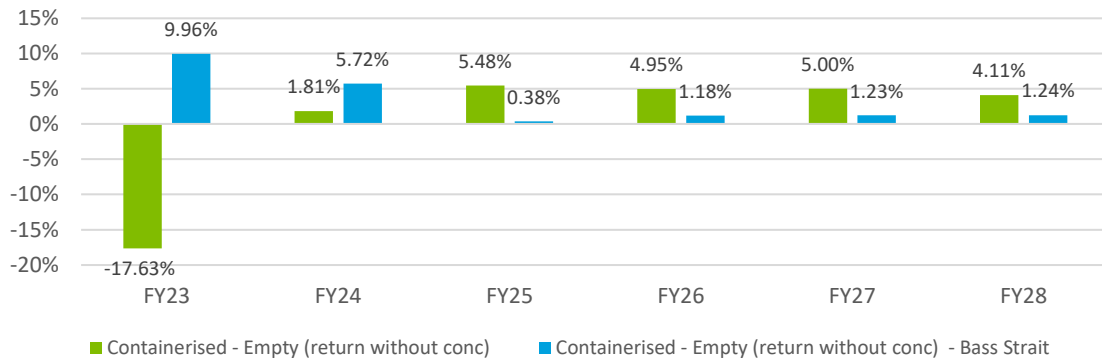
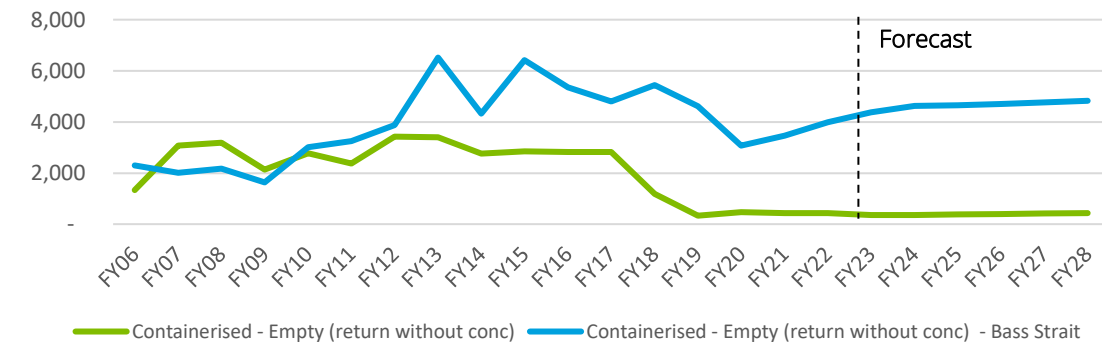


Chart 30: Empty returns historical and forecasts by Financial Year, TEU



Source: PoM, Deloitte Access Economics

Transshipment (imports and exports)

- Mainland and overseas transhipped empty returns are forecast to decline at a CAGR of **-3.5%** between FY23 to FY28.
- Bass Strait transhipped empty returns are forecast to grow at a CAGR of **12.1%** over the same period (noting a very low base in absolute terms – refer to Chart 3.24).

Chart 31: Empty returns transshipment forecast growth, FY23 – FY28, % change

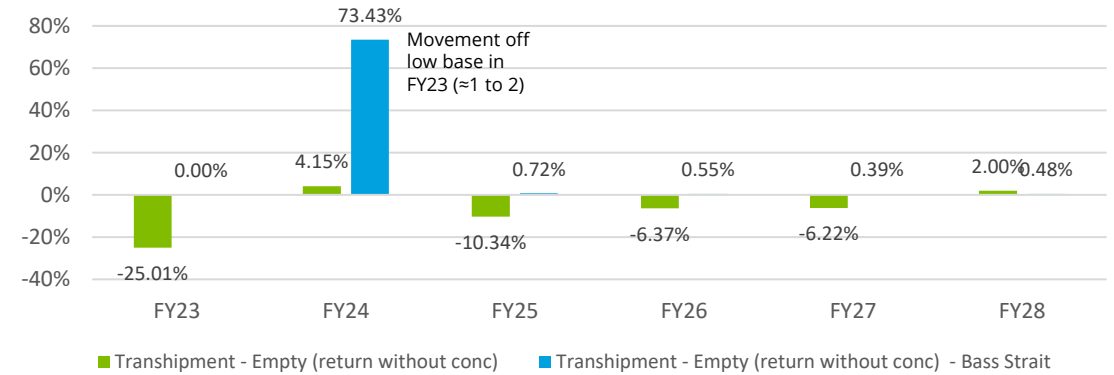
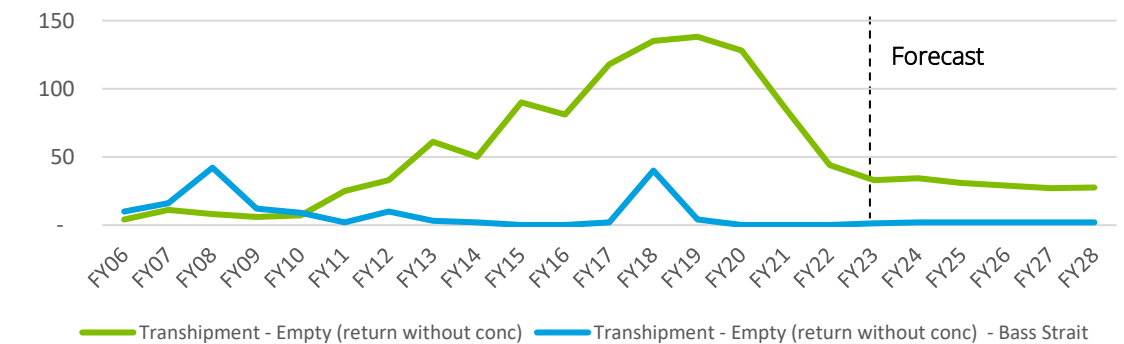


Chart 32: Empty returns transshipment historical and forecasts by Financial Year, TEU



Source: PoM, Deloitte Access Economics

Non-containerised trade forecasts

Non-containerised direct general - total trade

Break bulk (imports and exports)

- Non-containerised direct trade volumes are forecast to grow at a CAGR of **2.0%** between FY23 and FY28.
- Break bulk exports are forecast to grow at a **5.3%** CAGR, whilst imports decline by **-0.7%** CAGR (not charted)

Chart 33: Non-containerised break bulk forecast growth, FY23 – FY28, % change

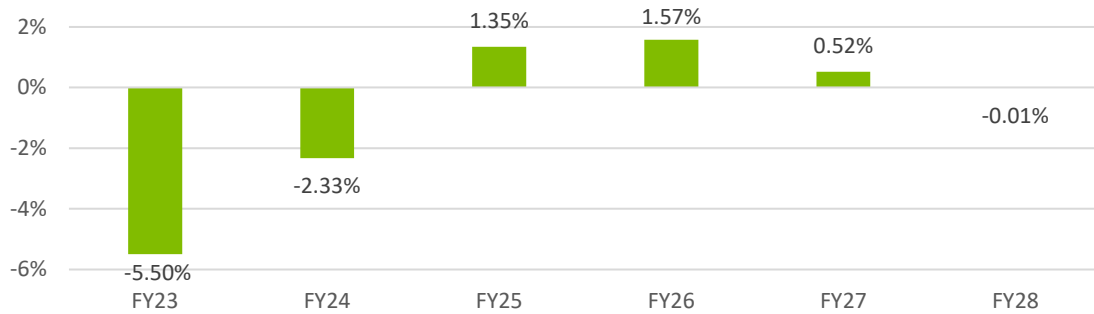
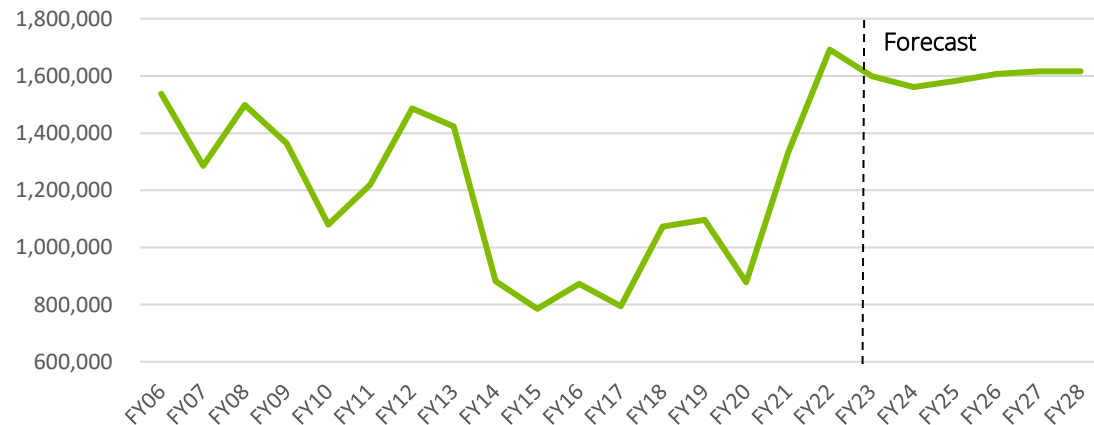


Chart 34: Non-containerised break bulk historical and forecasts by FY, revenue tonnes



Source: PoM, Deloitte Access Economics

Wheeled unitised (imports and exports)

- Wheeled Unitised total trade (including empty containers) is forecast to grow at a CAGR of **2.7%** between FY23 and FY28.
- Wheeled unitised exports are forecast to grow at a **2.9%** CAGR, and imports by **2.6%** CAGR. Empty exports grow at **2.5%** CAGR and empty imports grow at **2.4%** CAGR (not charted)

Chart 35: Non-containerised wheeled unitised forecast growth, FY23 – FY28, % change

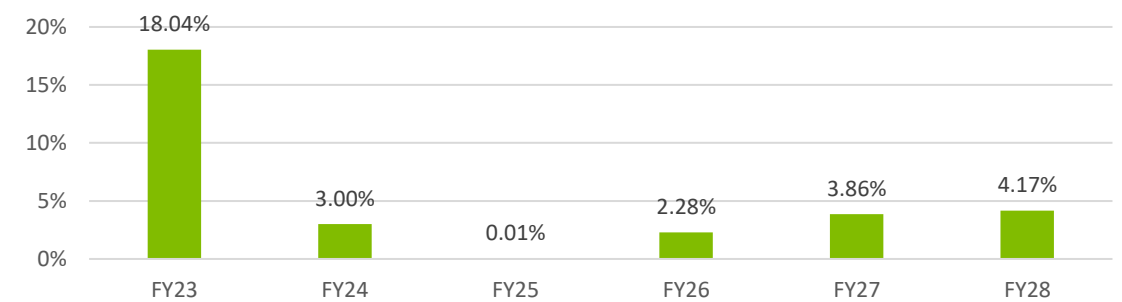
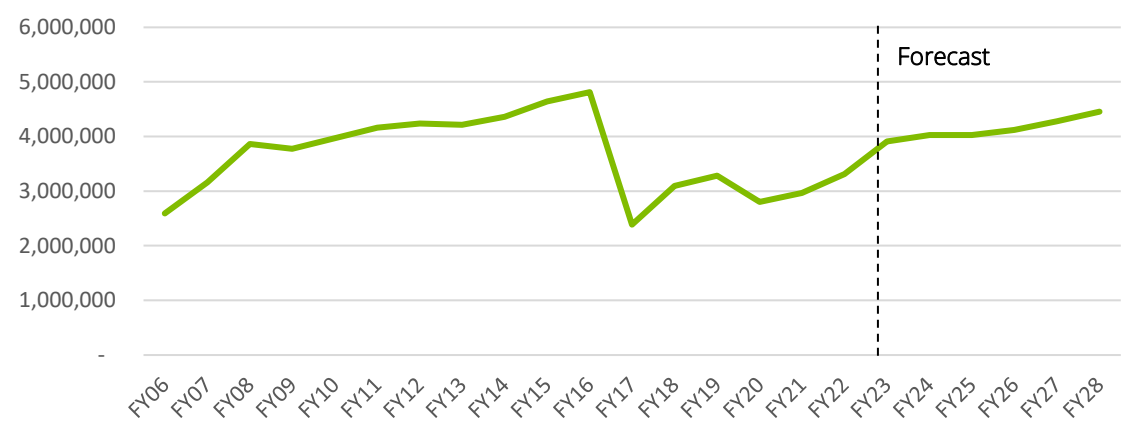


Chart 36: Non-containerised wheeled unitised historical and forecasts by Financial Year, revenue tonnes



Source: PoM, Deloitte Access Economics

Non-containerised direct motor vehicles - total trade

Motor vehicles (imports and exports)

- Motor vehicle trade volumes are forecast to decline at a CAGR of **-1.4%** between FY23 and FY28.
- The majority share of this cargo type (circa 60%) consists of new vehicle imports, which are forecast to decline at a CAGR of **-3.1%** as trade volumes recede over the medium term from COVID-19 related highs.

Chart 37: Non-containerised motor vehicle forecast growth, FY23 – FY28, % change

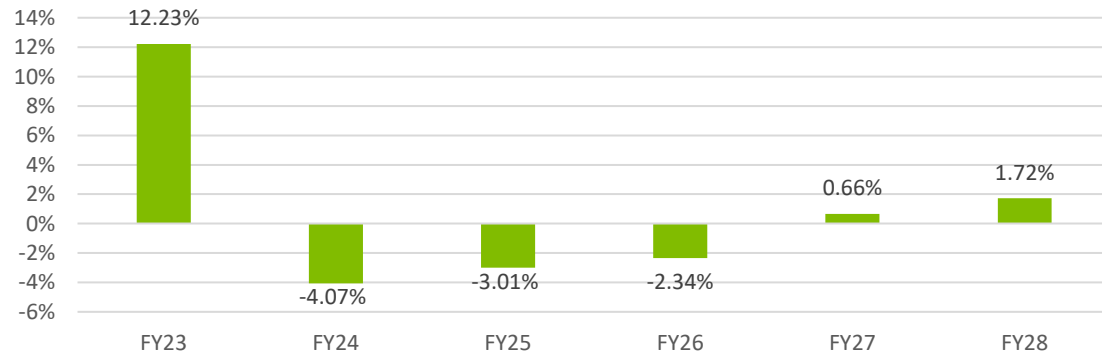
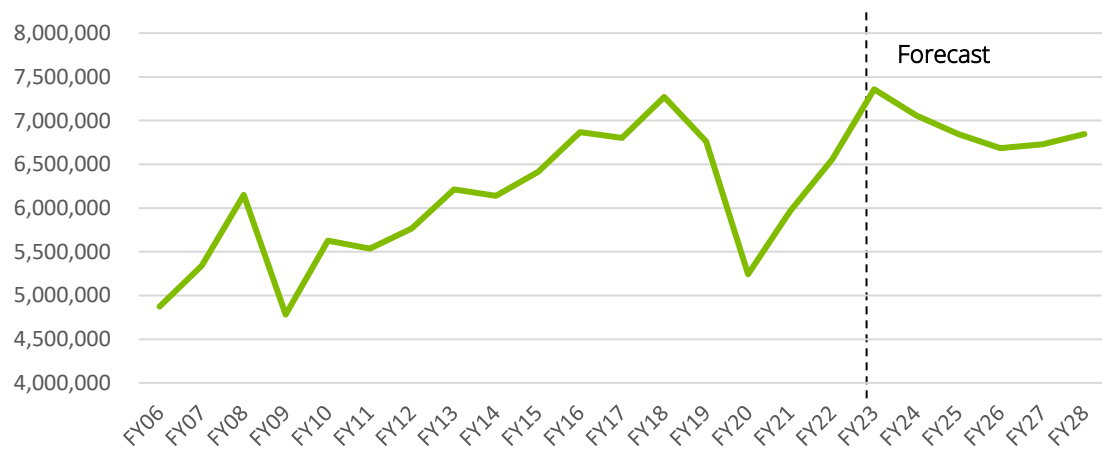


Chart 38: Non-containerised motor vehicle historical and forecasts by FY, revenue tonnes



Source: PoM, Deloitte Access Economics

Non-containerised direct liquid bulk - total trade

Liquid bulk

- Liquid bulk cargo volumes are forecast to grow at a CAGR of **1.6%** between FY23 and FY28
- Commodities representing the majority share of liquid bulk cargo are petrol and diesel imports which are forecast to grow at a **1.7%** CAGR and other petroleum products which are forecast to grow at a **3.9%** CAGR.

Chart 39: Non-containerised liquid bulk forecast growth, FY23 – FY28, % change

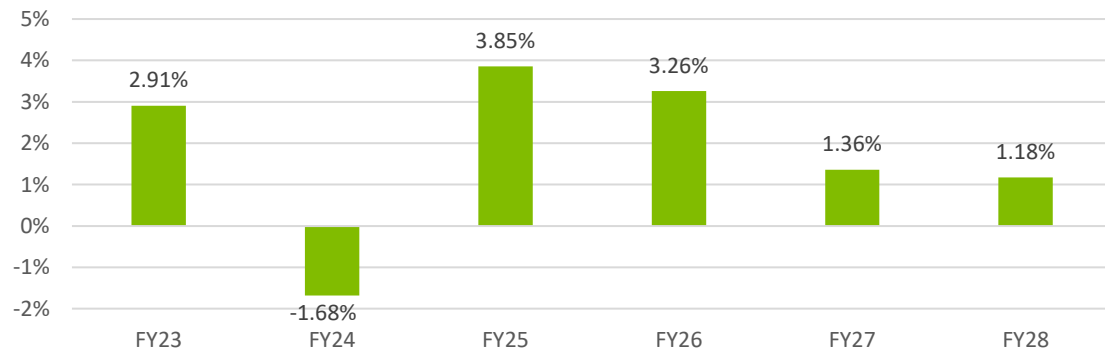
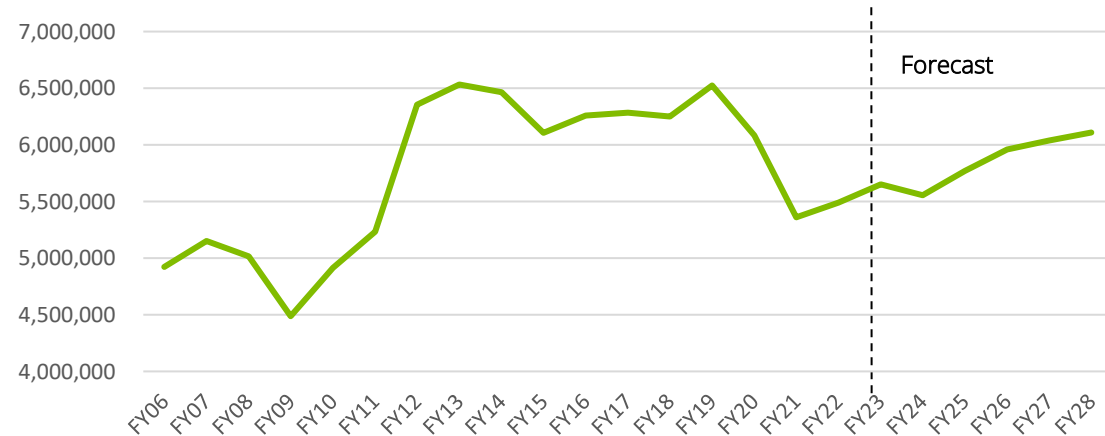


Chart 40: Non-containerised liquid bulk historical and forecasts by FY, revenue tonnes



Source: PoM, Deloitte Access Economics

Impact of Altona refinery closure on liquid bulk trade

The closure of ExxonMobil's Altona refinery significantly impacted trade volumes of petroleum products and crude oil in and out of the Port. Volumes of imported crude oil, and exported motor spirit and diesel fuels are assumed to remain non-existent over the forecast period.

Volumes of imported petroleum products are assumed to remain elevated in the medium term to offset the loss of production at the refinery and satisfy Victorian domestic demand for fuel. In the long run, the volume of petroleum product imports will depend on the speed of Victoria's transition to clean energy and electric technologies.

Non-containerised direct dry bulk – exports vs imports

Exports

- Dry bulk exports are forecast to decline at a CAGR of **-6.4%** between FY23 and FY28.
- Wheat and barley represent circa 90% of non-containerised dry bulk exports. Dry bulk export volumes are highly volatile over history. The forecast period captures dry bulk trade volumes returning to a long run average over the medium term.

Chart 41: Non-containerised dry bulk export forecast growth, FY23 – FY28, % change

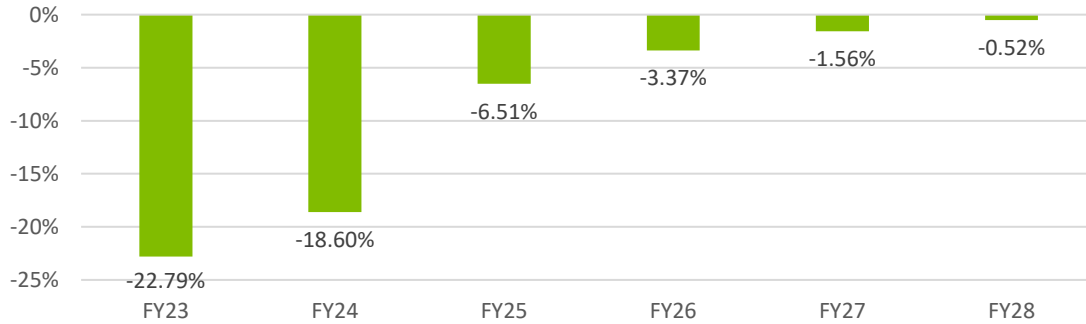
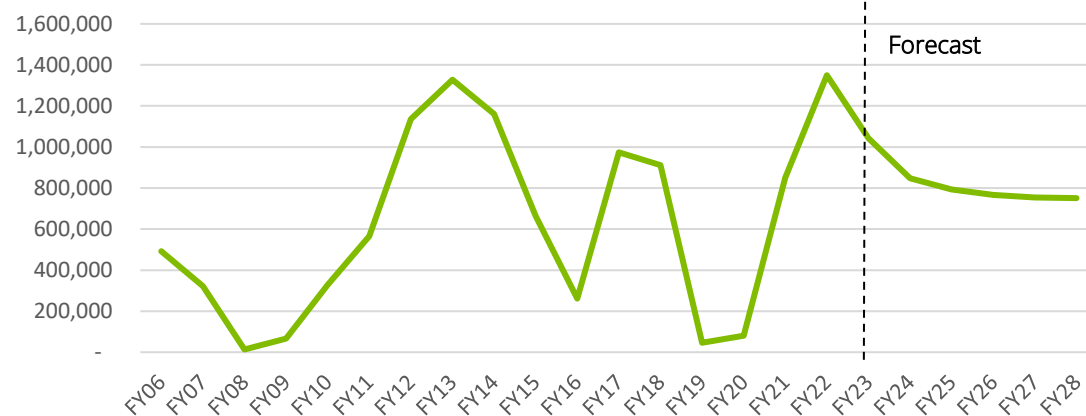


Chart 42: Non-containerised dry bulk exports historical and forecasts by FY, tonnes



Source: PoM, Deloitte Access Economics

Imports

- Dry bulk imports are forecast to grow at a CAGR of **2.7%** between FY23 and FY28.
- Commodities with high share volumes of dry bulk imports include cement (61%), fertilisers (15%), gypsum (15%), and sugar (7%) - with other imported dry bulk goods representing the remaining 2%.

Chart 43: Non-containerised dry bulk imports forecast growth, FY23 – FY28, % change

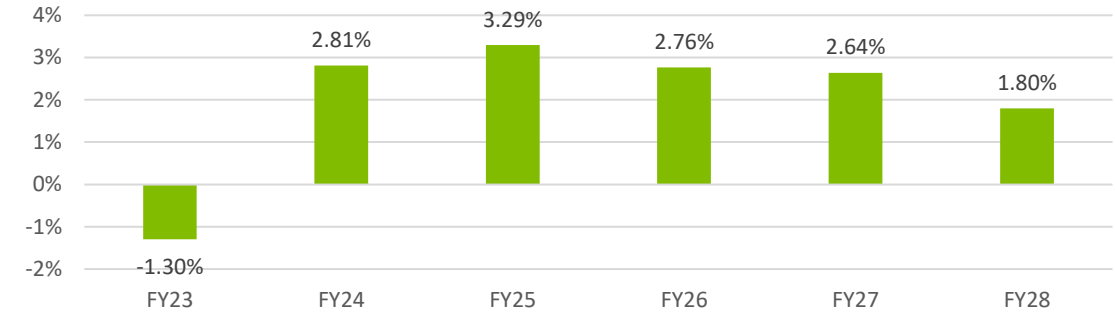
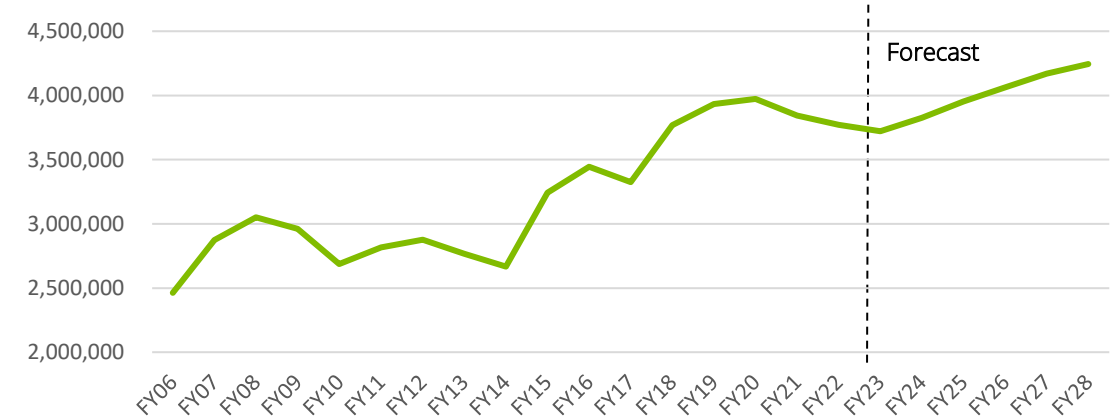


Chart 44: Non-containerised dry bulk imports historical and forecasts by Financial Year, tonnes



Source: PoM, Deloitte Access Economics

Non-containerised transshipment – total trade

Motor vehicles (exports and imports)

- Non-containerised transhipped motor vehicles are forecast to at a CAGR of **-25.1%** between FY23 and FY28.
- The forecast decline is driven by the import and export volumes of new vehicles and transport equipment, which are expected to decline from recent elevated levels at a CAGR of **-24.9%** and **-26.9%**, respectively.

Chart 45: Non-containerised transshipment motor vehicle forecast growth, FY23 – FY28, % change

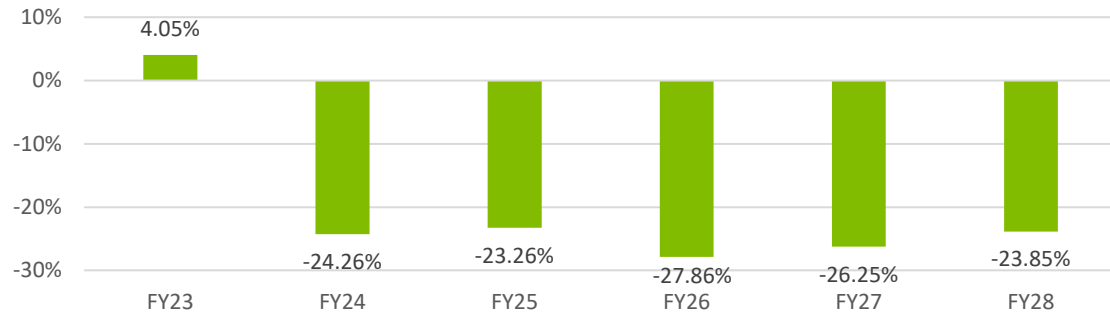
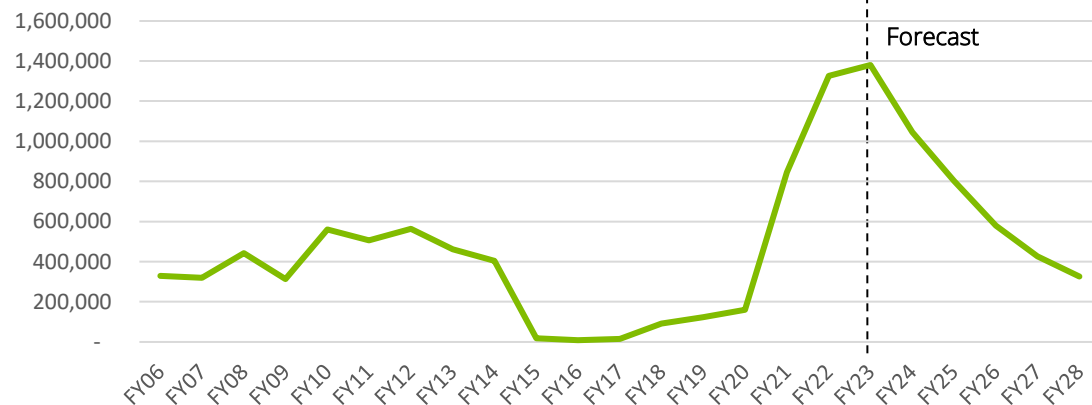


Chart 46: Non-containerised transshipment motor vehicle historical and forecasts by FY, revenue tonnes



Source: PoM, Deloitte Access Economics

General - break bulk & wheeled unitised (exports and imports)

- Transhipped general break bulk and wheeled unitised trade is forecast to grow at a CAGR of **-23.4%** between FY23 and FY28.
- Fall in forecast volumes are due to a contraction from COVID-19 induced all-time highs.

Chart 47: Non-containerised general forecast growth, FY23 – FY28, % change

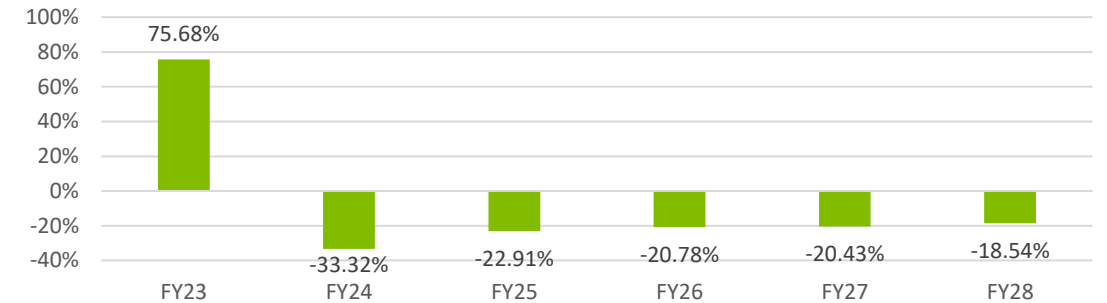
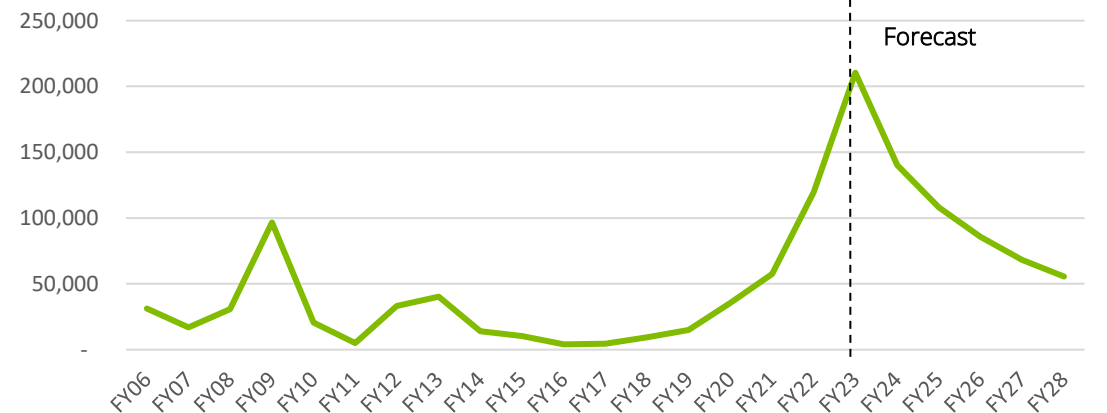


Chart 48: Non-containerised general historical and forecasts by Financial Year, revenue tonnes



Source: PoM, Deloitte Access Economics

Validation and conclusion

Deloitte's forecasts are robust and represent the most reasonable estimation possible.

Conclusion

Deloitte Access Economics has approached this forecasting analysis with the aim of producing robust trade forecasts for the Port of Melbourne. The approach taken has been governed by the purpose and Scope of the engagement. Deloitte has therefore produced a detailed methodology that is robust and replicable. Using this methodology, Deloitte Access Economics has produced forecasts for 18 different trade categories over the medium term.

Consistency of the methodology with standard industry approach

Deloitte Access Economics has arrived at the trade forecasts on a reasonable basis. The Port of Melbourne's historical data was used to develop the forecasts, and macroeconomic drivers that affect different trade were built into forecasting analysis. Assumptions, adjustments and controls to the data have been discussed, and each model has been subject to extensive diagnostic testing to ensure validity. The models chosen include Autoregressive Distributed Lag Model, Cointegrated Autoregressive Distributed Lag Model and Error Correction Model are standard across economic practice and econometricians. The methodology used to develop the forecasts is considered to be in line with industry best practice.

The consultant's credentials and experience producing similar forecasts for other parties

Deloitte Access Economics has extensive experience in developing macro-economic and trade forecasts and is widely recognised as one of the leading macroeconomic forecasters in Australia. Deloitte Access Economics is also known for producing reliable and accurate forecasts for numerous government and non-government clients that value the rigorous quantitative analysis provided through this process.

Deloitte Access Economics also has extensive Victorian-specific experience having previously been engaged by Freight Victoria to prepare trade demand forecasts as well as analysis of industry trends, and energy sector trends, to inform the Victorian Commercial Ports Strategy. The data and information from these forecasts have been used to inform the current set of forecasts where relevant as extensive industry consultation was undertaken with stakeholders that informed these forecasts.

The reasonableness of the methodology and assumptions

Deloitte Access Economics takes a pragmatic approach to forecasts and combines rigorous statistical methods with industry intelligence; namely a detailed understanding of both supply side and demand side factors that are likely to influence commodity trades for both exports and imports. It is not a 'one size fits all approach' and for some commodities that are volatile or lumpy in nature (e.g. capital imports) out of model adjustments were made as required as standard econometric methods would not be suitable.

Extensive research was conducted during the development of the forecasts taking into consideration 'what was in containers' and the level at which to undertake forecasts through a detailed commodity mapping process. The commodity bundles were developed such that the commodities being forecast in a bundle all had similar drivers (so the method used by Deloitte is intuitive and easy to explain). This is one of the main differentiators in Deloitte's approach making it reasonable and justifiable. Furthermore, Deloitte has used the most recent available PoM trade data to make any adjustments over the short-term as relevant to take into account FY-to-date growth in key import and export commodities traded through the Port.

The methodology makes extensive use of the historical data to take a 'bottom up' approach identifying long term commodity trends and adjusting for COVID and accounting for structural breaks with use of dummy variables. The forecasts have been developed in tonnes and converted from tonnes to TEUs at the commodity bundle level to take into account average tonnes per container as this would vary for different commodity type as well as 20ft and 40ft containers. Where forecasts have been informed by historical ratios (e.g. transshipment containers) the analysis been done at a detailed level and takes into account past trends and projected forward into the future based on those past trends using either a logarithmic or stationary trend. A detailed methodology has been developed for empty containers (which forms a substantial amount of container trade) as described in the methodology appendix and uses an adaptation of an approach developed by BITRE in previous work.

Lastly, while Deloitte has developed its forecasts independently, multiple checks have been done with available forecasts in the public domain as part of the QA process and these demonstrate the forecast are reasonable. The forecasts have also been developed at a quarterly level (that includes seasonal factors) and can be aggregated to financial or calendar years.



Deloitte Access Economics is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. For more information, please visit our website: www.deloitte.com/au/deloitte-access-economics

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