INFRASTRUCTURE PARTNERSHIPS AUSTRALIA

2023
INTERNATIONAL AIRFREIGHT INDICATOR

INFRASTRUCTURE PARTNERSHIPS AUSTRALIA

Infrastructure Partnerships Australia is an industry think tank and an executive member network, providing research focused on excellence in social and economic infrastructure. We exist to shape public debate and drive reform for the national interest.

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CONTENTS

EXECUTIVE SUMMARY

Australia's airfreight supply chain plays a critical role in our economy.

The aviation supply chain – consisting of airports, airlines, freight forwarders and connecting infrastructure – supports the movement of some of Australia's highest value exports produced by our agriculture, advanced manufacturing and pharmaceutical sectors, and the import of critical medical products, electronics and machinery.

In 2022, airfreight carried $139 billion worth of goods, equivalent to 14 per cent of total annual trade – with an average of 313 international flights arriving and departing Australia every day.

Yet, until the pandemic struck, the general public had little knowledge about the value and contents of what is carried in the belly of those planes. Beyond high level indicators about the volume of airfreight, we are remarkably blind to the value, the type of commodity, and the enormous economic contribution of the airfreight that leaves or lands in Australia.

Airfreight is typically used to move high-value, time-sensitive and perishable items that need to be delivered to markets quickly.

A diverse range of products are exported, from meat, fresh fruit, medical instruments, high value technology products to precious stones and metals. These goods are delivered to multiple destinations, with export countries primarily in Asia.

Unsurprisingly, in the 2021 edition of this report, Infrastructure Partnerships Australia found the international airfreight supply chain had been severely disrupted by COVID.[1] Prior to the pandemic, 80 per cent of international airfreight volumes relied on capacity below the cabins of passenger services (known as 'belly capacity') – which were grounded for almost all of 2020 and 2021.

In response, the use of dedicated freighters and 'preighters' – a term coined during the pandemic specifically to refer to passenger aircraft that transports freight only – worked to fill part of the void during this period.

During that time, inefficiencies arising from infrastructure bottlenecks and supply chain gridlocks fed through into higher freight costs – with airfreight costs peaking at between 2 to 5.2 times higher than pre-COVID rates[2] but overall freight volumes dropping by almost one-third.[3] This impacted the competitiveness of Australia's high-value export sectors and increased the cost of imported goods consumed by all Australians.

1 2021 *International Airfreight Indicator*, Infrastructure Partnerships Australia.
2 International Freight Assistance Mechanism (2021).
3 Infrastructure Partnerships Australia (2021).

The decline in volumes would have likely been greater if not for the Federal Government's temporary International Freight Assistance Mechanism (IFAM) Program, which provided capacity while passenger services remained grounded. Over the course of the program, IFAM provided $1 billion in support for international freight movements, including the provision of IFAM-supported inbound and outbound flights, as well as grant assistance to Australian exporters. The program targeted products that were high-value, time-sensitive, and reliant on airfreight. Support under IFAM ended June 2022.

2022 airfreight flows paint a brighter picture, of a supply chain in recovery and a remarkable resilience of trade flows in and out of the country.

Export and import supply chains have diverged both in the severity of the initial disruption and their recovery. Airfreight import volumes have proven to be significantly more resilient to the loss of belly capacity. This is explained by the suitability of typical imports, such as electronics, to the capacity provided by dedicated freighters and the growth of demand for e-commerce goods throughout the pandemic. Imports have almost recovered to pre-pandemic levels and will surpass these levels in the near- to medium-term if current trends continue.

Exports, on the other hand, experienced a larger initial decline and have been slower to recover. This is likely the result of exports like fresh produce being impacted by freight reliability challenges during COVID, reduced demand, and other challenges such as a more complex international trade environment. Our perishables were our most pandemic-impacted export type. Due to their nature, perishables are subject to specific transportation, customs, volume and frequency requirements that make the supply chain less adaptable to other exports that could find another way out of Australia.

The lower value of perishables compared to other exports also made it hard for exporters to absorb increased air freight costs during COVID.[4] This is in addition to external impacts, including the weather and appropriate harvest times, that make capacity planning of perishables harder to achieve.

But it is clear that Australia was still grappling with the impacts of trade hurdles with our major partners last year – such as China's COVID-related travel restrictions and regional lockdowns.

Airfreight exports, comprising mainly meat, seafood, fresh produce and dairy products bound for Asian markets, relied heavily on belly capacity on passenger services prior to the pandemic. While some routes returned in 2022, China remained closed for most of this period. The re-commencement of these routes is likely to see the resumption of airfreight trade to this market and a recovery in overall volumes – although just how this will unfold is unclear.

Additionally, the freight task appears to be responding to where the capacity exists to export and import it in and out of the country. While flights between destinations like China remain limited in places such as Brisbane Airport, the supply chain is adapting to travel to other ports to reach key destination markets – even if it means travelling much further domestically in the process.

However, through the disruption, Australia's airfreight industry appears to be presented with new opportunities. 2022 saw a number of emerging export markets for Australian goods, with exports by tonnage increasing significantly on the previous year's figures to the USA, Indonesia, and India. In the USA, goods such as meat and other food products topped the exports list by tonnage, although pearls and precious stones and metals were the highest value good exported to America. For Indonesia and India alike, Australian food exports topped the list by tonnage, and pearl exports by value.

There are also likely to be new opportunities for exporters as we see additional direct passenger routes to China, Japan, India, Vietnam, and Canada, expected to come online in the near- to medium-term.

While a recovery in overall volumes is likely to continue out to 2024 as passenger aviation networks return to full capacity, the re-establishment of pre-pandemic supply chain structures remains uncertain.

The Australian freight supply chain is at a critical juncture, and the next two years performance and data will determine the long-term impacts of the pandemic and dictate Australia's airfreight policy and key infrastructure planning for the next decade.

Last year, Sydney Airport increased its share of exports in volume while maintaining its position as Australia's primary imports hub by volume, however, exports at Melbourne, Brisbane and Perth Airports are likely to continue recovering as international passenger networks do as well. Embedding airfreight into broader freight network planning continues to be critical as the supply chain emerges from the pandemic. Integrating this mode into overall freight networks will ensure supply chains operate efficiently, and at low cost, ensuring our trade-exposed economic sectors remain competitive.

Looking ahead, Australian policy makers must consider the place that airfreight fits into our broader freight supply chains – and ensure that these chains are not only operated efficiently – but optimised in the right type of goods they carry and the quantum of capital they contribute to our economy. Between 2016 and 2022, the value of total freight trade in and out of Australia doubled from $513 billion to over $1 trillion. Yet in that time, despite the total value of international airfreight imports and exports rising in gross figures airfreight has dropped from 20 per cent to 14 per cent as a percentage of total trade by value.

While this may be due to the strong increase in bulk sea freight exports during that time, the public and private sectors should work together to understand in greater detail why this has occurred and how we can maximise our economically-critical airfreight sector. Productivity considerations such as whether goods are carried by the most efficient route to the closest port, and how goods should be most appropriately transported to their destination based on value- and time-sensitivities, all feed into what the most efficient supply chain can, and should, look like in Australia. The current review of the *National Freight and Supply Chain Strategy* presents an opportune moment to do just that, and safeguard future economic growth for the sector.

This analysis describes airfreight by both the value of goods transported and also by weight. While the value of goods transported highlights the economic contribution of the supply chain, this analysis focuses on the weight of goods transported as this provides a better indication of the transportation task and infrastructure requirements.

4. International airfreight costs rose by 59 per cent between January 2020 and April 2022. See Australian Government, Department of Agriculture, Water and the Environment, May 2022, *Sea and air freight snapshot*.

OVERVIEW

AIRFREIGHT CONTINUES TO MAKE A SIGNIFICANT CONTRIBUTION TO AUSTRALIA'S ECONOMY

In 2022, the value of international goods transported by airfreight reached $139 billion, equivalent to 14 per cent of Australia's trade. While the total *volume* of goods transported by air is low relative to total trade, the high-value nature of airfreighted goods means its contribution to Australia's economy remains significant.

Airfreight accounted for 20 per cent of total Australian trade value prior to the pandemic. The declining share is largely due to the significant growth in the value of commodity exports and imports by sea since 2019, such as iron ore.

AUSTRALIA'S AIRFREIGHT SUPPLY CHAINS ARE STILL FEELING THE IMPACTS OF THE PANDEMIC DISRUPTION

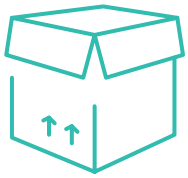
The airfreight supply chain carried almost 790,000 tonnes of freight in 2022, equivalent to over 16 fully loaded 747-8 freighter services each day.[5]

The airfreight task, while still significant, remains well below pre-pandemic levels with overall volumes being almost 215,000 tonnes, or 21 per cent, lower than 2019 volumes – though this is a tale of two markets, with imports recovered and the slow recovery of exports contributing to most of these numbers. Volumes carried in 2022 were similar to 2020 and 2021 levels, despite the return of passenger networks and the corresponding return of belly capacity on some key trade routes. The delayed recovery in overall airfreight volumes can be explained by:

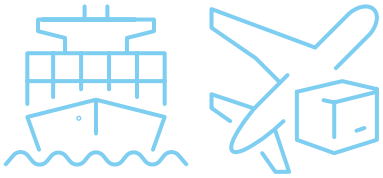
- China remaining closed to passenger travel throughout 2022 and emerging trade policy challenges. China was Australia's top ranked destination for airfreight exports prior to the pandemic.
- Supply chains needing time to adjust to the return of passenger networks and belly capacity.
- A commensurate reduction in 'preighter'[6] capacity i.e. the return of passenger services simply replaced preighter capacity which supported a proportion of freight flows in 2020 and 2021.

Figure 1: Australian international airfreight in 2022

Trade value
14%



Trade Volume
<0.1%



Average value[7]
Airfreight - $115,000/t
Sea freight - $1,000/t
2019-2022 average

Source: Infrastructure Partnerships Australia analysis of ABS Custom data

5 Based on Boeing 747-8 capacity (based on a revenue payload of 130 tonnes).
6 Passenger aircraft carrying freight only, including in the main cabin.
7 Between 2019 and 2022, the value of airfreighted goods was found to be 115 times greater than goods transported by sea freight on average. The average value of exported airfreight goods per tonne being $115,000 compared to $1,000 for sea freighted goods. (Infrastructure Partnerships Australia analysis of ABS custom data).

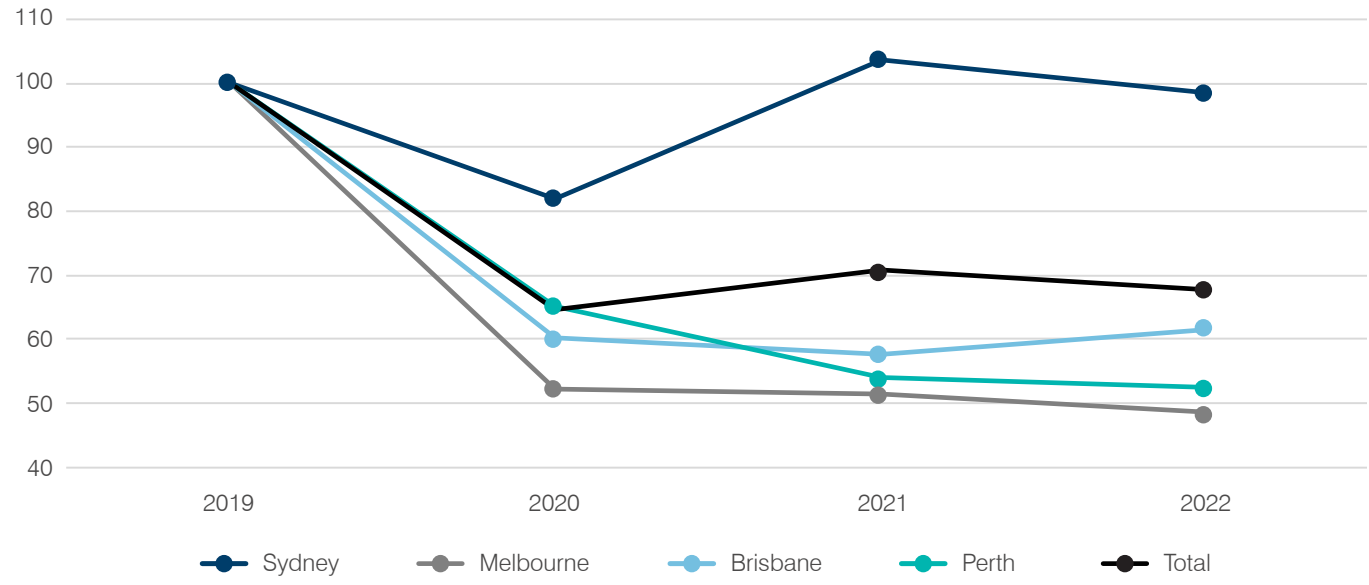
EXPORTS CONTINUE TO BE MORE IMPACTED THAN IMPORTS DRIVEN BY DECREASING PERISHABLES TRADE TO ASIAN MARKETS

The decline in volumes was largely attributable to the fall in exports – in particular, exports due to the loss of passenger services. In 2022, airfreight exports totalled 389,000 tonnes, being 186,000 tonnes or 32 per cent lower than pre-pandemic levels (2019) but unchanged from 2020 and 2021 figures.

The reduction in exports was driven by decreasing perishables (meat, fruits, vegetables, seafood and dairy products) trade to Asian markets. These goods relied heavily on belly capacity provided by passenger services prior to the pandemic. While some of these services returned in 2022, China remained closed to passenger travel. The re-commencement of these routes is likely to see the resumption of airfreight trade to this market and a recovery in overall volumes – although just how this will unfold is unclear. Trade volumes were also impacted by trade policy changes between China and Australia. In 2020, China imposed sanctions and tariffs on a number of Australian exports including beef, lamb and lobsters which were previously transported by air.

2022 also saw the end of the IFAM, which supported volumes from mid-2020 to mid-2022. This emergency measure was developed by the Commonwealth Government and sought to uphold airfreight routes and operations by maintaining global supply chain connections through the disruptions of border closures.

Figure 2: Airfreight export volumes index, 2019=100



Source: Infrastructure Partnerships Australia analysis of ABS Custom data

IMPORTS PROVED MORE RESILIENT TO PANDEMIC DISRUPTION WITH GREEN SHOOTS EMERGING ACROSS KEY SUPPLY CHAINS

Imports proved to be more resilient with volumes totalling 401,041 tonnes in 2022, only 28,000 tonnes or 7 per cent lower compared to pre-pandemic levels (2019). The resilience of airfreight imports is partly due to the growing deployment of dedicated freighters and a lower reliance on belly capacity provided by passenger services.

After an initial drop in 2020, total import volumes have also increased across Melbourne, Brisbane and Perth Airports. For Sydney Airport airfreight imports have increased from 2019 volumes. Australia's other major airports are also on track to recover to pre-pandemic volumes by 2024.

Airfreight imports continue to consist predominantly of machinery and mechanical appliances, electronics, chemical products, medical/optical/visual instruments, pharmaceutical products and clothing and accessories.

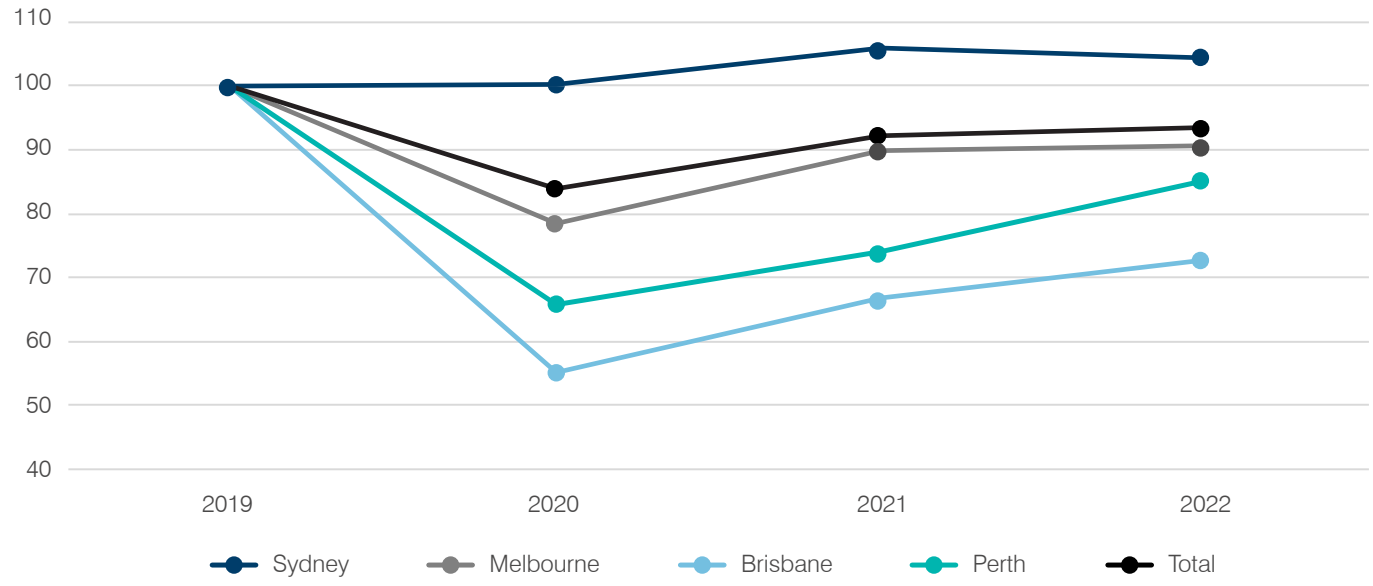
The key markets for airfreight imports continue to be China, USA, New Zealand, Singapore, Hong Kong, and Germany.

AIRFREIGHT VOLUMES REMAIN CONCENTRATED AT SYDNEY AIRPORT

2022 saw further concentration of airfreight volumes at Sydney Airport, which handled 53 per cent of exports and 55 per cent of imports. Sydney Airport's share of imports remained consistent with its pre-pandemic share which sat at 49 per cent – however, the Airport's share of exports was noticeably higher compared to pre-pandemic levels of 37 per cent.

While the ongoing rebuild of passenger networks is likely to see a rebalancing of volumes across all major airports, it is too early to tell what the steady-state freight volumes will be for major airports across Australia post-recovery.

Figure 3: Airfreight import volumes index, 2019=100



Source: Infrastructure Partnerships Australia analysis of ABS custom data.

THE 2023 INDICATOR

The International Airfreight Indicator provides a granular analysis on Australia's trade flows by airfreight, highlights trends, challenges and resulting opportunities for evolution and advancement of the supply chain.

By transparently measuring the composition of these trade flows, this analysis provides supply chain participants – airlines, airports and Australians more broadly – access to the information and insights needed to optimise the way we use our infrastructure and maximise our economic opportunities. This is especially critical given the changing aviation environment driven by the ongoing recovery of passenger aviation networks, the opening of the Western Sydney International Airport, and the evolution of aviation networks towards point-to-point flying. Overall supply chains are also undergoing change with the development of Inland Rail, Moorebank Intermodal Terminal and other future intermodal terminals. The growth of the road and rail freight network has the potential to make it easier for goods to travel to and from airports.

This analysis describes airfreight by both the value of goods transported and also by weight. While the value of goods transported highlights the economic contribution of the supply chain, this analysis focuses on the weight of goods transported as this provides a better indication of the transportation task and infrastructure requirements.

The primary source of data used in this analysis is unpublished import and export statistics from the Australian Bureau of Statistics (ABS). This dataset details airfreight commodity movements by direction of trade, units of trade in both value and volume of goods, and by commodity categories from January 2019 to December 2022. All monetary values described in this analysis are presented in nominal terms. A more detailed description of the dataset is provided in Appendix A.

The 2023 edition of the Indicator is the third edition of this analysis developed by Infrastructure Partnerships Australia.

AUSTRALIA'S INTERNATIONAL AIRFREIGHT SUPPLY CHAINS

Australian exporters

389,000 tonnes of exports

Worth $51 billion in 2022

Export of high value goods including meat, seafood, fruit and vegetables, pharmaceuticals and precious metals

Australian importers

401,000 tonnes of imports

Worth $88 billion in 2022

Import of high value goods including machinery, electronics, clothing, medical devices and pharmaceutical products

Connecting infrastructure

Exporters/importers rely on road and rail connections between distribution centres and freight origin/destination

Freight forwarders

Freight forwarders coordinate and provide transportation including:

- Pickup of goods from the freight origin e.g. farm, manufacturing facility
- Transport goods to intermediate storage/handling/distribution centres or directly to the airport freight terminal
- Customs process management

Connecting infrastructure

Exporters/importers rely on road and rail connections between distribution centres and airports

Airports

Airports provide aviation and freight terminal infrastructure to support the loading (and unloading), handling and storage. Key airside infrastructure includes:

- Freight handling facilities, including cold storage for perishables
- Custors facilities
- Aviation infrastructure (runways, taxiways, aprons etc.)

Freight airlines

Freight airlines provide airfreight capacity to destination in three formats

Dedicated freighter

- Freight only
- Higher capacity

Belly capacity

- Passenger services
- Freight carried in the belly of the aircraft (below deck)

Preighter

- Passenger aircraft operated as freight only service
- Freight carried in belly and cabin
- Less prominent as passenger networks recover

Freight forwarders

Key export markets

Key import markets

1. AIRFREIGHT FLOWS IN 2022

1.1 AIRFREIGHT'S ECONOMIC CONTRIBUTION REMAINED SIGNIFICANT DESPITE CHALLENGES

In 2022, the value of international goods transported by airfreight reached $139 billion, equivalent to 14 per cent of Australia's trade - underlining the economic importance of airfreight.

The growth in the total value of airfreight imports since 2019 has been driven largely by pharmaceutical products. The value of airfreight exports has remained steady since the pandemic began as growth in precious stones, metals, pearls etc. trade offsets declines in other commodities.

Figure 4: Airfreight imports and exports vs total freight ($ thousand) by calendar year

FOB $'000	2016	2017	2018	2019	2020	2021	2022
Airfreight	104,578,412	104,201,561	113,283,544	124,815,175	124,365,036	124,041,751	138,692,052
Imports	63,874,647	64,409,076	69,644,971	73,509,233	74,500,715	75,552,789	87,710,646
Exports	40,703,765	39,792,485	43,638,573	51,305,942	49,864,321	48,488,961	50,981,406
Total freight	512,551,839	589,390,368	648,405,549	697,327,638	656,980,264	789,853,094	1,012,129,022
% of total trade	20%	18%	17%	18%	19%	16%	14%

Source: Infrastructure Partnerships Australia analysis of ABS custom data.

Between 2016 and 2022, the value of total freight in Australia doubled from $513 billion to over $1 trillion. Yet in that time, despite the total value of international airfreight imports and exports rising in gross figures, air freight dropped from 20 per cent down to 14 per cent as a percentage of total trade.

1.2 AUSTRALIA'S OVERALL AIRFREIGHT VOLUMES REMAINED WELL BELOW PRE-PANDEMIC LEVELS DESPITE THE RETURN OF MOST PASSENGER SERVICES

In 2022, the airfreight supply chain transported approximately 790,000 tonnes of international freight – being 214,000 tonnes, or 21 per cent, below total volumes handled in 2019, prior to the pandemic disruptions.

Exports were hardest hit with 389,000 tonnes handled in 2022, compared to 574,000 tonnes in 2019, representing a 32 per cent decline. While the volumes of most commodities exported by airfreight remain low compared to 2019, significant decreases contributing to the decline include:

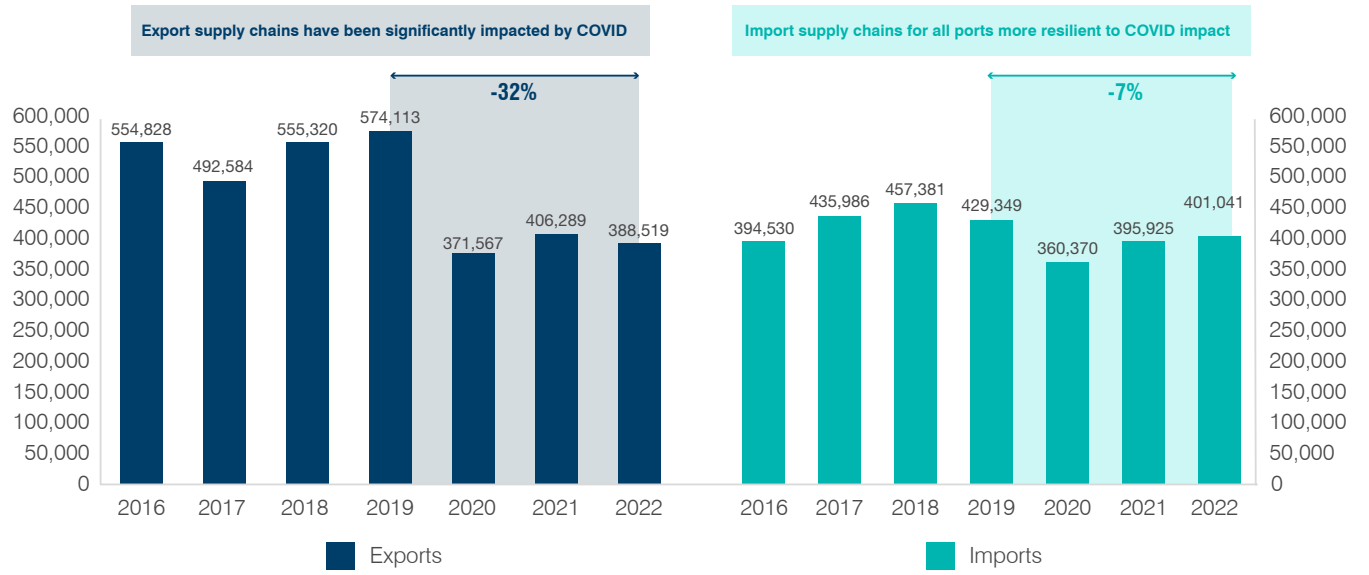
milk formula exports to China, down 37,000 tonnes from 2019 volumes

meat exports to the Middle East, down 20,000 tonnes from 2019 volumes

fruit and nut exports to the Middle East and Singapore, down 13,000 tonnes from 2019 volumes.

Imports proved relatively resilient with 401,000 tonnes handled in 2022, compared to 429,000 tonnes in 2019.

Figure 5: Airfreight imports and exports by volume (tonnes)



Source: Infrastructure Partnerships Australia analysis of ABS custom data.

1.3 THE AIRFREIGHT SUPPLY CHAIN IS CRITICAL TO THE EXPORT OF PERISHABLES, INCLUDING MEAT, FRUITS AND NUTS, AND SEAFOOD, TO ASIAN MARKETS

Exports volumes lean heavily toward meat, fruit and nuts, vegetables, seafood, dairy and honey products, which together accounted for 180,000 tonnes, or 46 per cent of airfreight exports in 2022.[8]

These supply chains were heavily impacted by the pandemic as they traditionally relied on the belly capacity of passenger services – withdrawn during the pandemic – and only recommencing at scale in 2022. These export supply chains remain 41 per cent below pre-pandemic levels. Perishables bound for China were particularly impacted with approximately 28,776 tonnes carried in 2022, compared to over 78,063 tonnes in 2019 – a 36 per cent decline. Seafood was a notable exception, which grew by 24 per cent over the three years to 2022, with exports directed mainly to China, Hong Kong and Taiwan.

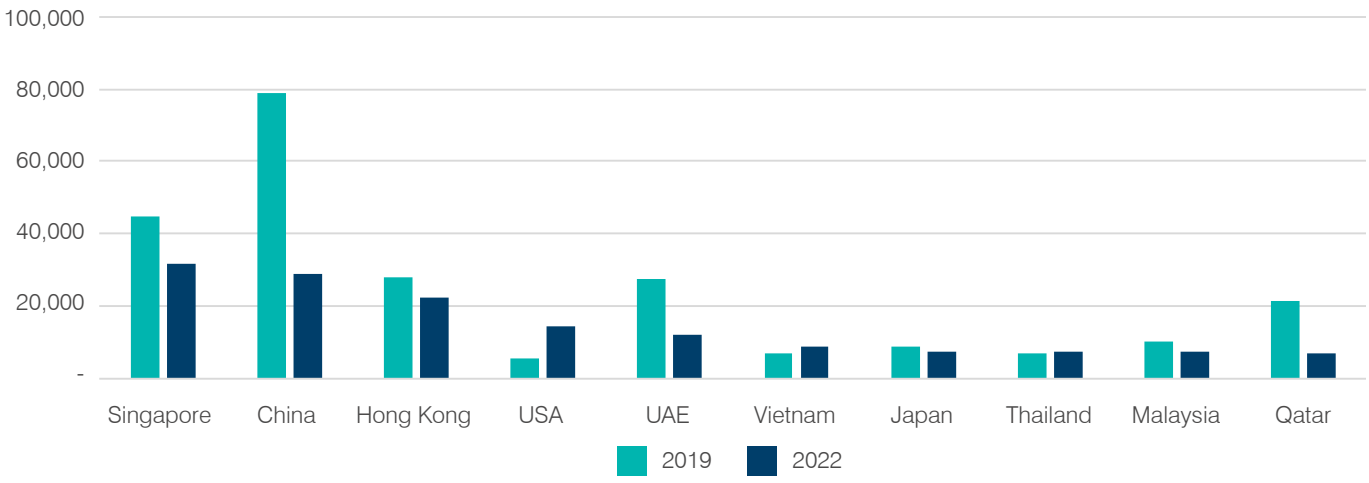
The export of perishables was centred around Sydney and Melbourne Airports, which accounted for almost three-quarters of total exports in 2022. Most perishables were exported to Asian and Middle East markets with key destinations including Singapore, China, Hong Kong, Vietnam and Japan, the United Arab Emirates and Qatar.

Perishable exports are expected to recover as international passenger networks, in particular services between Australia and China, normalise. There are also likely to be new opportunities for exporters with additional direct routes to China, Japan, India, Vietnam and Canada expected to come online in the near future.

Almost all exports are airfreighted directly to their final destination without additional handling at an intermediate hub. This reflects the time-sensitive nature of perishables, which make up the majority of exports, as transhipping via a hub adds time and uncertainty to the supply chain. Speed to market is critical for these goods, which lose value if they are delayed in reaching the market.

Figure 6 below shows the key markets for perishables exported by airfreight.

Figure 6: Top 10 destinations for perishable airfreight exports, 2022, tonnes



Source: Infrastructure Partnerships Australia analysis of ABS custom data.

8 For this analysis, 'perishables' include the following commodity categories: Meat and edible meat offal; Edible fruit and nuts, peel of citrus fruit or melons; Fish and crustaceans, molluscs and other aquatic invertebrates; Edible vegetables and certain roots and tubers; Dairy produce, birds' eggs, natural honey, edible products of animal origin; Preparations of cereals, flour, starch or milk, pastrycooks products; Beverages, spirits and vinegar; Coffee, tea, meat and spices; Preparations of meat, of fish, of crustaceans, molluscs or other aquatic invertebrates, or of insects; Cocoa and cocoa preparations; Cereals; Preparations of vegetables, fruit, nuts or other parts of plants.

1.4 THE AIRFREIGHT SUPPLY CHAIN ALSO SUPPORTS HIGH-VALUE SECTORS OF OUR ECONOMY INCLUDING MACHINERY AND PHARMACEUTICAL EXPORTS

As shown in Figure 7, airfreight carried just under 19,000 tonnes of machinery and just over 12,000 tonnes of pharmaceutical exports in 2022.

The export of machinery was largely transported through Sydney Airport with most exports bound for New Zealand, the US and Singapore. Pharmaceutical exports centred around Sydney and Melbourne Airports, which together accounted for 90 per cent of volumes. The majority of pharmaceutical products were destined for New Zealand, China and the US.

Figure 7: Key airfreight exports by volume

Commodity	Tonnes in 2022	% of exports in 2022	vs 2019	Key destinations (Top 5)	Key ports of loading*
Meat 	62,448	16%	↓ -40%	Singapore, US, UAE, Qatar, HK	SYD – 21% MEL – 37% BNE – 22% PER – 18%
Fruit and nuts 	43,618	11%	↓ -39%	Singapore, HK, China, Vietnam, Malaysia	SYD – 52% MEL – 26% BNE – 12% PER – 9%
Seafood 	37,416	10%	↑ +24%	China, HK, Taiwan, Indonesia, Japan	SYD – 31% MEL – 50% BNE – 3% PER – 12%
Machinery 	18,925	5%	↓ -7%	New Zealand, US, Singapore, China, Papua New Guinea	SYD – 48% MEL – 23% BNE – 11% PER – 9%
Vegetables 	14,508	4%	↓ -48%	Singapore, HK, New Zealand, Malaysia, Thailand	SYD – 39% MEL – 41% BNE – 13% PER – 5%
Pharmaceutical products 	12,242	3%	↓ -22%	New Zealand, China, US, HK, Vietnam	SYD – 71% MEL – 19% BNE – 5% PER – 4%
Dairy, honey (excl milk formula) 	11,761	3%	↓ -32%	China, Singapore, HK, Malaysia, NZ	SYD – 39% MEL – 56% BNE – 3% PER – 1%
Sub-total	200,918	52%	↓ -30%	Singapore, China, HK, US, New Zealand	SYD – 38% MEL – 26% BNE – 12% PER – 11%
Total exports	388,519	100%	↓ -32%	New Zealand, China, US, Singapore, HK	SYD – 53% MEL – 26% BNE – 11% PER – 7%

* Confidential ports of discharge excluded. Source: Infrastructure Partnerships Australia analysis of ABS custom data.

Figure 8: Case study: Why were perishable exports most impacted by COVID?

WHY WERE PERISHABLE EXPORTS MOST IMPACTED BY COVID?

Key challenges which make this supply chain less adaptable to the conditions include:

Transportation and customs requirements

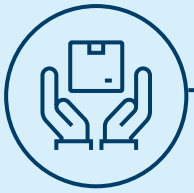
Perishables are subject to rigorous customs clearances and have specific storage and shipping requirements depending on the type of produce. There are also instances where exporters need to store and ship different fruits and vegetables at different temperatures, which creates additional challenges for shipping in bulk volumes.

Volume and frequency requirements

Perishables are typically shipped in low volumes but at regular frequencies to maintain freshness and avoid spoilage. These freight patterns are less suited to dedicated freighter operations providing the market with large volumes at less regular frequencies.

Justifying the increased costs

In 2020, exports were estimated to be worth $59,000 per tonne on average compared to $145,000 per tonne for imports. The lower value of exports means it is harder to justify the increased cost of putting airfreight on flights during COVID. International airfreight costs rose by 59 per cent between January 2020 and April 2022.[9]



Capacity flexibility

Perishables require flexibility around shipping dates as harvest days might change. This was not an issue pre-pandemic when passenger services to key export destinations operated frequently.

Suitability for air transhipment

The loading devices used by some perishable exports are not compatible with narrow bodied aircraft operating domestic routes. This means exports requiring a domestic transhipment require double handling. The additional journey time and increased uncertainty, especially while state border arrangements were subject to flux, created additional challenges for time-sensitive perishables not experienced by imports of electronics and other e-commerce goods.

9 *Sea and air freight snapshot May 2022*, Department of Agriculture, Water and the Environment (https://www.agriculture.gov.au/sites/default/files/documents/may-2022-Sea-and-air-freight-snapshot.pdf).

1.5 E-COMMERCE GOODS AND HIGH-VALUE MACHINERY IMPORTS DROVE AIRFREIGHT IMPORTS AND REMAINED RESILIENT DESPITE THE DISRUPTIONS

High-value machinery, electronics and clothing accounted for 172,000 tonnes or 43 per cent of total airfreight imports in 2022.

The volumes of these key imports were similar to volumes carried in 2019, highlighting the relative resilience of these supply chains emerging from the pandemic. The relatively small decline in volumes can be partly attributed to the ability of these goods to transition to dedicated freighters. Key import commodities originated mostly in China, Hong Kong, the USA, New Zealand, and Singapore.

The import supply chain continues to be concentrated in Sydney, which accounted for 53 per cent of exported goods. The concentration of inbound activity at Sydney Airport is a function of its proximity to key distribution centres for these goods and the sheer number of freight and passenger services operated.

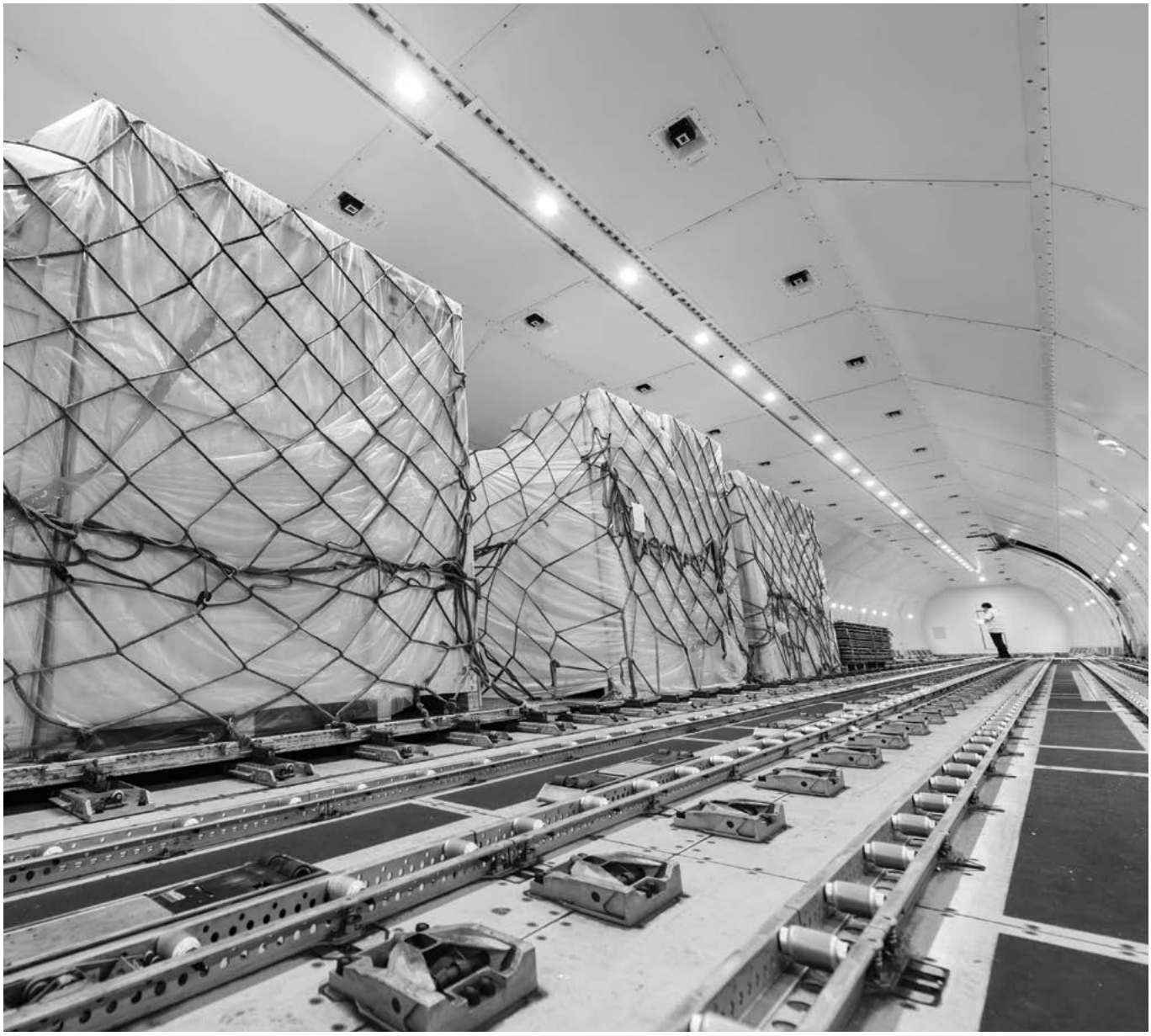


Figure 9: Key airfreight imports by volume

Commodity	Tonnes in 2022	% of exports in 2022	vs 2019	Key origins	Key ports of discharge*
Machinery 	84,755	21%	↓ -2%	USA, China, Singapore, HK, Germany	SYD – 54% MEL – 23% BNE – 14% PER – 8%
Electronics 	59,013	15%	↑ +1%	HK, Singapore, China	SYD – 67% MEL – 22% BNE – 5% PER – 3%
Clothing 	28,226	7%	↓ -8%	China	SYD – 49% MEL – 32% BNE – 15% PER – 3%
Chemical products 	26,456	7%	↑ +399%	China	SYD – 54% MEL – 28% BNE – 4% PER – 14%
Medical devices 	25,203	6%	↓ -5%	USA, Singapore, Germany	SYD – 72% MEL – 17% BNE – 6% PER – 3%
Pharmaceutical products 	19,693	5%	↑ +18%	Belgium, USA, Netherlands	SYD – 73% MEL – 17% BNE – 6% PER – 3%
Sub-total	243,346	61%	↑ +9%	China, Singapore, HK, USA	SYD – 59% MEL – 24% BNE – 9% PER – 6%
Total imports	401,041	100%	↓ -6%	China, USA, Singapore, HK	SYD – 55% MEL – 27% BNE – 9% PER – 7%

* Confidential ports of discharge excluded. Source: Infrastructure Partnerships Australia analysis of ABS custom data

2. FREIGHT FLOWS BY MAJOR AIRPORT

Australia's four largest airports – Sydney, Melbourne, Brisbane and Perth – accounted for 98 per cent of airfreight export and import volumes in 2022. Sydney Airport has increased its share of exports by volume while maintaining its position as Australia's key port for imports.

For Melbourne, Brisbane and Perth Airports, exports remain well below pre-pandemic levels but are expected to recover, to some extent, as passenger networks return, while imports have remained relatively resilient.

2.1 SYDNEY AIRPORT HAS INCREASED ITS SHARE OF EXPORTS WHILE MAINTAINING ITS POSITION AS AUSTRALIA'S MAIN IMPORTS HUB

The volume of exports handled by Sydney Airport has remained steady since the pandemic began while other major airports have experienced significant reductions. The Airport's share of exports has grown significantly as a result, handling 53 per cent of exports in 2022, or 207,000 tonnes. Sydney Airport handles a relatively diversified group of exports including perishables, machinery, and pharmaceutical product exports, bound for the US, China and New Zealand.

Sydney Airport also maintained its position as Australia's import hub with 220,000 tonnes which equated to 55 per cent of total imports by volume. Imports grew by 9,000 tonnes, or 4 per cent compared to pre-pandemic levels. Sydney Airport continues to be Australia's key destination for airfreight imports as the home of distribution centres for high-value import commodities. Key imports include electronics, machinery and apparel arriving from China, the US, Hong Kong and Singapore.

The resilience of Sydney's airfreight supply chain throughout the pandemic can be partly attributed to Sydney's location as the primary imports hubs, which dictates where dedicated airfreight capacity is positioned, the more diversified portfolio of commodities handled, the support provided by the IFAM Program, and also the earlier return of passenger services to Sydney Airport. The IFAM Program saw the Federal Government provide direct support for these supply chains between 2020 and 2022.

2.2 EXPORTS AT MELBOURNE AIRPORT LIKELY TO CONTINUE RECOVERING AS INTERNATIONAL PASSENGER NETWORKS RECOVER

Export supply chains supported by Melbourne Airport continue to be impacted by the pandemic with the Airport handling 103,000 tonnes in 2022, which was 109,000 tonnes or 52 per cent lower than 2019. The Airport was Australia's leading export hub prior to the pandemic, handling 37 per cent of all exports. This share has since declined to 26 per cent (2022), but could recover as passenger networks return over 2023 and 2024.

The decline in exports is attributable to reductions in meat, fruit and nuts, milk powder, and pharmaceutical products. While many of the supply chains are likely to be restored to pre-pandemic structures once passenger networks return, particularly services to China, there may be instances where supply chains have undergone permanent changes. For example, some goods may continue to be transported by road to other airports or packaged/frozen for sea freight.

Consumers in destination jurisdictions may also be purchasing goods from other jurisdictions where aviation networks were less disrupted. 2023 and 2024 trade data is anticipated to provide a deeper understanding of how supply chains have changed post COVID-related disruption.

Imports have been less impacted than exports, with the Airport handling 109,000 tonnes in 2022, approximately 11,000 tonnes or nine per cent lower than 2019. While import volumes declined by almost 30,000 tonnes in 2020, they have grown each year between 2020 and 2022 – highlighting the greater resilience and adaptability of import supply chains, which includes the greater use of dedicated freighters. This resilience is also indication through the Airport's share of imports across Australian airports, which remained relatively stable at 27 per cent.

2.3 EXPORTS AT BRISBANE AIRPORT ARE ALSO LIKELY TO BOUNCE BACK AS INTERNATIONAL PASSENGER NETWORKS RECOVER

Export supply chains relying on Brisbane Airport continue to experience the impact of the pandemic. The Airport handled 44,000 tonnes in 2022, equivalent to 11 per cent of total exports, which was 27,000 tonnes, or 39 per cent lower than in 2019. Export volumes have remained at these lower levels since 2020, driven by reductions in meat, fruit and nuts, and vegetable exports. Freight flows to China, Singapore and UAE remain well below pre-pandemic levels.

The majority of these export trade flows are expected to recover as passenger networks return, however, like Melbourne Airport, there are likely to be cases where supply chains have undergone a permanent reshuffle which will have implications for air, road and potential rail infrastructure.

Brisbane Airport handled 36,000 tonnes of imports in 2022, equivalent to 9 per cent of total imports. This represents a reduction of 13,000 tonnes or 26 per cent compared to pre-pandemic levels. While still significantly lower than in 2019, import volumes have grown in each year since 2020 as supply chains recover.

2.4 PERTH AIRPORT SUPPORTS SEVEN PER CENT OF EXPORT VOLUMES

Perth Airport handled 28,000 tonnes of airfreight exports in 2022, equivalent to seven per cent of total exports. Export volumes remain 25,000 tonnes or 48 per cent below pre-pandemic levels driven by a significant reduction in trade to China. Supply chains most impacted include meat, fruit and nuts and seafood exports.

Like Australia's other major airports, import supply chains supported by Perth Airport proved to be more resilient to the impacts of the pandemic. Perth Airport handled 28,000 tonnes of imports in 2022, equivalent to seven per cent of total imports. This represents a reduction of 5,000 tonnes or 16 per cent compared to pre-pandemic levels.

Figure 10 on the following pages details an overview of airfreight flows between 2021 and 2022 by major Australian airports. A full dataset for each of the airports can be found in the Appendix B.

Figure 10: International airfreight volumes by major airports

Sydney Airport

- Australia's main import hub
- Relatively diversified mix of export and import commodities

Exports

2022

207,000 tonnes of exports
53 per cent of total

vs 2021 ↓ **-11,000 tonnes**
vs 2019 ↓ **-3,000 tonnes**

Key commodities 2019-2022

- Fruit and nuts
- Meat
- Milk powder
- Seafood (Diversified)

Key destinations in 2019-2022

China
New Zealand
US
Singapore
Hong Kong

Imports

2022

220,000 tonnes of exports
55 per cent of total

vs 2021 ↓ **-3,000 tonnes**
vs 2019 ↑ **+9,000 tonnes**

Key commodities 2019-2022

- Machinery
- Electronics
- Optical/medical equipment
- Clothing
- Pharmaceuticals

Key origins in 2019-2022

China
US
Hong Kong
Singapore
New Zealand

Source: Infrastructure Partnerships Australia analysis of ABS custom data

Figure 10: International airfreight volumes by major airports (continued)

Melbourne Airport

- Australia's leading export hub prior to the pandemic
- Proximity to production areas for high-value perishable exports

Exports

2022

103,000 tonnes of exports
26 per cent of total

vs 2021 ↓ **-6,000 tonnes**
vs 2019 ↓ **-109,000 tonnes**

Key commodities 2019-2022

- Meat
- Fruit and nuts
- Dairy products

Key destinations in 2019-2022

China
Singapore
New Zealand
UAE
Hong Kong

Imports

2022

109,000 tonnes of exports
27 per cent of total

vs 2021 ↑ **+1,000 tonnes**
vs 2019 ↓ **-11,000 tonnes**

Key commodities 2019-2022

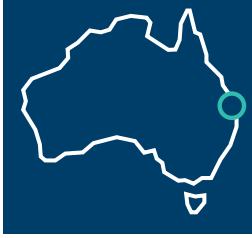
- Machinery
- Electronics
- Clothing
- Vehicle parts

Key origins in 2019-2022

US
China
Singapore
New Zealand

Source: Infrastructure Partnerships Australia analysis of ABS custom data

Figure 10: International airfreight volumes by major airports (continued)



Brisbane Airport

- Meat, fruit and vegetables export port

Exports

2022

44,000 tonnes of exports
11 per cent of total

vs 2021 ↑ **+3,000 tonnes**
vs 2019 ↓ **-27,000 tonnes**

Key commodities 2019-2022

- Meat
- Fruit and nuts
- Vegetables

Key destinations in 2019-2022

Singapore
New Zealand
China
Hong Kong

Imports

2022

36,000 tonnes of exports
9 per cent of total

vs 2021 ↑ **+3,000 tonnes**
vs 2019 ↓ **-13,000 tonnes**

Key commodities 2019-2022

- Machinery
- Electronics
- Clothing

Key origins in 2019-2022

US
China
New Zealand
Singapore

Source: Infrastructure Partnerships Australia analysis of ABS custom data

Figure 10: International airfreight volumes by major airports (continued)

Perth Airport

- Meat, seafood and precious metals exports port

Exports

2022

28,000 tonnes of exports
7 per cent of total

vs 2021 ↓ **-1,000 tonnes**
vs 2019 ↓ **-25,000 tonnes**

Key commodities 2019-2022

- Meat
- Seafood
- Fruit and nuts

Key destinations in 2019-2022

Singapore
Qatar
China
Hong Kong

Imports

2022

28,000 tonnes of exports
7 per cent of total

vs 2021 ↑ **+4,000 tonnes**
vs 2019 ↓ **-5,000 tonnes**

Key commodities 2019-2022

- Machinery

Key origins in 2019-2022

China
Singapore
US

Source: Infrastructure Partnerships Australia analysis of ABS custom data

2.5 THE ROLE OF REGIONAL AIRPORTS CONTINUES TO BE POORLY UNDERSTOOD

As discussed in our previous Airfreight Indicator, there is a lack of data showing the role regional airports play in the supply chain, particularly with transhipments.

Further data covering regional airports and transhipments would provide substantial benefits. Improving this database could provide a more complete picture of the airfreight supply chain, assist in understanding the permanency of supply chain changes, and inform planning for future developments of transportation needs, as well as the opportunities to expand domestic industries to capitalise on available export airfreight capacity.

3. AN OPPORTUNITY TO RE-THINK AIRFREIGHT

3.1 THE EVOLUTION OF AIRFREIGHT SUPPLY CHAINS OVER THE NEXT TWO YEARS WILL HIGHLIGHT LONG TERM POLICY AND INFRASTRUCTURE OPPORTUNITIES

The continuing re-emergence of the supply chains over the next two years will highlight long term policy and infrastructure opportunities.

While some supply chains have recovered, or are beginning to recover, from the pandemic disruption, others have not returned to previous structures despite the partial normalisation of passenger aviation networks. If volumes – in particular perishable exports – do not return to pre-pandemic structures once passenger networks fully return, then this may have longer-term policy and infrastructure planning implications.

Figure 11: Policy challenges and opportunities

What are the infrastructure implications of exports remaining concentrated at Sydney Airport? Are there sufficient transport links to ensure the movement of goods is reliable and cost and time efficient?

What are the infrastructure implications of the greater use of dedicated freighters?

What is the impact on supply chain costs for exporters and therefore the international competitiveness of those industries?

Is there an opportunity to create/further develop economic and employment precincts underpinned by airfreight?

3.2 AIRFREIGHT POLICIES AND INFRASTRUCTURE INITIATIVES SHOULD CONSIDER THE OPENING OF WESTERN SYDNEY AIRPORT, WHICH WILL CHANGE THE STRUCTURE OF THE SUPPLY CHAIN

The first stage of the Western Sydney International (Nancy-Bird Walton) Airport is on track to open in 2026, providing a new international gateway for Australia.

Western Sydney Airport will likely play an important role in Australia's international and domestic airfreight supply chain given its proximity to freight precincts in Western Sydney, the future Western Sydney Aerotropolis, precincts such as the Advanced Manufacturing and the Agribusiness Precinct, and transport connections to Greater Sydney and regional NSW. The Airport will also operate 24/7 which will support overnight domestic freight movements and provide operational flexibility for international freight.

The Airport is currently undergoing an EOI process for logistics partners to develop the first stage of the Western Sydney International Cargo Precinct. The Precinct is expected to provide contemporary freight terminals, with the capacity to process at least 220,000 tonnes of freight each year.

3.3 IMPROVED DATA TRANSPARENCY ACROSS THE SUPPLY CHAIN WILL SUPPORT POLICY AND INFRASTRUCTURE DEVELOPMENT

Supply chain policy and infrastructure planning challenges persist due to limited data transparency and availability.

As noted in our previous analysis, the sector continues to lack a unified, single source of data which airports, airlines, exporters, importers, freight forwarders, and governments can rely on to develop policy and infrastructure planning to support the supply chain. For example, airports could improve airside freight infrastructure planning if stronger data sets were available e.g. feeding into business case development.

This is difficult to resolve, with industry continuing to be driven by a focus on short-term costs and differences in digital capabilities amongst other factors.

3.4 LAND AND AIRSIDE INFRASTRUCTURE REMAINS IMPORTANT FOR SUPPLY CHAIN EFFICIENCY AND THE COMPETITIVENESS OF OUR INDUSTRIES

Transportation improvements around airports will ensure airfreight supply chains operate efficiently.

Infrastructure projects which improve access to airports, such as the under-construction Sydney Gateway to and from Sydney Airport, will ensure inbound and outbound airfreight can be transported to and from airports efficiently – reducing overall all supply chain costs. Strong transport connections between airports and key distribution centres are also critical.

Typical airside infrastructure challenges include the ability to handle large volumes efficiently, specialised storage capacity – that is, cold storage, processing transhipments efficiently, and potential delays arising from the customs clearance process. Infrastructure planners will need to continue to monitor the capacity of this infrastructure to ensure it does not become a bottle neck in the supply.

3.5 URBAN ENCROACHMENT REMAINS A CHALLENGE FOR THE LONG-TERM EFFICIENCY OF THE SUPPLY CHAIN

There is a need to protect lands around airports for industrial uses to ensure the supply chain remains reliable and efficient.

As airfreight returns to – and exceeds – pre-pandemic volumes, there will be an increasing need for governments to ensure existing industrial zoned employment lands around airports, ports and intermodal facilities are protected from rezoning to residential.

Major airports and ports around Australia are likely to face growing constraints and competition for lands due to further urban densification and concentration of freight demand. This need must be balanced against the need to provide efficient air-, land- and sea-based freight networks – and governments must work hard to preserve and enhance protections for freight and broader industrial land availability.

3.6 FREIGHT POLICY AND INFRASTRUCTURE PLANNING SHOULD CONTINUE TO CONSIDER AIRFREIGHT SUPPLY CHAIN EFFICIENCY AND RESILIENCE, WHILE IDENTIFYING OPPORTUNITIES TO OPEN NEW EXPORT INDUSTRIES

Embedding airfreight into broader freight network planning continues to be critical as the supply chain emerges from the pandemic.

The importance of the supply chain, as highlighted by the high value of the goods carried, and its contribution to the value of overall trade, means it should continue to be factored into overall freight transport planning. Integration of this mode into overall networks will ensure supply chains operate efficiently, and at low cost, ensuring our trade exposed economic sectors remain competitive.

Freight infrastructure currently being planned or under development, which could have direct and indirect impacts on the supply chain include, Western Sydney Airport (and associated freight precinct), Sydney Gateway, Inland Rail, Moorebank Intermodal Terminal and any future intermodal terminals. Policymakers should also consider the role of airfreight and connections to this mode.

APPENDIX A – DEFINITIONS AND DATA SOURCE

Commodity as described in the analysis	Harmonized System (HS) Classification
Chemical products	Miscellaneous chemical products (b)
Clothing and accessories	Articles of apparel and clothing accessories
Confidential	Combined confidential items and miscellaneous items
Dairy, honey	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included (b)
Electronics	Electrical machinery and equipment and parts thereof; Sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles (b)
Fruit and Nuts	Edible fruit and nuts; peel of citrus fruit or melons
Infant milk formula and wheat products	Preparations of cereals, flour, starch or milk; pastrycooks products (b)
Machinery and mechanical appliances	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof (b)
Meat	Meat and edible meat offal
Medical/optical/visual instruments	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; Parts and accessories thereof
Pharmaceutical products	Pharmaceutical products
Plastics	Plastics and articles thereof (b)
Seafood	Fish and crustaceans, molluscs and other aquatic invertebrates
Trees	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage
Vehicles	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof
Vegetables	Edible vegetables and certain roots and tubers

Source: ABS

DATA SOURCE AND DESCRIPTION

The primary source of data used for this analysis is unpublished import and export statistics from the Australian Bureau of Statistics (ABS), which detail commodity movements by air, direction of trade (imports and exports), units of trade (value and volume) and commodity definition from January 2016 to December 2022. International trade in and out of Australia is recorded using the Harmonized System (HS) for the classification of products. At the international level, the HS for classifying goods is a six-digit code system. The HS comprises approximately 5,300 article/product descriptions that appear as headings and subheadings, arranged in 99 chapters, grouped in 21 sections. The analysis used focuses on the mass tonnes and Free on Board (FOB) values. The value of goods measured on an FOB basis includes all production and other costs incurred up until the goods are placed on board the international carrier for export. FOB values exclude international insurance and transport costs. They include the value of the outside packaging in which the product is wrapped, but do not include the value of the international freight containers used for transporting the goods. FOB values are presented in nominal terms. ABS reported airfreight movements are subject to confidentiality of import and export commodities, either at the commodity level and/or the port level. As such, the reported value or volume measures relying upon these statistics will tend to be underestimated. Furthermore, as the list of commodities is subject to confidentiality change over time, shifts in the value and volume over time may be subject to changes in the confidentiality list.

EXCLUSION OF 'SHIP STORES' FROM EXPORTS DATA

Airfreight classified as 'Ship stores' has been excluded from the export data of this analysis. This includes fuel carried and used by the aircraft classified as 'Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes'. Ship stores also includes all consumable goods such as food, water and beverages intended for consumption on board an aircraft or ship, and any goods taken on board to be sold.

APPENDIX B – DETAILED AIRFREIGHT DATA

The following tables have been produced from ABS custom data. Rounding errors may arise when categorising data by origin/destination and commodity type.

B.1 AUSTRALIAN AIRPORTS

B1.1 Exports by tonnage

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Sydney	210,331	172,137	217,937	207,395	37%	46%	54%	53%	-5%	-1%
Melbourne	212,371	110,904	109,001	102,923	37%	30%	27%	26%	-6%	-52%
Brisbane	71,114	42,797	41,040	43,668	12%	12%	10%	11%	6%	-39%
Perth	53,413	34,784	28,785	27,977	9%	9%	7%	7%	-3%	-48%
Adelaide	16,154	6,955	6,531	5,175	3%	2%	2%	1%	-21%	-68%
Other	10,730	3,990	2,995	1,381	2%	1%	1%	0.4%	-54%	-87%
Total	**574,113**	**371,567**	**406,289**	**388,519**	**100%**	**100%**	**100%**	**100%**	**-4%**	**-32%**

B1.2 Imports by tonnage

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Sydney	210,661	211,035	223,215	219,860	49%	59%	56%	55%	-2%	4%
Melbourne	119,722	93,911	107,605	108,581	28%	26%	27%	27%	1%	-9%
Brisbane	49,640	27,345	33,188	36,059	12%	8%	8%	9%	9%	-27%
Perth	33,017	21,755	24,474	28,162	8%	6%	6%	7%	15%	-15%
Adelaide	10,132	4,399	5,351	4,916	2%	1%	1%	1%	-8%	-51%
Other	6,178	1,925	2,094	3,463	1%	1%	1%	1%	65%	-44%
Total	**429,349**	**360,370**	**395,925**	**401,041**	**100%**	**100%**	**100%**	**100%**	**1%**	**-7%**

B.2 EXPORT DESTINATIONS AND IMPORT ORIGINS

B2.1 Exports (tonnes, top 10 jurisdictions)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
New Zealand	45,900	39,672	79,352	50,363	8%	11%	20%	13%	-37%	10%
China (excludes SARs and Taiwan)	135,899	76,232	59,870	48,289	24%	21%	15%	12%	-19%	-64%
USA	21,885	21,374	31,805	45,343	4%	6%	8%	12%	43%	107%
Singapore	51,604	40,895	45,080	42,046	9%	11%	11%	11%	-7%	-19%
Hong Kong (SAR of China)	39,516	31,953	32,288	28,478	7%	9%	8%	7%	-12%	-28%
India	1,533	1,585	5,219	19,863	0%	0%	1%	5%	281%	1196%
Indonesia	6,215	4,311	7,742	13,990	1%	1%	2%	4%	81%	125%
United Arab Emirates	30,173	19,069	13,625	13,749	5%	5%	3%	4%	1%	-54%
Japan	14,091	10,761	13,133	12,080	2%	3%	3%	3%	-8%	-14%
Vietnam	9,955	11,246	11,347	11,474	2%	3%	3%	3%	1%	15%
Other	217,343	114,470	106,829	102,843	38%	31%	26%	26%	-4%	-53%
Total	**574,113**	**371,567**	**406,289**	**388,519**	**100%**	**100%**	**100%**	**100%**	**-4%**	**-32%**

B2.2 Exports (tonnes, top 10 ports)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Auckland	42,942	37,435	73,647	47,754	7%	10%	18%	12%	-35%	11%
Singapore	61,158	45,806	50,270	47,319	11%	12%	12%	12%	-6%	-23%
Hong Kong	50,054	39,323	37,524	30,647	9%	11%	9%	8%	-18%	-39%
Los Angeles	12,111	11,926	16,060	21,280	2%	3%	4%	5%	33%	76%
Unspecified Ports - India	169	134	127	16,895	0%	0%	0%	4%	13167%	9871%
Unspecified Ports - China	30,551	16,493	16,559	15,307	5%	4%	4%	4%	-8%	-50%
Dubai	29,265	16,885	13,804	14,935	5%	5%	3%	4%	8%	-49%
Guangzhou	36,469	19,366	17,647	14,170	6%	5%	4%	4%	-20%	-61%
Jakarta	5,107	3,884	6,813	12,424	1%	1%	2%	3%	82%	143%
Kuala Lumpur	19,808	13,568	12,403	11,950	3%	4%	3%	3%	-4%	-40%
Other	286,479	166,747	161,435	155,840	50%	45%	40%	40%	-3%	-46%
Total	**574,113**	**371,567**	**406,289**	**388,519**	**100%**	**100%**	**100%**	**100%**	**-4%**	**-32%**

B2.3 Imports (tonnes, top 10 ports)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Shanghai	26,448	29,814	28,526	28,471	6%	8%	7%	7%	0%	8%
Chicago	21,697	19,720	28,665	28,027	5%	5%	7%	7%	-2%	29%
Singapore	21,498	14,497	22,228	26,025	5%	4%	6%	7%	17%	21%
Los Angeles	21,431	20,869	27,823	24,075	5%	6%	7%	6%	-13%	12%
Auckland	23,180	22,247	26,603	24,020	5%	6%	7%	6%	-10%	4%
Hong Kong	23,720	24,004	27,146	23,413	6%	7%	7%	6%	-14%	-1%
Unspecified Ports - USA	20,385	19,245	19,974	18,842	5%	5%	5%	5%	-6%	-8%
Frankfurt	14,491	13,157	15,777	15,654	3%	4%	4%	4%	-1%	8%
Guangzhou	10,069	9,315	9,881	13,942	2%	3%	3%	3%	41%	38%
Unspecified Ports - China	15,009	11,110	11,415	13,602	4%	3%	3%	3%	19%	-9%
Other	29,964	75,425	77,007	84,011	54%	49%	45%	46%	4%	-20%
Total	**429,349**	**360,370**	**395,925**	**401,041**	**100%**	**100%**	**100%**	**100%**	**1%**	**-7%**

B.3 ALL AUSTRALIAN AIRPORTS

B3.1. Exports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Meat	104,163	79,821	64,386	62,448	18%	21%	16%	16%	-3%	-40%
Fruit and nuts	71,030	48,364	41,853	43,618	12%	13%	10%	11%	4%	-39%
Seafood	30,184	40,393	45,388	37,416	5%	11%	11%	10%	-18%	24%
Machinery and mechanical appliances	20,262	14,919	16,617	18,925	4%	4%	4%	5%	14%	-7%
Paper and paperboard	4,818	6,350	36,333	15,734	1%	2%	9%	4%	-57%	227%
Vegetables	28,138	19,253	18,230	14,508	5%	5%	4%	4%	-20%	-48%
Pharmaceutical products	15,722	14,425	12,742	12,242	3%	4%	3%	3%	-4%	-22%
Dairy, honey	17,380	13,363	14,973	11,761	3%	4%	4%	3%	-21%	-32%
Articles of iron or steel	5,404	4,171	8,591	11,637	1%	1%	2%	3%	35%	115%
Electronics	11,191	8,920	10,215	10,325	2%	2%	3%	3%	1%	-8%
Other	265,822	121,588	136,960	149,904	46%	33%	34%	39%	9%	-44%
Total	**574,113**	**371,567**	**406,289**	**388,519**	**100%**	**100%**	**100%**	**100%**	**-4%**	**-32%**

B3.2 Imports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Machinery and mechanical appliances	86,379	69,913	85,755	84,755	20%	19%	22%	21%	-1%	-2%
Electronics	58,370	49,712	55,268	59,013	14%	14%	14%	15%	7%	1%
Clothing	30,793	27,336	28,820	28,226	7%	8%	7%	7%	-2%	-8%
Chemical products	5,300	7,487	8,919	26,456	1%	2%	2%	7%	197%	399%
Medical/ optical/visual instruments	26,502	23,024	25,636	25,203	6%	6%	6%	6%	-2%	-5%
Pharmaceutical products	16,735	16,645	16,774	19,693	4%	5%	4%	5%	17%	18%
Plastics	15,757	13,670	14,125	12,683	4%	4%	4%	3%	-10%	-20%
Vehicles, parts and accessories	11,772	8,693	11,479	11,478	3%	2%	3%	3%	0%	-2%
Live plants	11,883	8,353	9,487	10,065	3%	2%	2%	3%	6%	-15%
Seafood	10,223	9,351	10,167	9,366	2%	3%	3%	2%	-8%	-8%
Other	155,634	126,186	129,496	114,104	36%	35%	33%	28%	-12%	-27%
Total	**429,349**	**360,370**	**395,925**	**401,041**	**100%**	**100%**	**100%**	**100%**	**1%**	**-7%**

B.4 SYDNEY AIRPORT

B4.1 Exports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Fruit and nuts	25,135	19,253	21,273	22,845	12%	11%	10%	11%	7%	-9%
Paper and paperboard	3,257	5,782	35,322	13,500	2%	3%	16%	7%	-62%	315%
Meat	12,889	16,728	14,020	13,202	6%	10%	6%	6%	-6%	2%
Seafood	2,937	15,397	15,894	11,614	1%	9%	7%	6%	-27%	295%
Machinery and mechanical appliances	8,895	8,498	8,775	9,099	4%	5%	4%	4%	4%	2%
Pharmaceutical products	5,530	8,339	9,178	8,693	3%	5%	4%	4%	-5%	57%
Medical/optical/ visual instruments	4,593	4,608	6,636	7,774	2%	3%	3%	4%	17%	69%
Organic chemicals	11,396	6,830	5,018	6,922	5%	4%	2%	3%	38%	-39%
Miscellaneous edibles	19,456	13,633	14,232	6,640	9%	8%	7%	3%	-53%	-66%
Electronics	6,786	6,019	6,854	5,865	3%	3%	3%	3%	-14%	-14%
Other	109,458	67,051	80,736	101,242	52%	39%	37%	49%	25%	-8%
Total	**210,331**	**172,137**	**217,937**	**207,395**	**100%**	**100%**	**100%**	**100%**	**-5%**	**-1%**

B4.2 Imports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Electronics	25,152	25,392	28,229	33,397	12%	12%	13%	15%	18%	33%
Machinery and mechanical appliances	34,257	33,524	35,979	33,362	16%	16%	16%	15%	-7%	-3%
Medical/ optical/visual instruments	14,697	13,430	14,954	14,719	7%	6%	7%	7%	-2%	0%
Pharmaceutical products	13,014	13,014	12,990	14,429	6%	6%	6%	7%	11%	11%
Chemical products	2,760	4,603	4,913	14,029	1%	2%	2%	6%	186%	408%
Clothing	13,379	14,245	14,965	13,755	6%	7%	7%	6%	-8%	3%
Seafood	5,521	5,412	5,497	5,287	3%	3%	2%	2%	-4%	-4%
Fruit and nuts	6,910	6,672	8,467	4,902	3%	3%	4%	2%	-42%	-29%
Vehicles, parts and accessories	4,445	4,258	4,713	4,619	2%	2%	2%	2%	-2%	4%
Plastics	6,747	6,603	5,335	4,490	3%	3%	2%	2%	-16%	-33%
Other	83,779	83,882	87,173	76,871	40%	40%	39%	35%	-8%	-4%
Total	**210,661**	**211,035**	**223,215**	**219,860**	**100%**	**100%**	**100%**	**100%**	**-2%**	**4%**

B.5 MELBOURNE AIRPORT

B5.1 Exports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Meat	40,535	29,230	23,128	23,266	19%	26%	21%	23%	1%	-43%
Seafood	14,055	15,642	21,179	18,871	7%	14%	19%	18%	-11%	34%
Fruit and nuts	22,327	15,179	10,105	11,239	11%	14%	9%	11%	11%	-50%
Dairy, honey	10,837	6,472	6,792	6,569	5%	6%	6%	6%	-3%	-39%
Vegetables	10,281	6,335	6,992	5,973	5%	6%	6%	6%	-15%	-42%
Machinery and mechanical appliances	4,547	2,908	3,944	4,391	2%	3%	4%	4%	11%	-3%
Pharmaceutical products	8,518	4,877	2,324	2,306	4%	4%	2%	2%	-1%	-73%
Electronics	2,406	1,683	2,123	2,243	1%	2%	2%	2%	6%	-7%
Miscellaneous edibles	8,546	3,824	3,460	2,160	4%	3%	3%	2%	-38%	-75%
Essential oils and cosmetics	3,023	1,771	1,541	1,878	1%	2%	1%	2%	22%	-38%
Other	87,297	22,982	27,413	24,027	41%	21%	25%	23%	-12%	-72%
Total	**212,371**	**110,904**	**109,001**	**102,923**	**100%**	**100%**	**100%**	**100%**	**-6%**	**-52%**

B5.2 Imports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Machinery and mechanical appliances	17,252	12,675	15,513	14,179	14%	13%	14%	13%	-9%	-18%
Electronics	11,280	8,885	10,447	10,699	9%	9%	10%	10%	2%	-5%
Clothing	10,727	8,513	8,471	8,986	9%	9%	8%	8%	6%	-16%
Chemical products	1,481	1,830	2,519	7,155	1%	2%	2%	7%	184%	383%
Vehicles, parts and accessories	4,678	2,903	4,702	4,618	4%	3%	4%	4%	-2%	-1%
Seafood	3,790	3,456	4,098	3,590	3%	4%	4%	3%	-12%	-5%
Medical/ optical/visual instruments	5,386	3,704	3,572	3,542	4%	4%	3%	3%	-1%	-34%
Pharmaceutical products	2,692	2,708	2,689	3,263	2%	3%	2%	3%	21%	21%
Live plants	4,009	3,129	3,247	3,008	3%	3%	3%	3%	-7%	-25%
Plastics and articles thereof (b)	5,125	3,424	3,067	2,811	4%	4%	3%	3%	-8%	-45%
Other	53,302	42,686	49,278	46,730	45%	45%	46%	43%	-5%	-12%
Total	**119,722**	**93,911**	**107,605**	**108,581**	**100%**	**100%**	**100%**	**100%**	**1%**	**-9%**

B.6 BRISBANE AIRPORT

B6.1 Exports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Meat	22,385	15,690	15,035	13,756	31%	37%	37%	32%	-9%	-39%
Fruit and nuts	13,694	7,907	5,927	5,043	19%	18%	14%	12%	-15%	-63%
Articles of iron or steel	1,234	871	1,331	4,143	2%	2%	3%	9%	211%	236%
Chemical products	175	150	879	2,634	0%	0%	2%	6%	200%	1409%
Machinery and mechanical appliances	2,757	1,406	1,496	2,065	4%	3%	4%	5%	38%	-25%
Vegetables	7,601	3,484	3,891	1,946	11%	8%	9%	4%	-50%	-74%
Electronics	1,181	604	555	1,430	2%	1%	1%	3%	158%	21%
Paper and paperboard	435	94	390	1,269	1%	0%	1%	3%	225%	191%
Seafood	1,988	2,360	1,136	1,052	3%	6%	3%	2%	-7%	-47%
Pharmaceutical products	804	555	614	662	1%	1%	1%	2%	8%	-18%
Other	18,859	9,678	9,786	9,667	27%	23%	24%	22%	-1%	-49%
Total	**71,114**	**42,797**	**41,040**	**43,668**	**100%**	**100%**	**100%**	**100%**	**6%**	**-39%**

B6.2 Imports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Machinery and mechanical appliances	9,753	5,457	6,122	8,386	20%	20%	18%	23%	37%	-14%
Clothing	4,417	3,221	3,925	4,096	9%	12%	12%	11%	4%	-7%
Electronics	4,308	2,047	2,343	2,637	9%	8%	7%	7%	13%	-39%
Vehicles, parts and accessories	1,663	828	1,172	1,375	3%	3%	4%	4%	17%	-17%
Medical/ optical/visual instruments	2,026	1,234	1,149	1,319	4%	5%	3%	4%	15%	-35%
Pharmaceutical products	823	743	910	1,223	2%	3%	3%	3%	34%	49%
Chemical products	457	322	459	1,075	1%	1%	1%	3%	134%	135%
Vegetables	1,615	722	645	867	3%	3%	2%	2%	34%	-46%
Plastics	2,158	832	822	730	4%	3%	2%	2%	-11%	-66%
Fruit and nuts	1,916	979	1,497	625	4%	4%	5%	2%	-58%	-67%
Other	20,504	10,959	14,144	13,725	41%	40%	43%	38%	-3%	-33%
Total	**49,640**	**27,345**	**33,188**	**36,059**	**100%**	**100%**	**100%**	**100%**	**9%**	**-27%**

B.7 PERTH AIRPORT

B7.1 Exports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Meat	20,945	15,513	10,374	11,219	39%	45%	36%	40%	8%	-46%
Seafood	7,082	4,872	4,760	4,545	13%	14%	17%	16%	-5%	-36%
Fruit and nuts	8,556	5,037	3,833	4,079	16%	14%	13%	15%	6%	-52%
Machinery and mechanical appliances	2,300	1,201	1,291	1,657	4%	3%	4%	6%	28%	-28%
Natural or cultured pearls, precious and semi-precious stones and metals	670	742	1,345	991	1%	2%	5%	4%	-26%	48%
Vegetables	1,323	809	961	746	2%	2%	3%	3%	-22%	-44%
Live animals	943	1,052	742	627	2%	3%	3%	2%	-15%	-34%
Pharmaceutical products	373	258	484	492	1%	1%	2%	2%	2%	32%
Electronics	532	386	380	421	1%	1%	1%	2%	11%	-21%
Articles of iron or steel	1,409	714	470	370	3%	2%	2%	1%	-21%	-74%
Other	9,279	4,200	4,147	2,831	17%	12%	14%	10%	-32%	-69%
Total	**53,413**	**34,784**	**28,785**	**27,977**	**100%**	**100%**	**100%**	**100%**	**-3%**	**-48%**

B7.2 Imports (tonnes, top 10)

	Tonnes				As a percentage of total exports				Change in tonnage	
	2019	2020	2021	2022	2019	2020	2021	2022	2021 vs 2022	2019 vs 2022
Machinery and mechanical appliances	9,370	5,466	5,363	4,950	28%	25%	22%	18%	-8%	-47%
Chemical products	359	461	367	3,514	1%	2%	1%	12%	858%	879%
Live plants	1,476	1,397	2,064	2,382	4%	6%	8%	8%	15%	61%
Electronics	2,231	1,500	1,654	1,663	7%	7%	7%	6%	1%	-25%
Fruit and nuts	1,640	1,263	1,639	1,189	5%	6%	7%	4%	-27%	-28%
Clothing	1,343	952	786	778	4%	4%	3%	3%	-1%	-42%
Articles of iron or steel	1,666	748	604	717	5%	3%	2%	3%	19%	-57%
Medical/ optical/visual instruments	921	613	627	594	3%	3%	3%	2%	-5%	-35%
Vehicles, parts and accessories	688	354	446	570	2%	2%	2%	2%	28%	-17%
Pharmaceutical products	86	71	68	542	0%	0%	0%	2%	699%	531%
Other	13,237	8,929	10,856	11,263	40%	41%	44%	40%	4%	-15%
Total	**33,017**	**21,755**	**24,474**	**28,162**	**100%**	**100%**	**100%**	**100%**	**15%**	**-15%**

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