ECONOMIC SURVEY OF SINGAPORE

Second Quarter 2022

MTI
MINISTRY OF TRADE AND INDUSTRY SINGAPORE

August 2022

Ministry of Trade and Industry
Republic of Singapore

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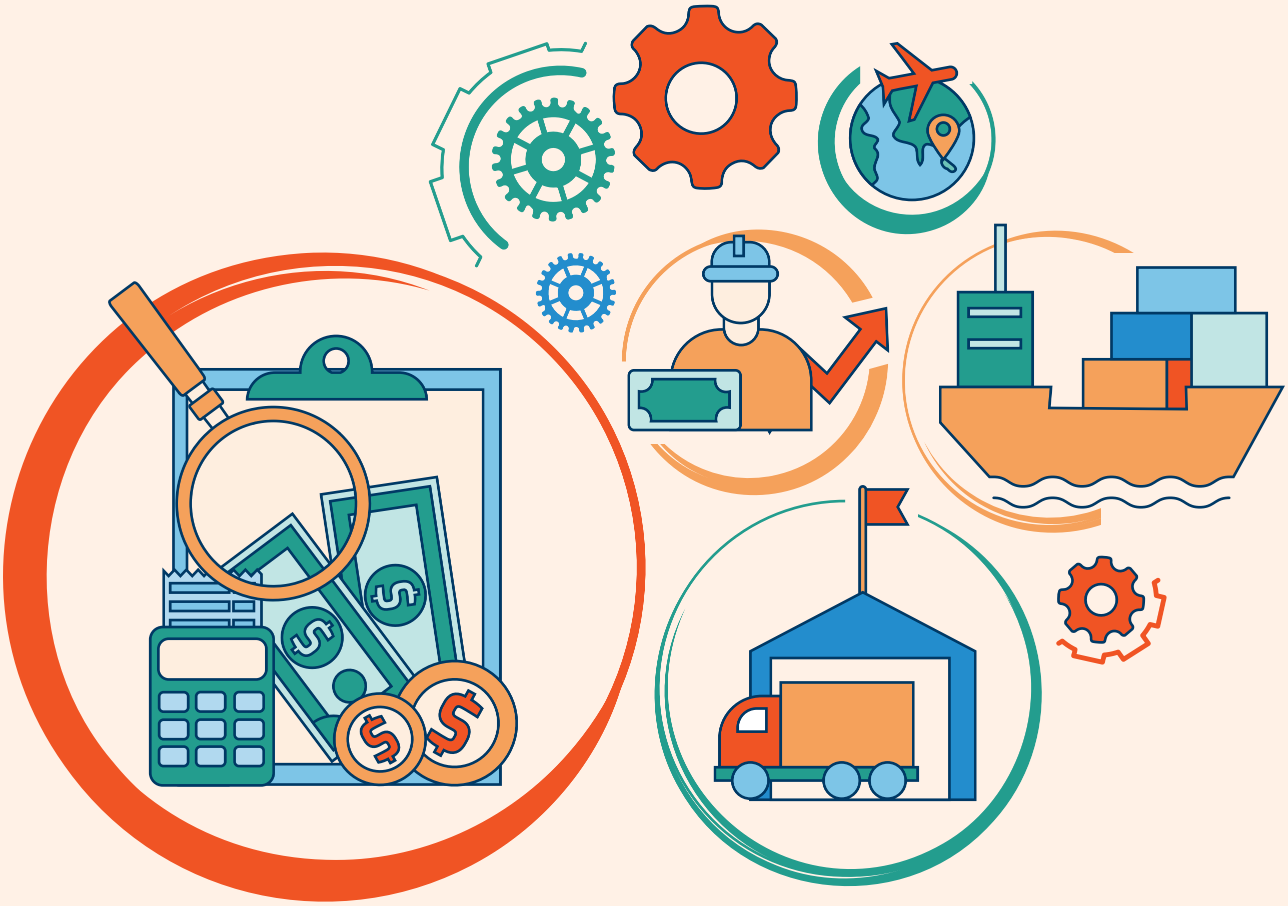


MAIN INDICATORS OF THE SINGAPORE ECONOMY

OVERALL ECONOMY

	1Q22	2Q22
Real Gross Domestic Product (Year-on-Year-Growth)	+3.8%	+4.4%
Gross Domestic Product at Current Market Prices	$142.5 billion	$146.1 billion

PRICES

	1Q22	2Q22
Consumer Price Index — All Items (Year-on-Year Growth)	+4.6%	+5.9%
Domestic Supply Price Index (Year-on-Year Growth)	+24.4%	+29.8%

LABOUR MARKET

	1Q22	2Q22
Change in Employment (Quarter-on-Quarter)	+47.4 thousand	+69.0 thousand
Overall Unemployment Rate	2.2%	2.1%
Value-Added per Actual Hour Worked (Year-on-Year Growth)	+2.3%	+0.8%

COSTS

	1Q22	2Q22
Unit Labour Cost of Overall Economy (Year-on-Year Growth)	+7.7%	+9.0%
Unit Business Cost of Manufacturing (Year-on-Year Growth)	+4.0%	+5.2%
Unit Labour Cost of Manufacturing (Year-on-Year Growth)	+8.6%	+9.3%

MERCHANDISE TRADE

	1Q22	2Q22
Merchandise Exports	$169,991 million +18.8% Year-on-Year Growth	$184,407 million +25.0% Year-on-Year Growth
Merchandise Imports	$153,074 million +23.1% Year-on-Year Growth	$173,438 million +31.6% Year-on-Year Growth

SERVICES TRADE

	1Q22	2Q22
Services Exports	$83,358 million +10.8% Year-on-Year Growth	$85,720 million +13.2% Year-on-Year Growth
Services Imports	$79,250 million +8.8% Year-on-Year Growth	$82,021 million +12.6% Year-on-Year Growth

CHAPTER

01

THE SINGAPORE ECONOMY

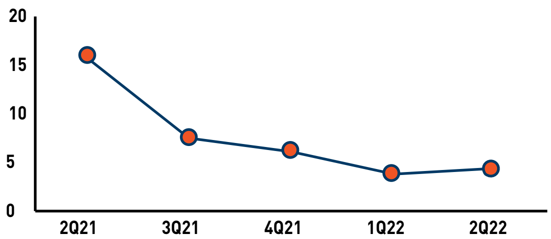
Chapter 1

THE SINGAPORE ECONOMY

ECONOMIC PERFORMANCE

Real GDP grew by
4.4% in 2Q22

Quarterly Growth (Year-on-Year)



Main Drivers of Growth in 2Q22

Manufacturing
1.2%-point contribution

Other Services Industries
0.6%-point contribution

LABOUR MARKET

Resident Unemployment Rate
2.9% in 2Q22

Employment (Q-O-Q Change)
+69,000 employed

Sectors with the Highest Employment Growth in 2Q22

- **+25,200** employed — Construction
- **+12,200** employed — Manufacturing
- **+8,200** employed — Other Services Industries

PRODUCTIVITY

Value-Added per Actual Hour Worked increased by
0.8% in 2Q22

Sectors with the Highest Growth in Value-Added per Actual Hour Worked in 2Q22

- **23.0%** — Food & Beverage Services
- **12.5%** — Real Estate
- **11.7%** — Retail Trade

COSTS

Overall Unit Labour Cost increased by
9.0% in 2Q22

Within the Manufacturing Sector

5.2% Unit Business Cost

9.3% Unit Labour Cost

PRICES

The Consumer Price Index (CPI) rose by
5.9% in 2Q22

Categories with Price Increases

16.6% Transport

5.1% Housing & Utilities

4.7% Food

INTERNATIONAL TRADE

Total Merchandise Exports increased by
25.0% in 2Q22

EXPORTS

73.0% Oil Domestic Exports

21.8% Re-Exports

9.1% Non-Oil Domestic Exports

Total Services Exports grew by
13.2% in 2Q22

Services Exports Increase was led by...

5.2%-pt Transport Services

3.6%-pt Travel

2.0%-pt Other Business Services

OVERVIEW

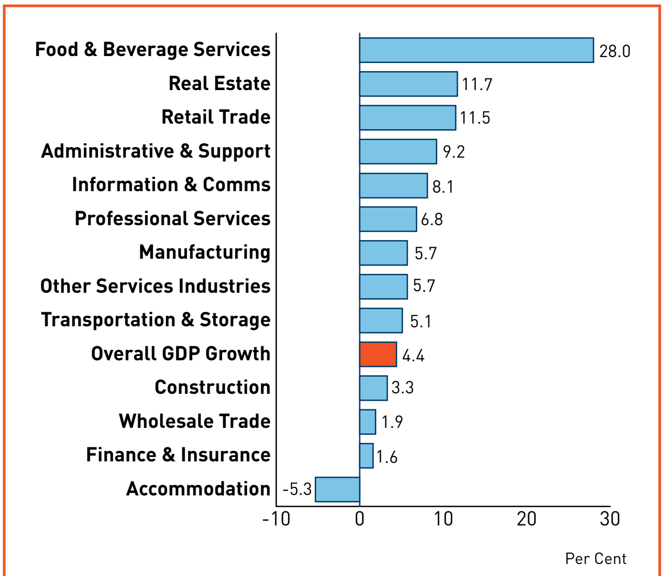
In the second quarter of 2022,

- The Singapore economy expanded by 4.4 per cent on a year-on-year basis, supported mainly by growth in the manufacturing, other services and information & communications sectors.
- The seasonally-adjusted unemployment rates fell at the overall level, as well as for residents and citizens. The number of retrenchments also declined over the quarter.
- Total employment rose by 69,000 on a quarter-on-quarter basis, extending the gains in the preceding quarter. Excluding Migrant Domestic Workers (MDWs), total employment increased by 64,400 on the back of employment gains for both residents and non-residents. Non-residents accounted for the bulk of the employment increase following the significant relaxation of border restrictions in April 2022.
- The Consumer Price Index-All Items (CPI-All Items) rose by 5.9 per cent on a year-on-year basis, faster than the 4.6 per cent increase registered in the previous quarter.

OVERALL PERFORMANCE

The Singapore economy expanded by 4.4 per cent on a year-on-year basis in the second quarter of 2022, an improvement from the 3.8 per cent growth in the previous quarter (Exhibit 1.1). On a quarter-on-quarter seasonally-adjusted basis, the economy contracted marginally by 0.2 per cent, a reversal from the 0.8 per cent growth in the preceding quarter.

Exhibit 1.1: GDP and Sectoral Growth Rates in 2Q 2022



The manufacturing sector grew by 5.7 per cent year-on-year in the second quarter, slightly faster than the 5.5 per cent growth recorded in the previous quarter. Growth during the quarter was supported by output expansions in the transport engineering, general manufacturing, electronics and precision engineering clusters, which more than offset output declines in the biomedical manufacturing and chemicals clusters.

The services producing industries expanded by 4.8 per cent year-on-year in the second quarter, extending the 4.7 per cent growth registered in the previous quarter. Growth was supported by expansions in all services sectors except for the accommodation sector, which contracted by 5.3 per cent. Among the services sectors that expanded, the food & beverage services (28.0 per cent), real estate (11.7 per cent) and retail trade (11.5 per cent) sectors posted the fastest expansions.

The construction sector grew by 3.3 per cent year-on-year in the second quarter, a step-up from the 2.4 per cent growth seen in the previous quarter. The sector's growth came on the back of an expansion in both private and public sector construction output.

The top three positive contributors to GDP growth in the second quarter were the manufacturing, other services and information & communications sectors (Exhibit 1.2).

Exhibit 1.2: Percentage-Point Contribution to Growth in Real GDP in 2Q 2022 (By Industry)

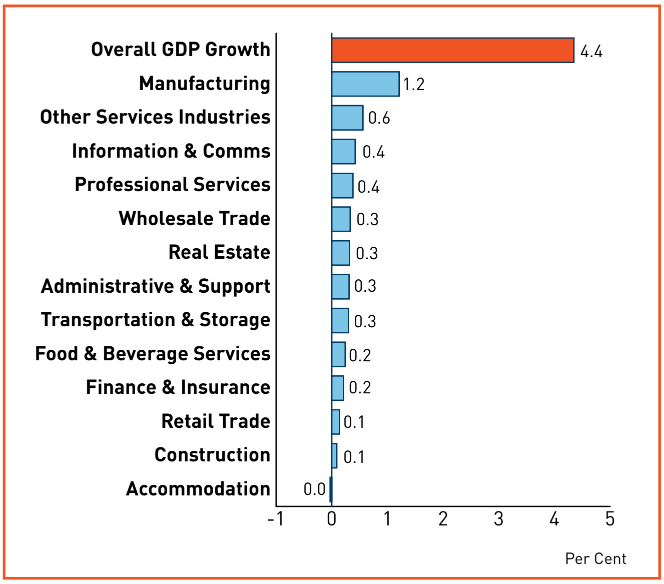


Exhibit 1.3: Changes in Total Demand*

	2021			2022	
	II	II	IV	I	II
Total Demand	16.5	8.2	7.0	3.6	**5.3**
External Demand	14.2	6.9	7.9	4.1	**4.9**
Total Domestic Demand	23.4	11.8	4.6	2.4	**6.4**
Consumption Expenditure	16.4	3.9	2.8	2.7	**8.9**
Public	0.7	3.3	3.6	-2.7	**-1.0**
Private	23.0	4.1	2.6	5.1	**12.2**
Gross Fixed Capital Formation	42.9	32.8	8.3	2.1	**2.6**
Changes in Inventories	-0.4	-0.3	0.0	0.0	**-0.1**

** For inventories, this refers to the contribution to GDP growth.*

SOURCES OF GROWTH

Total demand increased by 5.3 per cent year-on-year in the second quarter of 2022, an improvement from the 3.6 per cent growth in the previous quarter (Exhibit 1.3). Both external and domestic demand expanded during the quarter.

External demand rose by 4.9 per cent year-on-year, extending the 4.1 per cent growth in the previous quarter. Meanwhile, domestic demand increased by 6.4 per cent year-on-year, accelerating from the 2.4 per cent growth in the first quarter.

Within domestic demand, consumption expenditure climbed by 8.9 per cent year-on-year, faster than the 2.7 per cent increase in the preceding quarter. The increase in consumption expenditure was supported by higher private consumption expenditure (12.2 per cent), even as public consumption expenditure dipped (-1.0 per cent).

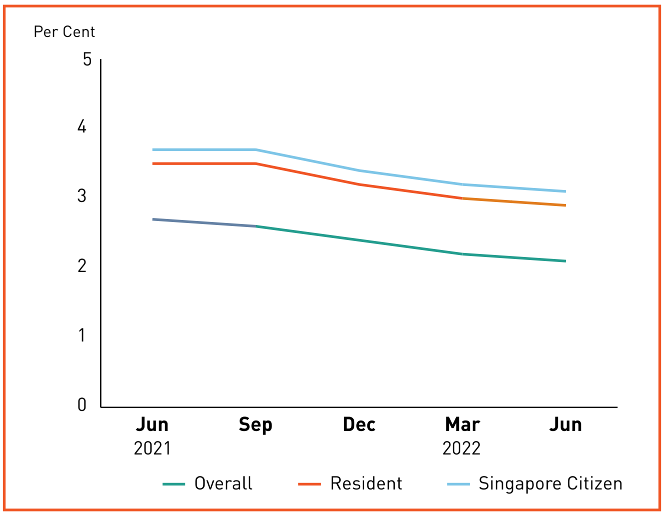
Meanwhile, gross fixed capital formation (GFCF) rose by 2.6 per cent year-on-year, extending the 2.1 per cent growth in the previous quarter. The increase in GFCF during the quarter was due to higher private sector GFCF (5.2 per cent), which outweighed a decline in public sector GFCF (-9.4 per cent). Private sector GFCF expanded on account of an increase in investments in private transport equipment, machinery & equipment and intellectual property products, which more than offset a fall in investments in private construction & works. Meanwhile, public sector GFCF declined due to lower investments in public machinery & equipment, construction & works and transport equipment, even as investments in public intellectual property products picked up.

LABOUR MARKET

Unemployment and Retrenchment[1]

Compared to March 2022, the seasonally-adjusted unemployment rates in June 2022 dipped at the overall level (from 2.2 per cent to 2.1 per cent), as well as for residents (from 3.0 per cent to 2.9 per cent) and citizens (from 3.2 per cent to 3.1 per cent) (Exhibit 1.4). As of June 2022, all three unemployment rates were marginally below their respective pre-pandemic levels.[2]

Exhibit 1.4: Unemployment Rate (Seasonally-Adjusted)

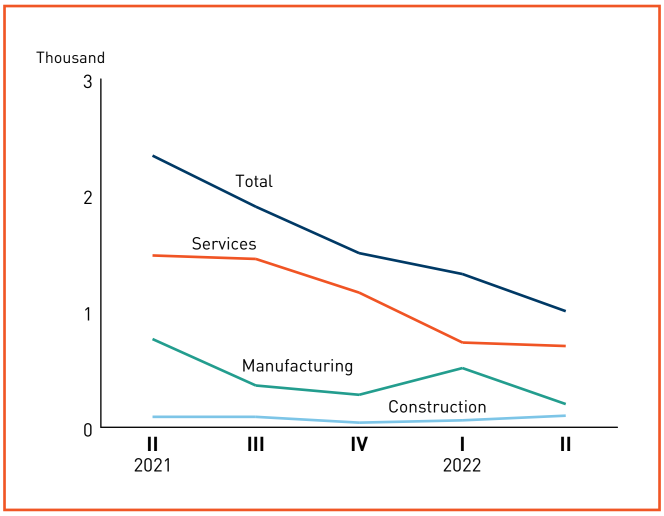


1 *Retrenchment figures pertain to private sector establishments with at least 25 employees and the public sector.*
2 *The annual average overall, resident and citizen unemployment rates in 2018 and 2019 were 2.2 per cent, 3.0 per cent and 3.2 per cent respectively.*

In June 2022, an estimated 71,100 residents, including 63,500 Singapore citizens, were unemployed. These were lower than the number of unemployed residents (73,900) and citizens (66,700) in March 2022.[3]

Total retrenchments declined to a record low of 1,000[4] in the second quarter of 2022, from 1,320 in the preceding quarter (Exhibit 1.5). Over the quarter, retrenchments fell in the services (from 730 to 700) and manufacturing (from 510 to 200) sectors, but rose in the construction (from 60 to 100) sector.

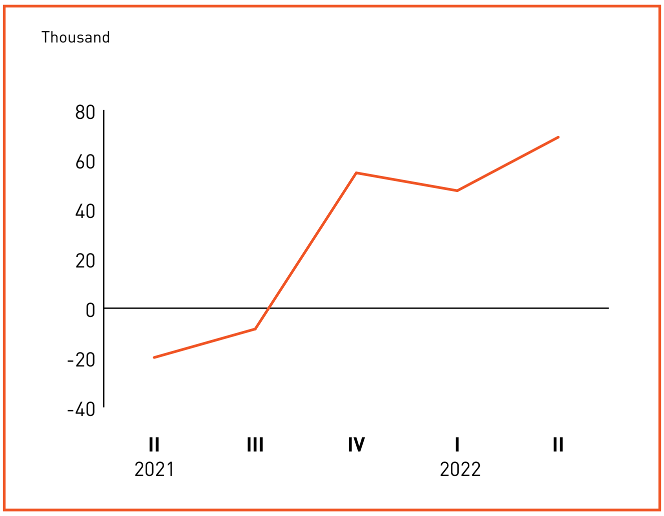
Exhibit 1.5: Retrenchments



Employment[5]

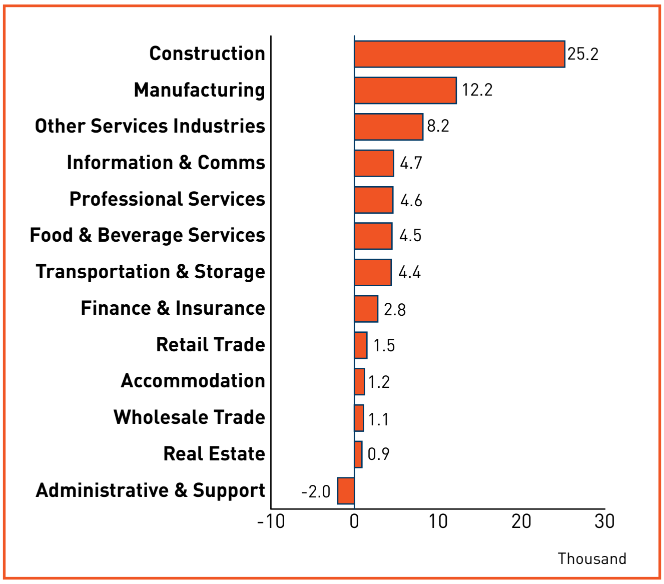
Total employment increased by 69,000 on a quarter-on-quarter basis in the second quarter of 2022, larger than the gains recorded in the preceding quarter (47,400) (Exhibit 1.6). Excluding MDWs, total employment rose by 64,400. Both residents and non-residents registered employment growth during the second quarter, with non-residents accounting for the bulk of the employment increase following the significant relaxation of border restrictions in April 2022.

Exhibit 1.6: Change in Total Employment, Quarter-on-Quarter



Total employment growth was largely driven by the overall services sector (+31,900; or +27,300 excluding MDWs). The latter was in turn supported by employment gains in the other services (+8,200), information & communications (+4,700) and professional services (+4,600) sectors (Exhibit 1.7). Over the same period, construction and manufacturing employment rose by 25,200 and 12,200 respectively, a faster pace of increase than that seen in the preceding quarter.

Exhibit 1.7: Changes in Employment by Industry in 2Q 2022



3 *Based on seasonally-adjusted data on the number of unemployed persons.*
4 *This is the lowest quarterly retrenchment level on record since the start of the data series in 1998. The previous low recorded was in the first quarter of 2022 (1,320).*
5 *Based on preliminary estimates.*

Hiring Expectations

According to EDB's latest Business Expectations Survey for the Manufacturing Sector, hiring expectations in the sector were positive, with a net weighted balance of 25 per cent of manufacturers expecting to increase hiring in the third quarter of 2022 as compared to the second quarter. Firms in the aerospace segment of the transport engineering cluster were the most optimistic, with a net weighted balance of 73 per cent of firms expecting to increase hiring in the third quarter. By contrast, firms in the other chemicals segment of the chemicals cluster were the most pessimistic, with a net weighted balance of 4 per cent of firms expecting a lower level of hiring in the third quarter.

Hiring expectations for services firms were also positive. According to DOS' latest Business Expectations Survey for the Services Sector, a net weighted balance of 16 per cent of services firms expected to increase hiring in the third quarter of 2022 as compared to the second quarter. Among the services sectors, firms in the accommodation sector had the strongest hiring sentiments, with a net weighted balance of 54 per cent of firms expecting to increase hiring in the third quarter. On the other hand, firms in the real estate sector had the least positive hiring sentiments, with a net weighted balance of 4 per cent of firms expecting to hire more workers in the third quarter.

COMPETITIVENESS

Productivity

Overall labour productivity, as measured by real value-added per actual hour worked, grew by 0.8 per cent year-on-year in the second quarter of 2022, moderating from the 2.3 per cent increase in the previous quarter (Exhibit 1.8).[6]

Exhibit 1.8: Changes in Value-Added per Actual Hour Worked for the Overall Economy and Sectors in 2Q 2022

Among the sectors, the food & beverage services (23.0 per cent), real estate (12.5 per cent), retail trade (11.7 per cent) and administrative & support services (7.5 per cent) sectors recorded the strongest productivity gains in the second quarter. The other services (4.0 per cent), wholesale trade (4.0 per cent), transportation & storage (2.6 per cent), manufacturing (1.9 per cent) and professional services (1.6 per cent) sectors also saw productivity improvements. By contrast, productivity declines were observed in the construction (-8.2 per cent), accommodation (-7.2 per cent), finance & insurance (-2.2 per cent) and information & communications (-1.4 per cent) sectors.

In the second quarter, the productivity of outward-oriented sectors as a whole rose by 0.8 per cent year-on-year, moderating from the 3.5 per cent increase in the previous quarter.[7] Meanwhile, the productivity of domestically-oriented sectors as a whole improved by 4.0 per cent year-on-year, faster than the 2.0 per cent increase in the preceding quarter.

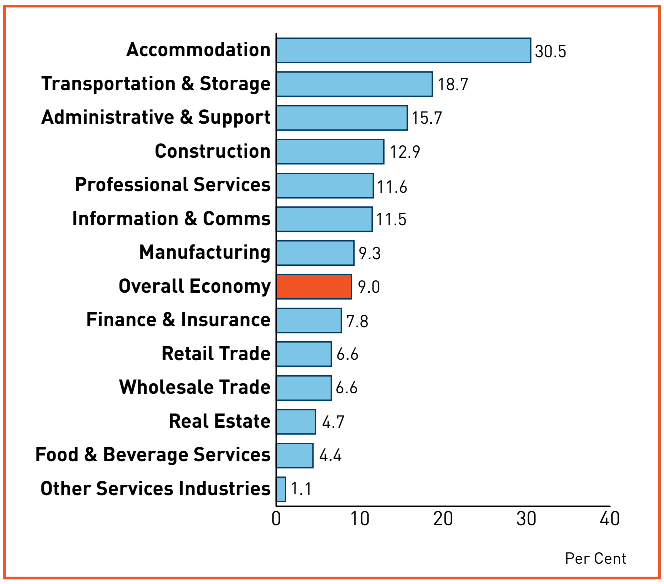
6 Overall labour productivity, as measured by real value-added per worker, also rose by 0.8 per cent in the second quarter of 2022, slowing from the 2.2 per cent growth in the preceding quarter.

7 Outward-oriented sectors refer to manufacturing, wholesale trade, transportation & storage, accommodation, information & communications, finance & insurance and professional services. Domestically-oriented sectors refer to construction, retail trade, food & beverage services, real estate, administrative & support services and other services industries.

Unit Labour Cost and Unit Business Cost

Overall unit labour cost (ULC) for the economy rose by 9.0 per cent on a year-on-year basis in the second quarter of 2022, larger than the increase of 7.7 per cent in the preceding quarter (Exhibit 1.9). The rise in overall ULC during the quarter was due to an increase in total labour cost per worker, which outpaced gains in labour productivity as measured by real value-added per worker.

Exhibit 1.9: Changes in Unit Labour Cost in 2Q 2022



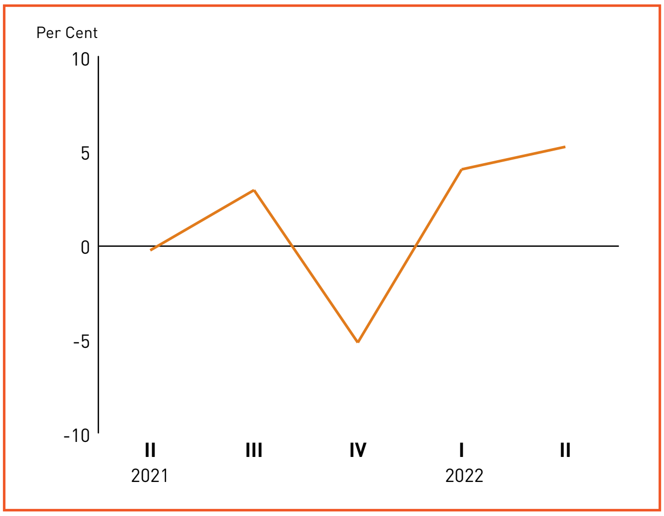
By sectors, the ULC for the construction sector was 12.9 per cent higher year-on-year in the second quarter due to the combined effect of an increase in total labour cost per worker and a fall in labour productivity.

Similarly, the ULC for services producing industries rose by 8.7 per cent. Among the services sectors, ULC increased the most for the accommodation sector (30.5 per cent), reflecting a significant pickup in total labour cost per worker even as productivity declined. Meanwhile, ULC increased the least in the other services sector (1.1 per cent).

Over the same period, the ULC for the manufacturing sector picked up by 9.3 per cent. The rise in the sector's ULC occurred on the back of an increase in total labour cost per worker, which outstripped productivity gains in the sector.

Unit business cost (UBC) for the manufacturing sector rose by 5.2 per cent year-on-year in the second quarter, extending the 4.0 per cent increase in the previous quarter (Exhibit 1.10). The rise in UBC during the quarter was due to increases in the manufacturing ULC (9.3 per cent) and unit services cost (3.9 per cent), which more than offset a fall in unit non-labour production taxes (-7.7 per cent).

Exhibit 1.10: Changes in the Manufacturing Unit Business Cost

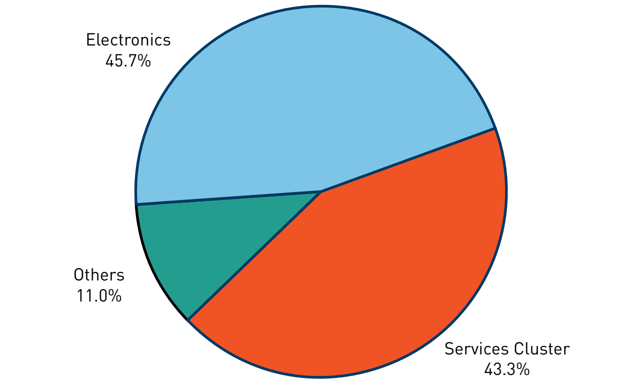


Investment Commitments

Investment commitments garnered by the Economic Development Board (EDB) in terms of Fixed Asset Investments (FAI) and Total Business Expenditure (TBE) amounted to $6.3 billion and $2.1 billion respectively in the second quarter of 2022 (Exhibit 1.11 and Exhibit 1.12).

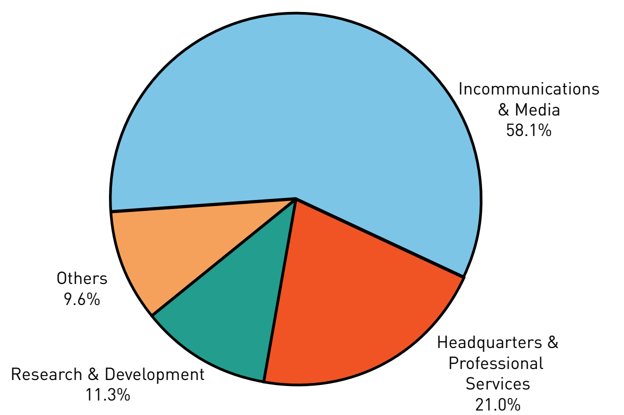
For FAI, the largest contribution came from the manufacturing sector, which attracted $3.6 billion worth of commitments. Within the manufacturing sector, the electronics and biomedical manufacturing clusters garnered the largest amount of commitments, at $2.9 billion and $430 million respectively. Meanwhile, the infocommunications & media cluster attracted the most FAI commitments within the services sector, at $1.8 billion. Investors from Europe contributed the most to total FAI, at $3.4 billion (or 54.5 per cent).

Exhibit 1.11: Fixed Asset Investments by Industry Cluster in 2Q 2022



For TBE, the services sector attracted the highest amount of commitments, at $1.9 billion. Within the sector, the infocommunications & media and headquarters & professional services clusters garnered the most TBE commitments, at $1.2 billion and $437 million respectively. Among the manufacturing clusters, the electronics and biomedical manufacturing clusters attracted the largest amount of TBE commitments, at $137 million and $38.1 million respectively. Investors from the Others region were the largest source of TBE commitments, with commitments of $1.4 billion (or 66.0 per cent).

Exhibit 1.12: Total Business Expenditure by Industry Cluster in 2Q 2022



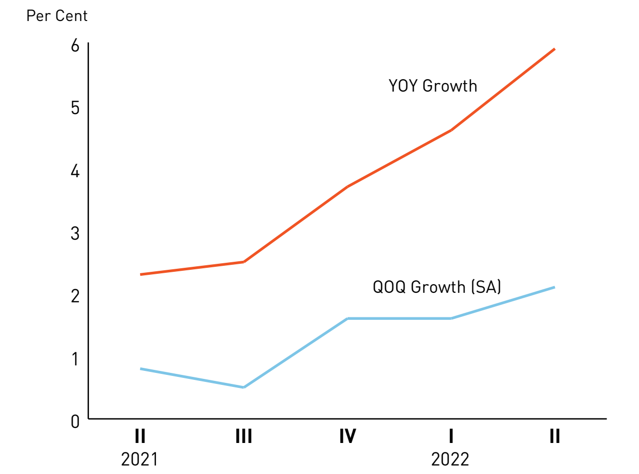
When these projects are fully implemented, they are expected to generate $6.1 billion of value-added and create more than 5,100 jobs in the coming years.

PRICES

Consumer Price Index

The Consumer Price Index-All Items (CPI-All Items) rose by 5.9 per cent on a year-on-year basis in the second quarter of 2022, picking up from the 4.6 per cent increase in the preceding quarter (Exhibit 1.13). On a quarter-on-quarter seasonally-adjusted basis, CPI-All Items inflation came in at 2.1 per cent, faster than the 1.6 per cent recorded in the previous quarter.

Exhibit 1.13: Changes in CPI



Price increases in the following CPI categories contributed positively to CPI-All Items inflation on a year-on-year basis in the second quarter (Exhibit 1.14). Food prices rose by 4.7 per cent on the back of an increase in the costs of food services like hawker food and restaurant meals, as well as non-cooked food items such as meat, fish & seafood and milk, cheese & eggs. Clothing & footwear prices picked up by 2.8 per cent due to more expensive ready-made garments. Housing & utilities costs increased by 5.1 per cent because of a rise in accommodation and electricity costs. Prices of household durables & services went up by 2.1 per cent as the prices of household durables and domestic & household services rose. Healthcare costs increased by 1.6 per cent on account of a rise in the costs of outpatient services and hospital services. Transport costs climbed by 16.6 per cent on the back of an increase in the costs of cars, petrol and point-to-point transport services. Recreation & culture prices rose by 3.8 per cent as a result of the higher costs of holiday travel[8] and recreational & cultural services. Education costs picked up by 2.2 per cent due to higher fees at commercial institutions and universities. Prices of miscellaneous goods & services edged up by 0.2 per cent because of a rise in the cost of personal care items.

8 *As overseas travel was limited in April 2020 – June 2022, a portion of the CPI for holiday expenses was imputed using the overall change in CPI-All Items. However, with the easing of travel restrictions, the prices of available holiday-related services are increasingly being incorporated into the CPI.*

On the other hand, communication costs contributed negatively to CPI-All Items inflation on a year-on-year basis in the second quarter, falling by 0.9 per cent on the back of lower prices for telecommunication services.

Exhibit 1.14: Percentage Changes in CPI over Corresponding Quarter of Previous Year

Per Cent

	2021			2022	
	II	III	IV	I	II
All items	2.3	2.5	3.7	4.6	**5.9**
Food	1.0	1.4	1.9	2.7	**4.7**
Clothing & Footwear	-6.0	-5.6	-5.3	-3.5	**2.8**
Housing & Utilities	0.6	2.1	3.1	4.2	**5.1**
Housing Durables & Services	1.4	1.6	1.8	1.7	**2.1**
Healthcare	1.0	1.7	1.6	1.5	**1.6**
Transport	10.6	8.7	13.0	15.4	**16.6**
Communication	0.1	-2.0	-1.3	-2.6	**-0.9**
Recreation & Culture	1.0	1.4	2.0	1.4	**3.8**
Education	1.1	1.3	1.7	2.1	**2.2**
Miscellaneous Goods & Services	-0.2	-0.4	-0.2	0.1	**0.2**

INTERNATIONAL TRADE

Merchandise Trade

Singapore's total merchandise trade expanded by 28.1 per cent on a year-on-year basis in the second quarter of 2022, following the 20.8 per cent growth registered in the preceding quarter (Exhibit 1.15). The rise in total merchandise trade was due to an increase in both oil (69.5 per cent) and non-oil (19.9 per cent) trade.

Exhibit 1.15: Growth Rates of Total Merchandise Trade, Merchandise Exports and Merchandise Imports (In Nominal Terms)

Per Cent

	2021				2022	
	II	III	IV	ANN	I	II
Merchandise Trade	27.2	19.0	28.8	19.7	20.8	**28.1**
Merchandise Exports	26.0	17.4	26.9	19.1	18.8	**25.0**
Domestic Exports	25.8	18.8	34.8	19.0	20.8	**28.7**
Oil	85.7	49.2	78.2	38.0	45.4	**73.0**
Non-Oil	10.1	9.0	20.1	12.1	11.4	**9.1**
Re-Exports	26.3	16.2	21.1	19.2	17.2	**21.8**
Merchandise Imports	28.6	20.9	31.0	20.4	23.1	**31.6**
Oil	115.4	51.9	94.8	49.4	50.7	**66.7**
Non-Oil	17.7	15.6	21.2	15.3	17.4	**23.5**

Total merchandise exports rose by 25.0 per cent in the second quarter, following the 18.8 per cent increase in the preceding quarter. Growth was due to an increase in both domestic exports (28.7 per cent) and re-exports (21.8 per cent).

The growth in domestic exports was on account of an expansion in both oil domestic exports and non-oil domestic exports (NODX). In particular, oil domestic exports surged by 73.0 per cent due to higher oil prices. In volume terms, oil domestic exports declined by 8.2 per cent.

Meanwhile, NODX rose by 9.1 per cent in the second quarter, extending the 11.4 per cent growth in the previous quarter. The rise in NODX was supported by an increase in both electronics and non-electronics domestic exports.

8 As overseas travel was limited in April 2020 – March 2022 due to international and domestic measures to contain the COVID-19 pandemic, changes in the prices of flights that were not available were imputed using the overall change in CPI-All Items, in line with international guidelines. With more flights resuming and prices becoming available, actual airfares are progressively being incorporated into the CPI.

9 As overseas travel was limited in April 2020 – March 2022, the CPI for holiday expenses was imputed using the overall change in CPI-All Items. With the easing of border restrictions, the prices of available holiday-related services are increasingly being incorporated into the CPI.

Total merchandise imports grew by 31.6 per cent in the second quarter, following the 23.1 per cent increase in the previous quarter. Both oil and non-oil imports rose during the quarter. Specifically, oil imports climbed by 66.7 per cent, while non-oil imports picked up by 23.5 per cent due to higher electronics and non-electronics imports.

Services Trade

Total services trade expanded by 12.9 per cent on a year-on-year basis in the second quarter of 2022, stepping up from the 9.8 per cent increase in the previous quarter (Exhibit 1.16). Both exports and imports of services saw positive year-on-year growth during the quarter.

Exhibit 1.16: Growth Rates of Total Services Trade, Services Exports and Services Imports (In Nominal Terms)

Per Cent

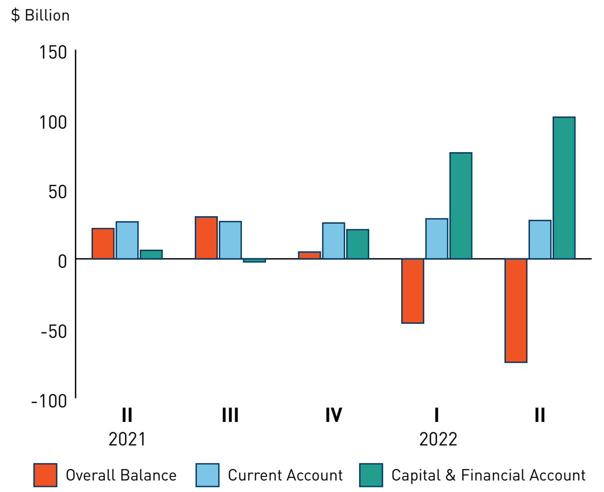
	2021				2022	
	II	III	IV	ANN	I	II
Total Services Trade	14.2	11.5	10.6	6.8	9.8	**12.9**
Services Exports	14.4	11.1	9.2	6.7	10.8	**13.2**
Services Imports	14.0	11.8	12.1	6.8	8.8	**12.6**

Services exports rose by 13.2 per cent in the second quarter, extending the 10.8 per cent increase in the preceding quarter. The increase in services exports was largely attributable to the exports of transport services, travel services and other business services. Meanwhile, services imports expanded by a faster 12.6 per cent, compared to the 8.8 per cent increase in the previous quarter. The rise in services imports was mainly due to the imports of travel services, transport services and other business services.

BALANCE OF PAYMENTS

The overall balance of payments deficit widened to $74.2 billion in the second quarter of 2022, from $46.1 billion in the preceding quarter (Exhibit 1.17).

Exhibit 1.17: Balance of Payments



Current Account

The current account surplus edged down to $27.5 billion in the second quarter of 2022, from $28.7 billion in the previous quarter. This was due to a fall in the services trade surplus and a widening of the primary and secondary income deficits, which more than offset an increase in the goods trade surplus.

The surplus in the goods balance rose by $7.5 billion to $45.5 billion in the second quarter, as goods exports increased by more than goods imports.

By contrast, the surplus in the services balance fell by $0.4 billion to $3.7 billion in the second quarter. This was mainly due to an increase in net payments for travel services, which more than offset a decline in the net payments for transport services.

At the same time, the primary income deficit widened by $7.4 billion to $19.9 billion in the second quarter, as primary income receipts fell while payments rose.

Similarly, the secondary income deficit increased to $1.9 billion on the back of a fall in secondary income receipts even as payments edged up.

Capital and Financial Account

The capital and financial account registered a net outflow of $102 billion in the second quarter of 2022, larger than the net outflow of $76.0 billion recorded in the preceding quarter. This was largely driven by an increase in the net outflows of "other investment" and a reversal in the position of financial derivatives from net inflows to net outflows, which more than offset a decline in the net outflows of portfolio investment and a marginal increase in the net inflows of direct investment.

Net outflows of "other investment" rose to $98.4 billion in the second quarter, from $67.3 billion in the previous quarter. This was partly attributable to lower net inflows by the resident non-bank private sector.

At the same time, financial derivatives registered a turnaround to a net outflow position of $0.2 billion in the second quarter, from a net inflow position of $8.0 billion in the preceding quarter.

By contrast, net outflows of portfolio investment decreased by $13.5 billion to $24.5 billion in the second quarter. This reflected in part a reversal to a net inflow position of $8.6 billion by the resident deposit-taking corporations, from a net outflow position of $2.4 billion in the previous quarter.

Finally, net inflows of direct investment increased marginally to $21.4 billion in the second quarter, from $21.2 billion in the preceding quarter, as residents' direct investments abroad fell by more than foreign direct investments into Singapore.

9 Net inflows in net balances are indicated by a minus (-) sign. For more details regarding the change in sign convention to the financial account, please refer to DOS's information paper on "Singapore's International Accounts: Methodological Updates and Recent Developments".

Image courtesy of PSA Singapore

CHAPTER

02

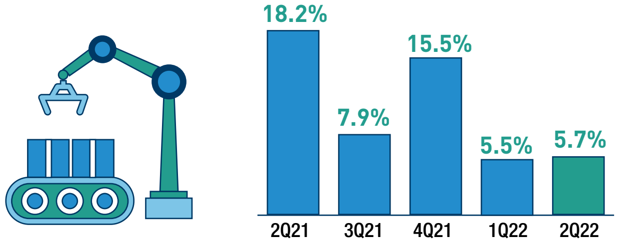
SECTORAL PERFORMANCE

Chapter 2

SECTORAL PERFORMANCE

MANUFACTURING

REAL GROWTH



CLUSTERS IN MANUFACTURING SECTOR (Y-O-Y CHANGE)

Transport Engineering 20.8%

General Manufacturing Industries 11.0%

Electronics 9.8%

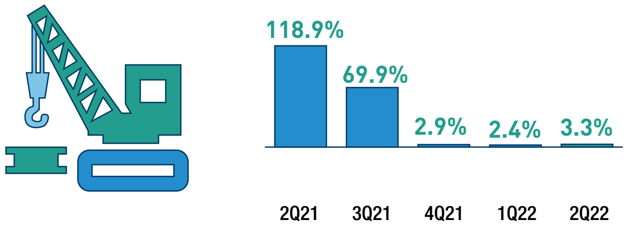
Precision Engineering 4.9%

Biomedical Manufacturing -4.5%

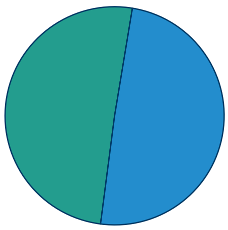
Chemicals -6.0%

CONSTRUCTION

REAL GROWTH



CERTIFIED PAYMENTS IN 2Q22

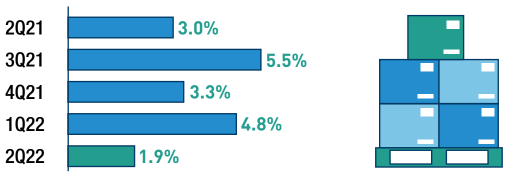


CONTRACTS AWARDED IN 2Q22 (Y-O-Y CHANGE)

Institutional & Others	Residential	Industrial	Civil Engineering	Commercial
18.6%	-46.9%	-56.2%	-56.2%	-60.0%

WHOLESALE TRADE

REAL GROWTH

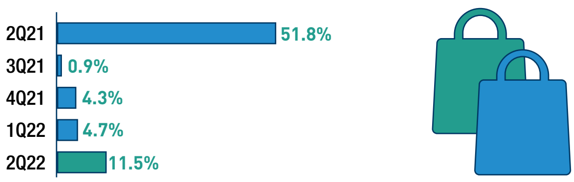


Real NORX — Real Non-Oil Re-Exports Growth 13.2%

Real NODX — Real Non-Oil Domestic Exports Growth -2.2%

RETAIL TRADE

REAL GROWTH

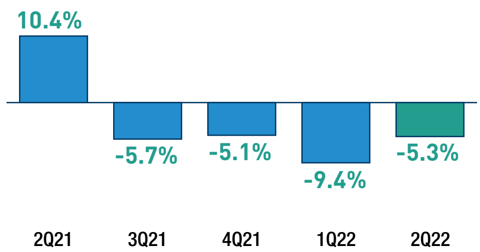


Retail Sales Index Growth (Non-Motor Vehicles) 16.4%

Retail Sales Index Growth (Motor Vehicles) -19.8%

ACCOMMODATION

REAL GROWTH



OCCUPANCY RATES OF HOTELS (Y-O-Y CHANGE)

Luxury
30.1%-pt

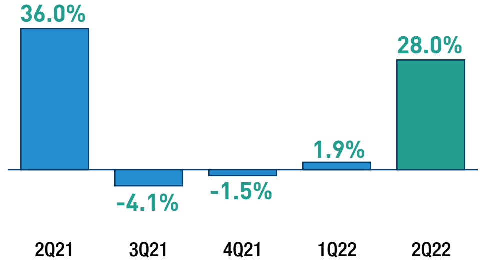
Upscale
14.4%-pt

Mid-Tier
23.1%-pt

Economy
10.0%-pt

FOOD & BEVERAGE SERVICES

REAL GROWTH



F&B SALES INDEX GROWTH (Y-O-Y CHANGE)

Food Caterers
89.0%

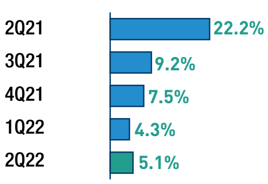
Restaurants
55.3%

Others
13.6%

Fast Food Outlets
5.7%

TRANSPORTATION & STORAGE

REAL GROWTH

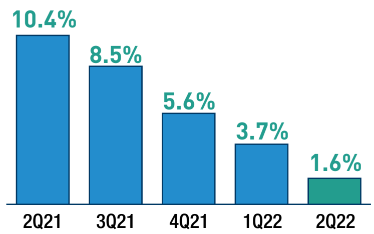


Total Sea Cargo Handled Growth -5.2%

Air Passengers Handled Growth 1,306%

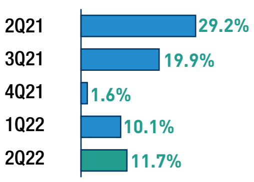
FINANCE & INSURANCE

REAL GROWTH



REAL ESTATE

REAL GROWTH



PRIVATE RESIDENTIAL REAL ESTATE

Units Transacted (Y-O-Y Change) -19.4%

Price Index (Q-O-Q Change) 3.5%

OVERVIEW

In the second quarter of 2022,

- The manufacturing sector expanded by 5.7 per cent year-on-year, extending the 5.5 per cent growth in the preceding quarter. Growth was supported by output expansions across all clusters, except for the biomedical manufacturing and chemicals clusters.
- The construction sector grew by 3.3 per cent year-on-year, faster than the 2.4 per cent expansion in the previous quarter.
- Growth in the wholesale trade sector came in at 1.9 per cent year-on-year, moderating from the 4.8 per cent recorded in the preceding quarter.
- The retail trade sector expanded by 11.5 per cent year-on-year, improving from the 4.7 per cent expansion in the previous quarter.
- The transportation & storage sector posted growth of 5.1 per cent year-on-year, better than the 4.3 per cent growth recorded in the preceding quarter.
- The accommodation sector shrank by 5.3 per cent year-on-year, an improvement over the 9.4 per cent contraction registered in the preceding quarter.
- Growth in the food & beverage services sector accelerated to 28.0 per cent year-on-year, from 1.9 per cent in the previous quarter.
- The finance & insurance sector grew by 1.6 per cent year-on-year, moderating from the 3.7 per cent expansion in the previous quarter.
- The real estate sector expanded at a faster pace of 11.7 per cent year-on-year, compared to the 10.1 per cent growth in the first quarter.
- The professional services sector grew by 6.8 per cent year-on-year, extending the 7.6 per cent expansion in the previous quarter.

MANUFACTURING

The manufacturing sector expanded by 5.7 per cent on a year-on-year basis in the second quarter of 2022, extending the 5.5 per cent growth in the previous quarter (Exhibit 2.1). Growth was supported by output expansions across all clusters within the sector, except for the biomedical manufacturing and chemicals clusters (Exhibit 2.2).

Exhibit 2.1: Manufacturing Sector's Growth Rate

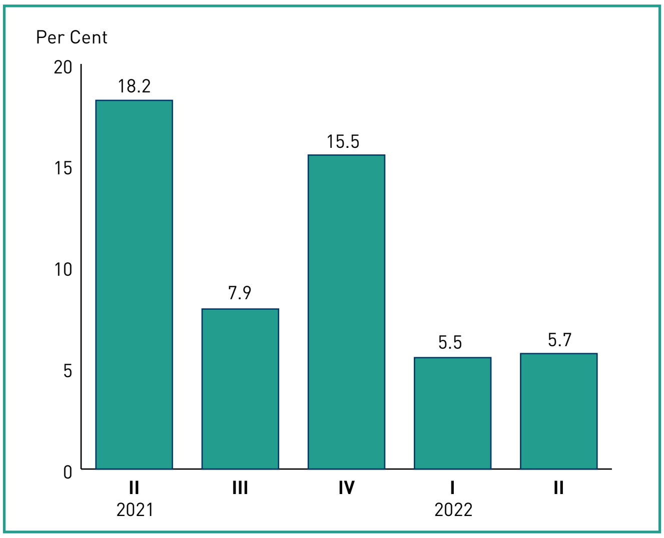
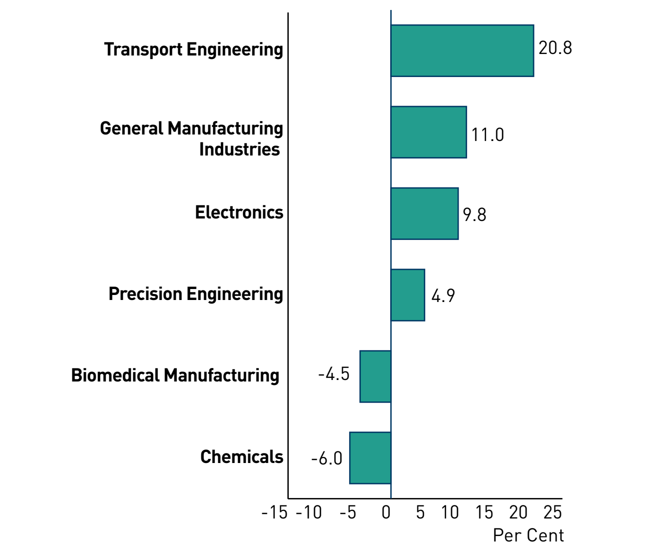


Exhibit 2.2: Manufacturing Clusters' Growth Rates in 2Q 2022



Output in the transport engineering cluster increased by 20.8 per cent year-on-year in the second quarter, supported by expansions in the aerospace and marine & offshore engineering (M&OE) segments. In the aerospace segment, output surged by 28.0 per cent on account of a higher level of production of aircraft parts and more maintenance, repair & overhaul jobs from commercial airlines with the easing of global air travel restrictions. Similarly, the M&OE segment grew by 25.8 per cent, supported by a higher level of work done in ship repair and offshore projects. By contrast, the land transport segment contracted by 14.6 per cent due to a lower level of production of parts and accessories for motor vehicles.

The general manufacturing cluster expanded by 11.0 per cent year-on-year in the second quarter, supported by output expansions across all segments. In particular, the food, beverages & tobacco segment grew by 14.0 per cent on account of an increase in the production of beverage and milk products, while the printing segment's output rose by 8.6 per cent. Meanwhile, the miscellaneous industries segment expanded by 6.9 per cent due to a rise in the output of structural metal products and wearing apparel.

The electronics cluster grew by 9.8 per cent year-on-year in the second quarter, supported by output expansions across all segments except for the other electronic modules & components segment. In particular, output in the semiconductors segment expanded by 11.4 per cent on account of strong demand from 5G markets and data centres amidst the global semiconductor shortage. Meanwhile, the infocomms & consumer electronics and computer peripherals & data storage segments recorded output growth of 9.4 per cent and 3.9 per cent respectively. By contrast, output in the other electronic modules & components segment declined by 12.3 per cent due to lower export orders from China.

Output in the precision engineering cluster rose by 4.9 per cent year-on-year in the second quarter, supported by output expansions across all segments. Notably, the machinery & systems segment grew by 6.5 per cent on the back of a higher level of production of semiconductor equipment. At the same time, the precision modules & components segment expanded by 1.6 per cent due to an increase in the output of plastic and metal precision components.

The biomedical manufacturing cluster contracted by 4.5 per cent year-on-year in the second quarter due to a 14.9 per cent decline in the output of the pharmaceuticals segment. The latter could be attributed to a different mix of active pharmaceutical ingredients (APIs) produced. On the other hand, output in the medical technology segment rose by 10.4 per cent due to greater demand for medical devices from the US and China.

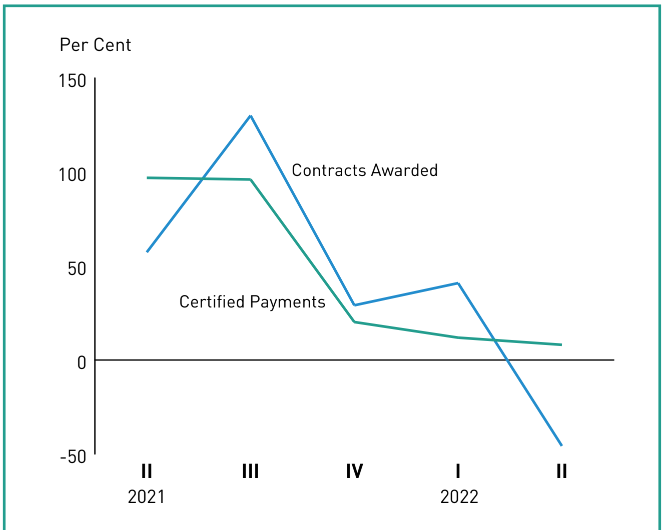
Output in the chemicals cluster fell by 6.0 per cent year-on-year in the second quarter, driven by a fall in the output of the petrochemicals (-14.3 per cent) and other chemicals (-5.0 per cent) segments. The petrochemicals segment recorded a lower level of output amidst plant maintenance shutdowns and reduced demand from regional markets, while the other chemicals segment reported a drop in production due to a decline in the output of fragrances. By contrast, the specialties segment expanded by 3.5 per cent on account of a higher level of production of mineral oil and food additives. The output of the petroleum segment remained unchanged compared to the same quarter a year ago.

CONSTRUCTION

The construction sector grew by 3.3 per cent year-on-year in the second quarter of 2022, extending the 2.4 per cent expansion in the previous quarter.

In the second quarter, nominal certified progress payments (a proxy for construction output) rose by 8.1 per cent year-on-year, following the 11.9 per cent increase in the previous quarter (Exhibit 2.3). Higher certified progress payments were seen for both private (17.3 per cent) and public (0.2 per cent) sector construction works. The increase in private certified progress payments was largely driven by higher outturns in private residential (24.2 per cent), industrial (15.2 per cent) and commercial (35.4 per cent) building works, which more than offset a decline in private civil engineering (-15.0 per cent) works. On the other hand, the increase in public certified progress payments was led by expansions in public residential (7.1 per cent) and industrial (9.3 per cent) building as well as civil engineering (0.9 per cent) works, which outweighed a contraction in public institutional & others building works (-11.6 per cent).

Exhibit 2.3: Changes in Contracts Awarded and Certified Payments



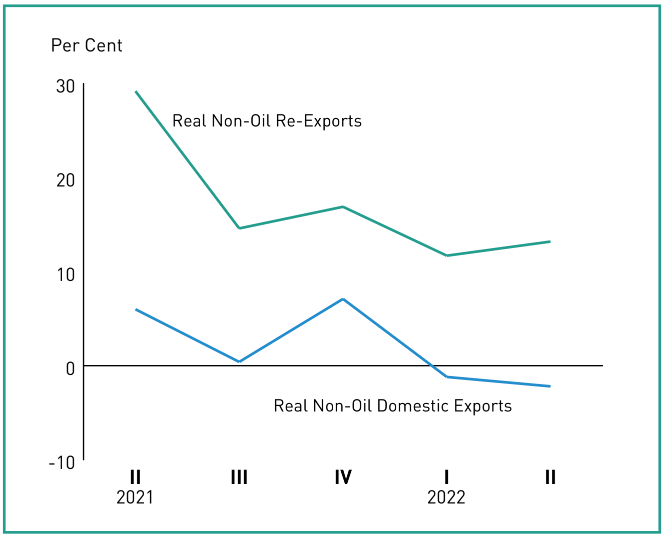
Construction demand, in terms of contracts awarded, fell sharply by 45.7 per cent year-on-year in the second quarter, a reversal from the 40.9 per cent increase in the previous quarter. The decline was on account of a fall in demand for both private (-40.6 per cent) and public (-48.8 per cent) sector construction works. The former was led by a drop in contracts awarded for private commercial (-60.4 per cent), industrial (-50.4 per cent) and residential (-32.1 per cent) building works, while the latter was led by a decline in contracts awarded for public civil engineering (-65.6 per cent) as well as residential (-55.5 per cent) and industrial (-99.5 per cent) building works.

WHOLESALE TRADE

The wholesale trade sector grew by 1.9 per cent year-on-year in the second quarter of 2022, moderating from the 4.8 per cent expansion in the previous quarter.

Growth in the sector was supported by an increase in non-oil re-export (NORX) volumes, which outweighed a decline in non-oil domestic export (NODX) volumes during the quarter. Specifically, NORX volumes rose by 13.2 per cent year-on-year in the second quarter, extending the 11.7 per cent growth in the previous quarter (Exhibit 2.4). This was driven in turn by the stronger re-exports of machinery & equipment and miscellaneous manufactured articles. On the other hand, NODX volumes fell by 2.2 per cent, following the 1.2 per cent decline in the first quarter. The fall in NODX volumes was primarily due to declines in the domestic exports of chemicals & chemical products and machinery & equipment.

Exhibit 2.4: Changes in Real Non-Oil Domestic Exports and Real Non-Oil Re-exports



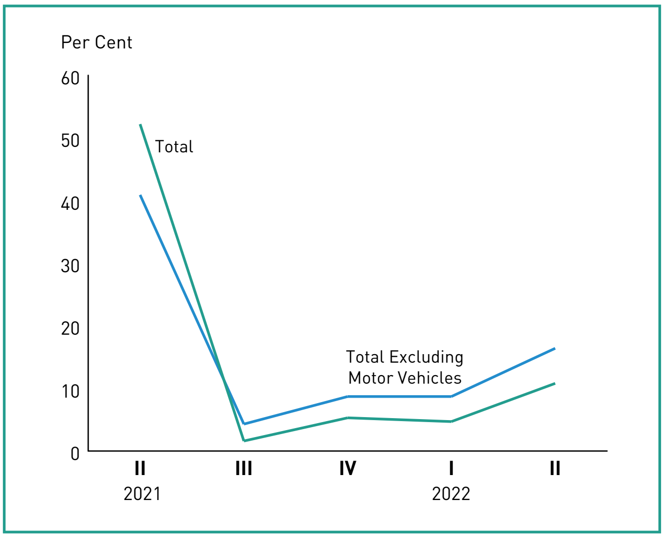
RETAIL TRADE

The retail trade sector posted growth of 11.5 per cent year-on-year in the second quarter of 2022, picking up from the 4.7 per cent expansion in the previous quarter.

Overall retail sales volume increased by 10.8 per cent year-on-year in the second quarter, accelerating from the 4.7 per cent growth in the preceding quarter (Exhibit 2.5). The strong growth was partly due to low base effects, as overall retail sales volume was weighed down by the implementation of Phase 2 Heightened Alert (P2HA) measures a year ago.[1] Growth in overall retail sales volume was due to non-motor vehicular sales (16.4 per cent), as motor vehicular sales (-19.8 per cent) saw a decline due to a fall in Certificate of Entitlement (COE) quotas[2].

In turn, non-motor vehicular sales volume was supported by an increase in sales in segments with a greater reliance on in-person shopping and tourism demand, such as wearing apparel & footwear (72.2 per cent year-on-year), department stores (49.3 per cent) and watches & jewellery (39.7 per cent). The growth in the sales of these segments was due to the easing of domestic and travel restrictions in the second quarter of 2022 relative to the same quarter in 2021[3]. By contrast, sales volumes at supermarkets and hypermarkets (-9.1 per cent) and mini-marts & convenience stores (-8.4 per cent) shrank because of their high bases during the P2HA period a year ago.

Exhibit 2.5: Changes in Retail Sales Index in Chained Volume Terms

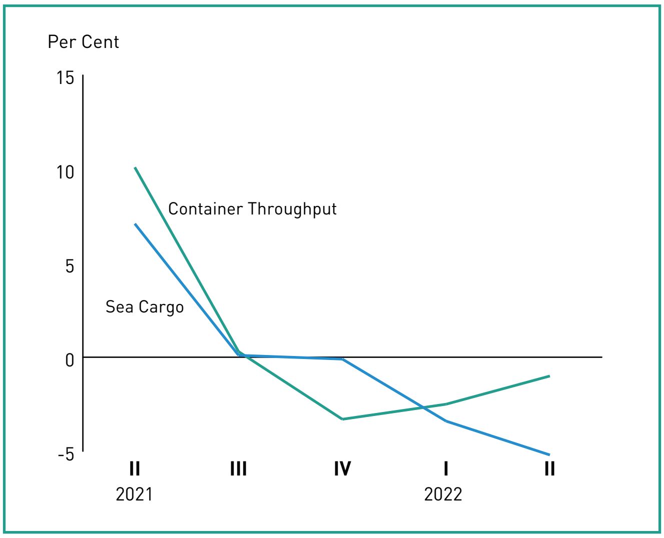


TRANSPORTATION & STORAGE

The transportation & storage sector expanded by 5.1 per cent year-on-year in the second quarter of 2022, improving from the 4.3 per cent growth in the previous quarter. The sector's growth during the quarter was driven mainly by the air transport segment, even as the water transport segment contracted.

In the water transport segment, the volume of sea cargo handled fell by 5.2 per cent year-on-year in the second quarter, extending the 3.4 per cent decline in the previous quarter (Exhibit 2.6). The drop in sea cargo volume handled was due to lower general cargo volume (-4.7 per cent) and also oil-in-bulk cargo volume (4.3 per cent). Meanwhile, container throughput declined by 1.0 per cent during the quarter.

Exhibit 2.6: Changes in Container Throughput and Sea Cargo Handled



By contrast, the air transport segment expanded robustly in the second quarter as Singapore transited to the Vaccinated Travel Framework (VTF) during the quarter.[4] In particular, the volume of air passenger traffic handled at Changi Airport surged by 1,306 per cent year-on-year in the second quarter, significantly faster than the 497 per cent increase recorded in the previous quarter (Exhibit 2.7). The high growth rates in both quarters were due to the low bases in the first and second quarters of 2021 when the volume of air passenger traffic had plunged by about 97 per cent relative to their pre-COVID levels (i.e., in the first and second quarters of 2019 respectively). In absolute terms, while air passenger traffic volume saw a sharp rebound in the second quarter of 2022, it remained 56.3 per cent below its pre-COVID level in the second quarter of 2019.

1 *There was a group size limit of two persons and dine-in activities were suspended during the P2HA period from 16 May 2021 to 13 June 2021. By contrast, restrictions on dine-in and group size were lifted on 26 April 2022.*

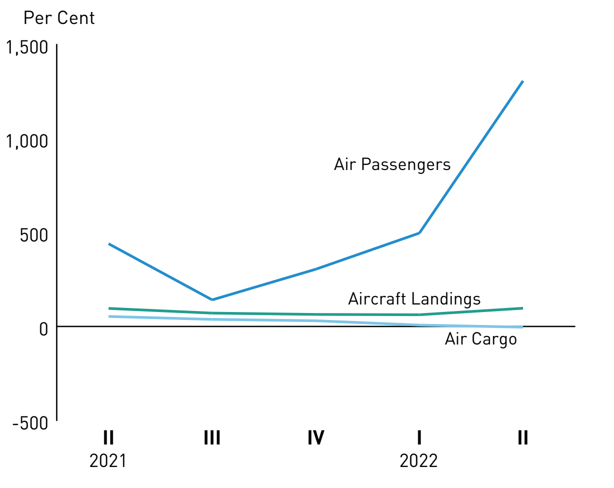
2 *The lower COE quotas in the second quarter of 2022 were largely due to a decline in the number of vehicles deregistered over the period of January to March 2022. The drop was exacerbated by a high base in the second quarter of 2021 due to the redistribution of COE quotas from the suspension of COE bidding exercises during the Circuit Breaker period in 2020.*

3 *In the second quarter of 2021, most international visitors had to serve a Stay-Home Notice (SHN) period of at least two weeks upon arrival, with the SHN duration extended to three weeks between 8 May 2021 and 23 June 2021. By contrast, the Vaccinated Travel Framework (VTF), rolled out on 1 April 2022, extended quarantine-free travel to most vaccinated travellers.*

4 *Singapore's travel restrictions were looser in the second quarter of 2022 as compared to that in the second quarter of 2021, as Vaccinated Travel Lanes (VTLs) and the VTF were only rolled out in the third quarter of 2021 and second quarter of 2022 respectively.*

Meanwhile, total air cargo shipments handled at Changi Airport declined by 3.7 per cent year-on-year in the second quarter, a reversal from the 7.3 per cent growth recorded in the previous quarter. Reflecting the recovery in air travel, the number of aircraft landings climbed by 96.9 per cent to reach 25,256 in the second quarter, extending the 62.2 per cent increase in the preceding quarter.

Exhibit 2.7: Changes in Air Transport

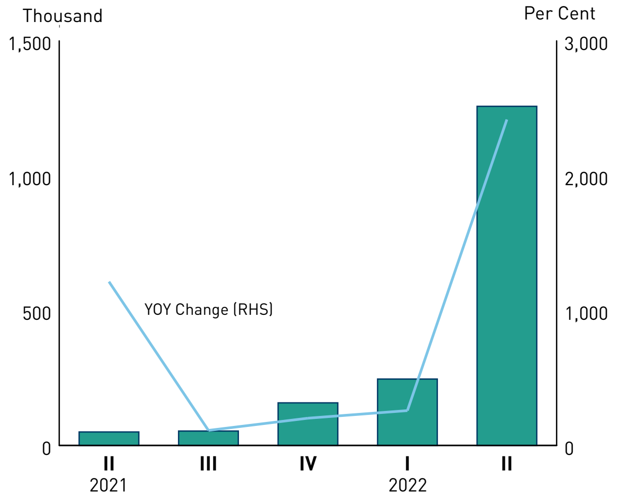


ACCOMMODATION

The accommodation sector shrank by 5.3 per cent year-on-year in the second quarter of 2022, an improvement over the 9.4 per cent contraction in the preceding quarter. The sector's poor performance during the quarter was due to a sharp decline in government demand for hotel rooms to serve as quarantine and Stay-Home Notice dedicated facilities, arising from a shift towards home recovery and the relaxation of travel restrictions.

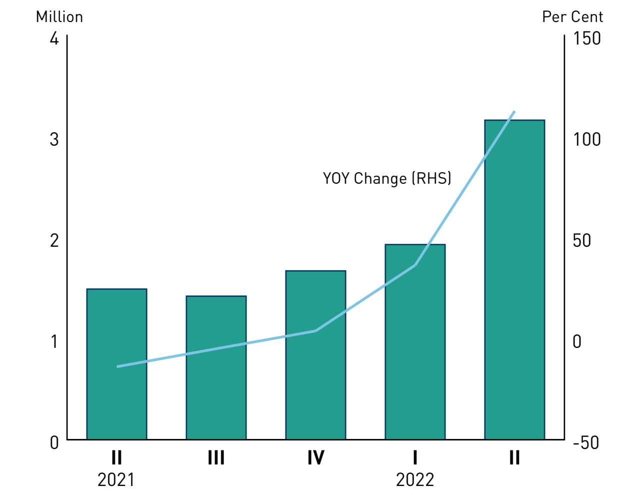
In the second quarter, total visitor arrivals surged by 2,417 per cent year-on-year, extending the 258 per cent growth in the first quarter (Exhibit 2.8). The strong growth in both quarters was on account of low base effects. In level terms, the number of visitor arrivals in the second quarter of 2022 was around 1.3 million, representing just 27.1 per cent of the 4.6 million visitor arrivals recorded in the second quarter of 2019 (i.e., pre-COVID level).

Exhibit 2.8: Visitor Arrivals



Reflecting the recovery in visitor arrivals, gross lettings at gazetted hotels rose by 112 per cent year-on-year in the second quarter, accelerating from the 36.3 per cent increase in the previous quarter (Exhibit 2.9). At the same time, the average occupancy rate of gazetted hotels climbed by 18.9 percentage-points on a year-on-year basis to reach 72.1 per cent in the second quarter. This was higher than the occupancy rate of 60.5 per cent recorded in the first quarter.

Exhibit 2.9: Gross Lettings at Gazetted Hotels

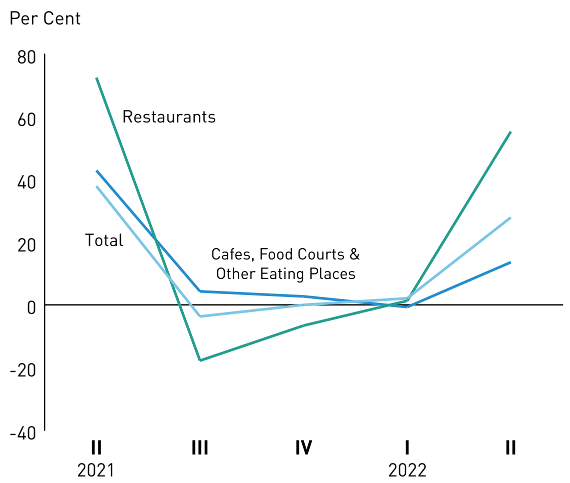


FOOD & BEVERAGE SERVICES

The food & beverage services sector expanded robustly by 28.0 per cent year-on-year in the second quarter of 2022, accelerating from the 1.9 per cent growth in the previous quarter.

Overall food & beverage sales volume rose by 27.9 per cent year-on-year in the second quarter, significantly better than the 2.1 per cent growth in the first quarter (Exhibit 2.10). The strong pickup in overall food & beverage sales volume during the quarter was supported by the relaxation of domestic and travel restrictions in Singapore, and also came on the back of a low base as sales volume was weighed down by the implementation of P2HA measures a year ago. The increase in sales volume was broad-based, led by the food caterers (89.0 per cent) and restaurants (55.3 per cent) segments, while cafes, food courts & other eating places (13.6 per cent) and fast food outlets (5.7 per cent) saw more modest growth in their respective sales volumes.

Exhibit 2.10: Changes in Food & Beverage Services Index in Chained Volume Terms

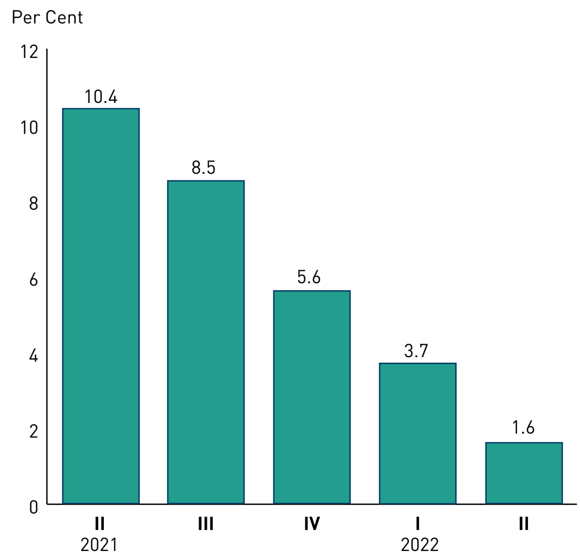


FINANCE & INSURANCE

The finance & insurance sector grew by 1.6 per cent year-on-year in the second quarter of 2022, moderating from the 3.7 per cent expansion in the preceding quarter.

Growth was mainly supported by the other auxiliary activities segment (comprising mainly payments processing players), which continued to benefit from firm consumer spending. By contrast, the insurance and banking segments contracted on the back of weaker sales in single-premium life insurance products, and declines in net fees & commissions and lending, respectively.

Exhibit 2.11: Finance & Insurance Sector's Growth Rate

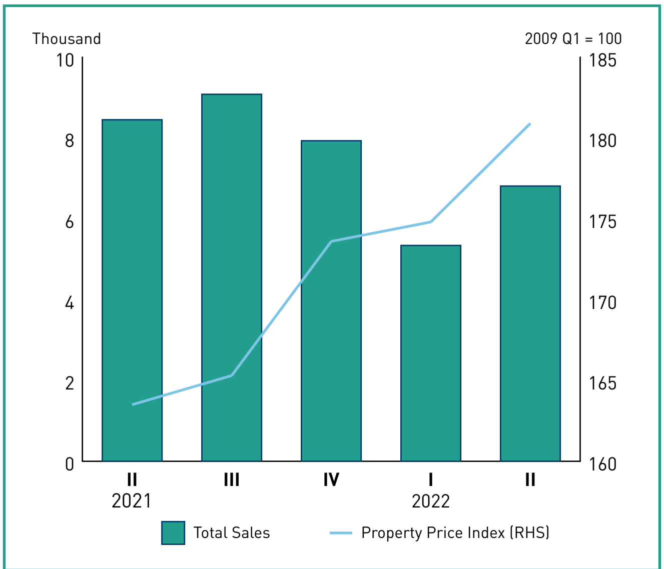


REAL ESTATE

The real estate sector expanded at a faster pace of 11.7 per cent year-on-year in the second quarter of 2022, compared to the 10.1 per cent growth registered in the preceding quarter. Growth during the quarter could be attributed to the better performance of the private residential property segment, as well as the commercial and industrial property segments.

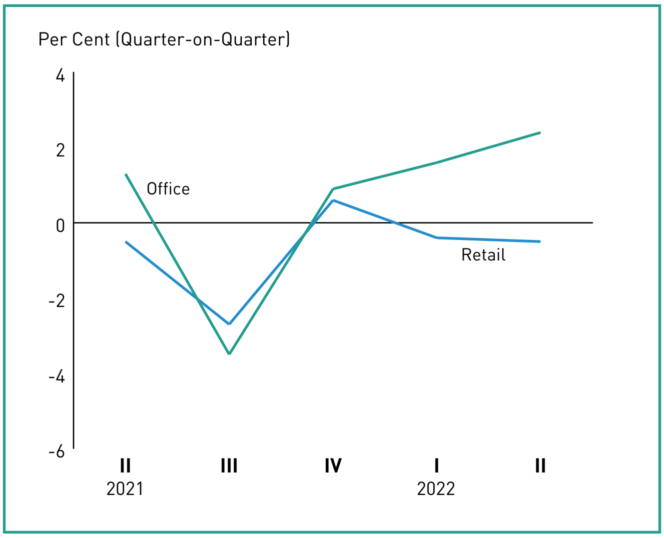
For the private residential property segment, the number of sales transactions rose by 27.5 per cent on a quarter-on-quarter basis in the second quarter, sharply reversing the 32.6 per cent decline in the previous quarter. Meanwhile, private residential property prices rose by 3.5 per cent on a quarter-on-quarter basis, picking up from the 0.7 per cent increase in the first quarter (Exhibit 2.12).

Exhibit 2.12: Total Sales Transactions for Private Residential Units and Private Residential Property Price Index



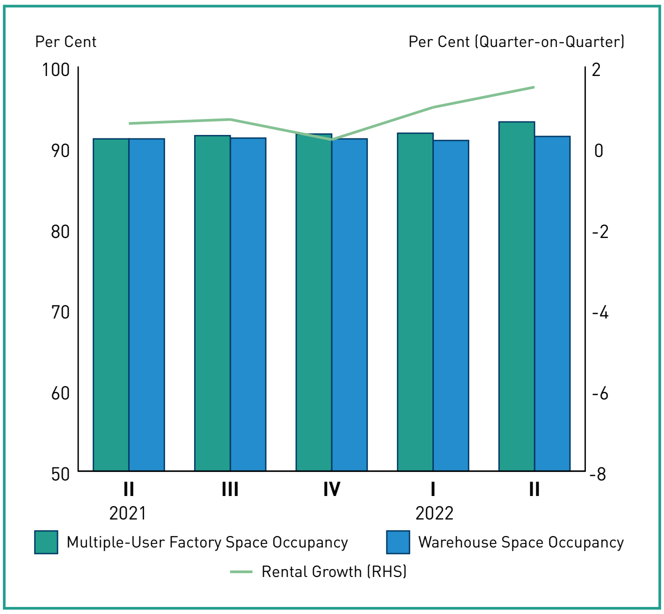
Conditions in the commercial property space markets were mixed. For the private retail space market, rentals edged down by 0.5 per cent on a quarter-on-quarter basis in the second quarter, extending the 0.4 per cent decline in the previous quarter (Exhibit 2.13). The average occupancy rate of private retail space came in at 90.6 per cent, similar to the 90.5 per cent registered in the preceding quarter. On the other hand, rentals for private office space rose by 2.4 per cent on a quarter-on-quarter basis, a step-up from the 1.6 per cent increase recorded in the first quarter. The average occupancy rate of private office space rose to 87.1 per cent in the second quarter, from the 86.2 per cent seen in the preceding quarter.

Exhibit 2.13: Changes in Rentals of Private Sector Office and Retail Spaces



In the private industrial property market, rentals rose by 1.5 per cent on a quarter-on-quarter basis in the second quarter, following the 1.0 per cent increase in the preceding quarter. The occupancy rates of private multiple-user factory and warehouse spaces stood at 93.2 per cent and 91.4 per cent respectively, higher than that seen in the previous quarter (91.8 per cent and 90.9 per cent respectively) (Exhibit 2.14).

Exhibit 2.14: Occupancy Rate and Rental Growth of Private Sector Industrial Space



PROFESSIONAL SERVICES

In the second quarter of 2022, the professional services sector grew by 6.8 per cent year-on-year, extending the 7.6 per cent growth in the previous quarter. Growth of the sector was mainly driven by expansions in the architectural & engineering, technical testing & analysis and the other professional, scientific & technical services segments, which outweighed contractions in the legal and head offices & business representative offices segments.

Box Article 2.1

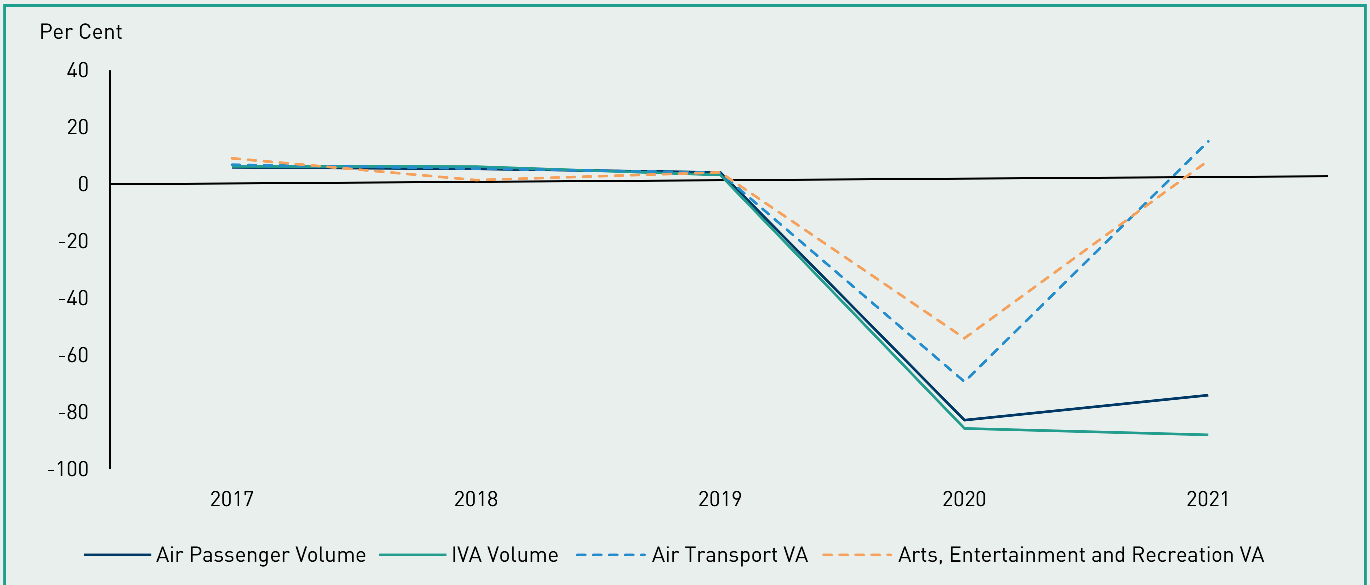
RECOVERY OF AIR TRAVEL AND TOURISM IN SINGAPORE

Prior to the COVID-19 pandemic, Singapore saw healthy growth in air passenger volumes[1] and international visitor arrivals, which had in turn benefitted the aviation- and tourism-related sectors

In the years prior to the pandemic, Singapore enjoyed healthy growth in air passenger volumes handled at Changi Airport and international visitor arrivals (IVA). Specifically, between 2017 and 2019, air passenger and IVA volumes increased by an average of 5.1 and 5.2 per cent per annum respectively [Exhibit 1]. This in turn supported the growth of the aviation- and tourism-related sectors in Singapore. For example, the real value-added (VA) of the air transport and arts, entertainment & recreation (AER) segments rose by an average of 5.5 per cent and 6.8 per cent per annum respectively over the same period.

In 2020, air passenger and IVA volumes came to a near standstill as COVID-19 infections swept across the globe and many countries implemented stringent public health measures, including border closures, to contain the spread of the virus. This box article examines how air passenger and IVA volumes were affected by the COVID-19 pandemic, as well as their subsequent paths to recovery as international travel resumed with the reopening of borders worldwide.

Exhibit 1: Growth in Annual Air Passenger and International Visitor Arrivals (IVA) Volumes, and Real Value-Added of Air Transport and Arts, Entertainment & Recreation (AER) Segments, 2017-2021 (Per Cent)



Source: Civil Aviation Authority of Singapore, Singapore Department of Statistics, Singapore Tourism Board

The COVID-19 pandemic led to a sharp decline in air passenger and IVA volumes, as many countries imposed border controls to limit the spread of the virus

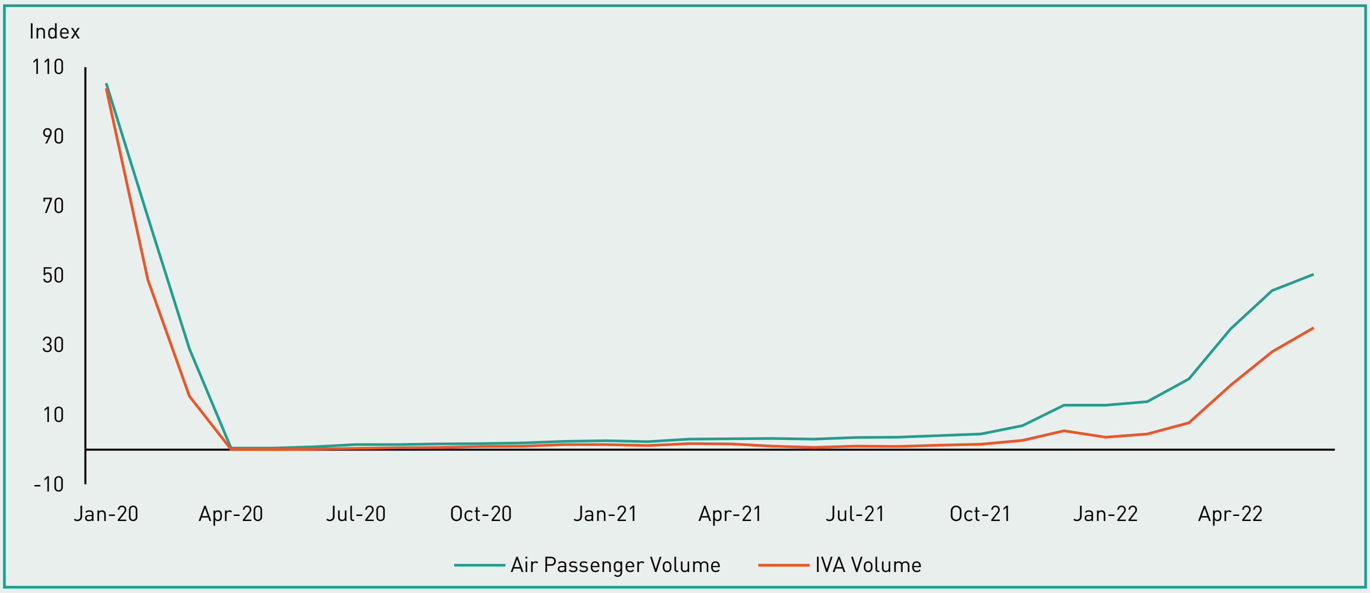
COVID-19 was declared a pandemic on 11 March 2020 by the World Health Organisation. Many countries subsequently closed their borders to international short-term travellers to limit the spread of the virus. Similarly, Singapore closed its borders on 23 March 2020[2] to short-term visitors and selected work pass holders, which caused air passenger and IVA volumes in April 2020 to plummet to 0.4 per cent and 0.05 per cent of their respective levels in April 2019 [Exhibit 2]. Air passenger and IVA volumes remained low throughout the rest of 2020 and 2021. A nascent recovery in the first quarter of 2021, which had been supported by the implementation of the air travel pass and reciprocal green lanes

1 *All air passenger volume figures in this article exclude transit passengers who continued their journey on the same flight.*
2 *Some border restrictions had been implemented even prior to this. For instance, on 1 February 2020, Singapore banned the entry of all Chinese visitors and foreigners with recent history of travel to China. This ban was subsequently lifted on 6 November 2020 for travellers from China who arrived on direct flights.*

with selected economies[3], was interrupted by the reimposition of strict border measures in response to the emergence of the contagious Delta variant.[4] For the whole of 2020, air passenger and IVA volumes plunged by 82.8 per cent and 85.7 per cent respectively relative to their 2019 levels, and remained 95.5 per cent and 99.3 per cent lower than their 2019 levels in 2021 [Exhibit 1].

Given the dearth of air passengers and IVA, the real VA of the air transport[5] and AER segments also saw sharp contractions of 69.3 per cent and 48.4 per cent respectively in 2020, and remained 64.7 per cent and 44.1 per cent below their 2019 levels in 2021.

Exhibit 2: Monthly Air Passenger and IVA Volumes, January 2020 – June 2022 (Index value: same month in 2019 = 100)



Source: Civil Aviation Authority of Singapore, Singapore Tourism Board

The impact of the COVID-19 pandemic on air travel and tourism was far deeper and more protracted than that of SARS – the last major public health crisis – in 2003

The impact of the COVID-19 pandemic on air travel and tourism was more severe and prolonged than that of SARS in 2003. To compare the impact of both crises, the volume of air passengers and IVA are each normalised to 0 in the quarter of the start of each crisis [Exhibit 3].[6] These indices thus represent deviations in air passenger and IVA volumes in the quarters before and after the start of each crisis, compared to their levels at the beginning of the respective crises.

From Exhibit 3, it can be seen that both air passenger and IVA volumes fell to their lowest levels in the quarter immediately after the start of each crisis. However, the declines that followed the onset of the COVID-19 pandemic were larger compared to the declines seen after the onset of SARS. Specifically, air passenger and IVA volumes plummeted by 99.1 per cent and 99.9 per cent one quarter after the onset of COVID-19 respectively, as compared to 48.3 per cent and 61.5 per cent respectively for SARS.

The impact of the COVID-19 pandemic on air passenger and IVA volumes also lasted far longer than SARS' impact. Notably, both air passenger and IVA volumes returned to their levels at the start of the SARS crisis within three quarters of the onset of the crisis. By contrast, air passenger and IVA volumes remained significantly below their levels at the start of the COVID-19 pandemic even after nine quarters from the onset of the pandemic.

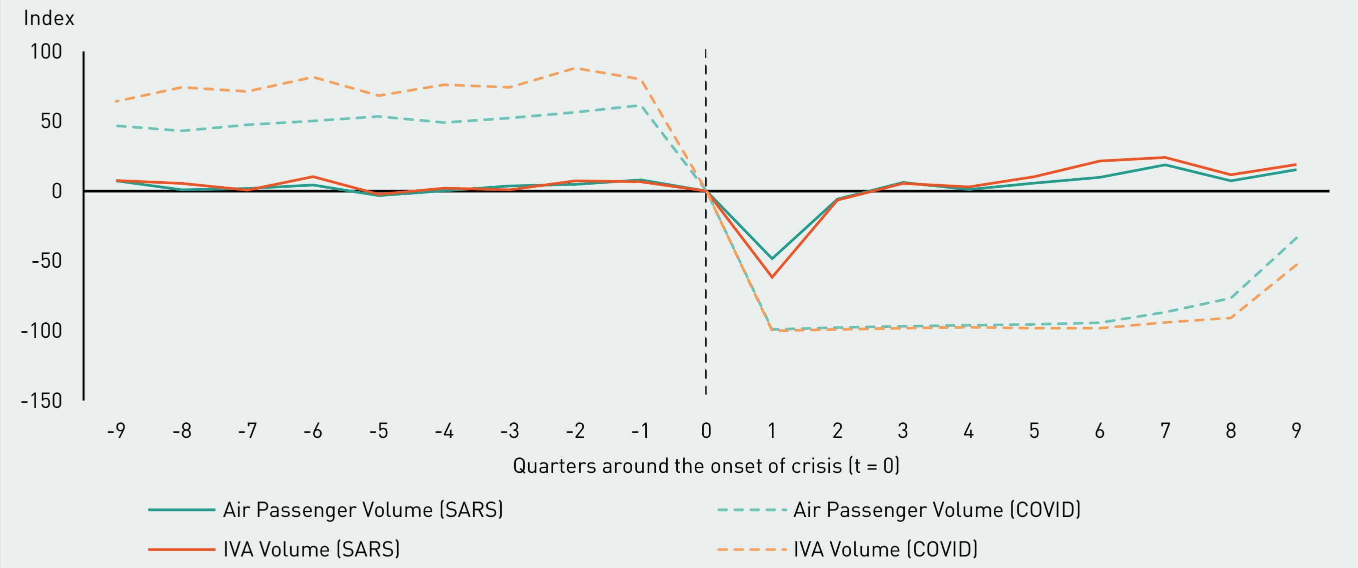
3 The air travel pass allowed short-term, leisure travellers from economies such as China to enter Singapore quarantine-free without restrictions on itineraries as long as the travellers took an On-Arrival Test (OAT). The reciprocal green lane arrangement, intended for official and business travel, similarly allowed quarantine-free short-term travel, but required a restricted itinerary in addition to an OAT.

4 From 1 May 2021, long-term pass holders and short-term visitors with recent travel history (i.e., last 14 days) to selected South Asian countries were barred from entering Singapore. Other measures implemented from May 2021 included an extension of the assessed travel history period of incoming travellers from 14 days to 21 days, as well as an increase in duration for Stay-Home-Notice (SHN) for travellers from high-risk countries from 14 days to 21 days.

5 In 2020 and 2021, the air transport segment was supported by the recovery of air cargo volume, which exceeded its pre-COVID (i.e., 4Q19) levels by 4Q21.

6 The quarter of the onset of the crisis is defined as 1Q03 and 1Q20 for the SARS and COVID-19 crises, respectively.

Exhibit 3: Air Passenger and IVA Volume Trends During Crises (Index normalised to 0 at onset of crisis)



Source: Civil Aviation Authority of Singapore, Singapore Tourism Board
Note: Air passenger and IVA volumes were normalised to 0 at the onset of the crisis (t = 0), which is defined as 1Q03 and 1Q20 for the SARS and COVID-19 crises, respectively.

The deeper and longer-lasting impact of COVID-19 also meant that government support measures for the affected sectors were more extensive as compared to that rolled out during the SARS crisis. In 2003, the S$230 million SARS relief package that was introduced targeted primarily the transport- and tourism-related sectors, and covered measures such as the provision of property tax rebates as well as bridging loans and training grants.

On the other hand, government support measures to cushion the impact of the COVID-19 pandemic covered a wider range of sectors affected by the lack of air travel and tourism demand (e.g., direct assistance was provided to the food & beverage services sector[7]). The scope of the support measures was also broader, with the measures expanding to include direct wage subsidies and consumption stimulus. For instance, the Jobs Support Scheme provided wage subsidies to employers to support the retention of local employees in sectors badly affected by the pandemic, including the aviation- and tourism-related sectors.[8] To encourage locals to support the tourism sector (i.e., hotels, attractions and tours), the Singapore Tourism Board (STB) launched the SingapoRediscovers Vouchers (SRV) scheme.[9] Between the start of the scheme on 1 December 2020 and the end of the scheme on 31 December 2021, about 1.9 million Singaporeans had used their SRVs at least once, making about 2.6 million transactions valued at close to S$300 million.[10] In addition, the hotels sector was supported by government contracts for quarantine facilities and stay-home-notice dedicated facilities.

These support measures were instrumental in preserving the core capabilities of the aviation- and tourism-related sectors, thus ensuring that companies in these sectors would be able to capitalise on the global recovery in air travel and tourism when it came.

The implementation of Vaccinated Travel Lanes marked the start of a more sustained phase of recovery in Singapore's air passenger and IVA volumes, which accelerated with the introduction of the Vaccinated Travel Framework

7 The food & beverage sector was also badly affected by COVID-19 safe management measures.
8 More than S$28 billion was disbursed under the Jobs Support Scheme (JSS) from April 2020 to December 2021 (this amount included the JSS support provided to non-aviation- and tourism-related sectors as well). See Pang, Zhou and Lee (2022) and MOF (2022) for details on the types and tiers of support for the aviation- and tourism-related sectors in 2020 and 2021, as well as analyses on the impact of the JSS.
9 Under the SRV scheme, each Singaporean over the age of 18 was given S$100 in online vouchers usable for tours, hotel staycations and attractions through authorised booking partners.
10 This comprised close to S$180 million in vouchers and a further S$120 million in out-of-pocket top-ups.

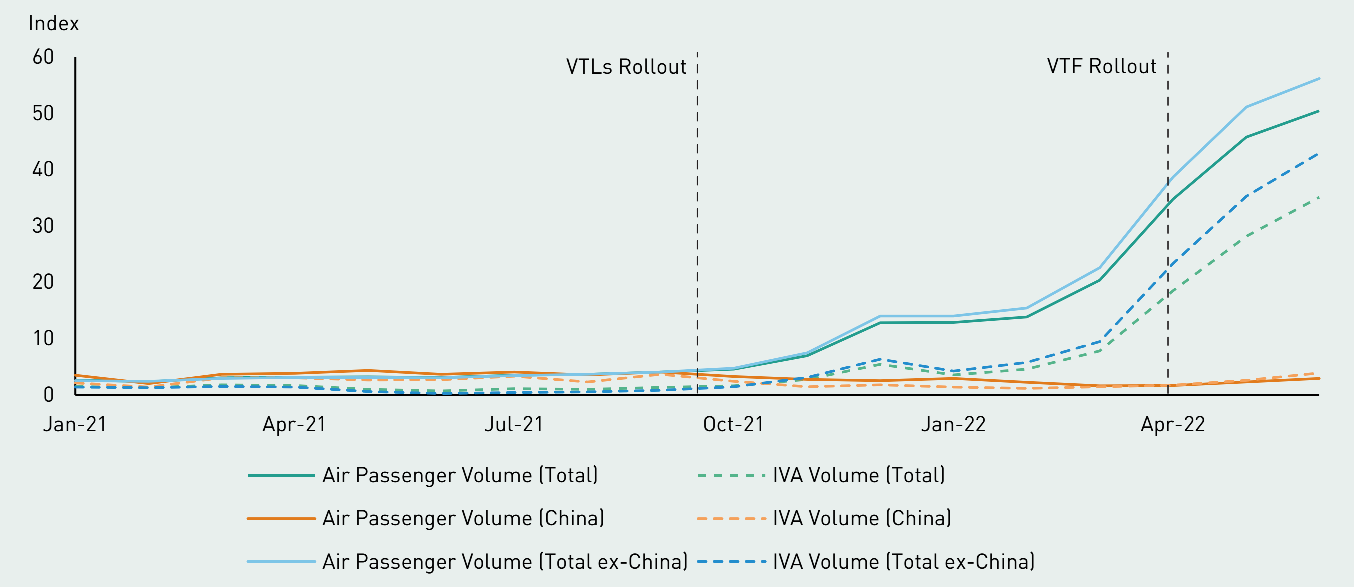
With the stabilisation of the domestic COVID-19 situation and the high vaccination take-up rate among the local population, Singapore launched Vaccinated Travel Lanes (VTLs)[11] to enable travellers from selected economies to enter Singapore. The VTLs started in September 2021, with specially designated flights from Brunei and Germany. This facilitated quarantine-free travel for fully-vaccinated individuals between Singapore and the respective economy, and marked the start of a more sustained phase of recovery in air travel and IVA volumes to Singapore.

As increasingly more VTLs with other economies were implemented (albeit with a temporary suspension in January-February 2022 due to the emergence of the highly-transmissible Omicron variant), air passenger volumes rose substantially to reach 20.3 per cent of pre-COVID (i.e., March 2019) levels in March 2022, compared to the 3.6 per cent of pre-COVID levels recorded in the month before the launch of the VTLs (i.e., August 2021 relative to August 2019). Similarly, IVA reached 7.7 per cent of its 2019 levels in March 2022, higher than the 0.9 per cent of its 2019 levels recorded in August 2021.

With the cresting of the Omicron-fuelled wave of infections in March 2022, Singapore transited to the Vaccinated Travel Framework (VTF)[12], which led to an acceleration in the recovery of air passenger flows at Changi Airport as well as tourist arrivals to Singapore. By June 2022, air passenger and IVA volumes reached 50.4 per cent and 35.0 per cent of their pre-COVID (i.e., June 2019) levels respectively. This has been reflected in the performance of the travel- and tourism-related sectors, with the air transport and AER segments growing by 145 per cent and 16.0 per cent year-on-year respectively in 1H22.[13]

In terms of source markets, while air passenger and IVA volumes in 2021 were supported by inbound travel from China[14], albeit at a fraction of pre-pandemic levels[15], the country's zero-COVID policy has led to inbound travel from China lagging that of other economies on a year-to-date (YTD) basis in 2022 [Exhibit 4]. Notably, while China's share of IVA in 2021 came in at 26.7 per cent, higher than its share in 2019 (19.0 per cent), it fell to 2.3 per cent on a YTD basis in 2022. Similarly, China's share of air passenger volumes at Changi Airport averaged only 0.8 per cent on a YTD basis in 2022, lower than its 8.2 per cent share in 2021. The main drivers of the increase in IVA and air passengers to-date were Thailand, Vietnam and Malaysia.

Exhibit 4: Air Passenger and IVA Volumes, by Total, China and ex-China (Index value: same month in 2019 = 100)



Sources: Civil Aviation Authority of Singapore, Singapore Tourism Board

11 All travellers entering Singapore under the VTL were required to have recent travel history to one or more of the VTL economies prior to entering Singapore, taken the two required COVID-19 tests, as well as be fully vaccinated. See Annex A for the chronological rollout of the VTLs. These VTLs were in addition to the Category 1 concessions (i.e., quarantine-free inbound travel regardless of vaccination status) afforded to economies that had good control over their pandemic situation (e.g., China).

12 As of 1 April 2022, quarantine-free entry into Singapore was allowed for fully-vaccinated travellers under the VTF. On-arrival COVID-19 tests were also removed for these travellers, as well as children aged 12 & below. Pre-departure tests were subsequently removed as of 26 April 2022.

13 These are preliminary figures subject to revision when more comprehensive data become available.

14 Throughout most of the COVID-19 pandemic, travellers from economies that were able to keep their infection rates low, and their vaccination rates high (i.e., Hong Kong, Taiwan, Macau and mainland China) were able to enjoy quarantine-free travel into Singapore. This was first made available under the Air Travel Pass programme which then translated to Category 1 restrictions when Singapore transitioned to vaccination-differentiated inbound travel restrictions.

15 In absolute terms, there were around 88,200 IVA and 248,100 air passengers from China for the whole of 2021, compared to around 3,627,100 and 7,340,400 respectively in 2019.

CONCLUSION

The recovery in air travel and IVA volumes is expected to continue for the rest of the year, although continued travel restrictions in China are likely to weigh on the pace and extent of the recovery.[16] Notably, the relaxation of domestic restrictions on events has facilitated the return of sporting, leisure and Meetings, Incentive travel, Conferences & Exhibitions (MICE) events, including the upcoming Formula One race, the Singapore Food Festival, as well as trade events such as Food & Hotel Asia (FHA)-Food & Beverage and FHA-Hotel, Restaurant & Café (HoReCa).[17] The resumption of large-scale events is likely to further spur inbound travel demand and support the recovery of the aviation- and tourism-related sectors in Singapore.

The various government agencies are helping industry partners to capitalise on the opportunities in the aviation- and tourism-related sectors as air travel and inbound tourists recover. For instance, the Ministry of Transport (MOT) and the Civil Aviation Authority of Singapore (CAAS) are working closely with aviation partners to rebuild the aviation workforce – which had shrunk during the height of the COVID-19 pandemic[18] – and restore the airport's capacity.[19] In May 2022, CAAS partnered the National Trades Union Congress (NTUC), NTUC's e2i (Employment and Employability Institute) and Workforce Singapore (WSG) to organise a two-day aviation sector-wide career and recruitment event, OneAviation Careers, which attracted over 11,000 jobseekers and aviation enthusiasts. As a next step, a OneAviation Careers Hub web portal, jointly developed by CAAS, NTUC, NTUC's e2i and other partner agencies, will be launched in the second half of 2022. This web portal will provide jobseekers with a one-stop location to search for aviation jobs, training opportunities and Career Conversion Programmes.

Similarly, STB partnered NTUC to launch the Tourism Careers Hub (TCH) in January 2022. The TCH is a web portal offering end-to-end support for tourism workers and firms in three key areas – job matching within the tourism sector, industry-specific upskilling and training, and business transformation. Through the TCH, job seekers are able to access dedicated career coaches who will help them to chart out individual development plans to prepare them for a career in the tourism sector.

After being battered by the COVID-19 pandemic for more than two years, the outlook for the aviation- and tourism-related sectors has brightened with the resumption of air travel and tourism demand. The longer-term prospects of Singapore as an air hub and attractive tourist destination also remain strong given our continual investments in our airport and tourism infrastructure, as well as the upgrading of the capabilities of our firms and workers in the aviation- and tourism-related sectors.

Contributed by:
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Mr Joel Lee, Economist
Economics Division
Ministry of Trade and Industry

16 Apart from the risk of the reimposition of travel restrictions should a more virulent strain of the virus emerge, there could also be headwinds to the recovery posed by volatile geopolitical and economic conditions globally.

17 A curated list of upcoming events is in Annex B.

18 The aviation sector lost around 30 per cent of its workforce during the pandemic. Since the start of 2022, aviation companies have hired about 4,000 workers, which brings the sector's workforce back to about 80 per cent of pre-COVID levels. Source: Civil Aviation Authority of Singapore

19 As announced in mid-July, in anticipation of further recovery, Changi Airport is increasing its capacity by reopening Terminal 4 from September 2022 and the South Departure Hall in Terminal 2 from October 2022. This will enable the airport to handle pre-COVID levels of passenger traffic, or about 70 million passengers per annum. Source: Changi Airport Group

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Pang, J., Zhou, E. and Lee, T. M. (2022) "Impact of the Jobs Support Scheme on Labour Market Outcomes", *Economic Survey of Singapore, 2021*.

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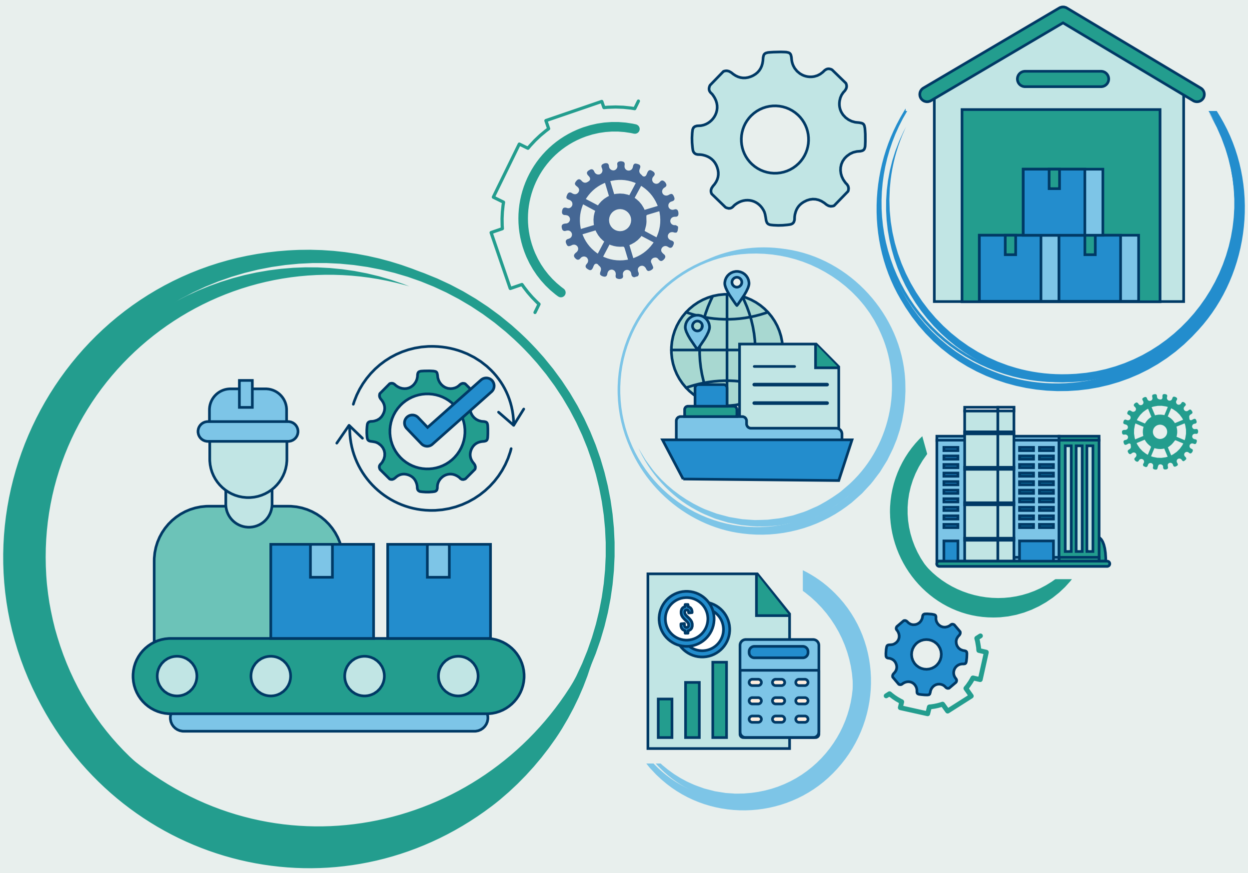
ANNEX A: DATES OF IMPLEMENTATION OF VACCINATED TRAVEL LANES (BY ECONOMY)

Economy	Date of Implementation
Brunei	8-Sep-21
Germany	8-Sep-21
Canada	19-Oct-21
Denmark	19-Oct-21
France	19-Oct-21
Italy	19-Oct-21
Netherlands	19-Oct-21
Spain	19-Oct-21
UK	19-Oct-21
USA	19-Oct-21
Australia	8-Nov-21
Switzerland	8-Nov-21
Korea	15-Nov-21
India	29-Nov-21
Indonesia	29-Nov-21
Malaysia	29-Nov-21
Finland	29-Nov-21
Sweden	29-Nov-21
Thailand	14-Dec-21
Cambodia	16-Dec-21
Fiji	16-Dec-21
Maldives	16-Dec-21
Sri Lanka	16-Dec-21
Turkey	16-Dec-21
Qatar	25-Feb-22
Saudi Arabia	25-Feb-22
UAE	25-Feb-22
Hong Kong	25-Feb-22
Israel	4-Mar-22
Philippines	4-Mar-22
Greece	16-Mar-22
Vietnam	16-Mar-22

ANNEX B: CURATED LIST OF UPCOMING EVENTS

Event Name	Type of Event	Event Date
Singapore Food Festival	Culture and Leisure	24 August to 11 September 2022
Food & Hotel Asia	MICE	5 September to 8 September 2022 (FHA-F&B) 25 October to 28 October 2022 (FHA-HoReCa)
FORMULA 1 Singapore Airlines Singapore Grand Prix 2022	Sporting	30 September to 2 October 2022
Singapore FinTech Festival	MICE	2 November to 4 November 2022



CHAPTER

03

ECONOMIC OUTLOOK

Chapter 3

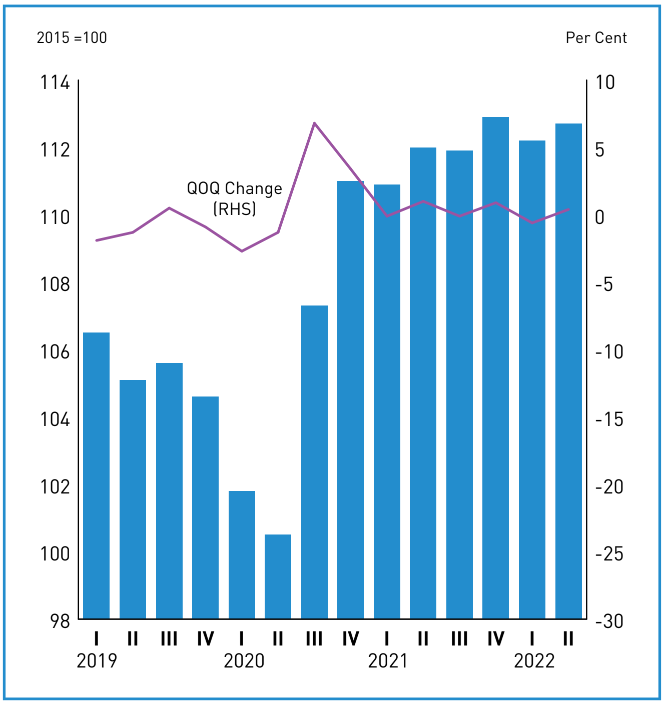
ECONOMIC OUTLOOK

LEADING INDICATORS

On a quarter-on-quarter basis, the composite leading index (CLI) increased by 0.4 per cent in the second quarter of 2022, a turnaround from the 0.6 per cent decline in the previous quarter (Exhibit 3.1).

Of the nine components of the CLI, four components rose on a quarter-on-quarter basis, namely stock of finished goods, domestic liquidity, non-oil retained imports and new companies formed. On the other hand, the other five components – money supply, stock price, non-oil sea cargo handled, US Purchasing Managers' Index and wholesale trade – fell compared to the previous quarter.

Exhibit 3.1: Composite Leading Index Levels and Growth Rate



OUTLOOK FOR 2022

Since May, the global economic environment has deteriorated further. Stronger-than-expected inflationary pressures and the more aggressive tightening of monetary policy in response are expected to weigh on growth in major advanced economies such as the US and Eurozone. Meanwhile, China continues to grapple with a deepening property market downturn and recurring domestic COVID-19 outbreaks. Notwithstanding recent signs of a slight easing in global supply disruptions, the disruptions are likely to persist for the rest of the year as underlying factors such as the Russia-Ukraine conflict and China's zero-COVID policy remain.

In the US, the pace of economic growth is expected to slow further in the second half of 2022 as compared to the first half. In particular, private consumption growth is likely to weaken on the back of tighter financial conditions due to aggressive monetary policy tightening and continued supply disruptions, even though resilient labour market conditions and accumulated household savings could provide some support. Similarly, the Eurozone economy is projected to see a slower pace of growth in the second half of 2022. Higher cost pressures arising from protracted supply bottlenecks amidst the ongoing Russia-Ukraine conflict, alongside tighter monetary policy, are likely to dampen consumption and industrial activities. The persistent disruption in natural gas supplies from Russia could also trigger a sharp slowdown in the Eurozone economy towards the end of the year.

In Asia, China's GDP growth is expected to pick up in the second half of 2022, supported by the Government's push for more infrastructure spending. However, its property market downturn and continued adherence to a zero-COVID policy amidst recurring outbreaks are likely to weigh on real estate investment and consumption activity respectively, thereby dampening the pace of its economic recovery. Meanwhile, the key Southeast Asian economies such as Malaysia, Indonesia and Thailand are projected to expand at a slightly faster pace in the second half of 2022 due to a continued recovery in domestic and tourism demand with the easing of COVID-19 restrictions, as well as sustained demand for their merchandise exports.

On balance, MTI's assessment is that the external demand outlook for the Singapore economy has weakened compared to three months ago. At the same time, downside risks in the global economy remain significant. First, further escalations in the Russia-Ukraine conflict could worsen global supply disruptions and exacerbate inflationary pressures through higher food and energy prices. More persistent and higher-than-expected inflation would dampen global growth further, including through even more aggressive monetary policy tightening in many advanced economies. Second, financial stability risks could intensify if there are disorderly market adjustments to monetary policy tightening in the advanced economies. In particular, the onset of large capital outflows from regional economies with high dollar-denominated debt levels could lead to tighter financial conditions and affect growth in these economies. Third, there is a risk that geopolitical tensions in the region could escalate and lead to further disruptions in supply chains. Fourth, the trajectory of the COVID-19 pandemic remains a risk, given the potential emergence of more virulent strains of the virus.

Domestically, Singapore has transited to living with COVID-19 with the progressive removal of almost all of its domestic and border restrictions. This has in turn supported the recovery of segments of the Singapore economy that had been badly affected by the pandemic. Notably, the rollout of the Vaccinated Travel Framework in end-March has led to a stronger-than-expected recovery in air passengers handled at Changi Airport and international visitor arrivals to Singapore.

Against this backdrop, the outlook for some outward-oriented sectors in the Singapore economy has weakened. For instance, as China is a key market for petroleum and chemicals products from Singapore, the weakness in its economic outlook has adversely affected the growth prospects of Singapore's chemicals cluster and the fuels & chemicals segment of the wholesale trade sector. At the same time, growth in the water transport and finance & insurance sectors is expected to be dampened by the projected slowdown in major external economies.

On the other hand, the outlook for several sectors in the Singapore economy has improved. In particular, the strong recovery in air passengers and international visitor arrivals is expected to benefit aviation- and tourism-related sectors like air transport and arts, entertainment & recreation, as well as consumer-facing sectors like food & beverage services. In addition, the easing of Singapore's travel restrictions has bolstered the recovery of the professional services sector as firms in the sector (e.g., consultancy and legal firms) can now better engage their overseas clients.

Taking into account the performance of the Singapore economy in the first half of 2022, as well as the latest global and domestic economic developments, **MTI has narrowed the GDP growth forecast for 2022 to "3.0 to 4.0 per cent", from "3.0 to 5.0 per cent"**.

1 As of June 2022, air passengers and international visitor arrivals have recovered to 50.4 per cent and 35.0 per cent of pre-pandemic (June 2019) levels respectively, as compared to 20.3 per cent and 7.7 per cent of pre-pandemic (March 2019) levels in March 2022.

2 In the first half of 2022, Singapore's GDP growth averaged 4.1 per cent on a year-on-year basis.


Asahi

FEATURE ARTICLE

ANALYSIS OF EXTERNAL FINAL DEMAND DRIVERS OF SINGAPORE'S GDP

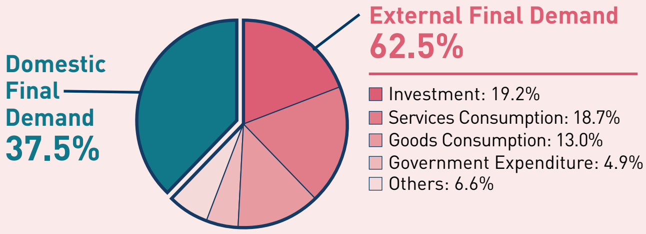
Feature Article

ANALYSIS OF EXTERNAL FINAL DEMAND DRIVERS OF SINGAPORE'S GDP

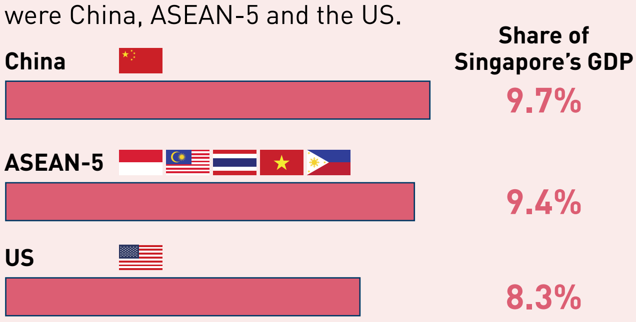
INTRODUCTION

As a small economy with a limited domestic market, Singapore is heavily dependent on external demand for growth.

External final demand accounted for 62.5 per cent of Singapore's GDP in 2018, led by investment demand, services consumption demand and goods consumption demand.



The most important final demand markets for Singapore were China, ASEAN-5 and the US.



FINDINGS

Finding 1

The transportation & storage, manufacturing and wholesale & retail trade sectors were the most reliant on external final demand. On the other hand, sectors such as construction, other services and real estate catered primarily to domestic final demand.

Finding 2

The manufacturing sector benefited more from investment demand and goods consumption demand in external final demand markets, whereas the transportation & storage and wholesale & retail trade served services consumption demand and investment demand.

EXTERNAL DEMAND SHARE OF SECTOR'S VALUE-ADDED

Transportation & Storage	Manufacturing	Wholesale & Retail Trade
88.8%	84.3%	77.3%

DOMESTIC DEMAND SHARE OF SECTOR'S VALUE-ADDED

Construction	Other Services^	Real Estate
94.8%	83.7%	75.2%

^Other Services include the "Education", "Health & Social Services", "Arts, Entertainment & Recreation", and "Other Service Activities" segments.

MANUFACTURING

Investment	Goods Consumption
31.8%	30.0%

SERVICES	Services Consumption	Investment
Transportation & Storage	34.3%	21.9%
Wholesale & Retail Trade	24.1%	25.6%

POLICY TAKEAWAY

Looking ahead, there is a need for policymakers to closely monitor changes in the drivers of final demand in key external markets so as to be able to formulate strategies to tap on the growth opportunities in these markets. For instance, the rise of the middle class in the ASEAN-5 economies will lead to higher consumption demand for both goods and services, while sustained investment in infrastructure and other fixed assets in the region will provide opportunities for Singapore in the years to come.

EXECUTIVE SUMMARY

- This article examines the external final demand drivers of Singapore's Gross Domestic Product (GDP), using data from OECD's Inter-Country Inter-Output (ICIO) tables.

- At the overall economy level, external final demand accounted for 62.5 per cent of Singapore's GDP in 2018. The most important final demand markets for Singapore were China, ASEAN-5 (i.e., Indonesia, Malaysia, Thailand, Vietnam and the Philippines) and the US. Even as China and India grew in importance as final demand markets for Singapore from 2015 to 2018, the advanced economies (i.e., the US, Eurozone and Japan) remained key sources of final demand for Singapore.

- By final demand type, investment demand was the largest external final demand driver for Singapore, followed by consumption demand for services and then goods. Notably, ASEAN-5 was a major source of final demand for all three types of demand in 2018.

- At the sectoral level, the different sectors in Singapore had varying degrees of exposure to external final demand. The transportation & storage, manufacturing and wholesale & retail trade sectors were the most reliant on external final demand. On the other hand, sectors such as construction, other services[1] and real estate catered primarily to domestic final demand.

- The relative importance of the different types of external final demand also varied across the sectors in Singapore. For example, the manufacturing sector benefited more from investment demand and goods consumption demand in external final demand markets, whereas the transportation & storage and wholesale & retail trade sectors primarily served services consumption demand and investment demand in these markets.

- As Singapore is a small economy that is heavily reliant on external demand, there is a need for policymakers to closely monitor changes in the drivers of final demand in key external markets so as to be able to formulate strategies to tap on the growth opportunities in these markets. For instance, the rise of the middle class in the ASEAN-5 economies will lead to higher consumption demand for both goods and services, which will present new opportunities for Singapore's manufacturing and outward-oriented services sectors. Similarly, sustained investment in infrastructure and other fixed assets in the region will provide opportunities for a range of sectors in Singapore, including the information & communications, manufacturing and professional services sectors.

The views expressed in this paper are solely those of the authors and do not necessarily reflect those of the Ministry of Trade and Industry or the Government of Singapore.[2]

INTRODUCTION

As a small economy with a limited domestic market, Singapore is heavily dependent on external demand for the goods and services that it produces. In this article, we measure the relative importance of the various external markets to Singapore's Gross Domestic Product (GDP) by examining the value-added (VA) attributable to final demand in those markets using data from OECD's Inter-Country Input-Output (ICIO) tables. We also study changes in the relative importance of Singapore's external final demand markets over time, as well as the drivers of external final demand by demand type (e.g., consumption by households or investments by businesses) at the overall economy level and by sectors. Doing so will allow policymakers to distinguish between the different types of final demand opportunities across our external markets, and assess how Singapore can better seize these opportunities.

1 *Other Services include the "Education", "Health & Social Services", "Arts, Entertainment & Recreation", and "Other Service Activities" segments.*

2 *We would like to thank Ms Yong Yik Wei, Mr Kuhan Harichandra, Dr Andy Feng and Mr Lau Zheng Yi for their useful suggestions and comments. All errors belong to the authors.*

LITERATURE REVIEW

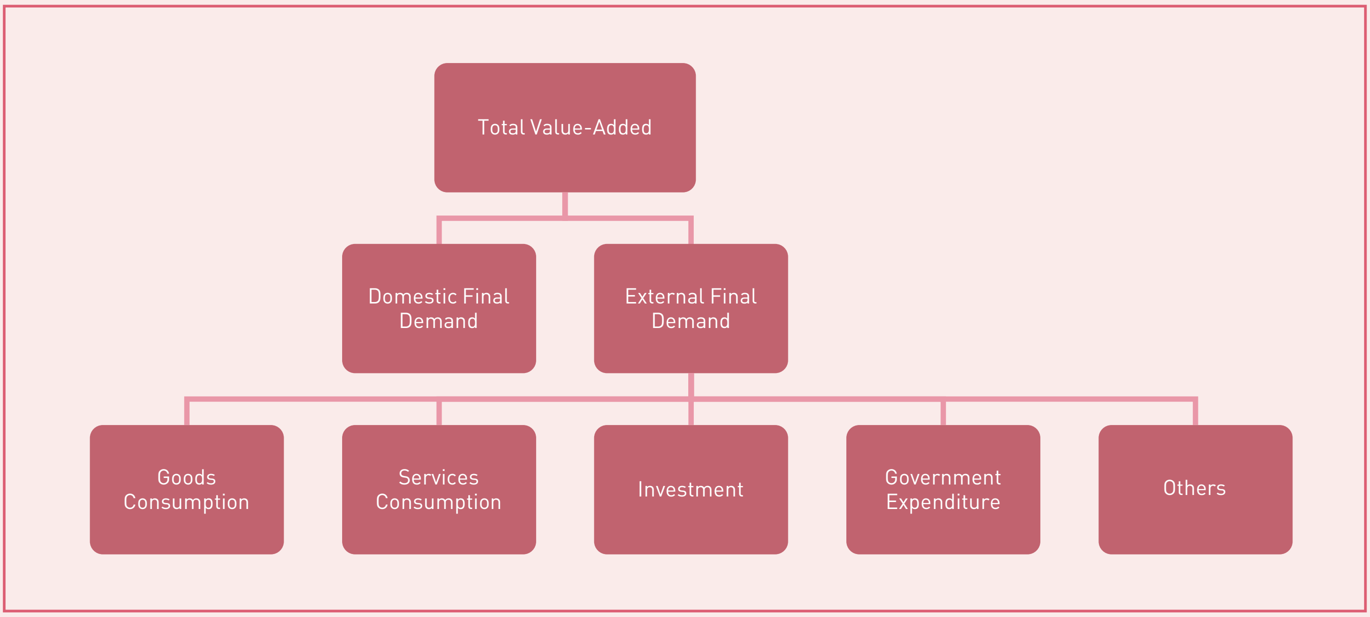
Several studies had previously analysed the contribution of external final demand to Singapore's GDP. Using 2011 OECD ICIO tables that were updated to 2015 data using the RAS method, Lim and Zhou (2016) estimated that external final demand accounted for around two-thirds of Singapore's GDP, and that the most important final demand markets for Singapore were ASEAN-5[3], the US and China. Meanwhile, Chiang (2019) found that Singapore became more reliant on final demand from China and ASEAN-5 between 2005 and 2015, even as its reliance on final demand from the Eurozone and the US fell over the same period.

DATA AND METHODOLOGY

Our study extends previous studies by updating estimates on the sources of final demand for Singapore's goods and services using the latest edition of the OECD ICIO tables. It also estimates the VA attributable to the different types of final demand (i.e., household consumption of goods and services, business investment and government expenditure) in Singapore's external final demand markets at both the overall economy and sectoral levels [Exhibit 1].

Our study uses data from the OECD ICIO tables released in November 2021, covering the period of 1995 to 2018. The tables track inter-country, inter-industry flows of both intermediate and final goods and services across 66 economies (including Singapore) and the "Rest of the World", as well as 45 industries. Input-output methods are employed to compute the share of Singapore's GDP and sectoral VA attributable to each external final demand market and final demand type. Please refer to the Annex for more details on the methodology.

Exhibit 1: Components of Singapore's Total Value-Added at Overall Economy Level and By Sectors



Notes:
[1] Consumption refers to Household Final Consumption Expenditure and Non-Profit Institutions Serving Households. Goods consumption comprises sectors 01T03 to 36T39 of the OECD ICIO tables, while Services consumption comprises sectors 41T43 to 97T98 of the OECD ICIO tables.
[2] Others refers to Changes in Inventories and Direct Purchases Abroad.

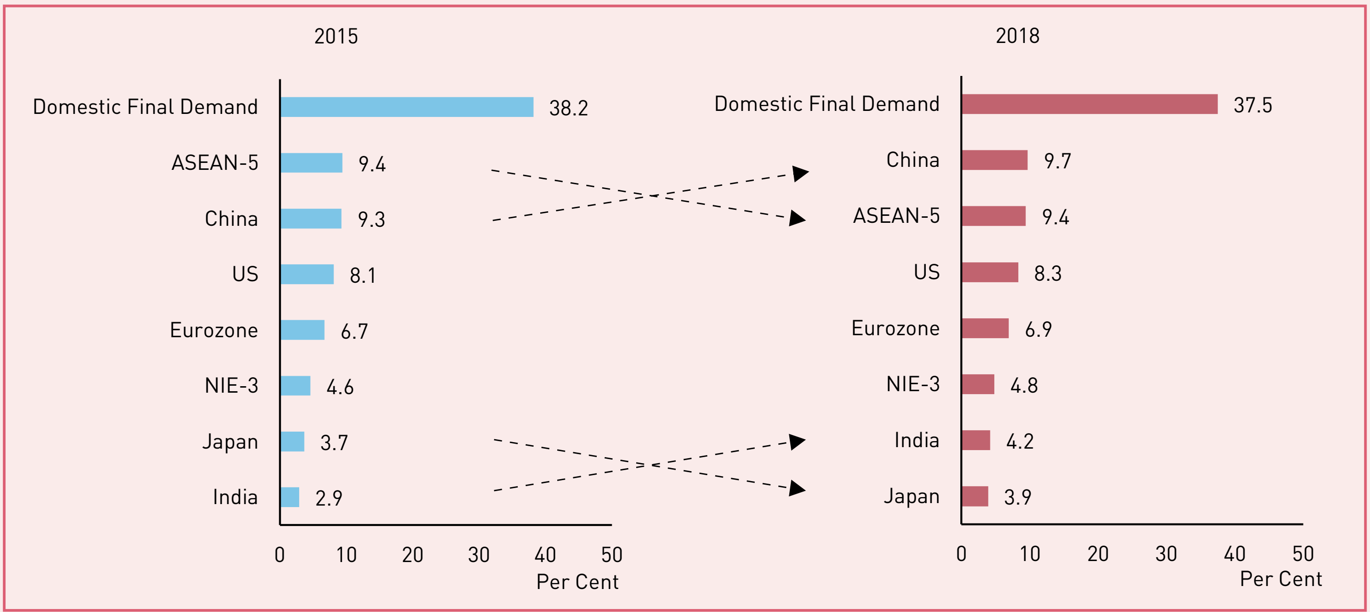
RESULTS

(i) External Sources of Final Demand at the Overall Economy Level

At the overall economy level, external final demand accounted for 62.5 per cent of Singapore's GDP in 2018, while domestic final demand accounted for the remaining share (37.5 per cent). The former was slightly higher than the 61.8 per cent in 2015, indicating an increase in our reliance on external final demand over time [Exhibit 2].

3 ASEAN-5 comprises Indonesia, Malaysia, Thailand, Vietnam and the Philippines.

Exhibit 2: Share of Singapore's GDP by Final Demand Markets (2015 and 2018)



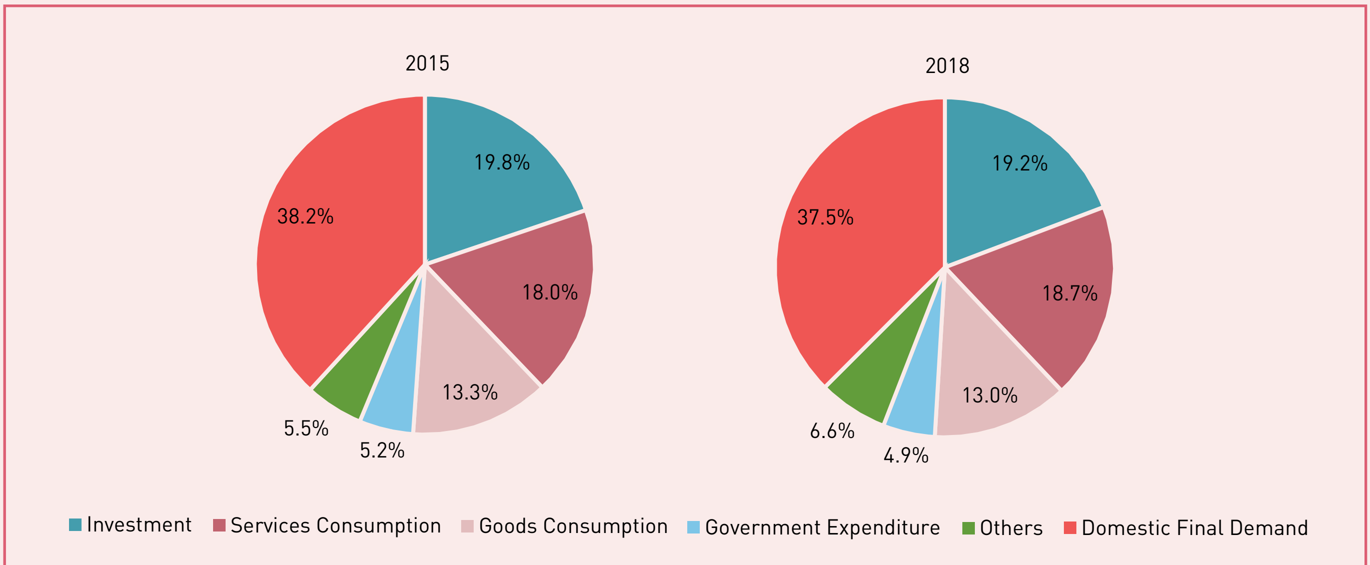
Source: OECD ICIO, MTI-ECD estimates

Among Singapore's external final demand markets, China, ASEAN-5 and the US were the most important markets, accounting for 9.7 per cent, 9.4 per cent and 8.3 per cent of Singapore's GDP respectively in 2018. They were followed by the Eurozone (6.9 per cent), NIE-3 (i.e., Hong Kong, South Korea and Taiwan) (4.8 per cent), and India (4.2 per cent). Notably, between 2015 and 2018, China overtook ASEAN-5 as Singapore's largest external final demand market, while India overtook Japan to become the 6th largest.

(ii) External Sources of Final Demand by Demand Type

A decomposition of Singapore's GDP by final demand type showed that investment (19.2 per cent) was the largest type of external final demand served by Singapore in 2018, followed by services consumption (18.7 per cent) and goods consumption (13.0 per cent) [Exhibit 3].

Exhibit 3: Share of Singapore's GDP by Final Demand Type



Source: OECD ICIO, MTI-ECD estimates

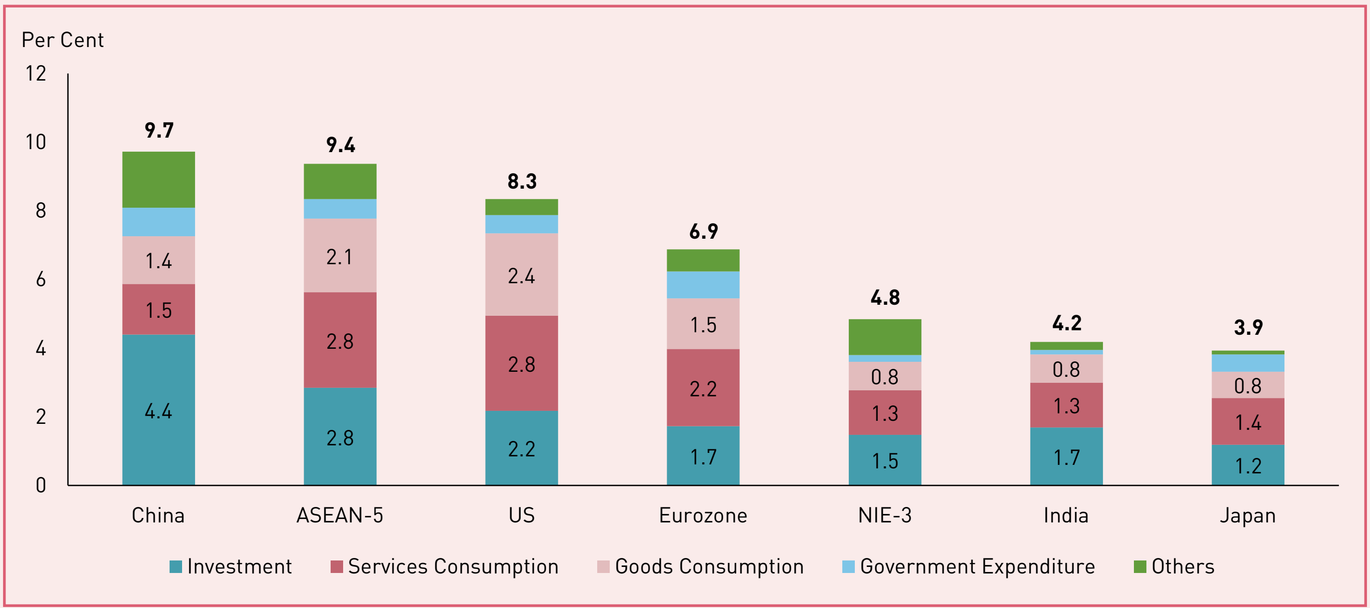
Notes:

[1] Consumption refers to Household Final Consumption Expenditure and Non-Profit Institutions Serving Households. Goods consumption comprises sectors 01T03 to 36T39 of the OECD ICIO tables, while Services consumption comprises sectors 41T43 to 97T98 of the OECD ICIO tables.

[2] Others refers to Changes in Inventories and Direct Purchases Abroad.

Disaggregating the contribution to Singapore's GDP by both external final demand markets and final demand types, we find that the investment demand served by Singapore was mainly driven by China (4.4 per cent) and ASEAN-5 (2.8 per cent). On the other hand, the services consumption demand served by Singapore was led by ASEAN-5 (2.8 per cent) and the US (2.8 per cent), whereas the goods consumption demand met by Singapore came primarily from the US (2.4 per cent) and ASEAN-5 (2.1 per cent) [Exhibit 4].

Exhibit 4: Share of Singapore's Overall GDP by Final Demand Market and Type (2018)



Source: OECD ICIO, MTI-ECD estimates
Notes:
[1] Consumption refers to Household Final Consumption Expenditure and Non-Profit Institutions Serving Households. Goods consumption comprises sectors 01T03 to 36T39 of the OECD ICIO tables, while Services consumption comprises sectors 41T43 to 97T98 of the OECD ICIO tables.
[2] Others refers to Changes in Inventories and Direct Purchases Abroad.

(iii) External Sources of Final Demand by Sector

The degree of exposure to external final demand varied across the sectors in Singapore. In 2018, the transportation & storage, manufacturing and wholesale & retail trade sectors were the most reliant on external final demand, whereas sectors such as construction, other services[4] and real estate primarily served domestic final demand [Exhibit 5].

For the manufacturing sector, external final demand accounted for 84.3 per cent of its VA in 2018, reflecting its outward-oriented nature. Within the sector, the chemicals, electronics and biomedical manufacturing clusters had the highest external reliance, with 93.2 per cent, 88.8 per cent and 85.2 per cent of their VA attributable to external final demand, respectively. However, their exposure across final demand markets varied. Specifically, the chemicals cluster had the highest exposure to final demand from ASEAN-5 (19.4 per cent of its VA) and China (17.3 per cent), while the electronics cluster's largest exposure was to NIE-3 (15.7 per cent), followed by China (14.7 per cent), the US (12.3 per cent) and ASEAN-5 (12.0 per cent). Meanwhile, the biomedical manufacturing cluster was heavily reliant on final demand from the US (47.7 per cent), followed by the Eurozone (11.7 per cent).

Among the services sectors, the transportation & storage (88.8 per cent of its VA), wholesale & retail trade (77.3 per cent) and information & communications (76.9 per cent) sectors had the highest external reliance. The key external final demand markets for all three sectors were China and ASEAN-5. In particular, final demand from China and ASEAN-5 accounted for 14.9 per cent and 13.5 per cent respectively of the VA of the transportation & storage sector, and 16.5 per cent and 10.6 per cent respectively of the VA of the information & communications sector. As for the wholesale & retail trade sector, ASEAN-5 was a larger final demand market compared to China, with the former accounting for 13.9 per cent of its VA and the latter accounting for 11.2 per cent.

4 Other Services include the "Education", "Health & Social Services", "Arts, Entertainment & Recreation", and "Other Service Activities" segments.

Exhibit 5: Share of Singapore Sectors' Total VA by Final Demand Market (2018)

Sectors	Key External Final Demand Markets (%)							Total External Final Demand (%)	Total Domestic Final Demand (%)
	China	ASEAN-5	US	Eurozone	NIE-3	India	Japan		
Manufacturing	12.3	13.4	14.6	7.8	8.5	6.1	4.8	84.3	15.7
Electronics	14.7	12.0	12.3	7.1	15.7	6.8	4.9	88.8	11.2
Chemicals	17.3	19.4	9.8	9.2	6.1	7.0	4.0	93.2	6.8
Biomedical Manufacturing	2.6	2.3	47.7	11.7	2.3	0.6	5.8	85.2	14.8
Precision Engineering	11.9	13.2	8.9	4.7	9.6	7.1	6.7	76.8	23.2
Transport Engineering	5.9	10.9	18.4	9.2	7.2	7.4	3.2	81.4	18.6
General Manufacturing	7.1	10.1	13.6	5.7	4.4	4.6	5.1	65.5	34.5
Construction	0.8	0.8	0.7	0.5	0.4	0.3	0.4	5.2	94.8
Wholesale & Retail Trade	11.2	13.9	9.6	7.5	7.1	5.2	5.1	77.3	22.7
Transportation & Storage	14.9	13.5	8.6	8.3	5.2	7.6	3.7	88.8	11.2
Accommodation & Food Services	15.5	12.0	5.3	3.0	3.3	2.3	1.9	55.3	44.7
Information & Communications	16.5	10.6	8.3	9.3	4.2	5.1	6.3	76.9	23.1
Finance & Insurance	8.4	6.9	8.0	12.6	3.8	4.1	4.5	71.1	28.9
Real Estate	4.1	4.2	3.1	2.5	1.8	1.4	1.5	24.8	75.2
Professional Services	10.3	9.2	12.5	8.3	4.3	3.9	6.4	72.6	27.4
Administrative & Support Services	11.1	9.2	9.2	9.9	5.5	4.6	6.3	75.1	24.9
Other Services^	5.9	2.4	1.6	1.1	1.0	0.7	0.8	16.3	83.7

Source: OECD ICIO, MTI-ECD Estimates. Shares by external demand markets do not sum to total external final demand because only the seven key markets are tabulated.
^Other Services include the "Education", "Health & Social Services", "Arts, Entertainment & Recreation", and "Other Service Activities" segments.

(iv) Types of External Final Demand Served by Sector

At the sectoral level, the exposure to the different types of external final demand also varied [Exhibit 6]. In 2018, the manufacturing sector as a whole served primarily investment demand (31.8 per cent of its VA) and goods consumption demand (30.0 per cent) in the various external final demand markets. Within the sector, the precision engineering, electronics and transport engineering clusters had the highest exposure to external investment demand, at 45.6 per cent, 43.2 per cent and 42.8 per cent of their VA respectively, reflecting the capital goods-intensive nature of the goods that they produce. By contrast, the biomedical manufacturing and chemicals clusters had high exposure to external goods consumption demand, at 51.7 per cent and 39.6 per cent of their VA respectively.

Among the services sectors with a higher degree of exposure to external final demand, there was also heterogeneity in their exposure to the different types of final demand. The share of VA attributable to external investment demand was the highest for the information & communications and professional services sectors, at 32.4 per cent and 27.2 per cent, respectively. By contrast, the finance & insurance (40.0 per cent of its VA) and transportation & storage (34.3 per cent) sectors had the largest exposure to external services consumption demand. As for the wholesale & retail trade sector, the extent of its exposure to external investment and services consumption demand was similar, at 25.6 per cent and 24.1 per cent of its VA respectively. This was also the case for the administrative & support services sector, with the corresponding figures at 24.2 per cent and 23.1 per cent respectively.

Exhibit 6: Share of Total VA of Sectors in Singapore by Final Demand Type (2018)

Sectors	External Final Demand Type (%)					Domestic Final Demand
	Investment	Services Consumption	Goods Consumption	Government Expenditure	Others	
Manufacturing	31.8	10.9	30.0	6.3	5.4	15.7
Electronics	43.2	9.5	23.8	4.8	7.5	11.2
Chemicals	27.9	14.3	39.6	6.8	4.6	6.8
Biomedical Manufacturing	4.0	10.3	51.7	16.9	2.3	14.8
Precision Engineering	45.6	8.3	15.7	3.9	3.4	23.2
Transport Engineering	42.8	11.1	17.8	6.8	3.0	18.6
General Manufacturing	15.2	8.6	29.4	3.9	8.4	34.5
Construction	1.7	1.4	1.0	0.4	0.8	94.8
Wholesale & Retail Trade	25.6	24.1	16.1	5.6	5.9	22.7
Transportation & Storage	21.9	34.3	14.0	7.4	11.2	11.2
Accommodation & Food Services	4.7	5.9	2.7	1.4	40.8	44.7
Information & Communications	32.4	26.9	6.3	6.8	4.4	23.1
Finance & Insurance	12.3	40.0	8.0	6.2	4.6	28.9
Real Estate	6.3	7.0	3.5	1.7	6.2	75.2
Professional Services	27.2	22.6	10.8	7.6	4.4	27.4
Administrative & Support Services	24.2	23.1	13.6	7.3	6.9	24.9
Other Services^	2.6	2.4	1.1	0.7	9.5	83.7

Source: OECD ICIO, MTI-ECD Estimates
^Other Services include the "Education", "Health & Social Services", "Arts, Entertainment & Recreation", and "Other Service Activities" segments.

CONCLUSION

This study analyses the external sources of final demand that contribute to Singapore's GDP. Our key observations are as follows. First, 62.5 per cent of Singapore's GDP was derived from external final demand, while the remaining (37.5 per cent) was from domestic final demand. Second, China's and India's shares of Singapore's GDP rose over the period of 2015 to 2018 for China and India to become Singapore's largest and 6th largest final demand markets respectively in 2018. At the same time, the advanced economies (i.e., the US, Eurozone and Japan) remained key final demand markets for Singapore. Third, Singapore primarily served investment demand in its external final demand markets, followed by services consumption demand and then goods consumption demand. ASEAN-5 was a major source of final demand across all three demand types in 2018, suggesting that Singapore would benefit from growth in the ASEAN-5 economies through these final demand channels.

Fourth, there was substantial heterogeneity in the various sectors' exposure to external final demand. For instance, while external final demand accounted for 88.8 per cent of the VA of the transportation & storage sector, it only constituted 5.2 per cent of the VA of the construction sector. Furthermore, sectors had varying exposure to different final demand markets. For example, the chemicals cluster had the highest exposure to final demand from ASEAN-5 (19.4 per cent of its VA) and China (17.3 per cent), while the biomedical manufacturing cluster was heavily reliant on final demand from the US (47.7 per cent) and the Eurozone (11.7 per cent). Fifth, Singapore's manufacturing sector as a whole served primarily investment and goods consumption demand in its external final demand markets, whereas services sectors with a higher degree of exposure to external final demand such as transportation & storage and wholesale & retail trade largely served services consumption and investment demand in these markets.

As Singapore is a small economy that is heavily reliant on external demand, there is a need for policymakers to closely monitor changes in the drivers of final demand in key external markets so as to be able to formulate strategies to tap on the growth opportunities in these markets. For instance, the rise of the middle class in the ASEAN-5 economies will lead to higher consumption demand for both goods and services, which will present new opportunities for our manufacturing and outward-oriented services sectors in the years to come. Similarly, sustained investment in infrastructure and other fixed assets in the region will provide opportunities for a range of sectors in Singapore, including the information & communications, manufacturing and professional services sectors.

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ANNEX: METHODOLOGY

We use a standard open input-output (IO) multiplier framework to calculate the share of Singapore's GDP and sectoral VA attributable to each final demand type in each of our external final demand markets.[5]

The system of equations in the open IO model can be expressed as:

$$X = AX + F$$

where A is the 3105 × 3105 matrix of direct requirement coefficients[6]

X is the 3105 × 1 vector of output

F is the 3105 × 1 aggregated vector of final demand, representing the row sum of $\hat{F}$

$\hat{F}$ is the 3105 × 4 vector of final demand, where each column represents a final demand type (i.e., household consumption of goods and services, business investment, government expenditure, and others) [see Exhibit A-1]

Exhibit A-1: Components of $\hat{F}$

Consumption (Goods and Services)	Investment	Government Expenditure	Others
3105 rows	3105 rows	3105 rows	3105 rows

Notes:
[1] Consumption refers to Household Final Consumption Expenditure and Non-Profit Institutions Serving Households. Goods consumption comprises sectors 01T03 to 36T39 of the OECD ICIO tables, while Services consumption comprises sectors 41T43 to 97T98 of the OECD ICIO tables.
[2] Others refers to Changes in Inventories and Direct Purchases Abroad.

The solution for X can be expressed as:

$$X = (I - A)^{-1} F$$

where $(I - A)^{-1}$ is the 3105 × 3105 matrix of total requirement coefficients, known as the Leontief Inverse.

To derive the output generated to satisfy final demand type k in country j, we replace the final demand vector F with the final demand type k of country j, $\hat{F}_{jk}$:

$$X_j = (I - A)^{-1} \hat{F}_{jk}$$

The corresponding VA generated to satisfy final demand type k in country j can be calculated as follows:

$$VA_{jk} = v \cdot (I - A)^{-1} \hat{F}_{jk}$$

where v is the 3105 × 1 vector of VA coefficients.

Finally, extracting the rows in VA_{jk} which correspond to Singapore's sectors will give us the sectoral VA attributable to the final demand type k of country j.

5 *For more details on the open IO model, please refer to Singapore Department of Statistics (2014).*
6 *There are 3105 x 3105 direct requirement coefficients as the OECD ICIO tables have 69 regions and 45 industries in each region. For the purpose of our main analysis, we aggregate the data to 66 economies (including Singapore) and the "Rest of the World".*

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