MTI MINISTRY OF TRADE AND INDUSTRY SINGAPORE

ECONOMIC SURVEY OF SINGAPORE

SECOND QUARTER 2024

August 2024

Ministry of Trade and Industry
Republic of Singapore

website: **www.mti.gov.sg**
email: **mti_email@mti.gov.sg**

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MAIN INDICATORS OF THE SINGAPORE ECONOMY

OVERALL ECONOMY

Real Gross Domestic Product (YoY Growth)	1Q24 +3.0%	2Q24 +2.9%
Gross Domestic Product at Current Market Prices	1Q24 $172.9 billion	2Q24 $180.4 billion

PRICES

Consumer Price Index — All Items (YoY Growth)	1Q24 +3.0%	2Q24 +2.8%
Domestic Supply Price Index (YoY Growth)	1Q24 -2.6%	2Q24 +3.0%

LABOUR MARKET

Change in Employment (QoQ Change)	1Q24 +9.6 thousand	2Q24 +14.9 thousand
Overall Unemployment Rate	Mar24 2.1%	Jun24 2.0%
Value-Added per Actual Hour Worked (YoY Growth)	1Q24 +2.3%	2Q24 +3.6%

COSTS

Unit Labour Cost of Overall Economy (YoY Growth)	1Q24 +3.8%	2Q24 +2.8%
Unit Business Cost of Manufacturing (YoY Growth)	1Q24 +5.6%	2Q24 +6.0%
Unit Labour Cost of Manufacturing (YoY Growth)	1Q24 +4.4%	2Q24 +4.0%

MERCHANDISE TRADE

Merchandise Exports	1Q24 $165,943 million +4.4% YoY Growth	2Q24 $164,726 million +7.6% YoY Growth
Merchandise Imports	1Q24 $145,979 million +5.2% YoY Growth	2Q24 $154,857 million +12.8% YoY Growth

SERVICES TRADE

Services Exports	1Q24 $116,688 million +6.3% YoY Growth	2Q24 $120,357 million +13.5% YoY Growth
Services Imports	1Q24 $103,848 million +5.1% YoY Growth	2Q24 $106,708 million +8.9% YoY Growth

CHAPTER 1

THE SINGAPORE ECONOMY

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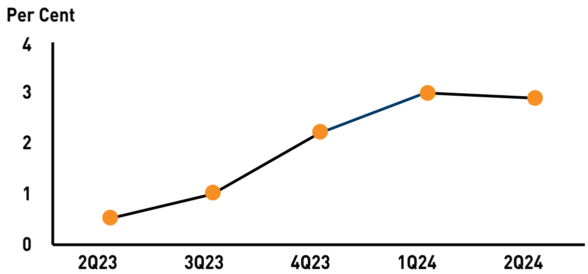
THE SINGAPORE ECONOMY

ECONOMIC PERFORMANCE

Real GDP grew by
2.9% in 2Q24

Quarterly Growth (YoY)



Main Drivers of Growth in 2Q24

Finance & Insurance
0.9%-point contribution

Wholesale Trade
0.8%-point contribution

LABOUR MARKET

Resident Unemployment Rate
2.7% in June 24

Employment (QoQ Change)
+14,900 employed in 2Q24

Sectors with the Highest Employment Growth in 2Q24

+8,500 employed	+5,400 employed	+1,200 employed
Other Services Industries	Construction	Finance & Insurance

PRODUCTIVITY

(YoY Growth)
Value-Added per Actual Hour Worked increased by
3.6% in 2Q24

Sectors with the Highest Growth in Value-Added per Actual Hour Worked in 2Q24

14.7%	7.8%	6.7%
Information & Communications	Transportation & Storage	Finance & Insurance

COSTS
(YoY Growth)

Overall Unit Labour Cost increased by

2.8% in 2Q24

Within the Manufacturing Sector

6.0%
Unit Business Cost

4.0%
Unit Labour Cost

PRICES
(YoY Growth)

The Consumer Price Index (CPI) rose by

2.8% in 2Q24

Categories with Price Increases

4.7%
Recreation & Culture

4.5%
Health Care

3.8%
Housing & Utilities

INTERNATIONAL TRADE
(YoY Growth)

Total Merchandise Exports increased by

7.6% in 2Q24

EXPORTS

19.0%
Oil Domestic Exports

11.6%
Re-Exports

-6.4%
Non-Oil Domestic Exports

Total Services Exports increased by

13.5% in 2Q24

Services Exports increase was led by...

8.6%-pt
Transport

1.3%-pt
Other Business Services

1.2%-pt
Financial Services

OVERVIEW

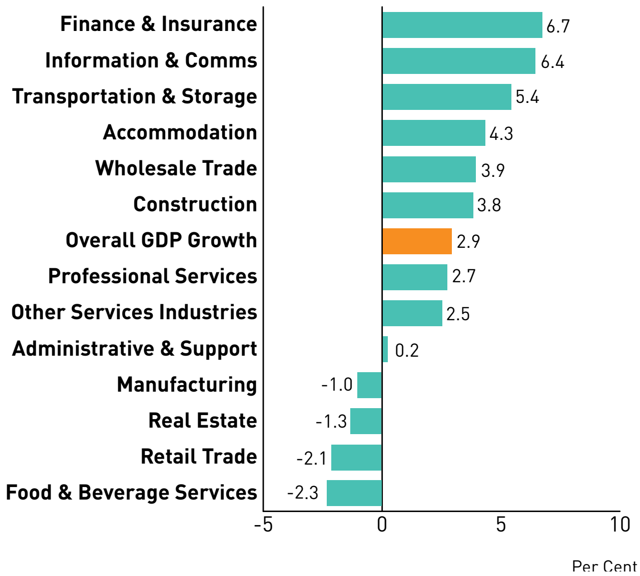
In the second quarter of 2024,

- The Singapore economy grew by 2.9 per cent on a year-on-year basis. The sectors that contributed the most to GDP growth during the quarter were the finance & insurance, wholesale trade and information & communications sectors.
- The seasonally-adjusted unemployment rates declined at the overall level, for residents and for citizens, notwithstanding a marginal increase in the number of retrenchments over the same period.
- Total employment rose by 14,900 on a quarter-on-quarter basis, extending the gains in the preceding quarter. Excluding Migrant Domestic Workers (MDWs), total employment increased by 11,300 on the back of non-resident employment gains.
- The Consumer Price Index-All Items (CPI-All Items) rose by 2.8 per cent year-on-year in the second quarter of 2024, moderating from the 3.0 per cent increase in the preceding quarter.

OVERALL PERFORMANCE

The Singapore economy grew by 2.9 per cent on a year-on-year basis in the second quarter of 2024, extending the 3.0 per cent growth in the previous quarter (Exhibit 1.1). On a quarter-on-quarter seasonally-adjusted basis, the economy grew by 0.4 per cent, unchanged from the 0.4 per cent expansion in the preceding quarter.

Exhibit 1.1: GDP and Sectoral Growth Rates in 2Q 2024



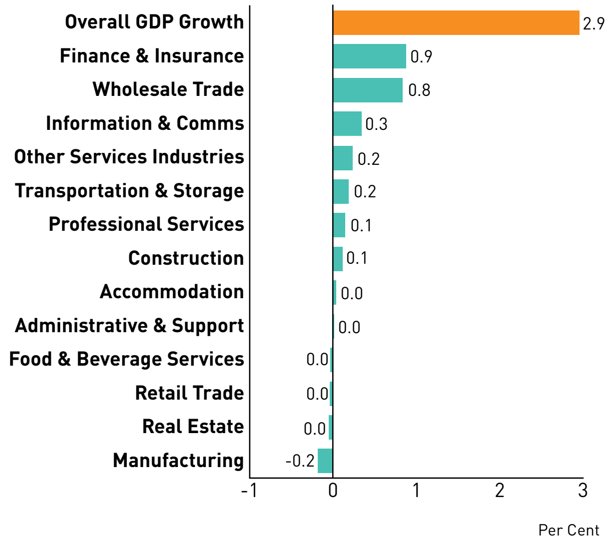
The manufacturing sector contracted by 1.0 per cent year-on-year, easing from the 1.7 per cent contraction in the previous quarter. The contraction was driven by the output declines in the biomedical manufacturing (-32.0 per cent) and precision engineering (-2.0 per cent) clusters.

The services producing industries grew by 3.7 per cent year-on-year, moderating from the 4.3 per cent growth registered in the previous quarter. Growth was supported by expansions in all the services sectors except for the real estate, retail trade and food & beverage services sectors. Among the services sectors that expanded, the finance & insurance (6.7 per cent), information & communications (6.4 per cent) and transportation & storage (5.4 per cent) sectors posted the strongest growth.

The construction sector grew by 3.8 per cent year-on-year, extending the 4.1 per cent growth in the previous quarter. Both public and private sector construction output increased during the quarter.

The top three positive contributors to GDP growth in the second quarter were the finance & insurance, wholesale trade and information & communications sectors (Exhibit 1.2).

Exhibit 1.2: Percentage-Point Contribution to Growth in Real GDP in 2Q 2024 (By Sector)



SOURCES OF GROWTH

Total demand increased by 7.7 per cent year-on-year in the second quarter of 2024, faster than the 5.5 per cent increase in the previous quarter (Exhibit 1.3). The growth in total demand was supported by increases in both external and domestic demand during the quarter.

External demand rose by 7.5 per cent year-on-year, picking up from the 5.9 per cent increase in the previous quarter. Meanwhile, domestic demand rose by 8.1 per cent year-on-year, accelerating from the 4.1 per cent increase in the preceding quarter.

Within domestic demand, consumption expenditure rose by 5.8 per cent year-on-year, moderating from the 6.3 per cent growth in the preceding quarter. The increase in consumption expenditure was supported by both higher private consumption (6.5 per cent) and public consumption (3.1 per cent).

Meanwhile, gross fixed capital formation (GFCF) increased by 1.7 per cent year-on-year, a reversal from the 2.2 per cent contraction in the previous quarter. The increase in GFCF during the quarter was due to increases in both public sector GFCF (5.4 per cent) and private sector GFCF (0.9 per cent). Public sector GFCF rose due to higher investments in public construction & works, transport equipment, machinery & equipment and intellectual property products. Meanwhile, private sector GFCF increased on the back of higher investments in private transport equipment, machinery & equipment and intellectual property products, which more than offset lower investments in private construction & works.

Exhibit 1.3: Changes in Total Demand*

	2023			2024	
	II	III	IV	I	II
Total Demand	-2.5	-1.4	7.4	5.5	**7.7**
External Demand	-1.6	-1.8	11.0	5.9	**7.5**
Total Domestic Demand	-5.3	-0.5	-2.9	4.1	**8.1**
Consumption Expenditure	2.6	2.5	2.5	6.3	**5.8**
Public	-1.7	4.2	1.1	6.3	**3.1**
Private	4.0	2.0	3.0	6.4	**6.5**
Gross Fixed Capital Formation	-2.3	-1.9	3.0	-2.2	**1.7**
Changes in Inventories	-3.7	-0.8	-3.4	0.4	**2.2**

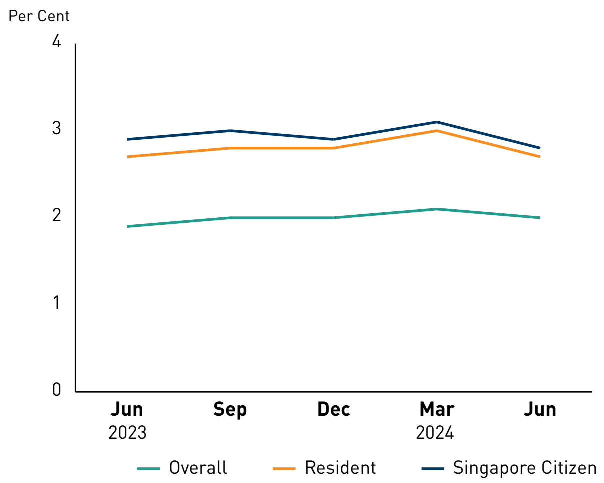
** For inventories, this refers to the contribution to GDP growth.*

LABOUR MARKET

Unemployment and Retrenchment[1]

Compared to March 2024, the seasonally-adjusted unemployment rates in June 2024 declined at the overall level (from 2.1 per cent to 2.0 per cent), for residents (from 3.0 per cent to 2.7 per cent) and for citizens (3.1 per cent to 2.8 per cent) (Exhibit 1.4).

Exhibit 1.4: Unemployment Rate (Seasonally-Adjusted)

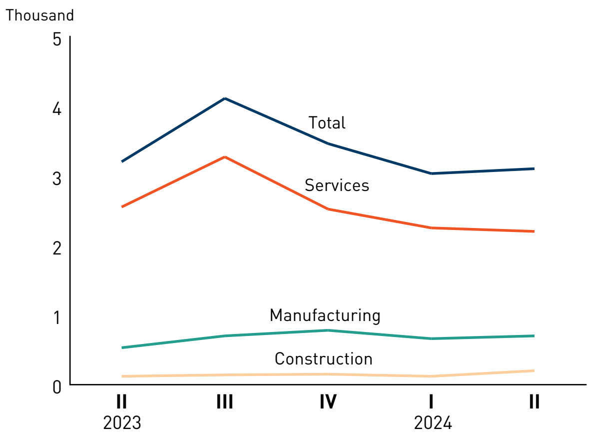


1 *Retrenchment figures pertain to private sector establishments with at least 25 employees and the public sector.*

In June 2024, an estimated 65,700 residents, including 57,100 Singapore citizens, were unemployed. These were lower than the number of unemployed residents (72,500) and citizens (63,700) in March 2024.[2]

Total retrenchments edged up to 3,100 in the second quarter of 2024, from 3,030 in the preceding quarter (Exhibit 1.5). There was a slight increase in retrenchments for the manufacturing (from 660 to 700) and construction (from 120 to 200) sectors. Meanwhile, retrenchments in the services sector fell (from 2,250 to 2,200).

Exhibit 1.5: Retrenchments



Employment[3]

Total employment expanded by 14,900 on a quarter-on-quarter basis in the second quarter of 2024, extending the gains (+9,600) in the preceding quarter (Exhibit 1.6). Excluding MDWs, total employment rose by 11,300. Employment growth during the quarter was wholly supported by an increase in non-resident employment.

Total employment growth was led by the services sector (+8,800; or +5,200 excluding MDWs), supported by employment gains in the other services industries (+8,500), finance & insurance (+1,200) and transportation & storage (+1,200) sectors (Exhibit 1.7). Similarly, employment in the construction (+5,400) and manufacturing (+200) sectors increased over the same period.

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

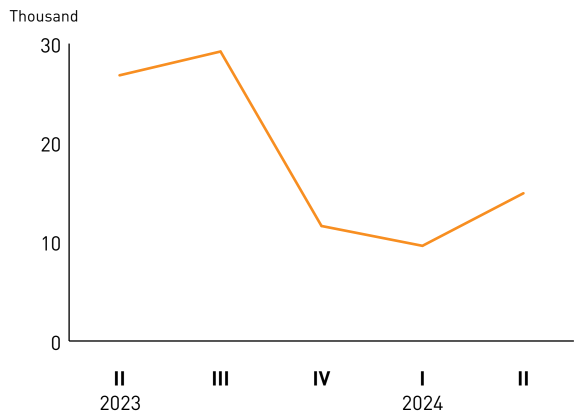
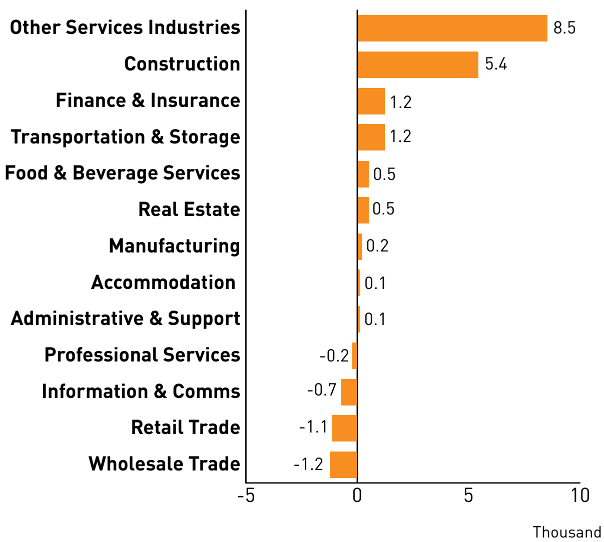


Exhibit 1.7: Changes in Employment by Sector in 2Q 2024



2 *Based on seasonally-adjusted data on the number of unemployed persons.*
3 *Based on preliminary estimates.*

Hiring Expectations

According to EDB's latest Business Expectations Survey for the Manufacturing Sector, hiring expectations in the sector were neutral. A majority of manufacturers (a net weighted balance of 88 per cent) expected employment level in the third quarter of 2024 to remain similar to the second quarter. Firms in the computer peripherals & data storage segment of the electronics cluster were the most optimistic, with a net weighted balance of 49 per cent of firms expecting to increase hiring in the third quarter. By contrast, firms in the miscellaneous segment of the general manufacturing cluster were the most pessimistic, with a net weighted balance of 16 per cent of firms expecting to reduce hiring in the third quarter.

Meanwhile, hiring expectations for services firms remained positive. According to DOS' latest Business Expectations Survey for the Services Sector, a net weighted balance of 12 per cent of services firms expected to increase hiring in the third quarter of 2024 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 40 per cent of firms expecting to increase hiring in the third quarter. On the other hand, firms in the transportation & storage and real estate sectors registered a neutral hiring outlook, with firms expecting employment levels in the third quarter of 2024 to be similar to that in the second quarter of 2024.

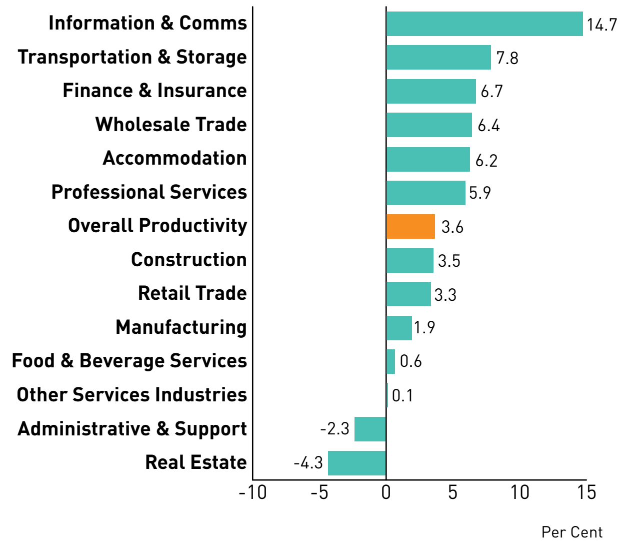
COMPETITIVENESS

Productivity

Overall labour productivity, as measured by real value-added per actual hour worked, rose by 3.6 per cent year-on-year in the second quarter of 2024, faster than the 2.3 per cent increase in the previous quarter (Exhibit 1.8).[4]

Among the sectors, the information & communications (14.7 per cent), transportation & storage (7.8 per cent), finance & insurance (6.7 per cent) sectors, wholesale trade (6.4 per cent), accommodation (6.2 per cent) and professional services (5.9 per cent) saw strong productivity gains. Meanwhile, construction (3.5 per cent), retail trade (3.3 per cent), manufacturing (1.9 per cent), food & beverage services (0.6 per cent) and other services (0.1 per cent) sectors also saw productivity improvements. By contrast, productivity declines were observed in the administrative & support services (-2.3 per cent) and real estate (-4.3 per cent) sectors.

Exhibit 1.8: Changes in Value-Added per Actual Hour Worked for the Overall Economy and Sectors in 2Q 2024



In the second quarter, the productivity of outward-oriented sectors as a whole rose by 6.1 per cent year-on-year, faster than the 4.6 per cent increase in the previous quarter.[5] Meanwhile, productivity for the domestically-oriented sectors as a whole grew by 0.4 per cent, the same pace as the preceding quarter.

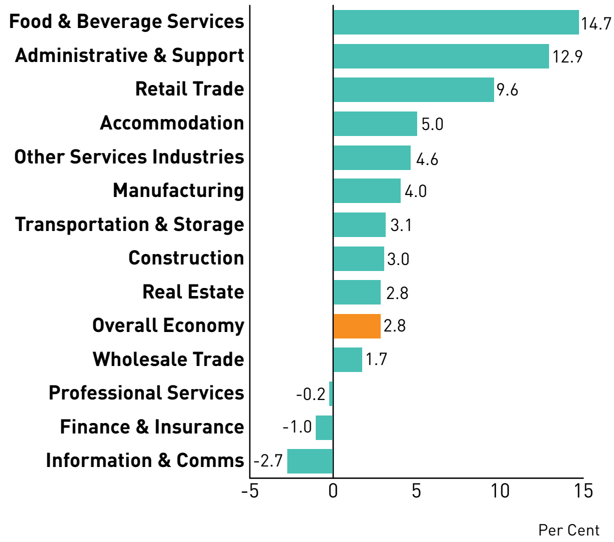
4 *Similarly, overall labour productivity, as measured by real value-added per worker, grew by 1.5 per cent in the second quarter of 2024, faster than the 0.7 per cent growth in the preceding quarter.*

5 *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 2.8 per cent on a year-on-year basis in the second quarter of 2024 (Exhibit 1.9), extending the increase of 3.8 per cent in the preceding quarter. The rise in overall ULC during the quarter was due to an increase in total labour cost per worker which outpaced the rise in labour productivity as measured by real value-added per worker.

Exhibit 1.9: Changes in Unit Labour Cost in 2Q 2024



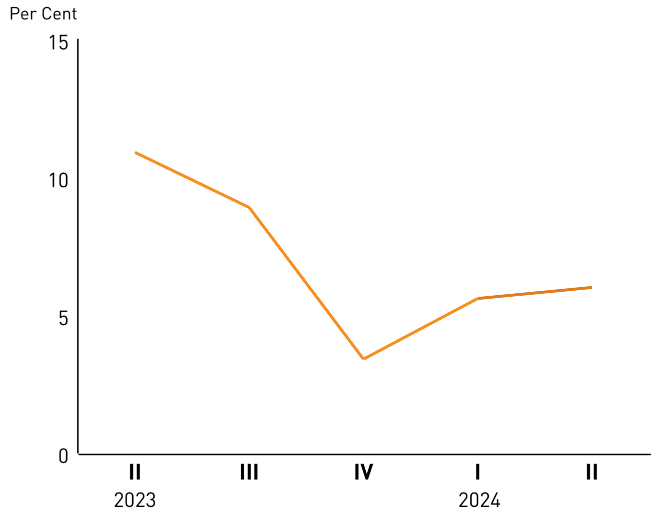
By sectors, the ULC for the construction sector was 3.0 per cent higher year-on-year in the second quarter as the pickup in total labour cost per worker outpaced the rise in labour productivity.

The ULC for services producing industries rose by 2.4 per cent year-on-year. Among the services sectors, ULC increased the most in the food & beverage services sector (14.7 per cent) as the increase in total labour cost per worker was accompanied by a fall in labour productivity. Meanwhile, ULC fell in the information & communications sector (-2.7 per cent) as productivity gains more than offset the increase in total labour cost per worker.

Over the same period, the ULC for the manufacturing sector picked up by 4.0 per cent year-on-year. The rise in the sector's ULC occurred on the back of an increase in total labour cost per worker which outpaced the growth in labour productivity.

Unit business cost (UBC) for the manufacturing sector rose by 6.0 per cent on a year-on-year basis in the second quarter of 2024, extending the 5.6 per cent increase in the previous quarter (Exhibit 1.10). The rise in UBC during the quarter was due to the increases in unit services costs (6.4 per cent), manufacturing ULC (4.0 per cent) and unit non-labour production taxes (57.7 per cent).

Exhibit 1.10: Changes in the Manufacturing Unit Business Cost

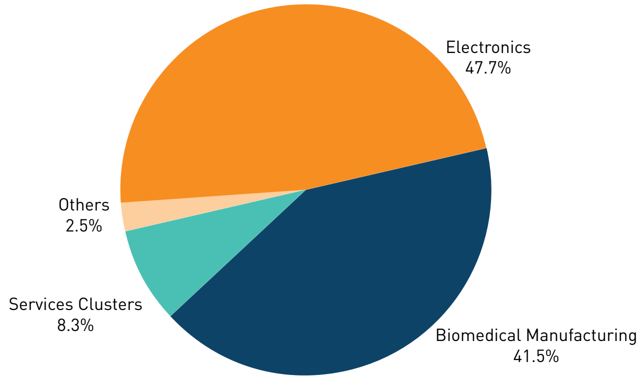


Investment Commitments

Investment commitments garnered by the Economic Development Board (EDB) in terms of Fixed Asset Investments (FAI) and Total Business Expenditure (TBE) amounted to $3.7 billion and $1.6 billion respectively in the second quarter of 2024 (Exhibit 1.11 and Exhibit 1.12).

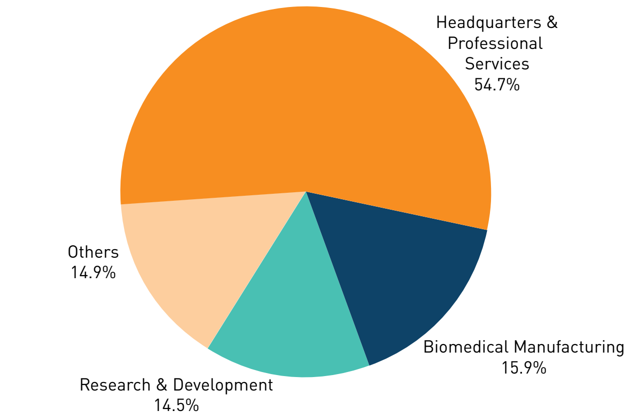
For FAI, the largest contribution came from the manufacturing sector, which attracted $3.4 billion worth of commitments. Within the manufacturing sector, the electronics and biomedical manufacturing clusters garnered the largest amounts of commitments, at $1.8 billion and $1.5 billion respectively. Meanwhile, the headquarters & professional services cluster attracted the most FAI commitments within the services sector, at $165 million. Investors from the United States contributed the most to total FAI, at $2.5 billion (or 68.3 per cent).

Exhibit 1.11: Fixed Asset Investments by Industry Cluster in 2Q 2024



For TBE, the services sector attracted the highest amount of commitments, at $1.1 billion. Within the sector, the headquarters & professional services and research & development clusters garnered the most TBE commitments, at $886 million and $236 million respectively. Among the manufacturing clusters, the biomedical manufacturing and electronics clusters attracted the largest amounts of TBE commitments, at $257 million and $139 million respectively. Investors from the others region[6] were the largest source of TBE commitments, with commitments of $633 million (or 39.1 per cent).

Exhibit 1.12: Total Business Expenditure by Industry Cluster in 2Q 2024



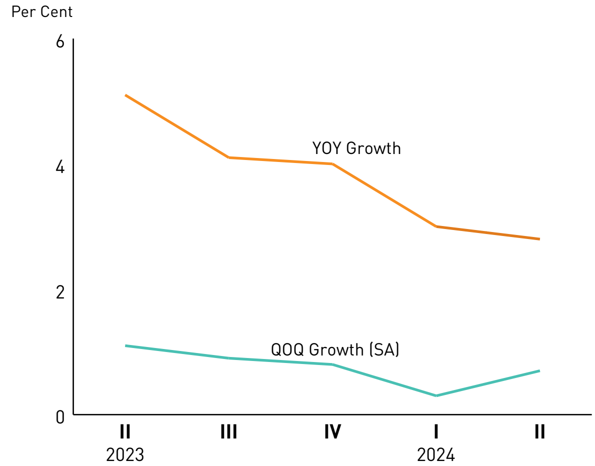
When these projects are fully implemented, they are expected to generate $7.4 billion of value-added and create more than 3,600 jobs in the coming years.

PRICES

Consumer Price Index

The Consumer Price Index-All Items (CPI-All Items) rose by 2.8 per cent on a year-on-year basis in the second quarter of 2024, moderating from the 3.0 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 0.7 per cent, picking up from the 0.3 per cent recorded in the previous quarter.

Exhibit 1.13: Changes in CPI



Most CPI categories saw price increases on a year-on-year basis in the second quarter of 2024, thus contributing positively to CPI-All Items inflation during the quarter (Exhibit 1.14). Food prices rose by 2.8 per cent on account of the higher costs of food serving services such as hawker food and restaurant meals, as well as non-cooked food items such as bread & cereals. Housing & utilities costs increased by 3.8 per cent as accommodation and electricity costs picked up. Prices of household durables & services went up by 1.2 per cent due to a rise in the prices of domestic & household services and household durables. Healthcare costs climbed by 4.5 per cent on the back of an increase in the costs of outpatient and hospital services. Transport costs rose by 1.4 per cent due to higher petrol prices and bus & train fares, as well as more expensive point-to-point transport services, which collectively outweighed lower airfares and car prices. Communication costs increased by 0.7 per cent on account of a rise in the prices of telecommunication services. Recreation & culture prices rose by 4.7 per cent because of the higher costs of holiday travel, as well as recreational & cultural services. Education costs picked up by 3.3 per cent due to higher fees at commercial institutions. Prices of miscellaneous goods & services went up by 1.5 per cent as the costs of personal care items and personal effects items rose. By contrast, clothing & footwear prices fell by 1.0 per cent, mainly due to cheaper footwear and ready-made garments.

6 *Others refers to countries except for Singapore, Europe, Japan and the United States.*

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

Per Cent

	2023			2024	
	II	III	IV	I	II
All items	5.1	4.1	4.0	3.0	**2.8**
Food	6.6	4.8	4.0	3.4	**2.8**
Clothing & Footwear	4.5	-0.5	-0.6	-0.2	**-1.0**
Housing & Utilities	4.4	3.8	3.8	3.3	**3.8**
Housing Durables & Services	1.9	1.8	1.3	1.0	**1.2**
Healthcare	4.6	4.3	5.1	4.7	**4.5**
Transport	6.4	4.9	5.0	1.8	**1.4**
Communication	2.7	3.0	3.8	2.3	**0.7**
Recreation & Culture	6.5	5.3	5.9	4.9	**4.7**
Education	2.7	2.5	2.7	3.3	**3.3**
Miscellaneous Goods & Services	3.3	3.6	2.8	2.4	**1.5**

INTERNATIONAL TRADE

Merchandise Trade

Singapore's total merchandise trade expanded by 10.1 per cent on a year-on-year basis in the second quarter, following the 4.8 per cent growth in the preceding quarter (Exhibit 1.15). The increase in total merchandise trade was due to the growth in both oil trade (+16.9 per cent) and non-oil trade (+8.5 per cent).

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

Per Cent

	2023				2024	
	II	III	IV	ANN	I	II
Merchandise Trade	-18.8	-16.5	-2.1	-11.7	4.8	**10.1**
Merchandise Exports	-16.9	-15.6	0.2	-10.1	4.4	**7.6**
Domestic Exports	-19.5	-22.6	-1.7	-13.5	0.3	**2.9**
Oil	-28.1	-26.9	-2.1	-14.2	6.0	**19.0**
Non-Oil	-13.4	-19.5	-1.4	-13.1	-3.4	**-6.4**
Re-Exports	-14.6	-9.5	1.8	-7.1	7.9	**11.6**
Merchandise Imports	-20.8	-17.4	-4.7	-13.4	5.2	**12.8**
Oil	-34.4	-25.0	-4.1	-19.0	2.1	**16.1**
Non-Oil	-16.6	-15.2	-4.8	-11.9	6.1	**12.0**

Total merchandise exports increased by 7.6 per cent in the second quarter, following the 4.4 per cent growth in the preceding quarter. This was due to the increase in both domestic exports (+2.9 per cent) and re-exports (+11.6 per cent).

The growth in domestic exports was due to the increase in oil domestic exports which outweighed the decline in non-oil domestic exports (NODX). In particular, oil domestic exports expanded by 19.0 per cent. In volume terms, oil domestic exports increased by 6.8 per cent.

Meanwhile, NODX declined by 6.4 per cent in the second quarter, following the 3.4 per cent decrease in the previous quarter. The decline in NODX was due to the decrease in non-electronics domestic exports which outweighed the growth in electronics domestic exports.

Total merchandise imports expanded by 12.8 per cent in the second quarter, following the 5.2 per cent growth in the previous quarter. The growth in imports was due to the increase in both oil and non-oil imports. Specifically, oil imports expanded by 16.1 per cent, while non-oil imports grew by 12.0 per cent due to higher electronics and non-electronics imports.

Services Trade

Total services trade expanded by 11.3 per cent on a year-on-year basis in the second quarter, picking up from the 5.7 per cent expansion in the previous quarter (Exhibit 1.16). Both the exports and imports of services saw positive year-on-year growth during the quarter.

Services exports surged by 13.5 per cent in the second quarter, faster than the 6.3 per cent growth in the preceding quarter. The increase in services exports was largely attributable to a pickup in the exports of transport services, other business services and financial services. Meanwhile, services imports rose by 8.9 per cent, up from the 5.1 per cent expansion in the previous quarter. The rise in services imports was largely due to increases in the imports of transport services, travel services and telecommunications, computer & information services.

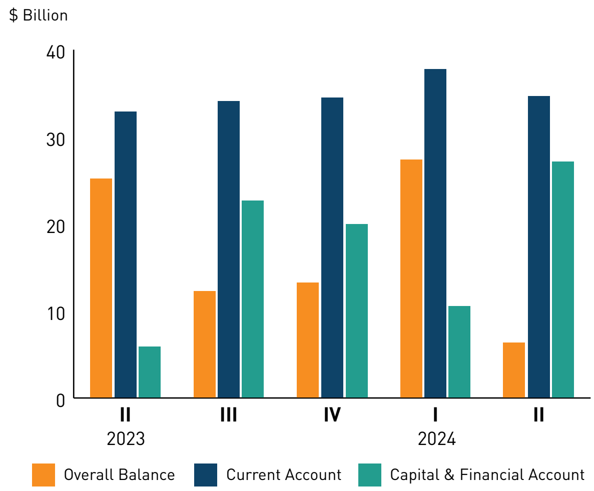
Exhibit 1.16: Growth Rates of Total Services Trade, Services Exports and Services Imports (In Nominal Terms)

	2023				2024	
	II	III	IV	ANN	I	II
Total Services Trade	-5.4	-6.9	-2.8	-3.8	5.7	**11.3**
Services Exports	-7.5	-7.4	-3.9	-5.1	6.3	**13.5**
Services Imports	-3.1	-6.3	-1.5	-2.4	5.1	**8.9**

BALANCE OF PAYMENTS

Singapore recorded an overall balance of payments surplus of $6.3 billion in the second quarter of 2024, lower than the surplus of $27.3 billion in the preceding quarter (Exhibit 1.17).

Exhibit 1.17: Balance of Payments



Current Account

The current account surplus narrowed to $34.6 billion in the second quarter of 2024, from $37.7 billion in the previous quarter. This was due to a widening of the primary income deficit, which more than offset the increase in the surpluses of the goods and services accounts and a narrowing of the secondary income deficit.

The surplus in the goods account rose by $7.2 billion to $51.8 billion in the second quarter, as the growth in goods exports outpaced the increase in goods imports.

Meanwhile, the surplus in the services account increased by $0.8 billion to $13.6 billion in the second quarter. This was mainly due to an increase in net receipts for financial services as well as a fall in net payments for other business services. Collectively, these more than outweighed the higher net payments for travel services and telecommunications, computer & information services.

The primary income deficit widened by $12.3 billion to $28.9 billion in the second quarter, as the decline in primary income receipts exceeded the fall in primary income payments.

The secondary income deficit narrowed by $1.2 billion to $2.0 billion in the second quarter, as secondary income receipts increased while payments declined.

Capital and Financial Account[7]

The capital and financial account registered a larger net outflow of $27.1 billion in the second quarter of 2024, compared to $10.5 billion in the preceding quarter. The rise in net outflows was mainly due to higher net outflows of "other investment" and portfolio investment. These more than offset the increase in net inflows of direct investment and the decline in net outflows of financial derivatives.

"Other investment" recorded net outflows of $25.0 billion in the second quarter, up from $10.1 billion in the previous quarter. The increase was primarily driven by resident deposit-taking corporations switching from a net inflow to a net outflow position.

At the same time, net outflows of portfolio investment rose to $38.3 billion in the second quarter, from $34.1 billion in the preceding quarter, largely due to increased net outflows from resident deposit-taking corporations as well as the non-bank private sector.

Meanwhile, net inflows of direct investment edged up to $37.4 billion in the second quarter, from $36.2 billion in the preceding quarter, as the increase in foreign direct investments into Singapore exceeded the increase in residents' direct investments abroad.

Net outflows of financial derivatives fell to $1.2 billion in the second quarter, from $2.5 billion in the preceding quarter.

7 *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".*

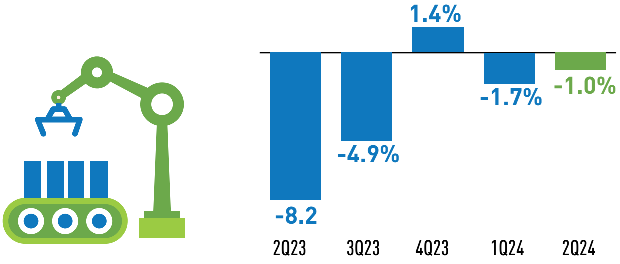
CHAPTER 2

SECTORAL PERFORMANCE

Chapter 2

SECTORAL PERFORMANCE

MANUFACTURING
(YoY Growth)



CLUSTERS IN MANUFACTURING SECTOR

9.9% Transport Engineering

5.6% Chemicals

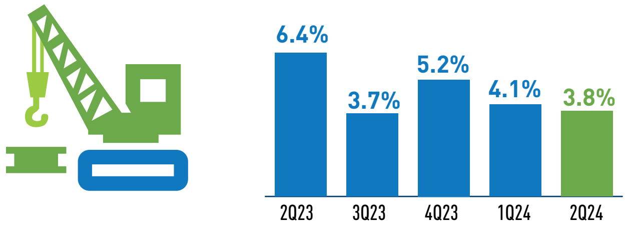
3.3% Electronics

1.7% General Manufacturing Industries

-2.0% Precision Engineering

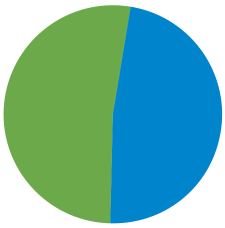
-32.0% Biomedical Manufacturing

CONSTRUCTION
(YoY Growth)



CERTIFIED PAYMENTS
(% Share)

52.1% Public



47.9% Private

CONTRACTS AWARDED
(YoY Growth)

177.4% Civil Engineering

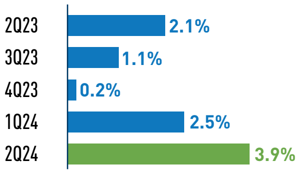
133.3% Institutional & Others

57.5% Residential

-12.2% Commercial

-15.7% Industrial

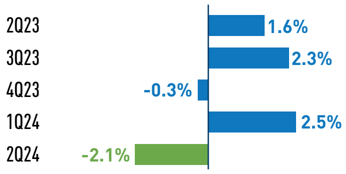
WHOLESALE TRADE
(YoY Growth)



Real NORX — Real Non-Oil Re-Exports Growth 17.5%

Real NODX — Real Non-Oil Domestic Exports Growth -3.6%

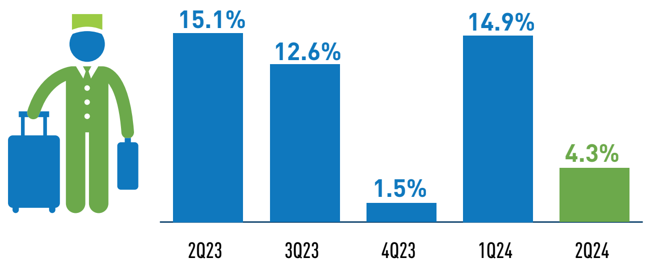
RETAIL TRADE
(YoY Growth)



Retail Sales Index Growth (Motor Vehicles) 16.8%

Retail Sales Index Growth (Non-Motor Vehicles) -4.1%

ACCOMMODATION
(YoY Growth)



OCCUPANCY RATES OF HOTELS
(YoY Change)

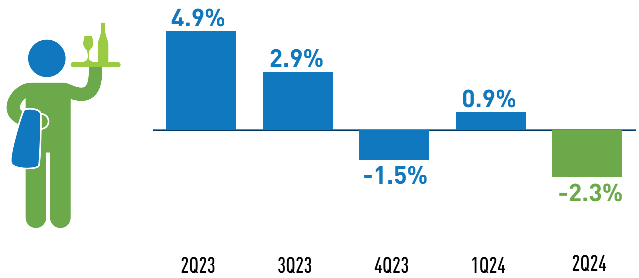
Luxury
-3.5%-pt

Upscale
2.6%-pt

Mid-Tier
-2.2%-pt

Economy
-1.9%-pt

FOOD & BEVERAGE SERVICES
(YoY Growth)



FOOD & BEVERAGE SALES INDEX GROWTH
(YoY Growth)

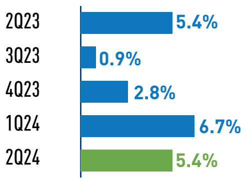
Food Caterers
15.8%

Others
-0.3%

Fast Food Outlets
-5.2%

Restaurants
-6.8%

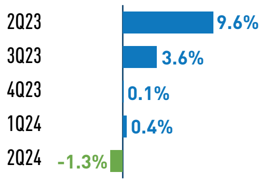
TRANSPORTATION & STORAGE
(YoY Growth)



Total Sea Cargo Handled Growth 8.6%

Air Passengers Handled Growth 13.4%

REAL ESTATE
(YoY Growth)

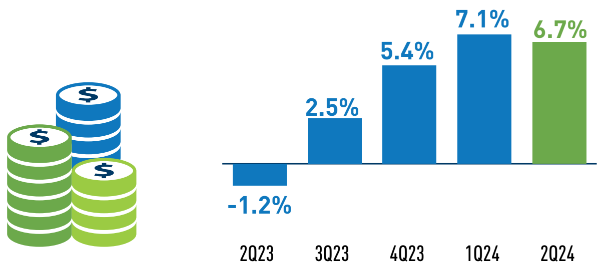


PRIVATE RESIDENTIAL REAL ESTATE

Certified Payments (YoY Growth) 1.6%

Units Transacted (YoY Growth) -8.8%

FINANCE & INSURANCE
(YoY Growth)



OVERVIEW

In the second quarter of 2024,

- The manufacturing sector contracted by 1.0 per cent year-on-year, extending the 1.7 per cent decline in the preceding quarter. The sector was weighed down by output contractions in the biomedical manufacturing and precision engineering clusters, which more than offset output expansions in the transport engineering, chemicals, electronics and general manufacturing clusters.

- The construction sector grew by 3.8 per cent year-on-year, extending the 4.1 per cent expansion in the previous quarter.

- The wholesale trade sector expanded by 3.9 per cent year-on-year, picking up from the 2.5 per cent expansion recorded in the preceding quarter.

- The retail trade sector contracted by 2.1 per cent year-on-year, a pullback from the 2.5 per cent growth recorded in the previous quarter.

- The transportation & storage sector posted growth of 5.4 per cent year-on-year, moderating slightly from the 6.7 per cent growth recorded in the previous quarter.

- The accommodation sector expanded by 4.3 per cent year-on-year, slowing from the 14.9 per cent growth in the previous quarter.

- The food & beverage services sector contracted by 2.3 per cent year-on-year, reversing the 0.9 per cent growth in the previous quarter.

- The finance & insurance sector expanded by 6.7 per cent year-on-year, extending the 7.1 per cent gain in the preceding quarter.

- The real estate sector contracted by 1.3 per cent year-on-year, reversing the 0.4 per cent growth in the preceding quarter.

- The professional services sector grew by 2.7 per cent year-on-year, quicker than the 1.8 per cent expansion in the previous quarter.

MANUFACTURING

The manufacturing sector contracted by 1.0 per cent on a year-on-year basis in the second quarter of 2024, extending the 1.7 per cent decline in the previous quarter (Exhibit 2.1). The sector was weighed down by output contractions in the biomedical manufacturing and precision engineering clusters, which more than offset output expansions in the transport engineering, chemicals, electronics and general manufacturing clusters (Exhibit 2.2).

Exhibit 2.1: Manufacturing Sector's Growth Rate

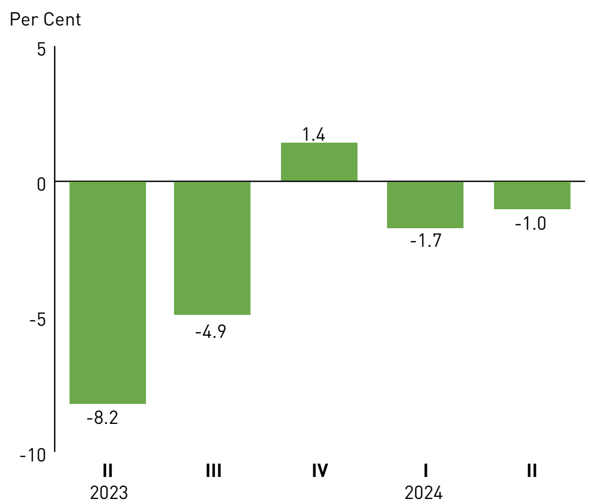
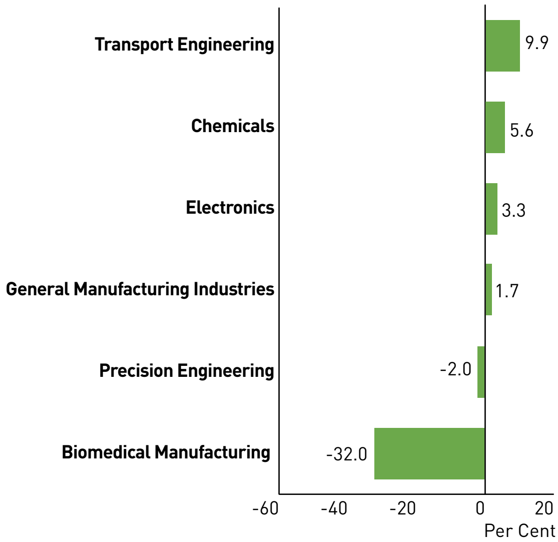


Exhibit 2.2: Manufacturing Clusters' Growth Rates in 2Q 2024



The transport engineering cluster expanded by 9.9 per cent year-on-year in the second quarter, supported by expansions in the marine & offshore engineering (M&OE) and aerospace segments. The M&OE segment grew by 19.0 per cent, supported by a higher level of activity in the shipyards, as well as increased production of oilfield and gasfield equipment. Similarly, in the aerospace segment, output grew by 9.2 per cent, bolstered by higher demand for aircraft parts and maintenance, repair and overhaul (MRO) jobs from commercial airlines on the back of strong air travel demand globally. By contrast, the land segment contracted by 11.6 per cent.

The chemicals cluster grew by 5.6 per cent year-on-year in the second quarter, supported by output expansions in all segments except the other chemicals segment. The petroleum and petrochemicals segments expanded by 14.6 per cent and 2.8 per cent respectively, partially due to the low base in output levels a year ago, when production was weighed down by plant maintenance shutdowns. The specialties segment grew by 6.5 per cent on account of a higher level of production of mineral oil and food additives. Conversely, the other chemicals segment declined by 2.3 per cent, weighed down by a lower level of output of fragrances.

The electronics cluster grew by 3.3 per cent year-on-year in the second quarter, supported by output expansions in all segments. The other electronic modules & components, computer peripherals & data storage, infocomms & consumer electronics and semiconductors segments grew 17.2 per cent, 14.7 per cent, 14.6 per cent and 1.5 per cent respectively, on the back of improved orders.

Output in the general manufacturing cluster grew by 1.7 per cent year-on-year in the second quarter. Growth was largely supported by the food, beverages & tobacco segment, which expanded by 6.4 per cent on account of higher production of beverage concentrates, milk powder and cocoa products. Meanwhile, the printing segment grew marginally by 0.8 per cent. On the other hand, output in the miscellaneous industries segment declined by 4.8 per cent due to lower production of construction-related materials.

The precision engineering cluster contracted by 2.0 per cent year-on-year in the second quarter, driven by output declines in all segments. The machinery & systems (M&S) segment contracted by 0.8 per cent, on account of a lower level of production of back-end semiconductor equipment and process control equipment. The precision modules & components segment shrank by 6.5 per cent due to a lower level of production of metal precision components, optical instruments and dies, moulds, tools, jigs and fixtures.

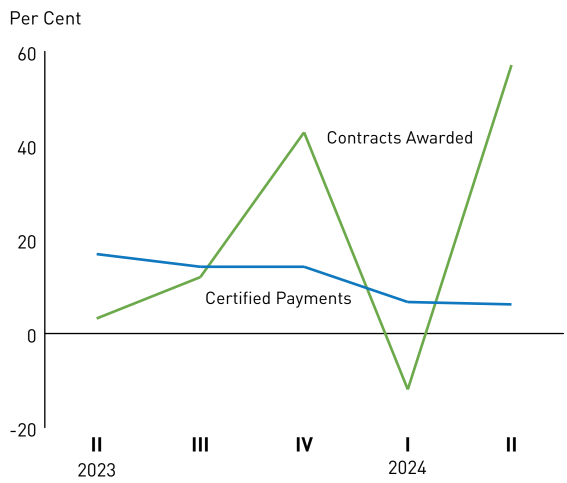
The biomedical manufacturing cluster contracted by 32.0 per cent year-on-year in the second quarter, as a contraction in the pharmaceuticals segment outweighed an expansion in the medical technology segment. The pharmaceuticals segment contracted by 57.9 per cent on account of a lower level of production of biological products and a different mix of active pharmaceutical ingredients (APIs) being produced. Conversely, output in the medical technology segment expanded by 11.7 per cent on the back of a higher level of exports for medical devices.

CONSTRUCTION

The construction sector grew by 3.8 per cent year-on-year in the second quarter of 2024, extending the 4.1 per cent expansion in the previous quarter.

In the second quarter, nominal certified progress payments, a proxy for construction output, rose by 6.2 per cent year-on-year, extending the 6.7 per cent increase recorded in the previous quarter (Exhibit 2.3). Higher certified progress payments were seen in both the public (11.1 per cent) and private (1.4 per cent) sectors. The growth in public certified progress payments was largely driven by higher outturns in public industrial building (125 per cent) and civil engineering (6.3 per cent) works. Meanwhile, the expansion in private certified progress payments was led by growth in private industrial building (5.8 per cent) and civil engineering (9.6 per cent) building works.

Exhibit 2.3: Changes in Contracts Awarded and Certified Payments



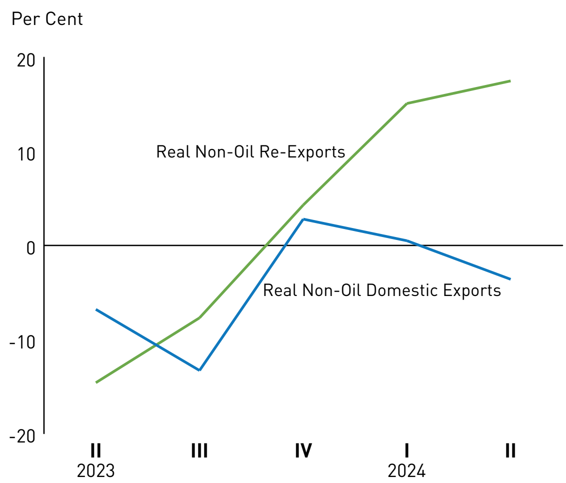
Construction demand in terms of contracts awarded rose by 57.1 per cent year-on-year in the second quarter, reversing the 11.9 per cent contraction in the previous quarter (Exhibit 2.3). The growth in contracts awarded during the quarter was on account of higher public sector construction demand (159 per cent), which outweighed a contraction in private sector construction demand (-9.0 per cent). The former was led by an increase in contracts awarded for public residential (161 per cent) and institutional & others (140 per cent) building works, while the latter was led by a decline in contracts awarded for private residential (-11.5 per cent) and commercial (-16.9 per cent) building works.

WHOLESALE TRADE

The wholesale trade sector grew by 3.9 per cent year-on-year in the second quarter of 2024, picking up from the 2.5 per cent expansion in the previous quarter.

Growth in the sector was supported by the robust expansion in non-oil re-export (NORX) volumes during the quarter, despite a contraction in the non-oil domestic export (NODX) volumes in the same period. Specifically, NORX volumes increased by 17.5 per cent year-on-year in the second quarter, extending the 15.1 per cent growth clocked in the previous quarter (Exhibit 2.4). This was led by a strong expansion in the re-exports of machinery and equipment. On the other hand, NODX volumes decreased by 3.6 per cent in the second quarter, reversing the 0.5 per cent growth posted in the previous quarter, weighed down by the contraction in domestic exports of chemicals & chemical products, which more than offset the expansion in that of machinery & equipment and miscellaneous manufactured articles.

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

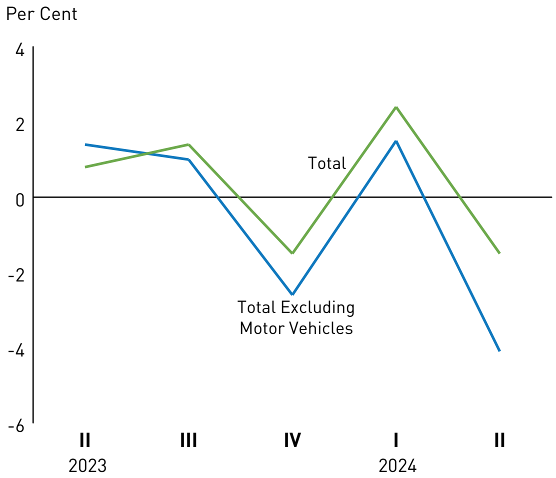


RETAIL TRADE

The retail trade sector contracted by 2.1 per cent year-on-year in the second quarter of 2024, reversing the 2.5 per cent growth in the previous quarter.

In the second quarter, overall retail sales volume declined by 1.5 per cent year-on-year, reversing the 2.4 per cent growth in the preceding quarter (Exhibit 2.5). The decline in overall retail sales volume in the second quarter of 2024 was driven by non-motor vehicular sales (-4.1 per cent), led by watches & jewellery (-8.5 per cent) and wearing apparel & footwear (-9.6 per cent) segments, even as the food & alcohol segment grew (6.2 per cent). Meanwhile, sales volumes of motor vehicle sales (16.8 per cent) grew.

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

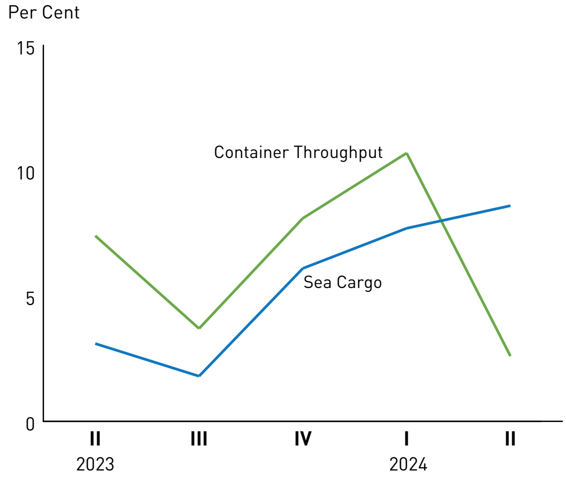


TRANSPORTATION & STORAGE

The transportation & storage sector expanded by 5.4 per cent year-on-year in the second quarter of 2024, easing slightly from the 6.7 per cent growth posted in the previous quarter. The water transport, air transport and land transport segments expanded during the quarter.

In the water transport segment, the volume of sea cargo handled grew by 8.6 per cent year-on-year in the second quarter, picking up from the 7.7 per cent expansion in the previous quarter (Exhibit 2.6). The expansion in sea cargo volume handled was due to the increase in general cargo (6.5 per cent), bulk cargo (12.4 per cent) and oil-in-bulk cargo volumes (7.7 per cent). At the same time, container throughput grew by 2.6 per cent during the quarter.

Exhibit 2.6: Changes in Container Throughput and Sea Cargo Handled

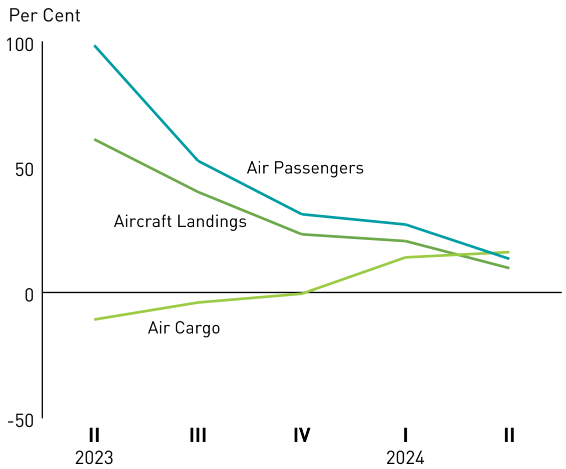


Meanwhile, the air transport segment posted strong growth in the second quarter. In particular, the volume of air passenger traffic (less transit) handled at Changi Airport rose by 13.4 per cent year-on-year in the second quarter, easing from the 27.1 per cent growth posted in the previous quarter (Exhibit 2.7). The high growth rates in both quarters were due to the relatively lower bases in the first and second quarter of 2023, when the volume of air passenger traffic remained below pre-pandemic levels.[1] Air passenger traffic volume was slightly below its pre-COVID level (i.e., second quarter of 2019) by 1.6 per cent in the second quarter.

1 *Air passenger traffic volumes in the first and second quarter of 2023 were 20.8 and 13.2 per cent below their pre-COVID levels respectively (i.e., the first and second quarter of 2019).*

Reflecting the recovery in air travel, the number of aircraft landings increased by 9.7 per cent year-on-year to reach 44,621 in the second quarter of 2024, moderating from the 20.5 per cent increase in the preceding quarter. Meanwhile, total air cargo shipments handled at Changi Airport rose by 16.1 per cent in the second quarter, extending the 14.0 per cent expansion in the previous quarter.

Exhibit 2.7: Changes in Air Transport

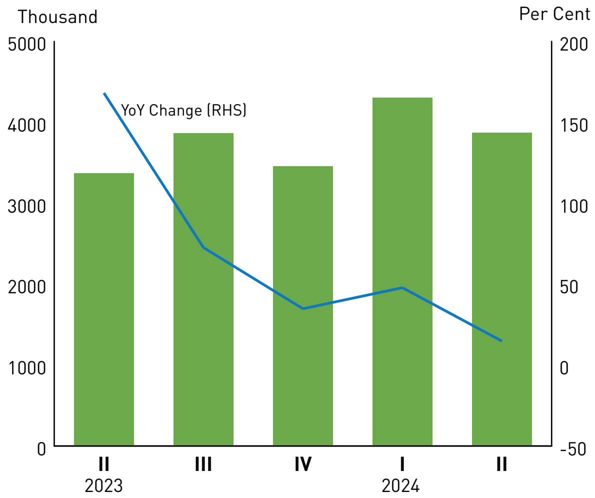


ACCOMMODATION

The accommodation sector expanded by 4.3 per cent year-on-year in the second quarter of 2024, slowing from the 14.9 per cent growth in the preceding quarter.

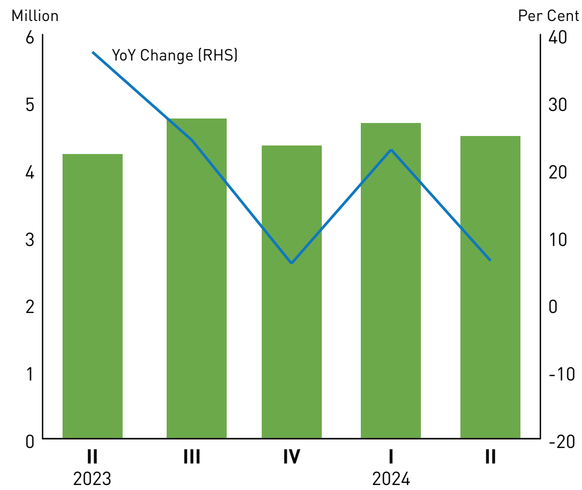
In the second quarter, total visitor arrivals grew by 14.8 per cent year-on-year, extending the 47.8 per cent growth in the previous quarter (Exhibit 2.8). In level terms, the number of visitor arrivals in the second quarter of 2024 was around 3.9 million, reaching 83.5 per cent of the 4.6 million visitor 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 grew by 6.4 per cent year-on-year in the second quarter, extending the 22.9 per cent increase in the previous quarter (Exhibit 2.9). Meanwhile, the average occupancy rate of gazetted hotels declined by 1.3 percentage-points year-on-year to 78.2 per cent in the second quarter of 2024. This was a decline over the 81.7 per cent recorded in the previous quarter.

Exhibit 2.9: Gross Lettings at Gazetted Hotels

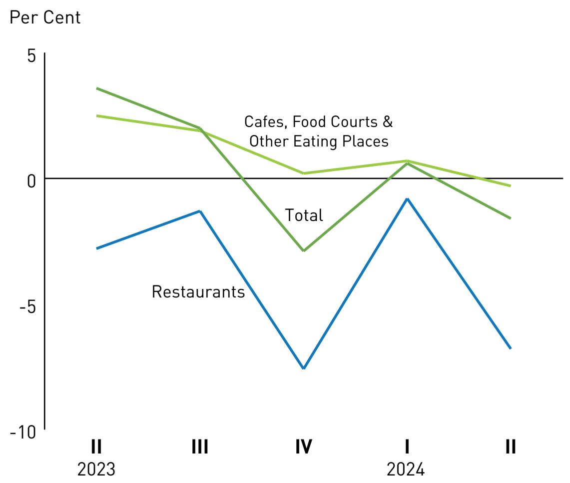


FOOD & BEVERAGE SERVICES

The food & beverage services sector contracted by 2.3 per cent year-on-year in the second quarter of 2024, reversing the 0.9 per cent growth in the previous quarter.

Overall food & beverage sales volume declined by 1.6 per cent year-on-year in the second quarter, reversing the 0.6 per cent growth in the previous quarter (Exhibit 2.10). The decline in food & beverage sales volume was led by restaurants (-6.8 per cent) and fast food outlets (-5.2 per cent) segments. On the other hand, the sales volume of food caterers (15.8 per cent) segment grew.

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



FINANCE & INSURANCE

The finance & insurance sector expanded by 6.7 per cent year-on-year in the second quarter, extending the 7.1 per cent gain in the preceding quarter.

The robust second quarter outturn was underpinned by the banking and fund management segments, which saw net commissions surge by double digits during the quarter, alongside the commencement of easing in global interest rates. However, loan growth remained subdued. Loans to residents grew by 0.5 per cent, down from the 1.4 per cent growth in the first quarter, mainly due to the contraction in corporate lending, particularly to the manufacturing sector (Exhibit 2.11). Meanwhile, loans to non-residents fell by 1.9 per cent in the second, weighed down by the Americas region (Exhibit 2.12).

Exhibit 2.11: Growth of Bank Loans & Advances to Non-Bank Residents by Industry in 2Q 2024

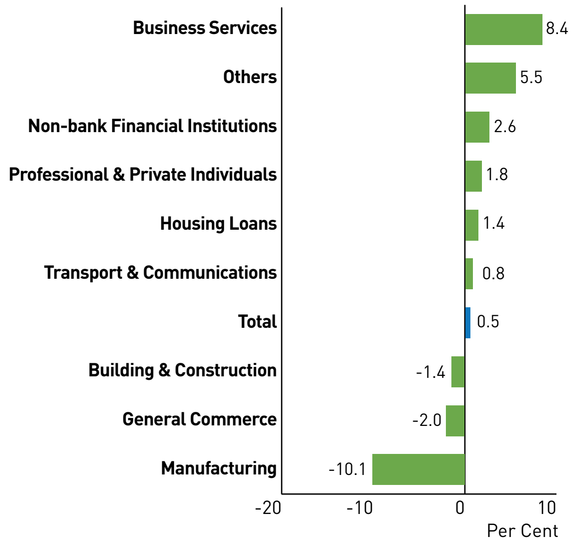
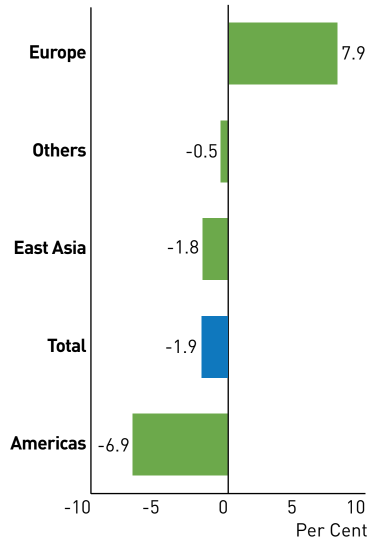


Exhibit 2.12: Growth of Bank Loans & Advances to Non-Bank Non-Residents by Region in 2Q 2024



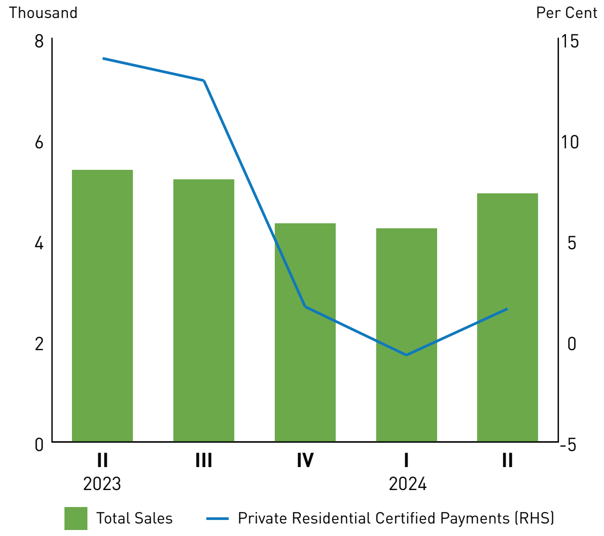
The insurance and other auxiliary activities segments continued to record firm growth in the second quarter, with the former benefiting from solid growth in net premiums, particularly among the general insurers. The latter, which largely comprises the payments players, gained from a pickup in transaction volumes amid the recovery in global demand.

REAL ESTATE

The real estate sector contracted by 1.3 per cent year-on-year in the second quarter of 2024, reversing the 0.4 per cent growth in the preceding quarter. The weakness of the sector was due to contractions in the private residential property segment.

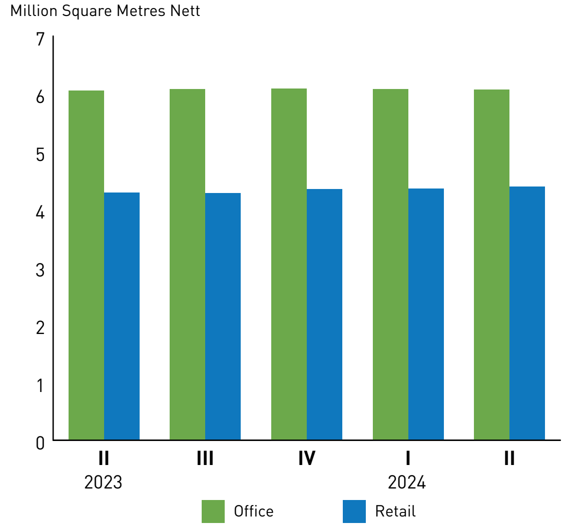
Within the sector, private residential certified payments[2] grew by 1.6 per cent year-on-year in the second quarter, reversing the 0.7 per cent contraction in the previous quarter. By contrast, total private residential property sales fell by 8.8 per cent in the second quarter, reversing from the 2.6 per cent increase in the previous quarter. (Exhibit 2.13).

Exhibit 2.13: Total Sales for Private Residential Units and Private Residential Certified Payments



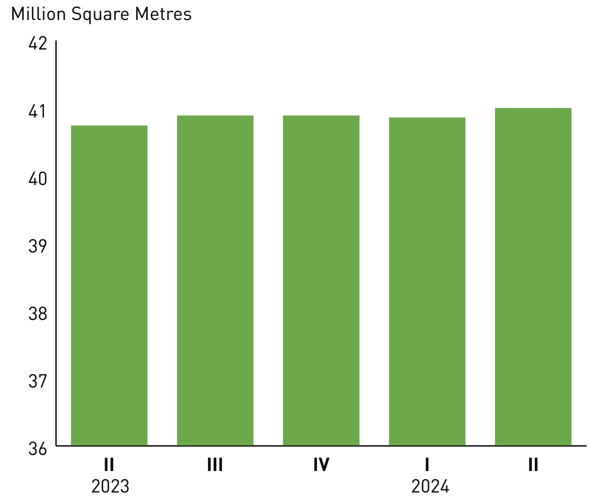
In the private commercial retail space market, demand, as measured by total occupied space, rose by 2.4 per cent on a year-on-year basis in the second quarter of 2024, continuing the 2.1 per cent expansion in the previous quarter. Similarly, demand for private commercial office space rose by 0.2 per cent in the second quarter, extending the 1.0 per cent increase in the preceding quarter (Exhibit 2.14).

Exhibit 2.14: Total Occupied Space for Private Sector Commercial Office and Retail Spaces



Similarly, demand for private industrial space rose by 0.6 per cent on a year-on-year basis in the second quarter, following the 0.8 per cent increase in the preceding quarter (Exhibit 2.15).

Exhibit 2.15: Total Occupied Space for Private Sector Industrial Space



2 *Private residential certified payments is a proxy for the growth of the private residential property segment.*

PROFESSIONAL SERVICES

In the second quarter of 2024, the professional services sector grew by 2.7 per cent year-on-year, quicker than the 1.8 per cent expansion in the previous quarter. Growth was led by expansions in the head offices & business representative offices, accounting and other professional, scientific & technical services segments.[3]

3 *The professional services sector is made up of the following segments: (i) legal, (ii) accounting, (iii) head offices & business representative offices, (iv) business & management consultancy, (v) architectural & engineering, technical testing & analysis, and (vi) other professional, scientific & technical services.*

CHAPTER 3

ECONOMIC OUTLOOK

Chapter 3

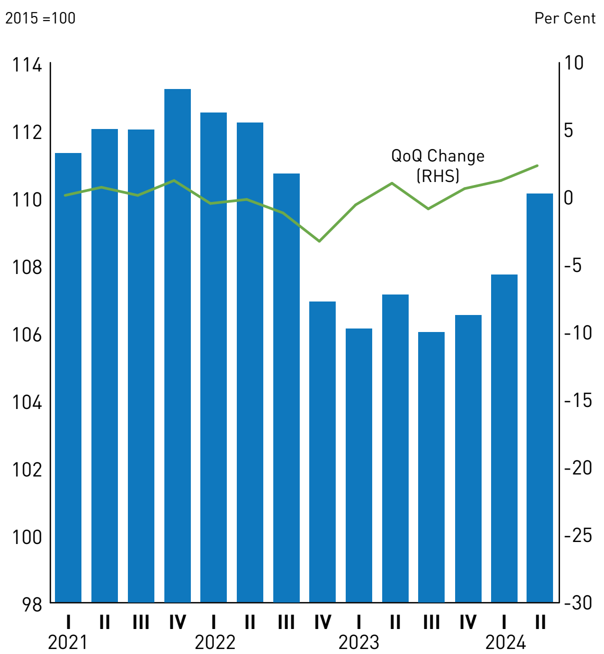
ECONOMIC OUTLOOK

LEADING INDICATORS

On a quarter-on-quarter basis, the composite leading index (CLI) rose by 2.2 per cent in the second quarter of 2024, faster than the 1.1 per cent expansion in the previous quarter (Exhibit 3.1).

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

Exhibit 3.1: Composite Leading Index Levels and Growth Rate



OUTLOOK FOR 2024

Since the Economic Survey of Singapore in May, the GDP growth performances of Singapore's major trading partners have largely been in line with expectations, with the US, Japan and Malaysia being key exceptions. Notably, the US and Malaysian economies performed better than expected in the second quarter on the back of strong domestic demand. By contrast, GDP growth in Japan was weighed down by weak private consumption as real wages continued to decline.

For the rest of 2024, US' GDP growth is expected to ease gradually as consumption growth slows in tandem with weakening labour market conditions, even as investment growth is likely to remain supported by AI-related investments. Meanwhile, GDP growth in the Eurozone is projected to improve gradually. Even though industrial activity and investments are likely to remain subdued for the rest of the year, growth will be supported by a firmer recovery in consumer spending as price pressures ease further and monetary policy turns more accommodative. Similarly, Japan's GDP growth is expected to pick up over the course of the year in tandem with stronger private consumption on the back of broadening wage increases and easing inflationary pressures.

Elsewhere in Asia, China's economy is projected to expand at a slightly slower pace in the second half of the year as investment growth tapers amidst signs of overcapacity in some sectors. Nonetheless, as the property market is likely to stabilise with the rollout of government support measures, consumer sentiments should start to improve and lead to a modest recovery in consumption. Meanwhile, GDP growth in key Southeast Asian economies is projected to pick up slightly in the second half of the year in tandem with improvements in domestic demand, as well as the ongoing recoveries in global electronics and tourism demand.

On balance, Singapore's external demand outlook is expected to be resilient for the rest of the year. However, downside risks in the global economy remain. First, an intensification of geopolitical and trade conflicts could dampen business sentiments and add to production costs, which could weigh on global trade and growth. Second, disruptions to the global disinflation process could lead to tighter financial conditions for longer, and trigger market volatility or latent vulnerabilities in banking and financial systems.

Against this backdrop, Singapore's manufacturing sector is expected to see a gradual recovery in the second half of the year. In particular, the electronics cluster is projected to recover more strongly, supported by robust demand for smartphone, PC and AI-related chips. This will in turn provide a boost to the precision engineering cluster. In addition, the chemicals cluster is expected to continue to expand, supported in part by higher production in the petrochemicals and specialty chemicals segments. By contrast, the biomedical manufacturing cluster is likely to contract, as pharmaceuticals output is projected to stay weak for the rest of the year.

At the same time, the projected recovery of the manufacturing sector, particularly that of the electronics cluster, is expected to benefit trade-related services sectors such as the machinery, equipment & supplies segment of the wholesale trade sector. Meanwhile, the continued recovery in air travel and tourism demand will support growth in the tourism- and aviation-related sectors (e.g., accommodation and air transport). Growth in the finance & insurance sector should also remain robust, as global policy rate cuts continue to be implemented amidst sustained disinflation.

Taking into account the performance of the Singapore economy in the first half of 2024, as well as the latest global and domestic economic situations, MTI has narrowed the GDP growth forecast for 2024 to "**2.0 to 3.0 per cent**", from "1.0 to 3.0 per cent".

FEATURE ARTICLE

IMPACT OF ACADEMIC CONTINUING EDUCATION AND TRAINING POST-DIPLOMA PROGRAMME ON EMPLOYMENT AND WAGE OUTCOMES

HSBC

IMPACT OF ACADEMIC CONTINUING EDUCATION AND TRAINING POST-DIPLOMA PROGRAMME ON EMPLOYMENT AND WAGE OUTCOMES

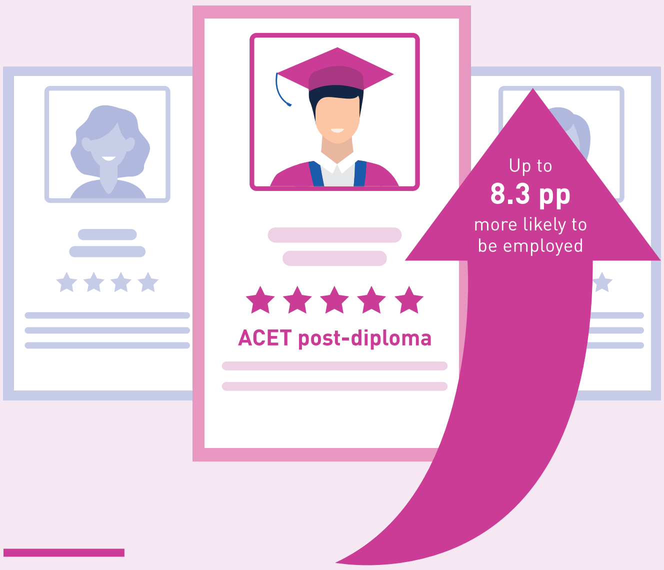
OVERVIEW

MOE introduced the Academic Continuing Education and Training (ACET) Post-Diploma programme in 2011 to support mid-career Singaporeans who wish to upskill and reskill.

FINDINGS

Finding 1:

Compared to their respective control groups of individuals with similar profiles, individuals who completed an ACET post-diploma were 3.0 percentage-points (pp) to 8.3pp more likely to be employed after graduation.

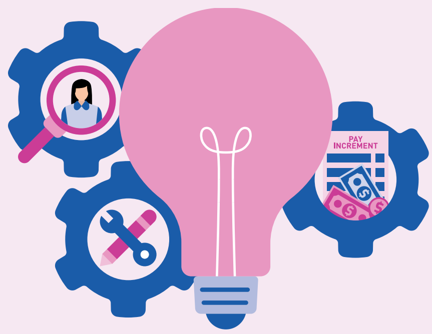


Finding 2:

Based on a comparison between ACET post-diploma participants and their respective control groups, completing an ACET post-diploma increased real monthly wages by 4.6 per cent to 10.8 per cent after graduation. In dollar terms, this translates to an increase of approximately $300 to $540.

POLICY TAKEAWAY

The ACET post-diploma programme was effective in improving the employment and wage outcomes of course participants. Going forward, the Singapore Government will continue to invest in upskilling and reskilling Singaporeans so that they can stay economically competitive and employable throughout their working lives.



EXECUTIVE SUMMARY

- The Ministry of Education (MOE) provides subsidies for the Academic Continuing Education and Training (ACET) Post-Diploma courses in order to support Singaporeans who wish to upskill or reskill through such courses. This study evaluates the impact of obtaining an ACET post-diploma Full Qualification (FQ) on the employment and wage outcomes of participants.

- We find that completing an ACET post-diploma FQ improved the employment outcomes of post-diploma FQ participants. Compared to their respective control groups of individuals with similar profiles, the likelihood of employment for ACET post-diploma FQ graduates was up to 8 percentage-points higher after completing the course.

- We also find positive wage returns to attaining an ACET post-diploma FQ. Specifically, we find that post-diploma FQ graduates enjoyed real monthly wages that were up to 11 per cent higher on average compared to their respective control groups after completing the course.

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.[1]

INTRODUCTION

In recent years, the Singapore Government has been placing more emphasis on developing the Continuing Education and Training (CET) ecosystem in order to provide Singaporeans with access to upskilling and reskilling opportunities to prepare them for the evolving needs of our economy, as well as ensure that they can pursue their career aspirations through a wider range of pathways. Against this backdrop, numerous CET pathways have been introduced by the Government, with one such pathway being the Academic Continuing Education and Training (ACET) Post-Diploma programme.

Specifically, the ACET Post-Diploma programme, which was introduced in 2011, offers courses under two broad qualification frameworks, namely (i) Advanced Diploma (AD) and Specialist Diploma (SD)[2], and (ii) Diploma (Conversion). The AD and SD focus on upskilling and are designed to provide diploma or degree holders with an opportunity to update and deepen their skills in their trained or practicing disciplines. On the other hand, the Diploma (Conversion) focuses on reskilling to support mid-career individuals in acquiring the skills that will enable them to take on a job in a different discipline.

Given the potential of the ACET Post-Diploma programme as a pathway for mid-career Singaporeans to acquire new skills and improve their labour market outcomes, this study examines the impact of the programme on the employability and wages of individuals who obtained a Full Qualification (FQ) under the programme.[3]

The rest of the article is organised as follows. We first provide a brief review of the literature related to the impact of training on individuals' labour market outcomes. We then describe the data and methodology employed for our study, before reporting our findings. The final section concludes.

LITERATURE REVIEW

In theory, training can affect the labour market outcomes of workers through two main channels. First, training increases labour productivity because workers learn and acquire new skills. In turn, their wages increase as firms value employees who have a higher level of human capital and are more productive. Second, training has signalling effects, which may contribute in part to the wage returns to workers. In particular, as employers could use the qualifications obtained as a signal of underlying ability, more educated workers may enjoy higher wages.

1 *We would like to thank Ms Yong Yik Wei, Dr Andy Feng, Mr Lee Zen Wea and Dr Tan Yi Jin for their useful suggestions and comments. We are also grateful to MOE (Higher Education Group) for their inputs to this study. All remaining errors belong to the authors.*

2 *The content of an AD course is generally more extensive than that for a SD course and as such, participants generally require more time to complete an AD course. Specifically, AD participants are generally required to complete three or more Post-Diploma Certificates (PDCs) in 1.5 to two years to obtain a FQ, whereas SD participants are generally required to complete two PDCs in a year to obtain a FQ.*

3 *While participants could complete part of the ACET post-diploma course to obtain one or more PDCs without the FQ, this study focuses only on the individuals who obtained the FQ by completing the full course.*

Empirically, the literature provides evidence that training is associated with positive wage returns. For instance, Konings and Vanormelingen (2015) found that in Belgium, a 10 percentage-point (pp) increase in the share of trained workers in a firm was associated with a 1.0 per cent to 1.7 per cent increase in the average wage per worker. Similarly, Kambourov et al. (2020) found that the wage returns to individuals who participated in government-sponsored training in the United States ranged from 7.7 per cent to 8.4 per cent, after controlling for broad occupational categories and occupational transitions.

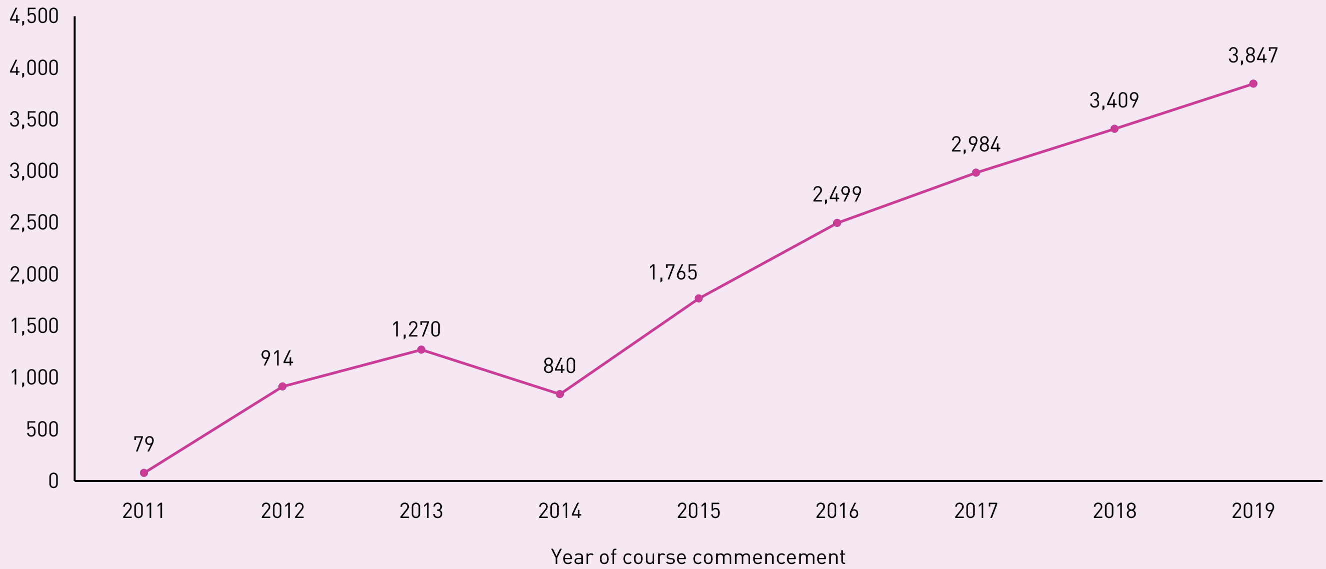
In Singapore's context, past studies have found that training undertaken by mid-career Singaporeans generally improved their labour market outcomes. For example, Wen and Teo (2018) found that trainees who achieved a Workforce Skills Qualifications (WSQ) FQ enjoyed a real wage premium of 5.8 per cent on average in the year after training compared to their control group. Additionally, WSQ FQ trainees who were not employed in the year of training were more likely to be employed in the following year.

DATA AND SUMMARY STATISTICS

This study uses course-level data on all locals (i.e., Singaporeans and Permanent Residents) who had enrolled in ACET post-diploma courses offered by the local polytechnics from 2011 to 2019 and obtained a FQ. This dataset includes information on relevant course characteristics (e.g., course commencement and graduation dates). The course-level dataset was merged with an individual-level longitudinal administrative dataset containing information on the employment history and wages of all local employees in Singapore between 2010 and 2020.

Based on the dataset assembled, there was a general uptrend in the number of individuals who enrolled in an ACET post-diploma course and eventually obtained a FQ (henceforth known as ACET post-diploma FQ participants) between 2011 and 2019 (Exhibit 1). Given the small number of individuals who commenced their post-diploma course in 2011 (i.e., 2011 cohort), the rest of the study focuses on the 2012 to 2019 cohorts.

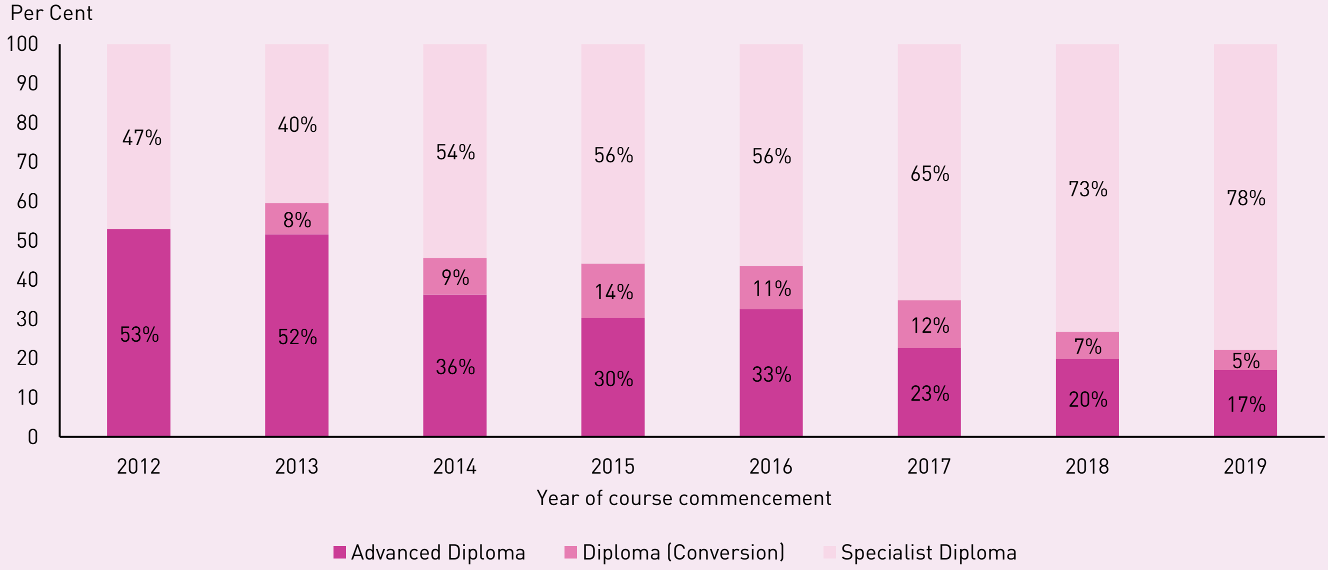
Exhibit 1: Number of Participants Enrolled in an ACET Post-Diploma Course and Obtained a FQ, 2011 to 2019 cohorts



Source: Ministry of Education (MOE)

We observe that among those who eventually completed a post-diploma FQ, a large proportion of them were enrolled in a SD course, with this proportion seeing an increase between 2012 and 2019 (Exhibit 2). By contrast, the proportion of post-diploma FQ participants who enrolled in an AD course generally declined over the same period, while the proportion who enrolled in a Diploma (Conversion) course remained relatively small.[4]

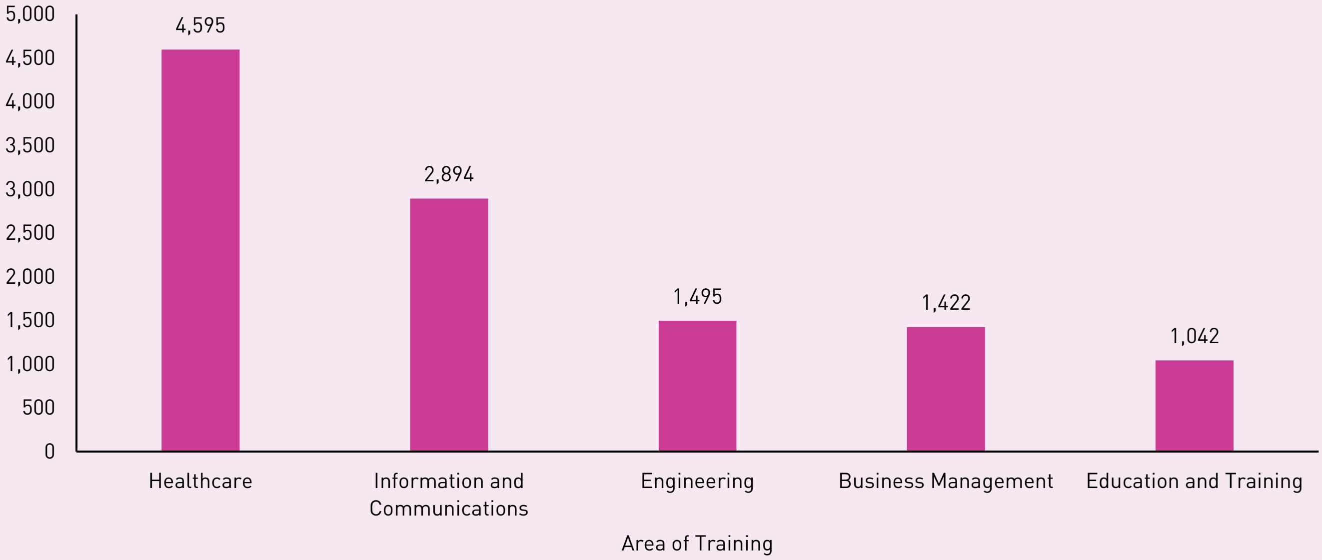
Exhibit 2: Distribution of Participants in the ACET Post-Diploma Programme who Obtained a FQ by Course Type, 2012 to 2019 cohorts



Source: MOE

We also observe that among the ACET post-diploma FQ participants in the 2012 to 2019 cohorts, close to 70 per cent of them were enrolled in the following Areas of Training (AOTs): Healthcare (27 per cent of participants), Information and Communications (17 per cent), Engineering (9 per cent), Business Management (8 per cent) and Education and Training (6 per cent) (Exhibit 3).

Exhibit 3: Top 5 AOTs among ACET Post-Diploma Participants who Obtained a FQ, 2012 to 2019 cohorts



Source: MOE

4 *As the Diploma (Conversion) programme was launched in 2013, there were no individuals in the programme among the 2012 cohort.*

EMPIRICAL METHODOLOGY

To estimate the causal impact of completing an ACET post-diploma FQ on the employment and wage outcomes of local employees, we combine matching methods with a difference-in-differences regression analysis. This two-step approach allows us to compare the employment and wage outcomes of two groups of individuals: a "treated" group that completed an ACET post-diploma FQ and an observably-similar "control" group that did not enrol in any ACET post-diploma courses. We conduct the analysis for each cohort of ACET post-diploma FQ participants separately.

First, we use Propensity Score Matching (PSM) to construct a matched control group for each cohort of ACET post-diploma FQ participants. The matched control group would be comparable to the treated individuals in terms of their observable characteristics and employment/wage outcomes prior to the commencement of the ACET course.[5] This step is necessary because the ACET post-diploma FQ participants were observably different from non-participants in the population. For instance, for the 2019 cohort, ACET post-diploma FQ participants were more likely to be: (i) younger, (ii) female, (iii) more educated, (iv) employed, and (v) higher earning conditional on employment (Exhibit 4) as compared to the non-participants. These differences, if not accounted for through matching methods, could lead to differences in the two groups' employment/wage outcomes being wrongly attributed to the impact of the ACET post-diploma FQ.

Exhibit 4: Summary Statistics on Characteristics of Individuals Before and After Matching, 2019 Cohort

	Before matching		After matching	
	Treated	Control	Treated	Control
Average age	32	44	32	32
Share of males	43%	51%	42%	43%
Educational attainment				
Share of bachelor's and post-graduate degree holders	47%	32%	45%	46%
Share of diploma holders	22%	16%	22%	21%
Employment status				
Share of employed individuals	89%	81%	89%	89%
Median monthly wages (conditional on employment)	$4,500	$3,500	$4,400	$4,100

Source: Authors' estimates

Second, we quantify the impact of the ACET post-diploma FQ on participants' employment and wage outcomes during the course, as well as after graduation, by comparing the trends in their outcomes against that of their matched control groups using a difference-in-differences regression model.[6] The regression model allows us to control for time-invariant unobservable characteristics specific to each individual (e.g., innate ability) and time-varying factors that affected the employment/wage outcomes and were common to both the treatment and control groups (e.g., economic conditions). Using this approach, the trends in the employment/wage outcomes of individuals in the matched control group would serve as a counterfactual for that of participants in the treatment group, thereby allowing us to estimate the causal impact of the post-diploma FQ. Specifically, the following equation is estimated for each cohort of ACET post-diploma FQ participants:

5 *For each cohort, the PSM algorithm was implemented using data in the year prior to the commencement of the ACET post-diploma FQ course (e.g., for the 2019 cohort, data from 2018 was used to identify a suitable control group). The following characteristics were used for the matching: gender, ethnic group, age, highest educational qualification, marital status, residential status, employment status, average monthly wages and number of months worked (conditional on employment).*

6 *Post-diploma FQ courses are generally conducted on a part-time basis, and participants can be employed while taking the course.*

$$Y_{it} = \beta_{pre} \cdot Treat\_Pre_{it} + \beta_{study} \cdot Treat\_Study_{it} + \beta_{grad} \cdot Treat\_Grad_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Where:

- Y_{it} denotes the outcome of interest (i.e., log of average monthly wages, or dummy variable for employment) for each individual i in time t
- $Treat\_Pre_{it}$ is a dummy variable that takes on a value of 1 for treated individuals (i.e., individuals who obtained the post-diploma FQ) during the pre-treatment period (equals to 1 if the observation refers to a treated individual and time t is between two years prior to the commencement of the course and the earliest year in the time period of the administrative data used (i.e., 2010), 0 otherwise)
- $Treat\_Study_{it}$ is a dummy variable that takes on a value of 1 for treated individuals during the period of the course (equals to 1 if the observation refers to a treated individual and time t is between the year of commencement of the course and the year before graduation, 0 otherwise)
- $Treat\_Grad_{it}$ is a dummy variable that takes on a value of 1 for treated individuals during the post-graduation period (equals to 1 if the observation refers to a treated individual and time t is between the year of graduation and the last year in the time period of the administrative data used (i.e., 2020), 0 otherwise)
- α_i refers to individual fixed effects
- δ_t refers to year fixed effects
- ε_{it} refers to the error term

The coefficients of interest are β_{study} and β_{grad}, which reflect the average impact of the ACET post-diploma FQ on employment and wages during the course and after graduation respectively.[7]

On the other hand, the coefficient β_{pre} indicates whether the trends in the outcomes of interest among the treatment group and matched control group were similar in the period before the commencement of the ACET post-diploma FQ course. If the trends were not similar, the difference-in-differences approach may not be valid as the measured impact could be biased by underlying differences in how the outcomes were trending across the two groups prior to treatment. An examination of the β_{pre} coefficients shows that the treatment and matched control groups generally exhibited similar trends across most cohorts, suggesting that the difference-in-differences approach is largely valid for this study. The only exceptions were the 2012 and 2019 cohorts, where differences in the pre-treatment wage trends of the treated groups compared to their respective control groups were detected. Given that the wage results for these two cohorts could therefore potentially be biased, we exclude them in the next section.

RESULTS

We find that completing an ACET post-diploma FQ improved the employment and wage outcomes of local employees.

Specifically, we find that the post-diploma FQ increased the likelihood of employment of participants both during the course and after graduation. Compared to their respective matched control groups, post-diploma FQ participants from the 2012 to 2019 cohorts were 2.6pp to 10.3pp more likely to be employed during the course, and 3.0pp to 8.3pp more likely to be employed after graduation.

Our study also finds that the post-diploma FQ led to an increase in wages. Compared to their respective matched control groups, post-diploma FQ participants enjoyed real monthly wages that were between 6.8 per cent (which translates to approximately $340) and 16.8 per cent ($840) higher on average during the course. Upon graduation, the real monthly wages of the post-diploma FQ graduates were 4.6 per cent ($300) to 10.8 per cent ($540) higher on average than the wages of their respective matched control groups.[8]

7 *As the omitted period is the year before the commencement of the post-diploma FQ course, the coefficients should be interpreted relative to the year before course commencement. In addition, since the administrative dataset used only contains data from 2011 to 2020, the length of the post-graduation period was shorter for later cohorts. Correspondingly, the* β_{grad} *coefficient measures the post-graduation impact over a shorter horizon for these cohorts.*

8 *The wage results both during the course and after graduation exclude the estimates for the 2012 and 2019 cohorts given that the pre-treatment trends in their wage outcomes differed from that of their respective control groups. For the remaining cohorts, only statistically significant estimates are reported.*

CONCLUSION

In conclusion, our study finds that the ACET post-diploma FQ was effective in improving the employment and wage outcomes of participants, as participants were more likely to be employed and saw higher real monthly wages both during the course, as well as after graduation. This suggests that the ACET post-diploma FQ has been successful in equipping mid-career adults with the skills that are valued by employers.

Going forward, the Singapore Government will continue to invest in upskilling and reskilling Singaporeans so that they can stay economically competitive and employable throughout their working lives. For example, Singaporeans aged 40 and above who wish to pursue an ACET post-diploma FQ for substantive reskilling can receive 90 per cent course fee subsidies from SkillsFuture Singapore, and also further offset their out-of-pocket course fees using the $4,000 SkillsFuture Credit (Mid-Career) top-up that was launched in May 2024 under the SkillsFuture Level-Up Programme. In turn, Singaporeans are encouraged to step forward to take advantage of the various opportunities available to deepen their skills or to reskill for better jobs.

Contributed by:

Mr Jonathan Khoo
Senior Economist
Economics Division
Ministry of Trade and Industry
(formerly)

Ms Yuen Wing Shan
Economist
Economics Division
Ministry of Trade and Industry
(formerly)

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MINISTRY OF TRADE AND INDUSTRY
100 High Street, #09-01 The Treasury
Singapore 179434

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