ECONOMIC SURVEY

OF SINGAPORE

2017

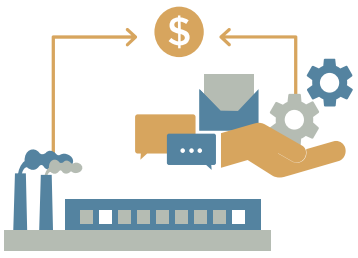
MTI MINISTRY OF TRADE AND INDUSTRY SINGAPORE

February 2018

Ministry of Trade and Industry
Republic of Singapore

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

CONTENTS



02

MAIN INDICATORS OF THE SINGAPORE ECONOMY

OVERALL ECONOMY

GDP at Current Market Price

2016	2017
$427.9 billion	$447.3 billion

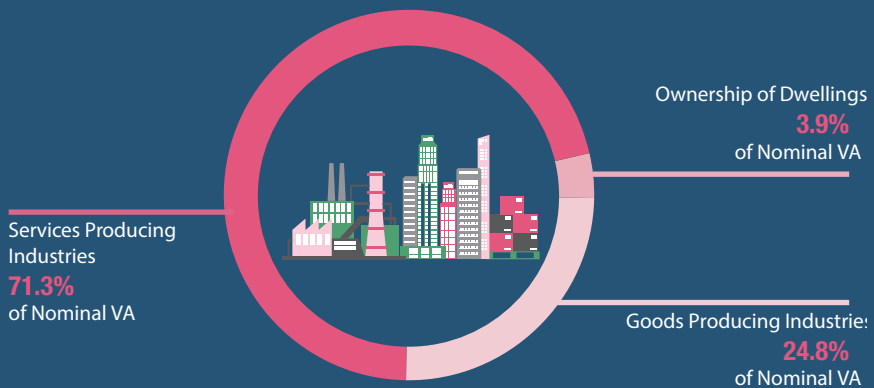
Real GDP
(Year-on-Year-Growth)

2016	2017
+2.4%	+3.6%

Per Capita GNI

2016	2017
$72,376	$76,863

STRUCTURE OF THE ECONOMY IN 2017



Breakdown of Services Producing Industries

Wholesale & Retail Trade	Business Services	Finance & Insurance	Transportation & Storage	Information & Communications	Accommodation & Food Services
17.6% of Nominal VA	14.8% of Nominal VA	13.3% of Nominal VA	7.2% of Nominal VA	4.2% of Nominal VA	2.1% of Nominal VA

Other Services Industries account for 12.0% of Nominal VA

LABOUR MARKET

Employment
(as at year end)

2016	2017
3,673.1 thousand	3,669.5 thousand

Unemployment Rate

2016	2017
2.1%	2.2%

Value-Added per Actual Hour Worked
(Year-on-Year Growth)

2016	2017
1.8%	4.5%

COSTS

Unit Labour Cost of Overall Economy
(Year-on-Year Growth)

2016	2017
2.0%	-0.3%

Unit Business Cost of Manufacturing
(Year-on-Year Growth)

2016	2017
-1.5%	3.4%

Unit Labour Cost of Manufacturing
(Year-on-Year Growth)

2016	2017
-5.0%	-8.0%

PRICES

Consumer Price Index - All Items
(Year-on-Year Growth)

2016	2017
-0.5%	+0.6%

Domestic Supply Price Index
(Year-on-Year Growth)

2016	2017
-6.9%	+7.0%

Singapore Manufactured Products Price Index
(Year-on-Year Growth)

2016	2017
-5.5%	+3.8%

MERCHANDISE TRADE

Merchandise Exports

2016	2017
$466,912 million	**$515,001** million
-5.1% Year-on-Year Growth	**10.3%** Year-on-Year Growth

Merchandise Imports

2016	2017
$403,305 million	**$452,102** million
-4.7% Year-on-Year Growth	**12.1%** Year-on-Year Growth

Share of Exports by Top 5 Export Destinations in 2017

14.5% China	12.3% Hong Kong	10.6% Malaysia	8.4% EU	7.5% Indonesia

SERVICES TRADE

Services Exports

2016	2017
$218,196 million	**$227,410** million
2.2% Year-on-Year Growth	**4.2%** Year-on-Year Growth

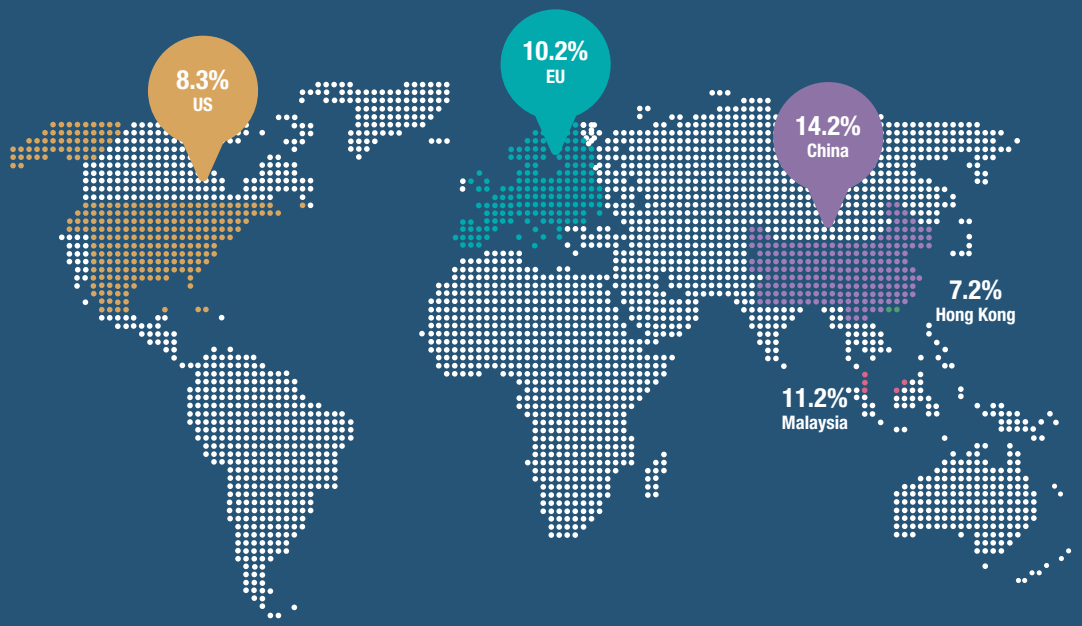
Services Imports

2016	2017
$224,477 million	**$235,855** million
-2.1% Year-on-Year Growth	**5.1%** Year-on-Year Growth

Top 5 Services Exports Categories (Share of Total Services Exports)

33% Transport Services	24% Other Business Services	13% Financial Services	12% Travel Services	5% Telecommunication, Computer and Information

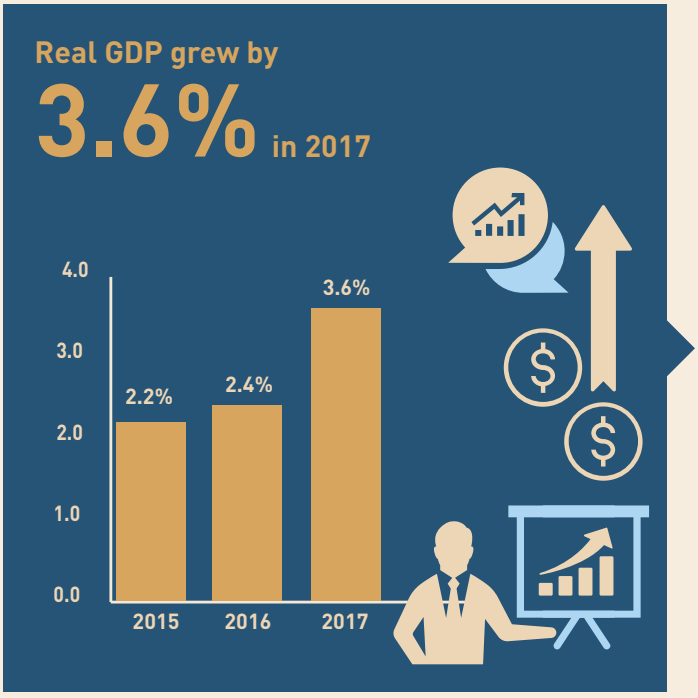
TOP 5 TRADING PARTNERS AND SHARE OF TOTAL MERCHANDISE TRADE IN 2017

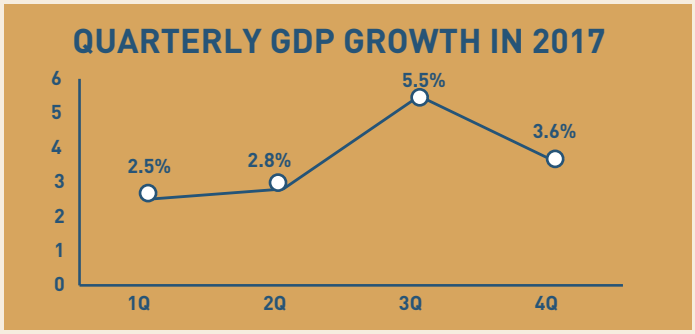


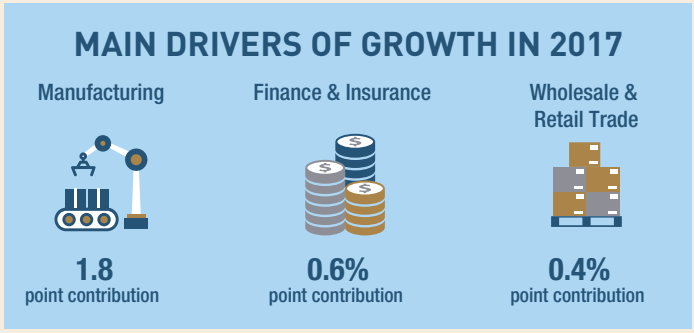
CHAPTER 1

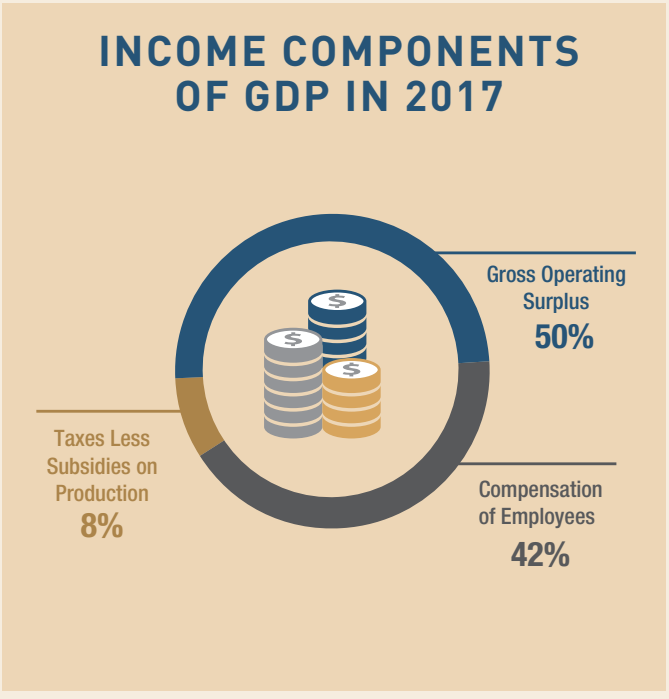
ECONOMIC PERFORMANCE

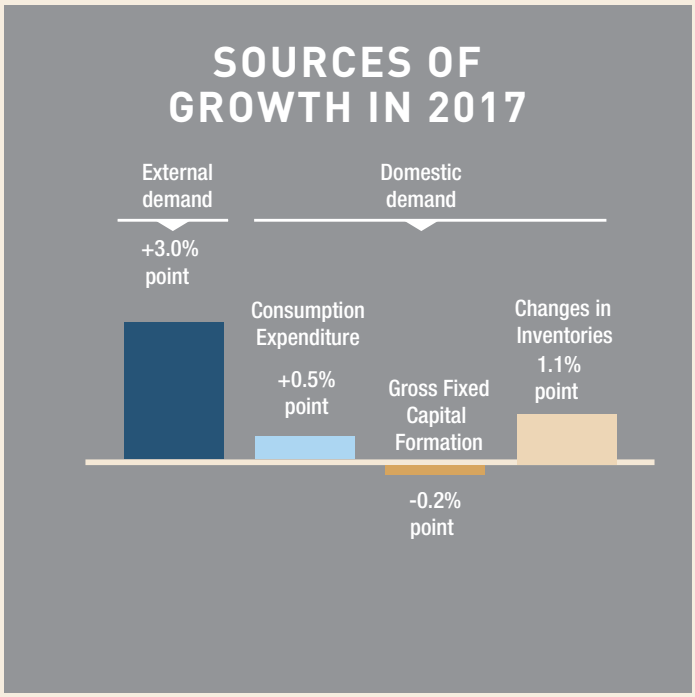
CHAPTER 1
ECONOMIC PERFORMANCE











OVERVIEW

In the fourth quarter of 2017, the economy grew by 3.6 per cent on a year-on-year basis, moderating from the 5.5 per cent growth in the previous quarter. The sectors which contributed the most to growth in the quarter were the manufacturing and finance & insurance sectors.

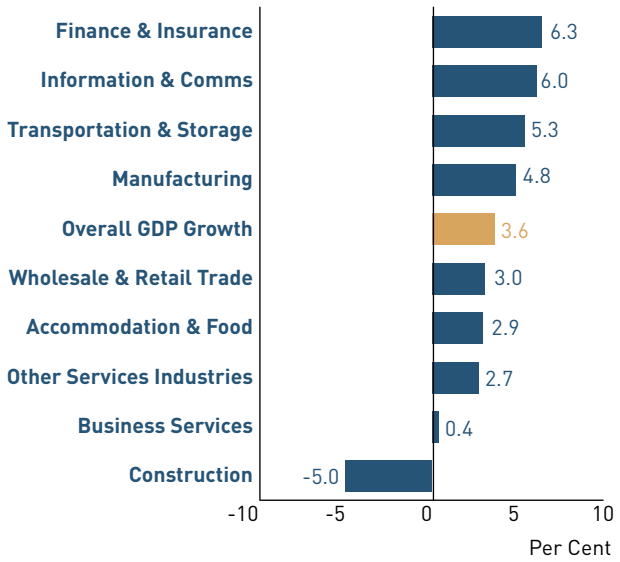
For the whole of 2017, the economy expanded by 3.6 per cent, higher than the 2.4 per cent growth in 2016. All major sectors grew in 2017, with the exception of the construction sector. The manufacturing and finance & insurance sectors were the key contributors to overall GDP growth.

OVERALL PERFORMANCE

Fourth Quarter 2017

The economy grew by 3.6 per cent in the fourth quarter, moderating from the 5.5 per cent growth in the previous quarter (Exhibit 1.1). On a quarter-on-quarter seasonally-adjusted annualised basis, the economy expanded by 2.1 per cent, following the 11 per cent expansion in the preceding quarter.

Exhibit 1.1: GDP and Sectoral Growth Rates in 4Q 2017



The manufacturing sector expanded by 4.8 per cent in the fourth quarter, slowing from the 19 per cent surge in the third quarter. Growth was led by robust output expansions in the electronics and precision engineering clusters, which more than offset declines in the biomedical manufacturing and transport engineering clusters.

The services producing industries collectively expanded by 3.5 per cent in the fourth quarter, the same pace of growth as the previous quarter. Among the services sectors, the finance & insurance sector registered the strongest growth at 6.3 per cent, followed by the information & communications (6.0 per cent) and the transportation & storage (5.3 per cent) sectors.

Meanwhile, the construction sector contracted by 5.0 per cent, extending the 9.3 per cent decline in the third quarter. The output of the sector was weighed down primarily by the weakness in private sector construction activities, as certified payments across all private construction segments declined.

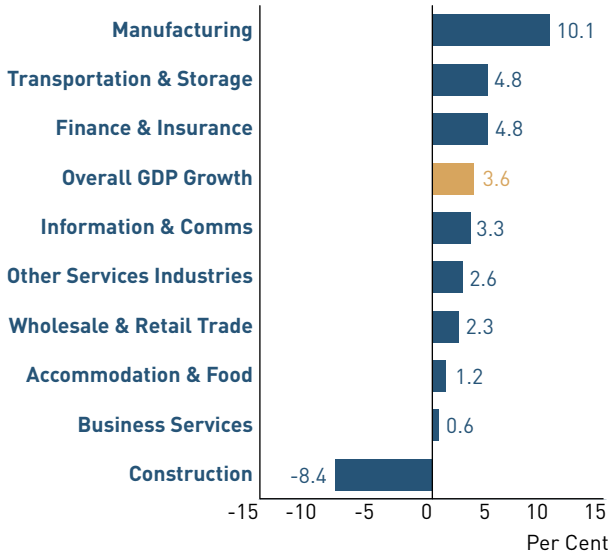
Full Year of 2017

For the whole of 2017, the economy expanded by 3.6 per cent, an improvement from the 2.4 per cent growth in 2016 (Exhibit 1.2).

The manufacturing sector grew by 10 per cent, higher than the 3.7 per cent growth in 2016. Growth was primarily driven by the electronics and precision engineering clusters, while output declines in the biomedical manufacturing, transport engineering and general manufacturing clusters weighed on growth.

Services producing industries as a whole expanded by 2.8 per cent in 2017, faster than the 1.4 per cent growth in 2016. All services sectors saw positive growth.

Exhibit 1.2: GDP and Sectoral Growth Rates in 2017



Among the services sectors, the transportation & storage and finance & insurance sectors registered the fastest pace of growth in 2017. Growth of the transportation & storage sector came in at 4.8 per cent, a pickup from the 1.3 per cent in 2016, largely due to stronger growth in the water transport and air transport segments. Similarly, the finance & insurance sector expanded by 4.8 per cent, improving from the 1.6 per cent growth in 2016. The robust performance of the sector was largely because of strong growth in the fund management segment, even as growth in the financial intermediation and insurance segments remained firm.

Meanwhile, the construction sector contracted by 8.4 per cent in 2017, a reversal from the 1.9 per cent growth in 2016. Output in the sector was primarily weighed down by the weakness in private sector construction works.

Exhibit 1.3: Percentage-Point Contribution to Growth in Real GDP in 4Q 2017 (By Industries)

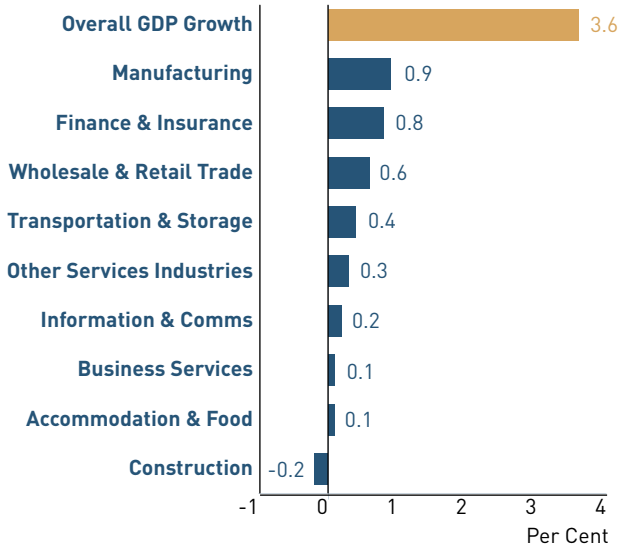
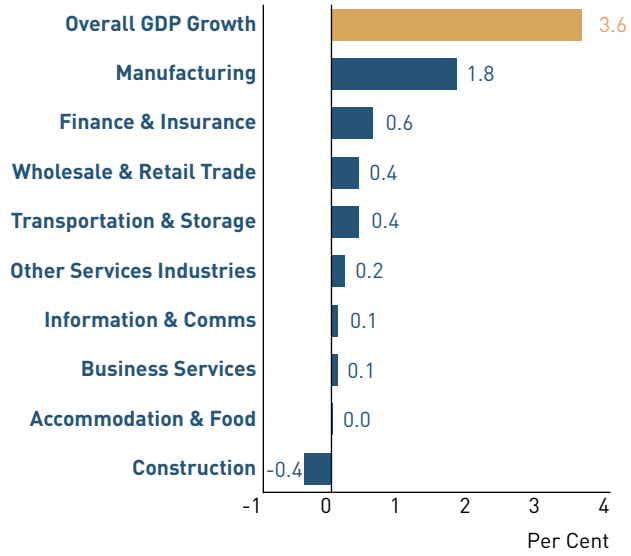


Exhibit 1.4: Percentage-Point Contribution to Growth in Real GDP in 2017 (By Industries)



Contribution to Growth

In the fourth quarter, manufacturing, finance & insurance, wholesale & retail trade and transportation & storage collectively accounted for 74 per cent of overall GDP growth (Exhibit 1.3). All other sectors, with the exception of the construction sector, also contributed positively to growth in the quarter.

For the whole of 2017, all sectors contributed positively to GDP growth, except for the construction sector (Exhibit 1.4). The manufacturing sector was the largest contributor to growth, at 1.8 percentage-points, followed by the finance & insurance (0.6 percentage-points), wholesale & retail trade (0.4 percentage-point) and transportation & storage (0.4 percentage-point) sectors.

SOURCES OF GROWTH

Total demand rose by 4.9 per cent in the fourth quarter, lower than the 5.5 per cent growth in the preceding quarter (Exhibit 1.5).

For the whole of 2017, growth in total demand came in at 4.4 per cent, an improvement from the 1.6 per cent in 2016. External demand was the key contributor to total demand growth (3.0 percentage-points), while the contribution from domestic demand was also positive (1.4 percentage-points).

Exhibit 1.5: Percentage-Point Contribution to Total Demand Growth

	2016	2017			2017
		II	III	IV	
Total Demand	1.6	3.7	5.5	4.9	**4.4**
External Demand	0.8	1.8	3.3	3.1	**3.0**
Total Domestic Demand	0.8	1.9	2.2	1.8	**1.4**
Consumption Expenditure	0.3	0.5	0.9	0.7	**0.5**
Public	0.1	0.2	0.2	0.0	**0.1**
Private	0.2	0.3	0.7	0.7	**0.4**
Gross Fixed Capital Formation	-0.1	-0.4	-0.3	0.2	**-0.2**
Changes in Inventories	0.5	1.7	1.5	0.9	**1.1**

External Demand

External demand rose by 4.2 per cent in the fourth quarter, similar to the 4.4 per cent growth in the preceding quarter (Exhibit 1.6). The increase in external demand was primarily due to higher real merchandise exports.

For the full year, external demand grew at a faster pace of 4.1 per cent, compared to the 1.1 per cent growth in 2016, amidst an upswing in the global economy. The growth in external demand was largely driven by real merchandise exports, of which machinery & transport equipment, chemicals & chemical products and mineral fuels were the key contributors. Real services exports also contributed positively to external demand growth, with charges for the use of intellectual property, other business services and transport services being the main contributors.

Domestic Demand

Total domestic demand rose by 6.6 per cent in the fourth quarter, following the 8.5 per cent growth in the previous quarter. Growth was supported primarily by the build-up in inventories and also higher consumption expenditure. Gross fixed capital formation also contributed positively to total domestic demand growth in the quarter.

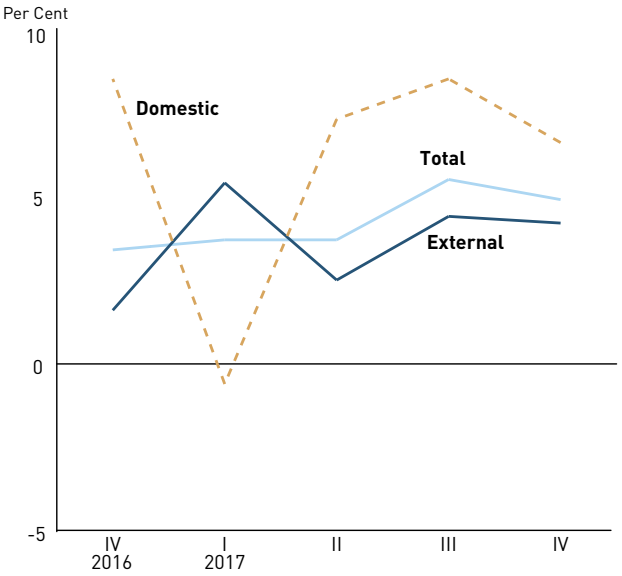
For 2017 as a whole, total domestic demand increased by 5.4 per cent, higher than the 3.1 per cent expansion in 2016. The increase in domestic demand for the year was largely attributable to a build-up in inventories as well as growth in consumption, which more than offset the decline in gross fixed capital formation.

Consumption Expenditure

Total consumption expenditure rose at a slower pace of 4.4 per cent in the fourth quarter, compared to the 5.7 per cent expansion in the previous quarter.

For the full year, total consumption expenditure grew by 3.3 per cent, an improvement from the 2.1 per cent growth in 2016, on the back of faster growth in both public and private consumption. Public consumption expanded by 4.1 per cent, compared to 3.5 per cent in 2016, while private consumption grew by 3.1 per cent, compared to 1.7 per cent in the previous year. Expenditure on miscellaneous goods & services, recreation & culture and housing & utilities were the main contributors to private consumption growth.

Exhibit 1.6: Changes in Total Demand at 2010 Market Prices



Gross Fixed Capital Formation

Gross fixed capital formation (GFCF) rose by 2.2 per cent in the fourth quarter, a reversal of the 2.7 per cent decline in the preceding quarter. Growth was supported by both private GFCF and public GFCF, which expanded by 2.1 per cent and 3.0 per cent respectively in the fourth quarter.

For the full year, GFCF declined by 1.8 per cent, extending the 0.6 per cent decline in 2016 (Exhibit 1.7). Public GFCF fell by 2.6 per cent, a turnaround from the 10 per cent growth in 2016. The fall in public GFCF was largely due to a decline in investment spending on public construction & works and transport equipment (Exhibit 1.8). Meanwhile, private GFCF declined at a more modest pace of 1.6 per cent, compared to the 3.0 per cent drop in the previous year. Growth was weighed down by a decline in investment spending on private construction & works, which more than offset the robust expansion in investment spending on private transport equipment.

Exhibit 1.7: Annual Changes in Gross Fixed Capital Formation at 2010 Market Prices, 2017

	Total	Public	Private
Total	-1.8	-2.6	-1.6
Construction & Works	-12.2	-2.5	-17.9
Transport Equipment	35.7	-41.0	40.7
Machinery & Equipment	-0.2	8.8	-0.6
Intellectual Property Products	4.7	2.2	4.9

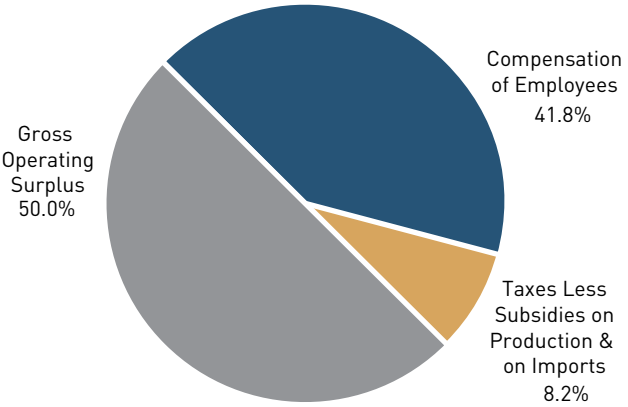
Exhibit 1.8: Percentage-Point Contribution to Growth of Gross Fixed Capital Formation at 2010 Market Prices, 2017

	Total	Public	Private
Total	-1.8	-0.5	-1.2
Construction & Works	-5.8	-0.4	-5.3
Transport Equipment	3.0	-0.2	3.2
Machinery & Equipment	-0.1	0.1	-0.1
Intellectual Property Products	1.0	0.0	1.0

INCOME COMPONENTS OF NOMINAL GDP

Singapore's nominal GDP amounted to $447 billion in 2017, an increase of 4.5 per cent over 2016. Gross operating surplus accounted for 50 per cent of nominal GDP, while compensation of employees accounted for 42 per cent (Exhibit 1.9). Taxes on production and imports (less subsidies) made up the remaining 8.2 per cent of nominal GDP.

Exhibit 1.9: Income Components of GDP at Current Market Prices



NATIONAL SAVING

With factor income outflows exceeding inflows by $16 billion, Gross National Income (GNI) came in at $431 billion, smaller than the $447 billion in nominal GDP.

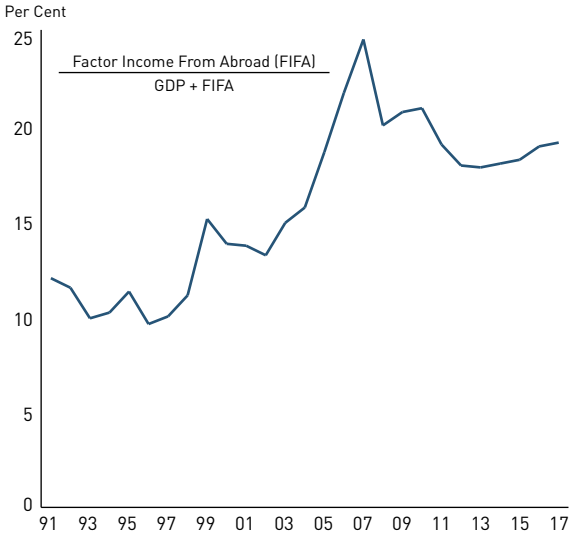
Gross National Savings (GNS) rose by 5.5 per cent to $208 billion in 2017. This comprised a net $84 billion that was lent or transferred abroad, and $124 billion in Gross Capital Formation. The national savings rate was 48 per cent of GNI, similar to the 49 per cent in 2016.

GNI AND THE EXTERNAL ECONOMY

Factor income from abroad reached $105 billion in 2017, up from $99 billion in 2016. The contribution of overseas operations to the total economy was 19 per cent in 2017, similar to that recorded in 2016 (Exhibit 1.10).

Based on the Survey of Singapore's Investment Abroad, the stock of direct investment abroad increased from $703 billion in 2015 to $765 billion in 2016.

Exhibit 1.10: Singapore's Earnings from External Economy as a Proportion of Total Income



CHAPTER 2

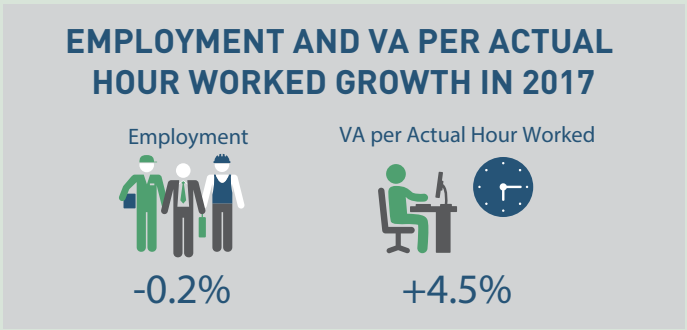
LABOUR MARKET AND PRODUCTIVITY

Image courtesy of Singapore Economic Development Board

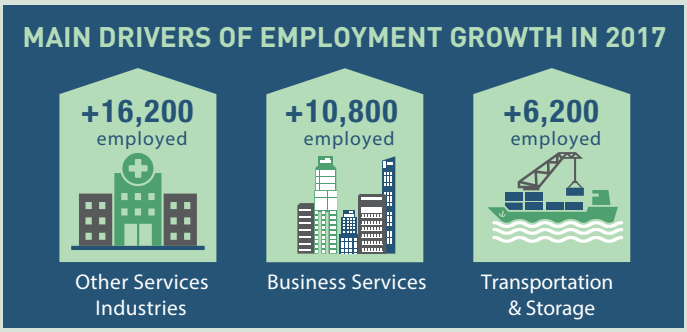
CHAPTER 2

LABOUR MARKET AND PRODUCTIVITY

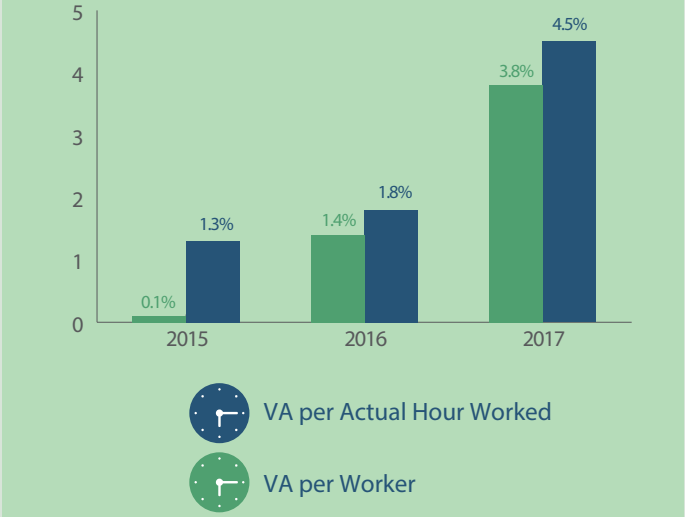
EMPLOYMENT AND VA PER ACTUAL HOUR WORKED GROWTH IN 2017



MAIN DRIVERS OF EMPLOYMENT GROWTH IN 2017

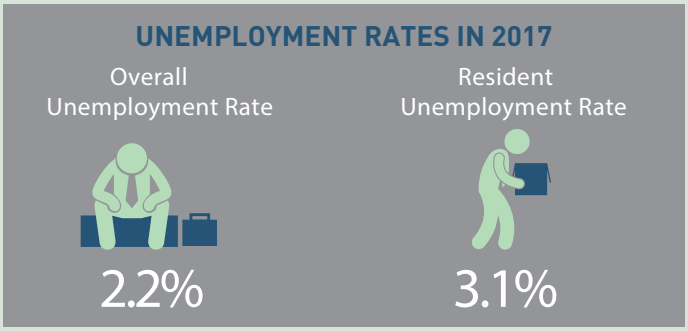


VA PER ACTUAL HOUR WORKED AND VA PER WORKER GROWTH

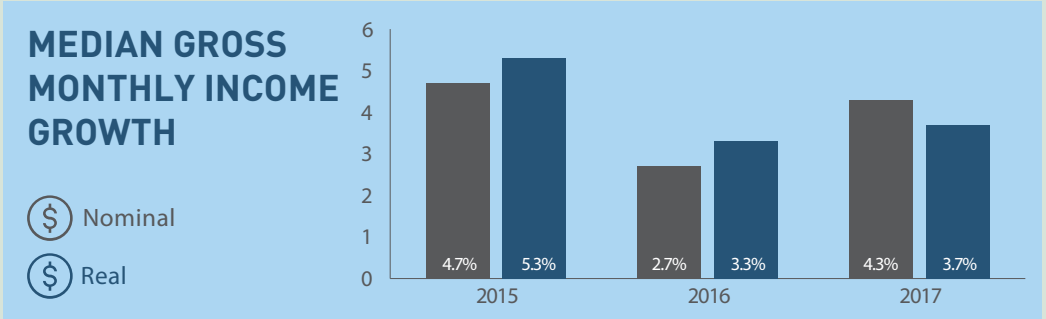


SECTORS WITH THE HIGHEST VA PER ACTUAL HOUR WORKED GROWTH IN 2017

UNEMPLOYMENT RATES IN 2017



MEDIAN GROSS MONTHLY INCOME GROWTH



Real median gross monthly income rose by +3.7% in 2017

OVERVIEW

Total employment fell by 3,600 in 2017. This was the first employment decline since 2003, and was largely due to a reduction in Work Permit Holders in the construction and marine sectors. Excluding Foreign Domestic Workers (FDWs), total employment fell by 10,700. Local employment continued to grow, recording nearly double the growth seen in 2016.

Annual average unemployment rates for both residents and citizens increased slightly in 2017. However, the respective unemployment rates in December 2017 were lower when compared to the same period a year ago.

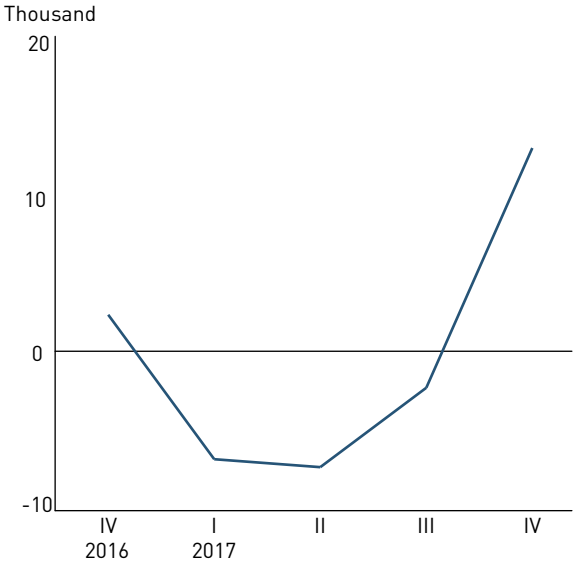
Labour productivity, as measured by real value-added per actual hour worked, grew by 4.5 per cent in 2017, improving from the 1.8 per cent growth in 2016. Similarly, real value-added per worker rose by 3.8 per cent, higher than the 1.4 per cent growth in 2016. Real gross median income of full-time employed residents rose by 3.7 per cent in 2017, faster than the 3.3 per cent growth in 2016.

EMPLOYMENT[1]

Total employment grew in the fourth quarter (12,800) on the back of hiring for year-end festivities, after contracting in the first three quarters of 2017. The employment gain was higher than that observed in the fourth quarter of 2016 (2,300) (Exhibit 2.1). A similar trend was observed for total employment excluding FDWs.

At the sectoral level, manufacturing employment declined for the thirteenth consecutive quarter (-1,400), as weak demand for oil rigs continued to weigh on employment in the marine & offshore engineering segment (Exhibit 2.2). Employment in the construction sector fell for the sixth consecutive quarter (-5,600), in tandem with the continued weakness in construction activities.

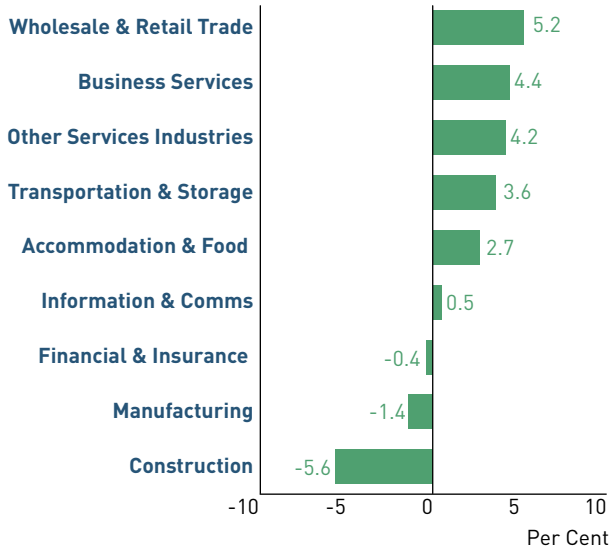
Exhibit 2.1: Changes in Total Employment



These declines were offset by employment gains in the services sectors (20,200), with the wholesale & retail trade and business services sectors recording the largest employment growth.

For the whole of 2017, total employment fell by 3,600, the first annual decline since 2003 (-12,900). This was due to a large contraction in foreign employment (-24,900), even as local employment continued to grow (Exhibit 2.3). Excluding FDWs, total employment declined by 10,700.

Exhibit 2.2: Changes in Employment by Industry in 4Q 2017

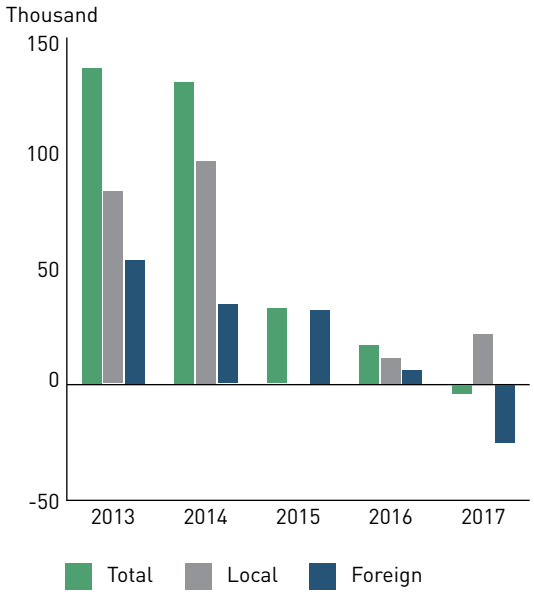


1 *Figures for the fourth quarter of 2017 are based on preliminary estimates.*

Local employment increased by an estimated 21,300 in 2017, nearly double the growth in 2016 (11,200). The increase occurred in most services sectors, including community, social & personal services, financial & insurance services, transportation & storage, and administrative & support services. On the other hand, the decline in foreign employment was mainly due to a fall in the number of Work Permit Holders in the construction and marine sectors.

As at December 2017, there were 3,669,500 employed persons in Singapore, with 2,301,400 locals and 1,368,100 foreigners. Excluding FDWs, there were 1,121,300 foreigners.

Exhibit 2.3: Changes in Employment by Residential Status

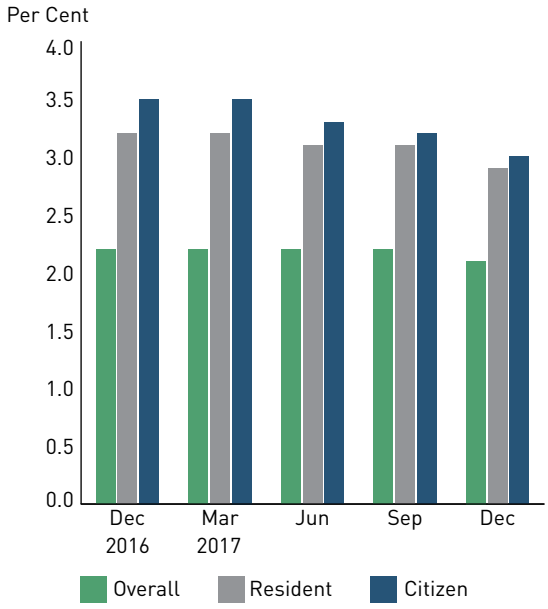


UNEMPLOYMENT

The seasonally-adjusted overall unemployment rate fell from 2.2 per cent in September 2017 to 2.1 per cent in December 2017 (Exhibit 2.4). The resident and citizen unemployment rates also fell over the same period (from 3.1 per cent to 2.9 per cent, and from 3.2 per cent to 3.0 per cent respectively).

In December 2017, there were 67,400 unemployed residents, of whom 57,700 were Singapore citizens. These were lower than the number of unemployed residents (71,600) and citizens (62,300) in September 2017.[2]

Exhibit 2.4: Unemployment Rates (Seasonally-Adjusted)



For the full year, the annual average overall unemployment rate rose marginally from 2.1 per cent in 2016 to 2.2 per cent in 2017. Similarly, the unemployment rate for residents increased slightly from 3.0 per cent to 3.1 per cent, while that for citizens ticked up from 3.1 per cent to 3.3 per cent.

In 2017, 70,600 residents were unemployed on average, of whom 62,600 were Singapore citizens. The corresponding figures in 2016 were lower, at 67,400 and 59,100 respectively.

PRODUCTIVITY

Real Value-Added per Actual Hour Worked

Overall labour productivity, as measured by real value-added per actual hour worked, increased by 4.5 per cent in 2017, an improvement from the 1.8 per cent growth in the previous year (Exhibit 2.5). Productivity of the manufacturing, wholesale & retail trade, transportation & storage, finance & insurance, business services and construction sectors rose, while that for the information & communications and accommodation & food services declined (Exhibit 2.6).

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

Exhibit 2.5: Changes in Value-Added per Actual Hour Worked for the Overall Economy

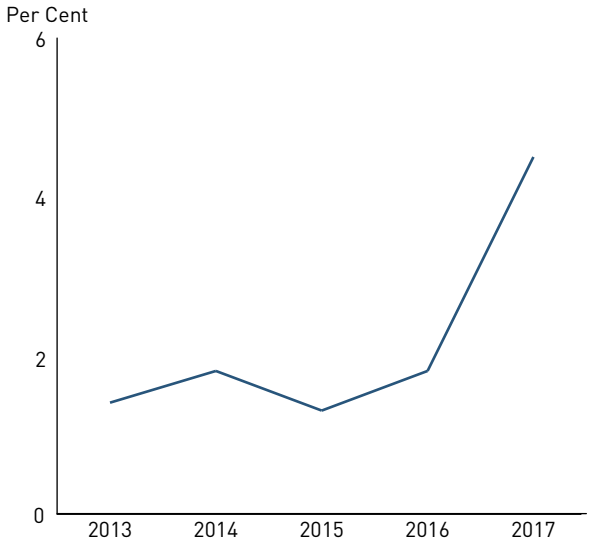
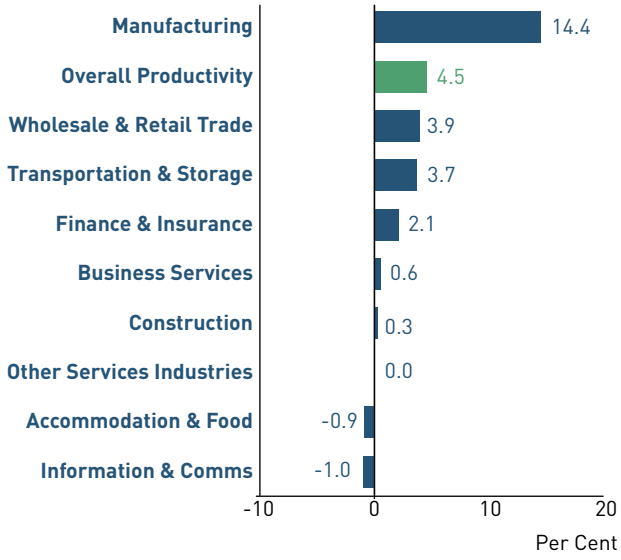


Exhibit 2.6: Changes in Value-Added per Actual Hour Worked by Industry in 2017



Productivity growth of outward-oriented sectors as a whole continued to outperform that of domestically-oriented sectors in 2017. Specifically, the productivity of outward-oriented sectors rose by 6.7 per cent, while that of domestically-oriented sectors fell by 0.2 per cent.[3]

Real Value-Added per Worker

Real value-added per worker grew by 3.8 per cent in the fourth quarter, slower than the 5.9 per cent increase in the third quarter.

For 2017 as a whole, real value-added per worker rose by 3.8 per cent, higher than the growth of 1.4 per cent in 2016.

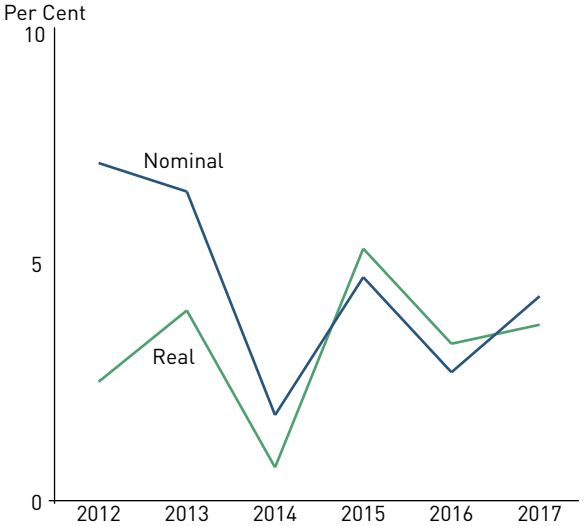
The stronger growth in real value-added per actual hour worked compared to real value-added per worker was due to a fall in actual hours worked per worker.[4]

INCOME FROM WORK

Real and nominal median gross monthly income grew at a faster pace in 2017, as compared to 2016. The nominal median gross monthly income (including employer CPF contributions) of full-time employed residents rose by 4.3 per cent to $4,232 in 2017, compared to the increase of 2.7 per cent in 2016 (Exhibit 2.7).

After adjusting for inflation, real median income grew by 3.7 per cent in 2017, faster than the 3.3 per cent growth in 2016.

Exhibit 2.7: Change in Median Gross Monthly Income from Work of Full-Time Employed Residents



3 *Based on MTI estimates. 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, other business services, and other services industries.*

4 *Based on MTI estimates.*

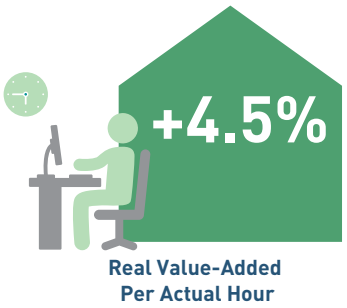
BOX ARTICLE 2.1

A Shift-Share Decomposition Analysis of Labour Productivity Growth in Singapore

OVERVIEW OF SINGAPORE'S PRODUCTIVITY GROWTH

In 2017, Singapore's overall labour productivity, as measured by real value-added (VA) per actual hour worked (AHW), grew by 4.5 per cent, the highest recorded since the rebound year of 2010 following the Global Financial Crisis.

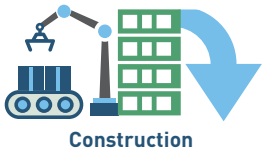
Singapore's economy has been increasingly driven by productivity growth rather than employment growth in recent years.



DRIVERS OF PRODUCTIVITY GROWTH IN 2017

Productivity growth was primarily supported by productivity gains in outward-oriented sectors such as Manufacturing, Wholesale Trade and Finance & Insurance.

On average, more productive sectors increased their actual hours worked shares at the expense of less productive sectors like Construction.



SUMMARY

To support productivity-led growth, it is important for Singapore to continue to press on with sectoral restructuring and transformation efforts such as through the implementation of the Industry Transformation Maps.

In 2017, Singapore's overall labour productivity, as measured by real value-added (VA) per actual hour worked[1] (AHW), grew by 4.5 per cent, the highest recorded since the rebound year of 2010 following the Global Financial Crisis.[2] This article examines the drivers of the strong productivity growth in 2017 using a shift-share analysis. It also traces the changes in the composition of Singapore's Gross Domestic Product (GDP) growth over the years, and compares our recent productivity performance with other advanced economies.

GDP growth can be decomposed into productivity growth, employment growth and labour intensity growth

Broadly, output in an economy can grow either through an increase in labour input or through an improvement in the conversion rate of labour input to output (i.e., labour productivity):

$$\%\Delta GDP \approx \%\Delta \text{ Labour Input} + \%\Delta \text{ Labour Productivity}$$

Internationally, AHW is recognised to be the more accurate measure of labour input in an economy.[3] Concomitantly, VA per AHW is also accepted as the better measure of labour productivity. AHW can in turn be derived as the number of workers in the economy multiplied by the AHW per worker (i.e., labour intensity). This implies that GDP growth can be approximated by the summation of employment growth, labour intensity (i.e., AHW per worker) growth and labour productivity (i.e., VA per AHW) growth. The latter two terms will in turn approximately sum to VA per worker growth.

$$\begin{aligned}\%\Delta GDP &\approx \%\Delta \text{ Employment} + \%\Delta \text{ Labour Intensity} + \%\Delta \text{ Labour Productivity (VA per AHW)} \\ &\approx \%\Delta \text{ Employment} + \underbrace{\%\Delta \text{ AHW per Worker} + \%\Delta \text{ VA per AHW}}_{\%\Delta \text{ VA per Worker}}\end{aligned}$$

For the rest of this article, labour productivity refers to VA per AHW unless otherwise stated.

GDP growth has been increasingly driven by productivity growth in recent years

Excluding the rebound year of 2010, which saw a spike in productivity growth as the economy recovered strongly from the Global Financial Crisis, GDP grew by 3.9 per cent per annum (p.a.) over the period of 2010 (base year) to 2017, with the increase in productivity contributing 2.1 percentage-points to growth.

A deeper analysis suggests that there has been a gradual shift in the drivers of GDP growth over this period, with GDP growth increasingly being productivity driven rather than employment driven (Exhibit 1). The key observations are as follows:

- In 2011, GDP growth came in at 6.4 per cent as the economy continued its recovery from the Global Financial Crisis. GDP growth was supported by both employment and productivity growth, which more than offset the drag posed by a decline in AHW per worker caused by a rise in the share of part-time workers in the economy.

1 *Actual Hours Worked is defined to be the number of hours that a person in paid or self-employment spends on work activities, proxied by Paid Hours Worked (PHW) for foreign employees and Usual Hours Worked (UHW) for local employees. See Goh and Lin (2015).*

2 *As measured by real VA per worker, productivity grew by 3.8 per cent in 2017.*

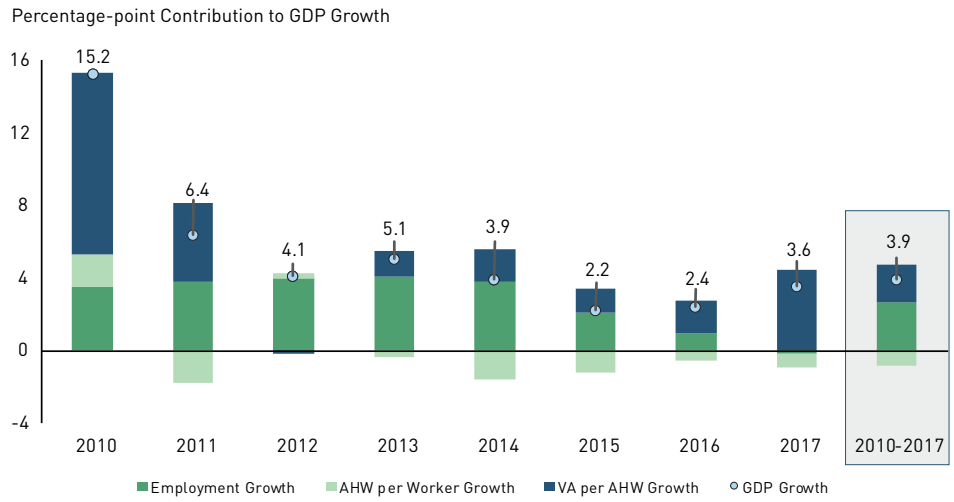
3 *For example, the International Labour Organisation (ILO) recommends the use of hours worked to measure labour input for the computation of productivity.*

- From 2012 to 2013, GDP growth was largely supported by employment growth due to strong labour demand from firms as well as a continued increase in the supply of local workers on the back of a rise in the labour force participation rate. On the other hand, overall productivity performance was subdued, coming in at -0.2 per cent in 2012 and 1.4 per cent in 2013. At the same time, AHW per worker remained broadly unchanged.

- From 2014 to 2016, GDP growth weakened in line with a slowdown in the global economy. Along with increasing efforts to manage the inflow of foreign workers and restructure the economy towards more productive activities, employment growth started to moderate. Over this period, VA per AHW growth was stable at around 1.3 to 1.8 per cent, while AHW per worker declined.[4]

- In 2017, GDP growth rebounded on the back of a recovery in the global economy to 3.6 per cent. In turn, GDP growth was supported by a strong increase in productivity (4.5 per cent), even as employment (-0.2 per cent) and AHW per worker (-0.7 per cent) declined.[5] (See section on shift-share analysis for a deeper look at the drivers of productivity growth in 2017.)

Exhibit 1: Decomposition of GDP Growth, 2010-2017



Source: MTI Staff Estimates
Note: Growth in employment, AHW per worker and VA per AHW may not sum to GDP growth as the decomposition is based on an approximation approach.

Singapore's productivity performance in recent years compares favourably with other advanced economies

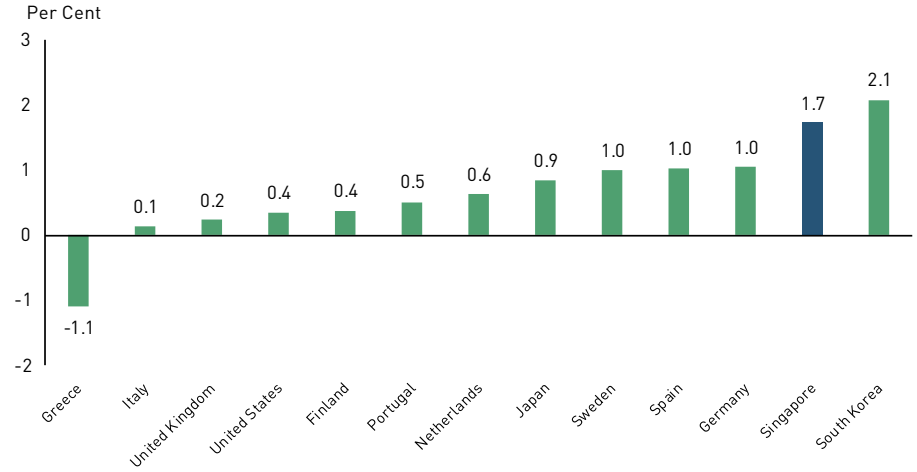
Exhibit 2 presents the compound annual growth rate (CAGR) of productivity (as measured by VA per AHW) for several advanced economies between 2010 and 2016.[6] With the exception of Greece, most of the economies experienced positive, though subdued, productivity growth following the Global Financial Crisis. Among these economies, productivity growth ranged from 0.1 per cent p.a. (in Italy) to 2.1 per cent p.a. (in South Korea). Comparatively, Singapore's productivity growth of 1.7 per cent p.a. was higher than that in most of the economies compared.

4 *In a downturn, employers are likely to cut the number of hours worked per worker before they let go of the workers. Hence, it is not surprising to see AHW per worker decline during an economic slowdown.*

5 *AHW per worker fell primarily due to a reduction in the average number of hours worked by full-time workers.*

6 *VA per AHW data for 2017 is not available for most of these countries, with the exception of Singapore and Germany. Between 2010 and 2017, VA per AHW grew by 2.1 per cent p.a. in Singapore and 1.0 per cent p.a. in Germany.*

Exhibit 2: Productivity (VA per AHW) Growth of Selected Advanced Economies, 2010-2016



Source: MTI Staff Estimates, OECD

Using shift-share analysis to derive a deeper understanding of the drivers of productivity growth in Singapore in 2017...

Given Singapore's strong productivity growth in 2017, we further examine its underlying drivers using a shift-share decomposition approach. Here, productivity growth (as measured by VA per AHW) is expressed as the sum of three components (see Annex A for more details on the empirical methodology):

- Within Effect: the contribution of productivity growth within sectors to overall productivity growth;
- Static Shift Effect: the contribution of changes in the AHW shares of sectors with different *productivity levels* to overall productivity growth; and
- Dynamic Shift Effect: the contribution of changes in the AHW shares of sectors with different *productivity growth rates* to overall productivity growth.

...we find that productivity growth in 2017 was supported by a strong Within Effect as well as a positive Static Shift Effect

A previous shift-share analysis (see Fan & Teo, 2016) found that Singapore's productivity growth was largely supported by the productivity growth of outward-oriented sectors (i.e., a large positive Within Effect due to outward-oriented sectors).[7] However, this was weighed down by a negative Static Shift Effect as less productive, domestically-oriented sectors increased their AHW shares at the expense of more productive, outward-oriented sectors.

Similar to the previous analysis, a strong Within Effect was found to be the primary driver of overall productivity growth in 2017 (Exhibit 3).[8] However, unlike in previous years, we find that the Static Shift Effect also contributed positively to overall productivity growth in 2017.

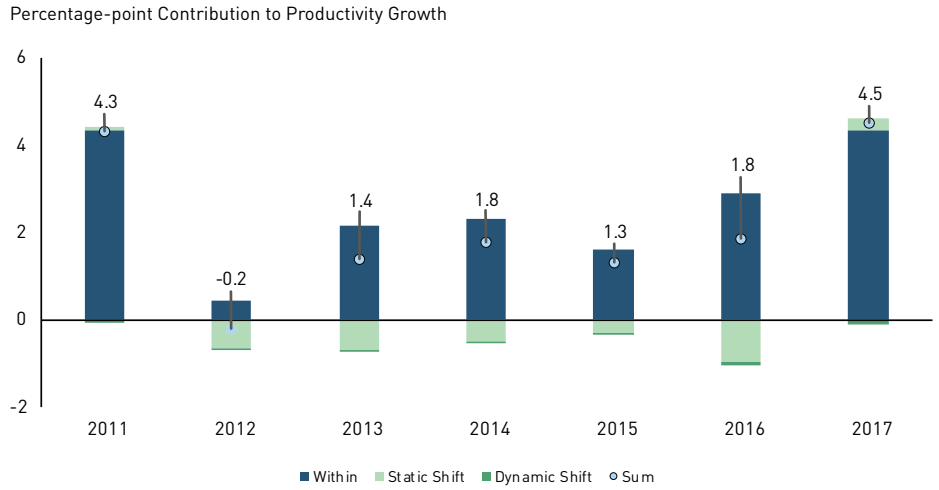
7 *The classification of a sector as outward- or domestically-oriented is determined by its direct and indirect export share of total output as estimated using the latest Input-Output tables and tourism receipts. Outward-oriented sectors refer to Manufacturing, Wholesale Trade, Transportation & Storage, Accommodation, Information & Communications, Finance & Insurance, and Professional Services. Domestically-oriented sectors refer to Construction, Retail Trade, Food Services, Other Business Services, and Other Services Industries.*

8 *Annex B presents a decomposition of VA per worker growth. This decomposition obtains largely similar results.*

The salient observations are as follows:

- Within Effect: In 2017, overall productivity grew by 4.5 per cent, with productivity improvements within sectors contributing 4.3 percentage-points to overall productivity growth.
- Static Shift Effect: The Static Shift Effect contributed positively to overall productivity growth in 2017. Specifically, the shift in total AHW towards more productive sectors and away from less productive sectors contributed 0.3 percentage-point to overall productivity growth.
- Dynamic Shift Effect: Similar to past results, overall productivity growth was weighed down by a negative, though negligible, Dynamic Shift Effect (-0.1 percentage-point).

Exhibit 3: Decomposition of Labour Productivity (VA per AHW) Growth, 2011-2017



Source: MTI Staff Estimates
Note: The Within, Static Shift and Dynamic Shift Effects may not sum to the overall productivity growth due to rounding.

Outward-oriented sectors were the main contributors to the positive Within Effect and hence overall productivity growth in 2017

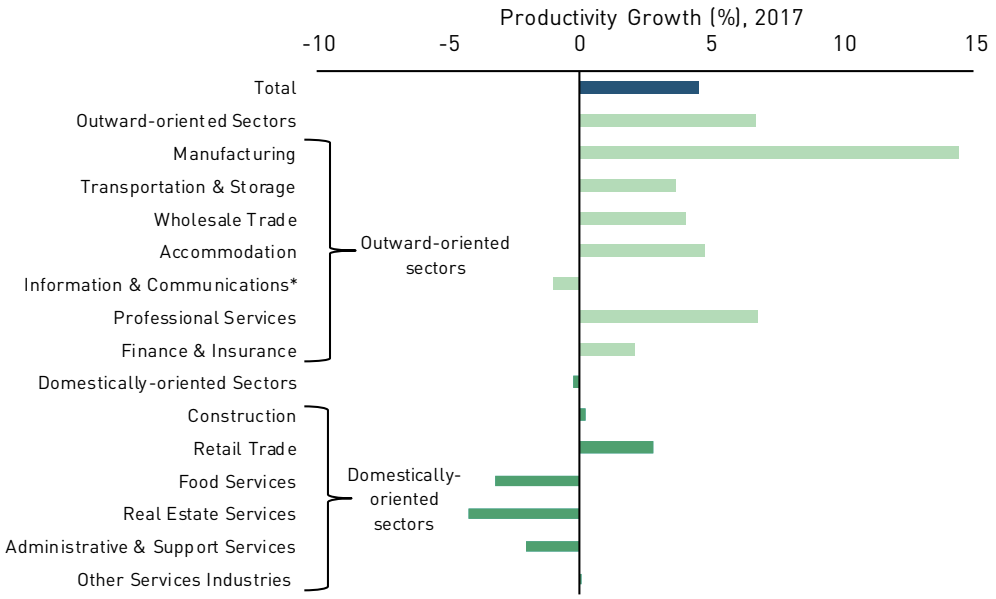
The large Within Effect in 2017 was mainly driven by productivity growth in outward-oriented sectors such as Manufacturing, Wholesale Trade and Finance & Insurance, but was weighed down by the weaker productivity performance of domestically-oriented sectors such as Food Services, Real Estate and Administrative & Support Services. Specifically, productivity in outward-oriented sectors surged by 6.7 per cent in 2017, while that in domestically-oriented sectors fell by 0.2 per cent (Exhibit 4).[9] Correspondingly, outward-oriented sectors contributed 4.2 percentage-points to overall productivity growth, while domestically-oriented sectors contributed -0.5 percentage-point.

Outward-oriented sectors saw strong productivity growth in 2017 in part due to the pickup in the external environment. More generally, firms in outward-oriented sectors are also incentivised to optimise operations and seek efficient production methods to remain competitive in the face of global competition.

9 *Notably, productivity in the Manufacturing sector grew by a robust 14.4 per cent in 2017. This came on the back of strong VA growth in the sector, primarily supported by output expansions in the Electronics, Precision Engineering and Chemicals clusters. At the same time, total AHW in the sector fell, driven mainly by the shedding of workers in the Marine & Offshore Engineering segment of the Transport Engineering cluster.*

On the other hand, there remains scope to raise the productivity of domestically-oriented sectors. To this end, the Government will continue to press on with sectoral restructuring and transformation efforts such as through the implementation of the Industry Transformation Maps. Firms in the domestically-oriented sectors are also encouraged to step forward to tap on the various Government schemes available (e.g., the Capability Development Grant) to raise their productivity.

Exhibit 4: Sectoral Productivity (VA per AHW) Growth, 2017



Source: Singapore Department of Statistics and MTI Staff Estimates
* Productivity in the Information & Communications sector fell in 2017, as total AHW (4.4 per cent) rose at a faster pace than VA (3.3 per cent). In turn, the stronger-than-usual increase in AHW was due to a rise in the number of self-employed individuals who generally worked longer hours. Over a longer time period (2010-2017), productivity growth in the sector was positive, at 0.9 per cent p.a..

At the same time, overall productivity growth was boosted by a positive Static Shift Effect, with more productive sectors raising their AHW shares

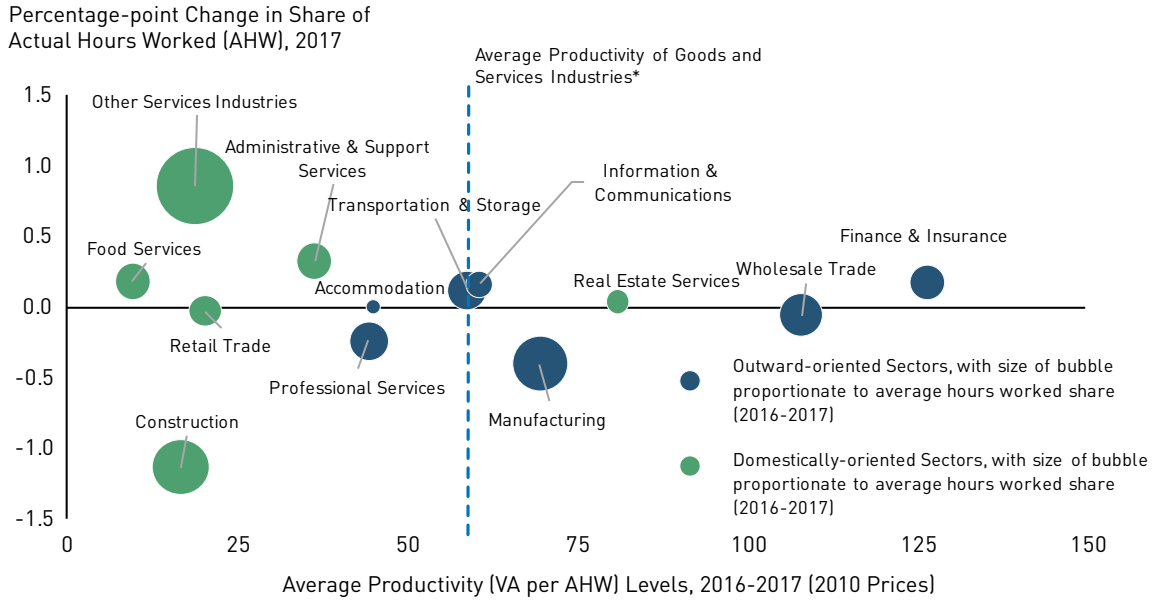
At the overall economy level, more productive sectors increased their AHW shares at the expense of less productive sectors, resulting in a positive Static Shift Effect (0.3 percentage-point) in 2017. These changes in AHW shares were mostly driven by changes in employment shares.[10]

Exhibit 5 presents the change in AHW share and the average productivity level of each sector. The Static Shift Effect is positive when the AHW shares of more productive sectors increase at the expense of less productive sectors. Notably, Construction, a sector with lower productivity levels, saw a decline in its AHW share. This was driven partly by a decline in the sector's employment share, as construction firms shed foreign workers in view of weak demand. Meanwhile, the productive Finance & Insurance sector increased its AHW share, supported by an increase in employment share.

10 *The AHW share of a sector can increase if the employment share of the sector increases holding the AHW per worker constant across sectors, or if the AHW per worker in the sector increases relative to other sectors and there is no change in employment across the sectors. Conversely, the AHW share of a sector can fall if the employment share of the sector falls or if the AHW per worker in the sector falls relative to other sectors.*

However, these Static Shift gains were partly offset by gains in the AHW shares of some less productive, domestically-oriented sectors. For instance, the Other Services Industries continued to hire workers on the back of expansions in healthcare facilities. In addition, a fall in the AHW shares of productive sectors such as Manufacturing also weighed on the Static Shift Effect. Over the years, the Manufacturing sector's share of AHW has fallen steadily in line with stronger productivity gains in the sector, as it benefited from greater scope for automation compared to other sectors in the economy (e.g., personal services).

Exhibit 5: Change in Hours Worked Share vs. Average Productivity Levels by Sector, 2016-2017



Source: MTI Staff Estimates
* Excludes ownership of residential dwellings and taxes on products

Summary

Singapore's economic growth in recent years has been productivity-led rather than employment-led. In particular, overall productivity registered strong gains of 4.5 per cent in 2017, outpacing GDP growth of 3.6 per cent. Based on a shift-share analysis, Singapore's productivity growth in 2017 was found to be primarily due to a large Within Effect, which was in turn driven by productivity gains in outward-oriented sectors such as Manufacturing, Wholesale Trade and Finance & Insurance, on the back of an upturn in the global economy. Overall productivity growth was also supported by a positive Static Shift Effect as more productive sectors such as Finance & Insurance gained AHW shares at the expense of less productive sectors such as Construction.

To support productivity-led growth, there continues to be a need to press on with sectoral restructuring and transformation efforts. To this end, the implementation of the Industry Transformation Maps, particularly for less productive domestically-oriented sectors, is expected to help boost overall productivity growth in the years ahead. The emphasis on life-long learning and skills training under the SkillsFuture initiatives will also equip workers with the necessary skills to move into more productive sectors.

Contributed by:
Ms Marsha Teo, Economist
Ms Ong Swee Joo, Economist
Economics Division
Ministry of Trade and Industry

References

Fan, S. L., & Teo, M. (2016). Drivers of Labour Productivity Growth Trends in Singapore: An Update Using Value-Added per Actual Hour Worked. Economic Survey of Singapore 2016, 88-98.

Goh, K., & Lin, T. (2015). Trends in Actual Hours Worked and Implications for Labour Productivity. Economic Survey of Singapore Second Quarter 2016, 16-23.

Annex A: Shift-Share Decomposition Analysis of Growth in Value-Added (VA) per Actual Hour Worked (AHW)

Productivity growth can be expressed as the sum of the Within Effect, the Static Shift Effect and the Dynamic Shift Effect.

In equation form, growth in productivity, in terms of VA per AHW, can be represented as:

$$\frac{P_t - P_{t-1}}{P_{t-1}} = \sum_{i=1}^{n}\left[\left(\frac{P_{it} - P_{it-1}}{P_{it-1}}\right) \times \frac{Y_{it-1}}{Y_{t-1}}\right] + \sum_{i=1}^{n}\left[\left(\frac{P_{it-1}}{P_{t-1}}\right) \times \left(\frac{H_{it}}{H_t} - \frac{H_{it-1}}{H_{t-1}}\right)\right] + \sum_{i=1}^{n}\left[\left(\frac{P_{it} - P_{it-1}}{P_{t-1}}\right) \times \left(\frac{H_{it}}{H_t} - \frac{H_{it-1}}{H_{t-1}}\right)\right]$$

Where P_t is the productivity level (VA per AHW) of the economy in period t;
$Y_t = \sum_{i=1}^{n} Y_{it}$ is the total VA of the economy in period t;
$H_t = \sum_{i=1}^{n} H_{it}$ is the total AHW of the economy in period t; and
$i = 1,\ldots, n$ is the i^{th} sector in the economy.

Annex B: Shift-Share Decomposition Analysis of Growth in Value-Added (VA) per Worker

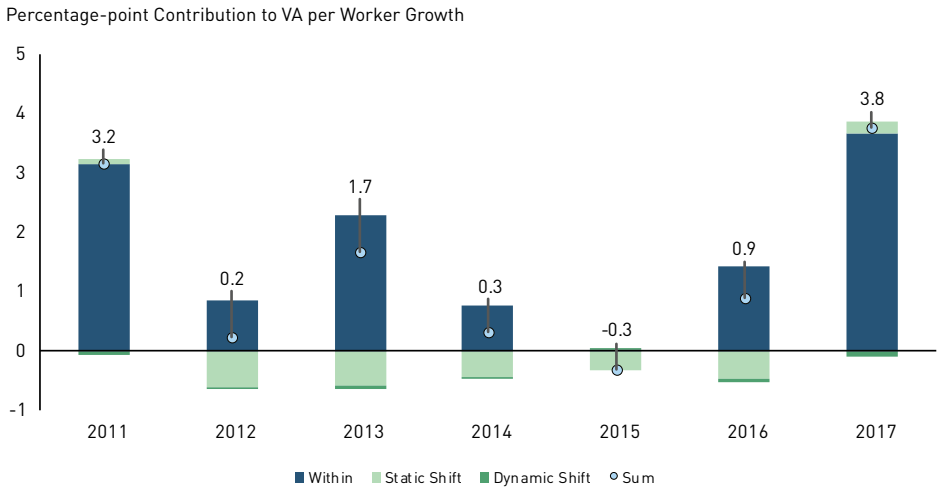
Growth in productivity, in terms of VA per worker, can be similarly decomposed into the summation of Within, Static Shift and Dynamic Shift Effects. In equation form, this can be represented as:

$$\frac{P_t - P_{t-1}}{P_{t-1}} = \sum_{i=1}^{n}\left[\left(\frac{P_{it} - P_{it-1}}{P_{it-1}}\right) \times \frac{Y_{it-1}}{Y_{t-1}}\right] + \sum_{i=1}^{n}\left[\left(\frac{P_{it-1}}{P_{t-1}}\right) \times \left(\frac{L_{it}}{L_t} - \frac{L_{it-1}}{L_{t-1}}\right)\right] + \sum_{i=1}^{n}\left[\left(\frac{P_{it} - P_{it-1}}{P_{t-1}}\right) \times \left(\frac{L_{it}}{L_t} - \frac{L_{it-1}}{L_{t-1}}\right)\right]$$

Where P_t is the productivity level (VA per worker) of the economy in period t;
$Y_t = \sum_{i=1}^{n} Y_{it}$ is the total VA of the economy in period t;
$L_t = \sum_{i=1}^{n} L_{it}$ is the total labour of the economy in period t; and
$i = 1,\ldots, n$ is the i^{th} sector in the economy.

The results of the shift-share analysis using VA per worker are provided in Exhibit B-1. In general, the findings are similar to that found using VA per AHW. Specifically, we find a positive and large Within Effect, which contributed 3.7 percentage-points to the overall VA per worker growth of 3.8 per cent in 2017. Overall VA per worker growth was also supported by a positive Static Shift Effect (0.2 percentage-point), but was weighed down by a negative, but small, Dynamic Shift Effect (-0.1 percentage-point).

Exhibit B-1: Decomposition of Real VA per Worker Growth, 2011-2017



Source: MTI Staff Estimates
Note: The Within, Static Shift and Dynamic Shift Effects may not sum to the overall productivity growth due to rounding.

CHAPTER 3

COSTS, INVESTMENTS AND PRICES

CHAPTER 3

COSTS, INVESTMENTS AND PRICES

Investment Commitments in 2017

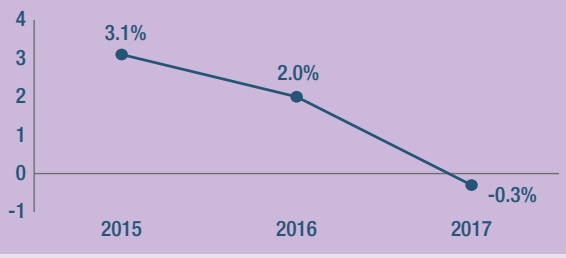
$9.4 billion

Fixed Asset Investment Commitments

$6.5 billion

Total Business Expenditure Commitments

OVERALL UNIT LABOUR COST



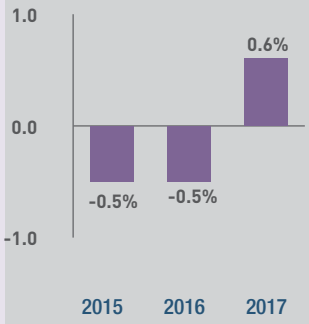
WITHIN THE MANUFACTURING SECTOR

-8.0% in 2017 Unit Labour Cost

+3.4% in 2017 Unit Business Cost

The Consumer Price Index (CPI) increased by 0.6% in 2017

CPI-ALL ITEMS INFLATION



CLUSTERS THAT ATTRACTED THE HIGHEST FIXED ASSET INVESTMENT COMMITMENTS

Services Clusters

Electronics

Chemicals

CLUSTERS THAT ATTRACTED THE HIGHEST TOTAL BUSINESS EXPENDITURE COMMITMENTS

Headquarters & Professional Services

Engineering & Environmental Services

Information Communication & Media

THE INCREASE IN CPI WAS MAINLY DRIVEN BY INCREASES IN PRICES OF...

TRANSPORT

0.4%-point contribution

FOOD

0.3%-point contribution

BUT THIS WAS PARTIALLY OFFSET BY DECLINES IN PRICES OF...

HOUSING & UTILITIES

-0.6%-point contribution

OVERVIEW

Overall Unit Labour Cost (ULC) rose by 0.9 per cent in the fourth quarter of 2017, reversing the decline of 2.0 per cent in the preceding quarter. For the whole of 2017, the ULC fell by 0.3 per cent on the back of strong productivity gains.

Total investment commitments in the manufacturing and services sectors moderated from 2016's level, but remained healthy in 2017. Among the manufacturing clusters, the electronics cluster attracted the largest amount of commitments in fixed asset investments (FAI). On the other hand, the headquarters & professional services cluster was the biggest contributor to commitments in total business expenditure (TBE).

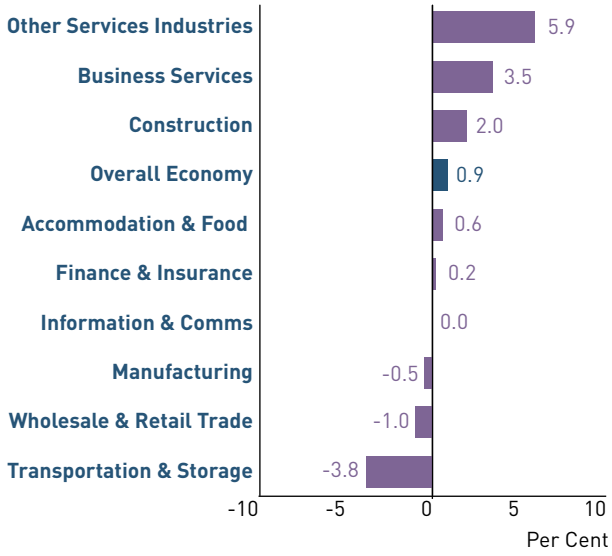
The Consumer Price Index-All Items (CPI-All Items) increased by 0.5 per cent in the fourth quarter on a year-on-year basis, higher than the 0.4 per cent increase in the previous quarter. For 2017 as a whole, CPI-All Items inflation came in at 0.6 per cent, after two consecutive years of negative inflation.

Producer prices, as measured by the domestic supply price index (DSPI), Singapore manufactured products price index (SMPPI) and import prices, rose in the fourth quarter, while export prices declined. For 2017 as a whole, the DSPI, SMPPI, import and export price indices increased by 7.0 per cent, 3.8 per cent, 5.8 per cent and 2.9 per cent respectively.

COSTS

After falling by 2.0 per cent in the third quar-ter, overall ULC for the economy registered gains of 0.9 per cent in the fourth quarter, the highest recorded for the year as the rise in total labour cost per worker exceeded labour productivity gains.

Exhibit 3.1: Changes in Unit Labour Cost in 4Q 2017

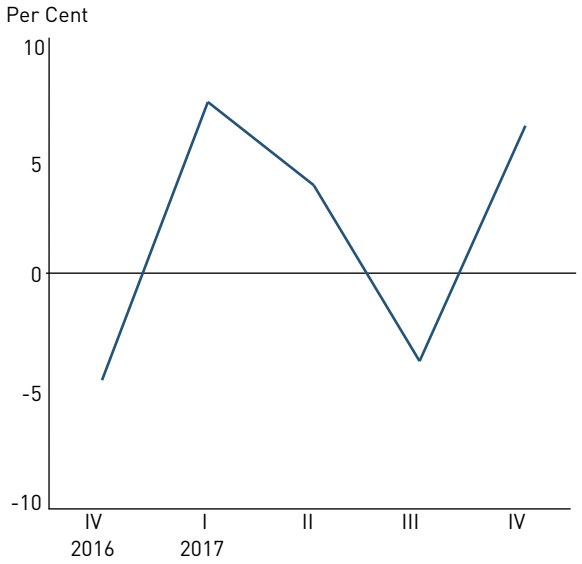


By broad sectors, the ULC for the manufacturing sector declined by 0.5 per cent, the eighth consecutive quarter of decline. The continued fall in the manufacturing ULC was due to sustained productivity gains in the sector. By contrast, the ULC for the construction sector and the overall services sector increased by 2.0 per cent and 1.5 per cent respectively. Most services sectors registered positive ULC growth, with the largest increases observed in the other services (5.9 per cent) and business services (3.5 per cent) sectors. Only the wholesale & retail trade and transportation & storage sectors registered ULC declines of 1.0 per cent and 3.8 per cent respectively (Exhibit 3.1).

For the whole of 2017, the overall ULC fell by 0.3 per cent as a result of strong labour productivity gains.

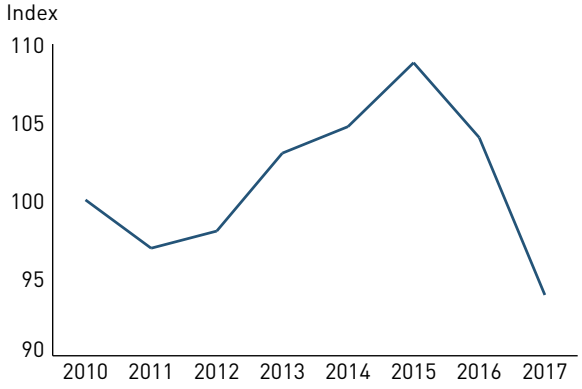
Manufacturing unit business cost (UBC) rose by 6.2 per cent in the fourth quarter, a reversal of the 3.7 per cent decline in the previous quarter (Exhibit 3.2). The increase in manufacturing UBC was driven by an increase in unit services cost (including royalties, utilities and other services costs such as professional and advertis-ing fees), which more than offset the decline in the manufacturing ULC. For the whole of 2017, the manufacturing UBC rose by 3.4 per cent, reversing the 1.5 per cent decline in 2016.

Exhibit 3.2: Changes in Unit Business Cost for Manufacturing



Singapore's relative unit labour cost (RULC) for manufacturing – a measure of Singapore's competitiveness against 16 economies[1] – declined in 2017 as compared to 2016 (Exhibit 3.3). The decline in the manufacturing RULC came on the back of a fall in Singapore's man-ufacturing ULC relative to other economies.

Exhibit 3.3: Singapore's Relative Unit Labour Cost in Manufacturing Against Selected 16 Economies

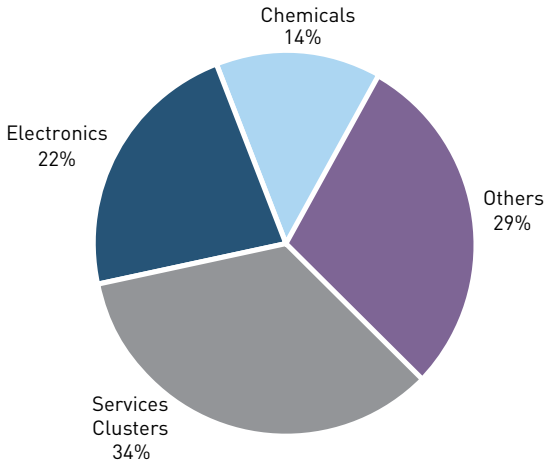


INVESTMENT COMMITMENTS

In 2017, the Singapore economy received a healthy level of investment commitments, alt-hough it represented a moderation from the level received in 2016. For the full year, FAI and TBE commitments came in at $9.4 billion and $6.5 billion respectively.

The manufacturing sector garnered the most FAI commitments. Within the manufacturing sector, the electronics cluster attracted the largest amount of commitments, at $2.1 billion, mainly in the semiconductors segment. This was followed by the chemicals cluster, which received $1.3 billion in commitments (Exhibit 3.4). Investors from the United States were the largest source of FAI commitments (38 per cent). They were followed by investors from Europe who contributed about $2.7 billion of FAI commitments (29 per cent).

Exhibit 3.4: Fixed Asset Investments by Industry Clusters in 2017

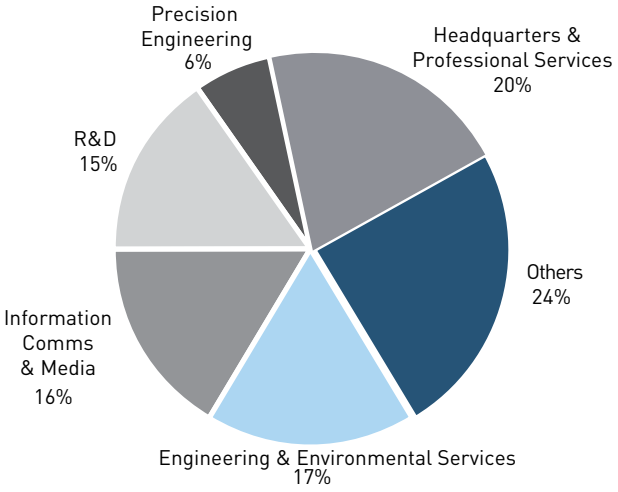


For TBE, the headquarters & professional services cluster attracted the highest amount of commitments in 2017, at $1.3 billion. The engineering & environmental services cluster came next, contributing about $1.1 billion in TBE commitments (Exhibit 3.5). Investors from the United States contributed $2.5 billion, or 38 per cent of the total TBE commitments, followed by investors from Asia Pacific (ex-Japan) who accounted for $1.3 billion, or 20 per cent of total TBE commitments.

When fully operational, these FAI and TBE commitments are estimated to generate $17 billion of value-added per annum and create approximately 22,481 jobs.

1 *The 16 economies are Australia, China, France, Germany, Hong Kong, India, Indonesia, Japan, Malaysia, Netherlands, South Korea, Taiwan, Thailand, the United Kingdom, the United States and Vietnam.*

Exhibit 3.5: Total Business Expenditure by Industry Cluster in 2017

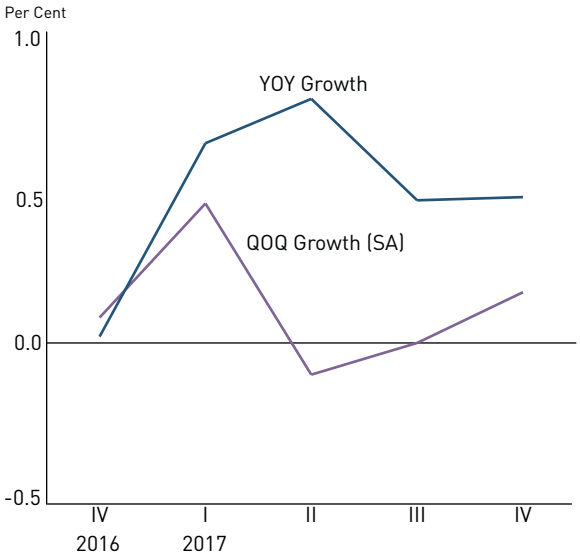


CONSUMER PRICE INDEX

Singapore's CPI-All Items increased by 0.5 per cent on a year-on-year basis in the fourth quarter, extending the 0.4 per cent rise in the third quarter (Exhibit 3.6). On a quarter-on-quarter seasonally-adjusted basis, the CPI-All items increased by 0.2 per cent, after remaining unchanged in the previous quarter.

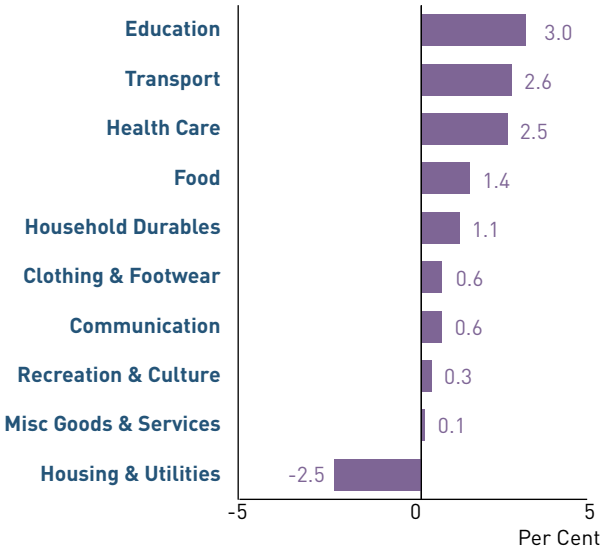
For 2017 as a whole, CPI-All Items inflation came in at 0.6 per cent, after two consecutive years of negative inflation. Among the CPI cat-egories, the largest positive contributor to CPI inflation was transport costs, which rose by 2.6 per cent (Exhibit 3.7). This was on account of higher petrol prices and parking charges as well as the expiry of the road tax rebate, which more than offset the effect of lower bus and train fares.

Exhibit 3.6: Changes in Overall CPI



Food prices rose by 1.4 per cent due to price increases for food servicing services like hawker food and restaurant meals as well as non-cooked food items such as fish and sea-food, fruits and vegetables. Meanwhile, educa-tion costs increased by 3.0 per cent as a result of higher fees at commercial institutions, universities, kindergartens, childcare centres and polytechnics. Healthcare costs went up by 2.5 per cent due to more expensive hospital and outpatient services. Prices of household durables and services increased by 1.1 per cent as a rise in the salaries of foreign maids more than offset a drop in the prices of household durables. Recreation and culture costs rose by 0.3 per cent because of the higher costs of holiday travel.

Exhibit 3.7: Changes in CPI by Category in 2017



Communications costs edged up by 0.6 per cent due to the higher cost of telecommunication services. Clothing and footwear costs rose by 0.6 per cent because of more expensive footwear and ready-made garments. Lastly, the prices of miscellaneous goods and services increased by 0.1 per cent on account of a rise in the cost of personal effects items.

The price gains in these CPI categories were partially offset by a 2.5 per cent fall in the cost of housing and utilities. In turn, the lower cost of housing and utilities was due to a decline in accommodation costs, which had more than offset the increase in electricity tariffs, water price and housing maintenance charges for both HDB and non-HDB flats.

PRODUCER PRICE INFLATION

Producer prices - as measured by the DSPI and SMPPI - as well as the import price index rose in the fourth quarter (Exhibits 3.8 and 3.9). These increases were largely due to an increase in the price of diesel fuels, reflecting the pickup in oil prices. On the other hand, the export price index fell on account of a drop in the prices of integrated circuits, disk drives, semiconductor memories and parts of office and data processing machines.

For the whole of 2017, the DSPI and SMPPI rose by 7.0 per cent and 3.8 per cent respec-tively, mainly on account of an increase in the prices of diesel fuels and kerosene. Likewise, the higher prices of diesel fuel and high speed diesel fuel contributed to the bulk of the increase in import prices (5.8 per cent) and ex-port prices (2.9 per cent).

Exhibit 3.8: Changes in Domestic Supply Price and Singapore Manufactured Products Price Indices

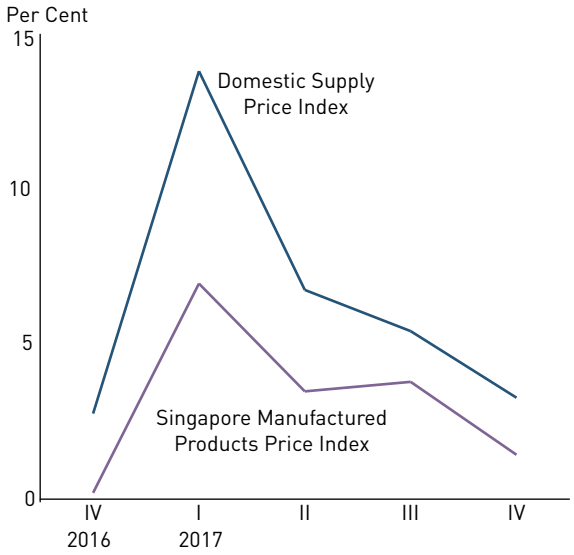
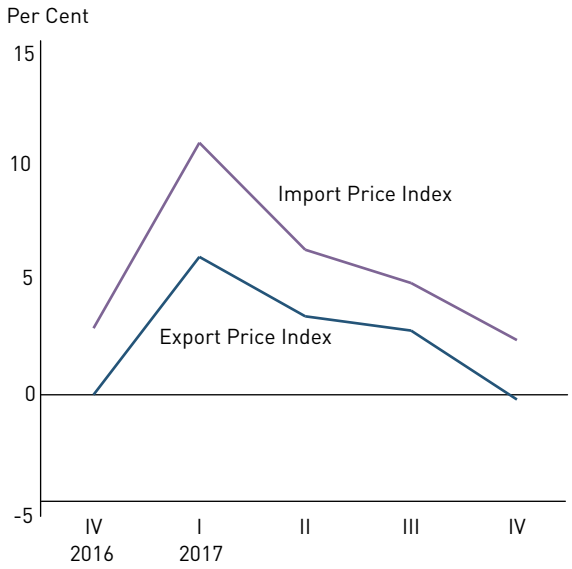


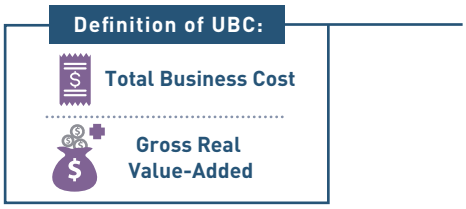
Exhibit 3.9: Changes in Import and Export Price Indices

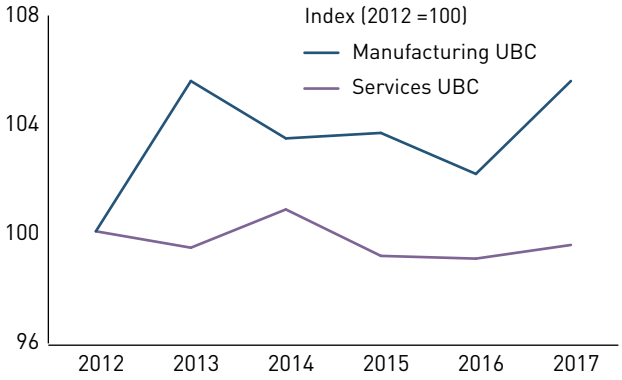


BOX ARTICLE 3.1

Business Costs of Singapore's Manufacturing and Services Sectors

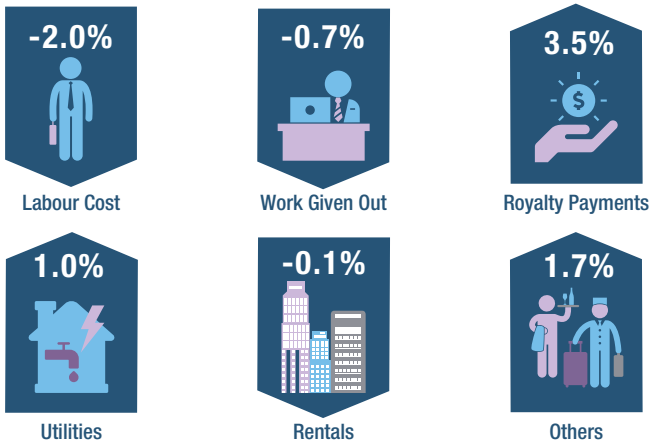
In 2017, the unit business cost (UBC) for the manufacturing sector rose by 3.4%, while the UBC for the overall services sector rose by 1.3% in the first 3 quarters of the year.





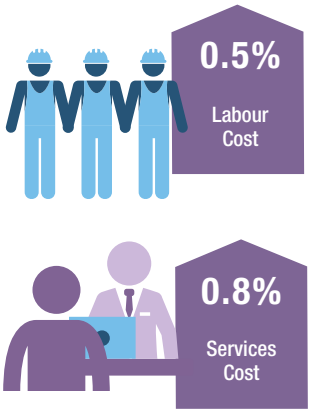
The increase in the manufacturing UBC in 2017 was primarily due to increases in unit services cost components such as royalty payments, "others" and utilities cost, even as the manufacturing unit labour cost declined.

Percentage-Point Contribution to Manufacturing UBC in 2017



Meanwhile, the increase in the services UBC in the first three quarters of 2017 was driven by increases in the unit labour cost and unit services cost.

Percentage-Point Contribution to Services UBC in 2017



Looking ahead, the unit labour cost for the overall economy is likely to face upward pressures in 2018. Meanwhile, utilities cost could increase slightly, while the healthy supply of industrial and commercial space coming on-stream would help to rein in rental cost.

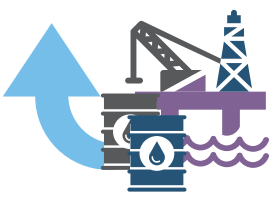
UNIT LABOUR COST

Wages are expected to rise modestly, while productivity growth is expected to moderate

RENTAL COST

Healthy supply coming on-stream

UTILITIES COST



Uptick in global oil prices

Following declines in recent years, unit business costs in the manufacturing and services sectors saw an uptick in 2017

Over the five-year period of 2012 to 2017, the unit business cost index for the manufacturing sector (UBCI) rose by 1.1 per cent per annum on a compound annual growth rate (CAGR) basis, while that for the services sector (UBC-Services Index) fell marginally, by 0.1 per cent per annum (Exhibit 1).[1, 2] Within the period, the manufacturing UBCI saw a general downward trend between 2013 and 2016, before rising by 3.4 per cent in 2017. Similarly for the overall services sector, the UBC-Services Index declined between 2014 and 2016, before posting an increase of 1.3 per cent in the first three quarters of 2017[3] as compared to the same period a year ago (Exhibit 2).

Exhibit 1: Manufacturing Sector UBCI and Services Sector UBC-Services Index

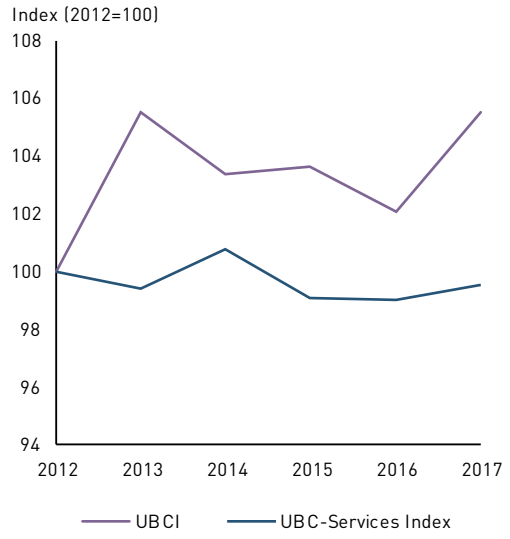
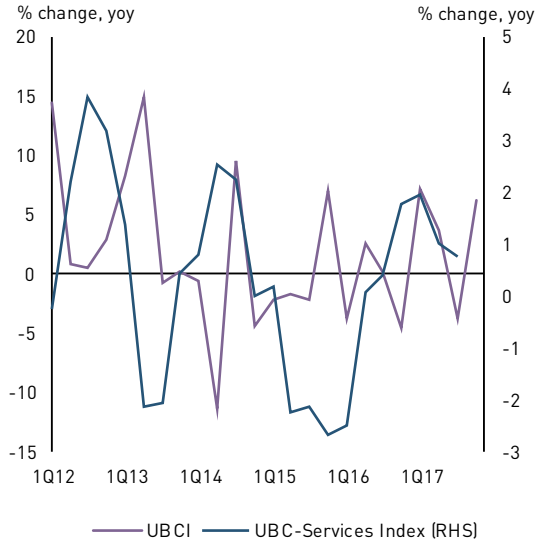


Exhibit 2: Year-on-Year (YoY) % Change of the UBCI and UBC-Services Index



Source : Department of Statistics, Monetary Authority of Singapore
Note: The UBC-Services Index for 2017 refers to the average of the first three quarters

The rest of the article is organised as follows. We first examine the business cost structure of the manufacturing and services sectors, before discussing the factors contributing to the manufacturing UBCI and UBC-Services Index trends in the last five years. We then end with a discussion on recent trends in labour, rental and utilities costs, as well as the outlook for these cost components.

1 *Only operating expenses (except material costs and depreciation) are included in business costs. This follows the definition adopted by the Department of Statistics (DOS) in its computation of the Unit Business Cost for Manufacturing. See DOS' Information Paper, "Methodological Review on the Unit Business Cost Index for Manufacturing Industry (Base Year 2010=100)". The manufacturing UBCI series based on the revised methodology is available from 1Q10.*

2 *The UBC-Services Index is estimated by MAS to assess cost conditions in the services sector. It is a composite index of proxy cost indicators for each component of business cost, combined using the weights derived from the 2013 Input-Output tables.*

3 *Latest available UBC-Services Index is up to 3Q17.*

(I) Business Cost Structure of Manufacturing and Services Sectors

Labour cost, royalty payments and "others" are the main components of business costs in the manufacturing sector, while non-production taxes account for a very small share

In the manufacturing sector, labour cost, royalty payments[4] and "others"[5] constitute the largest components of total business costs. These three components account for around 71 per cent of the business costs of small- and medium-sized enterprises (SMEs) and 67 per cent of the business costs of non-SMEs in the sector.[6]

The other services cost components, including utilities, fuel, rental of building/premises and charges paid to other firms for inland transportation and ocean/air/other freight, make up a smaller share of business costs, at 11 per cent for non-SMEs and 8.9 per cent for SMEs. Notably, non-labour production taxes[7], which include property, road and other indirect taxes, account for around 0.5 per cent or less of the business costs of both the non-SMEs and SMEs in the sector.

Details of the cost structure of the non-SMEs and SMEs in the manufacturing sector, as well as in the various manufacturing clusters, are in Annex A, Exhibit A1.

Similarly, labour cost constitutes a major cost component for firms in the services sectors

Labour cost constitutes a major cost component for firms in the services sectors, with its share of total business costs ranging from around 14 per cent for firms in the finance & insurance sector, to 35 per cent or more for firms in labour-intensive sectors such as retail trade and accommodation & food services. Across all services sectors, except for the transportation & storage sector, the labour cost share of total business costs is larger for SMEs than for non-SMEs.

On the other hand, utilities cost is a relatively small cost component for firms in the services sectors, accounting for less than 1 per cent of total business costs for firms in most sectors. A key exception is the accommodation & food services sector, where utilities cost constitutes close to 5 per cent of total business costs. Similarly, rental cost accounts for a small share of business costs for firms in most services sectors. Key exceptions include the retail trade and accommodation & food services sectors, where the rental cost share of business costs for SMEs is 30 per cent and 22 per cent respectively.

Like in the manufacturing sector, non-labour production taxes account for less than 1 per cent of total business costs for firms in most services sectors. Even for the business services and accommodation & food services sectors, where the share of non-labour production taxes is the highest, it is at less than 2 per cent.

Further details of the cost structure of the non-SMEs and SMEs in the various services sectors are in Annex A, Exhibit A2.

4 *Royalty payments refer to payments to another party (the licensor or franchisor who owns a particular asset) for the right to ongoing use of that asset.*

5 *"Others" consists of sub-components such as professional fees, advertising, commission and agency fees, sundry expenses etc.*

6 *Based on SPRING's definition, SMEs refer to firms with annual sales turnover of not more than S$100 million or employment size of not more than 200 workers.*

7 *Government Rates and Fees" has been renamed as "Non-Labour Production Taxes". Labour-related taxes on production (e.g., foreign worker levy) are classified under labour cost. Taxes on income (e.g., corporate income tax) are excluded. For details, refer to information paper on "Methodological Review on the Unit Business Cost Index for Manufacturing Industry (Base Year 2010=100)" http://www.singstat.gov.sg/docs/default-source/default-documentlibrary/publications/publications_and_papers/labour_employment_wages_and_productivity/ip-e39.pdf.*

(II) Factors Contributing to the Changes in Unit Business Costs in Manufacturing and Services

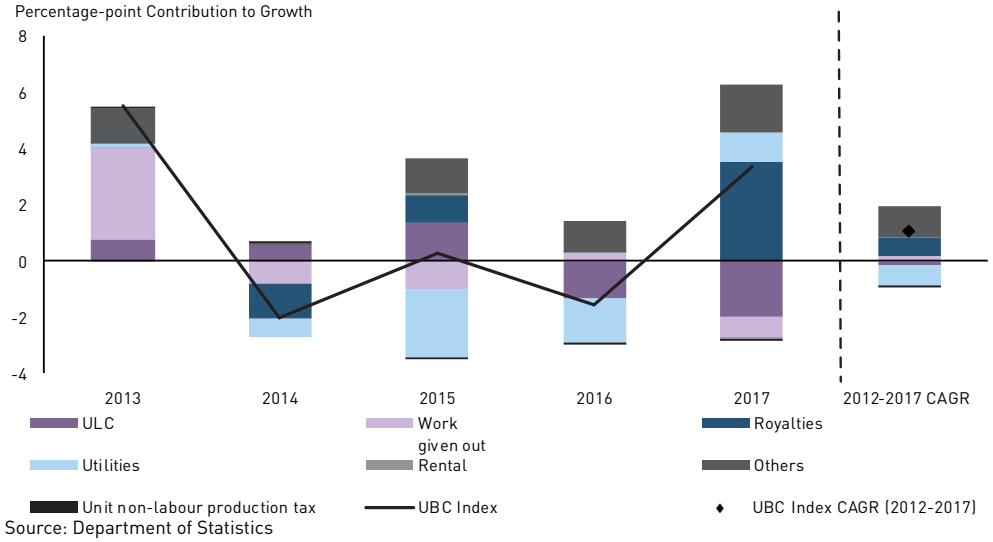
Labour cost, royalty payments and "others" were the key contributors to business cost changes in the manufacturing sector in the last five years

As labour cost, royalty payments and "others" constitute a large part of business costs in the manufacturing sector, they were some of the key contributors to manufacturing UBCI changes in the past five years (Exhibit 3). For instance, manufacturing unit labour cost (ULC) dampened UBCI increases in 2016 and 2017 on the back of strong productivity gains even as total labour cost (TLC) per worker increased. Royalty payments, which tend to be volatile, contributed negatively to manufacturing UBCI in 2014 but rose sharply in 2017, thereby contributing to the UBCI increase in 2017.[8] On the other hand, the "others" segment, which includes payments for professional fees and advertising, contributed positively to manufacturing UBCI across all five years.

Despite its relatively small share in total business costs, utilities cost was also a key contributor to UBCI changes over the five-year period due to the sharp changes in oil prices. For instance, in 2015, utilities cost had a negative contribution of -2.4 percentage-points (pp) to the 0.3 per cent increase in UBCI due to the steep decline in global oil prices, as well as greater competition in the wholesale and retail electricity markets with new generation capacity. By contrast, in 2017, utilities cost contributed 1.0pp to the 3.4 per cent increase in UBCI, in part due to a rebound in global oil prices which led to higher electricity tariffs.[9]

Overall, for the five-year period of 2012 to 2017, the increase in the manufacturing UBCI of 1.1 per cent per annum was primarily due to unit services cost components such as "others" and royalty payments, which collectively contributed 1.7pp to the increase. On the other hand, manufacturing ULC (-0.1pp) and utilities cost (-0.7pp) contributed negatively to the UBCI increase over the same period. The rest of the business cost components like rentals and non-labour production taxes had a relatively small impact on business costs due to their low share of business costs.

Exhibit 3: Contribution to UBCI Changes by Key Cost Components



Source: Department of Statistics
Note: "Others" consists of sub-components such as professional fees, advertising, commission and agency fees, sundry expenses etc

8 *There could be many reasons for the spike in 2017. For instance, royalty payments vary with company-specific licence agreements which could vary from year to year. Also, royalties are usually computed as a percentage of sales, which could have seen a surge in 2017.*

9 *The UK Brent spot prices fell by 2.8% in 2013, 9.1% in 2014, 47% in 2015, and 16% in 2016. By contrast, it rose by 23% in 2017.*

For the overall services sector, the average decline in the UBC-Services Index between 2012 and 2017 (i.e., -0.1 per cent per annum) was mainly driven by a fall in unit services cost, which includes rental and leasing expenses, freight and transportation costs. Specifically, the contribution of unit services cost to the overall decline was -0.7pp, and this more than offset the positive contribution of ULC (0.6pp).[10] For the first three quarters of 2017, the ULC contributed positively to the increase in the UBC-Services Index (i.e., 1.3 per cent year-on-year), at 0.5pp, while unit services cost saw an uptick and contributed 0.8pp to the overall increase.

(III) Recent Trends and Outlook for Labour, Rental and Utilities Costs

Remuneration growth outpaced productivity growth and led to an increase in ULC over the last five years

From 2012 to 2017, the overall ULC for the economy increased by 1.8 per cent per annum. This came on the back of a 3.1 per cent per annum increase in TLC per worker and a more moderate 1.3 per cent per annum increase in labour productivity growth (gross real value-added per worker) (Exhibit 4).[11] (An increase in TLC per worker raises the ULC, while an increase in labour productivity reduces the ULC.)

In turn, the increase in TLC per worker was primarily due to higher remuneration per worker.[12] Over the last five years, remuneration per worker increased by 3.3 per cent per annum, contributing 3.1pp to the rise in TLC per worker. By contrast, the increase in foreign worker levy (FWL) only accounted for 0.2pp of the increase in TLC per worker, and this was partly offset by the increase in wage subsidies per worker provided by the Government (around -0.1pp contribution).[13]

At the sectoral level, most sectors registered positive ULC growth in recent years (Exhibit 5). The ULC for the overall services sector rose by 1.8 per cent on a CAGR basis from 2012 to 2017, in part due to remuneration growth outpacing labour productivity growth. Among the services sectors, ULC growth was the strongest for sectors with negative productivity growth, such as business services (3.4 per cent per annum) and accommodation & food services (2.8 per cent per annum). Consistent with the earlier analysis on the manufacturing UBCI, manufacturing ULC declined by 0.5 per cent on a CAGR basis from 2012 to 2017 on the back of strong productivity gains in the sector since 2016.

For 2018, the overall ULC for the economy is likely to see a modest increase. Wages are expected to rise modestly amidst a gradual recovery in the labour market. At the same time, productivity growth in 2018 is likely to moderate as GDP growth eases and labour demand recovers.

Over the longer term, it is important to press ahead with efforts to ensure that productivity growth is sustained, so as to maintain wage growth without eroding our competitiveness.

10 Detailed cost component breakdowns for the UBC-Services Index are not available.

11 Changes in overall ULC can be decomposed as the difference of the change in TLC per worker and the change in gross real value-added per worker (i.e., excluding taxes on products). The official real VA per worker statistics for the overall economy are computed based on GDP at 2010 market prices (i.e., including taxes on products). Growth in gross real VA per worker is similar to the growth in real VA per worker, and may be used to approximate labour productivity growth. Based on the decomposition, an increase in TLC per worker or a fall in labour productivity will raise ULC, ceteris paribus.

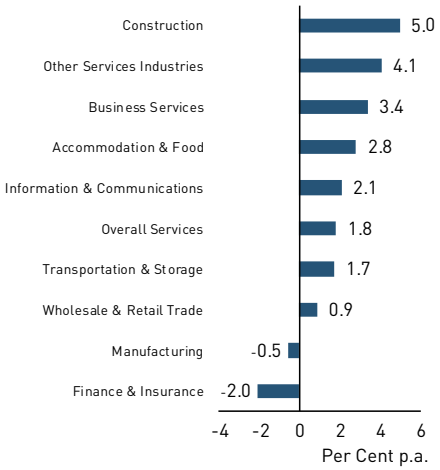
12 The TLC comprises remuneration and other labour-related costs, including the skills development levy, foreign worker levy, wage subsidies, and recruitment and net training cost.

13 Examples of wage subsidies provided to companies include the Special Employment Credit and the Wage Credit Scheme. These subsidies are generally applicable only for the Singaporean workers hired by these companies.

Exhibit 4: Decomposition of ULC Growth Growth for Overall Economy, 2012-2017 CAGR

	2012-2017 CAGR (% p.a.)
ULC	**1.8**
TLC per worker	**3.1**
Remuneration per worker	3.1 pp
FWL per worker	0.2 pp
Wage subsidies per worker	-0.1 pp
Other labour costs	-0.1 pp
Gross real labour productivity	**1.3**

Exhibit 5: ULC Growth by Sectors, 2012-2017 CAGR



Source: MTI Staff estimates using data from Department of Statistics and Ministry of Manpower

Industrial and commercial rentals are likely to remain subdued due to the healthy supply coming on-stream

From 2012 to 2017, rentals of industrial space rose marginally by 0.1 per cent per annum, mainly due to the increase in rentals between 2012 and 2014. There has been a sustained decline in rentals since the third quarter of 2014 (Exhibit 6). For 2017 as a whole, industrial rentals decreased by 2.8 per cent, moderating from the 6.8 per cent decline in 2016. The decline in industrial rentals in 2017 generally came on the back of a fall in the occupancy rate of industrial space, which is at its lowest since 2005, primarily due to the injection of new industrial space into the market (Exhibit 7).

Exhibit 6: Industrial Rental Index

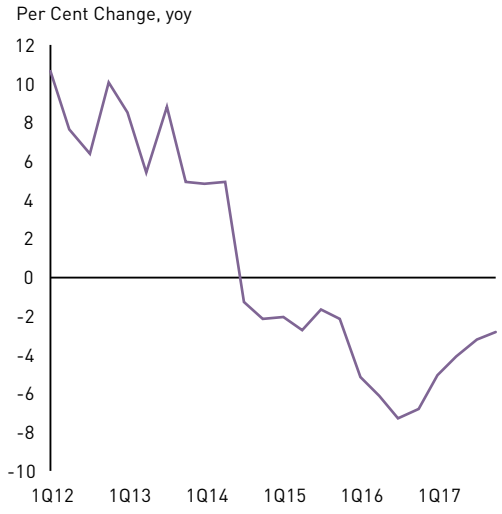
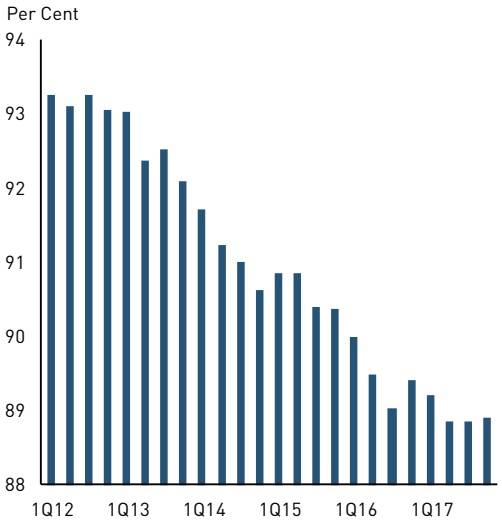


Exhibit 7: Industrial Occupancy Rate



Source: JTC Corporation
Note: Both the industrial rental index and the industrial occupancy rate cover multiple-user factory space, single-user factory space, business parks and warehousess parks and warehouses

For 2018, a healthy supply of industrial space is expected to come on-stream. In total, an additional 1.6 million gross square metres of industrial space is expected to be completed within the year, compared to the annual average increase of 2.2 million gross square metres of industrial space completed from 2012 to 2017 (Annex B, Exhibit B1). On the other hand, as reflected in the low occupancy rates in recent quarters, the demand for industrial space may not increase at the same pace as supply. Against this backdrop, industrial rentals are likely to remain subdued in the year ahead.

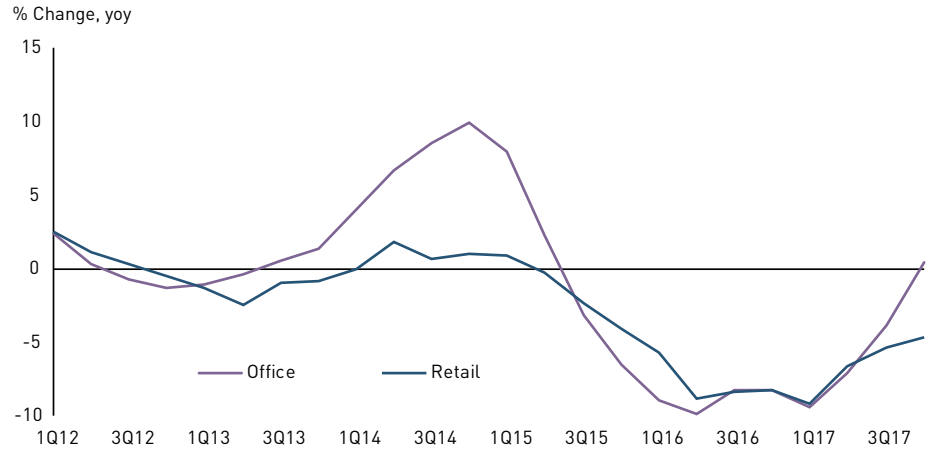
As for commercial space, the rentals of retail and office space declined by 3.0 per cent and 0.9 per cent per annum respectively from 2012 to 2017. This was on account of the fall in retail and office rentals since 2015 (Exhibit 8), due to lacklustre demand and an increase in the supply of retail and office space.

In 2018, the outlook for the retail space market remains cautious. While the demand for retail space is expected to stabilise on the back of improving consumer sentiments and a recovery in retail sales volumes, the sector continues to face headwinds from competition from e-commerce and manpower shortages. On the other hand, the office space market saw stronger leasing activities in the last quarter of 2017 and the demand for office space is expected to continue to strengthen in the year ahead, supported by improving business sentiments amongst financial, insurance and business services firms as well as expansion activities from the technology sectors and co-working operators.

At the same time, there remains a large supply of retail and office space in the pipeline. In particular, 0.28 million gross square metres of retail space and 0.21 million gross square metres of office space are expected to come on-stream within the year, close to the historical annual average increases of 0.23 million and 0.25 million gross square metres of retail and office space completed respectively from 2012 to 2017 (Annex B, Exhibit B2).

On balance, there is likely to be continued downward pressures on retail rentals in 2018. For the office sector, while rentals might potentially recover further in 2018, the magnitude of the increase would likely be dampened by the healthy supply of office space due for completion within the year.

Exhibit 8: Office and Retail Rental Indices



Source: Urban Redevelopment Authority

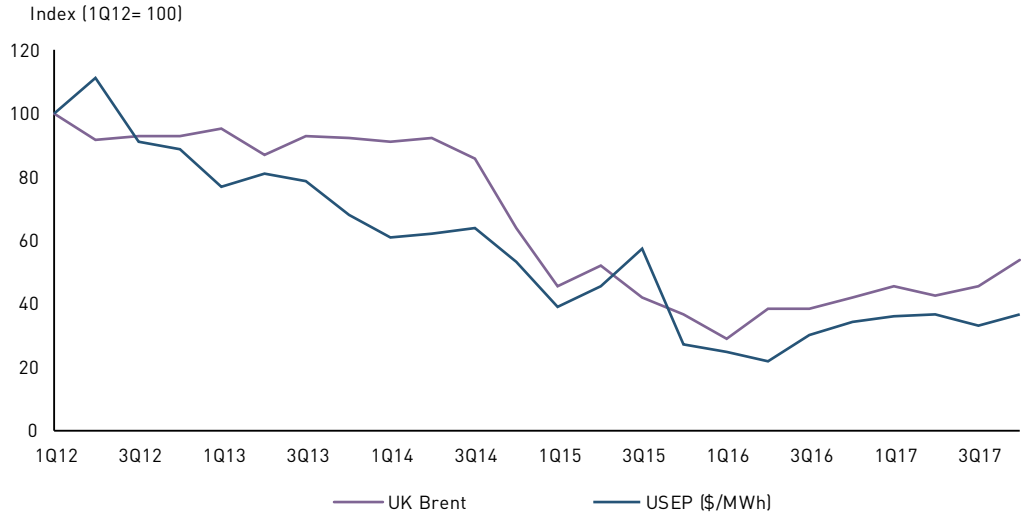
An expected increase in global oil prices could translate to higher utilities cost in 2018

The cost of utilities borne by manufacturers is closely linked to electricity tariffs,[14] which are in turn influenced by movements in global oil prices.[15] Oil prices also contribute to business costs indirectly through transportation costs.

In tandem with the decline in global oil prices and increased competition in the wholesale and retail electricity markets, the average wholesale electricity price fell by 18 per cent per annum between 2012 and 2017 (Exhibit 9).[16] However, global oil prices have picked up in recent quarters. For the whole of 2017, the UK Brent averaged US$54 per barrel, 23% higher than the average price of US$44 per barrel in 2016.

For 2018, the US Energy Information Administration (EIA) is forecasting that oil prices will average around US$62 per barrel, an increase compared to 2017 levels.[17] The projected increase in oil prices, along with the scheduled increase in water tariff in July 2018, is expected to translate to slightly higher utilities costs for businesses.

Exhibit 9: Global Oil Prices and Uniform Singapore Energy Prices



Source: International Monetary Fund, CEIC, Energy Market Company

Conclusion

Between 2012 and 2017, the unit business cost for the manufacturing sector rose mainly due to an increase in unit services cost components such as royalty payments and "others", which more than offset the decline in manufacturing ULC and utilities cost. For 2017, the unit business cost for the manufacturing sector increased primarily due to increases in royalty payments, "others" (e.g., advertising and professional fees) and utilities cost, even as the manufacturing ULC declined. On the other hand, the unit business cost for the overall services sector fell marginally from 2012 to 2017 as the increase in ULC for overall services was outweighed by a decline in unit services cost. However, in 2017, the unit business cost for the services sectors increased, mainly on the back of increases in both the ULC and unit services cost.

14 *Electricity cost accounts for 85% of utilities cost in the manufacturing sector.*

15 *About 95% of our electricity is generated from natural gas, the price of which is indexed to oil prices. This is the common market practice in Asia. As fuel cost is a key cost component accounting for around half of the electricity tariff, the tariff moves in tandem with oil prices.*

16 *The Uniform Singapore Energy Price (USEP) is the average wholesale energy price in the National Electricity Market of Singapore (NEMS).*

17 *EIA Short-Term Energy Outlook Report, 6 February 2018*

Looking ahead, the ULC for the overall economy is likely to face upward pressures in 2018 as wages are expected to rise modestly amidst a gradual recovery in the labour market, while productivity growth is expected to moderate. An uptick in global oil prices could also lead to slightly higher utilities costs this year. However, the healthy supply of industrial and commercial space coming on-stream would continue to help to rein in rental costs in 2018.

Contributed by:
Ms Geraldine Lim
Economist
Economics Division
Ministry of Trade and Industry

REFERENCES

Singapore Department of Statistics (2014), "Methodological Review on the Unit Business Cost Index for Manufacturing Industry (Base Year 2010=100)" November. http://www.singstat.gov.sg/docs/default-source/default-document library/publications/publications_and_papers/labour_employment_wages_and_productivity/ip-e39.pdf.

U.S. Energy Information Administration (2018), "Short-Term Energy Outlook (STEO)" February. https://www.eia.gov/outlooks/steo/.

ANNEX A: BUSINESS COST STRUCTURE OF NON-SMES AND SMEs IN THE MANUFACTURING AND SERVICES SECTORS

Exhibit A1: Business Cost Structure of the Manufacturing Sector by Firm Size, 2016

	Total		Electronics		Chemicals		Biomedical Services		Precision Engineering		Transport Engineering		General	
	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs
Labour Cost	**20.4**	**28.3**	**15.2**	**4.7**	**18.8**	**28.1**	**18.4**	**13.5**	**17.9**	**44.1**	**40.1**	**38.1**	**41.3**	**49.8**
Services Cost	**79.3**	**71.2**	**84.6**	**95.3**	**80.3**	**70.7**	**81.3**	**86.0**	**81.9**	**55.4**	**59.3**	**61.5**	**58.2**	**49.3**
Work given out	21.2	19.7	32.3	24.6	6.7	3.3	4.3	16.8	5.6	15.6	36.4	39.7	9.3	11.3
Royalty payments	24.8	21.4	26.3	42.3	5.4	4.3	44.5	48.0	50.9	18.7	2.8	0.6	3.1	1.5
Utilities	3.3	2.3	2.9	0.3	8.4	9.8	1.3	1.0	1.1	2.1	1.7	0.9	6.2	2.9
Fuel	4.4	1.2	0.8	0.0	25.0	8.3	0.4	0.2	0.1	0.2	0.3	0.7	2.2	0.9
Rental of building/ premises	0.8	2.2	0.4	0.4	0.9	1.9	0.6	0.9	0.5	3.0	1.5	2.2	3.9	5.3
Charges paid to other firms for inland transportation and ocean/air/ other freight	2.5	3.0	1.4	0.9	6.4	12.7	1.2	2.0	2.5	2.2	1.2	1.0	6.8	4.0
Others	22.2	21.4	20.4	26.7	27.6	30.4	28.9	17.1	21.2	13.6	15.5	16.4	26.7	23.4
Non-Labour Production Taxes	**0.4**	**0.5**	**0.2**	**0.1**	**0.9**	**1.2**	**0.2**	**0.5**	**0.2**	**0.5**	**0.6**	**0.4**	**0.5**	**0.9**

Source: Economic Development Board

Exhibit A2: Business Cost Structure of the Services Sector by Firm Size, 2016

	Wholesale Trade		Retail Trade		Accommodation & Food Services		Transportation & Storage		Finance & Insurance		Information & Communications		Business Services	
	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs	Non-SMEs	SMEs
Labour Cost	**18.7**	**22.7**	**35.0**	**37.9**	**41.3**	**42.8**	**17.0**	**9.9**	**14.0**	**14.6**	**14.1**	**33.0**	**20.6**	**27.8**
Services Cost	**79.1**	**74.9**	**57.9**	**56.6**	**49.4**	**47.9**	**72.3**	**83.5**	**84.2**	**84.3**	**81.4**	**60.2**	**73.8**	**64.6**
Utilities	0.2	0.3	2.5	1.4	4.4	4.7	0.7	0.2	0.1	0.1	0.4	1.5	0.3	1.0
Freight & Transport	9.3	28.2	1.2	2.0	0.9	0.3	34.3	56.2	0.0	0.1	-	0.6	-	3.1
Financial Services	1.4	1.9	2.1	2.3	1.1	1.6	0.7	0.7	3.3	5.1	0.5	0.2	0.1	0.5
Communications	0.7	0.5	0.5	0.7	0.3	0.5	0.6	0.4	0.3	0.3	1.8	6.6	0.2	0.4
Renting of Premises	3.7	5.2	33.0	29.5	16.8	22.3	0.8	2.1	1.0	1.3	1.1	4.0	1.0	3.2
Professional Services	7.7	4.3	1.7	2.1	1.1	1.2	1.0	0.6	2.9	2.5	13.9	7.1	14.4	3.6
Other Services	56.1	34.6	16.8	18.5	24.8	17.3	34.2	23.3	76.7	75.0	63.7	40.2	57.8	52.7
Advertising & Entertainment	6.3	6.8	5.0	4.9	3.7	2.6	0.7	0.5	1.5	0.5	2.9	5.9	1.2	4.0
Admin & Management Fees	9.5	5.5	3.0	2.3	3.6	4.0	2.4	3.7	5.9	7.6	14.7	6.9	2.7	6.5
Contract labour & work given out	4.3	3.0	1.6	2.5	2.3	2.9	1.9	2.0	0.9	0.6	3.4	9.8	31.0	20.3
Commission	7.3	6.4	0.7	3.1	0.9	1.3	3.5	1.8	3.8	7.1	7.9	2.5	0.7	2.3
Royalties	22.2	5.2	1.2	1.0	5.5	0.9	0.1	-	1.4	0.2	27.1	6.0	2.2	1.6
Maintenance & repairs	0.8	0.9	2.9	1.8	3.4	3.1	5.7	2.0	0.6	0.3	1.1	1.4	1.0	2.5
Fuel	-	0.2	-	0.1	0.1	-	13.3	8.3	-	0.0	-	-	-	0.1
Others	5.7	6.6	2.4	2.7	5.2	2.4	6.5	5.0	62.5	58.7	6.6	7.7	19.0	15.5
Non-Labour Production Taxes	**0.2**	**0.3**	**0.8**	**0.6**	**1.8**	**1.1**	**0.9**	**0.3**	**0.2**	**0.3**	**0.4**	**0.3**	**1.0**	**1.9**

Notes:

1. *SMEs refer to enterprises with operating receipts of not more than $100 million or employment of not more than 200 workers. Large enterprises refer to enterprises with operating receipts of more than $100 million and employment of more than 200 workers.*
2. *The cost components do not sum to 100% as depreciation cost is excluded.*
3. *"-" refers to nil or negligible.*

Source: Department Of Statistics and Monetary Authority of Singapore

ANNEX B: SUPPLY OF INDUSTRIAL AND COMMERCIAL SPACE

Exhibit B1: Supply of Industrial Space

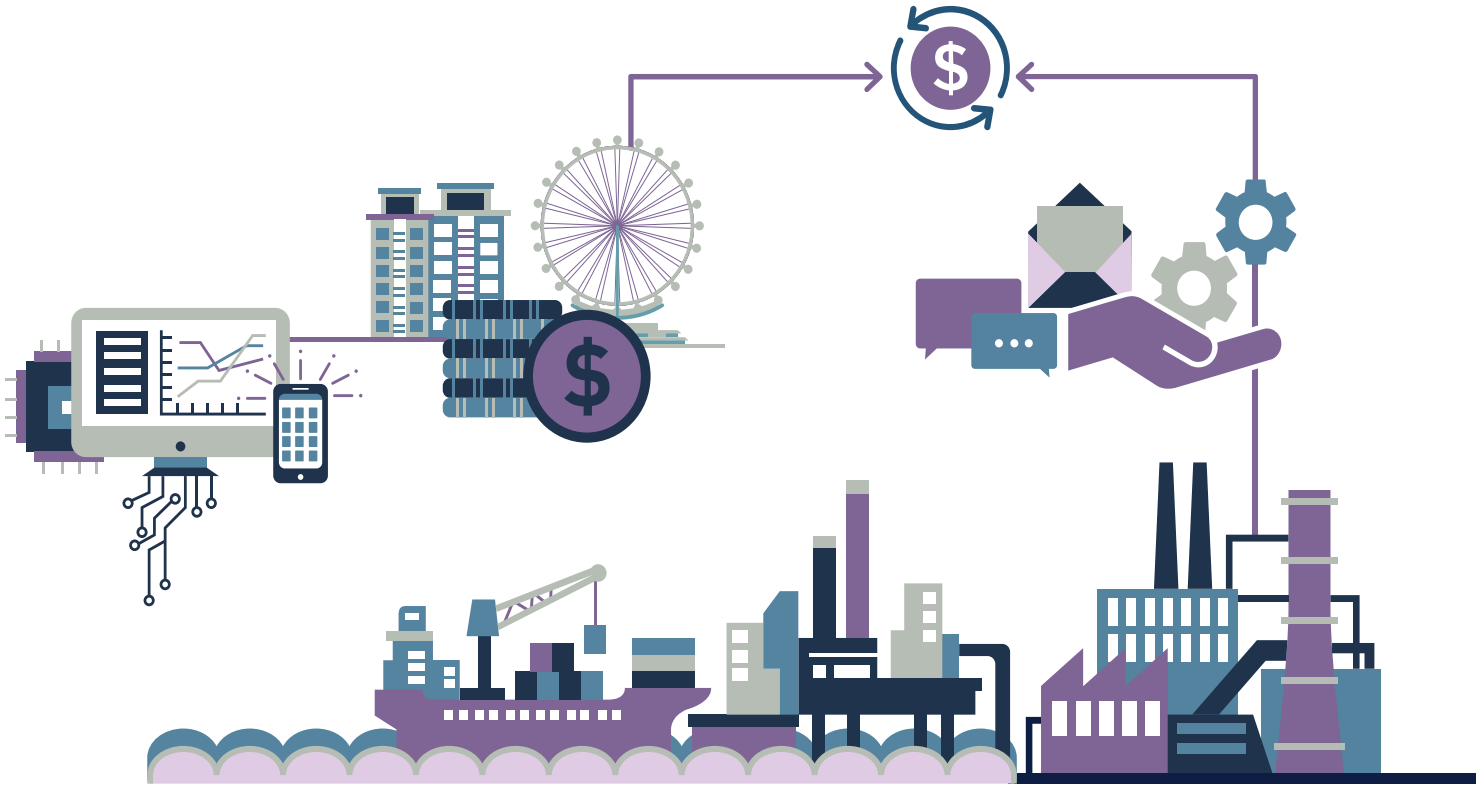
	Total	2018	2019	2020	2021	2022	>2022
Factory Space ('000 sqm gross)							
Total	**3,071**	**1,275**	**534**	**876**	**385**	**-**	**-**
Under Construction	1,992	1,036	341	445	170	-	-
Planned	1,079	239	193	431	216	-	-
Warehouse Space ('000 sqm gross)							
Total	**741**	**346**	**171**	**65**	**159**	**-**	**-**
Under Construction	577	336	160	48	34	-	-
Planned	164	10	11	17	126	-	-
Total Industrial Space	**3,812**	**1,621**	**705**	**941**	**544**	**-**	**-**

Source: JTC Corporation

Exhibit B2: Supply of Commercial Space

	Total	2018	2019	2020	2021	2022	>2022
Office Space ('000 sqm gross)							
Total	**597**	**206**	**104**	**151**	**93**	**2**	**41**
Under Construction	501	206	90	135	70	-	-
Planned	96	-	14	16	23	2	41
Retail Space ('000 sqm gross)							
Total	**509**	**280**	**96**	**58**	**42**	**13**	**20**
Under Construction	449	280	94	56	19	-	-
Planned	60	-	2	2	23	13	20
Total Commercial Space	**1,106**	**486**	**200**	**209**	**135**	**15**	**61**

Source: Urban Redevelopment Authority



CHAPTER 4

INTERNATIONAL TRADE

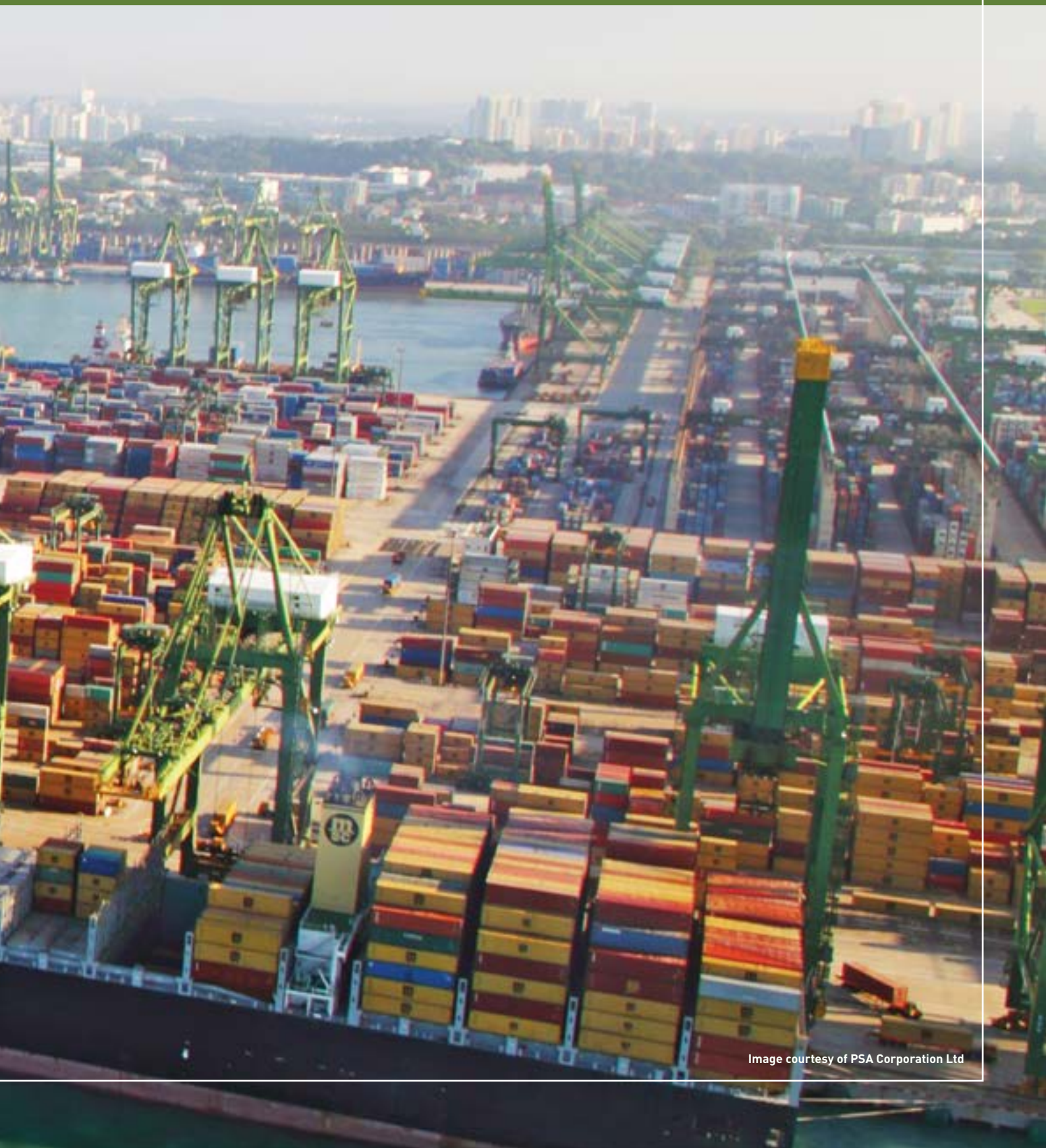
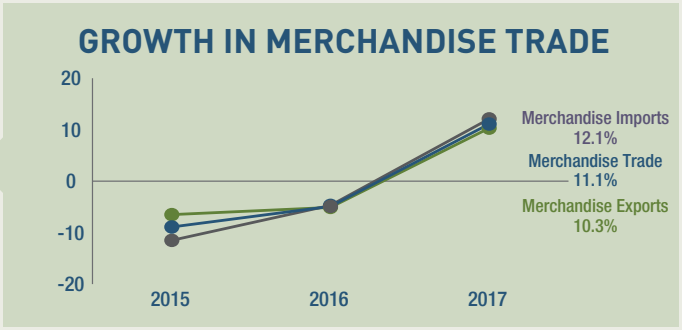
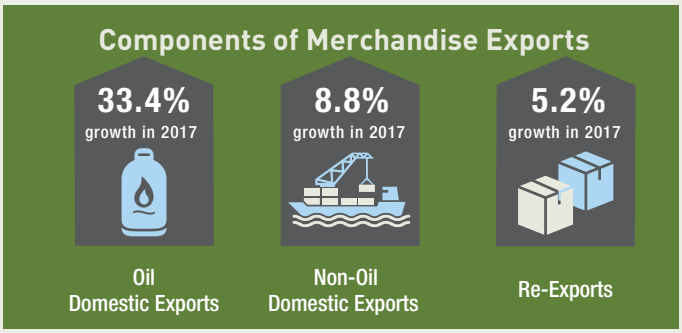
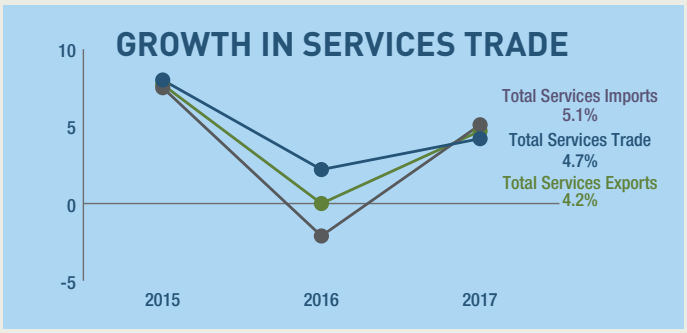


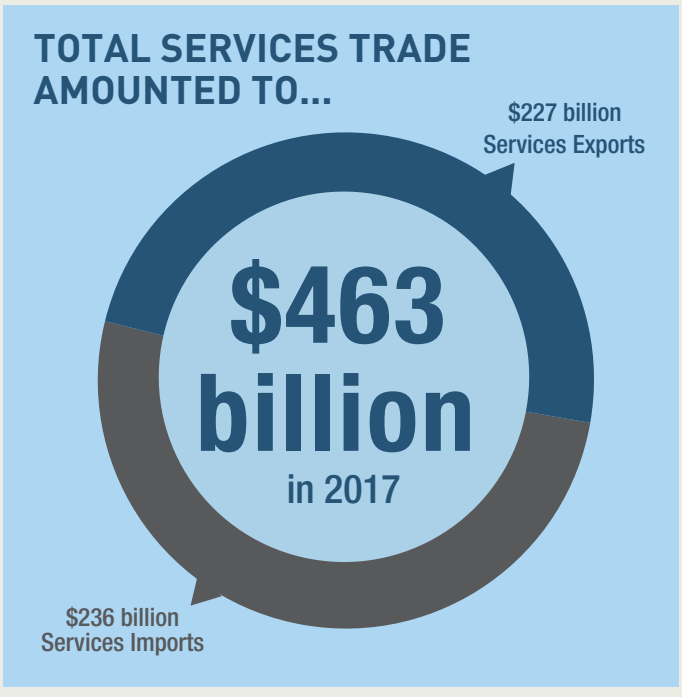
Image courtesy of PSA Corporation Ltd

CHAPTER 4
INTERNATIONAL TRADE









OVERVIEW

Singapore's total merchandise trade rose by 7.8 per cent in the fourth quarter of 2017, easing from the 12 per cent growth in the preceding quarter. Meanwhile, total services trade increased by 4.1 per cent, slowing from the 6.6 per cent growth in the third quarter.

For the whole of 2017, Singapore's total merchandise trade increased by 11 per cent to $967 billion, compared to $870 billion in 2016. Oil trade expanded by 36 per cent, while non-oil trade grew by 6.4 per cent. Both merchandise exports and imports rose by 10 per cent and 12 per cent respectively.

Services trade expanded by 4.7 per cent to $463 billion in 2017, from $443 billion in 2016. Services exports grew by 4.2 per cent, while services imports grew by 5.1 per cent in 2017.

MERCHANDISE TRADE

Merchandise Exports

Total merchandise exports rose by 6.6 per cent in the fourth quarter, following the 10 per cent growth in the preceding quarter (Exhibit 4.1). The increase came on the back of a 15 per cent expansion in domestic exports, an extension of the 11 per cent growth in the third quarter. On the other hand, re-exports decreased by 1.3 per cent, reversing the 9.3 per cent growth in the preceding quarter.

Exhibit 4.1: Growth Rates of Total Merchandise Trade, Merchandise Exports and Merchandise Imports (In Nominal Terms)

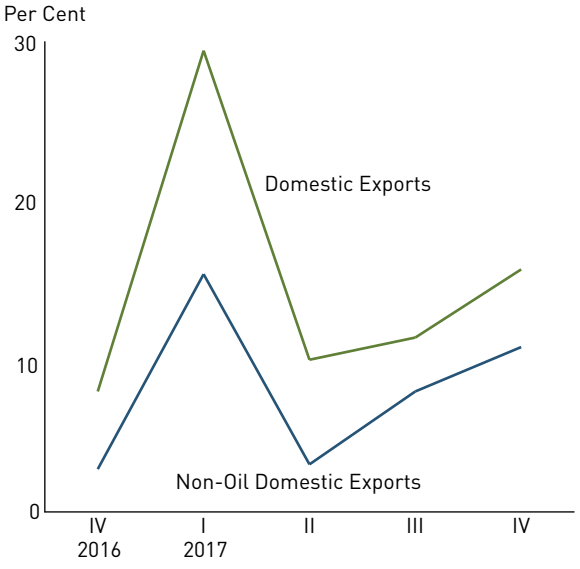
	2016	2017			2017
		II	III	IV	
Total Merchandise Trade	-4.9	9.5	11.6	7.8	**11.1**
Merchandise Exports	-5.1	8.3	10.1	6.6	**10.3**
Domestic Exports	-5.8	9.6	11.0	15.3	**15.8**
Oil	-12.6	26.9	19.3	26.1	**33.4**
Non-Oil	-2.8	3.0	7.6	10.4	**8.8**
Re-Exports	-4.4	7.0	9.3	-1.3	**5.2**
Merchandise Imports	-4.7	11.0	13.4	9.1	**12.1**
Oil	-20.6	33.0	26.3	30.5	**41.6**
Non-Oil	-0.6	6.2	10.4	4.0	**5.8**

For the whole of 2017, total merchandise exports increased by 10 per cent, a turnaround from the 5.1 per cent decline in 2016.

Non-Oil Domestic Exports

Non-oil domestic exports (NODX) expanded by 10 per cent in the fourth quarter, extending the 7.6 per cent growth in the preceding quarter (Exhibit 4.2). The rise in NODX was due to growth in both electronics and non-electronics NODX.

Exhibit 4.2: Changes in Domestic Exports



Electronics NODX rose by 1.2 per cent in the fourth quarter, following the 8.9 per cent increase in the previous quarter. The rise in electronics NODX was primarily due to the higher exports of integrated circuits (ICs), disk media products and personal computers (PCs). Non-electronics NODX expanded by 14 per cent in the fourth quarter, extending the 7.0 per cent growth in the third quarter. The increase in non-electronics NODX was due to a rise in the shipments of non-monetary gold, specialised machinery and pharmaceutical products.

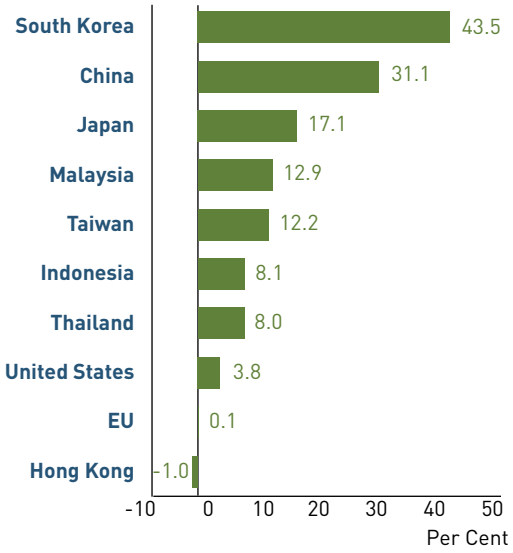
For the full year, NODX grew by 8.8 per cent, reversing the 2.8 per cent decline in 2016. Growth was due to an increase in both electronics (8.0 per cent) and non-electronics NODX (9.2 per cent).

The top ten NODX markets accounted for 81 per cent of Singapore's total NODX in 2017. Singapore's NODX to all top ten markets, except Hong Kong, grew in 2017 (Exhibit 4.3).

China, South Korea and Malaysia contributed the most to the rise in NODX. An increase in the shipment of non-monetary gold, petrochemicals and ICs led to higher NODX to China. The rise in NODX to South Korea was mainly due to higher exports of specialised machinery, measuring instruments and personal computers, while NODX to Malaysia rose on the back of an increase in the exports of ICs, specialised machinery and household goods.

NODX to Hong Kong decreased by 1.0 per cent, mainly due to lower exports of non-monetary gold, diodes & transistors and personal computers.

Exhibit 4.3: Growth Rates of Non-Oil Domestic Exports to Top Ten Markets in 2017



Oil Domestic Exports

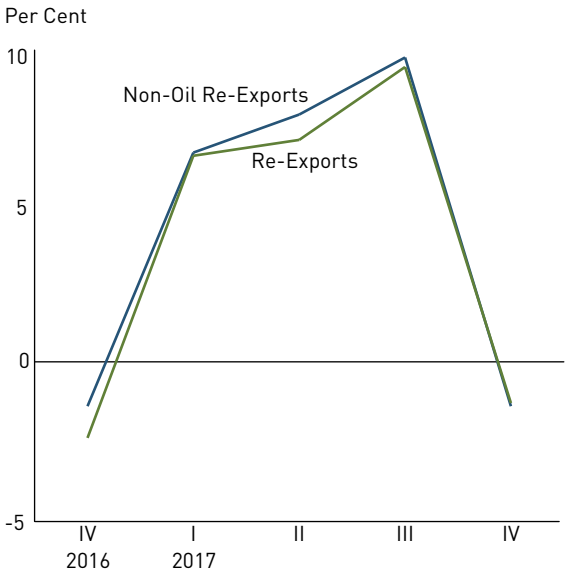
Oil domestic exports expanded by 26 per cent in the fourth quarter, following the 19 per cent increase in the preceding quarter. The increase in the value of oil domestic exports was led by higher sales to Malaysia, China and Indonesia, partly attributable to higher oil prices in the fourth quarter as compared to a year ago. In volume terms, oil domestic exports rose by 8.4 per cent in the fourth quarter, reversing the 1.2 per cent decrease in the third quarter.

For the full year, oil domestic exports expanded by 33 per cent, a reversal from the 13 per cent decline in 2016. The increase in the value of oil domestic exports was driven mainly by higher sales to China, Indonesia and Hong Kong on the back of a rise in oil prices as compared to 2016. In volume terms, oil domestic exports increased by 6.5 per cent in 2017, following the 7.4 per cent growth in 2016.

Non-Oil Re-Exports

Non-oil re-exports (NORX) decreased by 1.4 per cent in the fourth quarter, reversing the 9.6 per cent growth in the preceding quarter (Exhibit 4.4). The decline in NORX was due to a fall in both electronics and non-electronics re-exports. Electronics re-exports fell by 1.7 per cent, a pullback from the 17 per cent increase in the third quarter, due to a decline in the re-exports of diodes & transistors, disk media products and other computer peripherals. Similarly, non-electronics NORX decreased by 1.1 per cent, reversing the 1.9 per cent growth in the preceding quarter, mainly due to the lower re-exports of non-monetary gold, jewellery and aluminium.

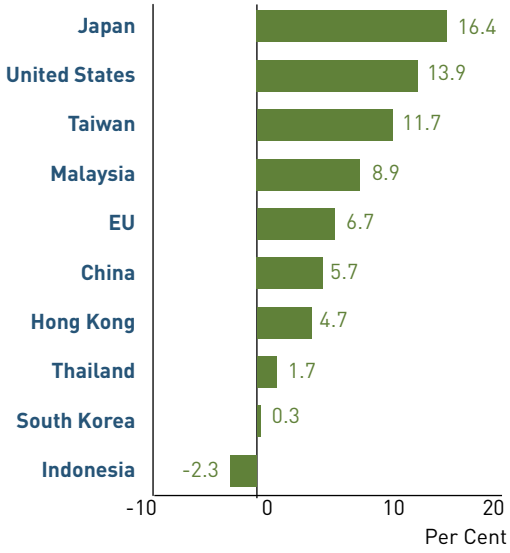
Exhibit 4.4: Changes in Re-Exports



For the whole of 2017, NORX grew by 5.5 per cent, a turnaround from the 3.1 per cent decline in 2016. Growth was due to a rise in both electronics (7.5 per cent) and non-electronics (3.5 per cent) NORX.

NORX to the top ten NORX markets grew in 2017, except for Indonesia (Exhibit 4.5). NORX to Malaysia rose the most, on the back of higher re-exports of ICs, specialised machinery and petrochemicals. Higher shipments of ICs, non-electric engines & motors and measuring instruments led to the increase in NORX to the US. Re-exports to Hong Kong increased due to a rise in the shipments of ICs, capacitors and structures of ships & boats. On the other hand, NORX to Indonesia declined due to a fall in the shipments of parts of electric plants, non-monetary gold and non-electric engines & motors.

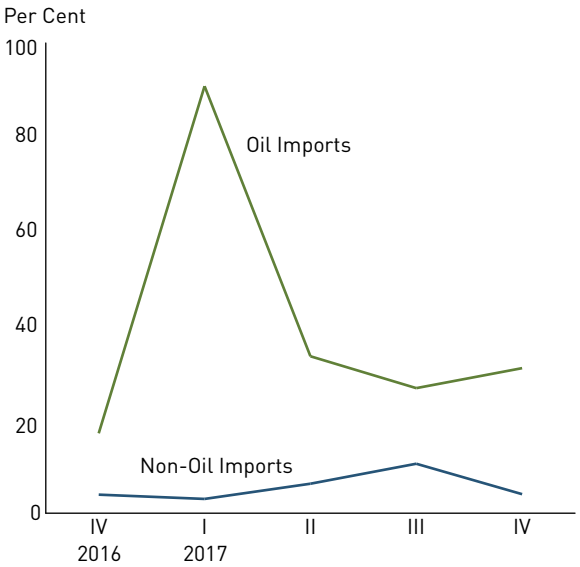
Exhibit 4.5: Growth Rates of Non-Oil Re-Exports to Top Ten Markets in 2017



Merchandise Imports

Non-oil imports rose by 4.0 per cent in the fourth quarter, following the 10 per cent growth in the preceding quarter (Exhibit 4.6). The increase in non-oil imports was due to both electronics (9.6 per cent) and non-electronics (0.9 per cent) imports. Higher purchases of ICs, personal computers and disk media products contributed to the increase in electronics imports. Meanwhile, non-electronics imports grew on the back of a rise in the imports of specialised machinery, non-electric engines & motors and pharmaceutical products.

Exhibit 4.6: Changes in Merchandise Imports



Oil imports expanded by 31 per cent in the fourth quarter, following the 26 per cent growth in the preceding quarter. In volume terms, oil imports rose by 14 per cent, an improvement from the 5.4 per cent growth in the preceding quarter.

For the full year, non-oil imports increased by 5.8 per cent, reversing the 0.6 per cent decline in 2016. Oil imports expanded by 42 per cent in 2017, a turnaround from the 21 per cent contraction in 2016, partly due to higher oil prices.

SERVICES TRADE

Services Exports

Services exports grew by 3.2 per cent in the fourth quarter, moderating from the 5.3 per cent increase in the preceding quarter (Exhibit 4.7). Growth was supported by the exports of transport services and charges for the use of intellectual property, which rose by 6.9 per cent and 15 per cent respectively. On the other hand, exports of financial services saw the largest decline of 4.8 per cent, reversing the 11 per cent expansion in the preceding quarter.

Exhibit 4.7: Growth Rates of Total Services Trade, Services Exports and Services Imports (In Nominal Terms)

	2016	2017			2017
		II	III	IV	
Total Services Trade	0.0	3.9	6.6	4.1	**4.7**
Services Exports	2.2	3.7	5.3	3.2	**4.2**
Services Imports	-2.1	4.0	7.9	5.0	**5.1**

For 2017 as a whole, services exports grew by 4.2 per cent, improving from the growth of 2.2 per cent in 2016. Exports of all services categories rose in 2017, with the exception of construction services and telecommunications, computer and information services, which declined by 8.4 per cent and 2.8 per cent respectively.

Services Imports

Services imports expanded by 5.0 per cent in the fourth quarter, easing from the 7.9 per cent increase in the third quarter. Growth was primarily supported by higher payments for transport services and other business services, which grew by 7.2 per cent and 2.8 per cent respectively.

Among the services categories, construction services saw the fastest growth in imports in the fourth quarter, at 20 per cent. By contrast, the imports of maintenance and repair services declined by 0.3 per cent.

For the full year, services imports rose by 5.1 per cent, a turnaround from the 2.1 per cent decline in 2016. Apart from the imports of government goods and services and construction services, both of which declined by 5.2 per cent, the rest of the services categories saw a rise in imports in 2017.

CHAPTER 5

BALANCE OF PAYMENTS

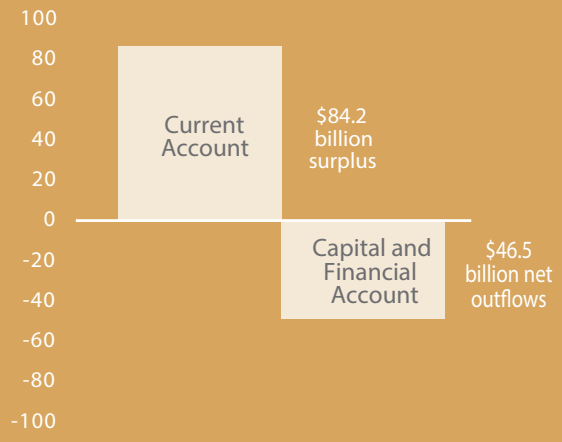
CHAPTER 5

BALANCE OF PAYMENTS

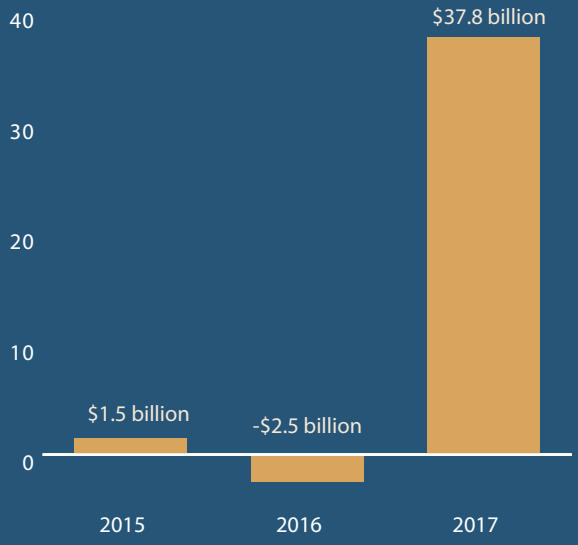
Singapore's balance of payments surplus came in at

$37.8 billion

in 2017



BALANCE OF PAYMENTS TREND



COMPONENTS OF CURRENT ACCOUNT

GOODS BALANCE

$117.0 billion

SERVICES BALANCE

-$8.4 billion

PRIMARY INCOME BALANCE

-$15.9 billion

SECONDARY INCOME BALANCE

-$8.4 billion

COMPONENTS OF CAPITAL & FINANCIAL ACCOUNT

DIRECT INVESTMENT

-$53.8 billion

PORTFOLIO INVESTMENT

$47.4 billion

FINANCIAL DERIVATIVES

-$18.7 billion

OTHER INVESTMENT

$71.6 billion

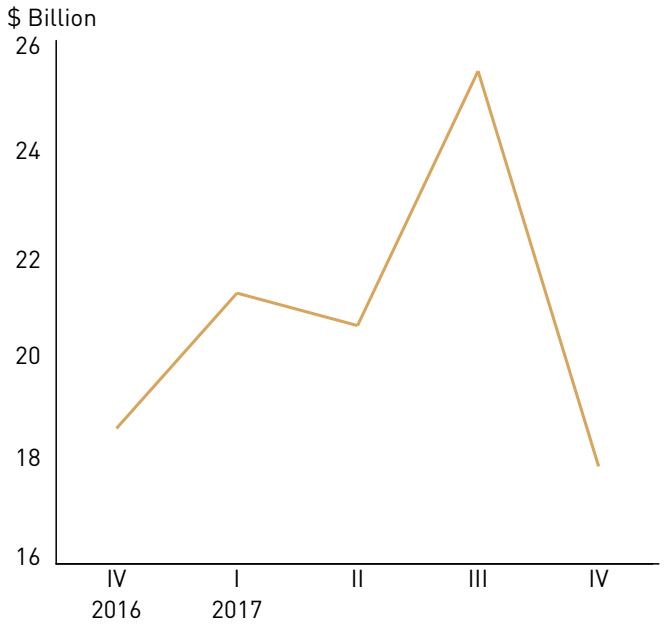
OVERVIEW

Singapore's overall balance of payments recorded a smaller surplus of $5.6 billion in the fourth quarter of 2017, compared to $11 billion in the third quarter. For the year as a whole, the surplus amounted to $38 billion, a reversal from the deficit of $2.5 billion in 2016. The reversal was largely due to a smaller net outflow from the capital and financial account and, to a smaller extent, an increase in the current account surplus. Singapore's official foreign reserves rose to $374 billion at the end of 2017, equivalent to 10 months of merchandise imports.

CURRENT ACCOUNT

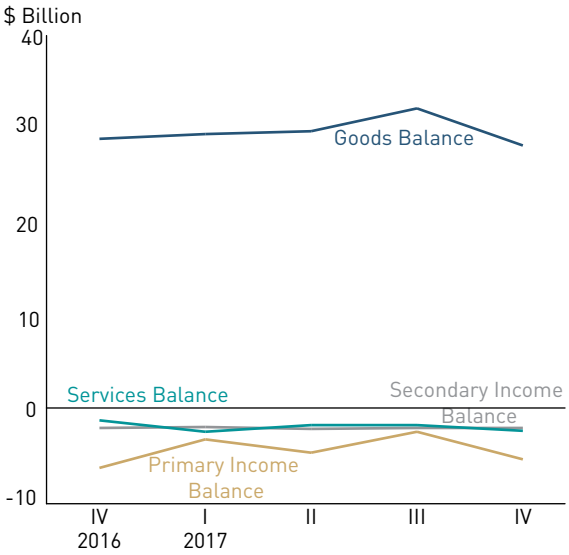
The current account surplus narrowed to $18 billion in the fourth quarter, from $25 billion in the third quarter (Exhibit 5.1). For the full year, the surplus rose to $84 billion (19 per cent of GDP), from $81 billion a year ago. This increase in surplus was primarily driven by a smaller deficit in the primary income balance.

Exhibit 5.1: Current Account Balance



In terms of the sub-components of the current account, the surplus in the goods balance declined by $3.9 billion to $28 billion in the fourth quarter, as imports rose by more than exports (Exhibit 5.2). Similarly, for the full year, imports grew slightly more than exports, leading to a marginal fall in the surplus in the goods balance from $118 billion in 2016 to $117 billion in 2017.

Exhibit 5.2: Components of Current Account Balance



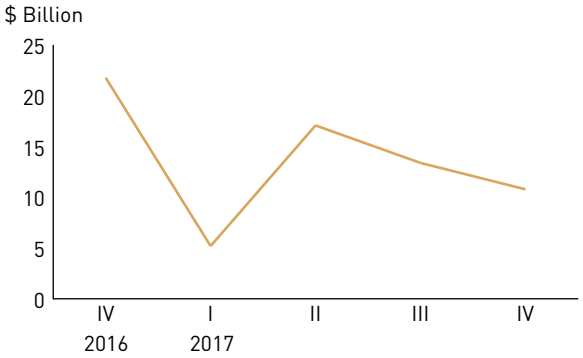
Meanwhile, the deficit in the services balance widened to $2.4 billion in the fourth quarter, from $1.8 billion in the preceding quarter. For the year as a whole, the deficit rose to $8.4 billion, from $6.3 billion in 2016. This was due to higher net payments for other business services, transport services, as well as for the use of intellectual property. Together, these more than offset the higher net receipts from financial services and maintenance and repair services.

For the primary income balance, the deficit rose by $2.9 billion to $5.4 billion in the fourth quarter. However, for the full year, the deficit shrank by $6.2 billion to $16 billion, as income receipts from abroad increased while income payments to foreign investors declined slightly.

CAPITAL AND FINANCIAL ACCOUNT

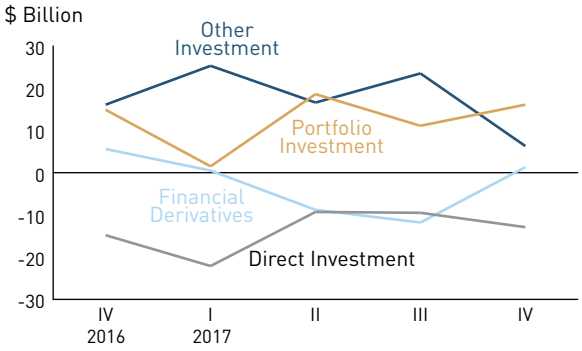
Net outflows from the capital and financial account[1] fell to $11 billion in the fourth quarter, compared to $13 billion in the previous quarter (Exhibit 5.3). For the year as a whole, net outflows decreased to $46 billion (10 per cent of GDP), from $84 billion in 2016. This was due to a reversal from net outflows of financial derivatives to net inflows, as well as smaller net outflows of "other investment". These collectively exceeded the decline in net inflows of direct investment and larger outflows of portfolio investment.

Exhibit 5.3: Capital and Financial Account Balance



In terms of the sub-components of the capital and financial account, net inflows of direct investment rose by $3.4 billion in the fourth quarter to $13 billion (Exhibit 5.4). For the full year, however, net inflows of direct investment amounted to $54 billion, $10 billion lower than in 2016. This occurred as foreign direct investment into Singapore declined by more than residents' direct investment abroad increased.

Exhibit 5.4: Components of Financial Account (Net)



Net outflows of portfolio investment increased from $11 billion in the third quarter to $16 billion in the fourth quarter. For 2017 as a whole, net outflows of portfolio investment rose to $47 billion, from $37 billion in the previous year. This was largely due to deposit-taking corporations reversing from net sales of overseas securities to net purchases, which outweighed the reduction in net purchases of overseas securities by the domestic non-bank private sector.

Meanwhile, net outflows from the "other investment" account fell to $6.3 billion in the fourth quarter, from $23 billion in the preceding quarter. For the full year, net outflows from this account fell by $20 billion to reach $72 billion. This largely reflected the change from net outflows to net inflows for deposit-taking corporations.

Financial derivatives turned from net inflows of $12 billion to net outflows of $1.3 billion in the fourth quarter. For the whole of 2017, net inflows of financial derivatives amounted to $19 billion, in contrast to the net outflows of $19 billion in 2016.

1 *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 6

SECTORAL PERFORMANCE

Image courtesy of Singapore Economic Development Board

CHAPTER 6
SECTORAL PERFORMANCE

OVERALL ECONOMY

STRUCTURE OF ECONOMY	Nominal Value Added Share (%)	Real Growth (%)
TOTAL	100.0	3.6
Goods Producing Industries	24.8	5.7
Manufacturing	19.2	10.1
Construction	4.3	-8.4
Utilities	1.3	0.0
Other Goods Industries	0.0	-8.4
Services Producing Industries	71.3	2.8
Wholesale & Retail Trade	17.6	2.3
Transportation & Storage	7.2	4.8
Accommodation & Food Services	2.1	1.2
Information & Communications	4.2	3.3
Finance & Insurance	13.3	4.8
Business Services	14.8	0.6
Other Services Industries	12.0	2.6
Ownership of Dwellings	3.9	4.8

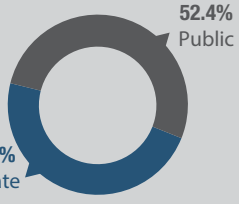
MANUFACTURING

CLUSTERS IN THE MANUFACTURING SECTOR

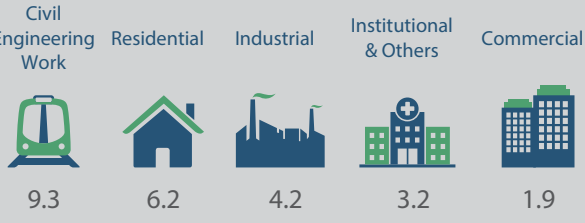
	Nominal VA Share (%)	Real Growth (%)
Electronics	29.2	33.5
Chemicals	19.1	6.2
Biomedical Manufacturing	19.3	-9.3
Precision Engineering	11.5	17.8
Transport Engineering	10.0	-6.9
General Manufacturing Industries	11.0	-1.6

CONSTRUCTION

CERTIFIED PAYMENTS IN 2017



CONTRACTS AWARDED IN 2017 ($, BILLION)



WHOLESALE & RETAIL TRADE

WHOLESALE TRADE

Nominal VA Share	Real Growth
89.7%	2.4%
Domestic Wholesale Trade Index growth	Foreign Wholesale Trade Index growth
1.0%	3.6%

RETAIL TRADE

Nominal VA Share	Real Growth
10.3%	1.3%
Retail Sales Index growth (Motor Vehicles)	Retail Sales Index growth (Non-motor Vehicles)
1.5%	1.3%

INFORMATION & COMMUNICATIONS

	Nominal VA Share (%)	Real Growth (%)
Telecommunications	30.1	-0.5
IT & Information Services	53.9	8.3
Others	16.0	-2.1

TRANSPORTATION & STORAGE

TRANSPORTATION & STORAGE	Nominal Value Added Share (%)	Real Growth (%)
Land Transport*	20.2	3.3
Water Transport*	39.2	4.7
Air Transport*	21.0	5.0
Storage & Other Support Services	16.4	4.3
Post & Courier	3.1	14.7

*Including supporting services

5.9% Air passengers handled growth

5.5% Total sea cargo handled growth

0.6% Motor-vehicle population growth

FINANCE & INSURANCE

FINANCE & INSURANCE	Nominal Value Added Share (%)	Real Growth (%)
Banking	45.3	1.5
Security Dealing	2.2	-8.2
Fund Management	12.4	27.2
Insurance	15.0	4.3
Others	25.1	4.0

GROWTH OF BANK LOANS & ADVANCES TO NON-BANK CUSTOMERS IN 2017

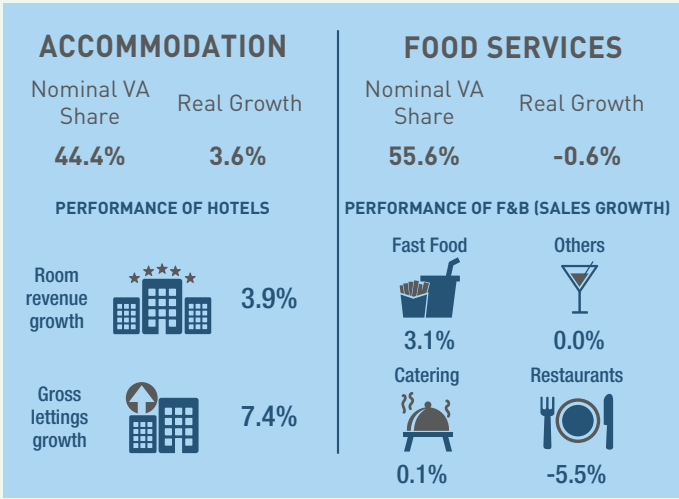
Total Loans	Loans to Businesses	Consumer Loans
5.6%	6.2%	4.8%

CHAPTER 6
SECTORAL PERFORMANCE

BUSINESS SERVICES

BUSINESS SERVICES	Nominal Value Added Share(%)	Real Growth (%)
Real Estate	26.5	-3.3
Rental & Leasing	18.4	2.2
Legal	3.4	-2.4
Accounting	2.8	0.8
Head Offices & Business Representative Offices	12.0	6.1
Business & Management Consultancy	3.7	1.4
Architectural & Engineering	11.2	0.7
Othe Professional, Scientific & Technical Services	8.4	-1.1
Other Administrative & Support Services	13.7	4.0

ACCOMMODATION & FOOD SERVICES



OTHER SERVICES INDUSTRIES

OTHER SERVICES INDUSTRIES	Nominal Value Added Share (%)	Real Growth (%)
Public Administration & Defence	24.4	0.5
Education, Health & Social Work	52.2	2.4
Arts, Entertainment & Recreation	11.4	9.1
Others	12.0	1.1

6.1 MANUFACTURING

OVERVIEW

The manufacturing sector expanded by 4.8 per cent in the fourth quarter, supported largely by robust output growth in the electronics and precision engineering clusters.

For the whole of 2017, the manufacturing sector grew by 10 per cent, accelerating from the 3.7 per cent expansion in 2016. Growth was largely driven by the electronics and precision engineering clusters, even as the biomedical manufacturing, transport engineering and general manufacturing industries clusters contracted.

OVERALL MANUFACTURING PERFORMANCE

In the fourth quarter, the manufacturing sector grew by 4.8 per cent. Growth was underpinned by output expansions in all clusters, with the exception of the biomedical manufacturing and transport engineering clusters (Exhibit 6.1).

For the whole of 2017, the manufacturing sector grew by 10 per cent, accelerating from the 3.7 per cent growth in 2016. The robust performance was mainly driven by the electronics and precision engineering clusters, which collectively accounted for approximately 126 per cent of the overall expansion (Exhibit 6.2).

Exhibit 6.1: Manufacturing Growth Rates

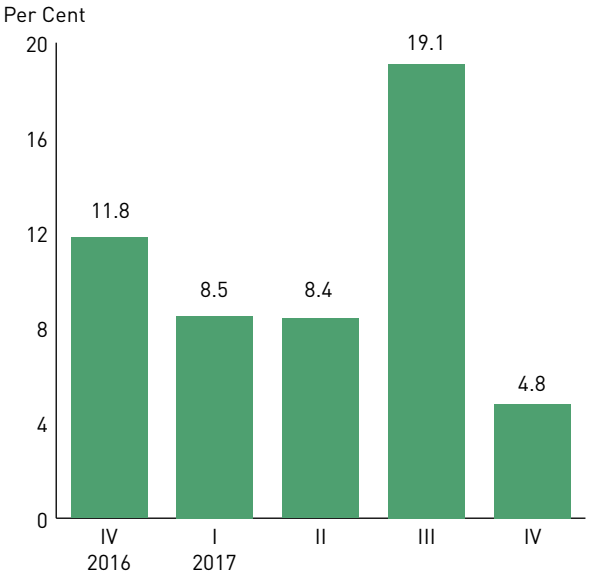
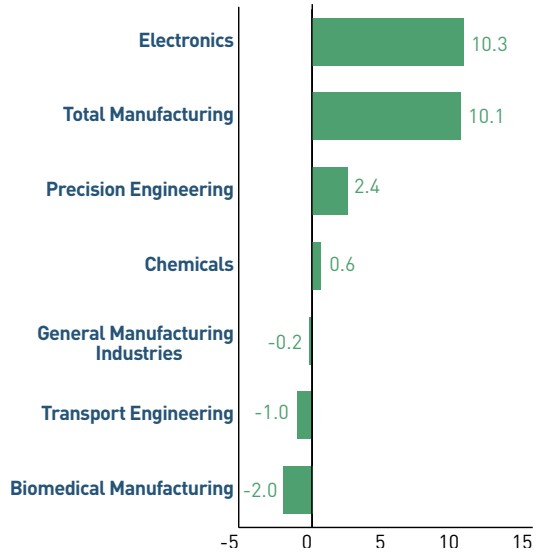


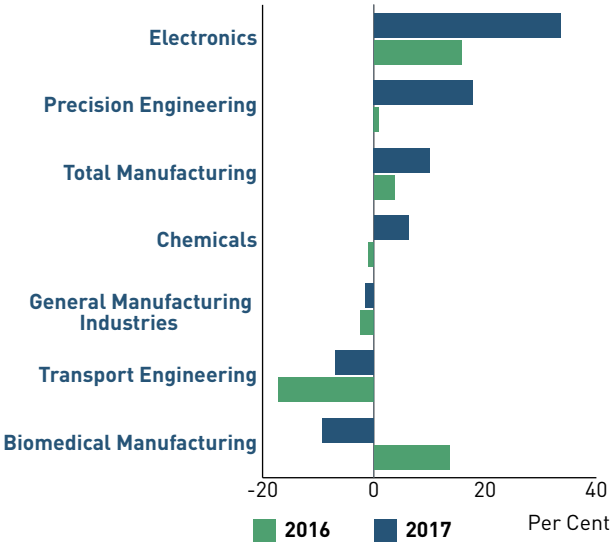
Exhibit 6.2: Percentage-point Contribution to Manufacturing Sector's Growth in 2017



Performance Of Clusters

The electronics cluster grew by 24 per cent in the fourth quarter, largely due to the semiconductors segment, which expanded by 35 per cent. Specifically, the semiconductors segment benefitted from robust global semiconductors demand, which was in turn driven by key end markets such as the smartphone market. At the same time, the computer peripherals segment registered healthy growth of 9.5 per cent, supported by buoyant demand for printer-related products. On the other hand, the data storage and other electronic modules & components segments contracted by 25 per cent and 7.5 per cent respectively. For the full year, the electronics cluster expanded by 34 per cent as the healthy performance of the semiconductors and computer peripherals segments more than offset the weakness in the data storage segment (Exhibit 6.3).

Exhibit 6.3: Manufacturing Clusters' Growth



The precision engineering cluster expanded by 20 per cent in the fourth quarter, supported by both the precision modules & components (PMC) and machinery & systems (M&S) segments. Output in the PMC segment rose by 40 per cent due to an increase in the production of dies, moulds, tools, jigs & fixture, optical instruments and metal precision components. Meanwhile, the M&S segment grew by 8.9 per cent in tandem with healthy export demand for semiconductor manufacturing equipment. For the whole of 2017, the output of the precision engineering cluster rose by 18 per cent on account of robust expansions in both segments.

The chemicals cluster grew by 12 per cent in the fourth quarter, with all segments recording growth. In particular, the petrochemicals segment grew by 23 per cent on the back of production capacity expansions, while the petroleum segment expanded by 13 per cent supported by higher refining margins. At the same time, the other chemicals and specialties segments posted growth of 8.1 per cent and 6.2 per cent respectively. For 2017 as a whole, the chemicals cluster expanded by 6.2 per cent, supported by growth in all segments.

Output of the general manufacturing industries cluster increased by 6.6 per cent in the fourth quarter, primarily due to the strong performance of the food, beverages & tobacco (FBT) segment, which grew by 18 per cent on the back of a surge in the production of beverages products. On the other hand, the printing segment shrank by 11 per cent due to weak demand for commercial printing, while output in the miscellaneous industries segment declined by 0.6 per cent on account of a lower production of construction-related materials. For the whole of 2017, the general manufacturing industries cluster contracted by 1.6 per cent, as output declines in the printing and miscellaneous industries segments outweighed output gains in the FBT segment.

Output of the transport engineering cluster fell by 7.8 per cent in the fourth quarter. The aerospace segment recorded robust growth of 13 per cent due to a higher volume of repair and maintenance work from commercial airlines. However, this was more than offset by output declines in the marine & offshore engineering (M&OE) and land transport segments of 22 per cent and 11 per cent respectively. In particular, the M&OE segment remained weak on account of low levels of rig-building, shipbuilding and repair activities. For the full year, the transport engineering cluster shrank by 6.9 per cent, dragged down mainly by the M&OE segment.

The biomedical manufacturing cluster contracted by 28 per cent in the fourth quarter, weighed down by the pharmaceuticals segment (-37 per cent) on the back of a drop in the production of active pharmaceutical ingredients and biological products. However, the medical technology segment, which grew at a healthy pace of 3.3 per cent, provided some support to the cluster. For 2017 as a whole, output in the biomedical manufacturing cluster fell by 9.3 per cent, led by the output decline in the pharmaceuticals segment.

6.2 CONSTRUCTION

OVERVIEW

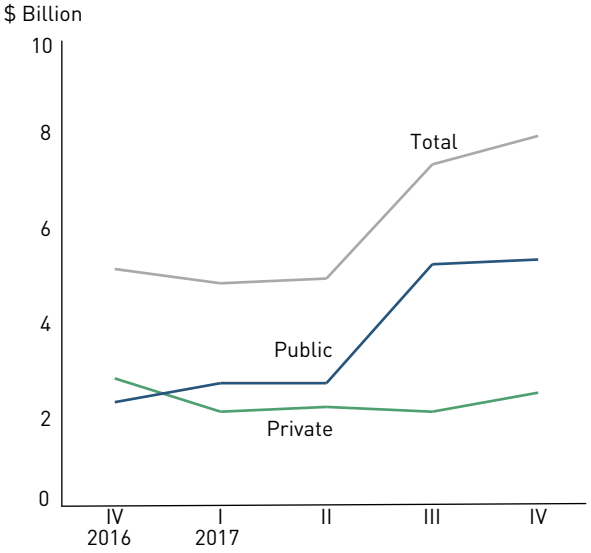
The construction sector shrank by 5.0 per cent in the fourth quarter of 2017, extending the 9.3 per cent decline recorded in the previous quarter.

For the whole of 2017, the sector contracted by 8.4 per cent, reversing from the 1.9 per cent growth in the previous year.

CONSTRUCTION DEMAND

Construction demand (or contracts awarded) increased by 56 per cent to reach $7.9 billion in the fourth quarter, due to an expansion in public sector construction demand (Exhibit 6.4).

Exhibit 6.4: Contracts Awarded



For the full year, total construction demand fell by 6.1 per cent to $25 billion (Exhibit 6.5) as a result of continued weakness in private sector construction demand. On the other hand, public sector construction demand provided some support to growth.

Exhibit 6.5: Contracts Awarded, 2017 ($ Billion)

	Total	Public	Private
Total	24.8	15.8	9.0
Residential	6.2	3.2	3.0
Commerical	1.9	0.1	1.7
Industrial	4.2	1.7	2.5
Institutional & Others	3.2	2.5	0.7
Civil Engineering Works	9.3	8.3	1.1

Public Sector

In the fourth quarter, public sector construction demand expanded by 132 per cent, following the 201 per cent increase in the previous quarter. This was primarily due to a surge in contracts awarded for civil engineering works such as Circle Line 6 and the Deep Tunnel Sewerage System Phase 2.

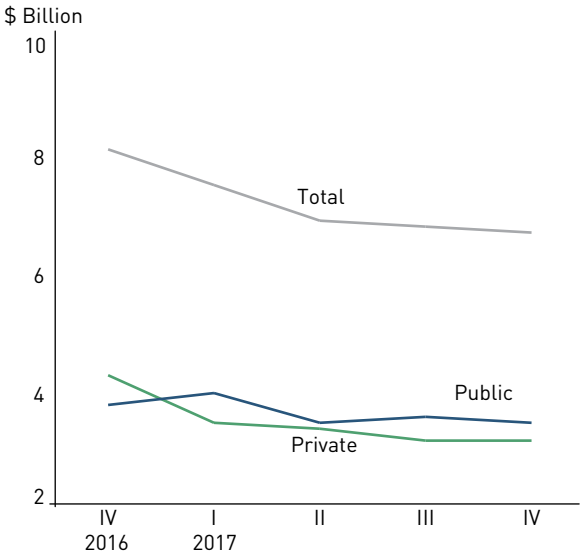
For the full year, public sector construction demand rose by 2.9 per cent to reach $16 billion. Growth was mainly supported by a 99 per cent increase in the demand for industrial building works and a 10 per cent rise in the demand for civil engineering works. Some of the major projects awarded included HDB's Defu Industrial City, JTC's Logistics Hub @ Gul and the North-South Corridor.

Private Sector

Private sector construction demand declined in the fourth quarter (-7.6 per cent), mainly due to the weakness in demand for industrial developments and commercial developments. However, demand for civil engineering developments and institutional & other building developments provided some support to growth.

For the full year, private sector construction demand shrank by 19 per cent from $11 billion in 2016 to $9.0 billion in 2017. Private construction demand for all development types, except for institutional & other building projects, fell. Despite overall sluggish private sector construction demand, a number of notable projects were awarded in 2017, including the construction of the fourth Desalination Plant at Marina East and Project Glory at Market Street (redevelopment of the Golden Shoe Carpark to a mixed use commercial development) as well as the refurbishment of Raffles Hotel.

Exhibit 6.6: Certified Payments



CONSTRUCTION ACTIVITIES

Construction output (or certified payments) declined by 17 per cent to $6.7 billion in the fourth quarter, due to a slowdown in both private and public sector construction activities (Exhibit 6.6).

For the full year, construction output contracted by 21 per cent to $28 billion, likewise dragged down by private and public sector construction works.

Public Sector

Public sector construction output fell by 7.1 per cent to $3.5 billion in the fourth quarter. The contraction was led by a reduction in on-site construction activities for all development types, except for industrial building works, which rose marginally by 1.0 per cent during the quarter.

For the full year, public sector construction output declined by 11 per cent to $15 billion, pulled down by a drop in residential building works (-30 per cent) and civil engineering works (-13 per cent). On the other hand, construction activities for institutional & other building developments, industrial developments, and commercial developments rose. Major on-going projects in these areas include the expansion of the Liquefied Natural Gas (LNG) Terminal (Phase 3), JTC Space @ Tuas, Sengkang General and Community Hospital and Woodlands Integrated Health Campus.

Private Sector

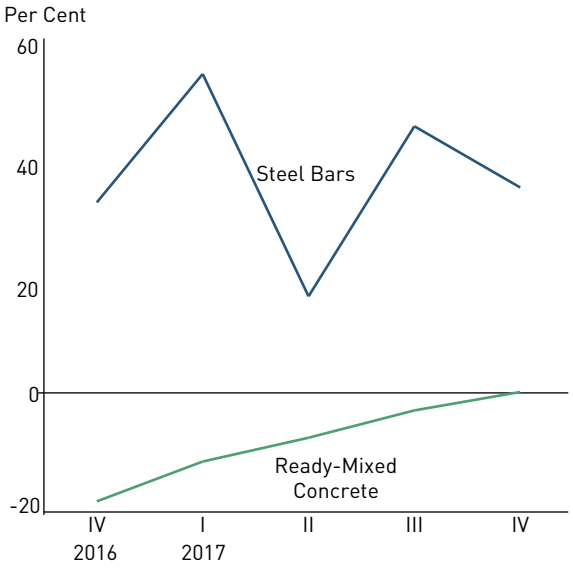
Private sector construction output shrank by 26 per cent to $3.2 billion in the fourth quarter, largely attributable to a moderation in residential building and industrial building works. For the whole of 2017, private construction output fell by 29 per cent to $13 billion, due to a broad-based decline in all types of construction activities.

CONSTRUCTION MATERIALS

In tandem with the slowdown in construction activities, total consumption of ready-mixed concrete fell by 8.6 per cent to reach $13 million m3 in 2017, compared to a year ago. Similarly, total consumption of steel rebars declined to 1.5 million tonnes in 2017, from 1.6 million tonnes in the previous year.

Due to higher raw material prices, the average market price of Grade 40 pump ready-mixed concrete increased by 1.9 per cent year-on-year in the fourth quarter (Exhibit 6.7). Similarly, the average market price of steel rebar increased by 36 per cent year-on-year in the same period.

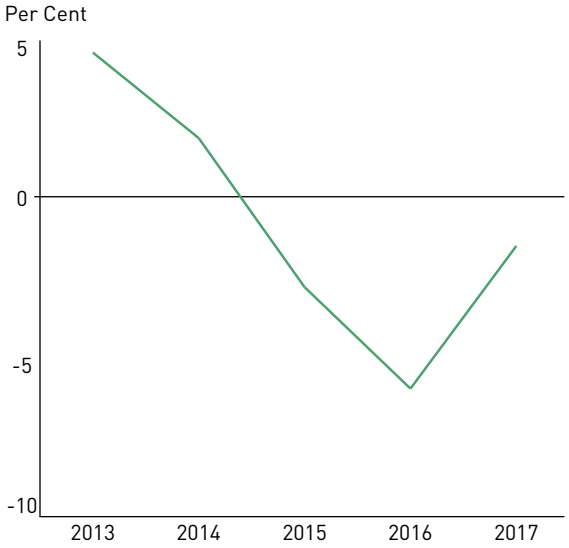
Exhibit 6.7: Changes in Market Prices of Construction Materials



CONSTRUCTION COSTS

Based on BCA's Building Works Tender Price Index (TPI), tender prices in the construction sector registered an estimated drop of 1.3 per cent in 2017 (Exhibit 6.8). This came on the back of a reduction in private sector building demand and a softening of plant and equipment costs.

Exhibit 6.8: Changes in Tender Price Index



1 *Rebar consumption is estimated from net imports plus local production (without factoring in stock levels).*

2 *The market prices are based on contracts with non-fixed price, fixed price and market retail price.*

3 *The market prices refer to 16mm to 32mm High Tensile rebar and are based on fixed price supply contracts with a contract period 12 months or below.or below.*

CONSTRUCTION OUTLOOK IN 2018

According to BCA, total construction demand in 2018 is projected to be between $26 billion and $31 billion (Exhibit 6.9). Demand from the public sector is expected to strengthen to between $16 billion and $19 billion in 2018, accounting for around 60 per cent of total construction demand. The boost to public sector construction demand is likely to come from an anticipated increase in the demand for institutional & other building projects and civil engineering works. Furthermore, private sector demand is projected to improve from the $9 billion in 2017 to between $10 billion and $12 billion in 2018, in line with the positive economic outlook and property market sentiments.

Total construction output in 2018 is projected to remain subdued at between $26 billion and $28 billion, due to the slowdown in overall construction demand since 2015.

Exhibit 6.9: Projected Construction Demand in 2018

	$ Billion
Public Sector	16.0 – 19.0
Building Construction Sub-total	7.3 – 9.2
Residential	2.8 – 3.1
Commercial	0.1 – 0.3
Industrial	0.5 – 1.3
Institutional & Others	3.9 – 4.4
Civil Engineering Works Sub-total	8.7 – 9.8
Private Sector	10.0 - 12.0
Building Construction Sub-total	9.0 – 10.7
Residential	3.0 – 3.6
Commercial	2.1 – 2.5
Industrial	2.8 – 3.3
Institutional & Others	1.1 – 1.3
Civil Engineering Works Sub-total	1.0– 1.3
TOTAL CONSTRUCTION DEMAND	**26.0 – 31.0**

6.3 WHOLESALE & RETAIL TRADE

OVERVIEW

The wholesale & retail trade sector expanded by 3.0 per cent in the fourth quarter of 2017, moderating from the 3.3 per cent growth in the previous quarter.

For the whole of 2017, the sector expanded by 2.3 per cent, faster than the 1.0 per cent growth in 2016. The improvement in growth can be attributed to the wholesale segment.

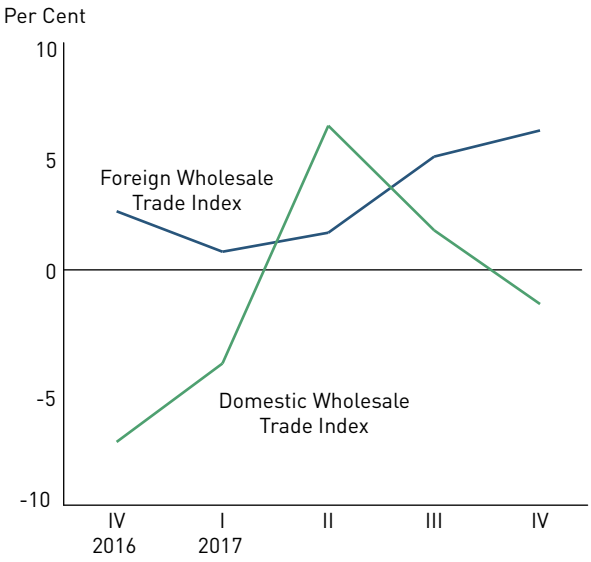
WHOLESALE TRADE

In the fourth quarter, the wholesale trade segment was boosted by an improvement in foreign wholesale sales volume, which more than offset the weakness in domestic wholesale sales volume.

The domestic wholesale sales volume fell by 1.1 per cent in the fourth quarter, reversing the 2.0 per cent growth in the preceding quarter (Exhibit 6.10). The poorer outturn was led by declines in the sales volume of household equipment & furniture (-27 per cent) and general wholesale merchandise (-19 per cent), which outweighed the increase in the sales volume of telecommunications & computers (20 per cent). For the whole of 2017, the domestic wholesale trade index expanded by 1.0 per cent, a turnaround from the 2.7 per cent decline in 2016.

On the other hand, foreign wholesale sales volume rose by 6.2 per cent in the fourth quarter, a step-up from the 5.1 per cent growth in the preceding quarter. Growth was driven by expansions in the sales of petroleum & petroleum-related products (11 per cent), telecommunications & computers (19 per cent) and electronic components (16 per cent). However, growth was partly offset by a 20 per cent decline in the sales volume of metals, timber & construction materials. For the full year, the foreign wholesale trade index rose by 3.6 per cent, faster than the increase of 1.5 per cent in the previous year.

Exhibit 6.10: Changes in Wholesale Trade Index at Constant Prices



RETAIL SALES

Retail sales volume rose by 2.1 per cent in the fourth quarter, improving from the 0.9 per cent growth recorded in the third quarter (Exhibit 6.11). Growth was supported by improvements in both motor vehicle and non-motor vehicle sales volumes. While motor vehicle sales benefitted from an on-year increase in COE supply, growth in non-motor vehicle sales came on the back of an improvement in consumer sentiments. Notably, the sales volume of discretionary goods such as recreational goods, computer & telecommunication equipment and wearing apparel & footwear grew by 4.6 per cent, 4.3 per cent and 3.1 per cent respectively.

Exhibit 6.11: Changes in Retail Sales Index at Constant Prices

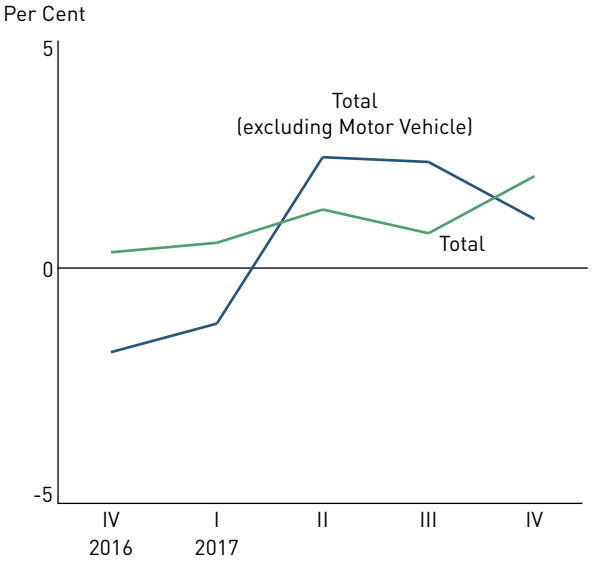
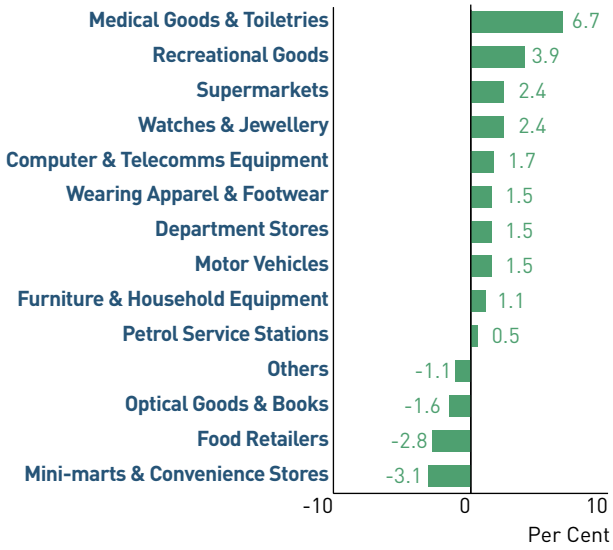


Exhibit 6.12: Changes in Retail Sales Index at Constant Prices for Major Segments in 2017



For the full year, retail sales volume expanded by 1.3 per cent, similar to the 1.5 per cent growth recorded in 2016. Growth was driven by both motor vehicle sales and non-motor vehicle sales, which the former rising by 1.5 per cent and the latter increasing by 1.3 per cent.

The rise in non-motor vehicle sales was underpinned by higher sales of discretionary goods. For instance, the sales volume of recreational goods (3.9 per cent), watches & jewellery (2.4 per cent), computer & telecommunications equipment (1.7 per cent) and wearing apparel & footwear (1.5 per cent) improved in 2017 (Exhibit 6.12).

6.4 ACCOMMODATION & FOOD SERVICES

OVERVIEW

The accommodation & food services sector expanded by 2.9 per cent in the fourth quarter of 2017, accelerating from the 1.3 per cent growth in the previous quarter.

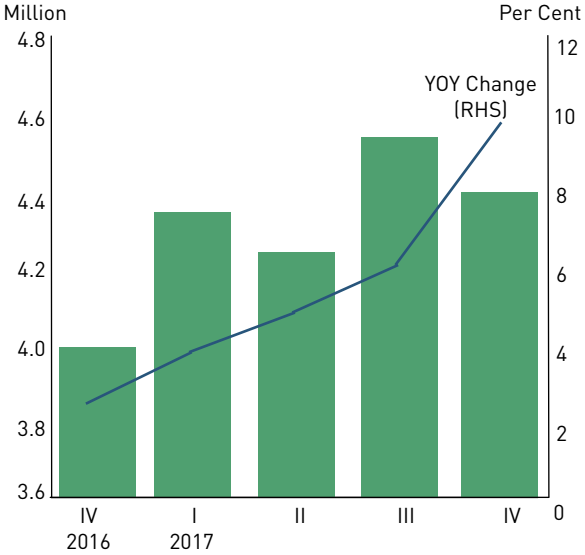
For the whole of 2017, the sector grew by 1.2 per cent, a moderation from the 3.8 per cent growth in 2016.

VISITOR ARRIVALS

Singapore received a total of 4.4 million visitors in the fourth quarter, 9.8 per cent higher compared to the same period a year ago (Exhibit 6.13). This was led by a 25 per cent surge in Chinese visitor arrivals.

For the full year, visitor arrivals increased by 6.2 per cent, moderating from the robust 7.7 per cent growth posted in 2016. In total, visitor arrivals reached 17.4 million in 2017.

Exhibit 6.13: Visitor Arrivals



In terms of source markets, Singapore's top five visitor-generating markets in 2017 were China (3.2 million visitors), Indonesia (3.0 million), India (1.3 million), Malaysia (1.2 million) and Australia (1.1 million). Together, they accounted for 56 per cent of total visitor arrivals in 2017.

Among the top ten visitor-generating markets, India (16 per cent), Vietnam (13 per cent) and China (13 per cent) posted the highest growth rates in visitor arrivals in 2017 (Exhibit 6.14).

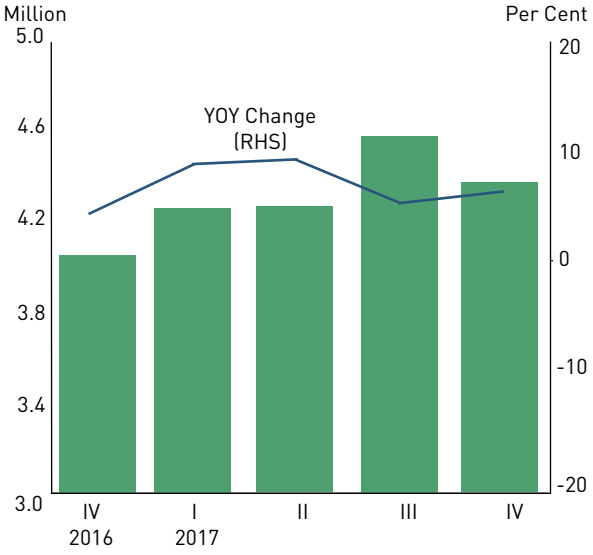
Exhibit 6.14: Growth Rates of Top Ten Visitor Generating Markets in 2017

ACCOMMODATION

In tandem with the growth in visitor arrivals, gross lettings of gazetted hotel rooms rose by 6.5 per cent in the fourth quarter, higher than the 5.5 per cent growth in the previous quarter (Exhibit 6.15). Similarly, room revenue grew by 5.6 per cent, faster than the 2.1 per cent growth in the preceding quarter, on the back of an improvement in the average occupancy rate of gazetted hotel rooms. Specifically, the average occupancy rate rose by 1.8 percentage-points to reach 82 per cent in the fourth quarter.

For the full year, the performance of the accommodation segment remained resilient. The overall room revenue of gazetted hotels rose by 3.9 per cent to reach $3.7 billion on the back a 7.4 per cent increase in gross lettings.

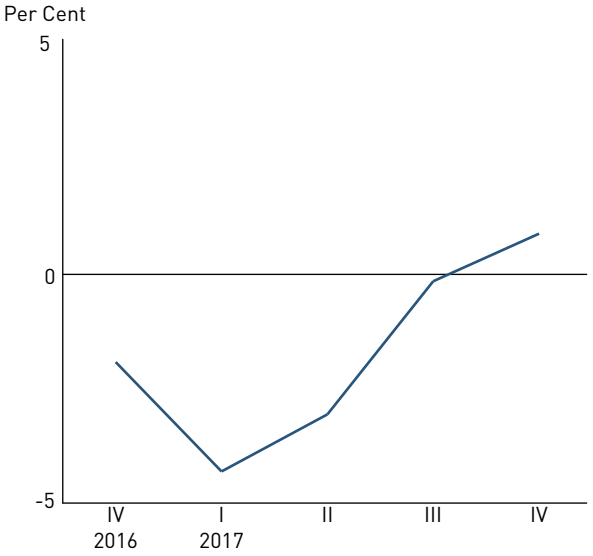
Exhibit 6.15: Gross Lettings



FOOD & BEVERAGE SERVICES

Overall food & beverage sales volume expanded by 0.8 per cent in the fourth quarter, a turnaround from the 0.2 per cent decline in the preceding quarter (Exhibit 6.16). The improved performance in the fourth quarter was due to higher sales volume at restaurants (1.1 per cent), fast food outlets (2.7 per cent) and other eating places (1.4 per cent), which more than offset the 4.1 per cent contraction in sales volume for food caterers.

Exhibit 6.16: Changes in Food and Beverage Services Index at Constant Prices



For the whole of 2017, the food & beverage services index fell by 1.7 per cent, extending the 1.9 per cent decline in 2016. The contraction was due to a 5.5 per cent decline in the sales volume of restaurants, following the 7.5 per cent fall recorded in the preceding year. On the other hand, the sales volume of fast food outlets and food caterers recorded improvements of 3.1 per cent and 0.1 per cent respectively in 2017.

6.5 TRANSPORTATION & STORAGE

OVERVIEW

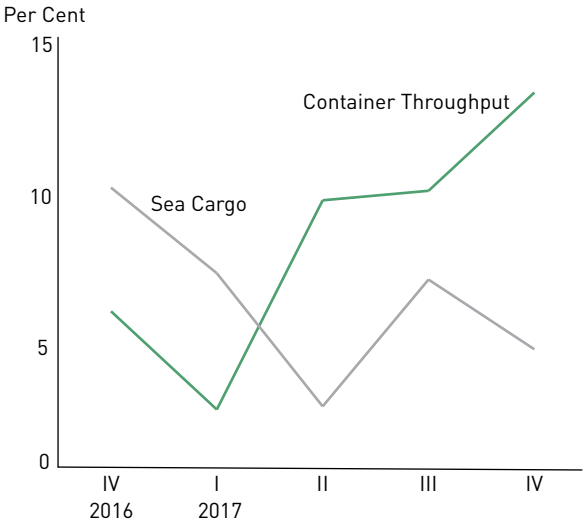
The transportation & storage sector grew by 5.3 per cent in the fourth quarter, similar to the 5.2 per cent growth in the previous quarter.

For the whole of 2017, the sector expanded by 4.8 per cent, faster than the 1.3 per cent growth in 2016. Growth in the sector was primarily supported by the water transport and air transport segments.

WATER TRANSPORT

Container throughput rose by 13 per cent in the fourth quarter, accelerating from the 9.9 per cent expansion in the previous quarter, in tandem with the sustained growth in global container trade (Exhibit 6.17). For the full year, the number of TEUs (Twenty-Foot Equivalent Units) handled by Singapore's ports came in at 34 million, representing an increase of 8.9 per cent, rebounding from the 0.1 per cent contraction in 2016.

Exhibit 6.17: Changes in Container Throughput and Sea Cargo Handled



Overall sea cargo volumes rose by 4.9 per cent in the fourth quarter, easing from the 7.1 per cent expansion in the preceding quarter. The moderation in sea cargo volumes was largely due to a step-down in the growth of oil-in-bulk cargo shipments, from 8.3 per cent in the third quarter to 0.7 per cent in the fourth quarter.

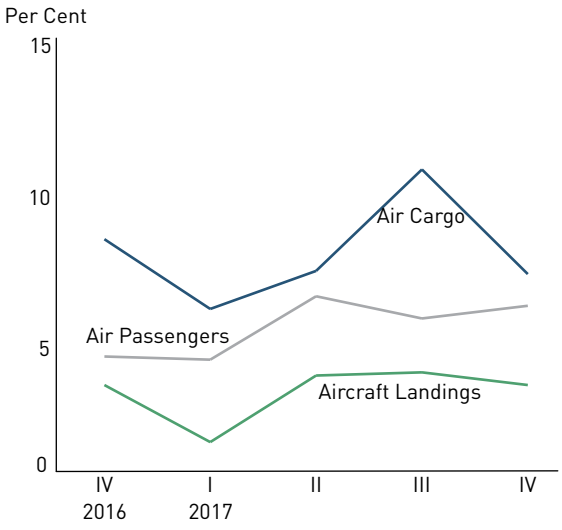
For the whole of 2017, total sea cargo volumes expanded by 5.5 per cent in 2017, extending the 3.0 per cent growth in the previous year.

AIR TRANSPORT

Air passenger traffic handled by Changi Airport rose by 6.3 per cent in the fourth quarter, faster than the 5.9 per cent increase in the previous quarter (Exhibit 6.18).

For the full year, total air passenger traffic passing through Changi Airport reached 62 million, an increase of 5.9 per cent, easing slightly from the 6.1 per cent increase in 2016. This robust performance was mainly supported by healthy growth in air passenger traffic to and from Changi Airport's key markets, including Malaysia, Indonesia, and China.

Exhibit 6.18: Changes in Air Transport



Likewise, air cargo registered a 7.3 per cent expansion in the fourth quarter, extending the 11 per cent growth in the previous quarter. Growth was likely led by higher shipments of semiconductors and e-commerce cargo. For 2017 as whole, air cargo shipments grew by 7.9 per cent, faster than the 6.3 per cent increase in 2016.

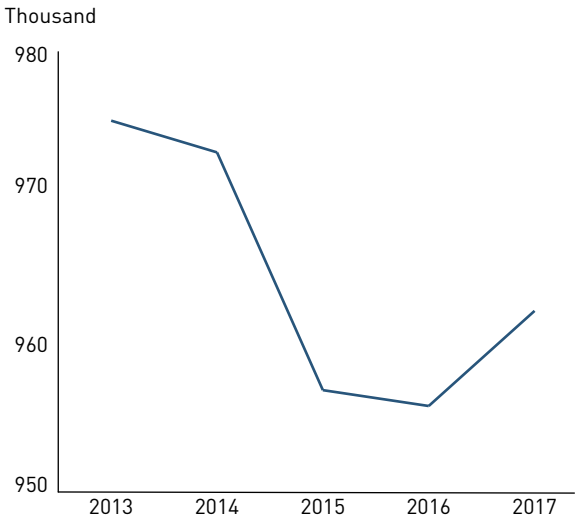
Meanwhile, following the 4.2 per cent growth in the third quarter, aircraft landings rose by 3.8 per cent to reach 47,908 in the fourth quarter. This brought the total number of aircraft landings in 2017 to 186,591, an increase of 3.5 per cent over the previous year, and extending the 4.1 per cent gains recorded in 2016.

LAND TRANSPORT

As of December 2017, the total number of vehicles registered with the Land Transport Authority (LTA) was 961,842, 0.6 per cent higher than the number of vehicles registered in December 2016 (Exhibit 6.19). This marked a reversal from the declines in the number of vehicles registered that were seen in the three preceding years.

The vehicles registered as at December 2017 comprised 546,706 private and company cars, 68,083 rental cars, 23,140 taxis, 19,285 buses, 141,916 motorcycles and scooters, and 162,712 goods vehicles and other vehicle types.

Exhibit 6.19: Motor Vehicles Registered



6.6 INFORMATION & COMMUNICATIONS

OVERVIEW

Supported by growth in the IT & information services segment, the information & communications sector expanded by 6.0 per cent in the fourth quarter of 2017, accelerating from the 5.1 per cent growth in the previous quarter.

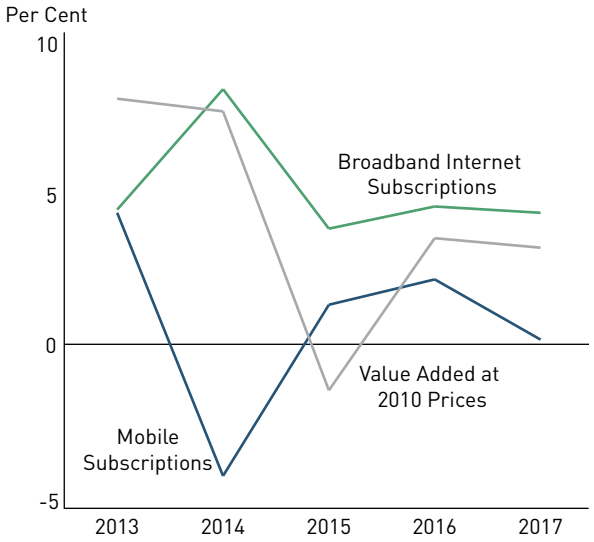
For the whole of 2017, the sector posted growth of 3.3 per cent, easing from the 3.6 per cent increase in 2016.

TELECOMMUNICATIONS

In 2017, the telecommunications segment was bolstered by an increase in the number of broadband subscribers. In particular, as at the end of November 2017,[1] total broadband subscriptions had risen by 4.4 per cent on the back of healthy growth in both wireless broadband (4.9 per cent) and optical fibre broadband (10 per cent) subscriptions.

As at November 2017, the growth in overall mobile subscriptions had moderated to 0.4 per cent from 2.3 per cent in 2016, as the market became more saturated. Nonetheless, overall 4G subscriptions rose by 29 per cent in the first 11 months of 2017 as compared to the same period last year. The increased take up of the more profitable 4G subscriptions is likely to be due to the discontinuation of 2G mobile offerings as well as consumers upgrading from 3G subscriptions, which in turn saw a decline of 33 per cent.

Exhibit 6.20: Information & Communications Growth



1 *Full year data are not available at the time of publication.*

6.7 FINANCE & INSURANCE

OVERVIEW

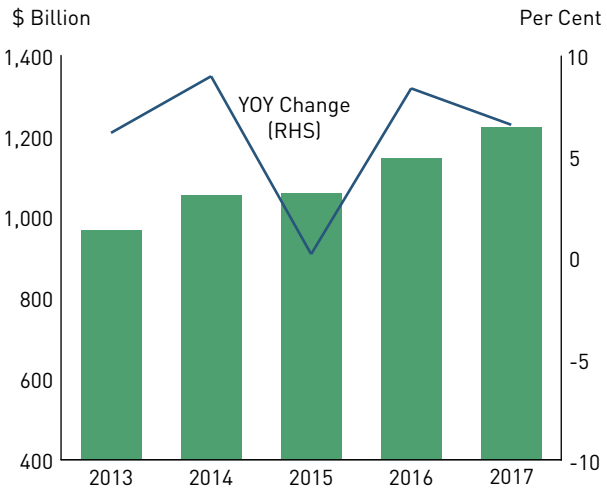
The finance & insurance sector grew by 6.3 per cent in the fourth quarter of 2017, following the 7.1 per cent expansion registered in the previous quarter.

For the whole of 2017, the sector expanded by 4.8 per cent, a step-up from the 1.6 per cent growth in 2016.

COMMERCIAL BANKS

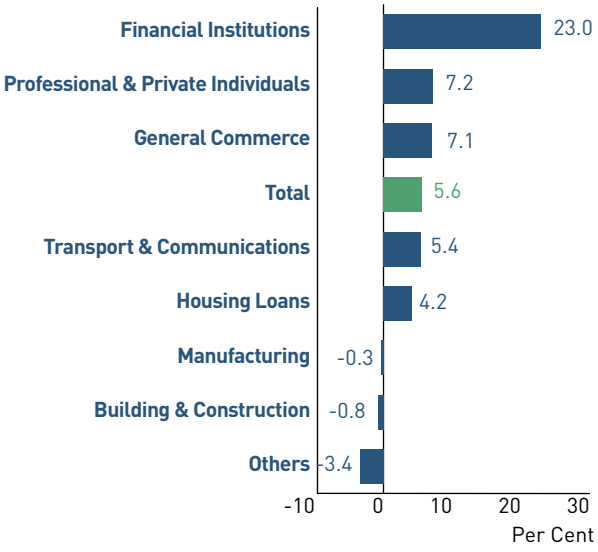
In 2017, total assets/liabilities of commercial banks increased by 6.6 per cent to $1.2 trillion (Exhibit 6.21). The stronger outturn came on the back of an improvement in both domestic non-bank and interbank lending. Notably, credit extended to non-bank customers rose by $34.6 billion (5.6 per cent) in 2017.

Exhibit 6.21: Total Assets and Liabilities of Commercial Banks



Business lending expanded by 6.2 per cent in 2017, accelerating from the 2.8 per cent growth in the preceding year, with most sectors registering positive growth. In particular, there was a 23 per cent increase in loans to non-bank financial institutions. Meanwhile, consumer lending grew by 4.8 per cent, with continued growth in housing and car loans (Exhibit 6.22).

Exhibit 6.22: Growth of Bank Loans and Advances to Non-Bank Customers by Industry in 2017



On the liabilities front, total deposits of non-bank customers rose by 1.6 per cent in 2017, moderating from the 6.5 per cent increase in the previous year. As at end-2017, total non-bank deposits stood at $606 billion, up from $597 billion the year before. Increases in demand and savings deposits outweighed a modest decline in fixed deposits.

FINANCE COMPANIES

Total assets/liabilities of finance companies increased marginally by 0.3 per cent in 2017, reversing the 5.8 per cent contraction in 2016 (Exhibit 6.23). Notably, the non-bank lending segment grew by 2.4 per cent, a modest turnaround from the 5.3 per cent decline recorded the year before, in part due to higher credit extended to segments such as building & construction and hire-purchase financing of motor vehicles (Exhibit 6.24).

On the liabilities front, deposits of non-bank customers remained broadly unchanged in 2017, after contracting by 7.2 per cent in 2016.

Exhibit 6.23: Total Assets and Liabilities of Finance Companies

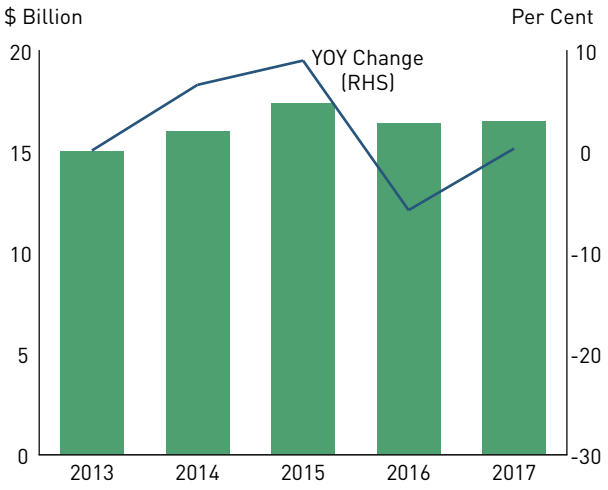
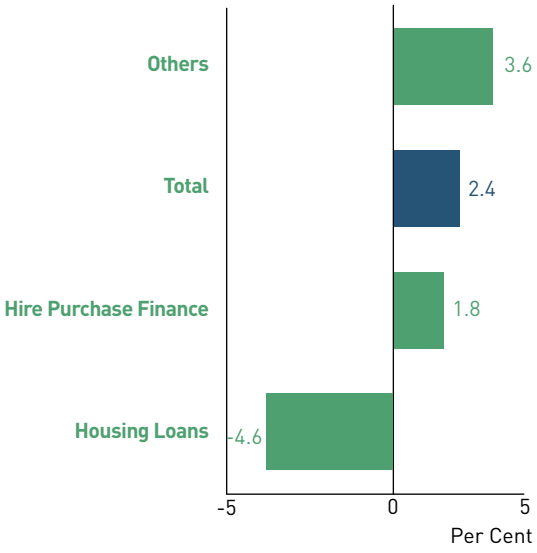


Exhibit 6.24: Growth of Loans and Advances of Finance Companies in 2017

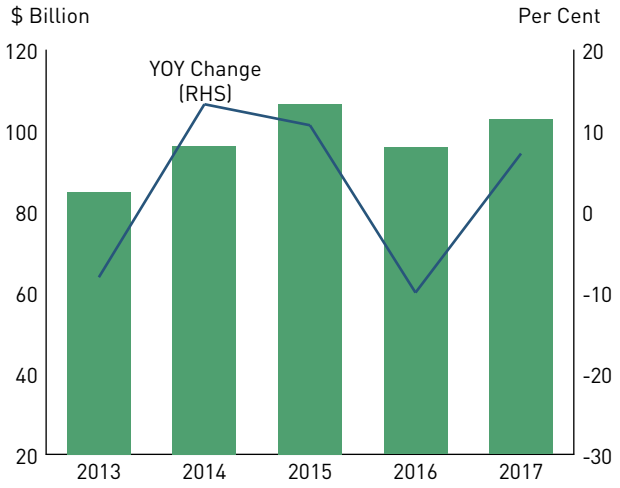


MERCHANT BANKS

Total asset/liabilities of merchant banks expanded by 7.2 per cent to reach $103 billion as at end-2017, from $96 billion in the preceding year (Exhibit 6.25). The improvement stemmed from the offshore segment, which saw strong growth in non-bank lending and holdings of securities and equities.

In comparison, the domestic operations of merchant banks saw a decline of 5.6 per cent, reversing the 4.9 per cent increase posted in 2016. Activity was weighed down by shrinking interbank credit and a flat outturn in non-bank lending.

Exhibit 6.25: Total Assets and Liabilities of Merchant Banks



ASIAN DOLLAR MARKET

Total assets/liabilities of the Asian Dollar Market expanded by 9.3 per cent in 2017, a turnaround from the 1.9 per cent decline registered in the previous year (Exhibit 6.26). Notably, non-bank loan volumes recorded robust growth of 20 per cent, amidst broad-based improvements in credit extended to East Asia, Europe and the Americas. Meanwhile, interbank loans grew by 5.3 per cent, accelerating from the 0.6 per cent uptick in 2016.

On the liabilities front, non-bank deposits rose by 13 per cent, as foreign currency deposits by both residents and non-residents increased. Concomitantly, interbank deposits also grew by 7.8 per cent, due to a step-up in deposits from banks outside Singapore.

Exhibit 6.26: Total Assets and Liabilities of the Asian Dollar Market

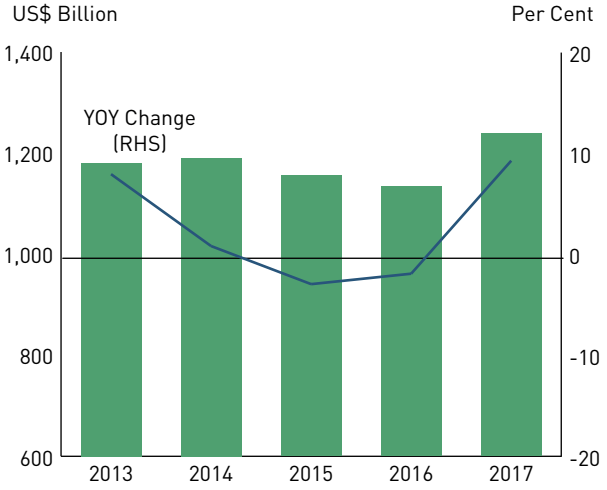
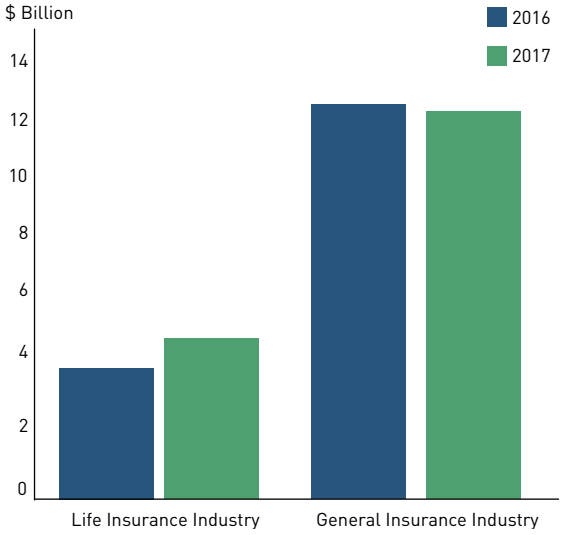


Exhibit 6.27: Premiums in the Insurance Industry



INSURANCE INDUSTRY

Total weighted new business premiums in the direct life insurance industry increased by 23 per cent to $4.8 billion in 2017, with robust growth achieved in both single and regular premium business. Single premium business rose by 42 per cent to $1.5 billion, while regular premium business grew by 15 per cent to $3.2 billion in 2017. Overall, the net income of the direct life insurance industry increased to $2.4 billion from $1.4 billion in 2016.

In the general insurance industry, gross premiums dropped slightly by 1.8 per cent to $11.5 billion in 2017, with offshore and domestic businesses accounting for $7.5 billion and $4.0 billion respectively. Despite the slight decline in premiums, the general insurance industry recorded an operating profit of $1.4 billion in 2017, which was 77 per cent higher as compared to 2016. This was largely due to improved underwriting performance.

CENTRAL PROVIDENT FUND

Total CPF balances grew by 9.3 per cent to $360 billion in 2017.

Members' contributions for the year amounted to $37 billion while total withdrawals reached $20 billion. This resulted in a net contribution of $17 billion, similar to the level recorded in 2016.

Total net withdrawals under the Public Housing Scheme and Private Property Scheme grew by 5.9 per cent to reach $210 billion as at 31 December 2017.

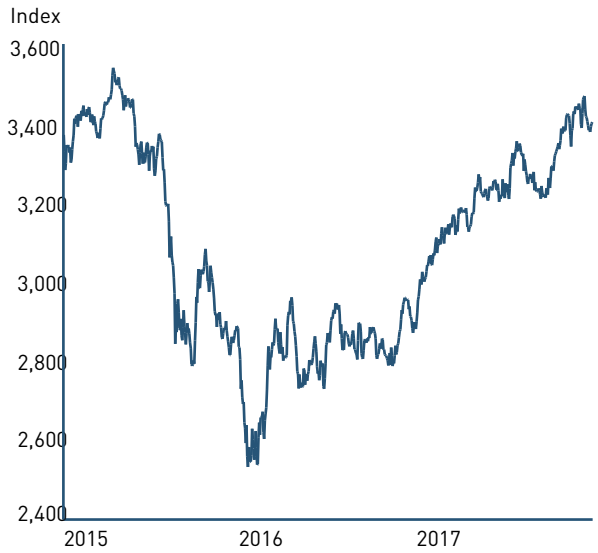
As at 31 December 2017, more than 174,000 CPF members have been included in the CPF Lifelong Income for the Elderly (CPF LIFE) Scheme which provides lifelong payouts in retirement. The CPF LIFE fund stood at $10 billion.

STOCK MARKET

Against the backdrop of the recovery in the global economy, the benchmark Straits Times Index (STI) began on an upward trajectory in the beginning of 2017 (Exhibit 6.28). Notably, healthy corporate earnings and a more sanguine outlook for regional demand lifted the STI by around 12 per cent in the first half of 2017, from 2,881 points in end-2016 to 3,226 points in end-June 2017.

However, with the emergence of geopolitical risks including tensions between US and North Korea, the STI saw a temporary pullback in August and September. Nonetheless, robust equity listings helped to provide some support to the local bourse in the second half of the year. Towards the end of 2017, positive macroeconomic data releases and expectations of positive growth spillovers from US tax policy changes led to broad-based equity rallies in global stock markets. On the domestic front, the STI closed the year with gains of around 18 per cent, reaching the highest level since early 2015.

Exhibit 6.28: Straits Times Index



SECURITIES MARKET

In 2017, the total turnover value of the securities market increased by 7.9 per cent to $294 billion, while the total turnover volume increased by 29 per cent to 544 billion shares. This translated to an 8.8 per cent increase in the average daily traded value to $1.2 billion, and a 30 per cent increase in the average daily traded volume to 2.2 billion shares.

At the end of 2017, the total number of listed companies in Singapore was 750, with a combined market capitalisation of $1,052 billion, a 14 per cent increase from 2016. In 2017, there were 550 companies listed on SGX's Mainboard while the other 200 companies were listed on SGX's Catalist.

DERIVATIVES MARKET

In 2017, SGX's derivatives market activity increased by 3.3 per cent to 178 million contracts. Compared to 2016, total futures trading volume rose by 2.4 per cent to 167 million, while options on futures trading volume grew by 22 per cent to 11.5 million contracts. The most actively-traded contracts were the FTSE China A50 Index Futures, the Nikkei 225 Stock Index and the SGX CNX Nifty Index futures, which formed 62 per cent of the total volume traded on SGX's derivatives trading platform.

FOREIGN EXCHANGE MARKET

Singapore's foreign exchange market posted an average daily turnover of US$461 billion in 2017, a decline of 3.6 per cent from the previous year. Trading in the major currencies such as the United States Dollar, Euro and Japanese Yen continued to dominate the market. Trading in the US Dollar/ Singapore Dollar currency pair contributed less than 10 percent to the total turnover.

The US Dollar underperformed the other G4 currencies in 2017, down 15 per cent against the Euro, 10 per cent against the British Pound and 4.5 per cent against the Japanese Yen. The appreciation of the other G4 currencies against the US Dollar was a reflection of significant, broad-based improvements in growth rates across the rest of the world, while US inflation came in weaker than expected. Euro-area growth outstripped US growth in 2017, and the European Central Bank reduced its monthly pace of asset purchases. UK economic data held up surprisingly well despite the on-going Brexit uncertainty, leading to a rate hike by the Bank of England. The rise in Yen was more moderate as the Bank of Japan kept its monetary policy stance relatively unchanged throughout the year.

6.8 BUSINESS SERVICES

OVERVIEW

The business services sector expanded by 0.4 per cent in the fourth quarter of 2017, similar to the 0.5 per cent growth registered in the previous quarter.

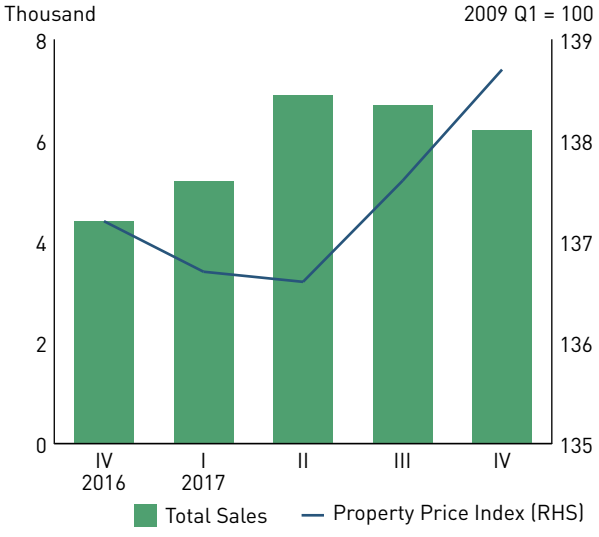
For the whole of 2017, the sector grew by 0.6 per cent, a turnaround from the 0.3 per cent contraction in the previous year.

REAL ESTATE

In 2017, the growth of the business services sector continued to be weighed down by the real estate segment. Specifically, the segment recorded a contraction of 3.3 per cent, although this was a moderation from the 5.6 per cent decline seen in the previous year.

The private residential property market continued to improve in the fourth quarter, with prices of private residential units registering its second consecutive quarter of increase. On a quarter-on-quarter basis, prices rose by 0.8 per cent, comparable to the 0.7 per cent increase seen in the previous quarter. For the whole of 2017, prices edged up by 1.1 per cent, a reversal from the 3.1 per cent fall recorded in 2016.

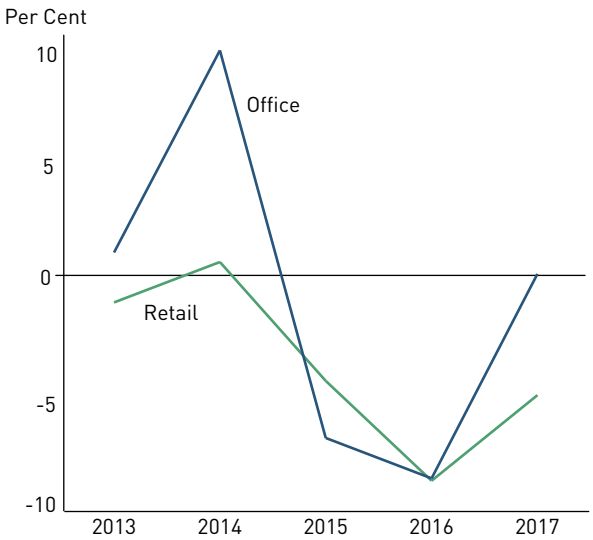
Exhibit 6.29: Total Sales of Private Residential Units and Private Residential Property Price Index



In tandem with the turnaround in prices, sales volumes also posted healthy growth, in part due to pent-up demand, particularly from HDB upgraders and property investors. In particular, total private residential property sales rose by 42 per cent year-on-year in the fourth quarter, extending the 46 per cent increase registered in the previous quarter. For the full year, total sales surged by 53 per cent to reach 25,010 units, surpassing the 16,378 units sold in 2016 (Exhibit 6.29). However, the volume of sales transactions remained modest, compared to the annual average of 28,997 units sold between 2010 and 2014.

In the commercial space segment, the retail space market faced increased headwinds in 2017 on the back of falling prices and rentals. Prices of private retail space declined by 8.8 per cent in 2017, larger than the 5.4 per cent contraction recorded in 2016. Likewise, private retail space rents fell by 4.7 per cent, extending the 8.3 per cent decline in the previous year (Exhibit 6.30). The weak rental performance was driven by lower rentals in the Fringe Area (-6.8 per cent) as well as the Central Area (-3.9 per cent).

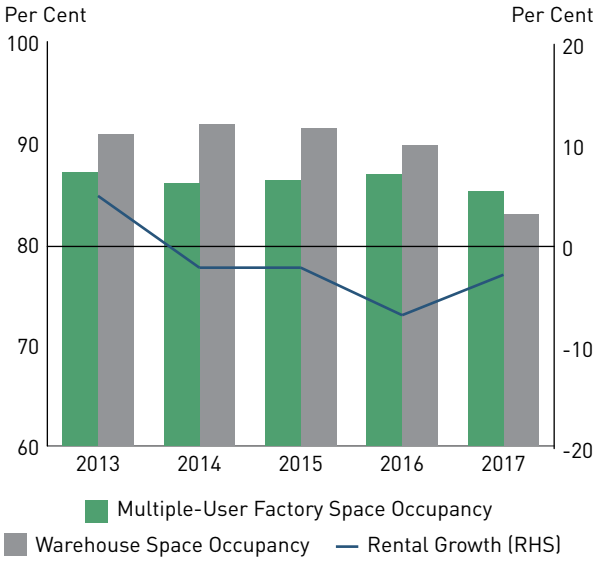
Exhibit 6.30: Changes in Rentals of Private Sector Office and Retail Spaces



For the office space market, office space prices weakened by 2.4 per cent in 2017, comparable to the 2.8 per cent decline in 2016. However, private office space rents increased marginally by 0.4 per cent in 2017, rebounding from the 8.2 per cent decline in the previous year (Exhibit 8.30). The pickup in office rents was primarily supported by higher rentals in the Fringe Area (4.6 per cent).

In the industrial space market, overall prices weakened by 5.7 per cent in 2017, following the 9.1 per cent decrease in 2016. Overall industrial rentals declined by 2.8 per cent, moderating from the 6.8 per cent drop seen in 2016. In particular, rentals of private multiple-user factory space fell by 2.8 per cent, an improvement from the 7.7 per cent decrease in the previous year (Exhibit 6.31).

Exhibit 6.31: Occupancy Rate and Rental Growth of Industrial Space



PROFESSIONAL SERVICES

Growth of the professional services segment improved in 2017, supported primarily by the head offices & business representative offices sub-segment (6.1 per cent). However, the segment was weighed down by weakness in the legal sub-segment (-2.4 per cent).

CHAPTER 7

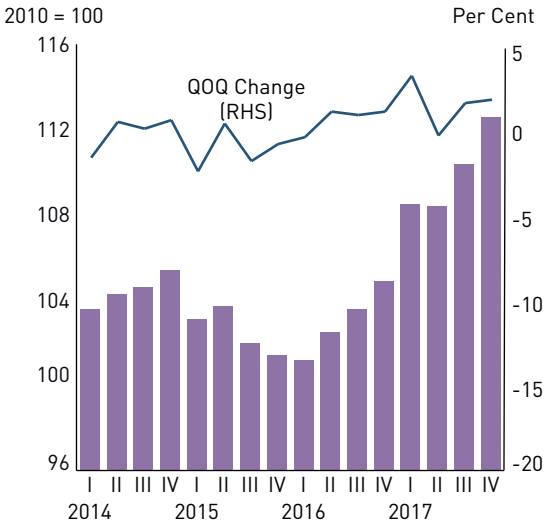
ECONOMIC OUTLOOK

CHAPTER 7
ECONOMIC OUTLOOK

LEADING INDICATORS

The composite leading index (CLI) points to a modest pickup in growth in the Singapore economy in the near term. The CLI rose by 2.0 per cent on a quarter-on-quarter basis in the fourth quarter of 2017, slightly faster than the 1.8 per cent increase in the third quarter (Exhibit 7.1). All the nine components within the index – namely wholesale trade, money supply, non-oil retained imports, the US Purchasing Managers' Index, stock price, new companies formed, domestic liquidity, the stock of finished goods, and non-oil sea cargo handled – increased.

Exhibit 7.1: Composite Leading Index Levels and Growth Rate



OUTLOOK FOR 2018

Since November 2017, the outlook for global growth has improved slightly, with the IMF upgrading its global growth forecast for 2018 to 3.9 per cent, partly on the back of higher growth expected in the US due to the recently approved tax reforms (Exhibit 7.2). However, as compared to 2017, growth in most of Singapore's key final demand markets such as the Eurozone, Japan, NIEs and ASEAN-5 is projected to moderate or remain unchanged in 2018.

Exhibit 7.2: GDP and World Trade Forecasts

	2017 (Estimate)	2018 (Forecast)
World Trade	4.7	4.6
World GDP	3.7	3.9
United States	2.3	2.7
Eurozone	2.3	2.2
Japan	1.8	1.2
China	6.9	6.6
Hong Kong SAR	3.7	2.8
South Korea	3.1	3.0
Taiwan	3.3	2.4
Indonesia	5.1	5.3
Malaysia	5.8	5.3
Thailand	3.9	3.8
Singapore	3.6	1.5-3.5^

Source: Various Official Sources, IMF and Bloomberg Forecasts

^ MTI's forecast range

In the US, GDP growth is projected to improve further in 2018, supported by domestic demand and fiscal stimulus arising from the recently approved tax reforms, although there are uncertainties around the extent to which investments would respond to the tax reforms. On the other hand, growth in the Eurozone economy is projected to moderate in 2018, following the rebound seen in 2017. Growth will be underpinned by continued improvements in labour market conditions and largely accommodative monetary policies. In Asia, China's growth is also expected to ease in 2018 on the back of a slowdown in investment, even as consumption is likely to remain stable and provide support to growth. Meanwhile, growth in the key ASEAN economies is expected to remain firm in 2018, supported by sustained improvements in domestic demand as well as merchandise exports.

On balance, the external demand outlook for Singapore is expected to be slightly weaker in 2018 as compared to 2017. Furthermore, while global macroeconomic risks have receded to some extent since the end of 2017, there remain some downside risks that could weigh on the global economy if they materialise. First, concerns over protectionist sentiments and in particular, the US administration's trade policies remain. An increase in trade barriers could adversely affect global trade, with spillover effects on economic growth worldwide. Second, an upside surprise in inflation could cause monetary policy in the US to normalise faster than expected. This could in turn cause global financial conditions to tighten more than anticipated, and potentially lead to sharp corrections in financial markets. Should this occur, regional economies with elevated debt levels could be disproportionately affected, and there could be some pullback in investment and consumption growth in these economies.

Against this external backdrop, the pace of growth in the Singapore economy is expected to moderate in 2018 as compared to 2017, but remain firm. First, the manufacturing sector is likely to continue to expand and provide support to growth in the overall economy. In particular, the electronics and precision engineering clusters are projected to sustain a healthy, though more moderate, pace of growth in 2018 on the back of robust global demand for semiconductors and semiconductor equipment. Second, externally-oriented services sectors such as finance & insurance, transportation & storage and wholesale trade are expected to benefit from firm external demand, although their pace of growth is also likely to ease in 2018. Third, growth is expected to broaden to domestically-oriented services sectors like retail and food services on the back of an improvement in consumer sentiments amidst the on-going recovery in the labour market. Meanwhile, the information & communications and education, health & social services sectors are expected to remain resilient.

However, the performance of the construction sector is likely to remain lacklustre in 2018 as the earlier weakness in construction demand, particularly from the private sector, continues to weigh on construction activities in the sector. Apart from construction, the outlook for the marine & offshore engineering segment is also expected to remain challenging due to weak demand conditions faced by local yards and firms producing oilfield and gasfield equipment amidst the low oil price environment and excess capacity in the global offshore rig market.

Taking into account the global and domestic economic environment, MTI has maintained the 2018 GDP growth forecast at "**1.5 to 3.5 per cent**". MTI's central view is that **growth will likely come in slightly above the middle of the forecast range**, barring the materialisation of downside risks.

FEATURE ARTICLE

FEATURE ARTICLE

RETURNS TO EDUCATION FOR GRADUATES OF PRIVATE EDUCATION INSTITUTIONS

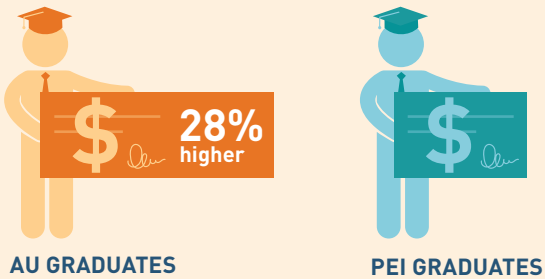
INTRODUCTION

The private education sector exists alongside the public education sector and provides education options to some Singaporeans. Private education institutions (PEIs) offer a diverse range of courses, some of which support workforce development, such as continuing education and training programmes for working adults, and these provisions may help to fulfil the educational aspirations of Singaporeans.

FINDINGS

FINDING 1

AU graduates enjoy a wage premium over their PEI counterparts. AU graduates earn 28 per cent higher starting wages than PEI degree graduates after accounting for differences in academic abilities, demographic and socio-economic characteristics.



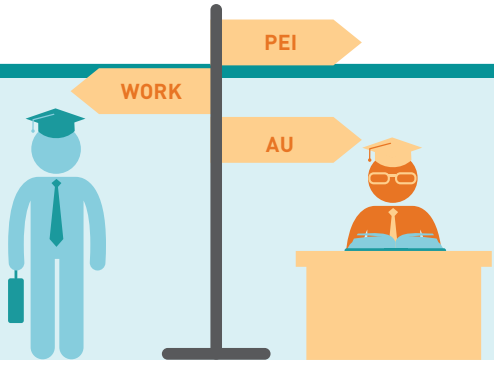
FINDING 2

Comparing across courses of study, the largest wage gap is seen among Humanities graduates at 39%.

WAGE GAP BETWEEN AU AND PEI DEGREE GRADUATES

POLICY TAKEAWAY

Any decision to pursue a degree from either a PEI or AU would need to take into account other factors such as the course fees incurred, the opportunity cost in terms of the earnings foregone during studies, as well as any non-monetary benefits of education. Hence, each prospective student needs to weigh the benefits and costs, and make informed decisions regarding educational investments.



EXECUTIVE SUMMARY

- The private education sector exists alongside the public education sector, and provides education options to some Singaporeans. It offers diverse courses, some of which support workforce development. At the tertiary level, private education institutions (PEIs) offer an alternative route to a university degree. However, the returns to education in terms of earnings may differ between the graduates of PEIs and the local autonomous universities (AUs). For instance, a recent PEI graduate employment survey (GES) found that degree graduates from private schools lagged significantly behind their peers from the AUs in the job market.

- This study offers new insights on the monetary returns to PEI and AU degrees, using administrative data on earnings, and accounting for differences in graduates' academic ability, course choices, demographic and socio-economic characteristics when examining their wage outcomes. The findings suggest that AU graduates enjoyed, on average, a 28 per cent premium in starting wages compared to PEI degree graduates after controlling for differences in the characteristics of the PEI and AU graduates. Furthermore, the AU wage premium was observed for graduates across the 25th, 50th and 75th wage percentiles. Differences in institutional and course quality, as well as potential signalling effects and employers' perceptions of the degrees could have contributed to the wage gap between the graduates of PEIs and AUs who have the same observable characteristics.

- As this study only examines starting wages, an open question is whether the wage premium persists over a longer horizon. Furthermore, any decision to pursue a degree from either a PEI or AU would need to take into account other factors such as the amount of course fees to be paid, the opportunity cost in terms of the earnings foregone during studies, as well as any non-monetary benefits of education. Each prospective student will thus need to weigh the benefits and costs carefully in order to make a more informed decision regarding his or her own educational investments.

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, the Ministry of Education (MOE) or the Government of Singapore.[1]

INTRODUCTION

While the public sector is the principal provider of education at the primary, secondary and tertiary levels in Singapore, the private education sector exists alongside the public sector and provides education options to some Singaporeans. In the tertiary education landscape in particular, private education institutions (PEIs) offer a diverse range of courses, some of which support workforce development through the provision of continuing education and training to working adults. Degrees and diplomas offered by the PEIs may also help to fulfil the educational aspirations of Singaporeans.

The PEI landscape is a diverse one. As of 2014 (the year of graduation of the PEI degree cohort covered in this study), there were over 300 registered PEIs, of which 65 offered degree courses. The industry is regulated by the Committee for Private Education (CPE), which is currently part of SkillsFuture Singapore (SSG).[2]

1 *We would like to thank Yong Yik Wei for her suggestions and comments. We would also like to acknowledge invaluable statistical support from DOS' Strategic Resource Section. All remaining errors belong to the authors.*

2 *The CPE was established in December 2009 and absorbed into the new statutory board SSG in October 2016.*

At the tertiary level, while the PEIs offer an alternative route to a university degree, the returns to education in terms of earnings may differ between the graduates of PEIs and those from the local autonomous universities (AUs). In the inaugural 2015/2016 PEI graduate employment survey (GES) conducted by the CPE, PEI degree graduates were found to lag significantly behind their peers from the AUs in the job market.[3]

In this study, we examine the difference in starting wages earned by PEI degree graduates and their AU counterparts using administrative data that cover PEI degree and AU graduates who graduated in 2014.[4] The rest of the article is organised as follows. We begin with a brief review of the academic literature, followed by a description of the data and summary statistics. Next, we discuss the empirical methodology used to estimate the returns to education. Finally, we present the results before concluding.

LITERATURE REVIEW

Several studies overseas have found that the quality of education institutions has an influence on the earnings of degree graduates. For instance, using longitudinal data in the US, Brewer et al (1999) find that students who attended a top quality university earned 26 to 39 per cent more than those who attended the lowest quality ones. Black and Smith (2004) and Hoekstra (2009) also find evidence that a wage premium exists among the graduates of better quality education institutions in the US. Similarly, Hussain et al (2012), Carroll et al (2014) and Li et al (2012) find positive quality premia in the UK, Australia and China, respectively.

Other studies, however, have found that the magnitude of the quality premium may depend on the measures of quality used (Black and Smith, 2006).[5] Furthermore, even within the same institution, the quality premium could vary for different students (Andrews et al, 2016).

In general, the methodological challenge that researchers face when undertaking such studies is the need to distinguish between the quality of the institutions and the self-selection of students attending them. As Dale and Krueger (2002, 2014) point out, better quality institutions may select students partly based on the applicants' earnings ability. If so, the positive association between institutional quality and graduates' earnings may simply reflect the ability of the students to command higher earnings, rather than the quality of the institutions they attended. To overcome this challenge and tease out the effect of the institution attended, the typical approach, which we also adopt in this study, is to statistically control for observable differences across students. These would include the students' academic ability, background characteristics and course of study.

DATA

The key dataset used in this study comprises data from MOE on all Singaporean Citizens (SC) and Permanent Residents (PR) who graduated with a degree from the PEIs and local AUs[6] in 2014. The data contains information on the student's year of enrolment and graduation, mode of study (i.e., part-time or full-time), L1B4 score[7], institution attended and course of study.

The PEI and AU student data is then merged with administrative data of a longitudinal nature, which include individual-level variables such as wages, age, gender and housing type.[8]

3 *According to the survey, which covered graduates who completed their full-time external degree programmes (EDPs) in PEIs between May 2015 and April 2016, six in 10 PEI degree graduates found full-time permanent jobs within six months after graduating and drew a median gross monthly salary of $2,550. By contrast, eight in 10 graduates from the AUs (including National University of Singapore, Nanyang Technological University, Singapore Management University, Singapore University of Technology and Design, and Singapore Institute of Technology) found full-time permanent jobs within six months after graduating and drew a median gross monthly salary of $3,325.*

4 *Using administrative data alleviates concerns that the PEI GES did not have sufficient coverage. 32 per cent of PEI degree graduates responded to the PEI GES, which is lower than the response rate of around 70 per cent for the GES survey of AU graduates.*

5 *Black and Smith (2006) examined university quality in the US using various indicators like SAT scores of students, expenditures per student and faculty-student ratios. They find that using a single proxy for quality is likely to underestimate the labour market effects of university quality.*

6 *The local AUs covered in the study are the National University of Singapore, Nanyang Technological University, Singapore Management University and the Singapore Institute of Technology.*

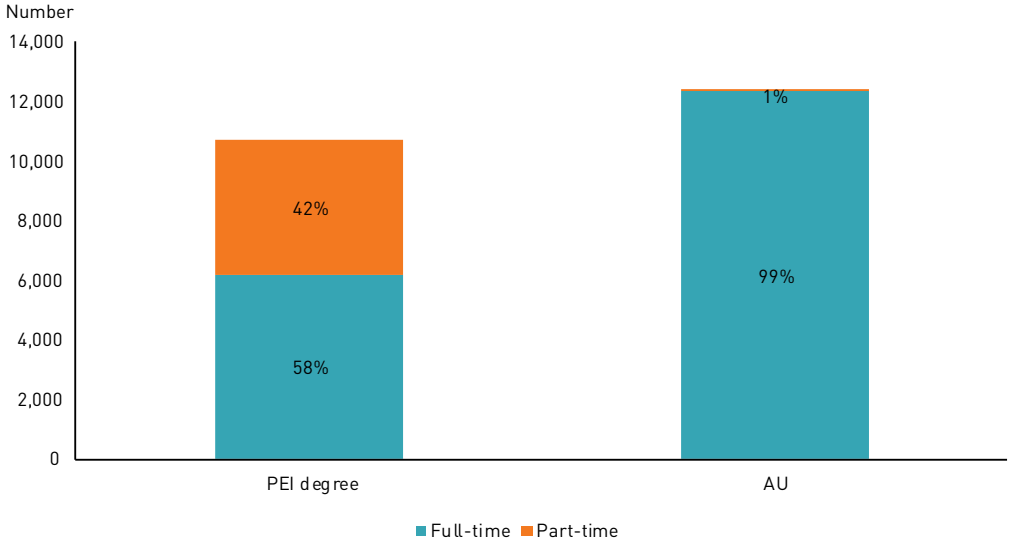
7 *The L1B4 score refers to the O-level subject grades of the first language and four best subjects, and serves as a proxy of academic ability.*

8 *94% of the SC/PR PEI degree and AU graduates from the 2014 graduating cohort had wage data (i.e., were employed) in 2015. They thus formed the sample for the wage analysis.*

SUMMARY STATISTICS

Our sample consists of around 11,000 PEI degree graduates and 12,000 AU graduates from the 2014 graduating cohort [Exhibit 1]. Nearly all the AU graduates were full-time students, while 42 per cent of the PEI degree graduates studied part-time.

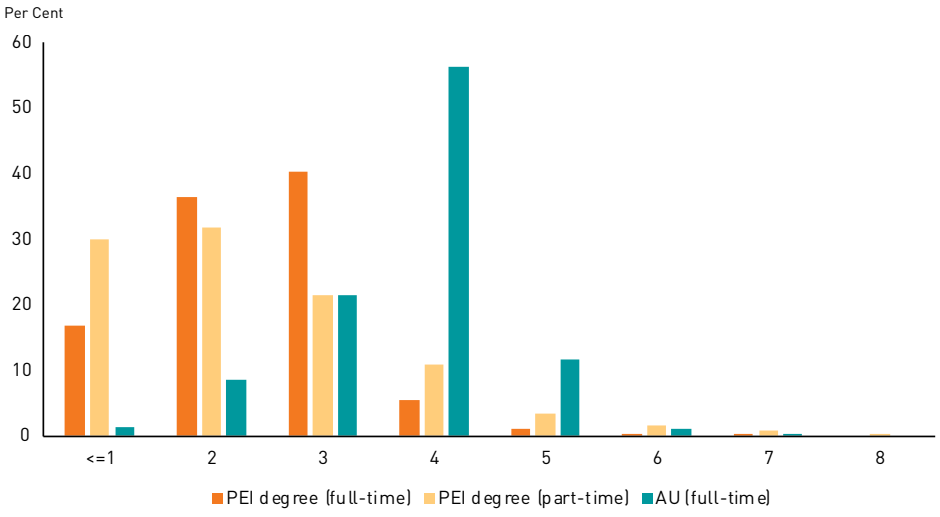
Exhibit 1: Degree Graduates by Mode of Study, Full-time/Part-time Status



Source: CPE, MOE and authors' calculations.

Full-time AU graduates generally took a longer period of time to complete their studies compared to full-time and part-time PEI degree graduates [Exhibit 2]. The modal course duration for full-time AU graduates was four years, while most PEI degree graduates took three years or less to graduate.

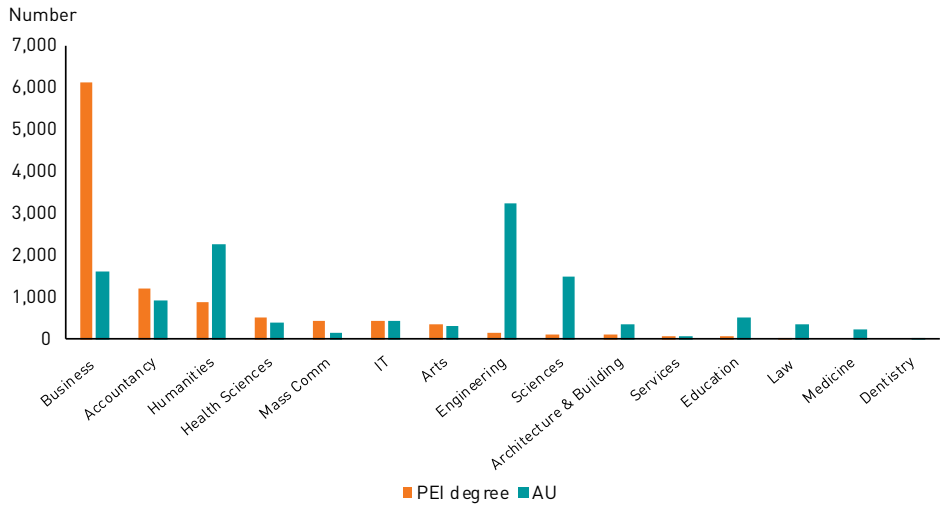
Exhibit 2: Degree Graduates by Course Duration, in Years



Source: CPE, MOE and authors' calculations.
Note: It is possible for a PEI degree course to take a year or less as there are graduates who "top-up" to obtain a degree after taking a full diploma course with the same PEI. The shorter duration AU courses are mostly Singapore Institute of Technology (SIT) programmes offered in collaboration with overseas universities and only admit students with relevant diplomas from the polytechnics. These programmes are expected to evolve into joint programmes (with a minimum duration of 3 or 4 years) or be phased out in favour of programmes designed by SIT.

A vast majority of the PEI degree graduates studied Business. This reflects a high level of demand from students who wished to obtain a business degree, as well as the multitude of business degree courses offered by PEIs with overseas university partners [Exhibit 3].

Exhibit 3: Degree Graduates by Course of Study



Source: CPE, MOE and authors' calculations.
Note: Medicine and Dentistry are only offered by AUs.

EMPIRICAL METHODOLOGY

PEI degree and AU graduates may have different inherent characteristics, some of which (e.g., academic ability) could have an influence on their starting wages regardless of the education institutions they attended. As such, to better capture the effect of the education institution (i.e., AU or PEI) on graduates' wage outcomes, we need to account for these individual-level differences in our analysis. To do so, we employ statistical regression analyses with the following baseline specification:

$$Y_i = \beta_0 + \beta_1 AU_i + \beta_2 Course_i + \gamma' X_i + \varepsilon_i \quad (1)$$

Where:

Y_i is the starting monthly wage of individual i in calendar year 2015 (in logarithms);

AU_i is a dummy variable that takes on a value of 1 if the individual graduates from an AU, and 0 if he/she graduates from a PEI;

$Course_i$ is a set of dummy variables representing the individual's course of study;

X is a vector of individual-level controls (e.g. age, gender, race, marital status, housing type and L1B4 score); and

ε_i captures the unobservable factors that determine an individual's wages

Through this specification, we will be able to compare the starting wages of degree graduates from PEIs and AUs, after controlling for differences in the graduates' academic ability (proxied by L1B4 scores), demographics (e.g., age and gender) and socio-economic background (proxied by housing type). The coefficient of interest, β_1, measures the average percentage difference in the starting wages of AU graduates relative to PEI degree graduates in 2015.[9] Apart from looking at average differences in wages, we also examine the differences at the 25th, 50th and 75th percentiles of the wage distribution using quantile regressions.[10]

9 *The outcome variable, monthly wages, is in logarithms. Hence, the percentage difference in wages between AU and PEI degree graduates can be calculated as exp(β_1)-1.*

10 *See Koenker, R. & Hallock, K. F. (2001). Quantile Regression. Journal of Economic Perspectives, Vol. 15, No. 4, 143 – 156. Quantile regression is an extension of the method of least squares where the objective is to minimise the sum of absolute, rather than the sum of squared, error terms.*

In addition, to determine whether the wage differentials between PEI degree and AU graduates vary across the different courses of study, we also run the following regression:

$$Y_i = \beta_0 + \beta_1 AU_i + \beta_2 Course_i + \beta_3 AU_i \times Course_i + \gamma' X_i + \varepsilon_i \quad (2)$$

Where the variables are as defined above.

The sum of the coefficients of interest, β_1 and β_3, measures the average percentage difference in the starting wages of AU graduates relative to PEI degree graduates in 2015 for each course type.[11]

RESULTS AND DISCUSSION

Exhibit 4 shows the results from the regression analyses using the baseline specification. The results suggest that AU graduates enjoy a significant wage premium over their PEI counterparts. In particular, Column (1) shows that AU graduates earned 33 per cent more than PEI degree graduates on average, after controlling for differences in the graduates' demographic and socio-economic characteristics.[12]

However, apart from demographic and socio-economic characteristics, students may have different academic abilities which may also influence their starting wages. In particular, AU students may have better academic abilities, as measured by L1B4 scores, and thus earn higher starting wages than PEI students even if they have the same demographic and socio-economic characteristics. As such, we further control for L1B4 scores and course choices in the regression analysis, with the results shown in Column (2). We find that while the AU wage premium dropped, it remained positive and statistically significant. Specifically, AU graduates earned starting wages that were 28 per cent higher compared to PEI degree graduates, after controlling for differences in their academic ability and course types, in addition to demographic and socio-economic characteristics.[13]

Using quantile regressions, we further find that the wage premium enjoyed by AU graduates was positive and significant across the 25th, 50th and 75th percentiles of the wage distribution (see Columns (3) to (5)). The premium was also relatively stable across the wage bands.

Exhibit 4: Regression Results

Dependent variable: Log(Monthly Wage)

	(1) OLS	(2) OLS	(3) Quantile (P25)	(4) Quantile (P50)	(5) Quantile (P75)
AU_i (β_1)	0.285***	0.246***	0.219***	0.186***	0.200***
Demographic and socio-economic controls	Yes	Yes	Yes	Yes	Yes
Academic ability and course-related controls	No	Yes	Yes	Yes	Yes
Number of observations	21,632	19,966	19,966	19,966	19,966

*** Statistically significant at the 1% level.

Notes:

1. The monthly wage was computed by taking the annual income and dividing by the number of months worked.
2. The set of demographic and socio-economic controls used are age, gender, race, marital status and housing type.
3. The set of academic ability and course-related controls used are L1B4, course of study and mode of study i.e., full-time or part-time.

11 *As the outcome variable, monthly wages, is in logarithms, the percentage difference in wages between AU and PEI degree graduates for each course type can be calculated as exp(β_1+β_3)-1.*

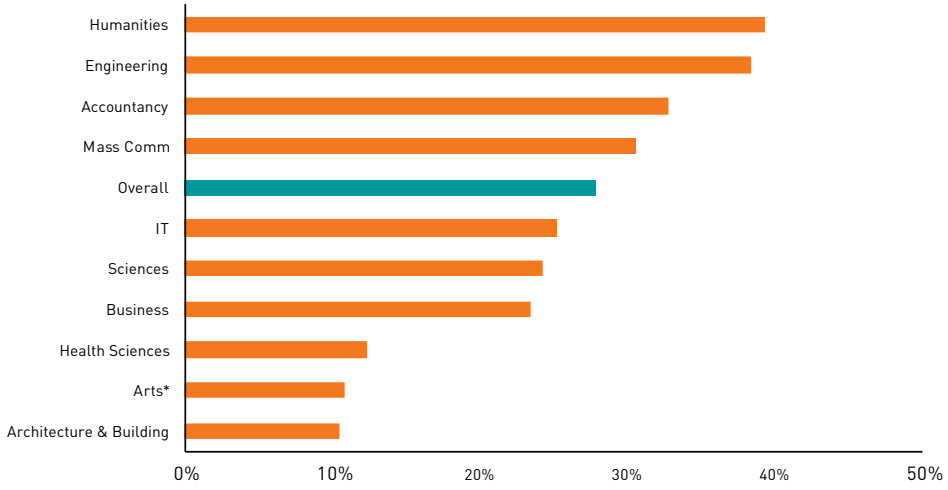
12 *The outcome variable is in logarithms. Hence, a coefficient of 0.285 is equivalent to a 32.9 per cent difference in wages [exp(0.285) – 1 = 0.329].*

13 *In column (2), the coefficient of 0.246 is equivalent to a 27.8 per cent difference in wages [exp(0.246) – 1 = 0.278].*

Comparing the results in Columns (1) and (2), we can surmise that differences in academic ability and course choices between PEI degree and AU graduates would only explain 5 percentage-points of the 33 per cent wage premium enjoyed by AU graduates. The remaining difference of 28 per cent could be due to many other reasons. While this study is unable to determine the exact reasons for the AU wage premium, differences in institutional and course quality, as well as potential signalling effects[14] and employers' perceptions of the degrees could have contributed to the wage gap between PEI degree and AU graduates who have the same observable characteristics.

Next, using regression specification (2), we find that the AU wage premium existed for graduates from all courses of study. The largest wage gap, at 39 per cent, was seen among the Humanities graduates [Exhibit 5]. For Business courses, which the majority of PEI degree graduates pursued, the AU graduates commanded a 24 per cent wage premium compared to the PEI degree graduates.

Exhibit 5: AU Wage Premium by Selected Course of Study



Notes:
1. For comparison, the "Overall" coefficients are plotted and are taken from Exhibit 4, column (2). The coefficients have been converted to percentages using the formula exp(β)-1.
2. *Wage premium is statistically insignificant for AU Arts graduates.
3. Excludes Education and Services courses as the actual courses offered by PEIs and AUs are distinctly different. Excludes Law course due to small sample size.

CONCLUSION

This study finds that graduates from the local AUs enjoyed a significant starting wage premium over degree graduates from the PEIs, even after accounting for differences in their academic ability, course choices, demographics and socio-economic background. Specifically, we find that AU graduates earned a starting wage that was, on average, 28 per cent higher than the starting wages of PEI degree graduates. This is generally in line with the findings of the 2015/16 PEI Graduate Employment Survey, which showed that PEI degree graduates drew a lower average monthly starting pay compared to AU graduates, with the caveat that the dataset and methodology employed for both studies are different. We also find that the AU starting wage premium was present for all degree courses, and across wage bands.

14 *In economics, signalling theory is the hypothesis that the attainment of a degree does not contribute significantly to a graduate's ability. Instead, students have different underlying abilities, and the attainment of a degree serves only to signal these abilities to employers.*

As this study only examines starting wages, an open question is whether the AU wage premium persists over a longer horizon. Furthermore, any decision to pursue a degree from either a PEI or AU would need to take into account other factors such as the amount of course fees to be paid, the opportunity cost in terms of the earnings foregone during studies, as well as any non-monetary benefits of education. Each prospective student will thus need to weigh the benefits and costs carefully in order to make a more informed decision regarding his or her own educational investments.

Contributed by:

Ms Melinda Poh, Economist
Ms Jamie Poh, Senior Economist
Dr Andy Feng, Senior Economist
Economics Division
Ministry of Trade and Industry

REFERENCES

Andrews, Rodney, Jing Li and Michael F. Lovenheim, 2016. "Quantile Treatment Effects of College Quality on Earnings," Journal of Human Resources, vol 51(1), pages 200-238.

Black, Dan A. and Jeffrey A. Smith, 2004. "How Robust is the Evidence on the Effects of College Quality? Evidence from Matching." Journal of Econometrics 121(1-2): 99–124.

Black, Dan A. and Jeffrey A. Smith, 2006. "Estimating the Returns to College Quality with Multiple Proxies for Quality." Journal of Labor Economics 24(3): 701–728.

Brewer, Dominic J., Eric R. Eide and Ronald G. Ehrenberg, 1999. "Does It Pay To Attend An Elite Private College? A Cross-Cohort Evidence On The Effects Of College Type On Earnings?" Journal of Human Resources, v34(1,Winter), 104-123.

Carroll, David, Christopher Heaton and Massimiliano Tani, 2014. "Returns to University Quality in Australia: A Two-Stage Analysis", IZA Discussion Paper No. 8473.ale, Stacy Berg and Alan B. Krueger, 2002. "Estimating The Payoff Of Attending A More Selective College: An Application Of Selection On Observables And Unobservables," Quarterly Journal of Economics, v107(4,Nov), 1491-1527.

Dale, Stacy Berg and Alan B. Krueger, 2014. "Estimating the Return to College Selectivity of the Career Using Administrative Earning Data," Journal of Human Resources, vol. 49, no. 2, pp. 323-358.

Hoekstra, Mark, 2009. "The Effects of Attending the State Flagship University on Earnings: A Discontinuity Approach," Review of Economics and Statistics 91(4), pp. 717-724.

Hussain, Iftikhar, Sandra McNally and Shqiponja Telhaj, 2012. "University Quality and Graduate Wages in the UK", IZA Discussion Paper No. 4043.

Koenker, R. & Hallock, K. F., 2001. "Quantile Regression", Journal of Economic Perspectives, Vol. 15, No. 4, 143 – 156.

Li, Hongbin, Lingsheng Meng, Xinzheng Shi, Binzhen Wu, 2012. "Does attending elite colleges pay in China?", Journal of Comparative Economics 40 78-88.

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

ISSN 2382-6541