

3 Labour Market And Inflation

Demand-side Inflationary Pressures Remain Muted

Overall net employment growth was flat in H2 2016, as resident employment gains were offset by a contraction in foreign headcount. Amid subdued labour demand and an increase in net entrants to the local labour force in the last quarter of the year, both the overall and resident unemployment rates picked up, while the ratio of vacancies to unemployed persons fell further. The employment outlook for 2017 is not expected to be significantly different from last year. Modest manpower demand should dampen underlying wage pressures.

Headline consumer price inflation in Singapore had turned positive since late last year, and continued to rise to 0.6% in the first quarter of 2017. This was driven by the sharp turnaround in the prices of oil-related items, such as petrol and electricity. Meanwhile, MAS Core Inflation edged up to 1.3% in Q1 2017 from 1.2% in Q4 2016.

Following the recovery in global commodity markets, imported inflationary pressures have picked up in recent quarters. Most of these price pressures have been concentrated in energy-related items following the increase in global oil prices, but there are some indications of rising inflation in food commodities as well. For the whole of 2017, energy-related items will be the main driver of the projected rise in the CPI. While global oil prices should be capped by elevated inventories as well as rising US crude oil production, average prices for the year will still be higher than in 2016. Other domestic business costs are also likely to rise modestly in 2017, partly reflecting the impact of administrative price increases, such as the hike in water prices, although their effective contribution to the increase in overall CPI inflation is relatively small.

At this point, there are no indications of generalised demand-induced price pressures, especially for discretionary consumer goods and services. Amid the still-soft economic environment and labour market, the pass-through of higher external and domestic costs to consumer prices should be muted.

For the year as a whole, CPI-All Items inflation is forecast to come in at 0.5–1.5%, while MAS Core Inflation is projected to be 1–2%, unchanged from the forecasts in the October Review.

3.1 Labour Market

Employment Outlook Remains Cautious

Resident net employment expanded by about 11,400 in H2 2016, but was offset by a reduction in foreign headcount, leaving overall employment largely unchanged. At the same time, an increase in net entrants to the local labour force in the last quarter contributed to a slightly higher resident unemployment rate. Meanwhile, the ratio of vacancies to unemployed persons eased further.

In the near term, net employment growth is expected to stay modest and uneven across sectors. It is likely to be stronger in the CSP segment, supported by manpower requirements in education and healthcare, but weaker in sectors such as manufacturing and construction. The soft labour market will also cap underlying wage pressures in the economy.

Overall net employment growth was flat in H2 2016 ...

Overall net employment growth was flat in H2 2016, in contrast to the 17,200 increase in H1, and 28,700 rise in the same period a year ago.¹ (Chart 3.1) Across the broad sectors, employment gains in the services industries were offset by contractions in manufacturing and construction. Within the manufacturing sector, job losses of 7,000 were in transport equipment, due to sustained weakness in oil and gas-related activities that also affected, to some extent, the fabricated metal products and machinery & equipment industries. In the construction segment, employment was weighed down by lacklustre private sector building activities.

A total of 23,400 workers were added across various services industries in H2 2016, a slight increase from 20,800 in H1, although still lower than the same period a year ago (34,800). (Chart 3.1) For domestic-oriented services, manpower gains were partly driven by year-end seasonal recruitment in Q4, across the food & beverage, retail trade, and administrative & support services industries. (Chart 3.2) At the same time, boosted by ongoing initiatives to build long-term capacity in healthcare, education and other social services, hiring continued in the community, social & personal (CSP) services segment excluding foreign domestic workers (FDW), albeit at a slower pace. Meanwhile, recruitment was lacklustre in the real estate and professional services industries.

Across the external-oriented services sectors, employment outcomes were generally weak. Workers

Chart 3.1
Employment Change: Broad Sectors

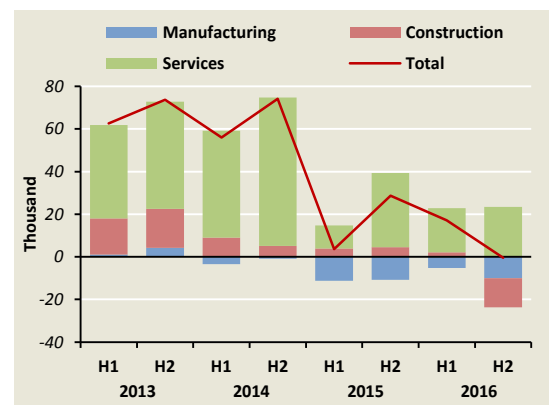
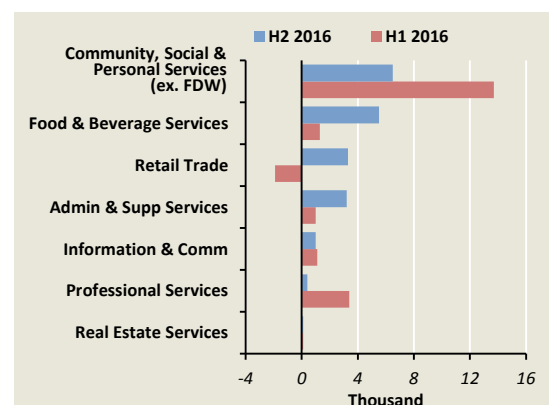


Chart 3.2
Employment Change: Domestic-oriented Services Sectors



¹ The data used in this section are partly based on MOM's latest available *Labour Market Report 2016* released in March 2017.

were shed mostly in wholesale trade services, while employment gains fell in transport & storage services. (Chart 3.3) Although hiring rebounded in the financial & insurance services industry in H2, total net employment gains in 2016 were still lower than a year ago.

... as resident employment gains were offset by a contraction in foreign headcount.

The overall employment outcome in H2 2016 reflected a divergence between local and foreign hiring. (Chart 3.4) A total of 11,400 residents secured jobs, mainly in sectors such as accommodation & food, financial & insurance, as well as administrative & support services. Meanwhile, employment declines among residents were concentrated in the manufacturing, construction and wholesale trade sectors. In comparison, foreign employment contracted by 11,700 in H2, amid continued restructuring in the manufacturing and construction sectors, where most of the job losses were low-skilled Work Permit Holders. (Chart 3.4)

For the whole of 2016, overall net employment grew by 16,800 (0.5%), which was lower than the 32,300 (0.9%) in 2015. Residents accounted for about two-thirds of the job gains, a significant improvement from the negligible share in 2015. Excluding FDW, overall net employment grew by 8,600 (0.3%) in 2016, while foreign employment contracted for the first time (-2,500) since 2009. Nevertheless, residents' share of the total employment stock (excluding FDW) has been stable at around two-thirds over the last five years.

Activity in the labour market remained muted ...

A comprehensive range of indicators suggests that the labour market remained soft in H2 2016. For example, labour turnover was muted, with the seasonally adjusted (SA) recruitment rate lower than in H1, while the resignation rate remained below its three-year historical average. (Chart 3.5) Overall redundancies were elevated as well, amid business restructuring and reorganisation. The overall unemployment rate (SA) edged up to 2.2% in H2 from 2.0% in H1, while the resident unemployment rate also rose by 0.2% point to 3.1%,² due in part to more people entering the labour force to look for jobs in Q4. With the increase in the number of unemployed persons coming up against

Chart 3.3
Employment Change:
External-oriented Services Sectors

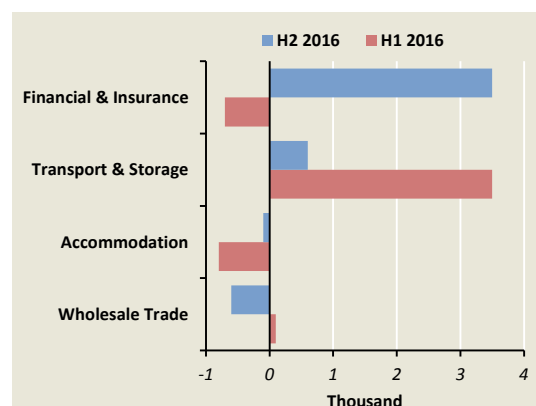


Chart 3.4
Employment Change: Local and Foreign

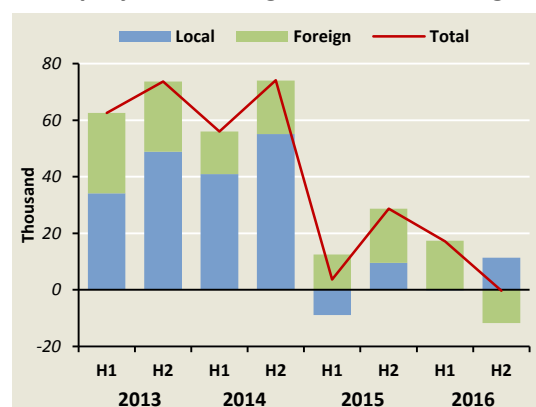
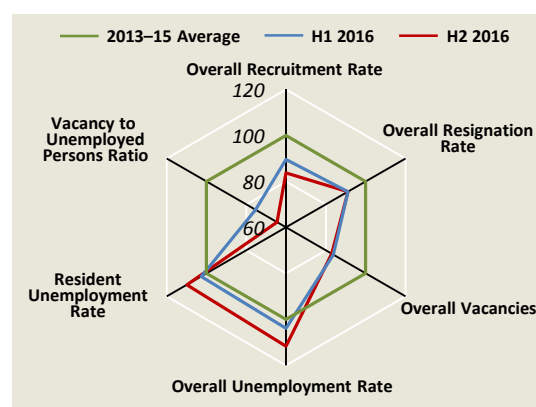


Chart 3.5
Labour Market Indicators



Source: EPG, MAS estimates

Note: All variables are seasonally adjusted, and indexed such that each 3-year historical average takes a value of 100.

² For 2016, the annual average overall and resident unemployment rates were 2.1% and 3.0%, respectively, an increase of 0.2% point from 2015. Meanwhile, the stock of unemployed residents rose to 67,400 last year, from 62,500 in 2015.

a largely unchanged number of job openings, the ratio of vacancies to unemployed persons fell from 0.98 in H1 to 0.84 in H2. Overall, EPG’s Labour Market Pressure Indicator (LMPI)—a summary statistic which captures the extent of labour market tightness using 31 indicators—slipped further into negative territory, corroborating the observations of continuing slack in the labour market. (Chart 3.6)

... even though some job openings are still unfilled.

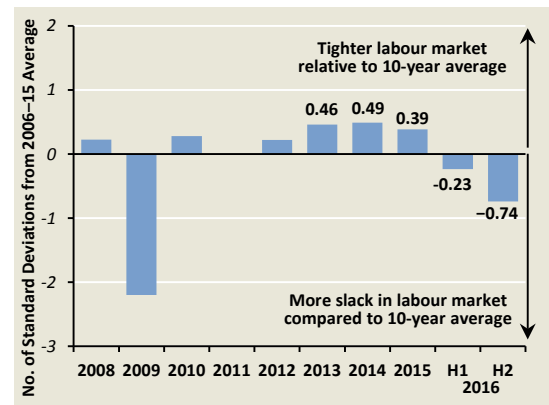
Despite the overall weakness in labour demand, there are unfilled vacancies for PMET jobs. MOM’s *Job Vacancies 2016* report indicated that the two main reasons why such vacancies remained unfilled for six months and longer (known as hard-to-fill vacancies) were “unattractive pay” (33%) and “lacking the necessary work experience” (39%). Common hard-to-fill PMET occupations include registered nurses & other nursing professionals, general practitioners, physicians and restaurant managers. In comparison, other than unattractive pay, working conditions, such as long working hours, shift work and physically strenuous jobs, were factors inhibiting non-PMETs from filling the available openings.

Overall resident wage growth was supported by industry-specific factors.

Overall resident wages based on average (mean) monthly earnings rose by 3.4% y-o-y in H2 2016, a step down from 4.1% recorded in H1. This brought wage growth for the whole of 2016 to 3.7%, slightly above the 3.5% in 2015 and the 10-year historical average of 3.6%. (Chart 3.7)

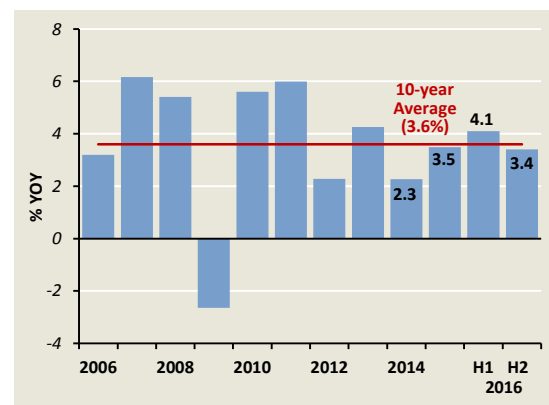
Viewed from a longer time horizon, resident wage growth held up at an average of 3.6% in 2015–2016, compared to 3.3% recorded in the preceding two years, even though local employment growth had declined from an average of 4.2% to 0.3% during this period. Industry-specific factors, rather than general tightness of the labour market, appear to be the underlying factor. Notably, average wages could have been lifted by the exit of lower-wage casual workers prevalent in certain industries, such as retail. Wages could also be bid up in other segments where vacancy rates are still high, reflecting unmet demand for labour in certain specialised fields, for example, the ICT industry.

Chart 3.6
Labour Market Pressure Indicator



Source: EPG, MAS estimates

Chart 3.7
Overall Resident Wage Growth



Note: Based on average (mean) monthly earnings.

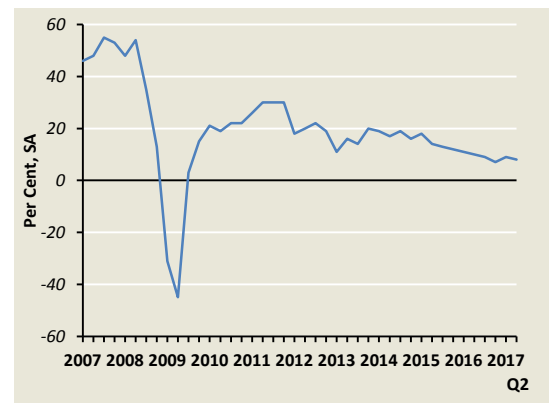
Net employment growth in 2017 is expected to be largely unchanged from last year, while underlying wage pressures will be dampened.

Subdued external demand, coupled with a confluence of domestic factors including business restructuring, tightened foreign worker policy and population ageing, have lowered both labour demand and supply in recent years. Net employment gains stepped down to an average of about 25,000 (0.7%) p.a. in 2015–16, compared to 127,000 (3.9%) p.a. in the preceding five years.

The employment outlook for 2017 is not expected to be significantly different from last year. According to the ManpowerGroup *Manpower Employment Outlook Survey* for Q2 2017, the net proportion of employers expecting to increase headcount was 8%, significantly below historical levels apart from during the GFC. (Chart 3.8) Employment growth is expected to remain uneven across sectors—stronger in the CSP segment reflecting higher manpower requirements in the areas of education and healthcare, but weaker in manufacturing and construction. Amid soft labour demand, the overall and resident unemployment rates may increase slightly this year.

To help workers seize new opportunities and maximise their lifelong re-employability as the economy transforms, Budget 2017 put in place several fresh initiatives, as well as enhanced existing programmes. For example, through shorter, modular and e-learning courses, training will be made more accessible. At the same time, MOM has further enhanced the “Adapt and Grow” programmes, where workers will receive higher wage and training support as they transit to new careers. Further, under the newly launched “Attach and Train” initiative, workers will be able to receive training and work attachments prior to job placement. In addition, to strengthen job search outcomes, the National Jobs Bank will be made more user-friendly, with collaboration among career matching providers to deliver better services.

Chart 3.8
Net Employment Outlook



Source: ManpowerGroup

Note: The net employment outlook is the proportion of surveyed employers who expect a net increase in their headcount for the quarter.

Overall, modest manpower demand and the soft labour market will dampen underlying wage pressures through the year. Resident wage growth could average closer to 3% in 2017, compared to 3.7% last year. Meanwhile, economy-wide labour productivity growth rebounded from -0.2% in 2015 to 1% last year, and is likely to improve further to 1.5–2% in 2017, largely driven by productivity gains in manufacturing. Accordingly, overall unit labour cost is projected to increase more gradually compared to the 2.4% in 2016.

3.2 Consumer Price Developments

Inflation Will Rise In 2017 But Stay Below 2%

Both headline and core inflation continued to trend up in recent months, driven mainly by the turnaround in global commodity markets. However, demand-induced price pressures, especially for discretionary goods and services, have remained relatively subdued. Going forward, the combined impact of higher commodity prices and administrative charges could result in some rise in business costs, although their impact on profitability will be capped by stronger productivity. In addition, the degree of pass-through to consumer prices will be limited, given continued slack in the labour market which should dampen consumer sentiment. In 2017, both MAS Core Inflation and CPI-All Items inflation are expected to come in higher than last year, at 1–2% and 0.5–1.5%, respectively, unchanged from the projections in the last Review.

Core and headline inflation rose amid a pickup in the prices of oil-related items.

Inflation has continued to trend up in recent months. MAS Core Inflation edged up to 1.3% y-o-y in Q1 2017, from 1.2% in Q4 2016. Meanwhile, CPI-All Items inflation experienced a steeper upturn, rising from 0.0% to 0.6% over the same period. (Charts 3.9 and 3.10)

While the turnaround in the prices of oil-related items impacted both measures of inflation, the effect on headline inflation was more discernible given their larger weight in the overall CPI basket (5% compared to 3.8% for core CPI). Notably, petrol prices comprise about a fifth of private road transport cost, which is a non-core CPI component. The upward revision to car park fees in December 2016 also added to headline but not core inflation.³

The increase in oil prices was the main driver of the turnaround in imported inflation.

On a year-ago basis, Singapore's overall import price index rose significantly by 11.6% in Jan–Feb 2017, up from 2.8% in Q4 2016. This was largely attributable to the 82.4% increase in import prices of mineral fuels, which in turn reflected the low base in Q1 last year when oil prices plunged to around US\$30. To a lesser extent, imported inflation has also picked up for food, animal & vegetable oils, as well as manufactured goods. (Chart 3.11)

Chart 3.9
CPI-All Items and MAS Core Inflation

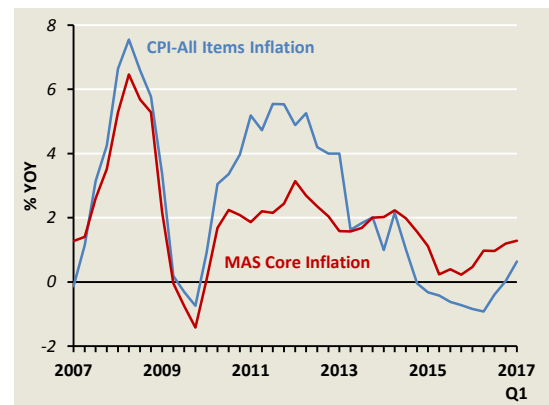
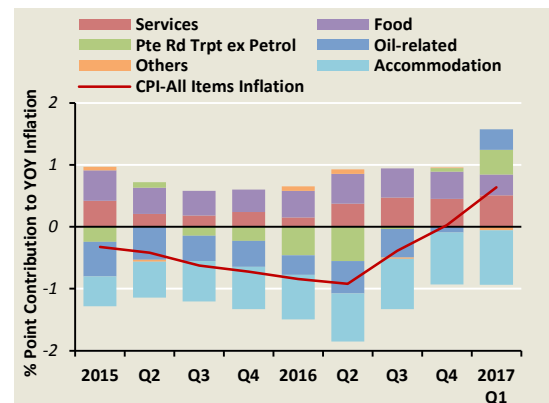


Chart 3.10
Contribution to CPI-All Items Inflation



³ Private road transport cost is excluded from the MAS Core Inflation measure as it is volatile and strongly influenced by administrative policies, e.g., measures to ensure congestion is kept in check on roads.

The recovery in oil prices was supported by OPEC-led production cuts.

Following the announcement of voluntary production cuts by OPEC and other non-OPEC producers at end of November last year, the Brent oil benchmark traded within a tight mid-US\$50 range in Jan–Feb 2017, compared to an average of US\$50 in Q4. (Chart 3.12) Compliance with the agreement exceeded market expectations, with Saudi Arabia delivering the bulk of OPEC’s planned output reductions.

In March, global oil prices slipped to around US\$52 amid news of a more rapid expansion of US shale production and crude inventories. More recently, heightened geopolitical tensions and production disruptions in Libya lifted the oil benchmark to around US\$55 in mid-April, before it subsequently eased to around US\$51–52 in the second half of the month as oversupply concerns resurfaced.

Global oil prices are expected to hover around current levels for the rest of 2017.

Notwithstanding the initial success of the OPEC-led agreement, production cuts have thus far failed to clear record high inventories, and may even have stoked a recovery in the shale oil industry. Daily crude oil output in the US has risen by about 0.5 million barrels per day since September (representing 0.5% of global consumption), while the US rig count has more than doubled from its trough in mid-2016. (Chart 3.13) The resurgence in US shale production will likely continue unabated as long as prices are kept high enough through the crude oil production quotas, hindering efforts towards achieving supply-demand balance in the global oil market. This would cap upside to global oil prices, even if the current production limits are extended beyond June this year.

For 2017 as a whole, MAS’ baseline forecast is for the Brent oil benchmark to average US\$53, about 20% higher than the average of US\$44 last year. This projection assumes a relatively flat profile for oil prices in the months ahead. Nevertheless, in the short term, renewed uncertainties about the geopolitical situation in the Middle East and its impact on oil supply could inject some temporary volatility into global oil prices.

Chart 3.11
Overall Import Prices and Selected Components

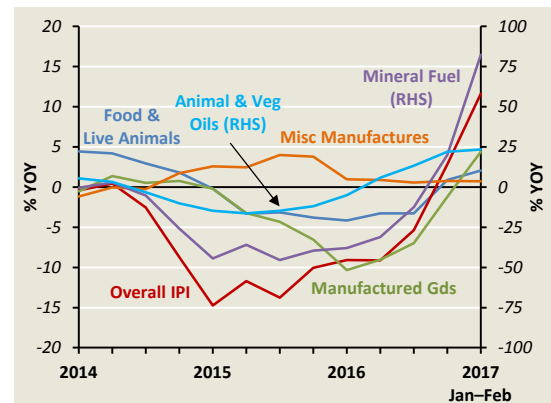
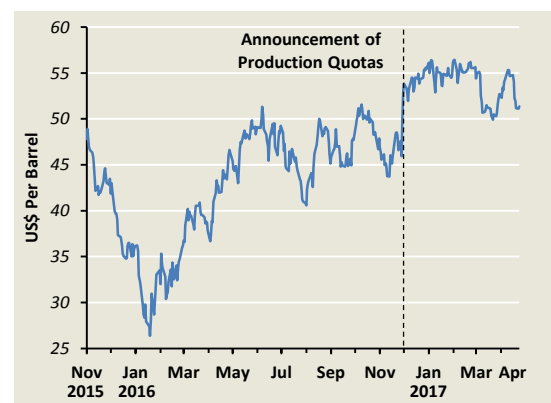
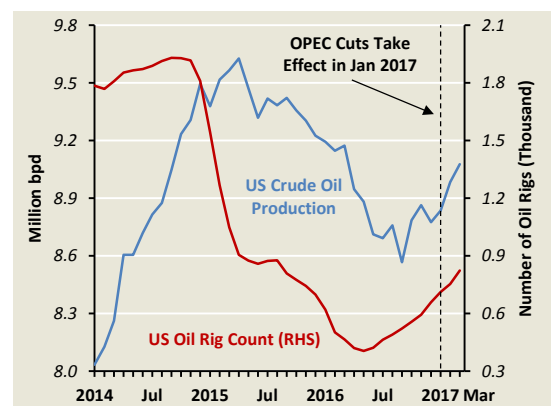


Chart 3.12
Global Brent Oil Prices



Source: Bloomberg

Chart 3.13
US Crude Oil Production and Number of Oil Rigs



Source: EIA and Baker Hughes

Amid tighter supply conditions, global food commodity prices have risen.

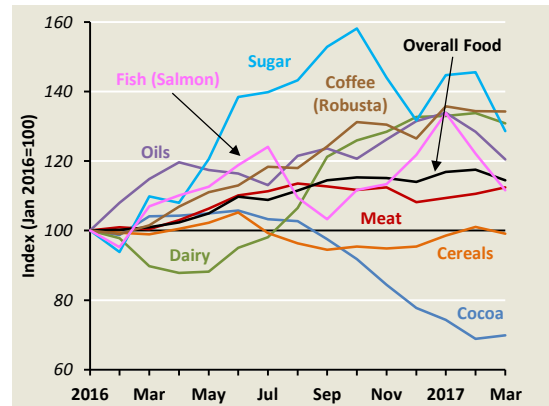
Global food commodity prices rose steadily over 2016 and in the first two months of 2017, before retreating slightly in March. This mainly reflected tighter supply for several key food commodities. For instance, sugar prices surged by around 30% over the past year following production shortfalls in Brazil. The prices of salmon, the world’s most exported fish, rose by around 20%, as algal blooms linked to hot weather from El Niño reduced salmon supply from Chile. Over the same period, dairy prices advanced by more than 30%, after a prolonged period of weak prices led to lower milk production in key producing regions. Also, more recently, meat prices have moved higher due to rising demand in Asia, as well as a spate of bird flu outbreaks in Asia and Europe. (Chart 3.14) Meteorological agencies have also warned that El Niño may return in the second half of 2017, adding some upside risk to the outlook.⁴

Singapore’s imported food prices typically respond quickly to changes in external prices and exchange rates.

The increase in global food prices has already begun to filter through to imported food and live animal prices, which rose by 2.0% y-o-y in the first two months of the year, in contrast to the 2.5% decline in 2016. (Chart 3.15) The responsiveness of imported food inflation to the pickup in global food prices over this period is consistent with the findings of MAS’ econometric work in Box B, which presents evidence of a large and relatively rapid rate of pass-through from foreign food prices to domestic import prices.

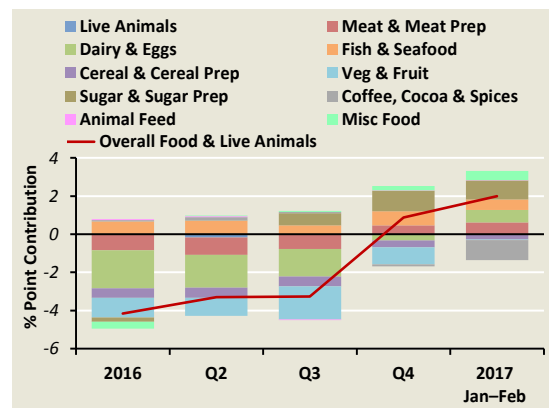
Chart 3.16 shows the retained import shares of Singapore’s top ten food import source countries, as well as their shares of each commodity type. Overall, Malaysia is the largest source of Singapore’s food imports at 20%, and it contributes around a third and more than 80% to domestic vegetable and egg imports respectively. Brazil, the leading exporter of beef and poultry in the world, accounts for about 36% of domestic meat imports. Meanwhile, most of Singapore’s fish and seafood are sourced from the region, with Malaysia, Vietnam and Indonesia having the largest market shares, while New Zealand and Australia together account for almost 50% of imported dairy products.

**Chart 3.14
Global Food Commodity Prices**

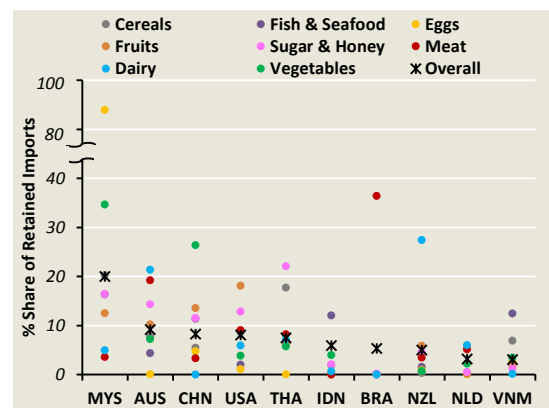


Source: UN Food and Agriculture Organisation, IMF

**Chart 3.15
Contribution to Imported Food Inflation**



**Chart 3.16
Share of Singapore’s Retained Food Imports by Country and Commodity, 2015**



Source: EPG, MAS estimates

⁴ For example, the Australian Bureau of Meteorology highlighted signs of developing El Niño conditions in their April ENSO report, indicating a 50% probability that it may occur in 2017.

Since Q2 2016, import prices of sugar, fish and seafood, meat and dairy and eggs have increased significantly (Chart 3.17). Chart 3.18 shows the changes in food prices in various countries, as well as their bilateral currency movements against the S\$. As can be seen from the first four bars, the price increase of the items above likely reflected a combination of strong price increases in Singapore’s main import sources, such as Brazil (meat), New Zealand (dairy), Indonesia (fish & seafood), and Australia (meat, dairy, sugar), as well as the depreciation of the S\$ against their currencies. In comparison, the strengthening of the S\$ against the Malaysian ringgit would have offset the increase in the country’s food prices.

However, higher import costs are passed on to consumer food prices more gradually.

Despite higher imported food prices, consumer prices for food items and services have been relatively benign over the past few months. Non-cooked food inflation moderated to 1.3% y-o-y in Q1 2017 from 2.3% in Q4 2016, reflecting a milder-than-usual seasonal pickup in food prices during the Chinese New Year festive period this year, as well as a high base in the previous year due to weather-related disruptions to the supply of perishable food items. Price increases of prepared meals also eased to 1.6% in Q1 2017, from 1.8% in Q4 2016, mainly reflecting the decline in sentiment-sensitive restaurant food inflation. Meanwhile, price increases for hawker food remained stable at 1.7%. (Chart 3.19)

Based on the findings presented in Box B, the transmission of a change in imported food prices to consumer prices tends to be fairly drawn-out, with the adjustment process taking place over several years. The extent of pass-through to consumer prices is also found to be cyclical, with retailers more likely to delay passing on an increase in costs when demand conditions are less robust. This may explain why food inflation has been relatively stable so far despite higher import costs. However, consumer prices of food could pick up in the coming quarters, especially if demand conditions improve.

For 2017 as a whole, overall food inflation is forecast to average around 2% y-o-y, compared to 2.1% in 2016, with the lower year-ago increase largely reflecting the high base in the previous year.

Chart 3.17
Components of Imported Food Prices

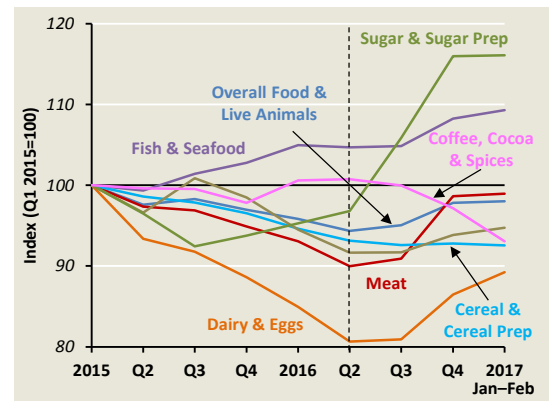
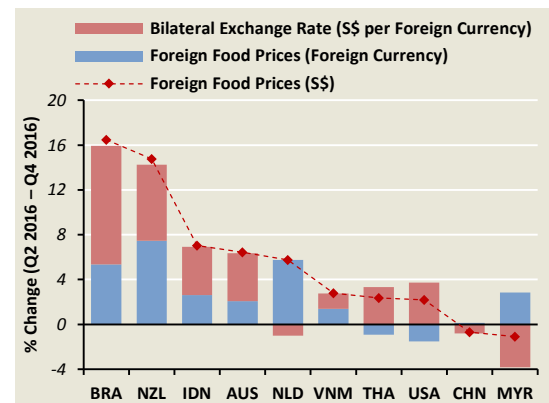
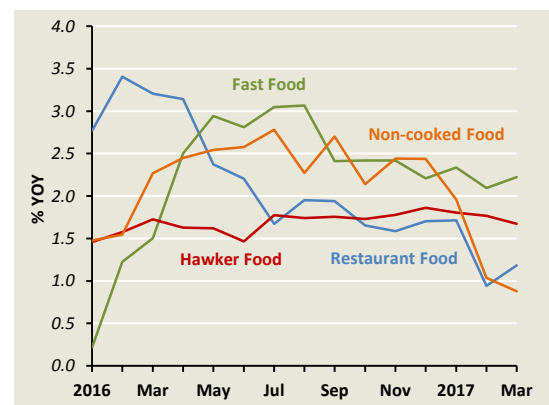


Chart 3.18
Changes in Foreign Food Prices in Foreign and Domestic Currency and S\$ Bilateral Exchange Rates



Source: Haver Analytics and EPG, MAS estimates
Note: Foreign prices for food items refer to food export prices, where available. In the absence of export data, producer or wholesale price indices were used instead.

Chart 3.19
Components of Food Inflation



Price pressures continue to be muted for discretionary services and retail goods.

Since 2016, the cost of essential services has risen steadily, accounting for most of the increase in the overall services CPI. (Chart 3.20) The prices of essential services are influenced more by underlying demographic and structural trends, rather than cyclical demand factors. As of Q1 2017, the rate of price increases for medical treatment, education, and domestic services appears to have stabilised at an average of around 3.5% y-o-y. (Chart 3.21)

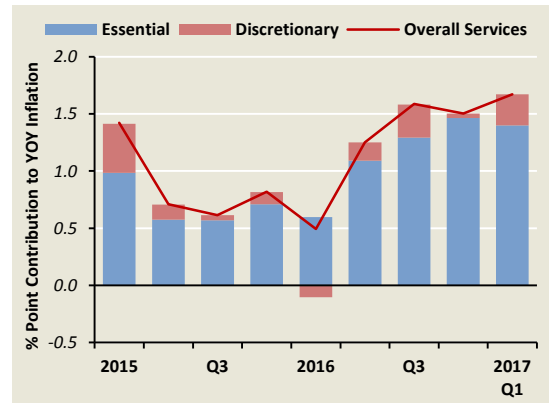
In comparison, underlying inflation for discretionary services has been muted due to weaker demand. Although a moderate pickup in the cost of discretionary services lifted overall services inflation to 1.7% in Q1 2017, from 1.5% in Q4 2016, this likely reflected a smaller year-ago decline in air fares after several airlines raised fuel surcharges following the oil price recovery. However, these increases are unlikely to be recurring unless oil prices rise on a sustained basis. Meanwhile, prices of other non-essential services, such as personal care (e.g., hairdressing and personal grooming fees) as well as recreation & entertainment (e.g., admission charges to concerts, cinemas, places of interest) remained subdued.

The overall price of retail goods fell by 0.5% y-o-y in Q1, following the marginal 0.1% increase in Q4 2016. Price declines were steeper for clothing & footwear and household durables, while price increases in other categories, such as newspapers, books & stationery and personal effects moderated. (Chart 3.22) This could partly be due to structural shifts in the retail industry, such as the increased competition from foreign retailers through e-commerce platforms, which put downward pressure on retail prices.

Overall consumer demand remains weak, and will temper price increases.

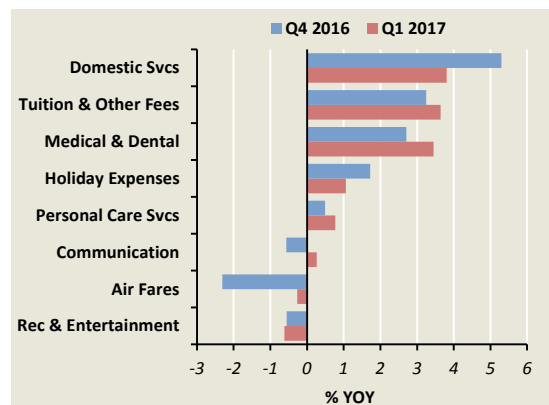
The ongoing trend of muted price increases in income-elastic segments, such as restaurant food, retail goods and recreational services, is taking place amid a decline in private consumption. With the exception of healthcare, education, housing & utilities, and accommodation services, private consumption growth has fallen and turned negative in many segments, including recreation & culture, communications, clothing & footwear, food & non-alcoholic beverages, and food services. (Chart 3.23)

Chart 3.20
Contribution of Essential and Discretionary Services to Overall Services Inflation



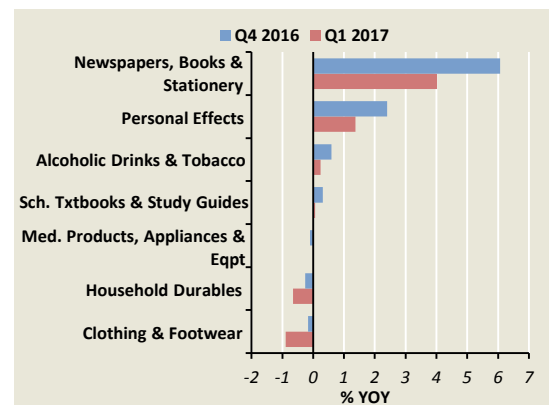
Source: EPG, MAS estimates

Chart 3.21
Price Changes of Selected Services CPI Components



Note: The components "Recreation & Entertainment" and "Communication" comprise mainly recreation & culture and telecommunications services, respectively, although they also include some retail good items.

Chart 3.22
Price Changes for Selected Retail CPI Components



Consumers in Singapore are generally cutting back on discretionary expenditure, possibly because of softer labour demand. Underlying demand-driven price pressures will, therefore, likely be subdued for some time, until the labour market strengthens.

Accommodation costs continued to dampen headline inflation.

The cost of accommodation fell by 4.0% y-o-y in Q1 2017, marking the eleventh consecutive quarter of decline. Amid slowing foreign worker inflows, rental demand has softened. While the vacancy rate in the private residential market has fallen gradually from its peak in Q2 2016, it remains elevated relative to historical levels. (Chart 3.24) Accordingly, the cost of accommodation is expected to remain on a downward trend and lower CPI-All Items inflation by 0.8% point in 2017.

Demand for cars and motorcycles remained firm.

Despite a significant 10% expansion in car COE quotas in the Feb–Apr quota period, average car COE premiums remained largely unchanged at around \$51,000 in Q1 relative to the previous quarter. Demand for COEs may have been supported by private hire car companies (PHCs) expanding their rental fleets, as well as car buyers bringing forward their purchases to avoid the new, more stringent Vehicular Emissions Scheme (VES) that comes into effect next year.⁵ (Chart 3.25) Motorcycle COE premiums also rose to a record high in March, following the introduction of a tiered Additional Registration Fee (ARF) structure for motorcycles, which imposes a higher tax rate on buyers of more expensive motorcycles.

The supply of car COEs, which depends on vehicle de-registrations, will decline slightly in the upcoming May–Jul quota period due to a fall in the number of car de-registrations.⁶ Broadly, the supply of COEs is projected to continue tapering off gradually based on the age distribution of cars in Singapore. (Chart 3.26) The tighter supply outlook is expected to provide a floor to COE premiums for cars and motorcycles in H2 2017.

Charts 3.23
Components of Private Consumption Expenditure

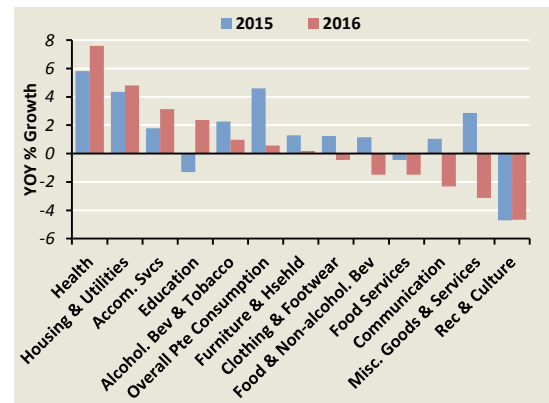


Chart 3.24
Private Rental Index, Vacancy Rate and Accommodation CPI

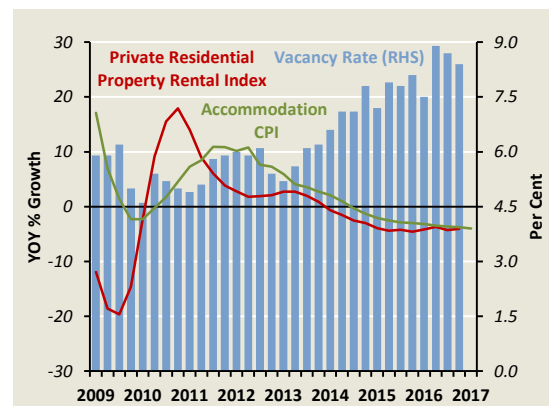
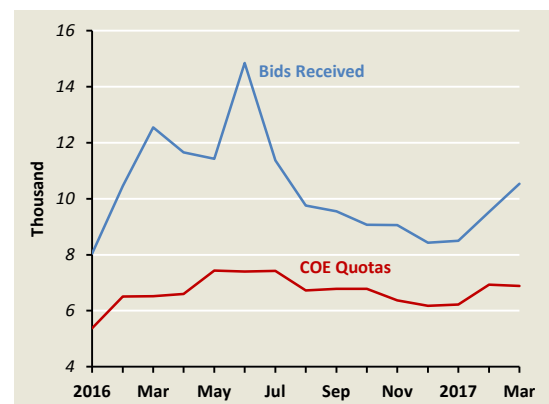


Chart 3.25
Car COE Quotas and Bids Received



⁵ The new VES will replace the current Carbon Emissions-based Vehicle Scheme (CEVS) on 1 January 2018. It is more stringent as it takes into account four new pollutants—hydrocarbons, carbon monoxide, nitrogen oxides and particulate matter—in addition to carbon dioxide, in determining the vehicle registration surcharge payable. Under the VES, prospective car owners may have to pay more for mass market vehicle models due to the revised emissions standards.

⁶ COE quotas for Category A and B will total 19,316 in May–Jul 2017, representing a slight 5.6% contraction from the 20,456 in the Feb–Apr 2017 quota period.

Administrative cost increases will contribute to a temporary pickup in inflation.

Since late last year, there have been a number of announcements on administrative price increases. Several have already come into effect, such as the upward revisions to car park fees in December 2016 and domestic refuse collection fees in January 2017. Other measures outlined in the FY2017 Budget—including the increases in water prices and service and conservancy charges (S&CC)—will be implemented later in the year. These will contribute to higher inflation in the short term, although subsidies such as the increase in U-Save and S&CC rebates will help to offset the impact of the administrative price increases for eligible households.⁷

These administrative cost measures are in line with the need to reflect the true underlying scarcity value of resources. Such measures would impart a temporary boost to inflation. For example, the water price hike is estimated to add around 0.1% point to both headline and core inflation in 2017, in its direct, “first-round” impact.⁸

Some mild increases are expected for services business costs ...

Alongside the turnaround in external prices, operating costs for firms are expected to increase mildly this year. Since 2015, broader business cost pressures have been dampened by lower rentals and freight rates, amid excess capacity in the real estate and shipping markets, respectively, and a decline in utilities costs as oil prices plunged. Although commercial and retail rentals have remained weak, other services costs have picked up in recent months, following the recovery in international freight rates given increased capacity utilisation, as well as higher utilities and transport costs due to the recovery in global oil prices. (Chart 3.27)

Administrative measures coming into effect this year, such as the increase in water prices and introduction of a volumetric diesel duty⁹, could add to overall transport and utilities costs for some firms.

Chart 3.26
Car De-registrations and Age Distribution of Cars

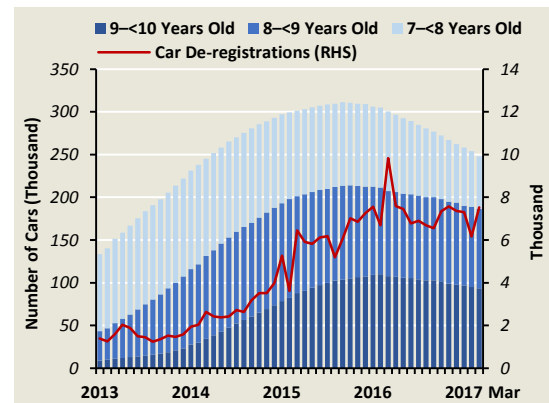
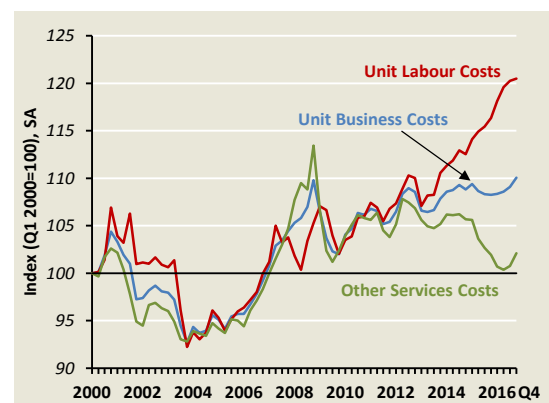


Chart 3.27
Components of Unit Business Costs for Services



Source: EPG, MAS estimates

⁷ The S&CC rebates are reflected in the CPI, but the U-Save rebates are not.

⁸ The combined weight of water in the overall CPI basket is 0.75%, comprising “Water Supply” in the “Others” category and “Sewerage Collection” in “Services”.

⁹ The introduction of a volumetric diesel duty in February was aimed at incentivising reduced diesel consumption. To mitigate the impact of the diesel duty, the annual Special Tax levied on diesel cars and taxis will be reduced permanently. Road tax rebates will also be provided over the next three years for diesel buses and goods vehicles, with additional cash rebates for owners of diesel school buses and eligible private hire or excursion buses used to ferry school children.

Businesses for which these cost components take up a larger share of their operating expenditure may experience stronger cost pressures. For example, businesses providing food services are likely to be relatively more affected by price increases for water, gas & electricity, given their more intensive use of utilities.

... but “second-round” effects are likely to be muted and the effective impact on inflation for this year should be small.

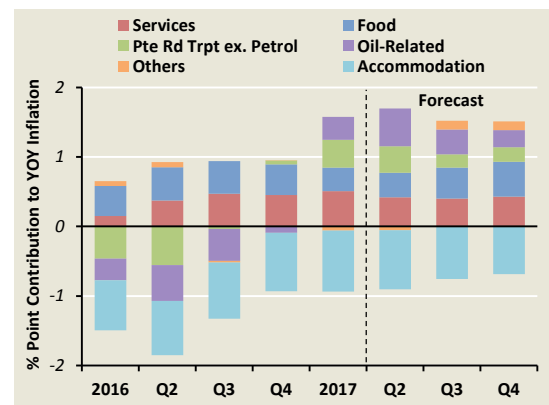
While firms will pass on some of these cost increases to consumers, the extent of pass-through is likely to be modest. Underlying demand-led inflationary pressures continue to be subdued, particularly for income-elastic goods and services, amid the soft and uncertain economic environment. As consumer sentiment remains cautious, the risk of significant upward price adjustments, and subsequent “second-round” effects, is expected to be low.

Consumer price inflation will rise in 2017, but stay below 2%.

In sum, supply-side cost increases will be the main driver of the pickup in inflation this year. (Chart 3.28) With the turnaround in global oil prices, oil-related items alone are expected to add 0.4% point and 0.3% point to CPI-All Items inflation and MAS Core Inflation this year, respectively, compared to their negative contributions in 2016. Meanwhile, other domestic supply-driven cost and price pressures have also emerged in the form of administrative price increases such as for water, as well as an uptick in imported food inflation. The extent of pass-through to consumer prices, however, is likely to be restrained by slack in the labour market and subdued growth conditions.

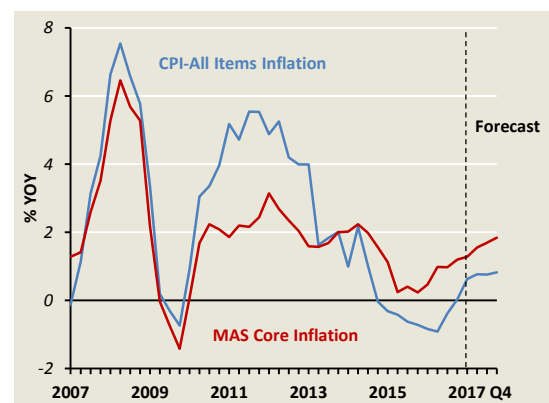
MAS’ inflation forecasts for 2017 remain unchanged from the October *Review*. MAS Core Inflation is projected to rise from 0.9% in 2016 to 1–2% this year. The forecast range for headline inflation is expected to be lower than that for core inflation, given the continued drag from accommodation cost. CPI-All Items inflation is projected to average 0.5–1.5%, compared to –0.5% in 2016. (Chart 3.29)

Chart 3.28
Contribution to CPI-All Items Inflation



Source: EPG, MAS estimates

Chart 3.29
CPI-All Items and MAS Core Inflation



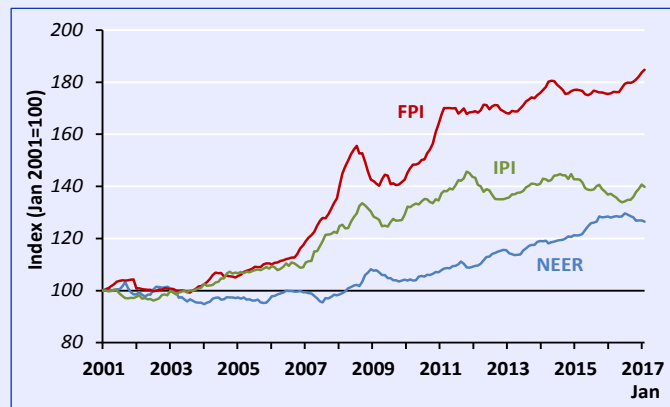
Source: EPG, MAS estimates

Box B An Empirical Analysis Of Food Price Pass-through In Singapore

Introduction

Amid a turnaround in global commodity prices, Singapore's import prices have picked up in recent quarters. Most of these price pressures have been concentrated in energy-related items following the recovery in the global oil market, but there are some indications of rising inflation in food commodities as well. Given the importance of food in the household consumption basket, this is likely to have a significant influence on consumer perceptions of overall inflation. This Box adopts the empirical framework of a related Monetary Authority of Singapore (2009) study to examine the pass-through of external food prices and exchange rate movements to imported food prices at the border ("first stage pass-through"), and the subsequent transmission to final consumer prices for food items ("second stage pass-through").

Chart B1
Foreign Price Index, Import Price Index and S\$NEER for Food



Source: EPG, MAS estimates

First Stage Pass-through from External Prices to Import Prices

Chart B1 shows the relationship between foreign food prices^{1/} (FPI^{food}), the S\$ exchange rate^{2/} ($NEER^{food}$), and Singapore's food import prices denominated in S\$ (IPI^{food}). Since 2001, domestic food import prices have generally moved in tandem with external food prices, given Singapore's high reliance on external food sources. However, alongside a trend appreciation of the S\$NEER, domestic import prices have remained lower than external food prices. This suggests that the strengthening of the S\$NEER would have helped to temper the impact of external price shocks on imported food inflation.

The theoretical basis for measuring pass-through in an error-correction framework is the purchasing power parity (PPP) theory, which suggests that import prices, exchange rates, and foreign prices have a stable long-run relationship and should be cointegrated—in other words, a linear combination of these variables should be stationary, implying that they gradually adjust to restore their long-run equilibrium relationship following short-run deviations from PPP. This was the theoretical basis for the empirical specification in MAS (2009) below:

$$IPI^{food} = \frac{(FPI^{food})^{\alpha}}{(NEER^{food})^{\beta}} \quad \text{with } 0 \leq \alpha \leq 1 \text{ and } 0 \leq \beta \leq 1 \quad (1)$$

^{1/} The weighted index of foreign food prices (FPI^{food}) is constructed using the export, wholesale or producer price indices of countries that account for close to 90% of Singapore's retained imports of food.

^{2/} The nominal effective exchange rate for food ($NEER^{food}$) is weighted using the bilateral country shares of Singapore's retained food imports.

A logarithmic transformation can be applied to equation (1) to obtain:

$$ipi_t^{food} = \phi + \alpha fpi_t^{food} + \lambda neer_t^{food} \quad \text{with } \lambda = -\beta, \quad (2)$$

$$0 \leq \alpha \leq 1 \text{ and } 0 \leq \beta \leq 1$$

where variables in lowercase denote logarithms, and α and λ refer to the elasticities of import prices with respect to foreign food prices and the exchange rate, respectively. A markup in percentage terms for the exporting firm, ϕ , is also added. Specifically, the analysis seeks to determine if the pass-through from movements in foreign food prices and the exchange rate into domestic food import prices is complete in the long run, i.e., $\alpha = 1$ and $\lambda = -1$. After statistical tests confirmed the presence of a cointegrating relationship, an error-correction model was specified to capture both the rate of long-run pass-through and the short-run adjustment dynamics of the three variables.

The results show that the pass-through from exchange rates to food import prices is significant, but incomplete in the long run. An appreciation of the S\$NEER by 1% was found to reduce food import prices by 0.63% in the long run, implying only partial exchange rate pass-through to food import prices, compared to the complete pass-through for overall import prices found in MAS (2009).^{3/}

One possible explanation is the prevalence of local currency pricing, whereby exporters set prices based on the currencies and prevailing conditions in their respective export markets. Given that the invoicing currency is likely to be a good proxy for the currency in which exports are priced, Gopinath (2016) shows that goods invoiced in a foreign currency tend to have higher pass-through to domestic currency prices as compared to goods invoiced in the home currency. Although there is no available data on the currency of invoicing of Singapore's imports to empirically estimate this effect, anecdotal feedback from food wholesalers indicates that they trade mainly in the Singapore dollar as it is a stronger and more stable currency vis-à-vis other regional currencies.^{4/} In addition, incomplete pass-through of exchange rate movements to import prices at the border may also result from long-term hedging contracts by importers. This helps firms reduce exposure to fluctuations in the exchange rate, which may allow firms to delay—and possibly avoid—passing on exchange rate movements to prices.

Similarly, the pass-through of foreign food prices to domestic import prices for food was also incomplete in the long run. However, the estimated long-run coefficient was larger than that for the exchange rate pass-through. For a 1% increase in foreign food prices, food import prices increase by 0.86%, with the relatively large coefficient likely reflecting Singapore's role as a price-taker for food in international markets. Incomplete pass-through of foreign food prices could arguably reflect compositional differences between the baskets of goods captured in the foreign price index and each source country's exports to Singapore.

The estimated long-run equation (2) was then embedded within an error-correction model to capture the short-run dynamics of domestic import prices. The estimation results indicate that the effects of changes in the exchange rate and foreign prices are fully passed on to domestic import prices within a year. A 1% appreciation in the exchange rate filters through fairly rapidly to domestic food import prices—import prices fall by 0.32% in the initial quarter, with the full 0.63% achieved by the end of the first year. In comparison, a 1% increase in foreign food prices causes domestic food import prices to rise by 0.18% in the initial quarter, and the long-run impact of 0.86% is achieved by the fourth quarter.

^{3/} The magnitude of pass-through from exchange rate movements to food import prices is comparable to other estimates in the literature. For example, Campa and Goldberg (2005) estimate the extent of exchange rate pass-through into the food import prices of 23 OECD countries using an autoregressive distributed lag (ARDL) model. The average long-run pass-through elasticity across countries is 0.65, similar to our estimates.

^{4/} For example, in a Straits Times article published on 27 June 2015, several wholesalers were quoted as saying that they traded mainly in the Singapore dollar due to its strength and stability relative to the Malaysian ringgit.

Second Stage Exchange Rate Pass-through to Consumer Prices

The second stage of the exchange rate pass-through involves the transmission of changes in food import prices to retail consumer prices. Typically, final consumer prices do not respond one-for-one to a given change in import prices. This is because under standard production assumptions in a cost mark-up model, the price of a consumer food product is represented by a mark-up over the marginal cost of the product—which can, in turn, be decomposed into tradable primary food components proxied by the import price index for food items, as well as non-tradable services such as distribution, local processing, storage, and marketing. In this model, the pass-through of import prices to final consumer products depends on the share of imported inputs in the final product.

Accordingly, the second stage pass-through process can be represented by the following equation, which expresses the CPI for non-cooked food items as a mark-up over domestic unit labour costs and the import prices of food items.

$$CPI_t^{food} = \psi (ULC_t)^\eta (IPI_t^{food})^\gamma \tag{3}$$

A logarithmic transformation can be applied to the equation to obtain:

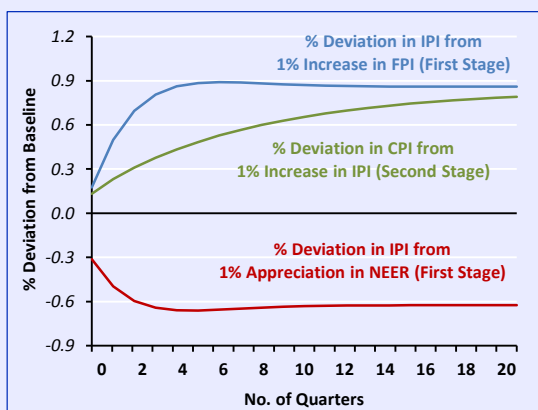
$$cpi_t^{food} = \nu + \eta ulc_t + \gamma ipi_t^{food} \quad \text{with } \nu = \ln(\psi) \tag{4}$$

where ν represents the percentage of retail mark-up over costs, and η and γ denote the elasticities of the CPI for non-cooked food items with respect to domestic ULC and the import price index for food, respectively.

The results show that within the sample period, a 1% increase in import food prices contributes 0.84% to a rise in the CPI for non-cooked food on average, compared to 0.55% for a similar increase in the ULC. The larger long-run elasticity for import prices relative to ULC is broadly consistent with the high import content of non-cooked food items in the CPI basket relative to non-tradable input costs (e.g., costs and mark-ups related to distribution and wholesaling activities, such as transport or freight).

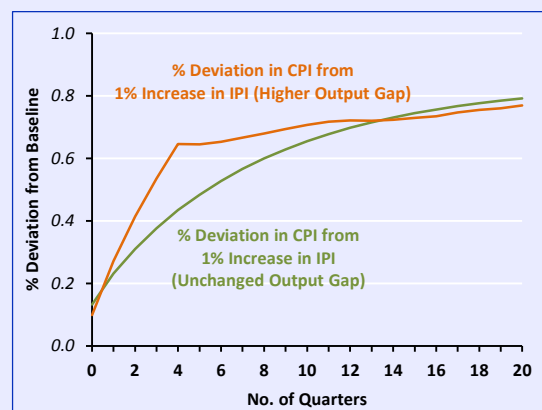
Notably, the short-run error-correction model finds that the transmission of a change in food import prices to consumer prices is more drawn-out compared to the first stage. Following a 1% increase in food import prices, about half of the long-run pass-through rate of 0.84% is reflected in consumer prices after four quarters, and the full long-run pass-through is achieved only after more than 16 quarters. (Chart B2)

Chart B2
Impulse Responses to a 1% Change in
FPI, NEER and IPI



Source: EPG, MAS estimates

Chart B3
Percentage Deviation in the CPI from a 1%
Change in IPI Under Different
Output Gap Levels



Source: EPG, MAS estimates

One possible explanation for the slow adjustment of consumer prices to changes in food import prices could be the extended distribution network. Imports are first purchased by wholesalers who, in turn, distribute them to other wholesalers or retailers. At each level of the supply chain, firms face different competitive conditions which, in turn, affects their mark-ups and pricing decisions.^{5/} Strategic interactions between firms could lower cost pass-through as firms are unwilling to adjust prices immediately in response to a cost shock for fear of losing market share, and may instead opt to adjust their profit margins. Other possible reasons include frictions associated with changing prices, as well as fixed-term contracts which insulate retailers from short-run fluctuations in import prices, or limit their ability to immediately pass on an increase in costs. Collectively, these factors are likely to attenuate the speed of pass-through at the second stage.

To capture the cyclical behaviour of pass-through to consumer prices, the output gap and changes in its level were included in the set of explanatory variables in the short-run error correction model. There is evidence that both the level and change in the output gap affect domestic inflation outcomes for non-cooked food items, with the signs of the estimated coefficients suggesting that retailers appear to pass on import cost increases more quickly to consumers when economic growth is strong. However, this is slightly more muted for food items, as compared to the aggregate estimates published in MAS (2009). Chart B3 shows the simulated path of adjustment, when a similar 1% increase in the IPI coincides with a higher output gap level in the first year (of +1% of potential GDP).

Sum-up

An appreciation of the S\$NEER helps to temper external food price pressures at the borders, by lowering food import prices by close to 30% in the immediate period, and 63% in the long run. Meanwhile, given Singapore's role as a price taker for food, the pass-through of global food price changes to import prices is relatively high, at about 86% in the long run. However, local currency pricing for certain food imports from the region may imply that some import prices are relatively insensitive to an appreciation of the S\$NEER. In view of the high import content of non-cooked food items in the CPI basket, the long-run elasticity of final consumer food prices to a change in imported food prices is higher than for non-tradable labour costs. In the long run, a 1% rise in import prices of food would result in a 0.84% increase in the non-cooked food CPI. However, changes in import prices filter to consumer prices with a delay, and the full pass-through is achieved only after several years. The speed of pass-through is also found to depend on demand conditions, with retailers less likely to fully pass on cost increases when there is greater slack in the economy.

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^{5/} A recent paper by Hong and Li (2017) examines pass-through from commodity to retail prices in the US using product-level scanner data. The authors find evidence that vertical integration contributes to higher cost pass-through as it reduces the incidence of double-marginalisation, i.e., how firms across different stages of the supply chain apply their own mark-ups to their output.