

## Inflation and the Cost of Living

This article briefly highlights the differences between Consumer Price Index (CPI) inflation and the cost of living. It also presents analyses of the differences in inflation rates across various income groups and across states in Malaysia, and an assessment of the growth in income and expenditure of Malaysian households, using data from the 2014 Household Income and Basic Amenities Survey (HIS/BA), the 2014 Household Expenditure Survey (HES) and the disaggregated state-level CPI data.

### I. Differences between CPI inflation and the cost of living

**The inflation rate, as measured by the change in the Consumer Price Index (CPI)**, reflects the average rate of increase in the price of a basket of goods and services. The CPI is constructed by assuming that there is a single basket of goods and services which represents the consumption basket of all households in the country<sup>1</sup>. Prices of goods and services that are used to construct the CPI are the average prices collected from retail outlets across the country. Thus, the CPI captures the average increase in prices with the assumption of homogeneity of spending patterns across households and holding the quantity and quality of the goods and services in the consumption basket as constant. As the CPI reflects average prices in the economy, it provides a good measure of the changes in the overall price level of goods and services in the economy. As such, it is a relevant and useful indicator for the conduct of macroeconomic policies, such as monetary policy, that aim to affect the broader economy.

**The cost of living**, on the other hand, refers to the amount of expenditure on goods and services incurred by households, including their financial obligations, to maintain a certain standard of living<sup>2</sup>. This spending or cost of living is determined by both household spending patterns and the prices faced by households. Spending patterns differ across households as the patterns are primarily influenced by household income, demography, family structure and area of residence<sup>3</sup>. Price changes faced by households, in turn, vary by geographical factors.

As the CPI masks the heterogeneity in household spending patterns and the variations in price changes of goods and services faced by households, the inflation rate is considered as an approximation of the rate of increase in the cost of living. To the extent that the dispersion in spending patterns and variation in price changes are insignificant, the CPI is a reasonable gauge of the cost of living. In a situation where the dispersion in spending patterns and price changes are large, the inflation rate could be a weak approximation of the rate of increase in the cost of living. In this regard, the CPI could understate or overstate the cost of living for some segments of households<sup>4</sup>. Given the heterogeneity in spending patterns and significant variations in the prices of goods and services, a more meaningful analysis of the cost of living requires assessing changes in spending patterns and costs across the various household categories and geographical locations. The most common dimension is to assess the changes in the cost of living over time, across different income groups and across states or regions in a country.

### II. An analysis of the cost of living using household surveys and disaggregated CPI data

Using data from the Household Income and Basic Amenities Survey (HIS/BA) and the Household Expenditure Survey (HES)<sup>5</sup> for 2009 and 2014; as well as the disaggregated state-level<sup>6</sup> CPI data, this

<sup>1</sup> The composition of goods and services in the CPI basket and their respective weights are determined based on the aggregate household expenditure patterns obtained from a nationwide expenditure survey. In Malaysia, the CPI basket is revised every five years based on the Household Expenditure Survey as per international practice. The latest CPI weights, based on the 2014 survey, were released in January 2016.

<sup>2</sup> The standard of living measures the quality of life or the level of material prosperity enjoyed by individuals.

<sup>3</sup> Other factors could include education level and ethnicity.

<sup>4</sup> Empirical studies show that the CPI can also at times overstate the cost of living because of substitution bias. Due to the fixed CPI basket, it may not capture the substitution to cheaper goods and services, which could effectively lead to a decline in cost of living, despite higher prices.

<sup>5</sup> Both the HIS/BA and the HES are carried out using a personal interview approach, covering urban and rural areas for all states. The surveys are carried out by probability sampling that represents all households in Malaysia.

<sup>6</sup> CPI by states is published by the Department of Statistics, Malaysia, with data series available since 2011.

study analyses the cost of living for different groups of households in Malaysia. The HIS/BA is conducted every two to three years to collect statistics pertaining to the pattern of income distribution of Malaysian households. The HES is conducted once every five years to collect comprehensive information on the level and pattern of consumption expenditure of households.

Chart 1 shows the differences in spending patterns across different income groups for households in Malaysia based on the most recent HES survey. The lower income groups allocate more of their expenditure to food, and less to transport, healthcare, education and discretionary spending compared to the higher income groups. Households in highly urbanised states<sup>7,8</sup> such as Kuala Lumpur and Selangor spend more on housing, whereas households in the less urbanised states<sup>9</sup> such as Pahang and Kelantan spend more on food.

**Chart 1**

### Household Consumption Basket by Income Groups and States



\*Discretionary spending includes spending on alcoholic beverages and tobacco, clothing and footwear, furnishings, household equipment and routine household maintenance, communication, recreation services and culture, restaurants and hotels and miscellaneous goods and services.

Note: 1. The highly urbanised states have urbanisation level of above 70%, semi-urbanised states between 55% to 69% and less urbanised states below 55%.  
2. Expenditure in the food and non-alcoholic beverages category includes expenditure for food away from home.

Source: 2014 Household Expenditure Survey, 2010 Population and Housing Census of Malaysia (Census 2010) and Bank Negara Malaysia estimates

Prices may also vary significantly across different locations. Differences in prices reflect mainly variations in distribution, labour and rental costs, and relative demand and supply conditions. For example, based on the state-level CPI data published by the Department of Statistics Malaysia, rental rates in the more highly urbanised states are typically higher and increase at a faster rate than the less urbanised states. Similarly, price increases particularly in the food and non-alcoholic beverages, restaurants and hotels, education and recreation services and culture categories are also generally higher in the highly urbanised states. As a result, highly urbanised states such as Kuala Lumpur, Johor, Pulau Pinang and Selangor registered higher inflation rates (Table 1).

Household inflation rates for 2016 are derived by combining the information obtained from spending patterns across income groups and the price changes across states (Table 2). The findings show that inflation rates do vary across households and can be materially different from the national average.

<sup>7</sup> Highly urbanised states are states that register urbanisation levels of above 70%. The level of urbanisation is computed in the 2010 Population and Housing Census of Malaysia (Census 2010). These states include Kuala Lumpur, Selangor and Putrajaya, Pulau Pinang, Melaka and Johor.

<sup>8</sup> For the purpose of this article, the definition of states refers to the 13 states and three federal territories, as categorised in the HIS and HES.

<sup>9</sup> The less urbanised states are states that register urbanisation levels of below 55%. These states include Sabah, Sarawak, Pahang and Kelantan.

Table 1

## Inflation by States based on Level of Urbanisation in 2016

	Highly urbanised states	Semi-urbanised states	Less urbanised states
	Average inflation (%)		
<b>Total</b>	<b>2.5</b>	<b>1.6</b>	<b>1.4</b>
Food and non-alcoholic beverages	4.6	3.6	2.9
Alcoholic beverages and tobacco	17.0	18.0	17.4
Clothing and footwear	-0.7	-0.4	-0.5
Housing, water, electricity, gas and other fuels	2.8	1.8	1.9
Furnishings, household equipment and routine household maintenance	3.0	2.1	1.6
Health	2.7	2.4	2.5
Transport	-4.1	-5.2	-5.5
Communication	-1.0	-1.4	-2.3
Recreation services and culture	2.7	1.7	1.6
Education	2.3	0.9	2.1
Restaurants and hotels	2.9	2.1	2.1
Miscellaneous goods and services	3.2	2.8	2.3

Source: Department of Statistics, Malaysia, and Bank Negara Malaysia estimates

- Higher inflation rates in the highly urbanised states.** The national average inflation rate was generally lower than inflation rates of households in highly urbanised states such as Kuala Lumpur, Selangor and Putrajaya, Pulau Pinang and Johor in 2016. Households in these states account for 43% of the total population of Malaysia. The national average inflation rate was higher than the inflation rates experienced by households in some semi- and less urbanised states, namely Perak, Kedah, Perlis, Sabah and Sarawak. Households in these states account for 36% of the total Malaysian population.
- Higher inflation rates for the lower income groups across most states in Malaysia.** Households in the bottom 20% of the income group experienced inflation rates that were 0.12 to 1.12 percentage points higher than households in the top 20% of the income group. As the lower income groups spend a larger share of their expenditure on food, they experienced higher inflation due to the higher food inflation in 2016 (3.9%, 2015: 3.6%). The lower income groups also benefitted less from the decline in domestic fuel prices during the year given the lower share of expenditure on fuel. Thus, the lower income households living in highly urbanised states tend to experience the largest increase in their cost of living<sup>10</sup>.

The change in the cost of living was also assessed using the actual household expenditure data from the 2014 HES. Based on this analysis, aggregate household expenditure, including for financial obligations<sup>11</sup>, rose at a compounded annual growth rate (CAGR) of 8.5% during the period 2010 - 2014. The higher expenditure growth relative to the CAGR of CPI of 2.6% for the same period suggests that growth in expenditure was not only driven by higher prices, but also by an increase in the volume of consumption of goods and services. The strong growth in expenditure was observed across all income groups (Chart 2). Aggregate discretionary spending, in particular, rose strongly by 9.0% (Chart 4), contributed mainly by higher spending on restaurants and hotels, recreational services and communication (Chart 5).

<sup>10</sup> This finding holds for the period 2011-2016.

<sup>11</sup> Financial obligations include transfer payments such as contribution to the Employee Provident Fund (EPF) and income tax payments; as well as the repayment of loans.

**Table 2**

**CPI Inflation by States and Household Income in 2016 (Annual change,%)**

		Income percentile				
		Bottom 20	21-40	41-60	61-80	Top 20
<b>MALAYSIA</b>		<b>2.09</b>				
Highly urbanised states	Kuala Lumpur	2.91	2.79	2.68	2.65	2.63
	Selangor & Putrajaya	2.45	2.27	2.10	2.02	1.78
	Pulau Pinang	2.73	2.52	2.43	2.35	2.11
	Melaka	2.57	2.30	2.35	1.78	1.44
	Johor	2.90	2.65	2.68	2.54	2.12
Semi-urbanised states	Negeri Sembilan	2.13	1.99	1.94	1.57	1.11
	Perak	1.58	1.50	1.34	1.27	1.01
	Kedah & Perlis	2.10	1.84	1.68	1.47	1.04
	Terengganu	1.88	1.85	1.81	1.73	1.17
Less urbanised states	Sabah & Labuan	1.09	0.87	0.81	0.57	0.45
	Sarawak	1.97	1.71	1.62	1.51	1.36
	Pahang	2.33	2.01	1.95	1.56	1.42
	Kelantan	1.97	1.67	1.53	1.44	1.04

*Inflation tends to be higher for more urbanised states*

*Inflation tends to be higher for lower income groups*

- Inflation higher than national average by 0.20
- Inflation within the national average by +/- 0.20
- Inflation lower than national average by 0.20

- Note: 1. The highly urbanised states have urbanisation level of above 70%, semi-urbanised states between 55% to 69% and less urbanised states below 55%.  
 2. While the urbanisation level is high in Labuan, its inflation rate is reported together with Sabah as the expenditure patterns and prices of goods and services in the two states are similar.  
 3. Household inflation rates are derived based on the share of household expenditure by category obtained from the 2014 Household Expenditure Survey and the disaggregated state-level inflation rates.

Source: 2014 Household Expenditure Survey, Department of Statistics, Malaysia and Bank Negara Malaysia estimates

The growth in aggregate expenditure was accompanied by an increase in aggregate household income, which increased by a CAGR of 8.8% during the same period. On average, the level of income exceeded that of expenditure for all income groups, allowing households to save a portion of their income (Chart 3). However, a more detailed analysis of the disaggregated data from the 2014 HIS/BA and 2014 HES reveals the following:

- **Dissaver households.** There are households, mainly from the lower income groups, that spend more than their income.
- **The bottom 40% of households<sup>12</sup>.** Financial obligations of these households, including loan repayments, have registered relatively strong growth. Consequently, these households, who only have a relatively small amount of savings<sup>13</sup>, are vulnerable to both income and price shocks.

<sup>12</sup> The bottom 40% of households are households which fall under the bottom 40% of the nation's income distribution, which is below RM3,649 based on the 2014 HIS/BA.

<sup>13</sup> About 28% of the bottom 40% of households do not save on a monthly basis, while 11% of them save RM100 or less a month.

**Chart 2**

**Growth in Average Household Income and Expenditure\***

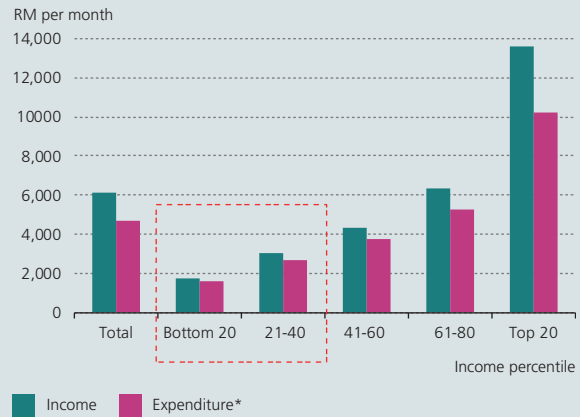


\*Including financial obligations

Source: 2014 and 2009 Household Income and Basic Amenities Survey, 2014 and 2009 Household Expenditure Survey, and Bank Negara Malaysia estimates

**Chart 3**

**Average Household Income and Expenditure\***

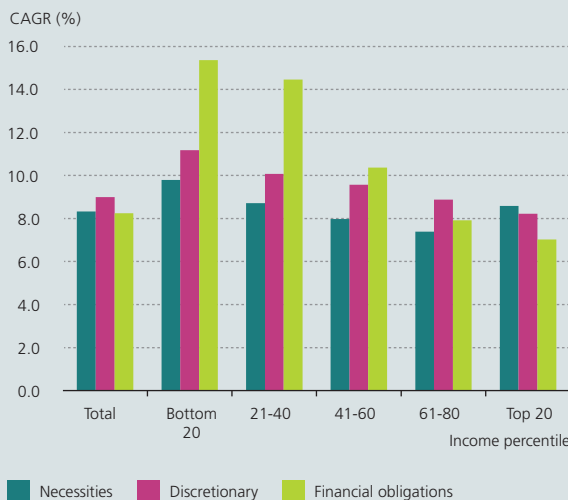


\*Including financial obligations

Source: 2014 Household Income and Basic Amenities Survey, 2014 Household Expenditure Survey, and Bank Negara Malaysia estimates

**Chart 4**

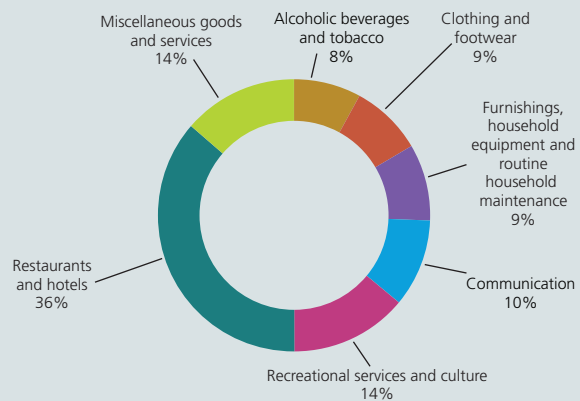
**Growth in Average Household Expenditure by Type**



Source: 2014 and 2009 Household Expenditure Survey and Bank Negara Malaysia estimates

**Chart 5**

**Contribution to Growth in Discretionary Spending**



Source: 2009 and 2014 Household Expenditure Survey and Bank Negara Malaysia estimates

- **Households earning fixed incomes, including pensioners.** While aggregate income grew at an average of 8.8%, there are segments of the total population who experienced a much lower or no income growth.

The analysis has shown that the inflation rates experienced by households vary due to differences in spending patterns and price changes. In particular, households in the lower income groups living in highly urbanised states experienced higher inflation. At the aggregated level, the rise in the cost of living, on average, has been accompanied by a commensurate increase in income. At a disaggregated level, however, analysis of both income and expenditure data shows that there are segments of the society that are vulnerable to the increase in the cost of living, and these are households who dissaved; the bottom 40% of households; and households earning fixed incomes.

## Conclusion

In addressing the issue of the rising cost of living, the policy approach must be multi-dimensional, including measures to address the challenges of urbanisation such as housing and connectivity, improving financial education and awareness, and enhancing productivity and income. Of importance, greater efforts would need to be directed at increasing the productivity level of Malaysians through the adoption of modern technology and increasing the skills of workers through access to better education and training. This would enable Malaysians to move up the value chain towards higher value-added jobs to achieve higher income and hence, afford a higher standard of living.

## References

Boskin M J, E R Dulberger, R J Gordon, Z Griliches, D W Jorgensen (1998). 'Consumer Prices, the Consumer Price Index, and the Cost of Living', *Journal of Economic Perspectives*, Vol 12, No 1.

Department of Statistics, Malaysia (2014). 'Household Expenditure Survey'.

Department of Statistics, Malaysia (2014). 'Household Income and Basic Amenities Survey'.

Department of Statistics, Malaysia (2009). 'Household Expenditure Survey'.

Department of Statistics, Malaysia (2009). 'Household Income and Basic Amenities Survey'.

Jacobs D, Perera D, Williams T (2014). 'Inflation and the Cost of Living', *Reserve Bank of Australia Bulletin (March Quarter)*.

Phillips B, J Li, M Taylor (2012). 'Prices These Days! The Cost of Living in Australia', *AMP/NATSEM Income and Wealth Report*, Issue 31, May, Sydney, AMP.

Schultze C, Mackie C (Eds.) (2002). 'At What Price?: Conceptualizing and Measuring Cost-of-Living and Price Indexes, Panel on Conceptual, Measurement, and Other Statistical Issues in Developing Cost-of-Living Indexes', Committee on National Statistics, Division of Behavioral and Social Sciences and Education, National Research Council, National Academy Press, Washington D.C.