REFSA Notes

#07/July 2022

DECONSTRUCTING ECONOMIC INDICATORS: INFLATION

Jaideep Singh
Researcher, REFSA

July, 2022

Inflation is, at its essence, an **increase in the price level** of goods and services in an economy over a given period.

It is arguably the most concrete economic indicator to conceptualise due to its relevance to consumers' everyday lives. Yet there is often a **mismatch** between the official rate of inflation and the perceived rise in the cost of living among laypeople. Why is this the case, especially right now in Malaysia?

To answer this question, we must first identify the causes of inflation and critically review the methodology for measuring inflation.

REFSA Notes

CAUSES OF INFLATION

Economic theory tends to differ on the origins of inflation, but they can usually be boiled down to two key factors:

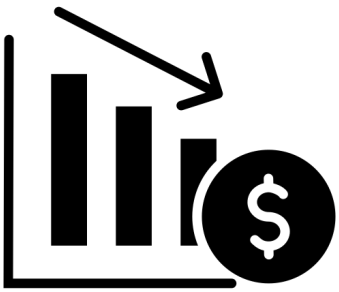
Demand-pull inflation: when overall demand for goods in an economy outpaces the market's ability to supply the goods, there is upward pressure on prices. This is described as "*too much money [spent] chasing too few goods*". There are two major sources of demand-pull inflation:

- A *shock* in the economy. For example, the pent-up demand for travel following the relaxation of lockdown has an inflationary effect in the short-run when supply cannot keep up

- *Expansionary policy* either through government policy (an increase in spending or tax cuts) or central bank policy (lowering interest rates to encourage borrowing for investment and spending). This effectively injects more money into the economy, whether directly or indirectly, for the same amount of goods in the short-run

Cost-push inflation: when production costs rise due to growing input costs, more expensive imports or higher wages, producers raise prices charged to consumers to maintain profitability. Input costs in turn can rise due to supply-side shortages caused by geopolitical, meteorological or manpower issues. For example, the war in Ukraine has disrupted global exports of commodities like sunflower oil and wheat, which have raised the cost of food products like pasta and bread.

How exactly have local and global conditions produced demand-pull and cost-push inflation in recent times?



MAJOR GLOBAL INFLATIONARY PRESSURES TODAY

Current situation

The **cost-of-living woes** that have been hitting the headlines in the past few weeks are **not confined to Malaysia** (see figures 1(a) and (b) below).

Across more than half of the G20 economies, including the US, the UK, India and Mexico, annual inflation rates have exceeded 7% as of May 2022.

In fact, based on official figures alone, which are subject to debate as we will discuss later, Malaysia's inflation rate of 2.8% appears to be well below the average in the G20 and ASEAN.

Figure 1a: **Annual change in consumer price index in major economies, May 2022**

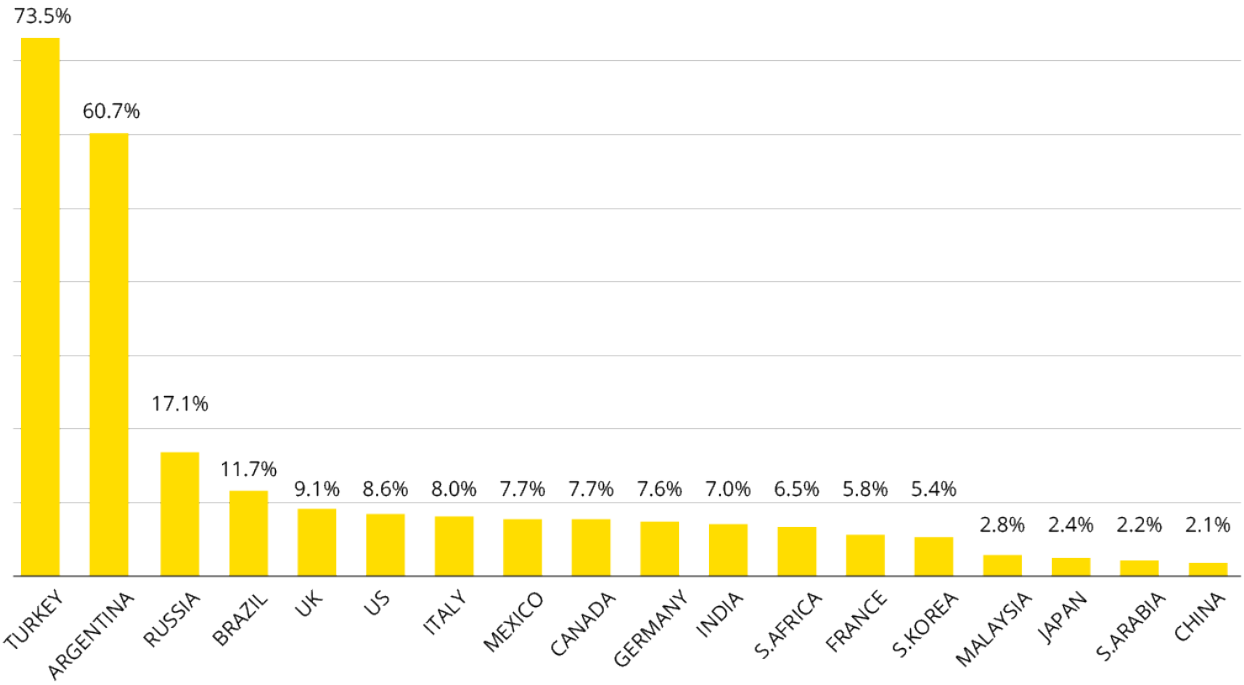
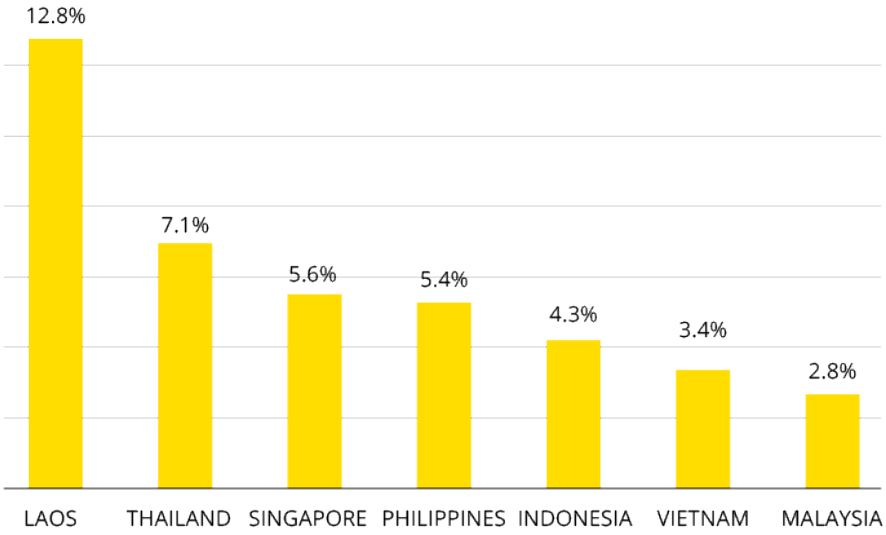


Figure 1b: **Annual change in consumer price index in ASEAN, May 2022**



Source: Financial Times (2022). Note that data for Vietnam is from June 2022

What is causing the current rise in prices?

Some of the biggest inflationary pressures facing the world today include:

Pressure	Cause(s)	Effect(s)
Rising commodity prices	• *Demand-pull:* surge in **demand for oil** as travel and transportation recovers to pre-pandemic levels • *Cost-push*: the **war in Ukraine**, and the ensuing sanctions on Russia, slashed production and export of oil, wheat, etc.	• Higher oil prices lead to higher energy and transport costs • Higher wheat prices lead to higher food costs
Supply chain disruptions	• *Demand-pull*: high **pent-up demand** following the end of lockdowns, compounded by **stimulus measures** that • have accelerated consumption *Cost-push*: **persistent lockdowns in China** as well as **global labour shortages** due to retrenchments since the start of the pandemic. ▪ In Malaysia specifically, flooding due to poor weather in late 2021 to early 2022 affected the supply and delivery of produce	• Firms cannot fulfil orders, leading to shortages of raw materials and higher overall input costs
Base effect	• Inflation was low in 2020 and for part of 2021, meaning that prices today may very well just be **readjusting** after a period of depressed growth	• There appears to be a relatively high jump in the inflation rate from mid-2021 onwards compared to 2020

Next, we turn to the measurement of inflation and what it means.

REFSA Notes

METHODOLOGY

The **Consumer Price Index (CPI)** is the main measure of inflation, which tracks **overall changes in the average prices of a defined 'basket of goods' over time**.

In Malaysia, the calculation of the CPI produces a final figure called *headline inflation*, which represents the rate of inflation for a given month compared to the same month a year earlier. For example, Malaysia's headline inflation rate in May 2022 was 2.8%, meaning the CPI increased by 2.8% that month compared to May 2021.

The table below shows the weightage of the products included in Malaysia's CPI:

Product Category	Weightage
Food and non-alcoholic beverages	29.5
Housing, utilities and related expenses*	27.9
Transport	14.6
Clothing and footwear	3.2
Health and education	3.2
Others**	21.6

Source: DOSM

* includes furnishings, household equipment and routine household maintenance, which is calculated separately in the CPI
** includes alcoholic beverages/tobacco, communication, recreation services, restaurants/hotels and miscellaneous goods

To obtain the CPI, we take the **average of the prices for all categories weighted by their relative importance in the consumer basket.**

Let's illustrate the idea with a simple example. Suppose we have an economy that consists of 2 products: bananas and ice cream. Assume further that we spend 60% of our income on bananas and the remaining 40% of ice cream. Prices evolve from period 1 to period 2 as follows:

Product	Weightage	Price in Period 1	Price in Period 2
Bananas	60	2	3
Ice cream	40	5	7

The average inflation rate in this economy is calculated as follows:

$$0.6\left(\frac{3-2}{2}\right)(100) + 0.4\left(\frac{7-5}{5}\right)(100) = 46\%$$

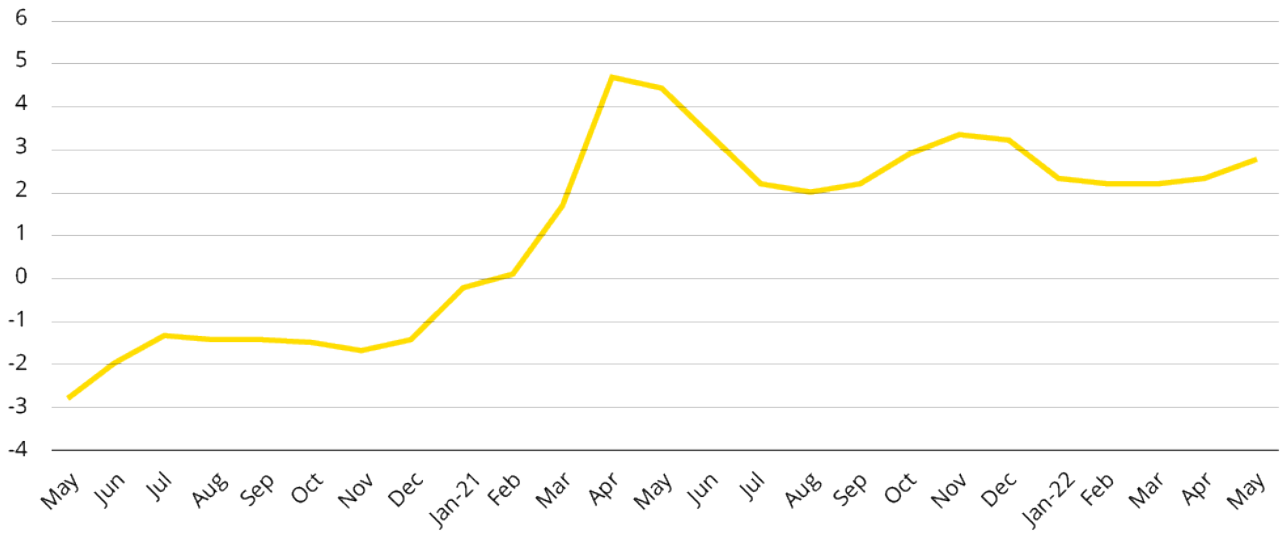
Using this formula, you can calculate your own personal CPI by figuring out the weightage (the average amount you spend on each product in your basket) and by comparing prices in two periods!

Now that we have a general idea of how the CPI works, what are some of its drawbacks?

EXPLAINING THE MISMATCH BETWEEN CPI AND CONSUMER SENTIMENTS

Figures 1(a) and (b) above paint a fairly rosy picture of the inflationary situation in Malaysia, suggesting that the current inflation rate of 2.8% puts the country in a better position than most countries in the G20 and ASEAN. Reinforcing the official narrative is Figure 2 below, which tracks the national inflation rate in the past two years.

Figure 2: **Malaysia's headline annual inflation rate, May 2020 - May 2022**



This and all subsequent data are sourced from DOSM (2022) unless otherwise stated

This figure shows that Malaysia experienced deflation (i.e. falling prices or a negative inflation rate) for most of 2020 due to the dampening effect of the movement control order (MCO) on consumer demand. By 2021, overall prices began to rise, though there was considerable fluctuation between 0-5% owing to the various iterations of the MCO that year. As of early 2022, inflation seems to have stabilised in the 2-3% range. But how far is this reflective of the situation on the ground?

To answer this question, it is important to think critically about the CPI and its methodology. There are 4 points we should take note of here:

Inflations, not inflation

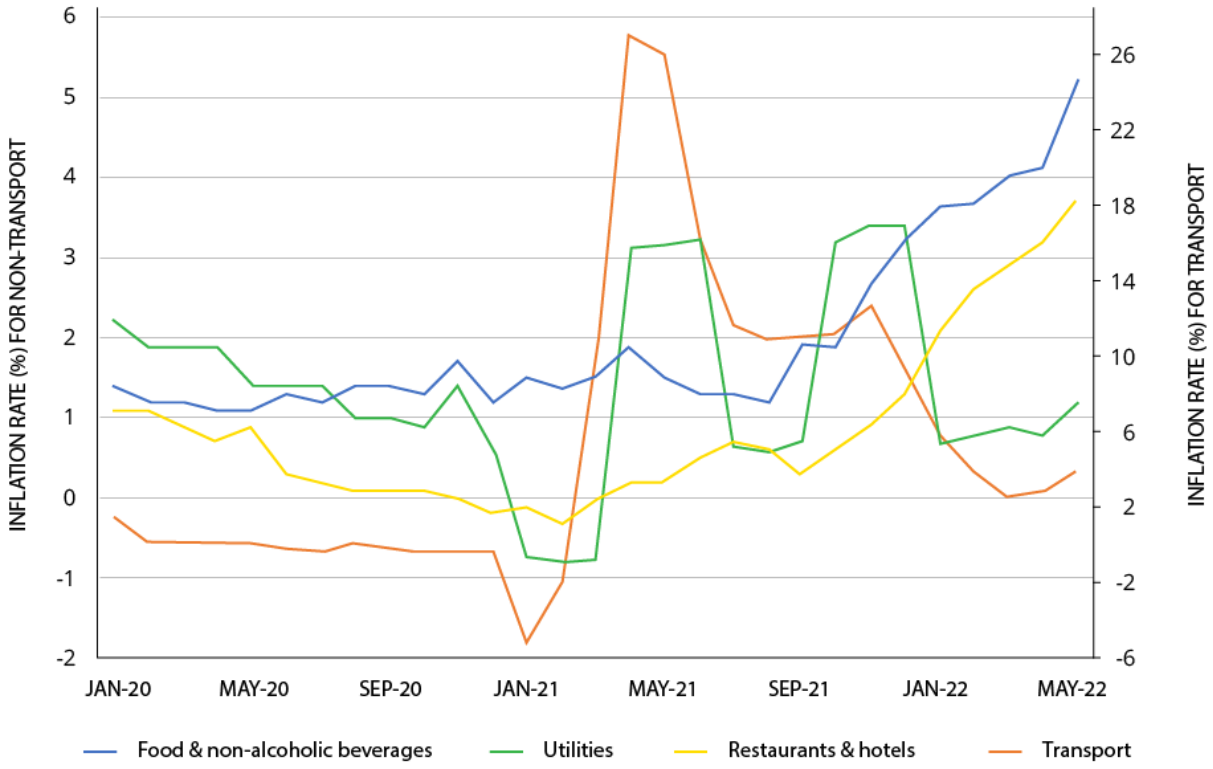
Inflation affects different groups of people differently depending on what their biggest purchases are and where in the country they live. While the official headline inflation figure is 2.8%, it does not mean that all households will experience a similar increase in their cost of living. This is because their product weightages will vary based on their income level, place of residence, age and other factors.

For example, **low-income households** are more likely to spend **a disproportionate share of their earnings on day-to-day products** like food and transport – whose prices tend to fluctuate more in response to global conditions – than on less price-sensitive, long-term services like education and leisure. Therefore, they are **more vulnerable** to today's cost-push and demand-pull inflationary episodes than high-income households.

In fact, when we break down the components of CPI, we find that the **price of food and non-alcoholic beverages rose the most of any category at 5.2%** year-on-year in May 2022 (see Figure 3), the highest such increase since 2017.

Regional variations in inflation are also prominent, with Selangor and Putrajaya ranking first in Malaysia with a headline inflation rate of 3.7% and a food inflation rate of 6.7% in the same month. These figures point to the fact that the **current cost of living problems are particularly hard on the urban poor**, and the effect may be muted for richer households.

Figure 3: **Annual inflation rate (year-on-year) by category, 2020-2022**



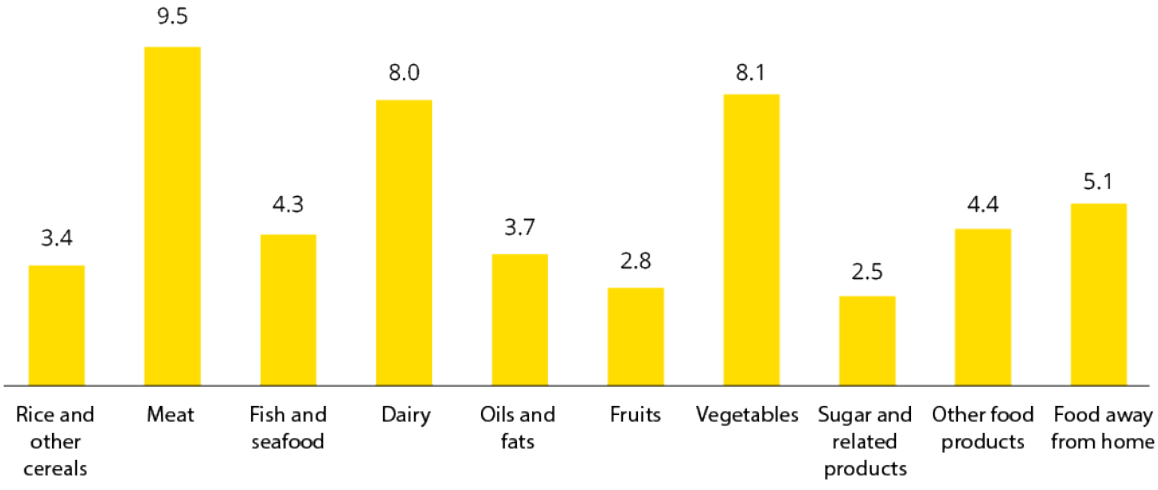
Note that the y-axis has been split into two, with the inflation rate for non-transport (i.e. food, utilities and restaurants) on the left-hand side and that for transport on the right-hand side. This is because transport prices were marked by substantial fluctuations and subsequent base effects in 2021 (falling to -5.1% in January 2021 before rising to 27% in April and eventually stabilising below 10% by December). To see the price behaviour of all categories more clearly, especially in 2022, transport prices are therefore presented separately on the secondary y-axis.

Read the fine print: some prices rise more than others

One of the biggest sources of cost-of-living concerns of late is the rise in food prices, which is noticeable due to its impact on the livelihoods of low-income households. Indeed, as previously mentioned, the CPI category with the largest price increase as of May 2022 is 'food and non-alcoholic beverages'. But even this does not fully capture the heterogeneity of price behaviour across food products.

According to DOSM data, the 5.2% price growth in food overall is **regulated by the relatively stable prices of rice, fish and fruits** among others, which collectively make up nearly a third of the food bundle.[1] On the contrary, as Figure 4 illustrates, **meat, dairy products and vegetables reported price growth of at least 8%** in May 2022. These three sub-categories are assigned a lower weightage of just over 20% of total food purchases, which may not be representative of consumers' buying patterns. Therefore, households may feel the pinch even where the official statistics indicate otherwise.

Figure 4: **CPI for food products by category, May 2022**



1. Rice, along with chicken in more recent months, has been subject to price controls in Malaysia, which may have kept the CPI artificially low. While such price controls could help regulate the cost borne by end consumers, they risk distorting the market and therefore reducing the usefulness of CPI as a diagnostic tool to explain market conditions. See the following section for more information on price ceilings as a concept.

It is also important to remember that CPI data is released with a **time lag** of at least 1.5 months. As of the time of writing in early July 2022, the most up to date CPI data series is for May 2022, which was released in late June. Therefore, it is probable that the current cost of living woes may not be fully captured by the data until the third or fourth quarter of the year.

Price increases alone do not capture the full extent of cost-of-living concerns

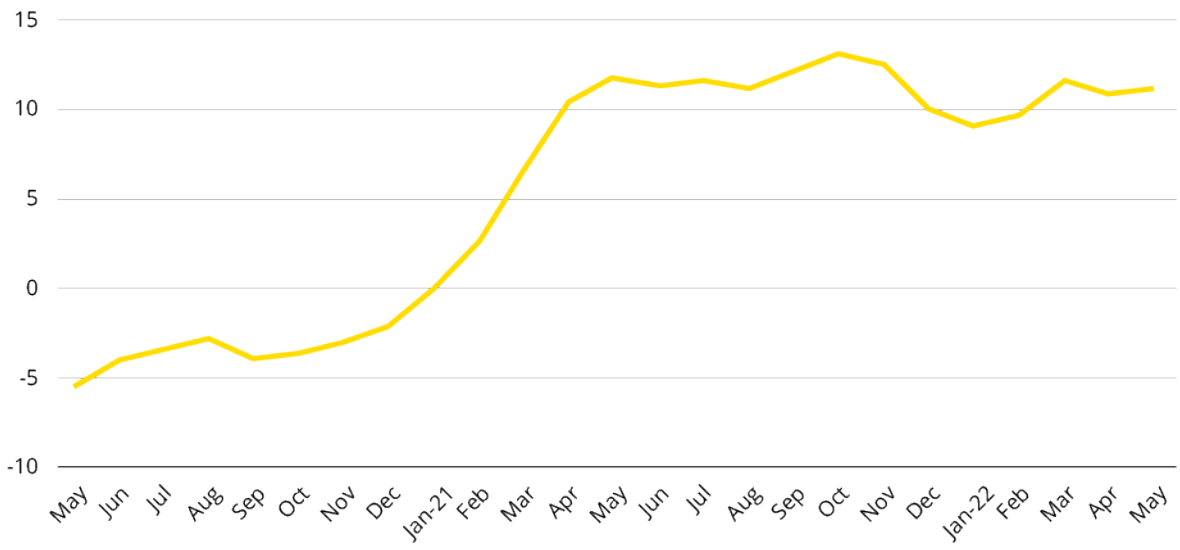
Rising inflation is **just one symptom** of higher cost of living, which cannot be viewed in isolation. For one, we must **contextualise price growth with wage growth** to capture the changes in real wages to determine if wages are increasing in line with prices. Inflation also needs to be subtracted from the nominal interest rate to arrive at the **real interest rate**, which tells us whether our savings are really growing.

Another drawback of the CPI is that **it cannot fully account for non-price** related components of inflation, such as **shrinkflation**. Shrinkflation is a situation where, in response to rising costs, a producer **sells a smaller amount of a product** at a similar price.[2] For example, a restaurant may decide to maintain the price of a plate of pasta but reduce the portion size (or use lower quality ingredients) so that the price per unit is higher. The CPI would understate the true rise in cost in this case.

Yet another invisible risk at play is the **significant upward pressure on cost of production**. The cost of production is captured in the Producer Price Index (PPI), and it shows much larger rises than the CPI over comparable periods (see Figure 5), in particular for "Agriculture, forestry and fishing." Production costs for the latter category have surged by almost 18% in 2022 alone. In a sector where margins are not very high to begin with, producers have little choice but to pass on this rise in costs to the consumer, or worse, some producers will decide to exit the market altogether, leading to disruptions in supply and eventual cost-push inflation.

2. Technically, the CPI only partially accounts for shrinkflation. The index expresses the prices of raw ingredients, including vegetables, in per unit terms, such as RM/g. However, for outside food, the index's table of average prices inevitably expresses the price of selected items, such as fried rice, per plate and not by weight or quality.

Figure 5: **Malaysia's Producer Price Index, May 2020 - May 2022**



Cognitive biases: are prices really going up that much?

It is also worth noting that households may be subject to **certain cognitive biases that heighten their perception of inflation**, including:

- *Loss aversion* — where a loss has a bigger impact on an individual's decision making and psyche than a gain of similar magnitude. Translated into cost-of-living terms, a 5% increase in the price of one good is likely to loom longer in an individual's memory longer than a 5% decrease in the price of another good, meaning the moderating effect of the latter on average inflation is not felt.

- *Frequency bias* — where one occurrence of a given event leads the individual to believe that it is more frequent than it really is. For example, if a consumer notices that the price of their favourite bread has gone up by 5%, they might conclude that prices everywhere are rising at the same rate when it is not necessarily the case.

- *Confirmation bias* — where individuals are more likely to recall or seek out information that supports their beliefs. For instance, if an individual constantly hears that prices are increasing, they may only notice those prices and ignore prices that are dropping or stable.

Therefore, while it is important to recognise the methodological deficiencies of CPI, perceptions themselves may not always be accurate.

REFSA Notes

POLICY MEASURES TO ADDRESS INFLATION

Typical policy measures to address inflation can be divided into two: (i) monetary policy and (ii) government intervention.

MONETARY POLICY

Many **central banks**, including Bank Negara, have the primary policy objective of **ensuring price stability**, which may be accompanied by maintenance of economic growth. To achieve this, they consider the inflationary risks facing the economy alongside the official inflation rate.

If a central bank believes that the economy is likely to become overheated due to rising price pressures, it will respond by **raising interest rates**. As the interest rate is essentially the cost of borrowing money, a higher rate makes it relatively more expensive to take out a loan (and also more attractive to save rather than spend). This has the effect of **reducing the incentive to invest and spend**, which can **slow down demand-pull inflation** in the economy.

To give a real-life example, the Federal Reserve of the US recently raised its benchmark interest rate by 0.5% points to combat rising inflation.

In practice, central banks usually have to make a trade-off between controlling inflation and promoting growth when determining whether to adjust interest rates. A rate hike may reduce inflationary pressure, but it also dampens consumption and spending, which can affect growth.

The decision ultimately depends on the risks of runaway inflation and the potential erosion of households' purchasing power. It is even more important to balance the trade-offs carefully in the current economic climate as recovery following the pandemic is still fragile.

GOVERNMENT INTERVENTION

Government intervention to stave off inflation can take several different forms as follows:

FISCAL POLICY

Broadly, under fiscal policy, the government can implement **contractionary measures** like raising taxes to **dampen consumption** and therefore **reduce demand-pull inflationary pressures** in the economy. However, unlike monetary policy, there is a time lag with fiscal policy: the effects on output and prices are not immediate.

PRICE CEILING

A price ceiling is a policy in which the government sets a **legal maximum price** for a good. Put simply, a good subject to a price ceiling cannot be sold above the stipulated price.

This is intended to maintain the affordability of the good by controlling its retail price. Indeed, it can potentially work in the short-run if used strategically in specific sectors where there is evidence of price gouging.

But a price ceiling has **unintended consequences** that can distort the market if misused. If the ceiling price is found to be below what would prevail in the absence of such regulation based on input costs, we could expect to see a **shortage** of the good. This is because an artificially low price pushes demand above producers' capacity to supply (see Box 1 for more information).

For instance, Malaysia introduced a price ceiling for chicken at RM8.90 in mid-2022 to stabilise prices for consumers, given that input costs had been rising due to supply chain disruptions. But the ceiling itself has put pressure on producers by slimming or even eliminating their profit margins. The risk of such a policy is it could create a shortage of chicken in the absence of supporting policies such as subsidies, which we turn to next.

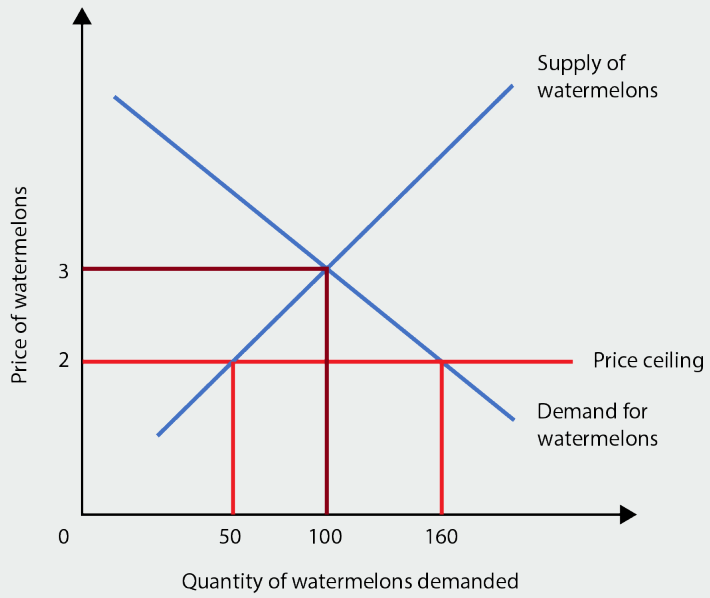
Box 1. How can a price ceiling lead to shortages?

Suppose that we are in an economy where the government wants to regulate the price of watermelons.

Assume that without any government intervention, the equilibrium price that would prevail in the free market is $3. At this price, the supply of watermelons is equal to its demand, and the corresponding quantity of watermelons on the market is 100. In other words, consumers are willing to buy 100 watermelons and producers are willing to supply 100 watermelons as well. There are no shortages or surpluses.

Now let's assume that the government sets a ceiling price of $2 for watermelons. Since this is below $3, there is a mismatch in supply and demand. The artificially low price creates excess demand for watermelons. That is, at $2, consumers now want to buy 160 watermelons rather than just 100. However, such a low price creates problems for producers because they cannot supply enough to turn a profit. They are only willing and able to supply 50 watermelons for $2. This means that with the price ceiling in place, there is a shortage of 110 watermelons on the market.

Figure 6: **The demand-supply framework for watermelons in the market with and without a price ceiling**



SUBSIDY

A subsidy is an **incentive**, such as a cash payment or a tax break, given to producers to **lower the price that the end consumer would pay** for welfare purposes.

Typically, how this works is that the government gives some form of **support to the producer** (e.g. a sum of money for a given unit or share of output). The cost of production goes down, which encourages firms to increase supply. In turn, higher supply at a given level of demand pushes prices down. The end result, in theoretical terms, is that the **consumer benefits from lower prices at the point of purchase while the producer benefits from the lower cost at the point of production** (see Box 2 for a graphical explanation).

However, for this to happen, the government needs to **pay for the subsidy**. This can put pressure on the budget, and by extension, on taxpayers if the cost of maintaining the subsidy balloons. For example, Malaysia's fuel subsidy cost the government RM11 billion last year, a figure that is likely to rise amid higher oil prices.

The effectiveness of subsidies may also be called into question as they are a **blanket policy** that does not always effectively target the groups who need it the most, unlike direct cash transfers to the poor. The fuel subsidy, for instance, subsidises the car-owning top 20% disproportionately, whose savings make up over 50% of the cost of the subsidy.

Box 2. How does a subsidy work?

Continuing the watermelon example, suppose that the government decides to subsidise the price of watermelons to make it more affordable for consumers. Once again, assume that the prevailing market price before the subsidy is $3 and the corresponding quantity of watermelons is 100.

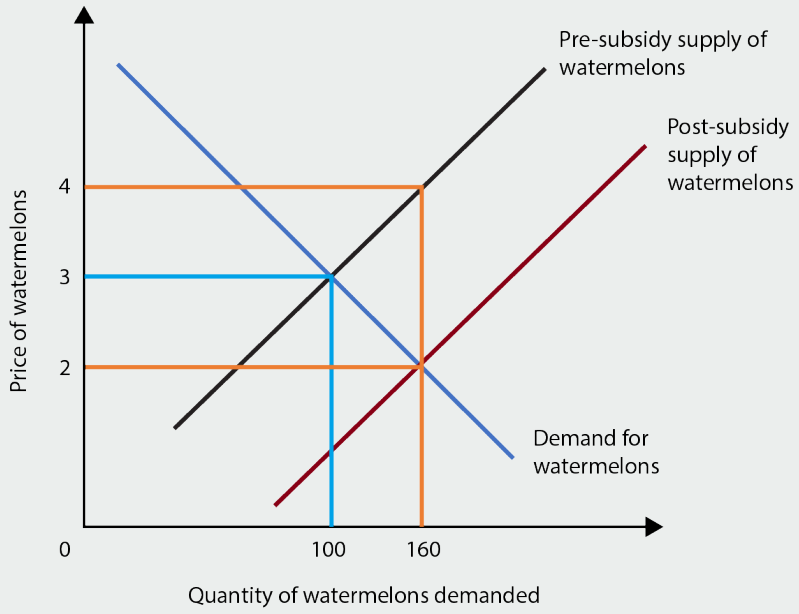
The government then announces a subsidy because it wants the end consumer to pay less for watermelons. However, instead of directly setting the price at $2 as it did before (and in order to avoid supply issues), the government intervenes by giving the producer a cash payment of $2 for every watermelon produced.

The cash payment stimulates production, which increases the supply of watermelons on the market. A higher supply of watermelons pushes the price down.

The consumer then enjoys a lower price of $2 per watermelon while the producer receives $4. The quantity of watermelons supplied and demanded on the market rises to 160.

The subsidy costs the government $320, which is the per unit amount of the subsidy ($2) multiplied by the post-subsidy quantity of watermelons (160).

Figure 7: **The demand-supply framework for watermelons in the market before and after a producer subsidy**



CURRENCY PEG

A currency peg is a fixed exchange rate system in which the government decides to intervene in the market to maintain the value of its currency relative to the US dollar. In theory, this might seem like a desirable policy objective for a government that wants to reduce the risk of imported inflation, which is a rise in prices caused by more expensive imported raw materials and products. Exchange rates come into the picture here because imported products are usually priced in USD. Therefore, if MYR depreciates with respect to USD, imports to Malaysia then become relatively more expensive. Since importers now have to pay more for the same product, there is cost-push inflation at play.

Indeed, recently there have been calls for the ringgit to be pegged to the dollar to stabilise its value and prevent further depreciation.

But maintaining a currency peg is not a straightforward exercise: the government has to constantly defend the currency against speculation using its reserves of foreign currency. If there is downward risk on the value of the domestic currency, the government has to sell its foreign currency reserves in order to increase the supply of dollars on the market and bring the value of the domestic currency back to the target. But reserves are limited, and once they run out, the peg has to be abandoned. This is precisely what happened during the 1997 Asian financial crisis.

A peg ultimately requires the government to make significant policy sacrifices. In macroeconomics, there is a law known as the 'impossible trinity', which states that a country cannot have a fixed exchange rate, free capital flows and an independent monetary policy at the same time. It must choose two of the three and give up the other (see Box 3 for more information). Most countries today choose the latter two as free capital flows can promote investment and the ability to set interest rates autonomously helps them control inflation and promote growth better. In the current climate, it does not make economic sense to introduce capital controls and reduce the cross-border flow of money for the sake of an artificial peg.

Box 3. **The Impossible Trinity at Work**

To illustrate the impossible trinity, we need to start with the initial conditions and assumptions, which are as follows:

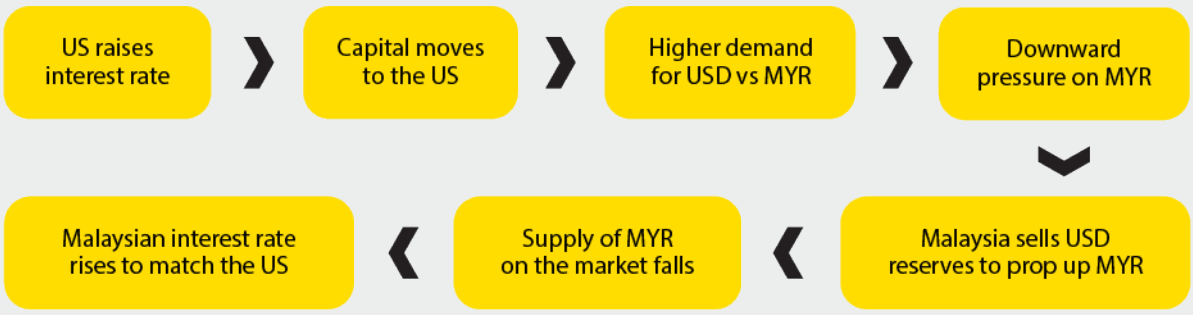
- Number of countries: 2 (Malaysia and the US)
- Initial interest rate: 2% in both countries
- Free capital flows between the two countries
- Countries are free to adjust interest rates
- Exchange rate is pegged at MYR 4 per USD

Now suppose that in this fictional world, the US suddenly decides to raise its interest rate to 3% to handle inflation (see below for an illustration).

Because there are free capital flows, capital will move to the US as lenders realise they can make better returns due to the latter's higher interest rate. This increases demand for USD over MYR, leading to downward pressure on MYR.

For Malaysia to maintain its peg and offset the risk of depreciation, the central bank has to sell its dollar reserves by buying MYR. Selling USD increases the supply of USD in the open Forex market. Buying MYR induces demand for MYR and reduces the supply of MYR in the open Forex market. A higher supply of USD relative to MYR offsets the existing downward pressure on MYR, keeping the USD-MYR value stable.

However, as mentioned, by buying up MYR, the central bank effectively reduces the supply of the home currency on the market. Based on macroeconomic theory on money supply, this pushes the interest rate up until there is no longer any pressure on the MYR (i.e. when it is at 3% on par with the US). As a consequence, the need to defend the peg causes Malaysia to lose the freedom to set its own interest rate.



While this is just a theoretical example with oversimplified assumptions, even in reality a country cannot sustain all three policies for very long because markets will adjust eventually.

REFSA Notes

REFERENCES

Agarwal, R. and Kimball, M., 2022. "The Future of Inflation Part I: Will Inflation Remain High?" *IMF*. https://www.imf.org/en/Publications/fandd/issues/2022/03/Future-of-inflation-partI-Agarwal-kimball

Department of Statistics Malaysia (DOSM), 2022. *Prices.* https://www.dosm.gov.my/v1/index.php?r=column/ctwoByCat&parent_id=105&menu_id=bThzTHQxN1ZqMVF6a2I4RkZoNDFkQT09

Financial Times, 2022. *Global inflation tracker: see how your country compares on rising prices.* https://www.ft.com/content/088d3368-bb8b-4ff3-9df7-a7680d4d81b2#7925956

FMT Reporters, 2022. "Large chunk of govt subsidies enjoyed by the rich, says Tengku Zafrul". *Free Malaysia Today*. https://www.freemalaysiatoday.com/category/nation/2022/05/18/large-chunk-of-govt-subsidies-enjoyed-by-the-rich-says-tengku-zafrul/

Matthews II, K. L., 2022. "What to know about the 6 main causes of inflation". *Insider*. https://www.businessinsider.com/personal-finance/causes-of-inflation

Pomeroy, R., 2022. "What is inflation, and should we worry? An economist explains". *World Economic Forum*. https://www.weforum.org/agenda/2022/02/what-is-inflation-radio-davos/

Public Mutual, n.d. *Understanding the Factors that Impact Inflation*. https://www.publicmutual.com.my/Menu/Learning-Hub/Understanding-the-Factors-that-Impact-Inflation

Ragu, D., 2022. "Fuel subsidies likely to top RM28bil this year, says Tengku Zafrul". *Free Malaysia Today*. https://www.freemalaysiatoday.com/category/nation/2022/03/10/fuel-subsidies-likely-to-top-rm28bil-this-year-says-tengku-zafrul/

Shukry, A., 2022. "Malaysia Surprises With Rate Hike to Head Off Inflation". *Bloomberg*. https://www.bloomberg.com/news/articles/2022-05-11/malaysia-surprises-with-rate-hike-to-head-off-price-pressures

REFSA Notes

ABOUT REFSA

Research for Social Advancement (REFSA) is a progressive, non-profit think tank that promotes social advancement in Malaysia. Since its inception, REFSA has been at the forefront of policy discussions and debates in the important political and socio-economic issues of the nation. Today, our aspiration hasn't changed - we want to power the movement for a just, inclusive and multi-ethnic society.

REFSA NOTES

REFSA Notes is a collection of thoughts, reflections, and ideas from our research team. They aim to provide the groundwork for further discussions, commentary, research agendas, and policy recommendations.

Valuable comments and editorial assistance were provided by Frederik Paulus and Kieran Li Nair.

Frederik Paulus is Economic Advisor at REFSA and Senior Fellow at Penang Institute.

Kieran Li Nair is a Research Assistant at REFSA.

REFSA Notes

CREDIT

REFSA allows authorship of derivative works and other transformations of this publication for personal, non-profit/ non-commercial use, subject to the inclusion of paper and appropriate credit to "Research for Social Advancement (REFSA)". REFSA expressly prohibits the use of the whole or any part of this publication for defamatory or criminal purposes.

OTHER INFORMATION

Translations—if you create a translation of this work, please add the following disclaimer along with the attributions: This translation was not created by Research for Social Advancement and should not be considered an official translation. Research for Social Advancement shall not be liable for any content or error in this translation.

The findings, interpretations, and conclusions expressed in this Policy Brief do not necessarily reflect the views of the Management or Board of Trustees of Research for Social Advancement (REFSA). REFSA does not guarantee the accuracy of the data included in this work. The responsibility for the interpretation and use of the material lies with the reader. In no event shall REFSA be liable for damages arising from its use.

REFSA

Research For Social Advancement

Level 5, Block A,
Wenworth Building,
Jalan Yew, Off Jalan Pudu,
55100 KL

(03) **9285 5808**

www.**refsa**.org

REFSA

InfoREFSA

refsa_my

refsa.org

REFSA - Research for Social Advancement