Box Article

Understanding Deflation
by **Sharmila Devadas**

Highlights

- Deflation is the persistent and pervasive decline in prices, distinct from a temporary period of negative inflation.
- The risk of a deflationary environment should be assessed in the context of whether there are signs of persistent and pervasive price declines, falling inflation expectations, and adverse interactions in the economy involving debt, asset prices, credit intermediation and output that feed back into inflation.
- The current episode of negative inflation in Malaysia is driven by the decline in fuel inflation, a development also experienced by some other countries. Price declines are not broad-based while inflation expectations remain well-anchored.

Introduction

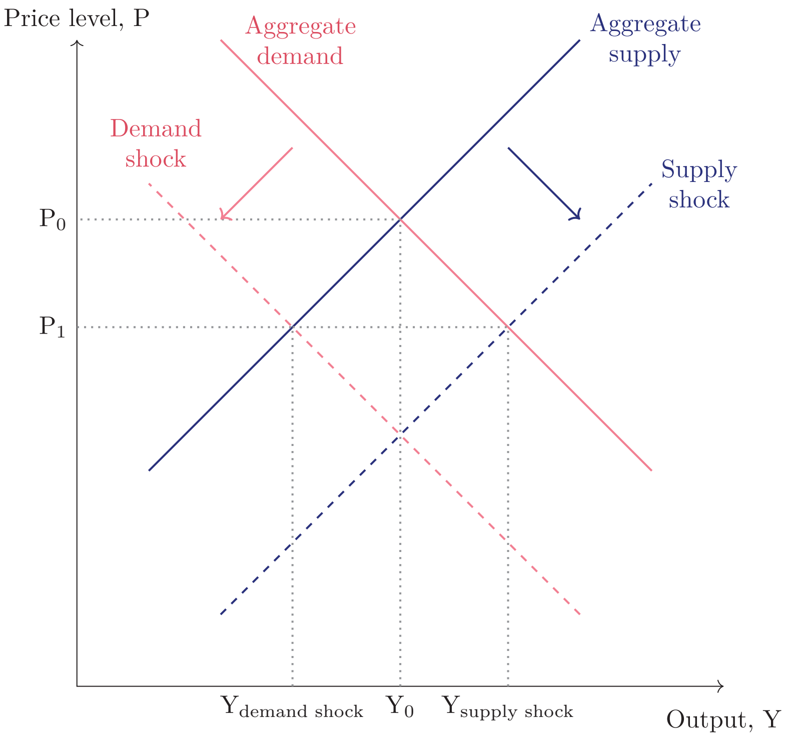
Amid the unprecedented Covid-19 pandemic, there remains considerable uncertainty surrounding the global inflation outlook over the medium term. Its trajectory will depend on the strength of demand, supply disruptions that affect production costs, and the credibility and effectiveness of policies which would influence inflation expectations (International Monetary Fund, 2020). Global oil prices have recovered in recent months but remain lower than last year, and along with the absence of strong demand and weak labour markets, have kept global inflation muted and below pre-pandemic levels. Global inflation is expected to remain positive going forward but subdued in advanced economies, and below average in emerging market and developing economies.[1] The euro area and a number of other countries including Australia, Malaysia, Singapore and Thailand have experienced negative headline inflation in recent months. This article discusses what constitutes deflation and the considerations beyond negative headline inflation that need to be taken into account to assess the risk of a deflationary environment that has adverse consequences. These considerations encompass the nature of underlying inflation dynamics, inflation expectations, and developments in the wider economic environment.

[1] Inflation in advanced economies is projected at 0.8% in 2020, rising to 1.6% in 2021 and stabilising at 1.9% thereafter. Inflation in emerging market and developing economies is projected at 5% in 2020, 4.7% in 2021, and 4% thereafter, below the 2002-2019 historical average of 5.8% (International Monetary Fund, 2020).

Contextualising negative headline inflation: What constitutes a deflationary environment?

Deflation is typically defined as persistent negative headline inflation and is distinctive from moderating inflation, or disinflation, where inflation rates are declining but remain positive. As such, a temporary period of one or two quarters of negative headline inflation does not constitute deflation (International Monetary Fund, 2003). However, a more comprehensive and meaningful perspective would need to take into account the nature of shocks driving the trend in inflation, inflation expectations, and the broader economic context (European Central Bank, 2014). The shocks to inflation may reflect underlying demand or supply factors respectively, with one not having the exact same implications as the other. With demand shocks, declining prices occur in conjunction with falling output; while in the case of supply shocks, declining prices might be accompanied by increases in output (International Monetary Fund, 2003). See Figure 1. The first-round effects of declining prices in the face of supply shocks can be viewed as more benign, especially if reflecting transitory and external factors such as commodity price movements, or structural reforms (for example, in labour and product markets) which could positively affect demand over the near to medium term. Supply shocks can nevertheless also become a concern when sustained price declines lead to lower inflation expectations and second-round effects on other prices and wages – which might occur, for example, when a prolonged oil price decline adversely affects an oil-exporting country or occurs amid a weak economic environment. A temporary fall in the price level driven by oil prices does not qualify as deflation (Decressin and Laxton, 2009).

Figure 1: Aggregate Demand and Supply Shocks



Taking another perspective of demand and supply factors, it is also useful to consider what different types of price declines mean for consumers and businesses. For example, falling prices of imported final and intermediate goods, including commodities, benefit consumers and businesses. However, when final consumer prices are falling due to lower demand for domestic goods and services, it follows that profits of affected businesses are also likely to be declining. Consumers will benefit from falling prices in the first instance, in terms of lower cost of living, but may be affected by subsequent declines in wages and employment. Businesses with nominally fixed long-term debts experience higher real debt values, which may contribute to the curtailment of operations and investment. Similarly, households, experiencing lower income, will also cut back on their spending, with this reduction aggravated by the higher propensity to consume among borrowers (who experience a relatively higher debt service burden given lower income). Crucially, the extent of the effects described above depends on the persistence and pervasiveness of the price declines (with transitory and sector-specific price declines not expected to have as significant aggregate effects). Persistent and pervasive price declines, if they become entrenched in inflation expectations, could lead to the postponement of consumption and investment, as well as possible business closures in anticipation of lower revenues, thus reinforcing negative inflation.

Beyond the persistence and pervasiveness of price declines, as well as evolving inflation expectations, the risk of a deflationary environment that has adverse consequences needs to be assessed in terms of the wider economic environment, where economic activity, debt, asset prices, and credit intermediation interact with each other and inflation, in a feedback cycle (Figure 2). These interactions can be viewed as debt deflation dynamics.[2] Debt deflation dynamics involve over-indebtedness that leads to defaults and distress selling to liquidate debt – causing asset price declines, and a breakdown in credit intermediation, which feed back into lower spending.[3] The fall in net worth due to declining asset prices also impairs credit intermediation by making it costlier to distinguish good borrowers from bad ones resulting in credit rationing or higher charges; and affects banks' health as defaults materialise and banks claim collateral that has lost value.[4] Deflation caused by lower spending reinforces losses, and could lead to expectations of further deflation. As Borio et al. (2015) note, whether deflation is a symptom or a cause of economic conditions is ultimately an empirical question. As a cause, it is a question of the strength of the nominal rigidities through which deflation operates, that is, via nominal wages, debt burdens, and the zero lower bound for interest rates, and of whether deflation expectations are entrenched.[5]

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[2] Debt deflation was conceptualised by Fisher (1933) as a theory of great depressions (persistent and deep economic recessions) where the dominant factors in serious cycles were over-indebtedness to start with, and deflation following after. Others like Minsky (1982), Bernanke (1983, 1995) and Koo (2009) have since also emphasised the important roles of net worth deterioration and credit contraction in lengthy economic recessions.

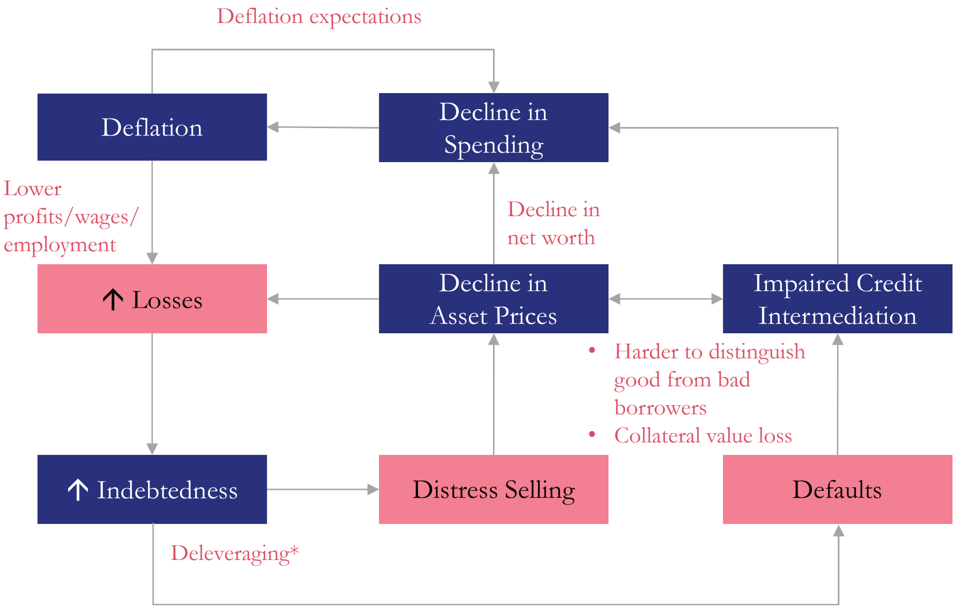
[3] Fisher (1933) notes that over-indebtedness starts with the appearance of new investment opportunities. Easy money leads to over-borrowing as it allows for over-speculation. More recent studies on household indebtedness indicate that aside from financial imprudence, over-indebtedness may also arise from unexpected events that modify the conditions under which debt contracts were executed, for example an unexpected reduction in income or unforeseen expenses.

[4] See Bernanke (1983, 1995).

[5] See Borio et al. (2015) and Borio and Filardo (2004). In a sample covering 140 years and up to 38 economies, Borio et al. (2015) find that the link between deflation and output growth is weak and derives largely from the Great Depression. The authors find a stronger link between asset price declines and output growth. The most damaging impact on output growth comes from the interaction between property price declines and debt, while little evidence is found for output costs arising from the interaction between deflation and debt.

In the post-World War II period, deflation episodes, that is, involving persistent price declines, are rare – the key case being that of Japan which had a prolonged deflation period from 1998. Japan's experience displayed the characteristics of debt deflation dynamics, whereby the root of its deflationary environment lay in the unravelling of the boom in housing and equity prices in the early 1990s. While the literature is still divided on the exact interpretation of the chronic stagnation and deflation in Japan, several key factors have been acknowledged: the corporate sector engaged in a long-lasting deleveraging process after previous overinvestments; monetary (in terms of interest rate reductions) and fiscal policy interventions were insufficient; credit intermediation was affected by bad debts, slow bank restructuring and debt evergreening; and inflation expectations were unanchored.[6] In addition, structural factors may have also played a role, including nominal wage rigidity and demographics.[7]

Figure 2: Debt Deflation Dynamics



*Deleveraging can be carried out through the curtailment of spending, raising of capital or the sale of assets. It can entail a disorderly adjustment process when it is accompanied by margin calls, distress selling of assets and a pullback of credit which hinders those without debt or losses to stabilise markets.

Note: Adapted from von Peter (2005).

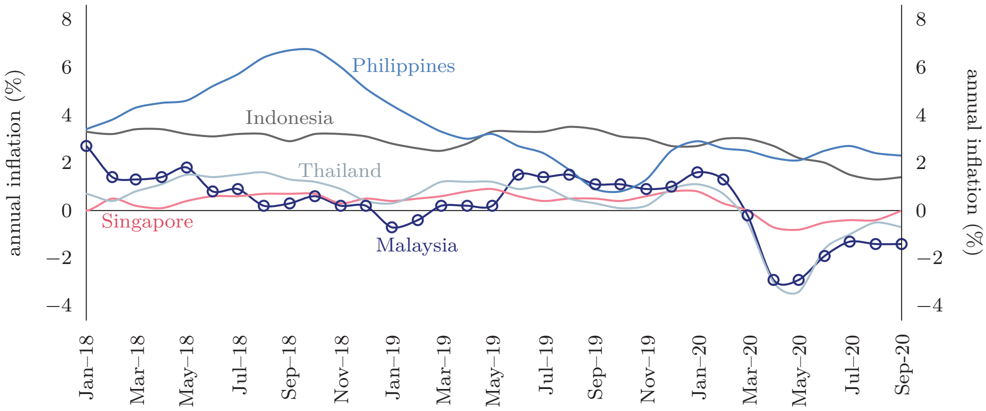
[6] Debt evergreening refers to the continuous restructuring of lending to insolvent or zombie firms, which leads to the misallocation of resources and affects productivity growth.

[7] See for instance, Baig (2003), Caballero et al. (2008), Nishizaki et al. (2013) and Piazza (2015) for further discussion on Japan's experience.

Is the risk of a deflationary environment a concern in Malaysia?

Over the last three decades, Malaysia has experienced three brief periods of negative headline inflation, including the current episode. These declines reflect sector-specific price changes rather than broad-based declines, and are mainly due to global oil prices and policy-driven changes to price-administered goods and services (Table 1). In particular, the negative headline inflation this year has reflected the decline in global oil prices and the tiered electricity tariff rebate, the latter effective since April 2020 as a relief measure. In the region, Singapore and Thailand have also experienced negative headline inflation rates recently, due to the sharp fall in global oil prices (Figure 3).[8]

Figure 3: Inflation in the ASEAN-5



Source: Department of Statistics Malaysia and Bloomberg

Although affected by the moderation in demand pressures, underlying inflation, as measured by core inflation, has remained positive. Core inflation contributed approximately 0.9 percentage points (ppt) to headline inflation on average over March – September 2020, which was offset by the negative contribution from fuel and electricity inflation (-2.1 ppt and -0.8 ppt respectively on average). Compared to 2009, core inflation is more subdued now, reflecting the prevailing capacity in the economy.

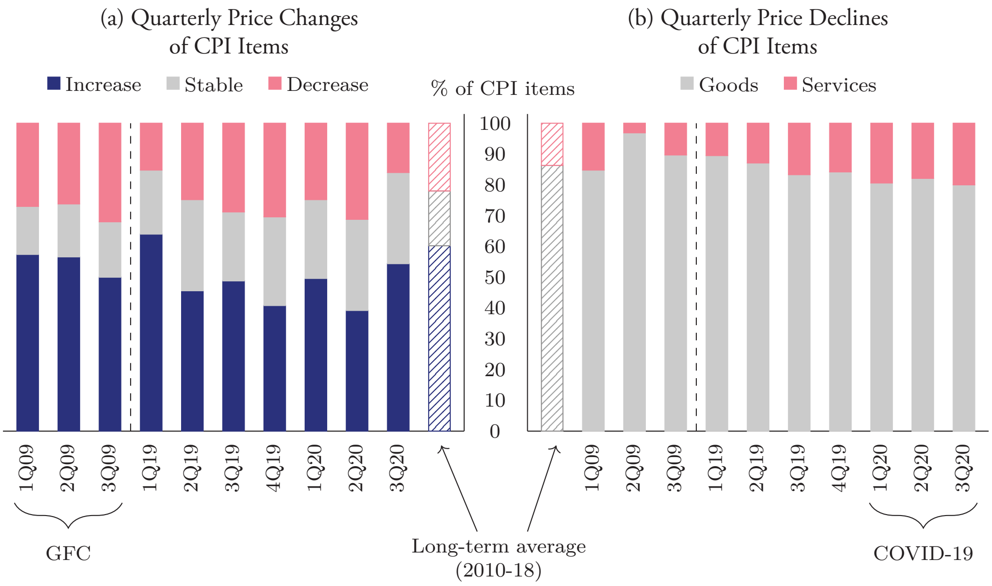
Table 1: Episodes of Negative Headline Inflation

Period of Negative Headline Inflation	Average Headline Inflation (%)	Key Drivers	Average Core Inflation (%)
June – November 2009	-1.7%	• Cumulative effect from a series of downward adjustments to administered fuel prices since the second half of 2008 in line with the movement in global oil prices.	1.9%
January – February 2019	-0.5%	• Lower domestic fuel prices	1.6%
March – September 2020	-1.7%	• Lower global oil prices • Tiered electricity tariff rebate	1.2%

[8] Swings in oil prices have a more pronounced impact on headline inflation in Asia ex-Japan than in the G3 countries due to the greater weight of commodities in the consumer baskets of the former (Monetary Authority of Singapore, 2020).

Price declines have not become more pervasive across the CPI basket of items. In fact, the number of items recording quarterly increases continues to exceed that of recording declines. Price declines are also not unusually high compared to the long-term average or the last previous experience of GDP growth contraction (Figure 4, panel (a)). Of the price declines so far this year, there is a slightly higher share of declines in items related to services on average reflecting to some extent the impact of movement restriction on categories in the CPI basket such as accommodation services and rental (Figure 4, panel (b)).[9]

Figure 4: Pervasiveness of Price Declines



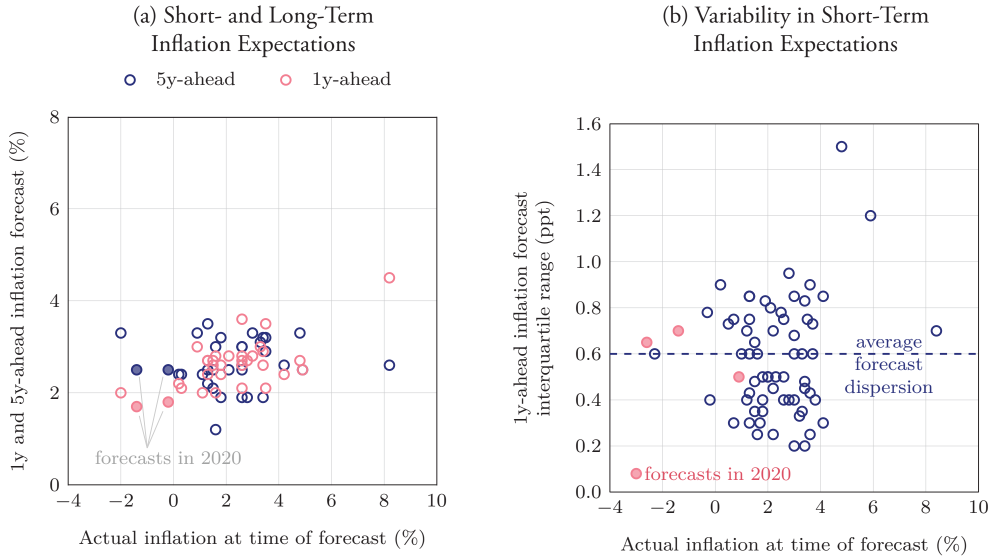
Notes: Based on the change in price from the end of one quarter to another, for 125 CPI items at the 4 digit-level. The long-term averages exclude the quarterly change for June 2015 and June 2018 which capture large effects from consumption tax policy changes.

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

Short to medium-term inflation expectations among professional forecasters have been well-anchored in the past, and remain so this year. This can be observed from the levels projected one-year and five-year ahead, which are positive and close to the long-term average inflation rate, more so for the longer-term forecast (Figure 5, panel (a)). In addition, there is low variability in anticipated future inflation (based on one-year ahead forecasts) – the dispersion among forecasters is similar to the long-term average, suggesting no unusual inflation uncertainty (Figure 5, panel (b)).[9]

[9] Well-anchored inflation expectations should remain relatively stable at a given level over time with only minor disagreements across forecasters. Deflation is associated with lower inflation expectations and these expectations becoming more backward-looking. In addition, forecast disagreement, as captured by the dispersion across forecasts, has been found to rise with the absolute levels of both, positive and negative inflation. Forecast disagreement indicates greater uncertainty about future inflation which could affect private investment and consumption decisions and lead to an inefficient allocation of resources (Banerjee and Mehrotra, 2018).

Figure 5: Inflation Expectations



Notes: Sample period is 2004 - 2020. Actual Inflation corresponds to headline inflation at the time of the forecast. (a) Forecasts are on a semi-annual basis, for the following year and five years ahead. (b) Forecasts are on a quarterly basis, for the following year.

Source: Department of Statistics Malaysia and Asia Pacific Consensus Forecasts - Surveys of International Economic Forecasts, Consensus Economics Inc.

Key elements that could build into the propagation mechanisms shown in Figure 2 are actively assessed as part of the Bank's day-to-day economic and financial surveillance. Excesses, for example, in relation to speculative activity, are comparatively much less than prior to the Asian Financial Crisis – speculative activity in the housing market has been subdued for some years now. Financial institutions' capital and liquidity buffers remain high. Their strong position when entering the pandemic enabled them to support substantial relief measures and sustain credit intermediation. Though the overall debt servicing capacity of non-financial corporates has weakened, interest coverage ratio remained above two times as at June 2020, reflecting reasonably healthy financial conditions prior to the pandemic. Most households have also remained reasonably resilient, supported by comfortable financial buffers, particularly among the higher income group, and the generally prudent debt servicing levels of households. For vulnerable households, the blanket loan moratorium, introduced in April 2020, and subsequent targeted repayment assistance, provide some relief. While the housing market is more subdued due to the weaker economic conditions, measures have been implemented by the Government to support housing demand; and the targeted assistance packages will help contain any large increase in housing loan defaults.[10] Economic growth is expected to continue to improve but is subject to downside risks related to the resurgence of the pandemic globally and domestically. These risks, if they materialise could feed back into other areas of the economy including inflation. The Bank continues to monitor these risks in its assessment of the economic outlook.

[10] See Bank Negara Malaysia (2020) for further details of the assessment on current and potential risks to financial stability and the resilience of the financial system. Under updated stress tests conducted by the Bank, banking institutions are expected to remain resilient to potential economic and financial shocks that could still arise from the pandemic.

Conclusion

Deflation refers to the persistent decline in headline inflation. However, a holistic assessment of deflationary pressures requires consideration of underlying inflation dynamics, inflation expectations and the wider economic environment. In this regard, the current episode of negative headline inflation does not constitute outright deflation as it primarily reflects negative fuel inflation. Price declines are not unusually pervasive and inflation expectations remain well-anchored. Economic growth, though expected to gradually recover, is subject to downside risks. The Bank will continue to be vigilant of inflation dynamics and its determinants, as well as the potential amplification channels of adverse developments in the economy.

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