

Box C

Supply and Demand Drivers of Inflation in Australia

Inflation has increased substantially over the past year. Because monetary policy primarily affects the economy by influencing demand, it is important to understand how much of the increase in inflation reflects supply-side factors versus demand-side factors, in order to determine how policy should respond. A central bank may 'look through' the price effects of a supply shock if it is expected to be short lived and inflation expectations remain anchored. Similar to the experience of other advanced economies, model-based estimates suggest that supply-side factors have been the biggest driver of the increase in inflation in Australia over the past year. These supply-side factors have been persistent, leading to an extended period of inflation being above the inflation target and concerns that inflation expectations could become de-anchored. Shifts in demand have also played an important role in the recent inflationary episode.

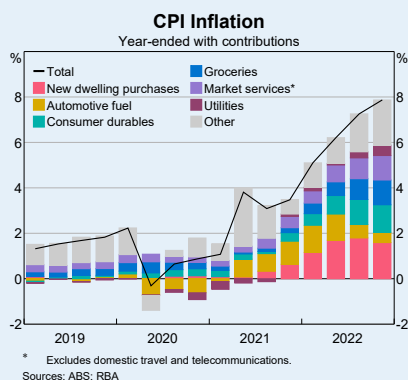
Supply shocks have accounted for at least half of the increase in inflation ...

High inflation outcomes in Australia reflect a range of developments, including: supply issues related to the war in Ukraine; other global supply disruptions resulting from the COVID-19 pandemic; and domestic supply disruptions from poor weather. Strong domestic and global demand has also played a role, reflecting the rapid economic recovery following the significant fiscal and monetary policy responses to the pandemic and the faster-than-expected development of

effective vaccines. As a result, the increase in inflation has been broadly based across many goods and services in the CPI (Graph C.1).

Economic models can be used to estimate how much supply-side and demand-side factors have added to inflation, although the results can depend on the model used. One approach, following Shapiro,^[1] is to attribute changes in prices to shifts in demand if quantities move in the same direction in that period, and to shifts in supply if quantities move in the opposite direction (price changes are defined as 'ambiguous' if the change in price or quantity is relatively small). This assumes that all of the price change for a particular class of expenditure stems from a shift in demand or a shift in supply, but not both at the same time. Mindful of this limitation, this model suggests that supply-side factors have been responsible for around half of the increase in inflation in other advanced economies. The results for Australia are similar, with supply-side factors

Graph C.1



accounting for around half of the increase in inflation over the year to September 2022 (Graph C.2).^[2]

Alternative model approaches also suggest that supply-side factors have contributed significantly to the increase in inflation in Australia and other advanced economies.^[3] A structural model of the Australian economy – which allows for a more flexible attribution of shocks and better accounts for relationships between sectors and the role of past shocks – suggests that supply shocks account for around three-quarters of the pick-up in inflation (Graph C.3).^[4] Supply shocks in the tradables sectors (both imports and domestically produced tradables) and the

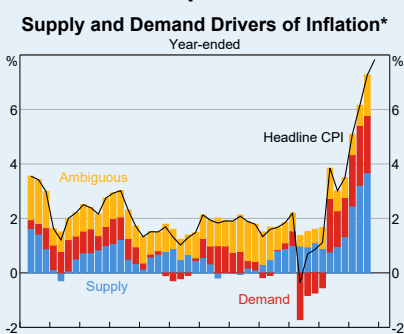
housing sector account for a large share of the pick-up in inflation to date.

... and demand has also played an important role

While supply-side factors have been a significant driver of high inflation outcomes over the past year, the results above show that demand-side factors have also been important. Following the strong recovery from the pandemic – aided by substantial policy support and the development of effective vaccines for COVID-19 – demand for many goods and services exceeded supply capacity, resulting in large increases in prices.

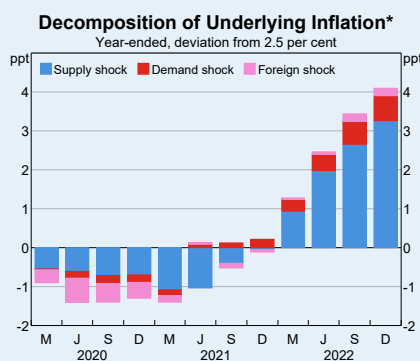


Graph C.2



* Based on the methodology of Shapiro (2022); 'ambiguous' indicates the contribution from components where the change in prices or quantities is within 25 per cent of the expected change and the contribution from unmodelled components due to data limitations; this analysis uses data from the Australian National Accounts release (data for the December quarter of 2022 will be published in early March).
Sources: ABS, RBA

Graph C.3



* Demand includes monetary policy, investment and consumption shocks; foreign includes foreign demand and cost shocks; supply includes mark-up, technology and labour supply shocks; supply will capture some overseas cost shocks.
Sources: ABS, RBA

Endnotes

[1] See Shapiro A (2022), 'How Much Do Supply and Demand Drive Inflation?', FRBSF Economic Letter, Federal Reserve Bank of San Francisco, 21 June. See also Gonçalves E and G Koester (2022), 'The Role of Demand and Supply in Underlying Inflation – Decomposing HICPX Inflation into Components', ECB *Economic Bulletin*, July; Chen Y and T Tombe (2022), 'The Rise (and Fall?) of Inflation in Canada: A Detailed Analysis of its Post-

Pandemic Experience', SSRN Scholarly Paper No 4215492, September.

[2] This analysis uses data from the Australian National Accounts: National Income, Expenditure and Product release. Data for the December quarter of 2022 will be published in early March.

[3] See Del Negro M, A Gleich, S Goyal, A Johnson and A Tambalotti (2022), 'Drivers of Inflation: The

New York Fed DSGE Model's Perspective', *Liberty Street Economics*, Federal Reserve Bank of New York, 1 March; di Giovanni J, S Kalemli-Özcan, A Silva and M Yildirim (2022), 'Global Supply Chain Pressures, International Trade, and Inflation', ECB Forum on Central Banking, Sintra, 27–29 June; Eickmeier S and B Hofmann (2022), 'What Drives Inflation? Disentangling Demand and Supply Factors', BIS Working Paper No 1047.

[4] The model used for this analysis is outlined in Gibbs C, J Hambur and G Nodari (2018), 'DSGE Reno: Adding a Housing Block to a Small Open Economy Model', RBA Research Discussion Paper No 2018-04. Available at <<https://www.rba.gov.au/publications/rdp/2018/2018-04.html>>