

South African Reserve Bank Special Occasional Bulletin of Economic Notes

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South African Reserve Bank Special Economic Notes are a collection of descriptive and critical economic analyses with recommendations written for internal SARB discussion. They are written by staff members or fellows of the Economic Research Department and, on occasion, by consultants under the auspices of the SARB. They are released publicly on an occasional basis. This series features internal research on how oil price shocks generate second-round effects, with a specific focus on the 2026 oil price shock.

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Konstantin Makrelov

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SOUTH AFRICAN RESERVE BANK

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Oil price shocks and inflation: stylised facts from historical oil shocks

Mathias Manguzvane, Koketso Mantsena and Mpho Rapapali

Abstract

This note uses an event-study approach to examine how South Africa's inflation has responded to global oil price shocks. The results show that oil price shocks differed markedly in size, speed and duration, resulting in very different inflation outcomes. Pass-through was strongest in the food, transport and core goods components of the consumer price index (CPI), highlighting the uneven transmission of oil price shocks across the CPI basket. Inflation persistence varied considerably across shocks, with many CPI components remaining elevated long after the initial fuel price shock. The inflation environment also matters given that oil price shocks have larger and more persistent effects when they coincide with broader inflationary pressures.

1. Introduction¹

The 2026 US-Iran conflict has increased global oil prices, renewing concerns about the inflationary impact of energy shocks. Oil prices affect inflation through fuel, transport, imported inputs and production costs, but previous shocks show that pass-through is neither immediate nor uniform.

This economic note examines South Africa's inflation response to three major global oil price shocks: the 2008 commodity boom, the 2011 Arab Spring shock and the 2022 Russia-Ukraine shock. Using an event-study approach and CPI inflation data at COICOP (classification of individual consumption by purpose) level 3, it assesses whether inflation responses differed across episodes in size, speed and persistence, and identifies which components of the CPI basket were most exposed. The historical evidence provides a framework for understanding how previous oil shocks were transmitted through the CPI basket, which categories proved most vulnerable to persistent inflationary pressures, and what this may imply for assessing inflation risks associated with the current shock.

2. Data and methodology

We use monthly CPI data from Statistics South Africa (Stats SA), spanning January 2007 to December 2025, covering the CPI basket up to COICOP level 3. Using an event-study approach, we examine how South African inflation evolved around three major oil price shock

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¹ The authors would like to thank the following colleagues for their valued inputs and assistance: Keletso Morwane, Mokgabiso Tshenkeng, Siphosihle Lebea and Callum Frost.

episodes in 2008, 2011 and 2022. We focus on how large the responses were, how quickly they materialised and how long they lasted.

The analysis is descriptive rather than causal. While the event-study framework allows for a consistent comparison of inflation dynamics across historical oil price shocks, it does not isolate the effect of oil prices from other factors affecting inflation. The results should therefore be interpreted as stylised evidence rather than estimates of oil price pass-through.

To compare inflation responses across each oil shock episode, we normalise inflation rates relative to their average level in the six months before the shock.² For each episode, the event month is defined as the start of the oil price shock, identified as the month in which Brent crude oil prices began a sustained increase.³ Inflation responses are tracked over a 24-month post-shock event window for each episode. Let $\pi_{i,h}$ denote the year-on-year inflation rate of CPI component i at event horizon h . Following MacKinlay's (1997) event-study framework, we define the pre-shock benchmark as:

$$\bar{\pi}_i^{pre} = \frac{1}{n} \sum_{h=-n}^{-1} \pi_{i,h} \quad (1)$$

where n is the number of months in the pre-shock window. We then calculate the normalised inflation deviation as:

$$D_{i,h} = \pi_{i,h} - \bar{\pi}_i^{pre} \quad (2)$$

This captures the magnitude of the inflation response to an oil shock, measured as the deviation from the pre-shock average.⁴ Speed refers to the number of months it takes to reach the peak, while persistence reflects how long inflation stays above half of that peak size.⁵ For the CPI basket, we summarise this as the share of categories still elevated on this basis at that horizon (see Table 2). We also track CPI levels to account for base effects (see the annexures). This is a useful check, as falling year-on-year inflation does not necessarily mean earlier price increases have reversed.

3. Oil shocks differ in size, speed and duration

Oil price shocks have differed sharply in magnitude, speed and duration. The 2008 shock was the largest in size, with Brent crude oil prices rising from about US\$54 a barrel in early 2007 to more than US\$145 by mid-2008 (Figure 1). The increase reflected strong global demand, constrained supply and a broader commodity price boom that reinforced energy, food and agricultural price pressures. The shock lasted for 19 months before reversing sharply as the global financial crisis weakened economic activity.

² Results are broadly robust to using the pre-shock median instead of the mean and to alternative pre-shock windows. The six-month pre-shock window is used in the main analysis because it captures prevailing inflation conditions while limiting the influence of earlier, potentially unrelated developments.

³ The event dates are January 2007, February 2011 and February 2022 for the 2008, 2011 and 2022 oil price shocks, respectively. Although the first episode began in early 2007, it is referred to as the 2008 oil price shock because oil prices peaked in 2008.

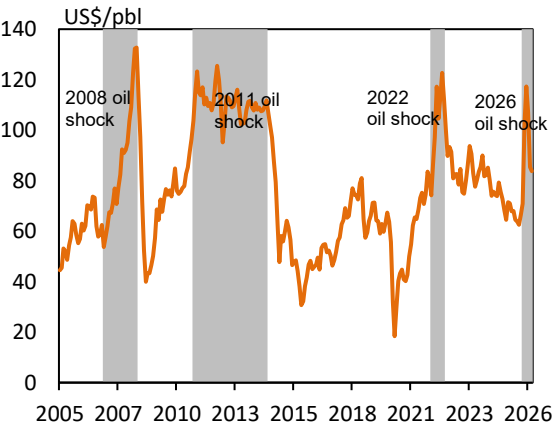
⁴ To avoid treating small, temporary movements as peak responses, peaks are identified only when the increase in inflation is sufficiently large relative to the overall response following the shock.

⁵ The half-peak threshold is motivated by the half-life concept in the persistence literature (e.g. Andrews and Chen 1994; Rogoff 1996). It provides a simple way to assess whether the effects of a shock have materially dissipated.

While the 2011 shock was comparatively smaller, with Brent crude rising from about US\$80 a barrel in mid-2010 to just under US\$130 by April 2011, it was the most persistent. Prices stayed elevated for about 42 months after disruptions to Libyan oil exports during the Arab Spring (Figure 2). This oil shock also coincided with global food price pressures from bad weather, crop failures and export restrictions.

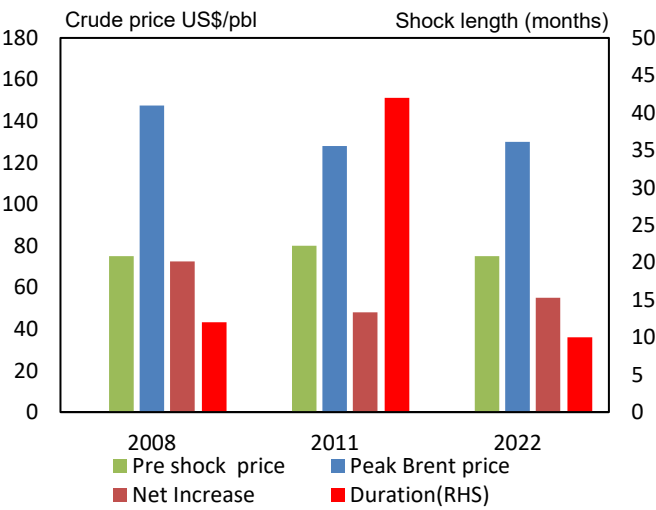
By contrast, the 2022 shock was the fastest to reach its peak. Brent crude rose from about US\$75 to more than US\$130 a barrel within the first month of Russia’s invasion of Ukraine. Prices remained elevated until June 2022 before gradually unwinding. Despite being similar in size to the 2011 shock, it lasted only about 10 months. The shock also coincided with a broader surge in food, fertiliser and energy prices alongside lingering supply-chain disruptions that predated the invasion but were exacerbated by the war.

Figure 1: Brent crude prices



Source: Thomson Reuters.

Figure 2: Historical global oil price shocks



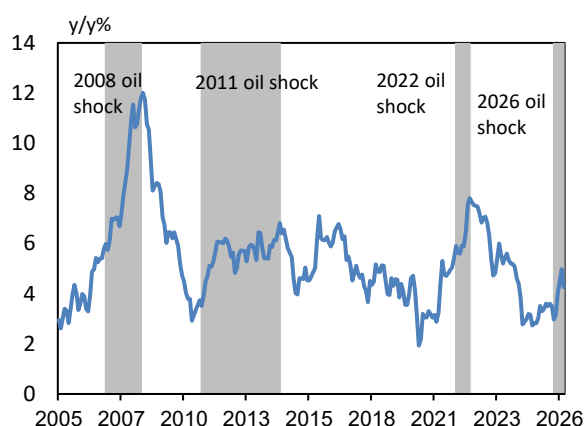
Source: Thomson Reuters. Authors’ own calculations.

4. The inflation response differs across oil shocks

4.1 Headline inflation responds differently across oil shocks

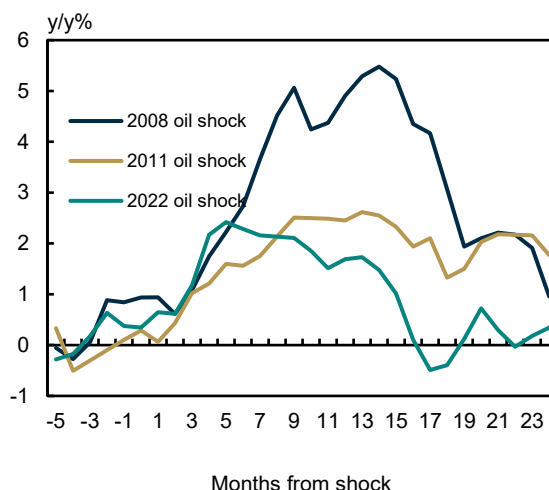
The inflation environment ahead of each oil shock was quite different. Inflation was already high and rising during the build-up to the 2008 shock, increasing from around 6% to almost 9% during 2007 (Figure 3). Ahead of the 2011 episode, inflation was falling, whereas in 2022 it was rising from a relatively low base. To make the three episodes comparable despite different starting conditions, Figure 4 plots each shock’s inflation path relative to its own six-month pre-shock average. This shows that the 2008 shock produced the largest response. Headline inflation peaked at more than 5 percentage points above its pre-shock average, about nine months after the shock. The 2011 response was smaller, at around 2.5 percentage points, but stayed elevated throughout the two-year window. The 2022 response was quicker, peaking within six months before fading below its pre-shock average after roughly 16 months.

Figure 3: Headline inflation across shocks



Source: Stats SA.

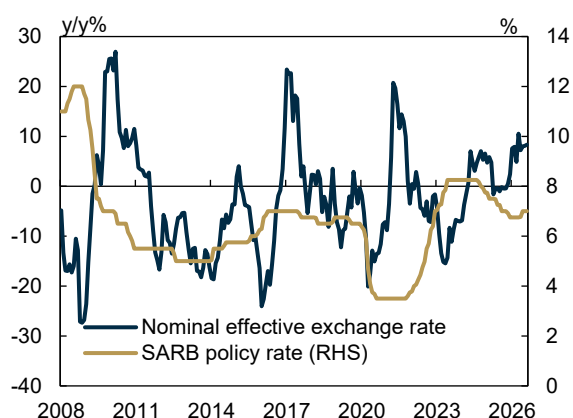
Figure 4: Headline inflation deviation from pre-shock average



Source: Stats SA. Authors' own calculations.

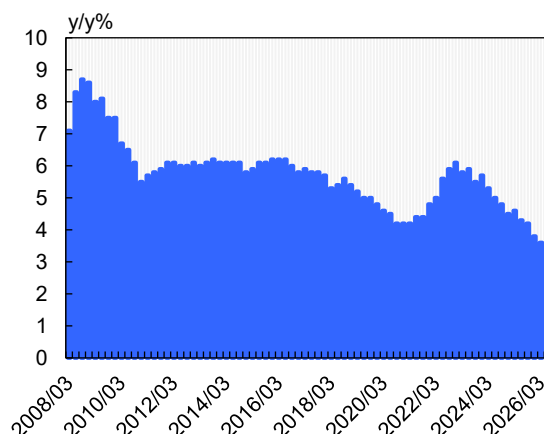
The inflation response to an oil price shock depends not only on the shock itself, but also on the broader inflation, macroeconomic and policy environment. In 2008 and 2011, higher oil prices coincided with food and commodity price shocks, a weak rand and elevated inflation expectations (Figures 5 and 6).⁶ Ahead of the 2022 shock, inflation expectations were considerably lower, but climbed as fuel, food and fertiliser costs rose. The period also coincided with a rapid monetary policy tightening cycle, with the South African Reserve Bank (SARB) raising the repo rate by 475 basis points between November 2021 and May 2023. Inflation was less persistent than previous shocks, despite elevated price pressures and rising inflation expectations. While tighter monetary policy may have contributed to this outcome, the event-study evidence does not allow its effect to be identified separately from other influences on inflation.

Figure 5: NEER and policy rate



Source: SARB.

Figure 6: One-year-ahead inflation expectations



Source: Bureau of Economic Research.

⁶ The May 2008 and November 2011 *Monetary Policy Review* highlight the role of rising food and energy prices, exchange rate weakness and elevated inflation expectations in shaping the inflation outlook (SARB 2008, 2011).

4.2 Pass-through is uneven across the CPI basket

Oil price shocks do not move uniformly through the CPI basket. Both the size and timing of the response differ sharply across components. Table 1 sets out the peak response and time to peak for selected CPI categories across the three episodes. Food and non-alcoholic beverages, transport and core goods were consistently the most sensitive, while housing and utilities responded far less, likely because prices in that category are driven more by housing-market and financial conditions than by oil costs.

Table 1: Speed and magnitude of CPI responses across oil shock episodes

Category	Peak response (ppts)			Time to peak (months)		
	2008	2011	2022	2008	2011	2022
Headline	5.1	2.6	2.4	9.0	13.0	5.0
Core	3.9	1.2	1.5	22.0	23.0	15.0
Core services	1.0	0.8	1.5	12.0	23.0	14.0
Core goods	6.7	4.5	3.6	9.0	10.0	5.0
Food and non-alcoholic beverages	8.3	9.1	7.3	14.0	11.0	13.0
Alcoholic beverages and tobacco	2.2	0.4	1.9	1.0	14.0	4.0
Clothing and footwear	27.7*	2.8	1.3	18.0	12.0	12.0
Housing and utilities	–	0.5	1.1	–	6.0	4.0
Furnishings	–	3.3	4.9	–	23.0	13.0
Health	–	0.2	2.7	–	0.0	19.0
Transport	–	5.6	2.7	–	10.0	1.0
Information and communication	–	1.0	0.4	–	6.0	4.0
Recreation, sport and culture	–	2.5	2.6	–	5.0	14.0
Education	0.0	0.0	1.6	0.0	0.0	13.0
Restaurants and accommodation	–	1.0	2.8	–	24.0	1.0
Insurance and financial services	1.4	1.6	1.5	9.0	12.0	14.0

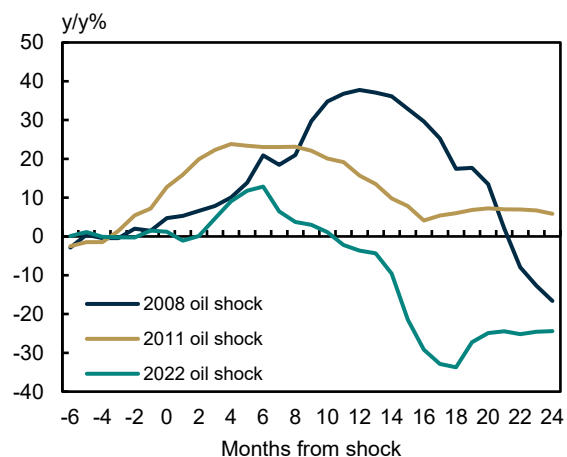
Note: 'Peak response' measures the maximum deviation from the six-month pre-shock average (percentage points). 'Time to peak' measures the number of months needed to reach this maximum response. A dash (–) indicates insufficient pre-shock data to calculate the peak response.

* The unusually large peak response in clothing and footwear inflation in 2008 partly reflected methodological changes introduced by Stats SA, alongside the broader inflation shock at the time. This resulted in inflation in this category rising to record highs.

Breaking down food and transport further reveals important differences within the same category. Oils and fats CPI saw some of the largest responses of any component across all three shocks (Figure 7), amplified by developments in global agricultural commodity and edible-oil markets.⁷ Cereals and milk and eggs responded more gradually, shaped by weather, fertiliser costs, feed costs and animal disease (Figure 8). Within transport, airfares exhibited large but volatile responses, reflecting fuel and demand conditions. Taxi fares responded more gradually and remained elevated for longer, likely because fare adjustments occur less frequently and changes in fuel costs are passed through to consumers with a lag (Figure 9).

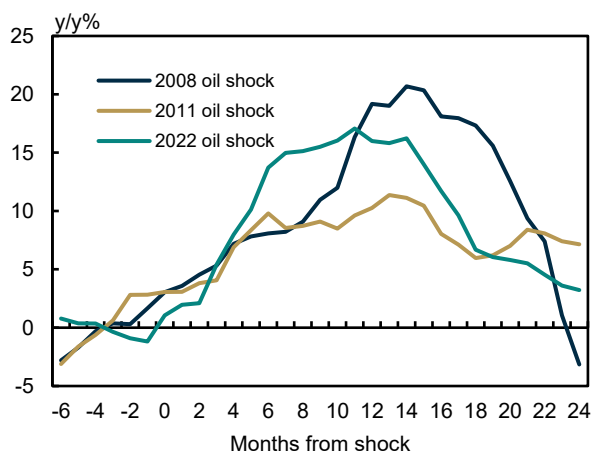
⁷ The large increases in oils and fats reflected more than oil price pass-through alone. They were also influenced by broader developments in global agricultural commodity and edible-oil markets, including the global commodity price boom, weather-related supply disruptions, geopolitical tensions in the Middle East and North Africa, and disruptions to Black Sea sunflower oil exports following Russia's invasion of Ukraine.

Figure 7: Oils and fats inflation deviation from pre-shock average



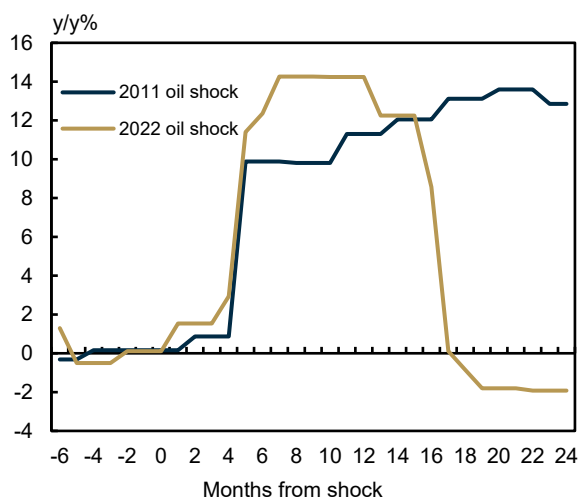
Source: Stats SA. Authors' own calculations.

Figure 8: Cereals inflation deviation from pre-shock average



Source: Stats SA. Authors' own calculations.

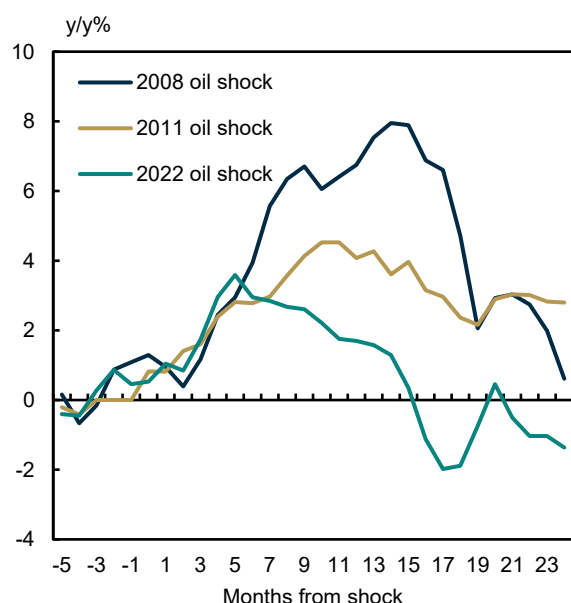
Figure 9: Taxi fares inflation deviation from pre-shock average



Source: Stats SA. Authors' own calculations.

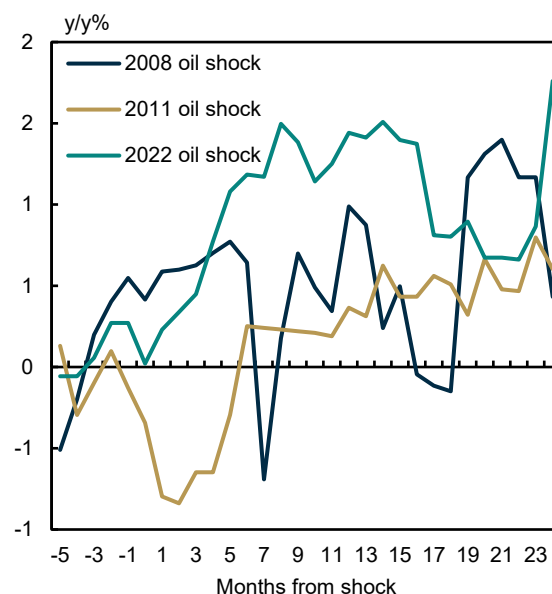
Core inflation responses to oil shocks were largely driven by core goods (Figures 10 and 11). Core goods responded earlier and by more than core services for all three shocks, consistent with their greater exposure to transport costs and energy-intensive manufacturing processes. Services such as housing and utilities, and restaurants and accommodation, exhibited smaller and more gradual responses.

Figure 10: Core goods inflation deviation from pre-shock average



Source: Stats SA. Authors' own calculations.

Figure 11: Core services inflation deviation from pre-shock average



Source: Stats SA. Authors' own calculations.

4.3 Inflation persistence varies across oil shocks

Inflation persistence also differed across the three oil shocks. Table 2 shows the share of COICOP 3 categories still above half their peak response after 24 months.⁸ Persistence was greatest after the 2008 shock, with 66.7% of categories still elevated, against 61.1% in 2011 and 55% in 2022. Inflationary pressures faded faster after 2022, but even then, more than half of the included CPI categories were still elevated two years later.

Table 2: Persistence of inflation responses across the CPI basket following oil price shocks

Oil shock period	Categories dissipating within 24 months (%)	Categories remaining above half-peak after 24 months (%)
2008	33.3	66.7
2011	38.9	61.1
2022	45.0	55.0

Note: Shares are calculated using the CPI components at COICOP level 3 available in each episode, excluding insurance, education, and information and communication services. As category coverage differs across time, the shares are based on current weights and are indicative rather than strictly comparable across episodes.

⁸ Persistence is measured as the share of COICOP 3 categories remaining above half of their peak response 24 months after the shock. Insurance, education, and information and communication services are excluded because their price dynamics are often driven by factors unrelated to oil price shocks. The dissipation point is defined as the first month after the peak when the response falls below half of its peak value and remains below this threshold for the rest of the event window.

5. Conclusion

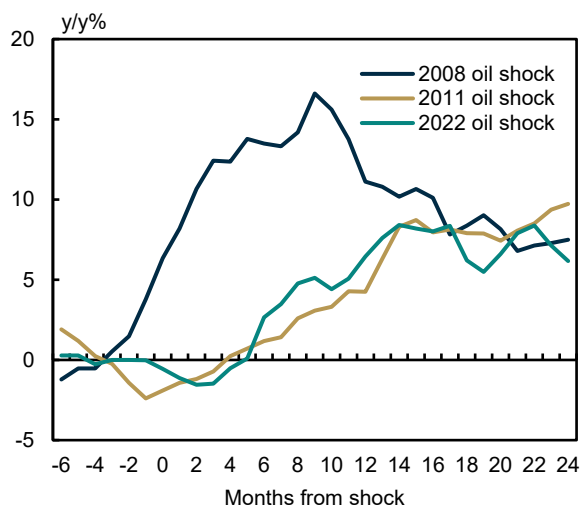
In this note we used an event-study approach to assess inflationary responses following the 2008, 2011 and 2022 oil price shocks. The results show that inflation outcomes are shaped not only by the size of the oil price increase, but also by the type of shock, how widely price pressures spread through the CPI basket, and the prevailing macroeconomic and policy environment. The largest and most persistent responses occurred when higher oil prices coincided with broader food and commodity price pressures. Transport, food and core goods were the main transmission channels, while persistence differed sharply across episodes. These findings suggest that the inflationary effects of oil price shocks depend on more than the oil price increase itself. Oil shocks appear most inflationary when they spread beyond fuel into the food, transport and core goods categories, particularly when they reinforce inflationary pressures already present elsewhere in the economy.

For the 2026 oil shock linked to the US-Iran conflict, the historical record indicates the need for a cautious assessment. Relative to 2008 and 2011, the current shock is unfolding in an environment of lower inflation and lower inflation expectations. Historical experience nevertheless suggests that oil price shocks tend to have more persistent effects when they reinforce inflationary momentum already present elsewhere in the economy. Monitoring how price pressures evolve across the CPI basket may provide an early indication of whether the current shock remains a temporary relative price adjustment or develops into a more persistent source of inflationary pressure. A broadening of price pressures beyond fuel into food, transport-intensive services and core goods would suggest greater persistence risks and warrant closer monitoring.

Annexures

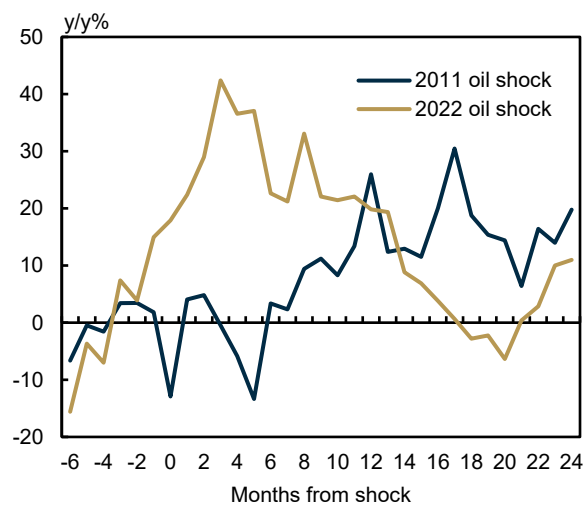
Annexure A: Disaggregated CPI components and oil shocks

Figure A1: Milk and eggs inflation deviation from pre-shock average



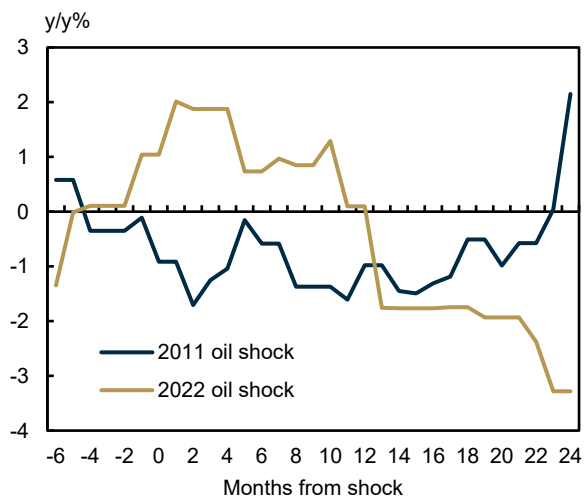
Source: Stats SA. Authors' own calculations.

Figure A2: Airfares inflation deviation from pre-shock average



Source: Stats SA. Authors' own calculations.

Figure A3: Bus fares inflation deviation from pre-shock average

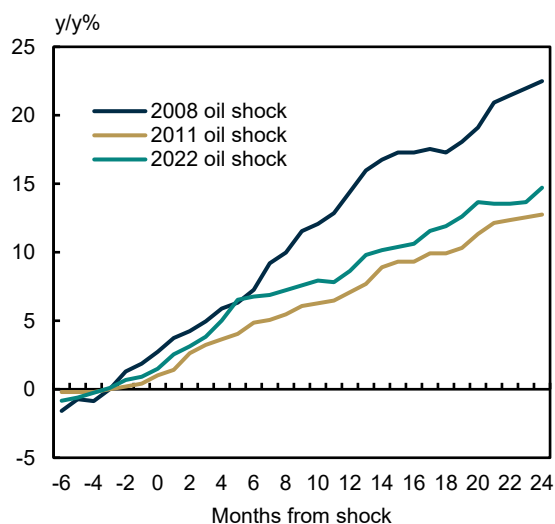


Source: Stats SA. Authors' own calculations.

Annexure B: Price-level responses to historical oil price shocks

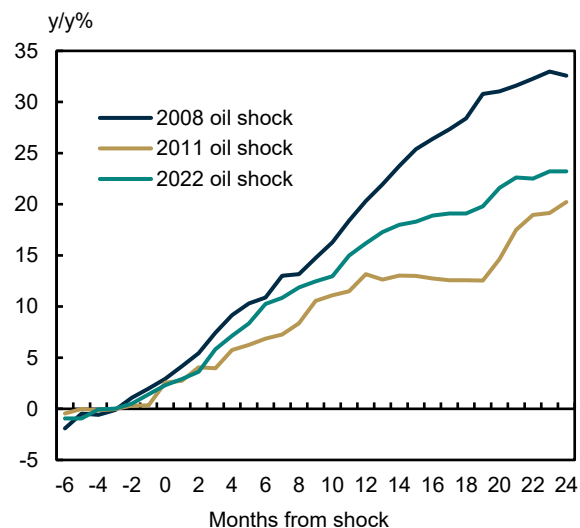
Our main analysis focuses on inflation rates. However, lower inflation does not necessarily imply that earlier price increases have been reversed. To assess whether oil price shocks resulted in lasting price increases, this annexure examines CPI price levels. The results broadly confirm the inflation rate findings: inflation eventually moderated, but price levels remained permanently higher following each shock.

Figure B1: Headline CPI price-level response across oil shock episodes



Source: Stats SA. Authors' own calculations.

Figure B2: Food and non-alcoholic beverages CPI price-level response across oil shock episodes



Source: Stats SA. Authors' own calculations.

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Fuel price pass-through in South Africa following the war in the Middle East

Keletso Morwane and Rudi Steinbach

Abstract

- The outbreak of war in the Middle East in early 2026 triggered one of the largest oil price shocks in recent decades, causing Brent crude prices, refinery margins and South Africa's fuel prices to rise even more steeply than after Russia's invasion of Ukraine.
- Using 389 eight-digit inflation components, this note assesses how inflation pressures have dispersed across the consumer price basket during the first six months following the shock and compares the results with the fuel price shock of 2022.
- We find that the 2026 event has so far generated a broad-based and intense inflation response, although some of the broadening, largely confined to a few services components, was already underway before the shock. More favourable conditions in key sectors such as food helped contain the overall pass-through of the shock, resulting in a less widespread and less dispersed inflation response than in 2022.
- Nevertheless, the intensity of the inflation pickup and the extent to which inflation has exceeded the pace consistent with the target are often comparable across the two episodes.

1. Introduction

US and Israeli strikes against Iran on 28 February 2026, and the subsequent regional escalation, caused international oil prices to rise sharply as the flow of tanker traffic through the Strait of Hormuz came to a standstill. At the same time, attacks targeting oil infrastructure across the region constrained oil-refining capacity. By the first week of April, the price of Brent crude had risen to US\$138 a barrel, after averaging US\$67 in January. In addition, higher refinery premiums – driven by damage to oil infrastructure in the Middle East and Ukrainian attacks on Russian refineries – pushed international refined fuel prices up to an even greater extent than crude oil prices. The shock quickly passed through to domestic fuel prices. Despite temporary fuel levy relief, petrol prices increased by R3.06 per litre in April and a further R3.27 per litre in May, while diesel prices rose even more sharply.

This near doubling of oil prices over a period of 12 weeks represents the third sharpest increase in energy costs over the last 40 years.¹ Although oil prices have retreated from their

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¹ Daily Brent crude oil price data is available from 1987. The two largest 12-week increases over this period were during the start of the Gulf War of 199–91 and in June 2020, as oil prices recovered to around US\$40 per barrel after briefly falling below US\$10 in April 2020 at the height of the COVID-19 pandemic.

peak levels reached in April, they remain elevated, with the price of Brent crude averaging around US\$102 per barrel in September as the conflict continues.

This study evaluates the degree to which the 2026 fuel price shock, driven by both a sharp increase in international crude oil prices and elevated refinery margins, has dispersed across the consumer price basket, using 8-digit COICOP (classification of individual consumption by purpose) components.² For context, the dispersion is compared to that of the 2022 fuel price shock following the war in Ukraine, along with long-term average rates of inflation in these components.

2. Comparing the 2026 fuel price shock to that of 2022

To place the 2026 episode in context, it is useful to compare it with the fuel price shock that followed Russia's invasion of Ukraine in 2022. Although both events were externally generated supply shocks, they differed significantly in magnitude, transmission channels and the macroeconomic backdrop against which they unfolded, with important implications for the inflation response.

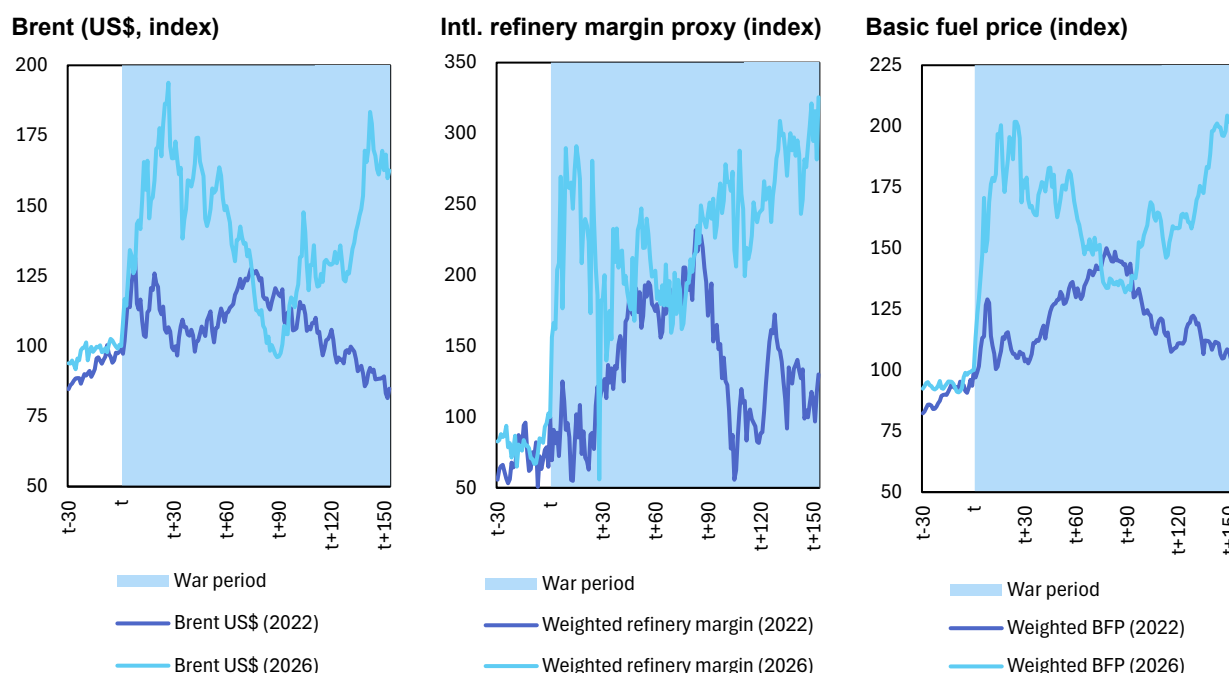
In the lead-up to Russia's invasion of Ukraine, Brent crude prices were already trending higher as the global economy recovered from the COVID-19 pandemic (see Figure 1). Following the outbreak of war in February 2022, the Brent crude price rose rapidly, peaking around 32% higher just eight days after the invasion. The shock quickly passed through to South Africa's fuel market, with the basic fuel price (BFP) increasing by about 29% over the same period, before gradually moderating.³

By contrast, the 2026 Middle East conflict followed a period of relatively subdued oil prices. The outbreak of hostilities and disruptions to shipping through the Strait of Hormuz triggered a much larger and more persistent energy shock. The Brent crude price had risen 94% by day 27 – almost double its pre-conflict level, while international refinery margins surged to nearly three times their pre-war levels. As a result, the BFP doubled relative to its pre-conflict level and remained elevated for a prolonged period. Compared with 2022, the 2026 episode was characterised by substantially larger increases in oil prices, refinery margins and domestic fuel costs.

² Throughout this note, the term 'fuel price shock' refers to the increase in domestic fuel prices resulting from developments in international crude oil markets, refinery margins, exchange rate movements and policy measures affecting the fuel price structure. The analysis focuses on the inflationary effects of the final fuel price faced by consumers rather than crude oil prices in isolation.

³ See the annexure for a detailed breakdown of petrol and diesel price developments in 2022 and 2026.

Figure 1: Oil and fuel prices following the outbreak of war in 2022 and 2026



Source: Haver, SARB.

Note: Indices are set to 100 on the day before the outbreak of the respective war. Days reflect five-day weekdays. Last observation is 30 September 2026.

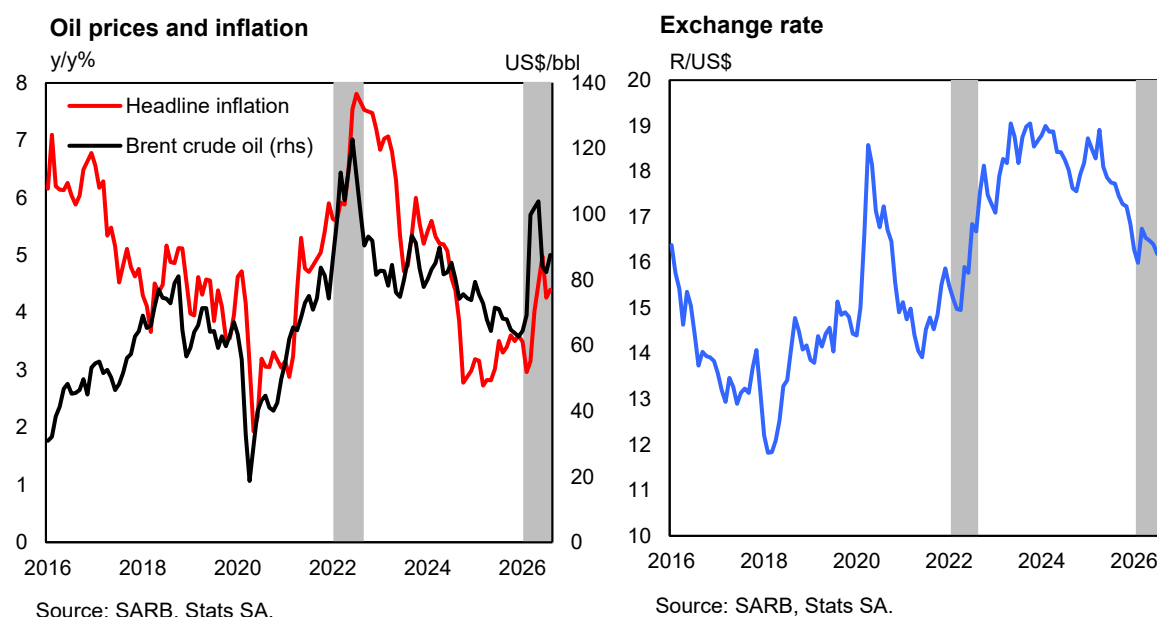
Despite the larger fuel shock, the broader inflation backdrop differed across the two episodes (see Figure 2). The 2022 conflict in Ukraine occurred during a period of elevated global inflation as post-pandemic bottlenecks and high commodity prices placed upward pressure on goods and services inflation. In this environment, higher fuel costs reinforced existing inflationary momentum and contributed to more widespread increases across the consumer basket. The 2026 Middle East conflict occurred after a prolonged period of disinflation. Although oil prices, refinery margins and the BFP saw substantially larger increases than in 2022, the pass-through to broader inflation has thus far been more limited.^{4,5}

Previous fuel price shocks, including in 2022, were accompanied by a weakening exchange rate that contributed to imported inflation by raising the rand cost of fuel along with other imported goods (see Figure 2). By contrast, the rand has remained relatively resilient during 2026, largely trading within a R16 – R16.50/US\$ range despite heightened global uncertainty. The absence of a large exchange rate depreciation may have helped contain imported inflation outside the energy complex, limiting the breadth of pass-through across the consumer basket even as oil prices, refinery margins and domestic fuel costs increased substantially.

⁴ Studies for the euro area, United Kingdom and United States have found similar results for those economies (see Bank of England (2026) and Reis (2026)).

⁵ The term 'pass-through' is used here in a descriptive rather than a structural sense. It should not be interpreted as a causal estimate of the impact of a pure fuel price shock, as other contemporaneous factors may also have influenced inflation over the period.

Figure 2: Oil prices, inflation and exchange rate



3. Methodology

The degree to which the fuel price shock of 2026 has been dispersing across the consumer price index (CPI) basket is assessed by analysing the extent to which the price indices of the 391 individual items tracked by Statistics South Africa (Stats SA) have increased over the six months since the onset of the war in February 2026 (i.e. up to the latest published figures). For each item, the price index in February 2026 is normalised to 100, and the cumulative increase over the subsequent six months is calculated. To focus on the spillovers from the fuel price shock, petrol and diesel are excluded from the analysis, leaving 389 items.⁶ The indices for these items are compared to two benchmarks: (i) those over the first six months following the fuel price shock in 2022 after Russia invaded Ukraine; and (ii) the average six-month price increase over the last decade.⁷

Five metrics are assessed: (i) the CPI-weighted increase across the 389 individual items; (ii) the share of items where prices have increased; (iii) the share of items where prices have increased at a faster rate than the inflation target; (iv) the spread between the 10th and 90th percentiles; and (v) the share of the latest year-on-year rate accounted for by increases since February.⁸

⁶ Household fuels such as gas and paraffin are retained, as they are primarily final consumption goods with less pervasive second-round effects across the CPI basket.

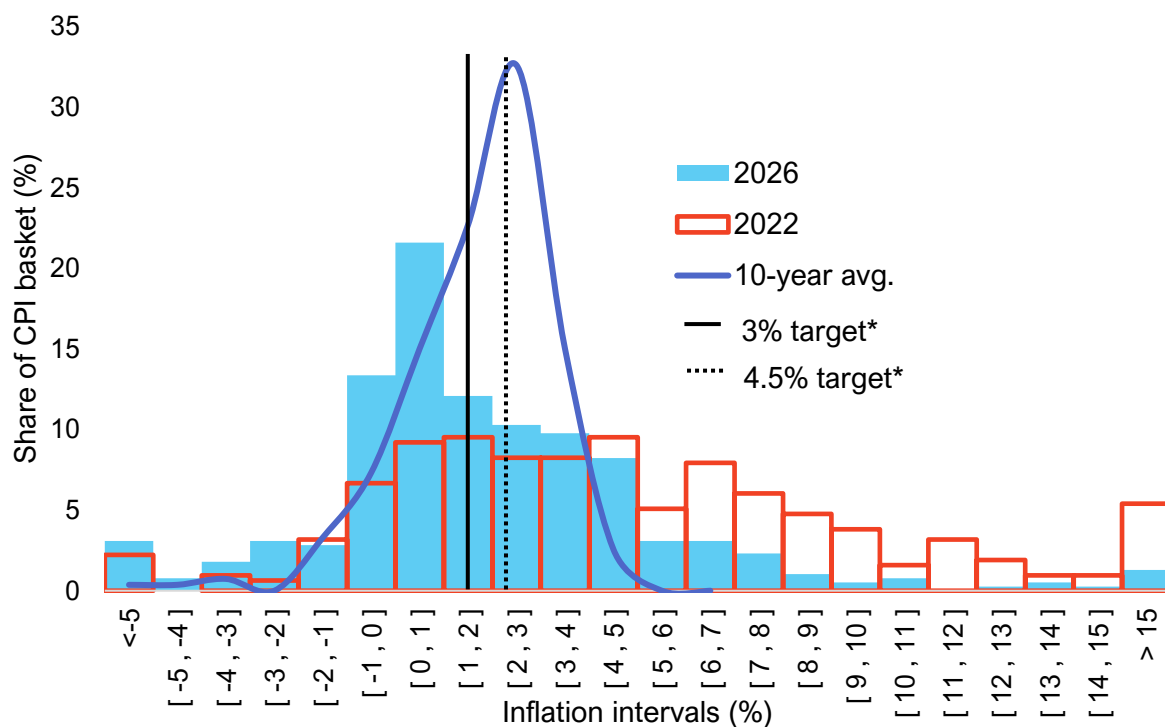
⁷ Due to revisions to the 8-digit components over time, the 2022 sample includes 315 items and the 10-year sample 270.

⁸ Three additional metrics are given in the annexure: the average increase across the 389 individual items, along with the implied pass-through from the fuel price shock for both the average and CPI-weighted increases.

4. Results

Our findings show that the 2026 shock has contributed to substantial inflationary pressures across the CPI basket, with the distribution of price changes six months after the shock wider than the 10-year average distribution (Figure 3).

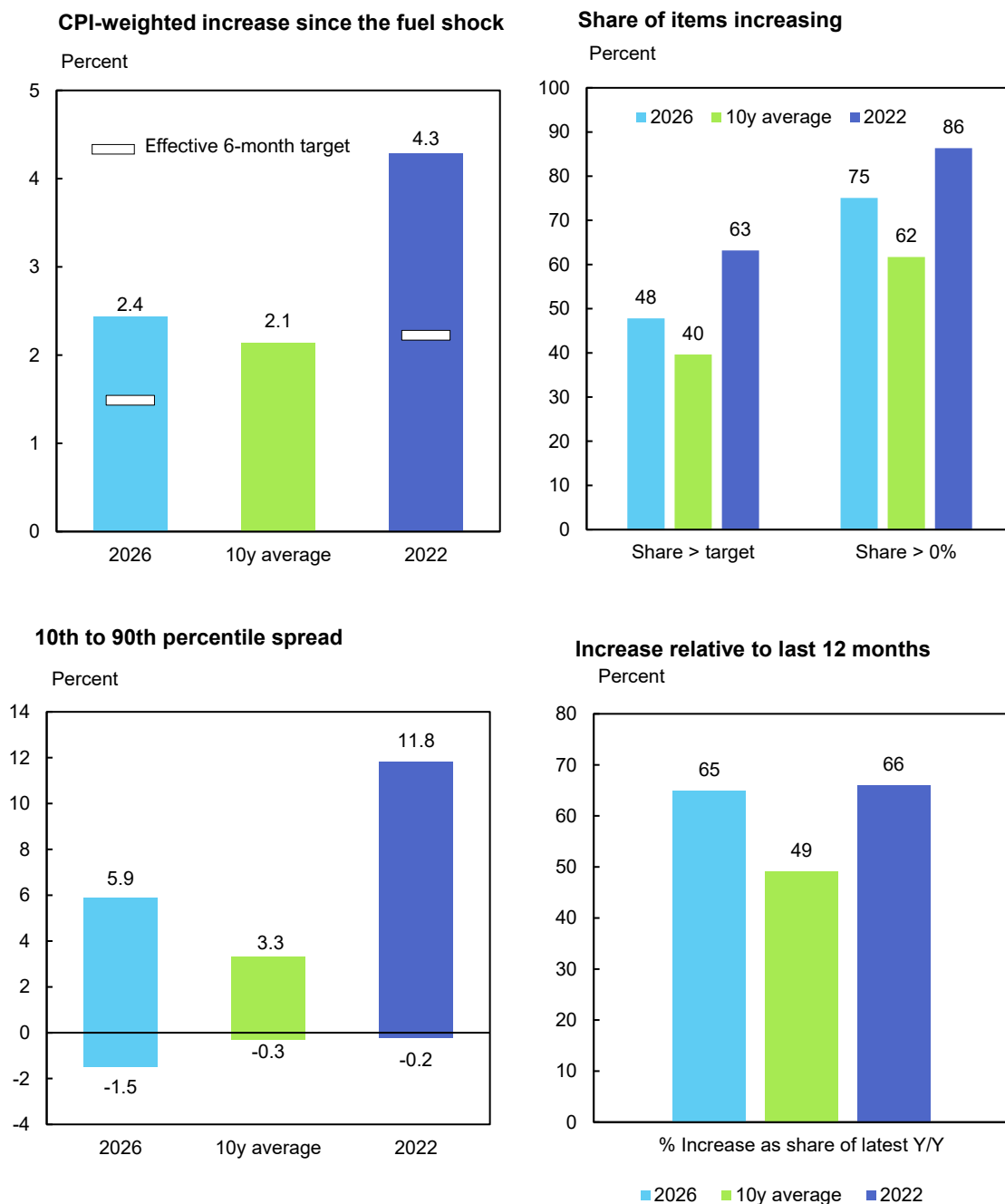
Figure 3: Distribution of 6-month price increases across the 8-digit CPI basket (excl. fuel)



Source: SARB, Stats SA.

However, the cumulative inflationary pressures six months after the fuel shock of February 2022 were stronger and broader than the current shock. This is mainly because, unlike in 2026, the 2022 shock coincided with food price and demand shocks, compounded by a weakening exchange rate.

Figure 4: Total CPI basket (excl. fuel)



Source: SARB, Stats SA.

The weighted price in the basket excluding fuel has risen by 2.4% since February this year, compared with 4.3% over the same period in 2022 (see Figure 4). However, both increases far exceed the pace that would be consistent with the inflation target over a six-month period. This year's increase has been 1.6 times faster than the 3% target, compared to 1.9 times faster in 2022 when the target was 4.5%, with the difference largely reflecting relatively lower food inflation in 2026 (to date) amid sector-specific factors.⁹ Importantly, the intensity of the increase – how much of the current year-on-year inflation in each item is due to price increases since

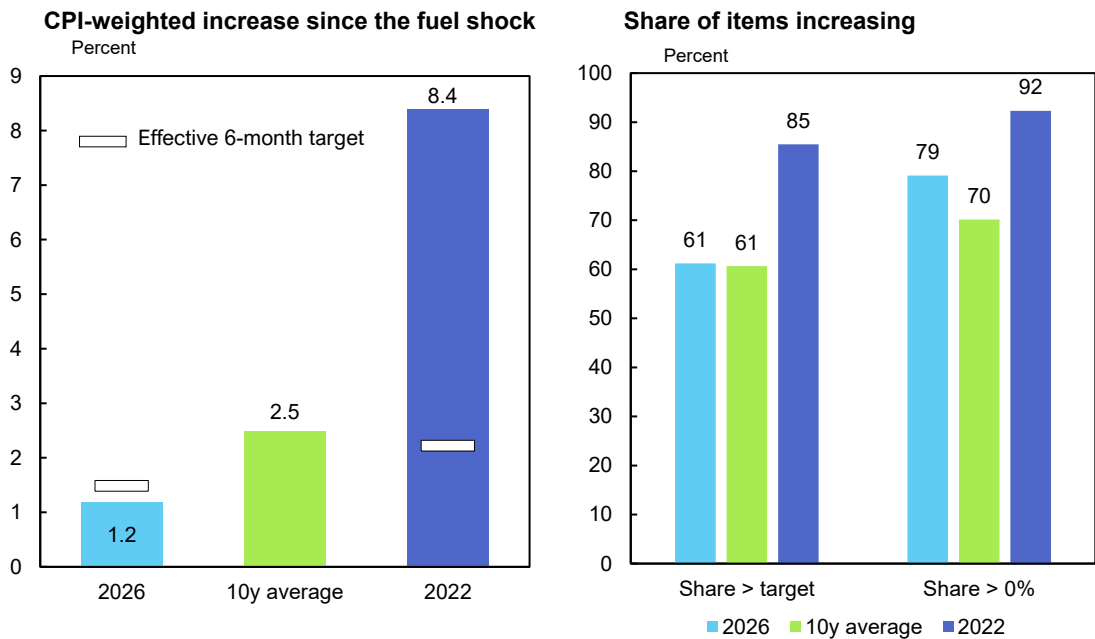
⁹ See the discussion below on sector-specific developments currently keeping CPI food inflation muted.

February – is similar across both episodes, with recent price pressures accounting for 65% of the latest year-on-year inflation rate, compared with 66% following the 2022 shock.

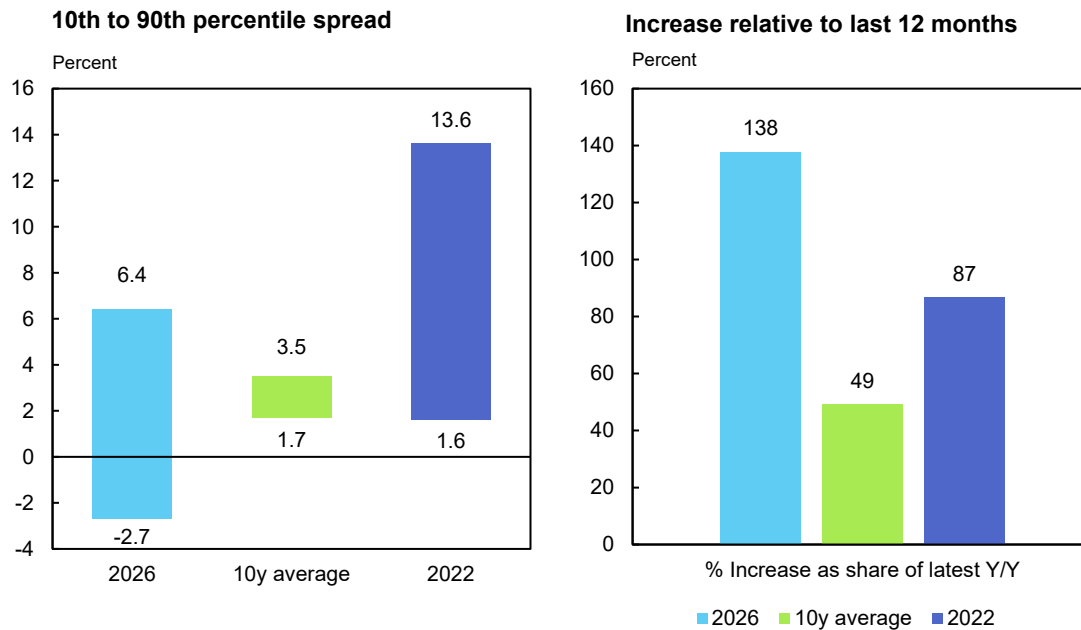
Scaling both these rates of inflation by the increase in the CPI fuel price over the respective six-month periods, the rise in CPI in 2026 equates to pass-through of about 8%, while in 2022 the six-month pickup in CPI was equivalent to 15% of the fuel price increase at the time (see the annexures). This underscores the multitude of inflationary shocks occurring in 2022 but not repeated this year. The pace of price increases in more than 63% of items exceeded the inflation target after the 2022 shock, compared with 48% in 2026.¹⁰ Most items still recorded outright price increases in both episodes. However, the share was higher in 2022 (86%) than in 2026 (75%), indicating broader inflation pressures. These factors contribute to the somewhat narrower distribution of inflation pressures over the last six months than was seen in 2022: the gap between the 10th and 90th percentiles is 7.4 percentage points in 2026, roughly six tenths of the 12 percentage points recorded in 2022.

Inflation for food and non-alcoholic beverages (FNAB) has remained more contained than expected, helped by softer cereals and meat prices (see Figure 5). Cereal prices have remained muted amid large global and domestic grain surpluses, while meat has been moderating as the inflationary effects of foot and mouth disease continue to wane.

Figure 5: Food and non-alcoholic beverages inflation



¹⁰ The official inflation targets are used in the respective periods: 4.5% in 2022 and 3% in 2026. For simplicity, decimals of respective increases are not rounded. As such, an increase of 3.04% is still recorded as an above-target increase.

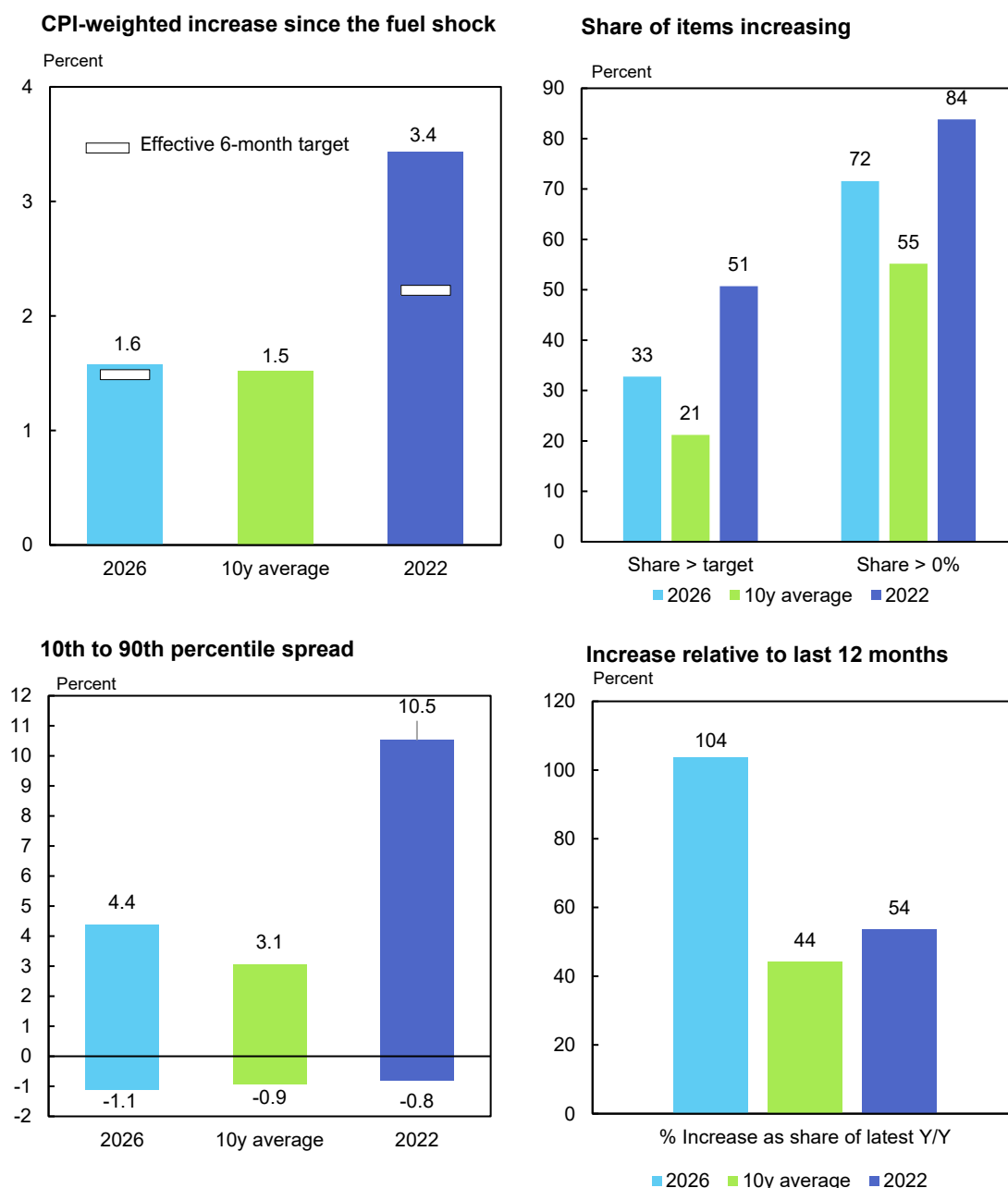


Source: SARB, Stats SA.

Since the 2026 shock, food prices have risen by 1.2% on a CPI-weighted basis, below the 2022 episode and slower than historical norms. Consistent with this, food inflation has been less broad-based and dispersed than in 2022, with fewer items recording price increases above the inflation target and a narrower spread (9.1 percentage points compared with 12 percentage points in 2022). Despite these relatively contained outcomes, the intensity of food price increases since February has been markedly stronger than in 2022, with pressures over the last six months amounting to 138% of the current year-on-year FNAB inflation rate, compared to 87% in 2022.

Core goods inflation has picked up since February, but to a lesser extent than in 2022. The CPI-weighted increase has reached 1.6%, exceeding the effective six-month target and the 10-year average (see Figure 6). About 72% of items have recorded positive inflation and 33% are increasing at rates above target. The distribution of inflation among core goods is also less dispersed than in 2022, with the spread narrowing from 11.3 percentage points to 5.5 percentage points. Products more directly related to the petrochemical industry, such as varnish, have shown marked inflation, as have those that are more sensitive to transport costs, such as cement, whose large physical weight relative to its value make it particularly exposed to transport cost increases. However, deflation in technological goods has continued, partly offsetting upside pressures from fuel-price spillovers. Importantly, however, core goods inflation has accelerated much more sharply this year, with more than the entire current year-on-year core goods inflation rate explained by increases since February. This is much higher than the intensity of 2022, when only 54% of the year-on-year rate in August was due to price increases after February.

Figure 6: Core goods inflation

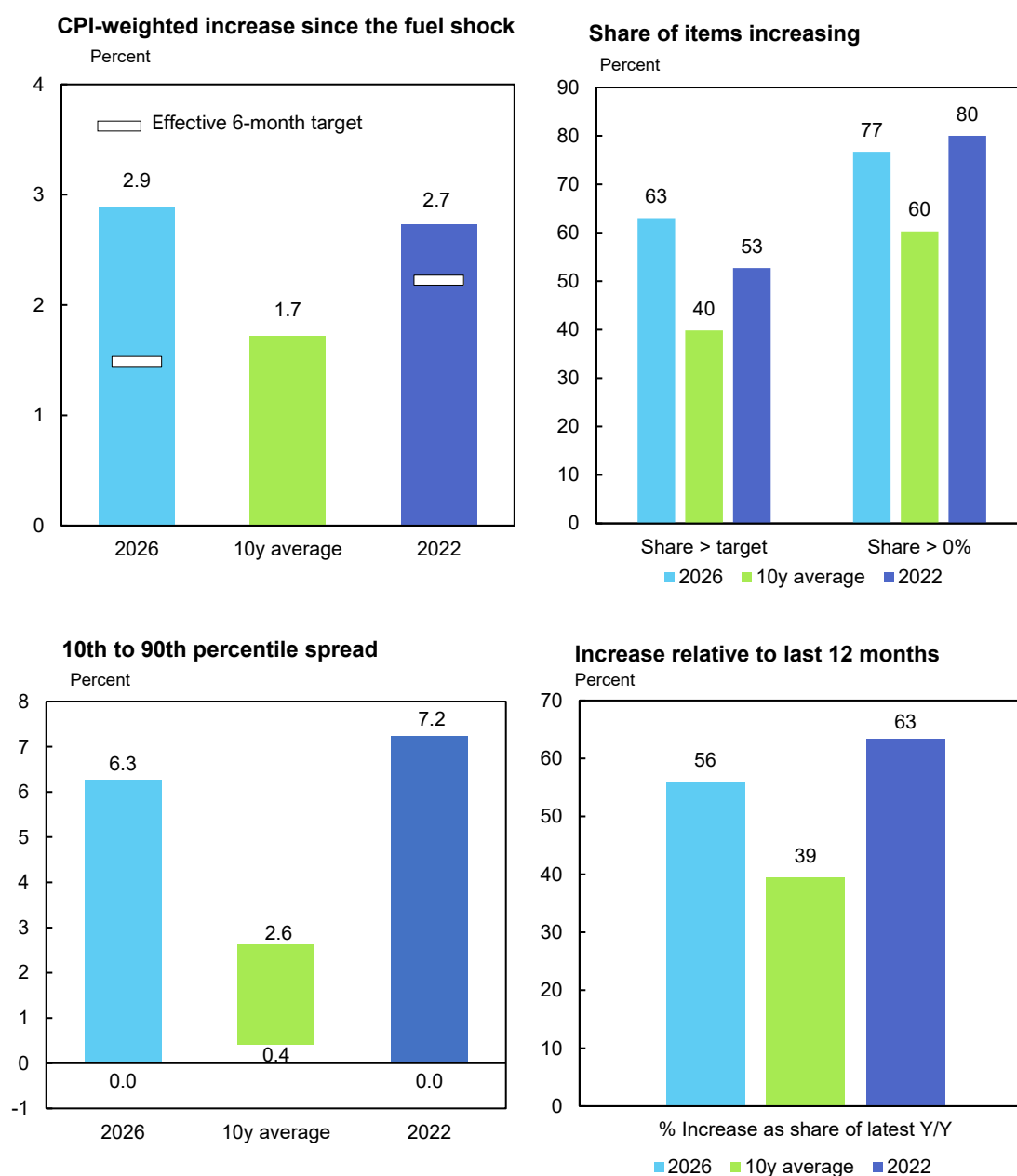


Source: SARB, Stats SA.

CPI-weighted services inflation has exceeded the levels seen in 2022, as services components that consume large amounts of fuel have risen sharply since February. These include air, taxi and bus fares. Relative to the respective inflation targets, the services inflation pickup in 2026 has been markedly worse. The pace of services price increases since February this year has been almost twice that of the 3% target, while the ratio of price increases relative to target was just 1.2 in 2022. Inflation pressures among services components have also become more dispersed, with the spread increasing from an average of 2.2 percentage points to 6.3 percentage points this year – but remaining below the 7.2 percentage point spread observed in 2022. Although nearly 60% of current year-on-year services inflation can be attributed to price increases since the onset of the shock, the broadening of pressures across rentals, health, insurance, financial services and communication services suggests that the

pickup in services inflation also reflects wider domestic inflation dynamics rather than the direct pass-through of higher fuel prices alone.

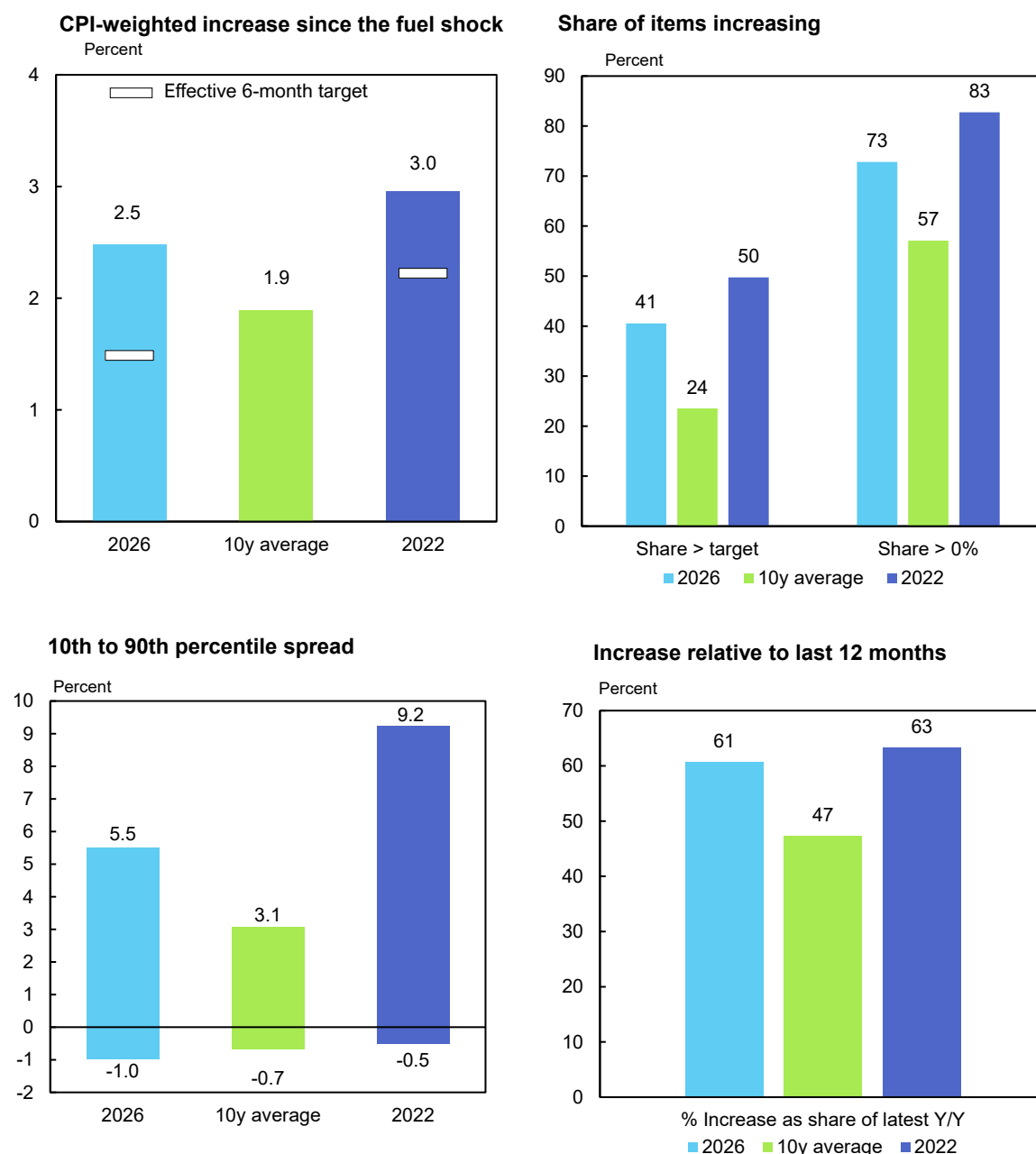
Figure 7: Services inflation



Source: SARB, Stats SA.

In all, core inflation has accelerated since the fuel price shock, but at a slightly slower pace than in 2022, with the proportion of items whose prices have risen since February also above the historical norm. Still, the pace of acceleration exceeds the inflation target by a wider margin than in 2022. In addition, 61% of current year-on-year core inflation reflects price increases since February. This is broadly in line with the contribution observed in 2022 and well above the 10-year average of 47%. Although this suggests that the fuel price shock has made a meaningful contribution to underlying inflation, rising services inflation in categories mostly unrelated to fuel price pressures have also contributed.

Figure 8: Core inflation



Source: SARB, Stats SA.

5. Implications for monetary policy

Examining how widely inflation pressures have spread across the basket helps distinguish between a relative price shock and a broader inflationary process. If price increases remain concentrated in directly affected items such as fuel, the inflationary effects are likely to be temporary and may require little monetary policy response. However, if inflation pressures spread to a wider range of goods and services, this would increase the risk that the shock becomes embedded in underlying inflation. In the 2026 episode, inflation pressures over the first six months following the fuel price shock have become more widespread than historical norms, but remain less broad-based than during the 2022 shock. Nonetheless, in many instances, both the intensity of this year's inflation pickup and the degree to which inflation has exceeded the target are comparable to those seen in 2022, despite the 2022 shock having

coincided with rising global food prices, strong global demand and a weakening exchange rate not seen this time around. Should the current shock be prolonged, or if it coincides with an adverse climatic shock – a super El Niño is widely expected – further price pressures are likely. In addition, peak second-round effects often take longer than six months to manifest.

6. Conclusion

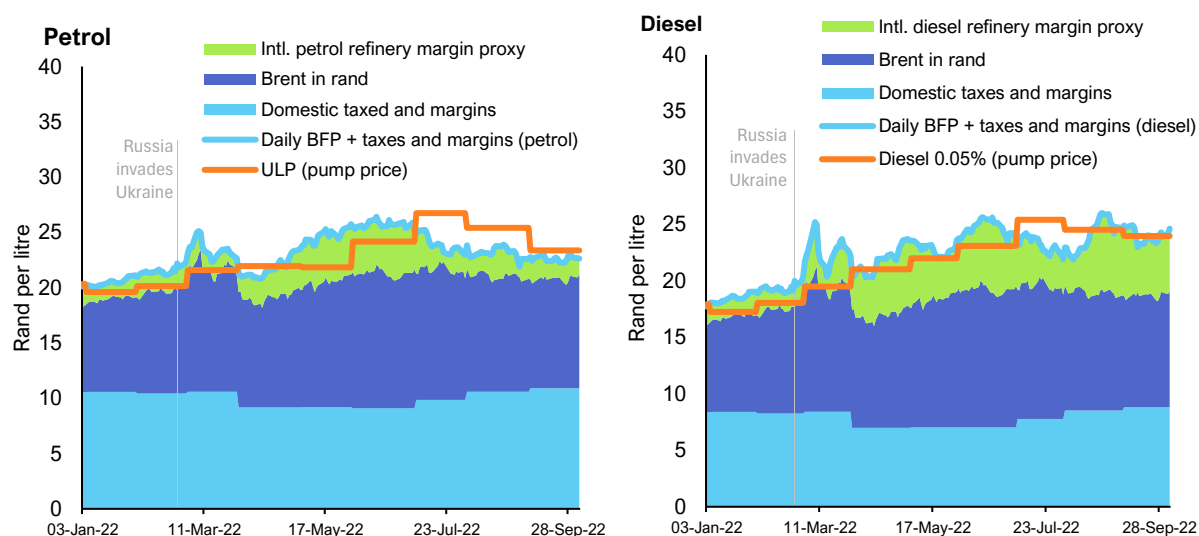
This note compared the inflationary outcomes of the 2026 war in the Middle East with those following Russia's invasion of Ukraine in 2022. Despite generating larger increases in oil prices, the 2026 shock has so far produced a less extensive inflation response than in 2022. This occurred against a more benign inflation environment when the shock hit in February this year. However, price increases are still well above the 10-year average inflation and well above increases consistent with the 3% target. The price pressures that have emerged in response to this year's fuel shock generally account for a large share of current inflation rates.

For policy, the impact of a fuel price shock depends on the size of the increase but also the extent to which those pressures spread. While the direct effects of higher fuel costs are unavoidable, the broader policy concern lies in whether shocks become embedded in underlying inflation through indirect effects that ultimately fuel a second round of inflationary pressures by raising inflation expectations and wage demands. With the conflict in the Middle East continuing beyond our six-month study window, the probability of widespread impacts is significantly higher.

Annexures

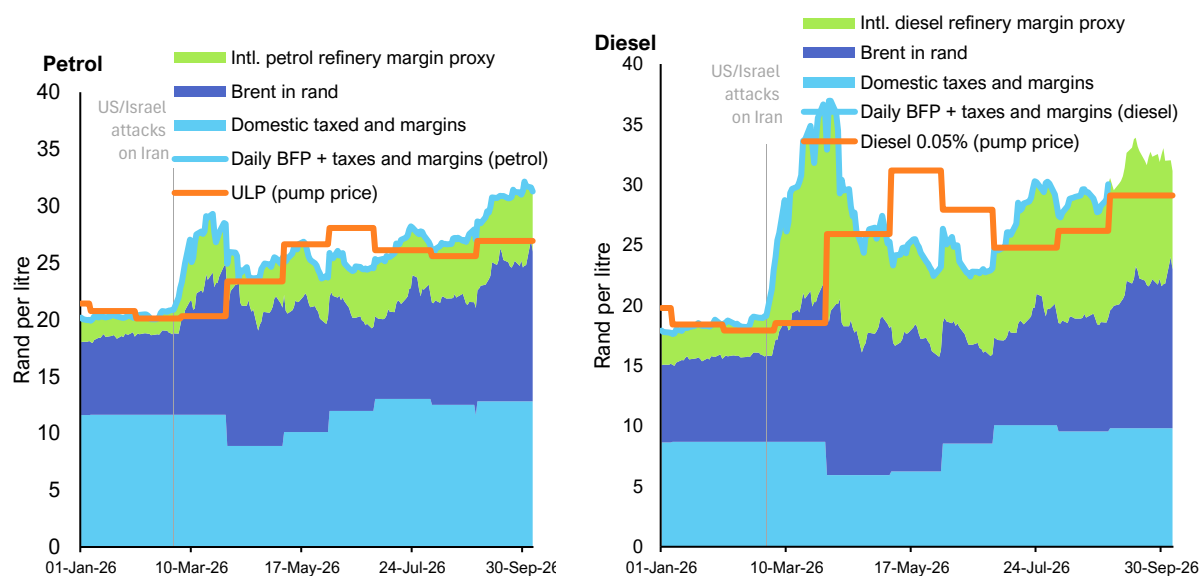
Annexure A: Contributions to domestic fuel prices in 2022 and 2026

Figure A1: 2022 petrol and diesel price breakdown



Source: Central Energy Fund, Haver, SARB.

Figure A2: 2026 petrol and diesel price breakdown



Source: Central Energy Fund, Haver, SARB.

Annexure B: Detailed results across inflation components¹¹

Total basket excl. fuel	2022	2026	10-year average
Average	4.9	1.9	1.7
CPI weighted	4.3	2.4	2.1
Share > target	63.2	47.8	39.6
Share > 0%	86.3	75.1	61.7
10th percentile	-0.2	-1.5	-0.3
90th percentile	11.8	5.9	3.3
Latest Y/Y	6.5	3.8	4.4
% Increase as share of latest Y/Y	66.0	64.8	49.1
Fuel pass-through: Average	17.3	6.7	
Fuel pass-through: CPI weighted	15.1	8.3	
Core CPI	2022	2026	10-year average
Average	3.5	1.6	1.3
CPI weighted	3.0	2.5	1.9
Share > target	49.7	40.6	23.5
Share > 0%	82.7	72.8	57.1
10th percentile	-0.5	-1.0	-0.7
90th percentile	9.2	5.5	3.1
Latest Y/Y	4.7	4.1	4.0
% Increase as share of latest Y/Y	63.3	60.6	47.2
Fuel pass-through: Average	12.4	5.5	
Fuel pass-through: CPI weighted	10.4	8.5	
Core goods CPI	2022	2026	10-year average
Average	3.6	1.5	1.0
CPI weighted	3.4	1.6	1.5
Share > target	50.7	32.8	21.2
Share > 0%	83.8	71.6	55.2
10th percentile	-0.8	-1.1	-0.9
90th percentile	10.5	4.4	3.1
Latest Y/Y	6.4	1.5	3.4
% Increase as share of latest Y/Y	53.6	103.7	44.2
Fuel pass-through: Average	12.6	5.3	
Fuel pass-through: CPI weighted	12.1	5.4	
Services CPI	2022	2026	10-year average
Average	3.4	2.7	1.6
CPI weighted	2.7	2.9	1.7
Share > target	52.7	63.0	39.8
Share > 0%	80.0	76.7	60.3
10th percentile	0.0	0.0	0.4
90th percentile	7.2	6.3	2.6
Latest Y/Y	4.3	5.1	4.3
% Increase as share of latest Y/Y	63.3	56.0	39.4
Fuel pass-through: Average	12.1	9.2	
Fuel pass-through: CPI weighted	9.6	9.9	

¹¹ Detailed results across inflation components, in percent.

Food and non-alcoholic beverages CPI	2022	2026	10-year average
Average	7.2	2.5	2.6
CPI weighted	8.4	1.2	2.5
Share > target	85.5	61.2	60.6
Share > 0%	92.3	79.1	70.1
10th percentile	1.6	-2.7	1.7
90th percentile	13.6	6.4	3.5
Latest Y/Y	11.8	1.1	5.1
% Increase as share of latest Y/Y	71.2	112.6	49.3
Fuel pass-through: Average	25.4	8.7	
Fuel pass-through: CPI weighted	29.5	4.1	
Alcoholic beverages and tobacco CPI	2022	2026	10-year average
Average	5.2	2.3	2.6
CPI weighted	3.9	2.1	2.5
Share > target	90.9	64.3	60.6
Share > 0%	100.0	85.7	64.3
10th percentile	3.1	0.1	2.1
90th percentile	8.6	4.4	3.2
Latest Y/Y	5.8	3.6	5.0
% Increase as share of latest Y/Y	66.1	59.2	49.4
Fuel pass-through: Average	18.1	7.9	
Fuel pass-through: CPI weighted	13.5	7.2	
Clothing and footwear CPI	2022	2026	10-year average
Average	1.8	0.5	0.8
CPI weighted	1.9	0.6	0.9
Share > target	26.3	4.3	0.0
Share > 0%	94.7	93.6	78.7
10th percentile	0.2	0.1	0.3
90th percentile	4.7	1.0	1.4
Latest Y/Y	2.8	1.1	1.8
% Increase as share of latest Y/Y	66.8	51.5	49.7
Fuel pass-through: Average	6.2	1.7	
Fuel pass-through: CPI weighted	6.5	1.9	
Housing and utilities CPI	2022	2026	10-year average
Average	4.1	4.6	2.3
CPI weighted	3.0	3.9	2.3
Share > target	38.9	82.6	26.9
Share > 0%	94.4	100.0	69.6
10th percentile	1.1	1.2	1.4
90th percentile	7.9	8.0	4.3
Latest Y/Y	4.2	5.2	4.6
% Increase as share of latest Y/Y	72.7	75.2	49.1
Fuel pass-through: Average	14.4	15.9	
Fuel pass-through: CPI weighted	10.6	13.4	

Furnishings, household equipment and routine maintenance CPI	2022	2026	10-year average
Average	4.7	0.0	0.3
CPI weighted	2.5	1.2	1.0
Share > target	56.3	24.4	6.1
Share > 0%	81.3	41.5	29.3
10th percentile	-0.4	-2.5	-1.0
90th percentile	9.0	3.7	2.0
Latest Y/Y	5.1	1.3	2.1
% Increase as share of latest Y/Y	49.1	91.0	48.9
Fuel pass-through: Average	16.4	0.0	
Fuel pass-through: CPI weighted	8.8	4.0	
Health CPI	2022	2026	10-year average
Average	1.4	1.3	2.3
CPI weighted	0.8	0.9	2.2
Share > target	16.7	31.8	78.7
Share > 0%	25.0	54.5	50.0
10th percentile	-1.6	0.0	1.4
90th percentile	9.7	4.2	3.1
Latest Y/Y	4.2	3.4	4.4
% Increase as share of latest Y/Y	18.4	26.7	49.3
Fuel pass-through: Average	5.0	4.6	
Fuel pass-through: CPI weighted	2.7	3.1	
Transport excl. fuel CPI	2022	2026	10-year average
Average	6.3	3.1	1.7
CPI weighted	7.1	3.7	2.2
Share > target	76.0	56.7	36.1
Share > 0%	92.0	86.7	66.7
10th percentile	0.7	-0.1	0.9
90th percentile	14.2	5.9	2.9
Latest Y/Y	11.7	4.5	4.4
% Increase as share of latest Y/Y	60.9	84.0	49.4
Fuel pass-through: Average	22.1	10.5	
Fuel pass-through: CPI weighted	24.9	12.8	
Information and communication CPI	2022	2026	10-year average
Average	1.0	1.6	-2.4
CPI weighted	2.7	2.8	-0.9
Share > target	33.3	50.0	0.7
Share > 0%	55.6	56.3	12.5
10th percentile	-4.0	-2.7	-4.9
90th percentile	7.4	4.8	0.9
Latest Y/Y	-0.4	1.9	-1.7
% Increase as share of latest Y/Y	..	150.1	53.6
Fuel pass-through: Average	3.3	5.4	
Fuel pass-through: CPI weighted	9.3	9.6	

Recreation, sport and culture CPI	2022	2026	10-year average
Average	2.9	1.7	1.8
CPI weighted	0.9	2.0	0.8
Share > target	47.6	50.0	39.9
Share > 0%	66.7	59.1	63.6
10th percentile	-3.7	-2.2	-0.4
90th percentile	12.1	7.0	3.7
Latest Y/Y	2.9	2.8	1.6
% Increase as share of latest Y/Y	29.5	72.4	49.1
Fuel pass-through: Average	10.3	6.0	
Fuel pass-through: CPI weighted	3.0	7.0	
Education services CPI	2022	2026	10-year average
Average	4.3	5.4	2.9
CPI weighted	4.3	5.4	2.8
Share > target	100.0	100.0	100.0
Share > 0%	100.0	100.0	100.0
10th percentile	4.2	4.2	2.5
90th percentile	4.6	6.8	3.2
Latest Y/Y	4.3	5.4	5.7
% Increase as share of latest Y/Y	99.9	99.9	49.3
Fuel pass-through: Average	15.3	18.4	
Fuel pass-through: CPI weighted	15.2	18.3	
Restaurants and accommodation services CPI	2022	2026	10-year average
Average	3.0	2.1	3.7
CPI weighted	0.1	2.0	3.7
Share > target	66.7	66.7	31.5
Share > 0%	66.7	83.3	16.7
10th percentile	-0.6	-1.2	3.7
90th percentile	6.1	5.1	3.7
Latest Y/Y	7.9	5.7	7.6
% Increase as share of latest Y/Y	1.4	34.3	49.1
Fuel pass-through: Average	10.6	7.2	
Fuel pass-through: CPI weighted	0.4	6.7	
Insurance and financial services CPI	2022	2026	10-year average
Average	1.5	-0.7	1.4
CPI weighted	1.5	1.0	3.0
Share > target	16.7	16.7	33.3
Share > 0%	100.0	66.7	100.0
10th percentile	0.7	-3.8	0.4
90th percentile	2.3	1.3	3.3
Latest Y/Y	3.6	5.7	6.1
% Increase as share of latest Y/Y	41.2	18.1	49.0
Fuel pass-through: Average	5.4	-2.3	
Fuel pass-through: CPI weighted	5.2	3.5	

Personal care and miscellaneous services CPI	2022	2026	10-year average
Average	4.1	1.4	1.0
CPI weighted	4.4	2.0	1.5
Share > target	64.7	45.5	29.2
Share > 0%	88.2	68.2	54.5
10th percentile	-0.3	-1.5	-1.6
90th percentile	12.3	4.5	2.7
Latest Y/Y	4.0	2.7	3.2
% Increase as share of latest Y/Y	109.8	74.8	49.0
Fuel pass-through: Average	14.5	4.8	
Fuel pass-through: CPI weighted	15.5	7.0	

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Quantifying the pass-through of a fuel price shock to inflation expectations and inflation in an attentive environment

Anis Foresto, Monique Reid and Cobus Vermeulen

Abstract

- We estimate the impact of a 30% increase in the fuel price on the inflation expectations of firms. The fuel price shock is structurally identified from a structural vector autoregression, controlling for global and domestic factors.
- We find that distinguishing between a conventional once-off and sustained fuel price shock produces different responses. Under a sustained shock, firms' two-year ahead inflation expectations (the monetary policy horizon) rise significantly and are more persistent, dissipating only after eight quarters.
- The implied pass-through from the response of inflation expectations to inflation, based on a stylised Phillips curve relationship, reveals that the impact on inflation is larger if the shock is sustained.
- However, the strength of the expectations channel is conditional on the firm's ability to pass on increased costs. Firms' ability to pass through cost increases depends on their margins and price elasticities, and is therefore likely to vary across sectors.

1. Introduction¹

In this note, we quantify the impact of the current fuel price shock on the inflation expectations of South African firms.² We show that the response in expectations depends on whether the shock is once-off (temporary) or sustained. While a conventional once-off shock raises firms' inflation expectations at each horizon (current, one- and two-year ahead), the response at the policy-relevant two-year horizon is moderate (0.15 percentage points (pp)). However, under current conditions of persistently high fuel prices, treating the shock as once-off likely understates the true response of expectations. By extending the analysis to a sustained shock that captures the realised experience in fuel price pressures, we find a substantially larger and more persistent response at the policy horizon. Firms' two-year ahead expectations peak at

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¹ The authors gratefully acknowledge valuable comments and feedback from Theo van Rensburg and Jeff Rakgalakane that improved the quality of this economic note.

² As a robustness check, we further evaluate the impact of a fuel price shock on aggregate inflation expectations using a structural vector autoregression (SVAR). We do this to gauge whether firms' inflation expectations response is comparable to the response of aggregate economy-wide expectations over a longer sample period that combines a range of economic conditions (high and low attention regimes).

0.65 pp under a sustained shock, more than four times the peak response under a once-off shock.

The distinction between a sustained and once-off shock is important. Under certain conditions a firm could have elevated inflation expectations but not have the room to pass through higher input costs to consumers. A combination of narrow margins, greater price elasticity and strong competition suggest that following a once-off shock firms may resort to absorbing the shock, relying on inventories, for example, which would dampen pass-through to inflation (Masia 2026). However, sustained cost pressures erode firms' ability to rely on these mechanisms, increasing the likelihood that higher expectations will translate into higher prices and ultimately inflation.

To capture the possible inflationary risks from both a once-off and sustained fuel price shock, we use a stylised Phillips curve framework to isolate the inflation expectations channel and quantify the implied pass-through from the response in firms' two-year ahead expectations to inflation. The results suggest that sustained fuel price pressures have greater consequences for inflation, raising it by 0.5 pp over eight quarters through the expectations channel, whereas a conventional once-off shock raises inflation modestly by 0.12 pp over the same horizon.

2. Inflation expectations: the propagation mechanism

It is important to emphasise that inflation expectations are a channel, or propagating mechanism, through which a supply-side shock may be transmitted to other prices in the economy (Pfäuti 2026). In environments of high and volatile inflation, or elevated attention to inflation, inflation expectations are more responsive to incoming shocks that exert upward pressure on inflation, resulting in a stronger co-movement between inflation and expectations (Borio et al. 2023). The increased sensitivity of expectations to these shocks further entrenches price pressures, generating additional inflationary pressures.

2.1 Expectations formation and salience

When determining which prices elicit a response from inflation expectations, the international literature suggests that items individuals engage with frequently could influence their beliefs about future inflation outcomes (Weber et al. 2022). Research focusing on the United States found that prices consumers see frequently, particularly the oil price, have a notable effect on their expectations (Cavallo et al. 2017). It is not immediately obvious that this is generalisable across countries, because the evidence for other advanced (euro area) economies suggests that expectations do not respond homogeneously to the same prices (D'Acunto et al. 2021). In South Africa, fuel prices are likely to be salient given that a substantial portion of the population relies on motor vehicles as a means of transport (OECD 2025). Recent evidence shows that the expectations of South African firms respond to exogenous oil news shocks (Caraiani and Gupta 2026). While the contemporaneous response at the one- and two-year-ahead horizons are modest (firms' inflation expectations rise by 0.13 and 0.09 pp, respectively, in response to a one standard deviation shock), there is evidence to suggest the effects are heterogeneous across sectors. However, these estimates do not capture the persistence of the effect of the shock on expectations and, in turn, how this feeds back into headline inflation.

2.2 Corporate margins and inflation transmission

When an adverse supply shock hits, firms have two choices: absorb the increase in input costs directly into their margins, which could reduce production and lower employment, or pass through the costs onto their customers and generate further price pressures. The choice between these two options is influenced by firms' profit margins, demand elasticity for their products, and cost structures, implying that there would be sectoral heterogeneity in how firms respond to the shock (Gopinath, Itshoki and Rigobon 2010). Generally, firms operating in sectors with less elastic demand, larger margin-buffers and lower competition (implying stronger pricing power) are better able to pass through the initial shock than firms that have smaller margin-buffers, more competitive environments and highly elastic demand (Mankiw 1985). In South Africa, there is evidence to suggest firms operating in the retail and wholesale, manufacturing, and construction sectors are more likely to absorb a shock, compressing margins further, and potentially leading to a fall in production or employment (Masia 2026). The sectors most likely to add to price pressures by passing the shock on to consumers are service industries (such as restaurants and hotels) and mining, which benefits from higher commodity prices.

However, for supply shocks that result in sustained increases in salient prices, existing buffers (inventories) and margins of firms erode quickly (Auer, Burstein and Lein 2021). Under circumstances where cost pressures are sustained rather than short-lived, firms could eventually be forced to shift away from absorbing cost increases or reducing production and rather pass some of these cost increases on to their consumers (Reis 2026). Persistent pressure in these salient prices could further raise inflation expectations as firms become more attentive and adjust their beliefs based on new information, increasing the risk of further pass-through and a generalisation of price pressures (Patzelt and Reis 2024; Pfäuti 2026).

3. Empirical results: the impact of a fuel price shock on firms' inflation expectations

We estimate the impact of a fuel price shock on inflation expectations under current economic conditions. To do this, we use the Bureau for Economic Research's (BER's) disaggregated inflation expectations survey for firms over the period 2021Q1–2024Q4.³ We choose this period to assess the impact of the current fuel price shock because attention to inflation was consistently high throughout, so the results are not confounded by shifts in attention. We distinguish between these regimes to acknowledge that the response of inflation expectations is state dependent and conditional on both the economic environment and the nature of the shock, which are likely to change over time (Borio et al. 2023; Foresto, Reid and Rakgalakane 2025).

To isolate the effects of a fuel price shock, we use the fuel pump price as our variable of interest.⁴ While domestic fuel prices⁵ are highly correlated with oil price movements, pump prices are arguably more salient because they are the prices South Africans directly experience. We identify the shock using a SVAR, specified in Equation (1). The SVAR is

³ During this sample period we have a total of 1 946 observations across all sectors.

⁴ For the once-off oil shock we assume that the price level increases before returning back to its pre-shock level in the next period, thereby simulating a non-persistent shock.

⁵ The fuel pump price represents the final price paid at the fuel service station and consists of the basic fuel price (BFP) plus domestic elements like taxes, levies, margins and other regulated costs.

estimated at a quarterly frequency from 2006Q1 to 2026Q1, and controls for global oil market conditions – world oil production ($\Delta prod$), global real activity (rea) and the real price of crude oil ($\Delta brent$) – as well as domestic variables, including the rand/dollar exchange rate (Δer), fuel prices (Δpet), inflation expectations (π^e) and inflation ($\Delta \pi$) (Kilian 2009).⁶ We first extract the identified structural fuel price shock series from the SVAR, and then estimate how sensitive firm inflation expectations are to this shock using a local projection (LP) specified in Equation (2) (Jordà 2005; Barnichon and Brownlees 2019). We scale the fuel price shock to be consistent with the realised increase in the level of the fuel price (30%).⁷

$$Y_t = \sum_{l=1}^p \beta_l Y_{t-l} + A_0^{-1} \varepsilon_t \quad (1)^8$$

where $Y_t = [\Delta prod \quad rea \quad \Delta brent \quad \Delta er \quad \Delta pet \quad \pi^e \quad \Delta \pi]$.

$$\pi_{t+h}^e = \beta_{0,i} + \beta_{1,i}^h \varepsilon_{t-1}^{\Delta pet} + \beta_2^h Z_t + \vartheta_i + \tau_t + e_{i,t} \quad (2)^9$$

The LP impulse responses to a once-off fuel shock for current and one-year-ahead inflation expectations are shown in Figure 1. At the aggregate firm level, the current year expectations respond immediately and strongly, peaking at 0.32 pp.¹⁰ The one-year-ahead inflation expectations also respond immediately but more moderately (peaking at 0.16 pp). The effect of the fuel price shock is persistent, only dissipating after five quarters for the current and one-year-ahead horizons.¹¹

As monetary policy operates on a two-year horizon,¹² we assess the response of firms' two-year-ahead expectations to both a once-off shock and a sustained shock, with the latter more reflective of the realised fuel price pressures experienced since the start of the US and Iran war. We assume that the fuel price remains at its peak (30% above pre-shock level) for three

⁶ The ordering follows Kilian (2009), where global oil supply conditions are predetermined relative to the demand and price of oil, while domestic financial and economic prices respond and adjust to global conditions. The structure reflects South Africa's position as a small open economy that is a price taker in the global oil market.

⁷ This is consistent with the 40% increase in the oil price, which is a routine-sized shock that the South African economy has experienced historically (Janse van Rensburg, Rakgalakane and Steinbach 2025).

⁸ As a test of robustness against our fuel price results, we extract a supply-driven oil shock using a proxy-SVAR (Mertens and Ravn 2013). We rely on the OPEC announcement surprises constructed by Känzig (2021) as our proxy for an oil shock. The surprise series captures exogenous variation in oil supply conditions by measuring the change in near-month oil futures prices in a narrow window following OPEC announcements. This allows more precise identification of the shock (reduces endogeneity), but it now only captures the supply-driven shock.

⁹ Z_t are a set of controls including four lags of our dependent variable and the change in the fuel price.

¹⁰ While current year inflation expectations are not a measure of anchoring due to their sensitivity to shocks (Aguilar, Guerra and Martinez 2024), for South Africa there is evidence to support strong contemporaneous feedback between firms' current year expectations and their medium-term forecast horizons (Amaral, Foresto and Mosoma 2026). This suggests that a sharp increase in firms' current year expectations in response to an oil shock poses a risk to the stability/anchoring of their expectations at one- and two-year-ahead horizons.

¹¹ As a robustness test, we estimate the impact of a once-off oil supply shock using the Känzig (2021) oil surprise in place of the fuel price shock; the results are reported in the annexure (Figure A1). While the peak contributions to expectations are larger at the one- and two-year horizons (0.31, 0.23 and 0.25 for current, one- and two-year-ahead) and occur with a greater delay, the confidence bands for the impulse responses using either the fuel price or the Känzig oil surprise overlap substantially, suggesting they are not different statistically.

¹² See Kydland and Prescott (1977), Rogoff (1985), and Svensson (1977).

quarters, before gradually declining (24%, 18%, 12%, 6% and 6%) and settling just above pre-shock levels.

In Figure 2, we see that the response to a once-off shock on firms' two-year-ahead expectations come with a delay, peaking at 0.15 pp, and exhibiting weak persistence. In contrast, a sustained shock elicits a much larger and more persistent response, reaching a peak of 0.65 pp after five quarters, and only dying out after eight quarters. This suggests that in attentive environments, where firms place a larger weight on new information when forming their beliefs about future prices, sustained fuel price pressures could result in significant revisions in inflation expectations at longer horizons. This makes it important to monitor relative shifts in inflation expectations beyond those sectors most exposed to the fuel shock in order to understand how the shock may become broad-based and propagate through to inflation.

Figure 1: Response of firms' inflation expectations to a once-off fuel price shock

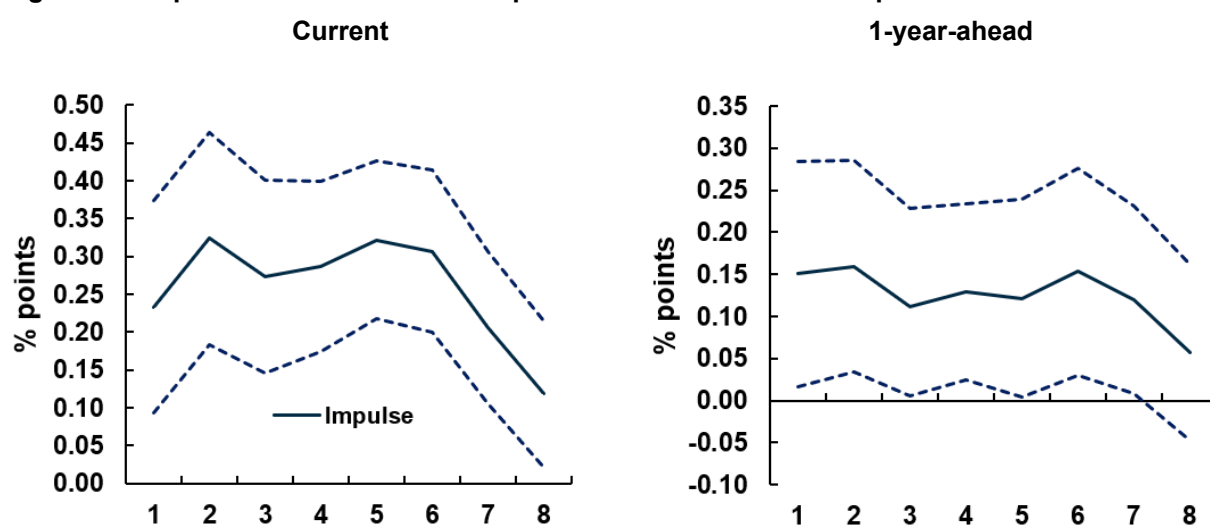
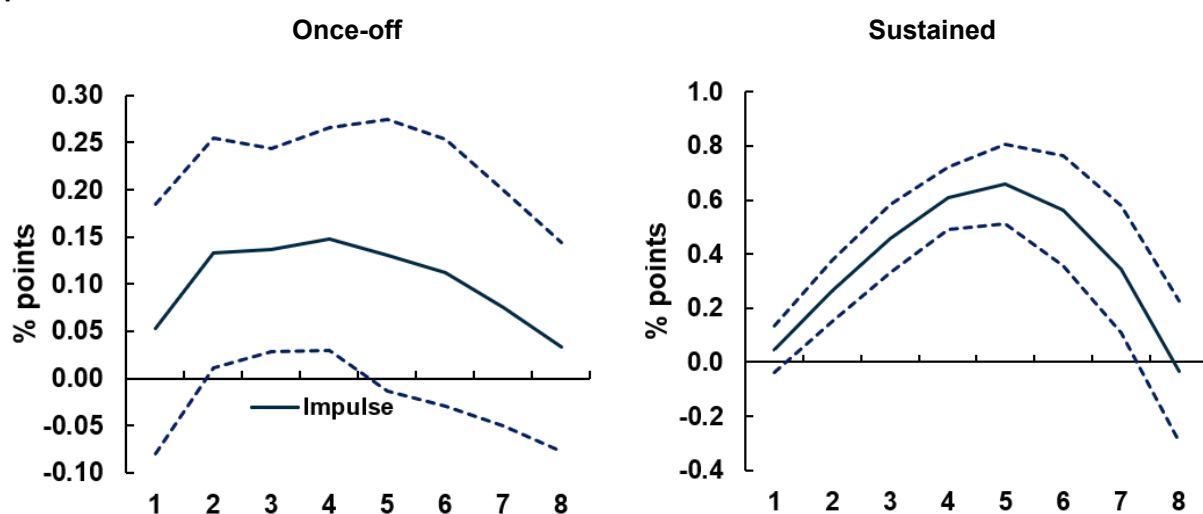


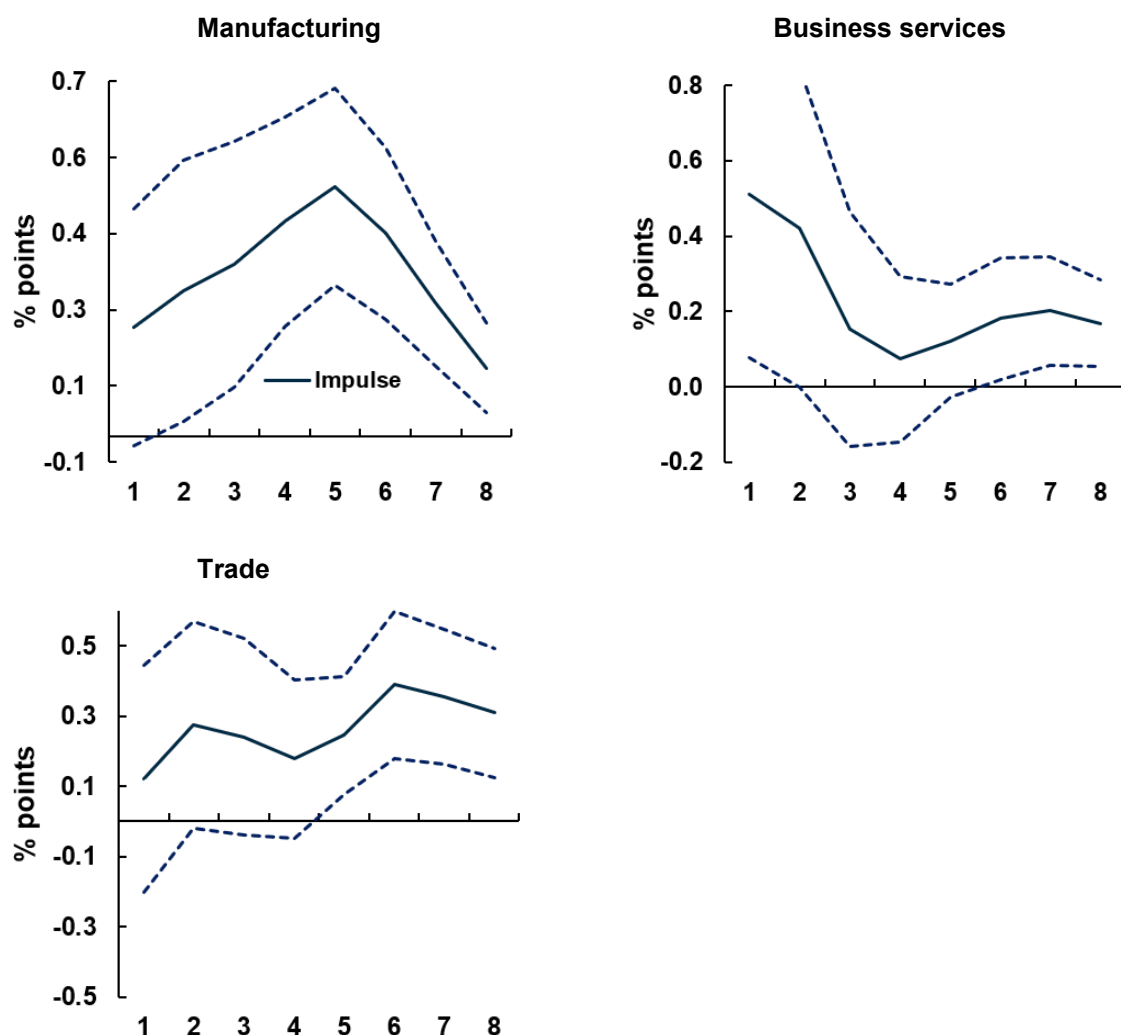
Figure 2: Response of firms' two-year-ahead expectations to a once-off and sustained fuel price shock



Source: Authors' own calculations. Dotted lines represent 90% confidence intervals.

Moving beyond the aggregate, we consider the sensitivity of firms' inflation expectations by sector.¹³ The analysis is limited to those sectors for which the BER sample is large enough.¹⁴ In Figure 3, we observe that manufacturing and trade (wholesale and retail) firms respond to the fuel price shock quickly (peak response after five quarters for manufacturing and six quarters for trade). The increase in expectations for both sectors persists for some time before dying out.¹⁵ The expectations of business services react significantly to the fuel price shock in the first period, but the shock dissipates quickly.

Figure 3: Sectoral response of current year expectations to a once-off fuel price shock



Source: Authors' own calculations. Dotted lines represent 90% confidence intervals.

¹³ For our sectoral analysis, we have a total of 665 observations in manufacturing, 561 in trade and 260 in business services. These sample sizes are large enough to provide credible and robust insights as they represent the majority of the BER's sample (Reid, von Fintel and Foresto 2026). For other sectors of interest (i.e. transport and construction), the sample sizes are not large enough to provide a meaningful or significant estimate.

¹⁴ For more details on the sectoral breakdown of the BER's firm survey, see Reid, von Fintel and Foresto (2026).

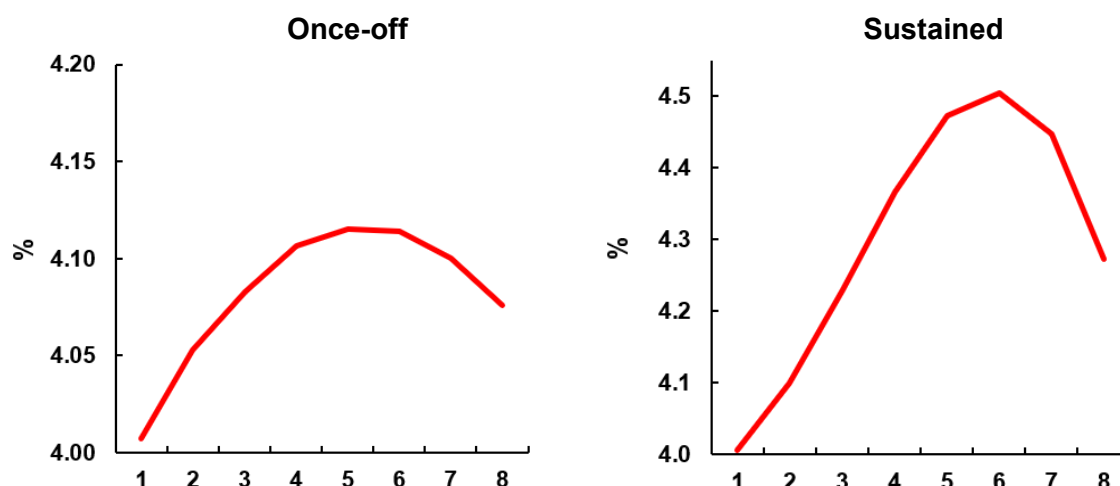
¹⁵ Considering our proximity from the initial shock and the frequency with which expectations are surveyed, our results suggest that expectations will increase between Q3 and Q4 of 2026.

4. Expectations pass-through to inflation

To provide a sense of the propagation mechanism through the expectations channel, we simulate the pass-through of both a once-off and a sustained fuel price shock to inflation via firms' two-year-ahead inflation expectations in a Phillips curve framework (Foresto, Reid and Rakgalakane 2025). Using the April 2026 inflation print (4.0%) as our starting point, we project pass-through to begin quickly following the initial shock to inflation expectations. For the once-off shock (Figure 4, left panel), the total contribution to headline inflation is a modest 0.12 pp after eight quarters, while the sustained shock's effect through expectations has larger consequences for headline inflation (Figure 4, right panel), peaking at 0.5 pp after six quarters before the impulse response converges to zero at the end of the horizon.

This pass-through estimate only captures the component of expectations responding to the fuel price shock. One caveat is that we have not controlled for other channels or mechanisms that could influence headline inflation based on the behaviour of expectations, nor do we control for any feedback from inflation back to expectations.¹⁶ Therefore, this result likely represents a lower bound of the true transmission from the shock to expectations into inflation.

Figure 4: Implied pass-through of two-year-ahead inflation expectations to headline inflation



Source: Authors' own calculations.

5. Concluding policy remarks

We find that a 30% once-off fuel price shock would raise firms' current year, one-year-ahead and two-year-ahead inflation expectations by up to 0.32, 0.16 and 0.15 pp within two to five quarters.¹⁷ A sustained fuel price shock results in a more substantial and persistent response, raising firms' two-year-ahead expectations by up to 0.65 pp at the peak before dying out after eight quarters.

¹⁶ This simulation does not control for other conventional channels in the Phillips curve that could influence the path of inflation. These include the exchange rate, economic slack (goods and labour market) and lags of inflation itself.

¹⁷ The peak mean response from inflation expectations to an oil price shock is larger at the one- and two-year-ahead horizons (0.25 and 0.23) as the shock does not control for the exchange rate or fuel and diesel price effects explicitly. This may suggest that the oil price shock could capture or conflate the effect of these distinct channels on firms' beliefs about future prices.

Focusing on inflation expectations in isolation does not fully capture the transmission of the shock. While some sectors may have elevated expectations, they may be unable to pass on price increases as a result of narrow margins, stronger competition or higher price elasticities, leading them to absorb the costs or reduce production (Masia 2026). However, the more sustained the shock, the more firms' ability to absorb the cost increase directly or reduce production is eroded, necessitating some degree of pass-through to consumers.

The longer the shock lasts, the larger the direct inflationary pressures through energy and production costs are bound to be, while inflation expectations are likely to respond to these pressures. In addition, persistent higher input costs may mean that firms' buffers to absorb cost increases narrow, which may result in stronger pass-through from expectations to inflation. To keep inflation expectations well anchored, monetary policy may therefore need to be tighter for longer.

Annexure

Annexure A: Robustness check using aggregate data

As a robustness check, we extend the analysis beyond firms to evaluate the impact of a once-off fuel price shock on economy-wide expectations across firms, trade unions and financial analysts. To this end, we examine the propagation of a fuel price shock to aggregate inflation expectations over a larger sample, which combines a range of economic conditions, through a parsimonious SVAR.¹⁸ The shock identification process follows a standard recursive Cholesky ordering, placing the fuel price first, followed by inflation expectations, and then inflation, implying that fuel price shocks are contemporaneously exogenous to domestic variables, while expectations and inflation may respond immediately to fuel price shocks. This ordering posits that expectations are more forward-looking and update immediately in response to a fuel price shock. The shock simulated below is scaled to match our LP estimates, corresponding to a 30% year-on-year increase in the fuel price. Impulse responses are reported with 95% percentile bootstrap confidence intervals and are shown in Figure A1.

The once-off fuel price shock produces a meaningful response in aggregate inflation expectations across all expectations horizons. Current year expectations respond strongly, increasing by 0.50 pp after three quarters. One- and two-year-ahead expectations rise moderately by 0.23 pp and 0.18 pp, respectively. As with our LP's firms-only results, the effect of a once-off shock on expectations is persistent and remains elevated over the impulse horizon. The aggregate results over a larger sample (with varying economic conditions) corroborate our LP estimates, suggesting that the relationship between the fuel price and inflation expectations is relatively stable and predictable.

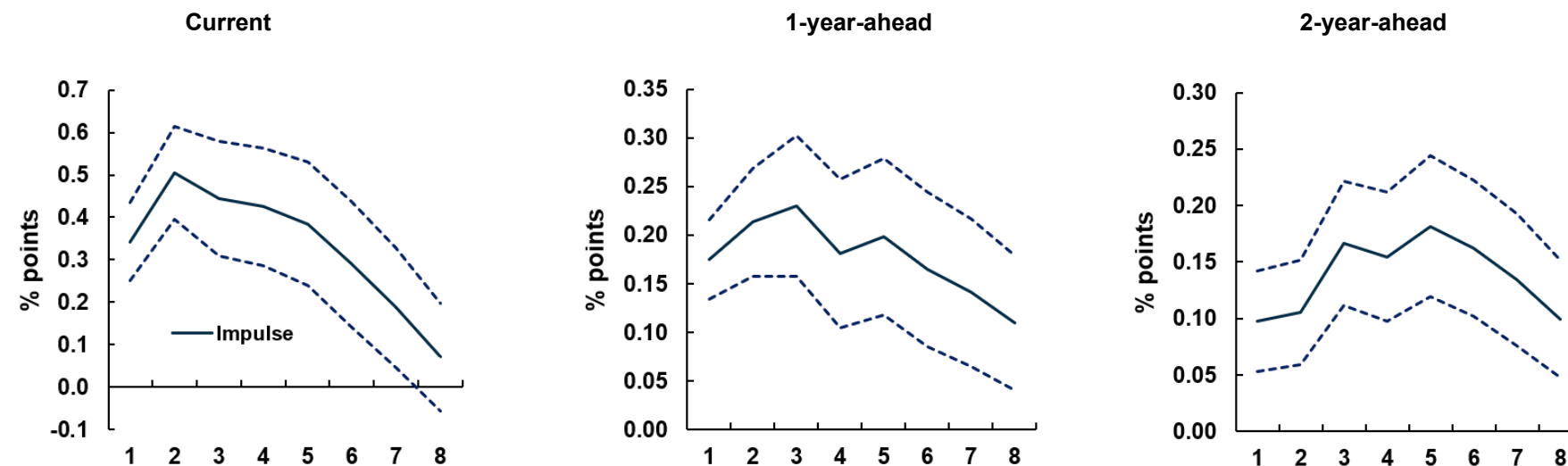
To enable easy comparison of the main results in this paper and recent estimates by Caraianni and Gupta (2026), we summarise and report these in Table A1. While it is important to note that the three approaches differ in a few ways (e.g. sample period, shock measure and inflation expectations measure), the estimates of the responsiveness of inflation expectations are reasonably robust.

A few caveats are worth noting. Firstly, the results in the table are all for a once-off fuel price shock. As shown earlier in this note, a sustained shock, conditional on the conflict persisting,¹⁹ could increase inflation expectations further, making it important to monitor distributional dynamics and their implications for persistence in both expectations and inflation. Secondly, the models isolate the fuel price shock, while other developments, such as El Niño and broader macroeconomic conditions, may also affect inflation expectations. The Quarterly Projection Model accounts for a wider set of factors, while Masia (2026) conditions on these factors and forecasts inflation expectations peaking at 3.8% in 2027Q2 and inflation at 6.1% in 2026Q3. Therefore, because we isolate a once-off fuel price shock, our expectations channel pass-through estimates (Figure 4) likely represent a lower bound of the true inflationary impact.

¹⁸ This SVAR is estimated over 2003Q1–2026Q1.

¹⁹ The sharp drop in oil prices in June 2026 was expected to result in lower fuel prices and inflation expectations. However, domestic fuel prices remain elevated, while National Treasury's temporary fuel subsidy relief is gradually being withdrawn. Future developments in inflation expectations are therefore contingent on how quickly fuel prices retreat.

Figure A1: Responses of aggregate expectations to a once-off fuel price shock



Source: Authors' own calculations. Dotted lines represent 95% confidence intervals.

Table A1: Robustness of pass-through estimates to a once-off shock

	Peak response (current year expectations)	Peak response (1-yr-ahead expectations)	Peak response (2-yr-ahead expectations)	Shock measure	Measure of inflation expectations	Sample period
Caraiani and Gupta (2026)	-	0.13 (not an impulse)	0.09 (not an impulse)	Oil news	Firms	2000Q2–2023Q4
LP	0.31 (Q5) 0.32 (Q2)	0.23 (Q6) 0.16 (Q2)	0.25 (Q5) 0.15 (Q4)	Oil price Fuel price	Firms	2021Q1–2024Q4
SVAR	0.29 (Q3) 0.50 (Q2)	0.18 (Q3) 0.23 (Q3)	0.12 (Q6) 0.18 (Q6)	Oil price Fuel price	Aggregate*	2003Q1–2026Q1

* Aggregate expectations refer to inflation expectations aggregated across financial analysts, firms and labour unions.

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Oil price shocks and inflation risks: evidence from South African market pricing

Palesa Mnguni and Luchelle Soobyah

Abstract

- Oil markets have experienced several major disruptions recently and this note assesses whether market-based inflation expectations price in the effects of these oil price shocks.
- Oil price shocks matter more for medium-term inflation pricing than for the longer-term inflation outlook, a finding that is consistent across the daily and monthly models.
- The response of medium-term inflation pricing is driven mainly by higher estimated inflation expectations, with a more limited contribution from the inflation risk premium.
- Although oil price shocks raise near- to medium-term inflation expectations, market pricing suggests that investors do not expect these shocks to lead to a persistent deterioration in the longer-term inflation outlook or a sustained broadening of inflationary pressures.

1. Introduction¹

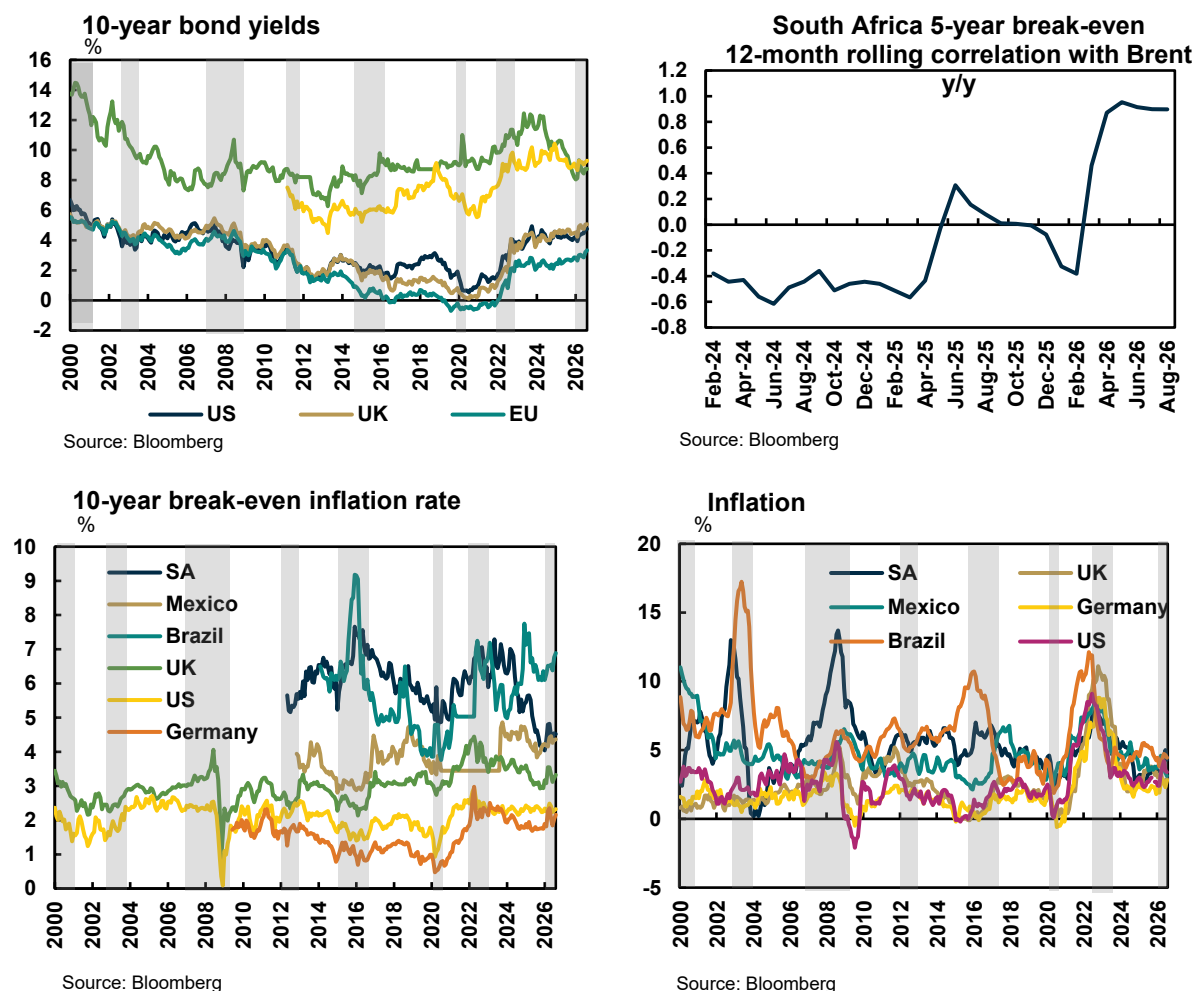
Oil shocks can lift inflation directly through fuel and transport costs. The bigger policy concern is whether they also trigger broader and more persistent price pressures. If markets expect higher energy costs to feed into wages and the prices of other goods and services, inflation expectations may rise and signal second-round effects. If expectations remain anchored, however, the shock is more likely to be seen as temporary.

Oil markets have experienced several major disruptions recently, including the post-pandemic rebound in demand, supply losses after Russia's invasion of Ukraine in 2022 and the escalation of the conflict involving the United States, Israel and Iran from February 2026, which disrupted shipping and oil flows through the Strait of Hormuz. These shocks pushed energy prices and inflation higher across advanced and emerging market economies, but their effects differed across countries and over time. In some cases, inflation expectations and long-term bond yields rose sharply (Figure 1). In others, market-based inflation compensation remained contained, reflecting confidence in central banks and the temporary nature of the shock.

* The views expressed in these economic notes are those of the author(s) and should not be attributed to the South African Reserve Bank (SARB) or its policy. While every precaution is taken to ensure the accuracy of information, the SARB shall not be liable to any person for inaccurate information, omissions or opinions contained herein.

¹ The authors would like to thank Daron Hendriks for assistance with data and Rudi Steinbach, Jean-Francois Mercier and colleagues from the Economic Research Department for their valuable comments and suggestions.

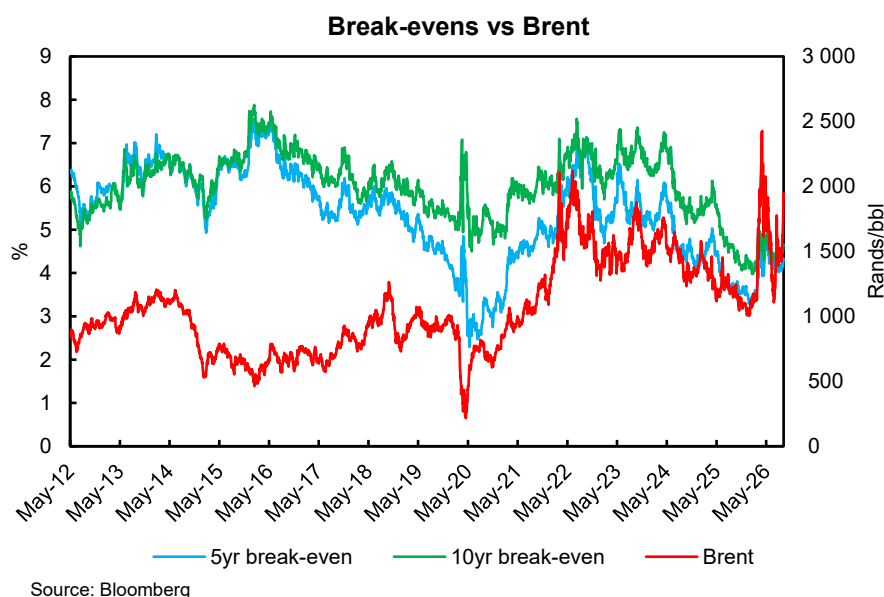
Figure 1: Trends in bond yields, inflation and break-even inflation rates²



Financial market measures offer a timely view of how investors assess these risks. Nominal bond yields, inflation swaps and break-even rates incorporate expectations about future inflation and monetary policy. They can therefore show whether markets expect an oil shock to fade or spread into wider price pressures, and whether central bank credibility is helping to keep expectations anchored. South African break-even rates have generally moved closely with Brent crude oil prices, although they diverged during 2015 to 2017, when rand depreciation and drought-related food-price pressures offset the disinflationary effect of lower oil prices. This is shown in Figure 2.

² Shaded areas indicate periods of oil price shocks. These include the 2000 oil price spike, 2002–2003 Venezuela strike/Iraq war, 2007–2008 global oil price surge and global financial crisis collapse, 2011 Libyan supply disruptions, 2014–16 oil glut, 2020 COVID-19/OPEC+ crash, 2022 Russia–Ukraine shock and 2026 US–Iran/Strait of Hormuz shock.

Figure 2: Break-even rates trend with Brent crude oil prices



For policymakers, the difference matters. A temporary rise in headline inflation may not require a monetary policy response if expectations remain stable. But a persistent increase in market-based expectations could indicate that markets perceive some inflation risk or inflation to rise due to higher energy costs feeding into wages, core inflation and longer-term price-setting. Market pricing of inflation expectations can therefore indicate whether markets view the shock as a once-off event or the start of a more persistent inflationary process.

This economic note assesses how South African market-based inflation compensation responds to unexpected oil price movements. It compares the response of five- and 10-year break-even inflation and separates estimated inflation expectations from inflation risk premia.³ The analysis therefore examines whether an unexpected oil price shock is associated with a change in the expected inflation outlook, with greater compensation for inflation uncertainty, or with both. The results show that oil shocks raise five-year break-evens through higher inflation expectations while 10-year break-evens remain broadly unchanged, consistent with the literature and suggesting that the inflation-targeting framework remains credible.

2. Literature review

A growing body of literature shows that oil shocks can move inflation expectations, but few studies look directly at what financial markets expect after these shocks.⁴ This distinction

³ The analysis focuses on the five-year break-even inflation rate because shorter-dated inflation-linked bonds are relatively illiquid in South Africa, making the two-year break-even a noisy and less reliable measure of market inflation expectations. As a result, the analysis cannot directly assess how markets price the immediate effects of oil shocks on near-term inflation and monetary policy expectations. Instead, the five-year break-even provides a cleaner measure of medium-term inflation compensation and is better suited to assessing whether markets expect higher oil prices to spill over into broader inflation dynamics, wages and price-setting behaviour. However, this may understate short-term repricing following an oil shock. To partly address this limitation, section 5 examines financial analysts' two-year-ahead inflation expectations from the Bureau for Economic Research's inflation expectations survey.

⁴ Most of the studies discussed here focus on the United States (US). Kilian and Zhou extend their analysis to the euro area, United Kingdom, Canada and Japan, while Anderl and Caporale also consider Canada, South Korea and Mexico, although their emerging-market extensions use survey-based rather than market-based inflation expectations.

matters because market-based measures such as break-evens and inflation swaps reflect investors' pricing decisions, whereas survey measures capture the reported expectations of households and firms. Previous studies show that household inflation expectations can respond strongly to energy prices, particularly at shorter horizons, while longer-term expectations tend to be less responsive (Coibion and Gorodnichenko 2015; Kilian and Zhou 2022). The key question is whether financial markets treat oil shocks as short-lived price changes or as warning signs of broader inflation pressure.

Researchers identify oil shocks in different ways. Miyamoto et al. (2025) use oil supply surprises identified from daily movements in oil futures prices around OPEC announcements, giving a clean but narrow signal. Jiang (2026) separates daily WTI futures-price changes into supply, global-demand and oil-specific-demand shocks using a structural vector autoregression (VAR), which gives broader coverage but relies on stronger assumptions. Anderl and Caporale (2024) focus on shifts in the level, slope and curvature of the futures curve. Hammoudeh and Reboredo (2018) instead examine the nonlinear relationship between oil prices and US break-even inflation after decomposing break-evens into expected-inflation, inflation-risk-premium and liquidity-risk-premium components.

Despite these differences, most studies point to a similar conclusion: oil shocks move short-term inflation pricing more than long-term expectations. Miyamoto et al. (2025) find that two-year Treasury yields have become more sensitive to oil news since 2022, while the sensitivity of 10-year break-even inflation has remained small and stable since 2014. Hammoudeh and Reboredo (2018) also find stronger effects on the expected-inflation component at five years than at 10 years, especially when oil prices rise above about US\$67 per barrel. Jiang (2026) adds an important nuance: demand-driven oil increases can lower break-even inflation, while supply-driven increases tend to raise it.

Two caveats are worth noting. First, break-evens are not pure measures of expected inflation. They also contain inflation and liquidity risk premia. Hammoudeh and Reboredo (2018) show that much of the 10-year response reflects these premia rather than genuine inflation expectations, meaning headline break-evens may overstate the movement in long-run expectations. Second, the strength of the inflation-expectations channel varies across measures and horizons. Anderl and Caporale (2024) find stronger second-round effects through short-term household expectations, while effects through longer-term household and market-based expectations are smaller.

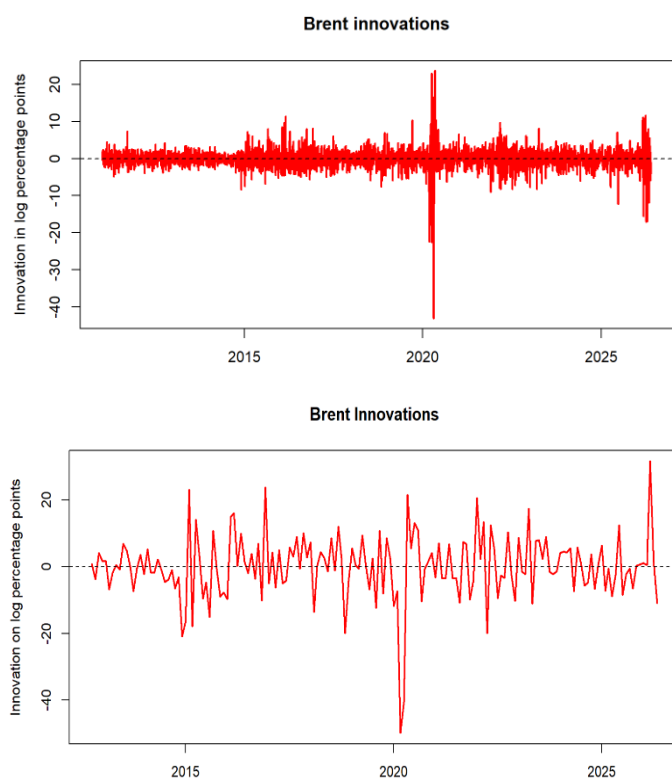
Overall, the evidence suggests that markets do price oil shocks into inflation expectations, but mainly at shorter horizons. The size and direction of the response depend on how the shock is identified and whether risk premia are separated from expected inflation. Less is known about how market-based inflation expectations respond to oil shocks in small, open emerging economies such as South Africa. This note addresses that gap by examining the responses of South African five- and 10-year break-even rates to an oil price shock and separating estimated inflation expectations from inflation risk premia.

3. Data and methodology

We estimate two separate models, one relying on daily frequency indicators and the other on monthly indicators.⁵ The data we use cover the period 2012 to 2026. For the daily frequency model, a reduced-form VAR model was estimated using daily financial market data. The endogenous variables included rand-denominated Brent oil price returns, changes in the US 10-year Treasury yield, DXY log returns and USD/ZAR log returns. We also include a measure of global risk sentiment to control for global financial uncertainty, proxied by the Chicago Board Options Exchange Volatility Index (VIX). For the monthly model, the variables included in the VAR are inflation, industrial production, interest rates, exchange rate, Brent and VIX.⁶

The VARs are used to separate unexpected changes in rand-denominated Brent prices from movements that can be explained by recent economic and financial conditions. The unexpected component is treated as the oil price shock and used in the local projections. Figure 3 shows the shocks identified from the daily and monthly VARs.⁷

Figure 3: Brent shock from the daily and monthly VAR models



Source: Authors' calculations

⁵ The daily model captures the immediate response of financial markets to an unexpected oil price shock, while the monthly model assesses whether this response persists once slower-moving domestic macroeconomic conditions are taken into account. Using both frequencies also provides a robustness check for whether the results depend on the choice of data frequency and model specification.

⁶ The VAR model is estimated using a Cholesky identification and ordered so that the Brent crude oil prices are exogenous, and therefore a shock to Brent crude oil prices affects domestic inflation, industrial production, interest rates and the exchange rate.

⁷ The Brent surprise is very close to the raw daily Brent return. This means the exercise is mainly capturing unexpected daily oil price movements, rather than a deeply structural oil shock. The results should therefore be read as evidence of how markets react to an oil price shock, not as proof of a specific supply or demand shock.

We then use the oil price shock series from the VAR models to estimate a local projections (LP) model to trace how break-even inflation rates change following an oil price shock.^{8,9} The estimated LP responses are scaled to represent a 40% unexpected increase in the rand-denominated oil price.¹⁰

The baseline specification for the daily model, shown in Equation (1), controls for same-day movements in USD/ZAR and the US two-year Treasury yield. This helps isolate the oil price news from broader currency and global-rate movements on the same day.

$$100 \times (BEI_{t+h}^m - BEI_{t-1}^m) = \alpha_h + \beta_h OilShock_t + \gamma_h \Delta USDZAR_t + \delta_h \Delta US2Y_t + \epsilon_{t+h} \quad (1)$$

As shown in Equation (2), the baseline specification for the monthly model includes a vector of control variables, X , which includes industrial production, inflation, interest rates and the exchange rate.

$$100 \times (BEI_{t+h}^m - BEI_{t-1}^m) = \alpha_h + \beta_h OilShock_t + \gamma_h X_t + \epsilon_{t+h} \quad (2)$$

4. Results

Across both the daily and monthly models, oil price shocks have little immediate effect on South African break-even inflation. The response builds gradually at the five-year horizon and is driven mainly by higher estimated inflation expectations rather than the inflation risk premium. By contrast, the 10-year response is weaker and less persistent, suggesting that oil shocks affect medium-term inflation compensation without materially shifting longer-term market pricing.

The impulse response functions from the daily LP models are shown in Figure 4. Following a once-off 40% oil price shock, the five-year break-even response is small initially but becomes statistically significant after about 30 trading days. It rises to roughly 18–20 basis points between days 38 and 60. The 10-year response is weaker, becoming statistically significant after about 35 trading days and reaching approximately 10–16 basis points over the later part of the horizon. This suggests that oil price shocks affect medium-term inflation compensation more strongly than longer-term pricing.

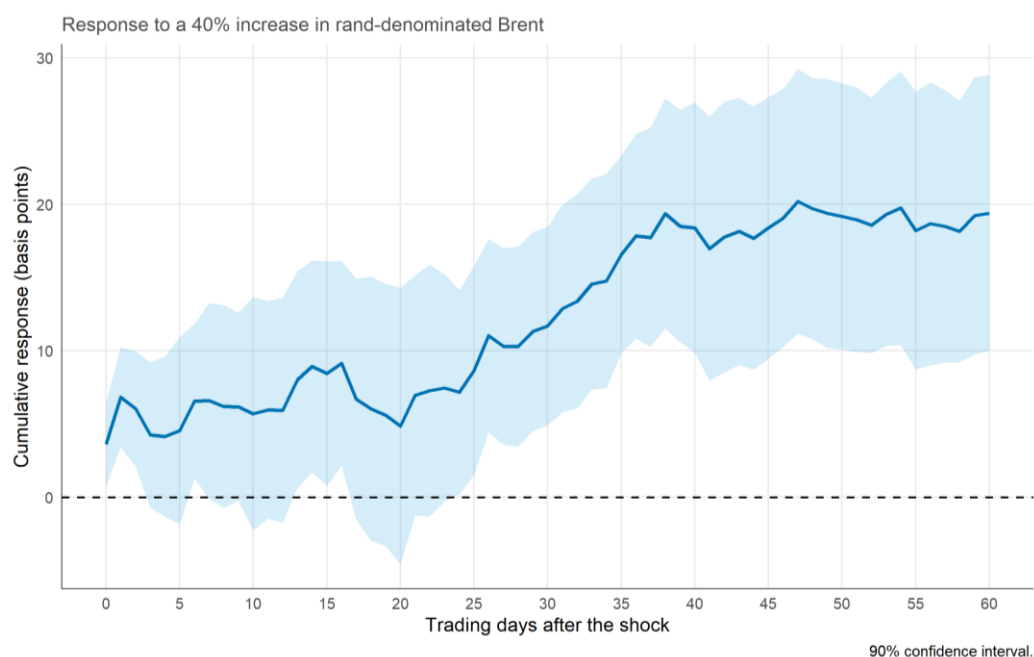
⁸ The focus is on cumulative changes over 0 to 60 trading days, measured in basis points for the daily model; and 0 to 18 months for the monthly model.

⁹ The break-even inflation rate (BEI) refers to either the use of the five-year break-even rate, the 10-year break-even rate and their components – the five-year and 10-year inflation expectations and inflation risk premium.

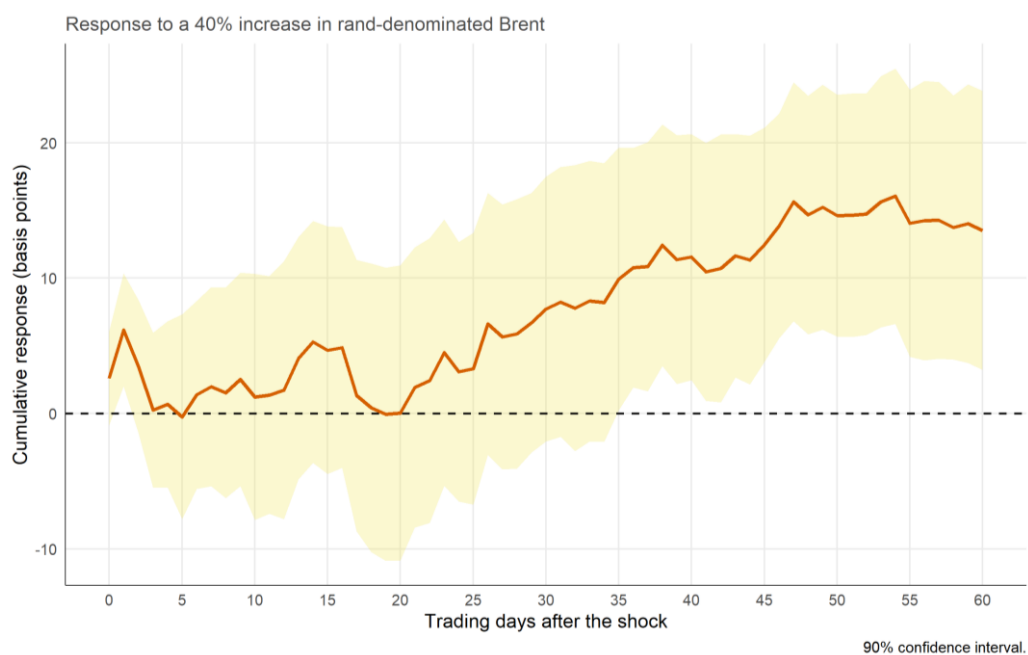
¹⁰ The 40% oil shock captures the recent rise in Brent crude oil prices following the outbreak of war in the Middle East.

Figure 4: Responses of break-even rates to an oil shock

Response of 5-year break-even



Response of 10-year break-even



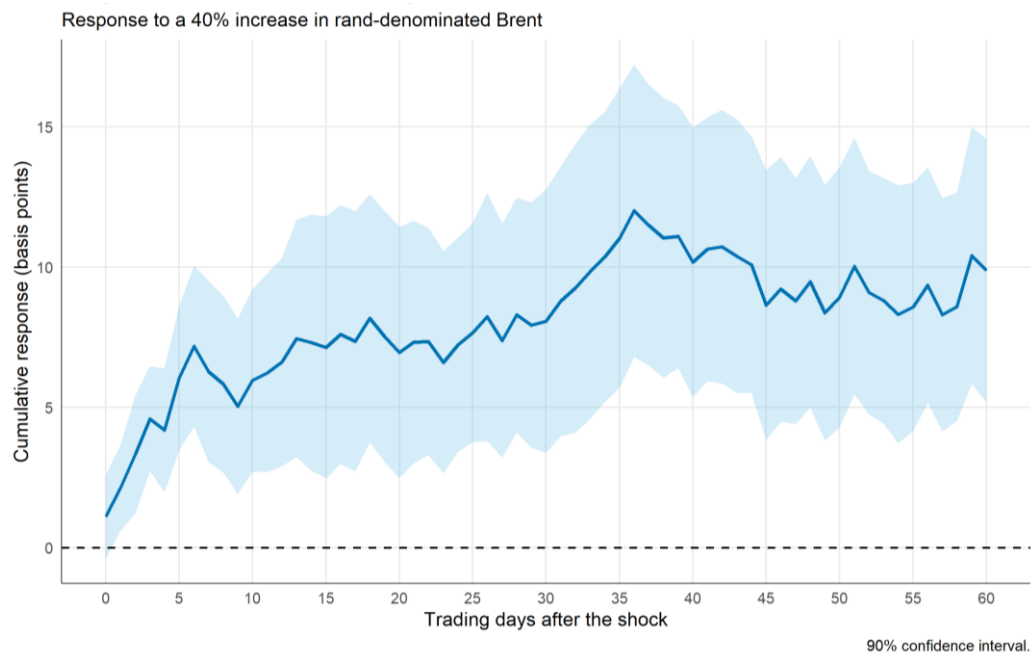
Source: Authors' calculations

One of the caveats discussed in the literature is that it is necessary to decompose the break-even rates into their risk premium component and inflation expectations component. We rely on estimates by Hendriks and Soobyah (2025) for this decomposition, which simply estimates the inflation risk premium as the difference between the nominal and real term premium estimates for South Africa. The inflation expectations component is then the difference between the break-even inflation rate and the estimated inflation risk premium.

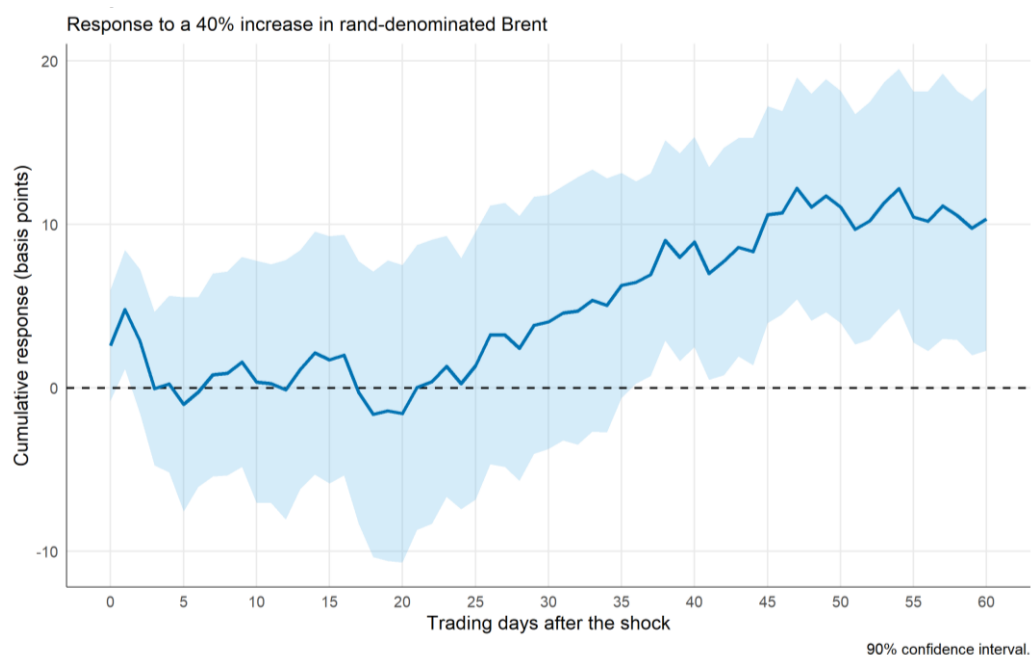
Using this decomposition, results in Figure 5 show that oil shocks significantly raise five-year inflation expectations, while risk-premium effects become significant only at longer horizons. At the 10-year horizon, both components are less consistently significant, suggesting a clearer effect on medium-term inflation pricing. In practical terms, markets expect oil shocks to raise inflation over the medium term, but not to cause a sustained shift in the longer-term inflation outlook.

Figure 5: Responses of the subcomponents of break-even rates to an oil shock

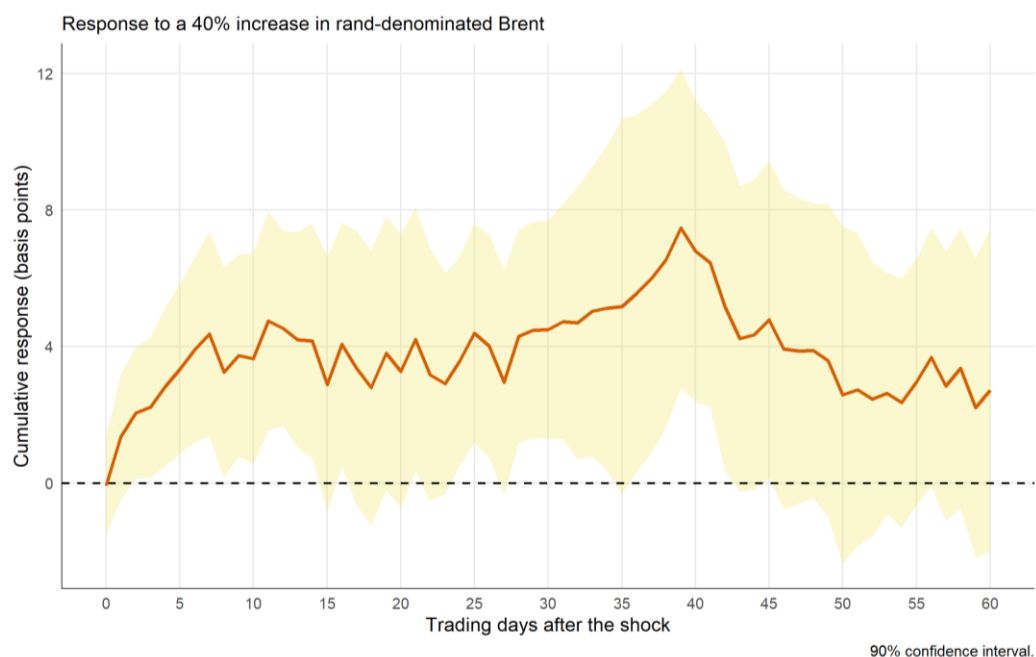
Response of 5-year inflation expectations



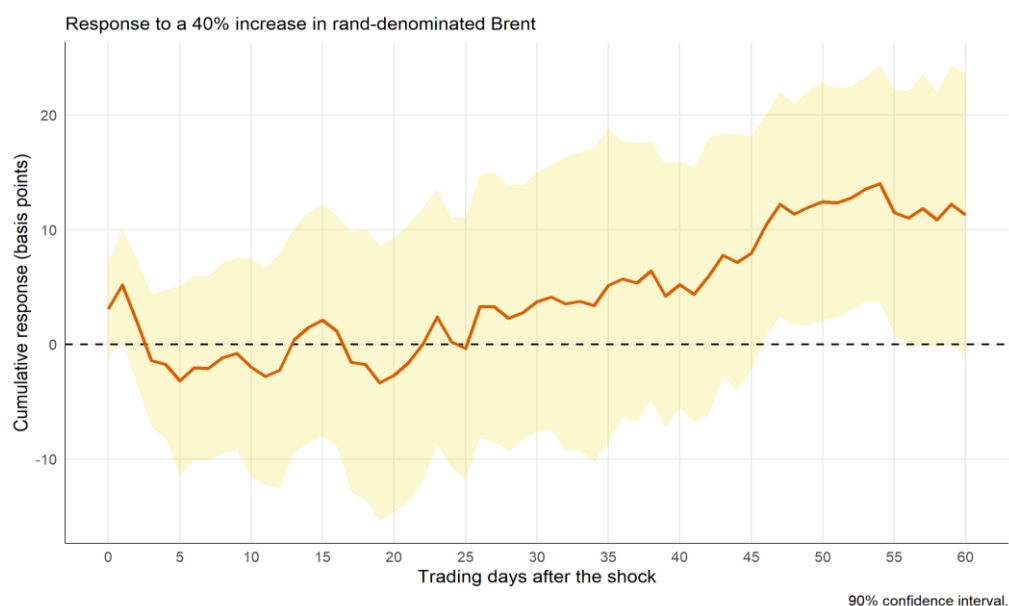
Response of the 5-year inflation risk premium



Response of the 10-year inflation expectations



Response of the 10-year inflation risk premium



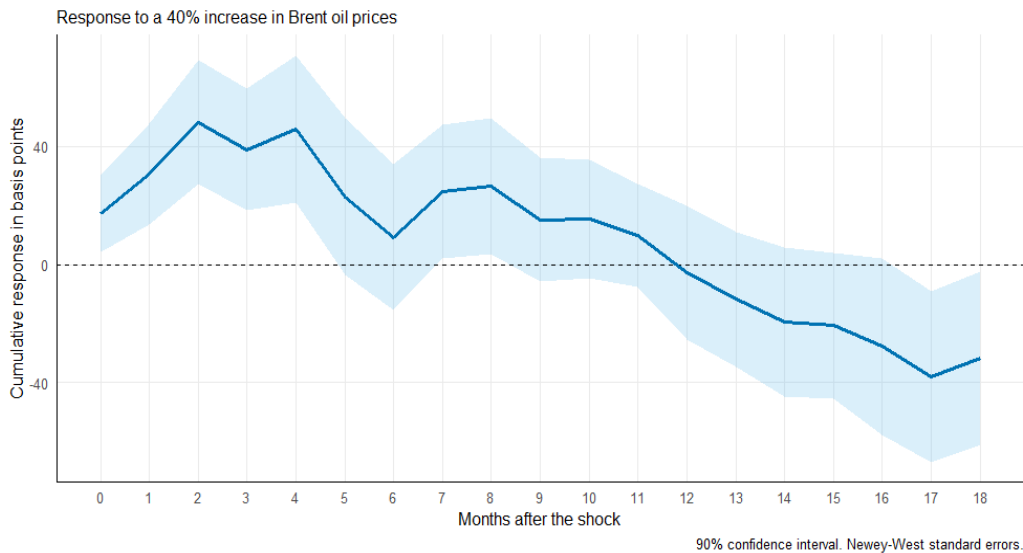
Source: Authors' calculations

The results from the monthly model are broadly consistent with the daily results. The five-year break-even rate rises gradually after an oil price shock, to about 48 basis points after two months, with the effect lasting up until five months (see Figure 6). This indicates that investors price in some risk of medium-term second-round effects. The response is mainly linked to higher estimated inflation expectations rather than higher inflation uncertainty via the inflation risk premium. By contrast, the 10-year response is weaker, at about half the size of impact of the five-year break-even response, and only statistically significant in months 2 to 4 (see Figure 7). The smaller and temporary response of the 10-year break-even suggests that markets do not expect the oil shock to result in a persistent deterioration in the longer-term

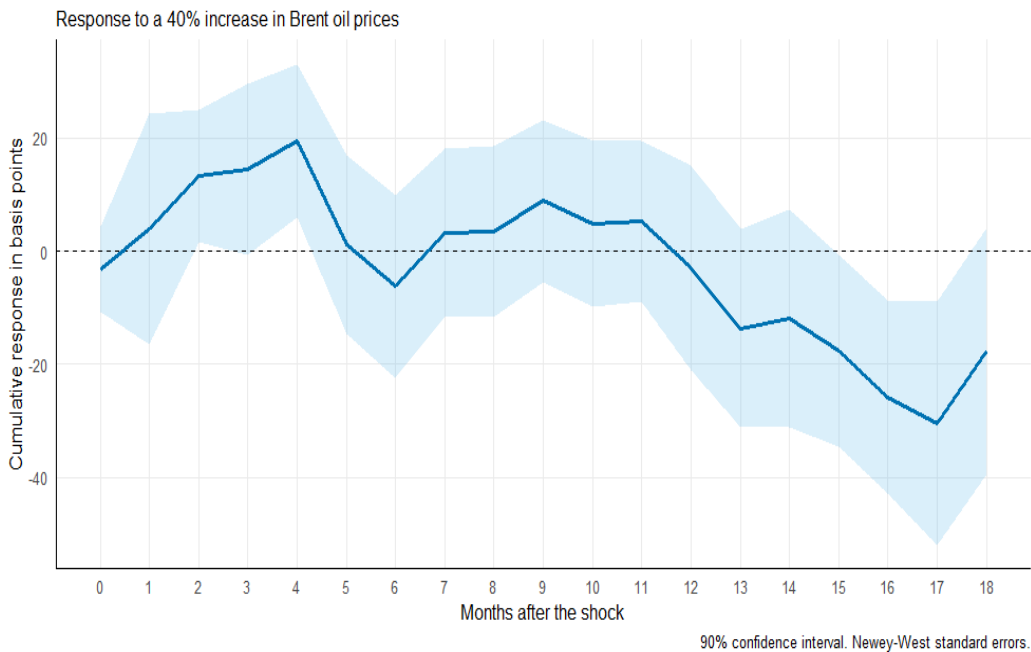
inflation outlook, consistent with longer-term inflation expectations remaining well anchored. Oil shocks still matter for inflation expectations, but the evidence points to contained rather than broad-based risks. In both the five-year and 10-year break-even rate responses, the effect dissipates in the second year.

Figure 6: Responses of 5-year break-even rates and their components to a once-off 40% oil price shock

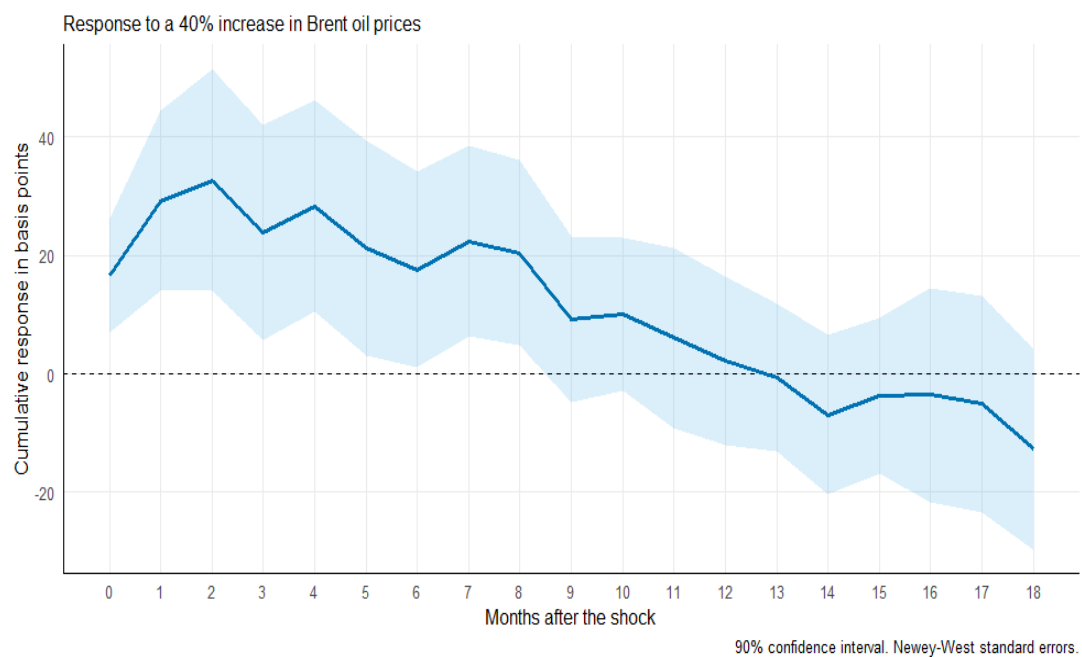
Response of the 5-year break-even inflation rate



Response of the 5-year inflation risk premium



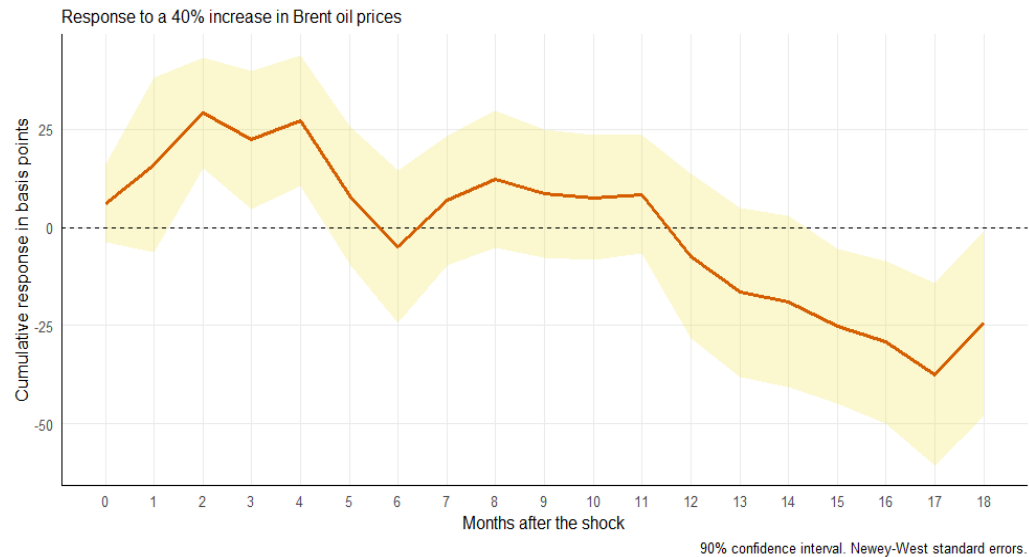
Response of the 5-year inflation expectations



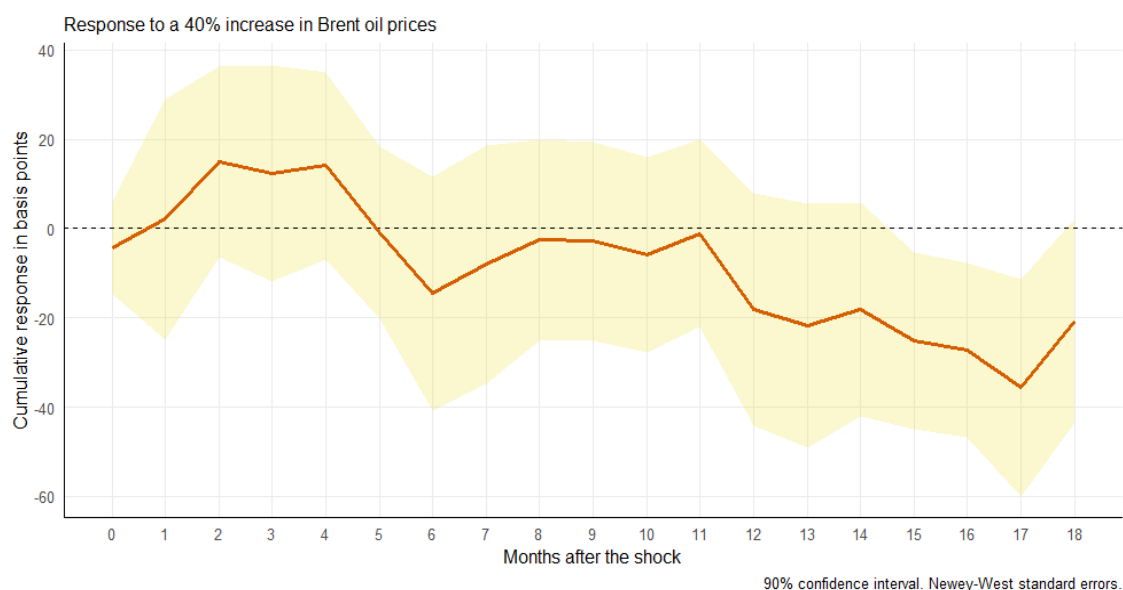
Source: Authors' calculations

Figure 7: Responses of 10-year break-even rates and their components to an oil shock

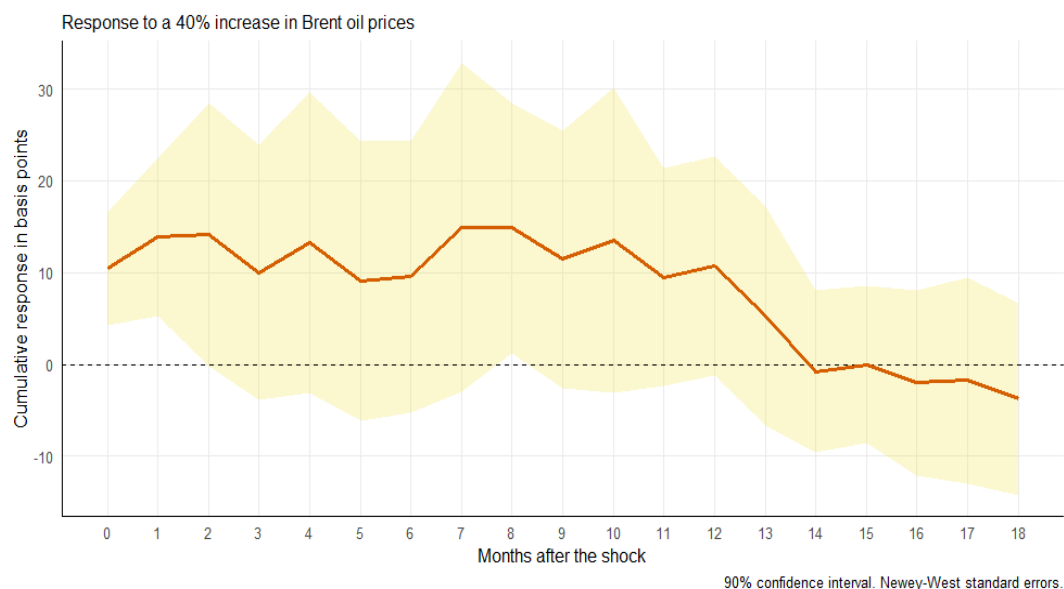
Response of the 10-year break-even inflation rate



Response of the 10-year inflation risk premium



Response of the 10-year inflation expectations



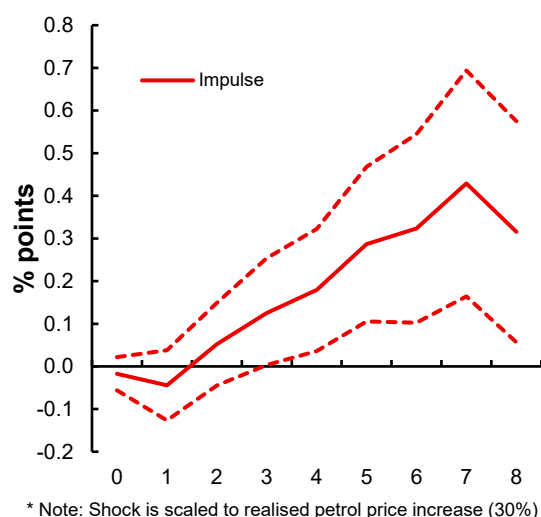
Source: Authors' calculations

Overall, the results suggest that oil price shocks can still pass through to medium-term inflation expectations, even when the effect is small in basis-point terms. This matters for monetary policy because second-round effects become more concerning when oil price increases start to influence expectations beyond the immediate fuel-price channel. At the same time, the weaker and less precise 10-year response suggests that longer-term inflation remains relatively well anchored. The results for both models are reasonably robust across alternative specifications and after removing extreme oil price observations.

5. Survey-based evidence of financial analysts' shorter-term inflation expectations¹¹

Our market-based analysis is complemented with two-year-ahead inflation expectations from the Bureau for Economic Research's inflation expectations survey. Financial analysts' expectations provide a shorter-horizon perspective than the five- and 10-year break-even measures, allowing us to assess whether the response to oil price shocks is also evident closer to the period over which inflation pressures are likely to emerge. The survey exercise considers a sustained increase in domestic fuel prices of around 30%, corresponding to the increase in fuel prices observed over the period in which oil prices rose by around 40%. Unlike the once-off shock considered in the market-based analysis, the fuel-price increase is sustained for three quarters before gradually declining and stabilising at 6% above its pre-shock level. The exercises are therefore not directly comparable but provide complementary evidence across different horizons: analysts' two-year-ahead expectations provide a shorter-horizon perspective, while the five- and 10-year break-evens capture medium- and longer-term market pricing. The analysis covers 2021Q1 to 2026Q3.

Figure 8: Response of financial analysts' 2-year-ahead inflation expectations to a sustained fuel price shock



Source: Authors' (Foresto and Reid's) calculations

Financial analysts' two-year-ahead inflation expectations show little initial response to the sustained fuel price shock, before increasing more noticeably at later horizons. The response then strengthens, rising from around 0.13 percentage points in quarter 3 to a peak of 0.43 percentage points in quarter 7, before moderating to 0.32 percentage points in the final quarter. This delayed response suggests that analysts do not immediately incorporate the full effect of higher fuel prices into their two-year-ahead expectations. Instead, the effect becomes more pronounced as the fuel price increase persists, before moderating as the shock dissipates.

¹¹ The authors would like to thank Anis Foresto and Monique Reid for this analysis.

6. Conclusion

Using a local projection model, we estimated the response of market-implied inflation expectations, break-even rates, to a shock to oil prices. We find that oil price shocks affect break-even rates mainly at shorter- and medium-term horizons, but do not produce a persistent deterioration in the longer-term inflation outlook. Across the daily and monthly models, break-even inflation responds only gradually: the effect is larger and more persistent at the five-year horizon than at 10 years, and the decomposition indicates that the increase is driven primarily by higher estimated inflation expectations rather than by the inflation risk premium. The complementary survey evidence reinforces this pattern, showing that financial analysts' two-year-ahead expectations rise more clearly when higher fuel prices persist. For monetary policy, these results indicate the need to closely monitor medium-term expectations when oil price increases are large or sustained, as this is where early signs of broader pass-through are most visible.

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The first- and second-round effects of supply shocks

Witness Simbanegavi and Mokgabiso Tshenkeng

Abstract

- Supply shocks propagate into inflation through direct, indirect and second-round effects, with second-round effects being the most important for monetary policy.
- The direct effects of supply shocks are easily identifiable in inflation data. Indirect and second-round effects are harder to detect in real time, partly due to staggered price adjustments or the long and variable lags in behavioural change.
- A historical decomposition (using a structural vector autoregression model) shows that second-round pressures have become smaller since around 2017.
- The current shock is large and persistent, presenting material risks that expectations could de-anchor, allowing the shock to become embedded in inflation.
- Given identification challenges, policy will be guided by informed judgement, drawing from experiences of prior supply shocks, analysis of pass-through of expectations to prices, and monitoring the speed and size of first-round effects.

1. Introduction¹

The orthodox macroeconomic view is that monetary policy is a demand-management tool, with the resultant implication that monetary policy should look through supply-side shocks (Bandera et al. 2023; Beaudry, Carter and Lahiri 2026). Yet, in emerging economies especially, supply shocks dominate inflation dynamics and drive inflation expectations (Coibion, Gorodnichenko and Kumar 2018). Even at a global level, supply shocks have become commonplace. In recent years, the global economy has experienced multiple and, often, overlapping supply shocks.² Climatic shocks and weather-related events are also expected to increasingly affect agricultural commodity prices, and thus inflation. This raises several questions for monetary policy. First, how do supply shocks propagate into inflation? Second, how can monetary authorities evaluate and quantify the pass-through effects of supply shocks to inflation? Third, how should monetary policy respond to inflationary pressures induced by supply shocks?

This note details how supply shocks may propagate to inflation and argues that central banks must *always be prepared* to respond to supply shocks. We use the phrase ‘always be prepared’ deliberately here. Often, supply shocks lead to relative price changes and generate only transitory inflation (a once-off increase in the price level) which monetary policy cannot do much about. However, under certain conditions, a supply shock can trigger a generalised

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¹ The authors are grateful to Nkhetheni Nesengani, Rudi Steinbach, Jeffrey Rakgalakane and Jean-Francois Mercier for their valuable contributions.

² These include the COVID-19 shock and its aftermath, the energy price shock due to the Russia-Ukraine war, and now the fuel price shock induced by the Middle East conflict.

increase in the price level – the type of inflationary pressure that monetary policy can effectively extinguish, as will be made clear below.

2. Supply shocks and inflation

How central banks should respond to inflation induced by a supply shock is anything but straightforward. First, regardless of its source, high and persistent inflation harms the economy and is widely disliked by economic agents. Second, in some cases supply-induced inflation eventually manifests as demand-pull inflation. We will revisit this point below. The immediate implication of these observations is that the optimal monetary policy response to an inflation shock should be informed by the expected size and persistence of the inflationary impulse rather than the source of the inflation shock (De Gregorio 2012).

There are at least three channels through which a supply shock may transmit to domestic inflation, namely the direct effect, indirect effects and second-round effects. We will illustrate these propagation mechanisms using the recent fuel price shock caused by the conflict in the Middle East.

With respect to the fuel price shock, the *direct effect* reflects the immediate pass-through of fuel price increases to surveyed inflation (pump prices rise almost instantly when Brent crude oil prices increase).³ Second, fuel prices may also feed into inflation through proximate goods and services – the so-called *indirect effects*. Producers may consider passing some of the fuel-induced costs on to the consumer. A good example is transport inflation, which is highly sensitive to fuel price movements.⁴ However, firms face a choice between passing cost increases on to consumers and absorbing these in margins to reduce the risk of demand or market share loss. Thus, there is uncertainty as to the size and timing of indirect effects. The direct and indirect effects constitute the first-round effects of a fuel (supply) shock and generate what is called cost-push inflation (see also Lane 2026).⁵ Direct and indirect effects mostly affect relative price movements and thus do not necessarily bring about generalised inflation.

Supply shocks can, and often do, surface underlying inflation pressures. For instance, shocks to fuel prices are likely to lift the inflation expectations of households, firms and workers, resulting in behavioural changes that may instigate second-round effects (Bank of England 2026). A behavioural shift is more likely the larger the size of the shock and the more persistent it is. For example, large cost shocks have been found to shift firms from time-dependent pricing to state-dependent pricing, resulting in more frequent price increases as firms seek to re-align margins (Cavallo, Lippi and Miyahara 2024; Reis 2026).⁶ This increases the speed with which the cost shock transmits to consumer prices (Bunn et al. 2026). Similarly, a behavioural shift

³ In South Africa, fuel prices are adjusted at the beginning of each month and, as a result, an increase in fuel prices is reflected fully in the consumer price inflation survey in the same month.

⁴ After averaging 0.3% over the 12 months ending March 2026, transport inflation jumped to 4.7% in April and to 10.6% in June 2026.

⁵ Cost-push inflation occurs when rising production costs, such as wages, raw materials or energy, lead firms to raise prices to mitigate against margin compression. Unlike demand-pull inflation, which stems from excess aggregate demand, cost-push inflation originates on the supply side of the economy.

⁶ Time-dependent pricing occurs when firms adjust prices at predetermined intervals, while state-dependent pricing occurs when firms adjust prices in response to economic conditions. More frequent price adjustments may reflect staggered price increases or shifting inflation expectations or both.

is likely when economic agents are more attentive at the time of the shock or when the commodity whose price has risen is more salient (Coibion, Gorodnichenko and Kumar 2018).⁷

Second-round effects of a supply shock manifest primarily through wage growth and shifts in inflation expectations, with likely feedback effects to firm pricing. Workers facing an income squeeze (or expectations of real wage erosion) from rising inflation may ask for wage increases, which, if granted, present a new cost shock to businesses as well as a potential demand shock (Vogtlin 2025).

A cost shock can feed into inflation expectations through the information channel⁸ and the experience channel (Vogtlin 2025). The information channel allows expectations to lift much quicker and, to the extent that agents act on their expectations, inflation expectations may become self-fulfilling (Bryan, Meyer and Parker 2015; Coibion, Gorodnichenko and Kumar 2018; Coibion and Gorodnichenko 2025). The experience channel is backward-looking, as agents adjust their expectations on the basis of lived experience.⁹ Firms with market power could also act opportunistically, raising their prices by more than would be warranted by the cost increase. Rising inflation and wage expectations may result in a wage-price spiral. A monetary policy response to a supply shock primarily seeks to prevent or minimise this cost-push pass-through effect by subduing demand.

Even if firms fully absorbed wage increases (i.e. no price response), second-round inflation effects could emerge as the higher wages may generate demand-pull inflation. This provides another rationale for a monetary policy response to a supply shock, the objective being to mute this demand channel to inflation.¹⁰

3. Why distinguish between first- and second-round effects?

The ex-ante ‘optimal’ monetary policy response to a supply shock depends on the policymaker’s assessed view of whether the shock will generate significant second-round effects (Beaudry, Carter and Lahiri 2026). As discussed above, direct and indirect effects are presumed to be temporary as they represent a once-off shift in the price level. Indeed, the reason why supply shocks present a greater challenge for monetary policy, compared with demand shocks, is because it is a priori uncertain whether the shock would generate persistent inflation pressure. It is only sustained inflation pressure that warrants a monetary policy response.

Part of the policy challenge stems from the fact that a negative supply shock is, by definition, contractionary and thus disinflationary. In particular, an oil price shock is equivalent to a negative productivity shock – it reduces growth and widens the output gap (Beaudry, Carter and Lahiri 2026; De Gregorio 2012). This should at least partially offset the inflationary effects of the oil price shock. A tightening of monetary policy in response to a supply shock thus further contracts economic activity (Barakchian and Crowe 2013).

⁷ The literature shows that food and energy price shocks are more salient in emerging economies (De Gregorio 2012).

⁸ Survey respondents become aware of the cost shock and therefore use this information when forming their expectations even before they experience the effects of the shock.

⁹ For firms, expectations would adjust following margin squeeze due to the fuel cost shock, while for workers, realised loss of purchasing power would open the prospect of wage re-negotiations.

¹⁰ Yet another rationale for policy to respond to supply shocks is signalling, whereby the central bank hikes the policy rate to communicate its commitment to keeping inflation low and stable (Leonard et al. 2026).

In principle, first-round effects manifest in data almost immediately, while monetary policy operates with long and variable lags.¹¹ These considerations explain the widely accepted view that central banks should look through (the first-round effects of) supply shocks.¹² By contrast, second-round effects tend to self-sustain in the absence of a policy response. Understanding this distinction is key to optimal monetary policy design.

4. Identifying shock effects in data

Although the conceptual distinction between first-round and second-round effects is intuitive, identifying these effects in data remains a challenge. Whereas the direct effects of a fuel shock reflect almost immediately in surveyed inflation, indirect effects are harder to pin down as firms have a range of possible responses to a cost increase – from full cost absorption to staggered price increases to full pass-through to consumer prices. Staggering price increases makes it harder to identify the price increases purely as a result of the fuel shock as time passes due to confounding shocks. For instance, firms with market power may use a supply shock as a pretext to increase prices beyond what is justified by the cost shock (Leonard et al. 2026). In addition, the staggered increases may eventually overlap with second-round effects (if any), making them indistinguishable in inflation data.

The more pertinent question for monetary policy is how to identify or approximate the second-round effects of the fuel shock. For instance, can inspection of the core inflation basket help identify second-round effects in real time? While analyses of core inflation can explain the possible broadening and intensification of inflation pressures following the shock, and thus the risk of persistent inflation, they are unlikely to identify second-round effects directly. By definition, second-round effects are the outcome of behavioural responses to the direct and indirect effects of the (fuel) shock and therefore manifest over time.¹³ This, however, does not mean policy is hamstrung, as we argue below.

Second-round effects manifest in wage and inflation expectations dynamics (Vogtlin 2025). In South Africa, wage data are not collected at a high enough frequency (e.g. monthly) to support real-time assessment of second-round effects, partly due to nominal stickiness and multi-year wage settlements. However, inflation expectations data are available at a slightly higher frequency of once a quarter, and are a key input into the South African Reserve Bank's (SARB's) medium-term inflation projections. Because second-round effects are difficult to pin down in real time, policymakers must exercise judgement on their likelihood and magnitude to calibrate policy appropriately. These judgements are informed by the experiences of prior supply shocks, analyses of the pass-through of wage and inflation expectations to prices, and monitoring of the speed and size of first-round effects.¹⁴

¹¹ Some indirect effects may take longer to manifest in inflation data, especially where firms adopt time-dependent pricing or stagger price adjustments.

¹² Anecdotal evidence suggests that central banks, including the SARB, adopted a more cautious approach during the 2026 Middle East conflict-induced oil price shock – with many holding rates steady or implementing modest increases as they monitored the shock's transmission. This posture, however, benefitted from favourable initial conditions, where inflation was close to targets and policy was moderately restrictive.

¹³ Identifying second-round effects in the core basket requires isolating all the components of core inflation that are either directly or indirectly impacted by the fuel price shock and holding all the other price drivers (shocks) constant over the relevant period. These conditions cannot be met, especially in real-time analyses.

¹⁴ See Allison and Mavuma (2026), Steinbach and Morwane (2026) and Foresto, Reid and Vermeulen (2026).

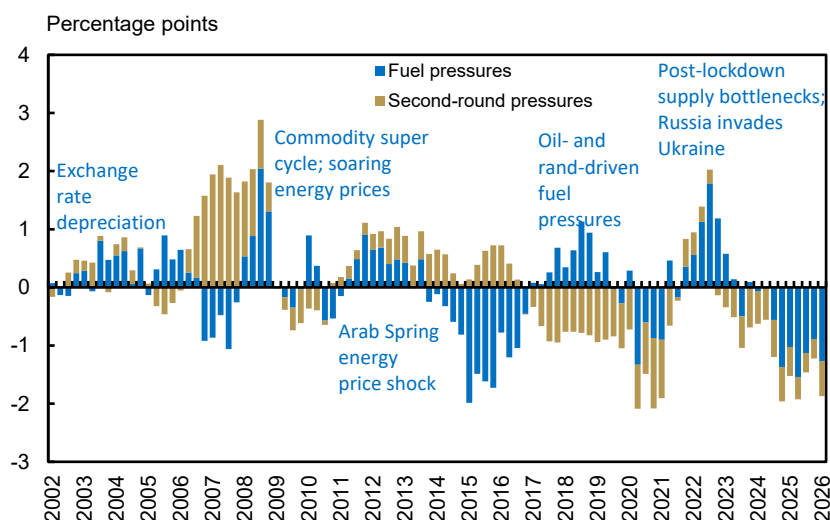
Because second-round effects are not observable in real time, policymakers face intra- and intertemporal policy trade-offs. The intra-temporal trade-off arises because tightening to contain inflation may further weaken activity. The intertemporal trade-off concerns the timing of a policy response: acting too early risks unnecessarily constraining activity if the shock proves temporary, while acting too late risks allowing inflation pressures to become more persistent, potentially requiring a stronger policy response later.

The empirical section below evaluates how historical fuel shocks have influenced expectations and wages (second-round channels) and ultimately headline inflation.

5. Historical incidence of fuel and second-round pressures in South Africa

In this section we model a structural vector autoregression (SVAR) using a recursive Cholesky identification scheme to quantify the contribution of fuel, wage and inflation expectations pressures to headline inflation in the South African economy. The recursive ordering is fuel prices, headline CPI inflation, two-years-ahead inflation expectations, average wage growth and the policy rate. This ordering treats fuel inflation as the most exogenous variable, while the remaining variables are ordered according to their assumed position in the transmission chain, with later variables restricted from responding contemporaneously to shocks that originate earlier in the system. The results capture *independent* unexpected movements (shocks) in each variable, rather than observed levels. Positive (negative) values indicate upward (downward) pressure relative to a model-implied path.¹⁵ A historical decomposition then traces the incidence of fuel pressures alongside wage and inflation expectations pressures (grouped as second-round pressures) over time. The model is estimated using quarterly data from 2001Q1 to 2026Q1.

Figure 1: Historical incidence of fuel and second-round pressures



Source: Statistics South Africa, Bureau for Economic Research, SARB.

¹⁵ A zero contribution from any of the shocks does not mean a zero effect on inflation; rather, it means the variable evolved broadly as predicted by the model and did not create additional inflationary pressure beyond the model-implied path (Read 2024).

The decomposition shows that the relationship between fuel and second-round pressures has varied over time. Elevated and sustained fuel price pressures, as was the case around major global oil price shocks in 2008, 2011 and 2022, have tended to coincide with more pronounced second-round pressures. In our framework, fuel and second-round pressures are separately identified, recognising that wage and inflation expectations pressures capture not just fuel price effects, but also a broad range of inflationary forces.¹⁶ Accordingly, fuel and second-round pressures need not consistently move together. The finding of persistent supply shock effects on headline inflation is consistent with Simbanegavi and Palazzi (2023), who find that core inflation reverts to headline inflation following supply shocks, confirming second-round effects in historical inflation.

Interestingly, since around 2017, second-round contributions have remained muted, and often negative. This period coincides with the SARB's stronger emphasis on keeping inflation at the midpoint of the target range (4.5%) and, more recently, at the 3% target. The more contained second-round pressures are consistent with better-anchored inflation expectations and increased policy credibility.^{17,18} Importantly, however, the current fuel shock has been both large and persistent, which sharply raises the risk that it may feed into wage and inflation expectations pressures. Although wage expectations have so far remained relatively anchored, the two-years-ahead inflation expectations have edged higher since the shock, and both could escalate further as the shock intensifies.

6. Conclusion

Understanding how supply shocks propagate into headline inflation is fundamental to monetary policy design. While direct and indirect effects capture much of the initial pass-through to inflation, the key policy concern is whether these pressures become embedded in wages and inflation expectations, resulting in wage-price spirals. A historical decomposition shows that sustained fuel price pressures are typically associated with pronounced second-round pressures. However, second-round pressures have generally been more contained since 2017, consistent with better-anchored inflation expectations and stronger monetary policy credibility. For policy, this highlights the importance of looking through the initial inflation impacts of an oil shock but remaining attentive to its transmission to detect emerging risks. The current fuel shock is large and persistent, heightening the risk that expectations could de-anchor. Monetary policy should lean against such pressures, guided by prior shock experiences and analyses of the pass-through of wage and inflation expectations to prices as well as of the speed and size of first-round effects.

¹⁶ These may include food price shocks, exchange rate shocks and high past inflation feeding into wage negotiations.

¹⁷ For instance, SARB analysis shows that the exchange rate pass-through rate has declined (SARB 2025). See Amaral, Foresto and Mosoma (2026) on the anchoredness of expectations.

¹⁸ The model has some limitations – for example, the assumption of a constant transmission mechanism. Future research could consider models such as time-varying parameter VARs, separate SVARs estimated over different periods and Markov-switching VARs.

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Waiting for wages: oil price shocks, wage expectations and wage growth in South Africa

Chloë Allison and Phumlani Mavuma

Abstract

- This note examines how exogenous oil price shocks affect wage expectations and realised wage growth in South Africa. A 40% oil price shock leads to an immediate upward revision in wage expectations across firms, financial analysts and trade unions, while realised wage growth responds with a lag.
- Financial analysts display the strongest immediate response, whereas the response of trade unions' one-year-ahead wage expectations exhibits stronger persistence.
- The delayed response of realised wages is consistent with South Africa's collective bargaining structures and multi-year wage agreements, which may slow wage adjustment following shocks.
- The findings suggest that survey-based wage expectations may provide an early signal of emerging second-round wage and inflation pressures before they become visible in realised wage data.

1. Introduction

Oil price shocks can generate more persistent second-round effects and inflation if they influence wage expectations and wage-setting behaviour (Bank of England 2026). Workers may seek compensation for higher prices through wage increases, raising labour costs and reinforcing inflationary pressures. Wage adjustment in South Africa is partly shaped by collective bargaining, bargaining councils and multi-year agreements, which may delay the response of realised wages to shocks (Bhorat, van der Westhuizen and Goga 2009; Magruder 2012; Bassier 2021).

We examine how oil price shocks affect wage growth and the wage expectations of firms, financial analysts and trade unions in South Africa, and whether higher wage expectations are associated with higher wage growth in the future. We find that wage expectations respond more quickly than realised wages. Following a 40% oil price shock, current-year and one-year-ahead wage expectations are revised upwards across all three respondent groups on impact, while realised wage growth responds with a delay of one quarter. One-year-ahead expectations are particularly persistent among trade unions, suggesting that wage expectations may provide an earlier signal of second-round pressures than realised wage data alone. Higher wage expectations are also associated with stronger subsequent realised wage growth.

* The views expressed in these economic notes are those of the author(s) and should not be attributed to the South African Reserve Bank (SARB) or its policy. While every precaution is taken to ensure the accuracy of information, the SARB shall not be liable to any person for inaccurate information, omissions or opinions contained herein.

2. What evidence is there of pass-through in other countries?

International evidence on the pass-through of oil price shocks to wages is mixed. Using data for European countries, Baba and Lee (2022) find that oil price shocks pass through to wages, core inflation and inflation expectations, although the magnitude of pass-through has declined over time. Importantly, pass-through is state dependent; it is stronger when inflation is already elevated, when monetary policy credibility is weaker and in emerging market economies (Baba and Lee 2022). This suggests that the risk of second-round effects depends on the size of the shock and the prevailing economic and institutional environment.

Firm-level wage-setting behaviour may also shape the extent of pass-through from price shocks to wages. Rõõm and Dabušinskas (2011), using evidence from Estonia, show that wage adjustment is asymmetric in both likelihood and speed of adjustment: employers react more quickly to shocks that threaten profitability, such as declines in turnover, output prices and productivity, than to shocks that improve business conditions. This suggests that second-round effects following oil price shocks may depend not only on inflation expectations and bargaining outcomes, but also on firms' willingness to adjust wages in response to cost pressures.

Similarly, Bloesch, Lee and Weber (2024) argue that cost-of-living shocks have limited pass-through to wages in the United States, as firms set wages mainly in response to worker turnover rather than changes in consumer prices. In their framework, inflation lowers real wages across all jobs simultaneously, leaving workers' outside options largely unchanged and reducing the scope for wage catch-up and wage-price spirals. Consistent with limited second-round effects, Enders and Enders (2017) find no evidence of wage second-round effects after an oil price shock in the euro area: higher inflation from higher oil prices does not transmit to higher wages. Overall, the literature indicates that pass-through to wages is not automatic, but depends on inflation conditions, labour market institutions, worker bargaining power and firms' incentives to adjust wages.

3. How are wages formed in South Africa?

Collective bargaining, trade union representation and negotiated wage agreements play an important role in wage formation in South Africa. Bargaining councils are the primary mechanism for institutionalised wage setting, negotiating wages and conditions of employment across specific industries and occupations (Bhorat, van der Westhuizen and Goga 2009). A key feature of the system is that collective agreements can be extended to non-parties, allowing negotiated wage settlements to influence a broader share of the labour market (Bhorat, van der Westhuizen and Goga 2009; Magruder 2012).

Many wage agreements are negotiated for multiple years, with future wage increases specified in advance or linked to inflation outcomes (Bassier 2021). Consequently, wages may not respond immediately to shocks such as an increase in oil prices, even when those shocks raise inflation and inflation expectations. Instead, the effects of the shock may only be reflected when existing agreements are renegotiated or when inflation-linked wage clauses take effect. This suggests that realised wages may exhibit a delayed response to oil price shocks, while wage expectations can adjust more rapidly. If changes in wage expectations are subsequently reflected in realised wage growth, these expectations may therefore provide an earlier indication of emerging wage pressures.

4. Data and methodology

4.1 Data

We use quarterly data covering the period from 2000Q1 to 2025Q3. Macroeconomic variables are obtained from the South African Reserve Bank (SARB) and Statistics South Africa (Stats SA). Wage expectations are obtained from the Bureau for Economic Research (BER) Inflation Expectations Survey. The analysis focuses on five variables used in the identification stage: Brent crude oil prices, real effective exchange rate, consumer price index (CPI), wage expectations, and salaries and wages per worker. Wage expectations are available for firms, financial analysts and trade unions, allowing the expectations of the different groups of survey respondents to be compared. Both surveyed current-year and one-year-ahead expectations are considered to assess whether oil price shocks influence expectations beyond the immediate period.¹

4.2 Empirical strategy

We adopt a two-stage empirical strategy. In the first stage, we estimate a structural vector autoregression (SVAR) to identify exogenous oil price shocks (Kilian 2009; Francis and Restrepo-Ángel 2018). The identified shock is normalised to represent a 40% increase in the Brent crude oil price.² Details of the identification strategy and variable ordering are reported in Annexure B.

In the second stage, the identified structural oil price shocks are used within Jordà's (2005) local projection framework to estimate the dynamic responses of wages and wage expectations. The oil price shock³ is treated as a temporary innovation occurring at $t = 0$, and the resulting impulse responses trace the evolution of the variables of interest following this single unexpected disturbance over subsequent periods. For each quarter, q , the following specification is estimated:

$$y_{t+q} = \alpha_q + \sum_{i=1}^p \beta_{q,i} X_{t-i} + \delta_q Shock_t + u_{t+q}$$

where $Shock_t$ denotes the structural oil price shock scaled to represent a 40% increase in Brent crude oil prices, X_{t-i} includes lagged macroeconomic controls and $q = 0, \dots, 12$ quarters. The coefficient δ_q measures the response of the outcome variable to the oil price shock at quarter q . Impulse responses are estimated over 12 quarters.

¹ Brent crude oil prices, the real effective exchange rate, CPI, and salaries and wages per worker are expressed as year-on-year log changes. Wage expectations are reported as expected percentage increases and are transformed as the difference between the expectation reported in t and that reported in quarter $t - 4$. Responses of the expectation measures are therefore expressed in percentage points. Further details on the data and variable transformations are provided in Annexure A.

² Although oil price shocks are often presented as one-standard-deviation innovations in the literature, this study normalises the shock to a 40% increase in the Brent crude oil price. This calibration enhances economic interpretability and reflects the magnitude of the 2026 oil price movement.

³ Although the oil price shock is a once-off innovation occurring at $t = 0$, its effect on oil prices persists beyond the initial quarter. Oil prices increase on impact and remain elevated for about three quarters before gradually converging back towards baseline levels (see Annexure B).

Local projections are estimated separately for realised wage growth and wage expectations across the three respondent groups (trade unions, firms and financial analysts).⁴ To examine whether wage expectations contain information about future wage outcomes, we also estimate the response of realised wage growth to innovations in wage expectations.

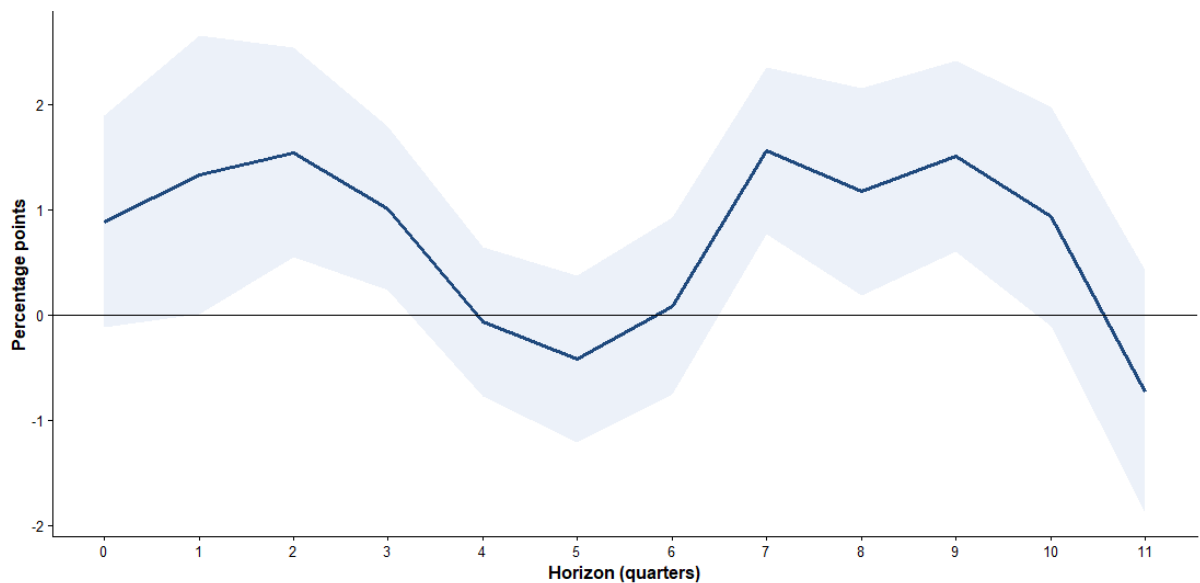
Newey-West heteroskedasticity and autocorrelation consistent (HAC) standard errors are used to construct confidence intervals, ensuring robust statistical inference in the presence of serial correlation and heteroskedasticity.

5. How do oil price shocks affect wages and wage expectations?

Figure 1 shows the response of realised wage growth to a 40% increase in Brent crude oil prices. Wage growth does not respond significantly on impact. Instead, the response emerges with a lag, becoming statistically significant after one quarter and reaching about 1.5 percentage points after two quarters. The response subsequently weakens but re-emerges in later quarters, suggesting that oil price shocks may continue to influence wage-setting outcomes well after the initial shock.

These results suggest that oil price shocks are eventually transmitted to realised wages, but that the pass-through occurs gradually rather than immediately. This delayed response is consistent with the South African institutional setting discussed earlier, where negotiated wage agreements and multi-period wage contracts may limit the short-run adjustment of wages.

Figure 1: Realised wage growth following a 40% oil price shock



Note: The figure reports local projection estimates of the response of wage growth to a 40% oil price shock. Shaded bands represent 95% confidence intervals based on HAC (Newey-West) standard errors.

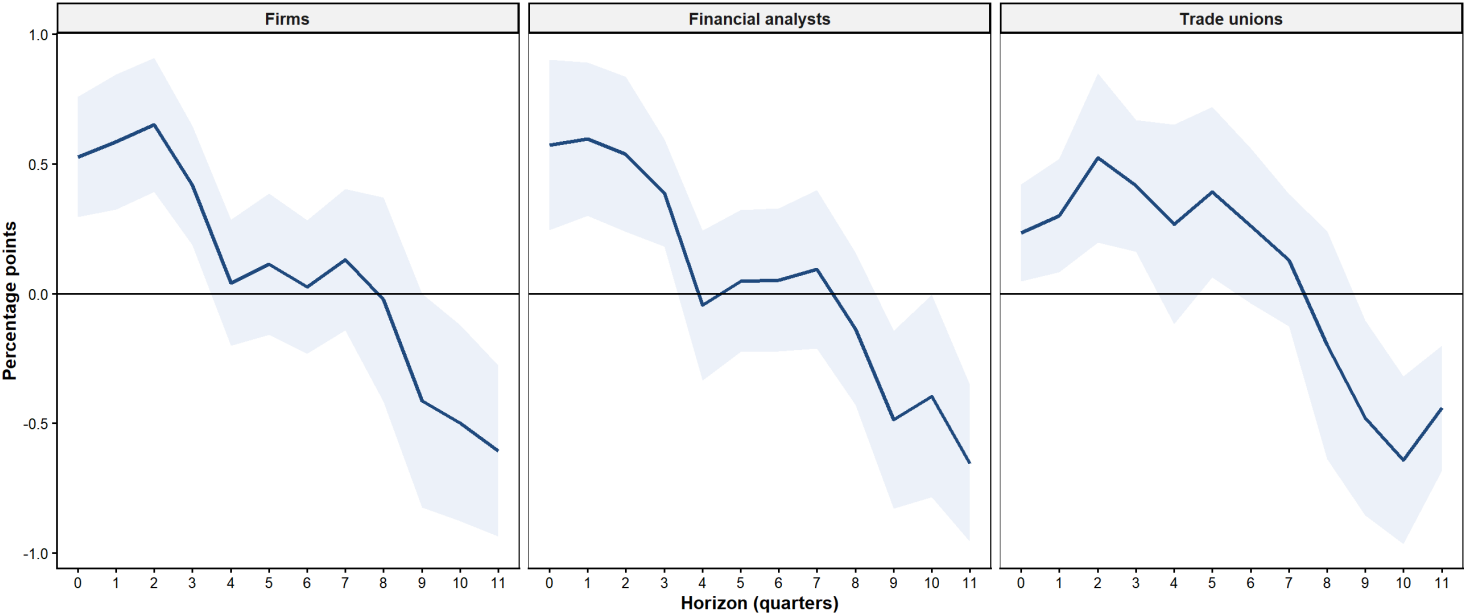
While realised wages may be slow to adjust because of existing wage agreements, wage expectations can be revised immediately following a shock. Figure 2 shows that a temporary 40% oil price shock leads to an immediate and statistically significant upward revision in

⁴ Unlike inflation expectations, which are collected for the current year as well as one-, two- and five-year-ahead horizons, the BER expectations survey reports wage expectations only for the current year and one-year-ahead horizon.

current-year wage expectations across firms, trade unions and financial analysts.⁵ Expectations rise on impact by around 0.53 percentage points for firms, 0.57 percentage points for financial analysts and 0.23 percentage points for trade unions. The response peaks within one to two quarters, reaching about 0.65 percentage points for firms after two quarters, 0.6 percentage points for financial analysts after one quarter and 0.52 percentage points for trade unions after two quarters.

While all three groups revise expectations upwards following the shock, there are differences in the magnitude and persistence of the response. Financial analysts exhibit the strongest immediate reaction, while trade unions adjust more gradually and remain above pre-shock levels for longer. This may reflect differences in the information sets of the three groups, with trade unions placing greater weight on longer-term wage-setting considerations.

Figure 2: Current-year wage expectations following a 40% oil price shock



Note: The figure reports local projection estimates of the response of wage expectations to a 40% oil price shock. Shaded bands represent 95% confidence intervals based on HAC (Newey-West) standard errors.

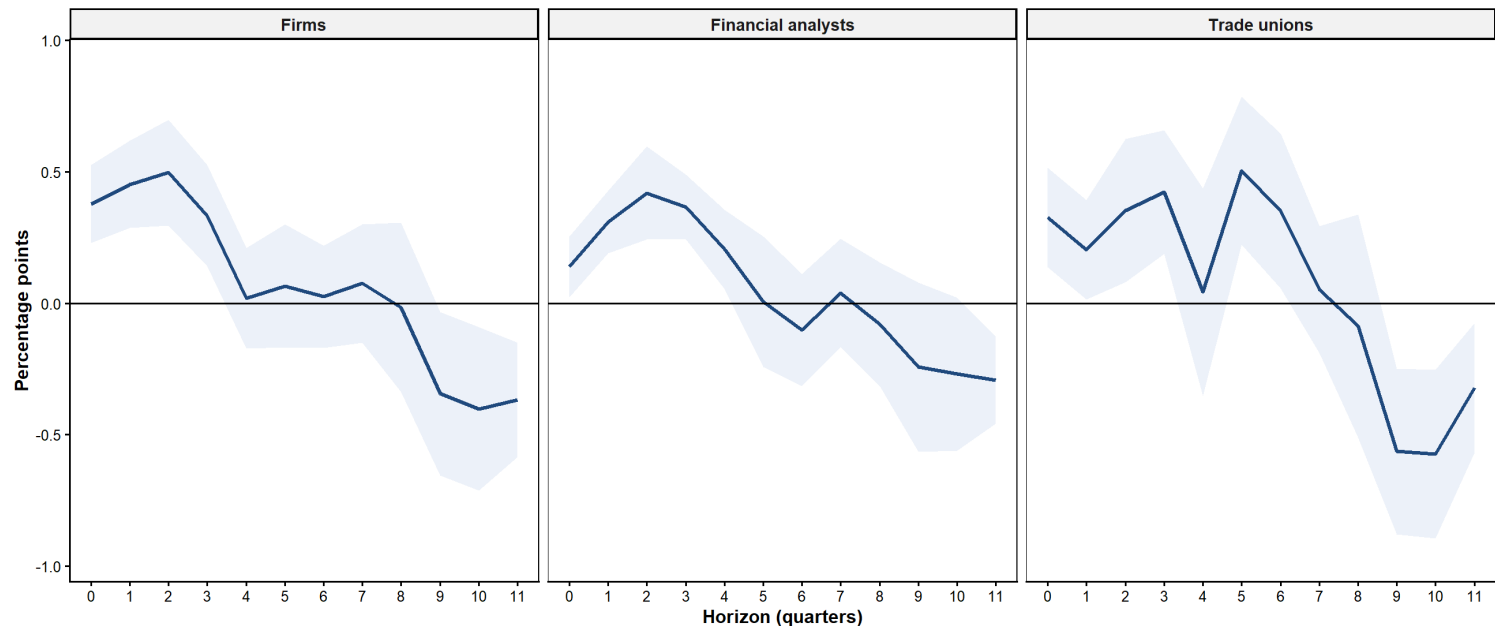
Figure 3 shows that oil price shocks also affect expectations further into the future. One-year-ahead wage expectations increase significantly among all respondent groups following the shock, suggesting that economic agents expect at least part of the wage effects of higher oil prices to persist beyond the immediate period. However, the magnitude of the response is generally smaller than for current-year expectations, indicating that respondents anticipate some moderation in the impact over time, given the duration of the shock.

Firms revise one-year-ahead wage expectations upwards by around 0.38 percentage points on impact, with the response peaking at about 0.5 percentage points after two quarters. Financial analysts exhibit a more gradual adjustment, with a relatively modest impact response of 0.14 percentage points that rises to a peak of 0.42 percentage points after two quarters. Trade unions display the strongest forward-looking response, and this response persists, with

⁵ The wage expectations variables are measured as the difference between the wage expectations reported in the current quarter and the corresponding wage expectations reported in the same quarter of the previous year.

expectations increasing by around 0.33 percentage points on impact and remaining elevated for longer.^{6,7}

Figure 3: One-year-ahead wage expectations following a 40% oil price shock



Note: The figure reports local projection estimates of the response of wage expectations to a 40% oil price shock. Shaded bands represent 95% confidence intervals based on HAC (Newey-West) standard errors.

While the pattern is similar across groups, there are differences in persistence: firms’ and financial analysts’ responses are concentrated in the first three to four quarters following the shock and gradually dissipate thereafter. Trade unions also exhibit positive and statistically significant responses that persist for longer, with responses of about 0.5 and 0.35 percentage points at five and six quarters after the shock, respectively. Although the response is not continuously significant throughout the period analysed, the positive responses observed sometime after the shock could suggest that trade unions incorporate oil price developments into wage expectations over a more extended period than firms or financial analysts, even if the shock is temporary. This is consistent with their role in collective bargaining processes, where negotiated multi-year agreements set wage increases for several years into the future.

Notably, the impulse response of trade unions’ one-year-ahead wage expectations follows a pattern that is qualitatively similar to that of realised wage growth. Both exhibit an initial response to the oil price shock, followed by a period of weakening and a subsequent re-emergence of positive effects that persist for several quarters. Although these results should not be interpreted as proof that union expectations cause subsequent wage outcomes, the similarity in the response profiles suggests that trade union expectations may contain

⁶ The similar responses observed across respondent groups may partly reflect the high correlation between the underlying wage expectations series. Correlation coefficients reported in Annexure C indicate that the three series move closely together over time.

⁷ The main results are robust to alternative specifications that use variables in levels rather than year-on-year growth rates and include inflation expectations as an additional control variable. These results are reported in Annexure D.

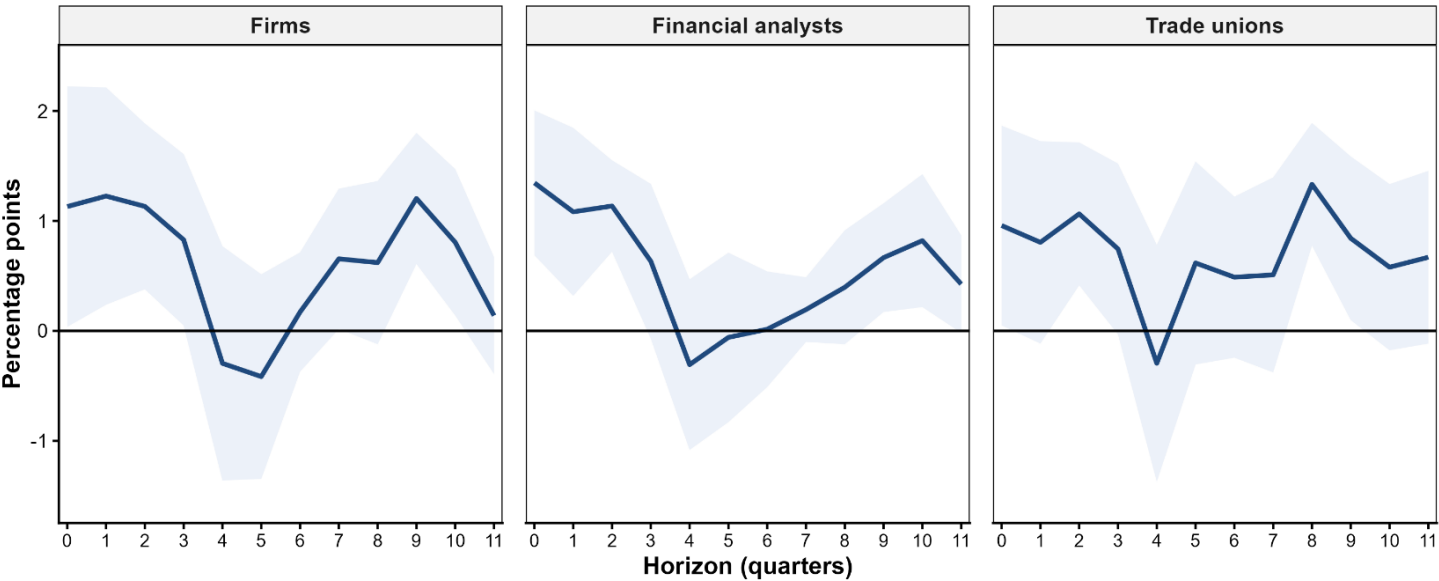
information about wage-setting conditions that are subsequently reflected in realised wage growth.⁸

This persistence is consistent with the institutional features of South Africa’s wage-setting process. Collective bargaining arrangements and multi-year wage agreements may encourage trade unions to form wage expectations over longer periods, making forward-looking expectations more persistent following an oil price shock. While the results do not establish a causal link between bargaining institutions and expectation formation, they suggest that oil price developments may influence unions’ wage-setting considerations beyond the immediate adjustment period.

6. Do wage expectations contain information about future wage growth?

The preceding results show that oil price shocks lead to upward revisions in both current-year and one-year-ahead wage expectations. However, higher wage expectations do not necessarily translate into higher realised wages. We therefore test whether innovations⁹ in wage expectations are associated with subsequent realised wage growth. Evidence of such a relationship would support the use of wage expectations as an early indicator of emerging wage pressures. Figure 4 presents the estimated response of realised wage growth to a 1-percentage-point shock in current-year wage expectations across the three respondent groups.¹⁰

Figure 4: Realised wage growth following current-year wage expectations shocks by respondent group



Note: The figure reports local projection estimates of the response of realised wage growth to a 1-percentage-point shock in wage expectations for each respondent group. Shaded bands represent 90% confidence intervals based on HAC (Newey-West) standard errors.

⁸ Related evidence from Reid and Siklos (2026) shows that the information content of South African inflation expectations varies across respondent groups and forecast horizons, with trade union expectations potentially providing additional information at longer horizons.

⁹ Wage expectation innovations are orthogonal SVAR shocks identified from a system comprising wage expectations, private-sector wage growth, CPI inflation and unemployment, and scaled to a 1-percentage-point increase in wage expectations.

¹⁰ The wage expectations shock keeps wage expectations elevated for 3.5 quarters and the response of realised wage growth is observed over 12 quarters.

A positive shock to wage expectations is associated with higher realised wage growth for all three groups: responses are initially positive, weaken in intermediate periods and re-emerge later. The broadly similar responses across the three groups are consistent with the close co-movement in their wage expectations (see Annexure C). The strongest longer-run response is observed for trade union expectations: wage growth increases by around 1.3 percentage points eight quarters after a wage expectations shock. Given the role of trade unions in collective bargaining and wage negotiations, their expectations may contain useful information about subsequent wage-setting pressures. However, these results should not be interpreted as conclusive proof of a causal relationship between wage expectations and realised wage growth. More broadly, the results indicate that survey-based wage expectations may provide an earlier indication of emerging wage pressures than realised wage data alone.

7. Conclusion and policy implications

The evidence indicates a distinct timing difference in the response of wages and wage expectations to oil price shocks. Realised wage growth responds with a lag, which is consistent with a wage-setting environment where existing agreements and bargaining arrangements limit the immediate adjustment of actual remuneration. Wage expectations, however, respond on impact. The important implication is therefore that realised wage data may understate wage-setting pressures during the period before wages are renegotiated.

There are also differences in the persistence of wage expectation responses across respondent groups. The response of trade union expectations persists longer than the other groups following an oil price shock. In contrast, financial analysts show the strongest immediate response, whereas firms record the highest peak response. This suggests that the different wage expectations may contain useful information about emerging wage pressures before they are fully reflected in realised wage data. This does not imply that expectations mechanically translate into realised wages, as broader economic conditions and sector-specific dynamics determine the impact on wages and headline inflation. Rather, it suggests that some expectation measures may capture wage-setting pressures while they are still embedded in bargaining positions, settlement expectations or future negotiations, before they appear in realised wage outcomes.

Policymakers should monitor realised wage growth as one of several wage-pressure indicators. After a large oil price shock, survey-based wage expectations, wage settlements, inflation outcomes and broader labour market conditions should be assessed together. Attention should be paid to whether wage expectation increases are broad-based across respondent groups or concentrated among groups more closely linked to wage bargaining. This can help distinguish temporary cost-of-living pressures from more persistent wage-setting pressures. Waiting for realised wages alone may mean waiting too long.

Annexures

Annexure A: Variable list

Variable	Source	Transformation
Brent crude oil	SARB	Year-on-year log change
Real effective exchange rate	SARB	Year-on-year log change
Consumer price index	Stats SA	Year-on-year log change
Firms' current-year wage expectations	BER	Year-on-year change
Financial analysts' current-year wage expectations	BER	Year-on-year change
Trade unions' current-year wage expectations	BER	Year-on-year change
Firms' one-year-ahead wage expectations	BER	Year-on-year change
Financial analysts' one-year-ahead wage expectations	BER	Year-on-year change
Trade unions' one-year-ahead wage expectations	BER	Year-on-year change
Total salaries and wages per worker	Stats SA	Year-on-year log change

Annexure B: Identification strategy

To identify exogenous oil price shocks, a five-variable SVAR is estimated, with four lags included in each equation. The matrix A is specified as lower triangular, implying that variables appearing earlier in the ordering contemporaneously affect variables ordered below them, while the reverse effect occurs only with a lag. The ordering is:

$$lyoy_oil \rightarrow lyoy_reer \rightarrow lyoy_cpi \rightarrow yoy_wexp \rightarrow lyoy_salaries_pw$$

This ordering reflects the assumption that global oil prices are exogenous to the South African economy within a quarter. Exchange rate movements may respond contemporaneously to oil price developments, while inflation responds within the quarter to oil prices and exchange rate fluctuations. Wage expectations are allowed to react contemporaneously to all preceding variables, whereas realised wage growth adjusts most slowly and responds contemporaneously to all variables in the system.

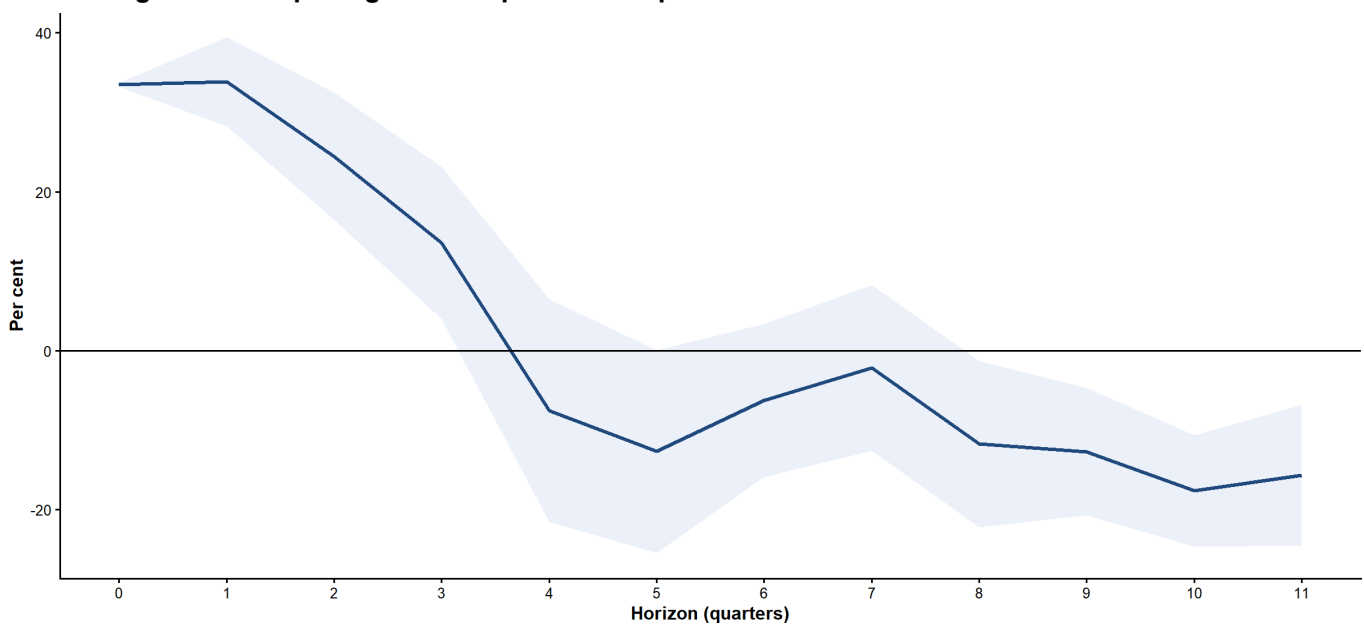
The structural oil price shock is recovered from the estimated SVAR by transforming reduced-form residuals into orthogonal structural innovations. Let ε_t denote the reduced-form residuals from the VAR. Structural shocks are obtained as:

$$e_t = B^{-1}A\varepsilon_t$$

The first element of e_t represents the identified structural oil price shock. To facilitate interpretation, the structural oil price shock is scaled to represent an exogenous 40% increase in the Brent crude oil price. The scaling is based on the contemporaneous impact coefficient obtained from the SVAR impact matrix.

Figure B1 shows the response of oil prices to a 40% oil price shock. Oil prices respond positively on impact and remain elevated for about three quarters before gradually converging back towards baseline levels.

Figure B1: Oil price growth response to oil price shock

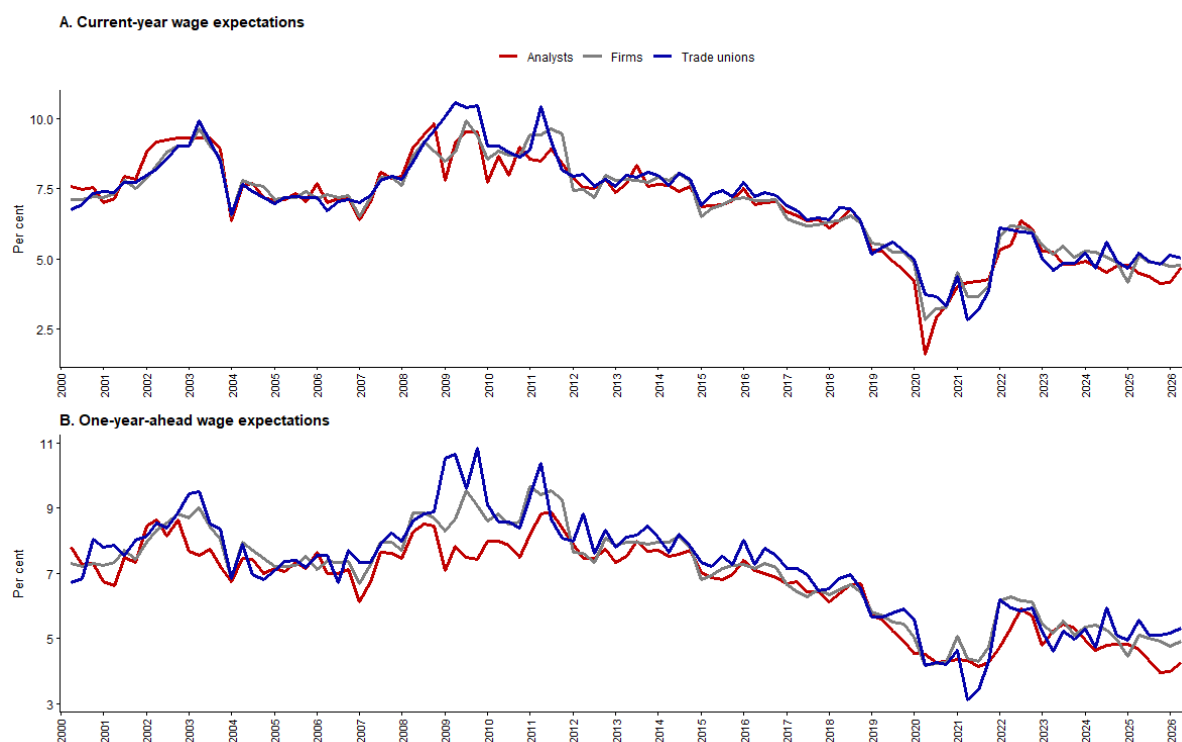


Note: The figure reports local projection estimates of the response of oil prices to an oil price shock. Shaded bands represent 95% confidence intervals based on HAC (Newey-West) standard errors.

Annexure C: Wage expectation correlation

Figure C1 shows that wage expectations across firms, financial analysts and trade unions exhibit substantial co-movement over time. Major turning points are generally shared across respondent groups, suggesting that expectations are influenced by common macroeconomic factors. This co-movement is consistent with the impulse-response results in the main results, where oil price shocks generate broadly similar responses across groups and where differences in estimated effects are generally modest relative to their confidence intervals.

Figure C1: Co-movement in wage expectations by respondent group

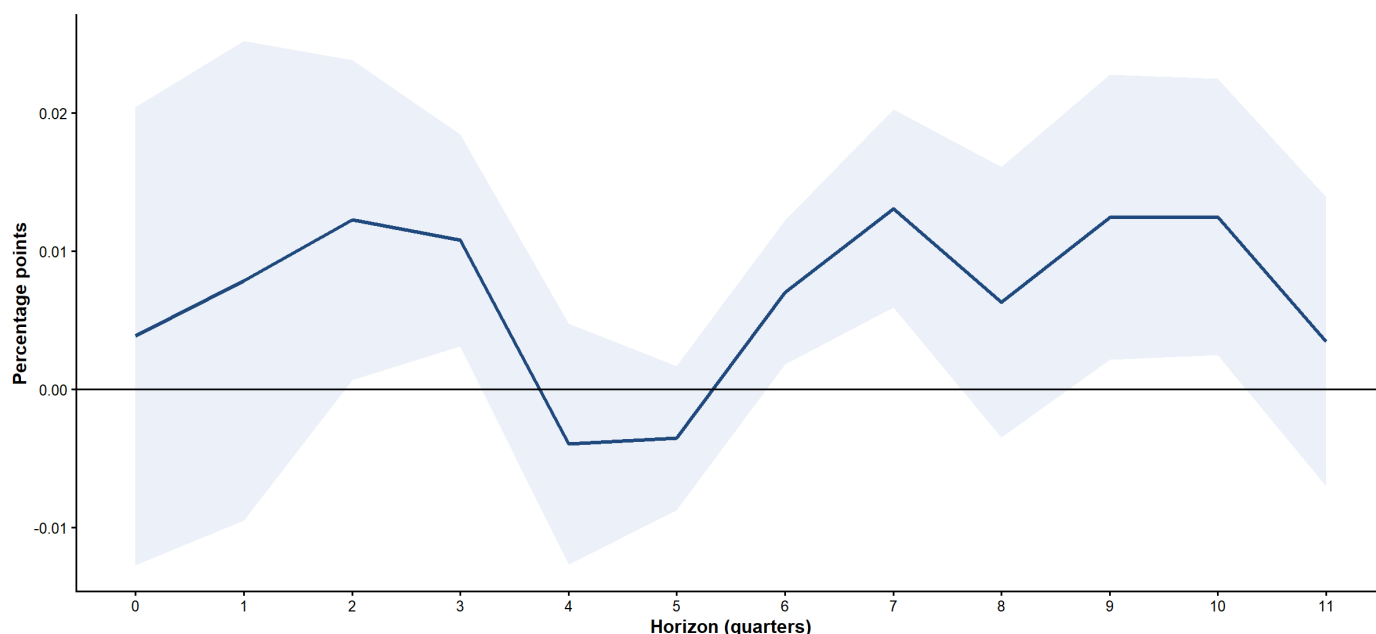


Source: BER.

Annexure D: Robustness

As a robustness check, the baseline specification is re-estimated using the variables in levels rather than year-on-year changes. Specifically, the year-on-year log changes in oil prices, the real effective exchange rate, consumer prices and private-sector wages are replaced with their log-level counterparts, while wage expectations remain in levels as they are already expressed as percentage rates.¹¹ In addition, inflation expectations are included as an extra control variable. The inclusion of inflation expectations is motivated by the possibility that oil price shocks affect wage-setting primarily through changes in expected inflation. Controlling for inflation expectations therefore provides a more stringent test of whether oil price shocks exert an independent influence on realised wages and wage expectations beyond the inflation expectations channel.

Figure D1: Realised wage level response to a 40% oil price shock



Note: The figure reports local projection estimates of the response of realised wages to a 40% oil price shock. Shaded bands represent 95% confidence intervals based on HAC (Newey-West) standard errors.

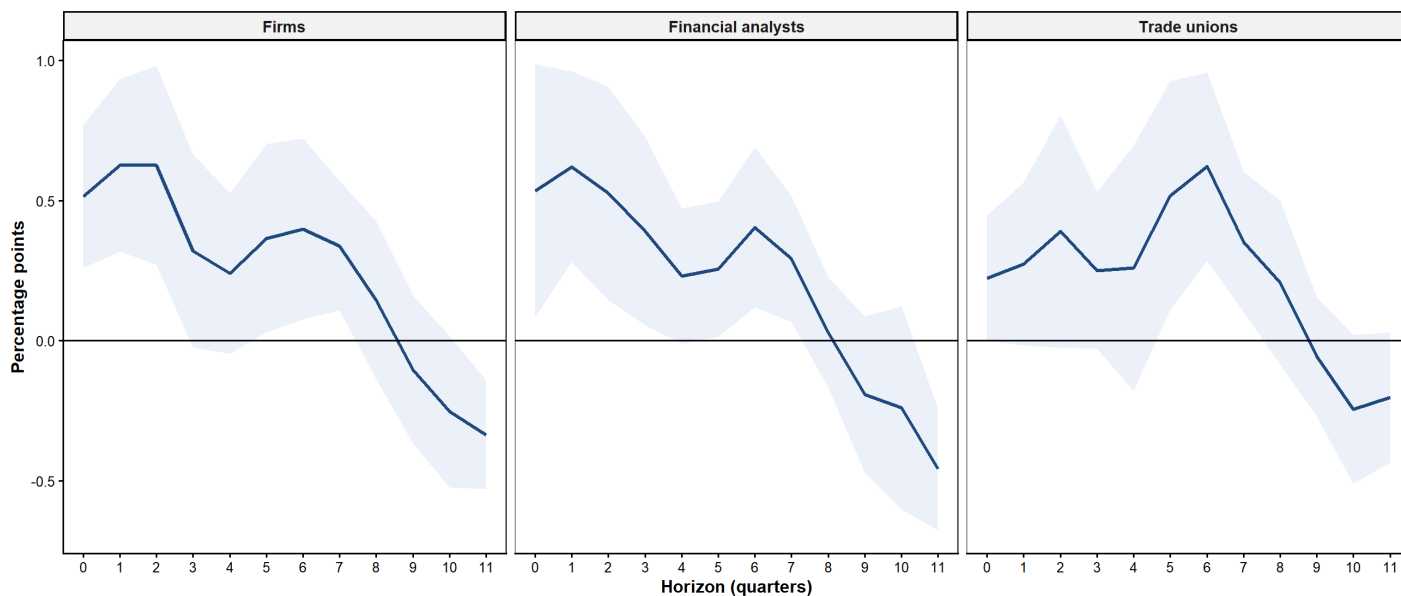
The robustness results are broadly consistent with the baseline findings. Oil price shocks continue to generate positive responses in both realised wages and wage expectations, suggesting that the main conclusions do not depend on the variable transformations used in the baseline specification. Although some responses are weaker and less precisely estimated, the overall pattern remains intact: realised wages respond gradually following the shock (see Figure D1), while wage expectations rise more quickly and remain elevated over subsequent quarters (see Figures D2 and D3).

The results suggest that the relationship between oil price shocks and wage outcomes is not fully accounted for by the inflation expectations measure included in the specification. This strengthens confidence that the positive relationship between oil price shocks, wage

¹¹ This robustness check assesses whether the estimated responses are sensitive to the transformation of the variables, given that the growth-rate specification emphasises short-run changes, whereas the level specification retains information about movements in the underlying levels of the variables.

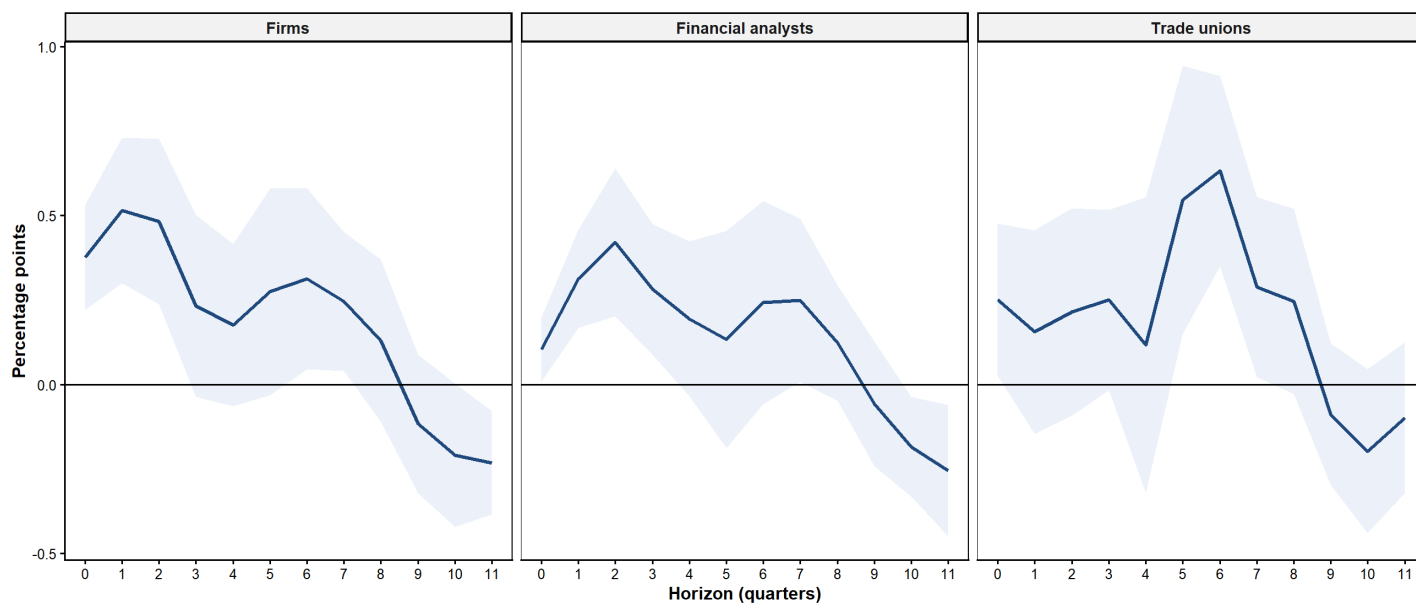
expectations and realised wages is not an artefact of variable construction or the omission of inflation expectations.

Figure D2: Current-year wage expectation level response to 40% oil price shock



Note: The figure reports local projection estimates of the response of wage expectations to a 40% oil price shock. Shaded bands represent 95% confidence intervals based on HAC (Newey-West) standard errors.

Figure D3: One-year-ahead wage expectation level response to 40% oil price shock



Note: The figure reports local projection estimates of the response of wage expectations to a 40% oil price shock. Shaded bands represent 95% confidence intervals based on HAC (Newey-West) standard errors.

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