

***South African Reserve Bank***

***Working Paper Series***

***WP/26/11***

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Authorised for publication by Konstantin Makrelov

**6 May 2026**



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# Inflation expectations: the impact of priming in survey questions

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## Abstract

Inflation expectations surveys are an essential tool for monetary policy, especially within an inflation-targeting policy framework. Over the past decade, there have been increased efforts by central banks to communicate with the wider public and greater use of microdata to understand the way in which inflation expectations are formed and improve communication with the public. This has renewed interest in survey design. In this paper, we evaluate the impact of priming in the Bureau for Economic Research's (BER's) inflation expectations survey, where the survey respondents are given historical inflation numbers before they are asked to provide their inflation expectations for a series of horizons. We explore the extent to which this priming might influence the survey responses and possibly make the reported expectations more backward-looking (informed by historical inflation numbers given to the respondents) than those of the public in reality. Analysis of 2000–2024 BER survey data indicates that priming exerts a modest but significant influence on the expectations of firms and trade unions, while financial analysts appear to use the information in a more active and selective manner. A complementary 2024 survey experiment on business decision-makers finds an overall treatment effect close to zero, though larger firms, and those moderately sensitive to interest rates, report slightly higher inflation expectations when primed with a previous year's inflation.

## JEL classification

C81, C83, E52, E58, E71

## Keywords

Priming, inflation expectations, survey data

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## 1. Introduction<sup>1</sup>

Contemporary monetary policy frameworks, especially inflation-targeting frameworks, depend strongly on the idea that inflation expectations are central to monetary policy efficiency (Woodford 2005) as well as democratic legitimacy (Blinder et al. 2008). Monitoring inflation expectations is therefore core business for most modern central banks, in line with the pervasive shift towards greater transparency in central banking, which Blinder (2008) calls the “quiet revolution”.<sup>2</sup> Well-anchored inflation expectations warrant less active monetary policy to achieve their target (they improve monetary policy efficiency), and in turn, reduce the sacrifice ratio (the cost to the real economy). Inflation expectations, particularly longer horizon expectations, also provide insight into the credibility of a central bank, in no small part because a track record of achieving its target will contribute to institutional credibility.<sup>3</sup>

Besides monitoring the evolution of inflation expectations to gain insight into the potential evolution of inflation itself and the success of the central bank in achieving its target, there is now an increased focus on understanding the manner in which the public forms these expectations. Inflation expectations surveys serve to inform how central banks use policy to influence these expectations, in particular through central bank communication (Blinder et al. 2008). If policymakers better understand the way in which people collect and interpret information, they are more likely to be able to successfully target central bank communication. This has spurred comparative reviews of survey design (Weber et al. 2022; Reid and Siklos 2021; Kim and Binder 2023) and calls for harmonised standards, yet significant cross-country variation remains.

Collectively, these developments have incentivised a greater focus on data collection. Surveys are able to collect information from a range of social groups and measure

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<sup>1</sup> Our thanks to the two anonymous reviewers, who provided helpful comments on this paper.

<sup>2</sup> This revolution in the way central banks operate is driven by the idea that central banks should no longer act in a secretive and opaque manner, but be more transparent, accountable and predictable. These changes have been gradual, nuanced and largely unnoticed by the general public, even though their impact on the economies around the world has been profound. This silent (or quiet) transformation has involved central banks adopting clearer communication strategies, greater transparency in their decision-making processes and a more rules-based approach to monetary policy.

<sup>3</sup> This is especially true when economic shocks occur.

inflation expectations in a direct manner (Armantier et al. 2015). In the wake of what Haldane (2016, 2017, 2018) calls the “second wave of the silent revolution”, where increasing focus has turned to communication with the public rather than just financial experts, it is unsurprising to witness increasing attention being devoted to surveys. This includes reviews that consider best practices across countries (Weber et al. 2022; Reid and Siklos 2021; Kim and Binder 2023), as well as proposals for the adoption of international standards to improve comparability across datasets. However, there remains considerable variation across countries in the design of inflation expectations surveys.

South Africa has an admirable set of inflation expectations surveys, managed by the Bureau for Economic Research (BER) on behalf of the South African Reserve Bank (SARB). The survey has been conducted since the advent of inflation targeting in 2000. The BER surveys possess a number of features that compare well internationally, and the survey is notable among its peers, capturing consistent, multi-horizon expectations across households, firms, trade unions and financial analysts. However, the survey design questionnaire includes priming, which is worth understanding better and perhaps reconsidering (Coibion, Gorodnichenko and Ropele 2020). Priming refers to the practice of providing each survey respondent with recently observed historical inflation figures (reference points) before they are asked to forecast inflation.

This paper focuses on the influence of such ‘priming’, a design choice that may inadvertently nudge respondents towards more backward-looking forecasts. If priming materially shifts reported expectations towards the provided historical figures, the measured series may overstate the degree to which expectations are anchored to past inflation.

We examine this question in two ways. First, we analysed BER firm-level survey data from 2000 to 2024. The priming number has been provided since the start of the survey and is updated only once a year, often in larger discrete steps at the start of the year than the underlying inflation itself. Second, we conducted a once-off experiment in 2024 with 350 senior business executives – key price setters who are typically better informed about inflation than the general public and less likely to be influenced by priming. We asked one half of our sample to provide their inflation expectations without

giving them the historical inflation number (the control group), and the other half of the sample to provide their inflation expectations after being given the historical inflation number (the treatment group). It is important to note that we surveyed this relatively more informed group at a time when inflation had been particularly high (when they were likely to have been more attentive to inflation (also see Bracha and Tang 2025)). Whether our results would translate as well if inflation were relatively lower would depend not only on any recent memories of past inflation (e.g. Malmendier and Nagel 2016), but also on the overall attentiveness of the group surveyed. Since senior executives were surveyed, one might expect them to always remain relatively attentive to inflation. If the expectations of this informed group still reflect bias within this economic context, it is very likely that similar biases are present across broader, more heterogeneous populations and periods (Coibion, Gorodnichenko and Ropele 2020).

The BER data analysis shows that all three survey groups – firms, trade unions and financial analysts – update expectations over the year, implying reliance on multiple information sources beyond priming (or at least in addition to priming) to form their expectations. Quantile regression results suggest that priming does have an impact on the inflation expectations reported by survey respondents, but far more so for firms and trade unions than for financial analysts, who show evidence that they are using the information in an active rather than passive manner. The effect of past expectations on current forecasts is notably larger than that of priming, suggesting a degree of inattention or persistence in views.

In the experimental data, the average treatment effect of priming is small and statistically indistinguishable from zero. Nonetheless, some modest significant impact emerges when accounting for structural heterogeneity: large firms and those moderately sensitive to interest rates report slightly higher inflation expectations when primed. Effects are not systematically different across forecast horizons. Overall, priming effects are modest, state-dependent and concentrated in certain subgroups.

In section 2 the concept of priming is presented. This is followed by a discussion of the BER data in section 3. In section 4.1 the results of the analysis using the official BER data are presented, while in section 4.2 we present the experiment conducted to test the extent to which the survey results of firms are distorted by the provision of the

historical inflation number. Section 5 concludes with a discussion on the implications for policymakers.

## **2. Priming**

The question of how much of our thought and behaviour is intentional has been debated for many years (Bargh, Chen and Burrows 1996; Posner and Snyder 1975; Uleman and Bargh 1989). Linked to this, priming occurs when additional information is given to survey respondents that could influence judgements on questions without the individual's conscious awareness. Sometimes priming is deliberate, and sometimes it is an unintentional consequence of the survey question design.<sup>4</sup> When priming is deliberate, the aim is usually to provide respondents with consistent reference points, which limit extreme answers (Furnham and Boo 2011).

The idea that people subconsciously adjust their responses when given a reference number, reporting figures closer to the initially presented number than people who were not given it, has been popularised by the work of Tversky and Kahneman (Tversky and Kahneman 1974; Kahneman 2011), who inspired the field of behavioural economics.<sup>5</sup> Tversky and Kahneman present what they call the anchoring and adjustment heuristic as an example of a mental shortcut by which people reduce complex tasks into simpler ones that allow them to cope with the quantity of cognitive effort required of them daily (Kahneman 2011). Although these rules of thumb contribute on average to the efficient use of a person's mental capacity, they also often lead to systematic errors (biases) that are predictable and best avoided.<sup>6</sup>

Furnham and Boo (2011) review the literature on the anchoring and adjustment heuristic and conclude that the evidence of its presence is surprisingly robust. It has been tested for a range of tasks (from legal judgements to forecasting), on a range of people (including experts in their field being tested on their field of expertise), using a range of methods (field, laboratory and experimental studies), and in their conclusion

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<sup>4</sup> For example, by providing bins for answers that do not cover the full distribution of possible responses.

<sup>5</sup> Even if they were not the first to introduce the idea of priming (Furnham and Boo 2011).

<sup>6</sup> This is in line with the observation that people are not fully rational.

Furnham and Boo (2011) state that “it is unusual in an experimental setting not to be able to demonstrate it”.

They do, however, identify both task-level and person-level factors that affect susceptibility to anchoring. The task-level factors include high levels of ambiguity, level of familiarity, relevance or personal involvement with the topic and the level of trustworthiness of a source or plausibility of a number presented as the reference point. The person-level factors include mood, knowledge, rewards for accuracy and individual preferences. In the case of the business executives on whom the experiment was conducted for this paper, they are likely to be relatively knowledgeable about inflation, given the relevance of the topic to their personal experience as business leaders, so the task-level factors suggest less impact of priming on their reported inflation expectations.

In monetary economics, the term ‘anchoring’ is strongly associated with the idea of inflation expectations being well aligned with the target that is communicated by an inflation-targeting central bank. In this case, anchoring is policy-led and a positive outcome for the central bank and society itself. In the behavioural economics literature, the term is less obviously positive. Beliefs can be anchored to numbers from many sources, with less desirable consequences. It is likely that Weber et al. (2022) chose to use the term ‘priming’ instead of ‘anchoring’ at least in part to avoid confusion that could be created if this distinction is missed by the reader. While we have used the term ‘anchoring’ in this subsection when referring to literature from psychology and behavioural economics, we adopt the term ‘priming’ throughout the rest of the paper to maintain the distinction.

Within the monetary economics literature, Weber et al. (2022) consider the role of priming in shaping the inflation expectations of households and firms. They argue that providing respondents with publicly available historical inflation data before asking for their expectations is an example of priming. It increases the chances that expectations are more consistent and reliable, but it also tends to distort the true underlying distribution of inflation expectations.

Literature using randomised information treatments regularly shows that providing additional information before the survey question is asked has a significant influence on the inflation expectations of firms, causing them to update their beliefs. Coibion, Gorodnichenko and Kumar (2018) conducted experiments in New Zealand revealing that managers' expectations respond strongly to the provision of information about recent inflation rates. Coibion et al. (2021) extended this work by showing that managers' expectations are also influenced by higher-order beliefs (beliefs about the beliefs of other managers).<sup>7</sup> The results suggested that the provision of information about recent inflation and/or information about the beliefs of other managers influenced the distribution of inflation expectations.

Similar patterns were observed in Italy, where Coibion, Gorodnichenko and Ropele (2020) documented large changes of firm expectations to information about recent inflation or the inflation target. Their study reinforces the notion that providing firms with accurate and timely inflation information can effectively change the way they process information and shape their expectations. Following on from this study, Hunziker et al. (2022) conducted a similar study in Switzerland. Using the Swiss National Bank regional network survey, the experimental study found that firms exhibited substantial adjustments in their long-term inflation expectations when provided with targeted information regarding central bank objectives, past performance and long-term average inflation. Our paper fits into this literature, evaluating the impact of priming in the South African case.

### **3. Data**

In this paper, we choose to focus on firms because they represent an important group of price setters. There is evidence that firms are less rational than financial analysts in South Africa, but more rational than households (Kabundi, Schaling and Some 2015;

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<sup>7</sup> Their study design entails multiple groups with different treatments. Group A was a control group and did not receive any information, but their beliefs were used as treatments for other groups. Group B received information about the average beliefs of survey participants about inflation. Group C received information about the average higher-order inflation expectations of survey participants. Group D's signal consisted of both information about average expectations and average higher-order expectations, while Group E was used to compare the impact of information about other managers' beliefs to information about previous information numbers, as in Coibion, Gorodnichenko and Kumar (2018).

Crowther-Ehlers 2019; Reid and Siklos 2023). Intuitively, we expect the impact of priming on financial analysts to be small, especially at a time when inflation is high and the benefits of collecting information efficiently are substantial. However, they are a small group of specialists whose expectations differ quite notably from the broader price setters. At the other end of the spectrum, we expect households to be most strongly influenced by priming, but many of these respondents have relatively limited impact on the economy compared to leading business people. A finding that the leaders of firms are influenced by priming would not give us confidence that the same could be true for most of society, with the exception of financial experts. Finally, while trade unions also represent important price setters in South Africa, the BER survey sample for this group is very small, so we choose to focus on firms.

For our analysis, we use both the official BER inflation expectations survey data of firms, financial analysts and trade unions, and a once-off survey experiment on senior business price setters, conducted by NielsenIQ.

### **3.1 BER inflation expectations surveys**

The BER survey of inflation expectations has been conducted continuously at a quarterly frequency since 2000, when inflation targeting was adopted by the SARB. The BER surveys four social groups: financial analysts, firms (the business sector), trade unions and households. The continuous collection of almost 25 years of inflation expectations survey data from four social groups is commendable by international standards. The survey is also rich, including forecasts of inflation at a series of time horizons as well as forecasts of other macroeconomic variables.<sup>8</sup>

There is, however, a need to consider the potential impact of priming in the survey questions about inflation. Respondents are given historical inflation figures before being asked to provide their own forecasts of inflation, as follows:

*“What do you expect the average headline inflation rate (as measured by the percentage change in the CPI) to be during the year?”*

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<sup>8</sup> See Reid and Siklos (2021) for more details about the surveys.

Then five boxes appear, the first two containing historical inflation numbers and the next three for respondents to record their expectations. The two historical inflation figures given are the average inflation over the past five years and the average inflation for the previous year.

The survey design decisions and motivations for these were well documented at the time the survey was created, allowing us to consider these 25 years later (Kershoff and Smit 2002). Professional survey design, careful documentation and a high level of transparency have added to the respect afforded the BER survey data to date and allow the natural progress of science to properly consider the early evidence and build on it in a constructive manner.

When the survey was first designed, the decision was made to include the reference number (to provide respondents with the historical inflation numbers) because without providing the historical number, the average inflation was unreasonably high (22% in the pilot study) and the distribution had a long right tail (Kershoff and Smit 2002). As a result, the mean was far higher than the median of the sample, reducing confidence that the mean was a number that meaningfully captured average price pressures. Various alternatives were considered, including using the median, a trimmed mean or only the bottom 75% of the data. However, these alternatives were rejected due to discomfort about discarding too much of the sample, limited success of the measures to reduce the extreme outcome, and a desire to maintain comparability between this survey of household inflation expectations and that of firm, labour and financial analysts' inflation expectations.<sup>9</sup> Instead, the choice was made to use the priming number to produce the more reasonable outcome.

Low response rates during the early rounds of recruitment were also partly attributed to the fact that respondents were not sure how to answer the question and that providing a benchmark (historical inflation) made them more inclined to participate in the survey (Kershoff and Smit 2002). In line with international leaders in inflation expectations surveys at the time (the Livingston Survey and the Reserve Bank of New

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<sup>9</sup> Note that the household survey is conducted by a market research firm (most often NielsenIQ), whereas the surveys of the financial analysts, trade unions and firms are conducted by the BER itself.

Zealand), it was argued that providing historical inflation information ensured that all respondents had “the same information available when completing the questionnaire” (Kershoff and Smit 2002: 12–13).

On reflection, however, the sample has been treated, so the result should be interpreted with care. In line with the developing literature today (Weber et al. 2022), the reality is that many members of the South African population would not have information about historical inflation without this intervention. By including the priming, the survey question tests what people in the population would forecast inflation to be if there was a guarantee that they accessed this historical information, rather than what people believe in reality given that they do not necessarily use this information without intervention.

The designers of the BER survey did try to limit the influence of the priming by providing both the most recent year and the five-year average historical inflation in the survey question (Kershoff and Smit 2002). They noted that the previous year’s inflation could vary a fair amount from year to year, introducing volatility in survey responses. In contrast, the five-year average inflation is less volatile, so including both would reduce volatility in the survey responses.

Kershoff and Smit (2002: 12) noted that some respondents “may provide figures around this benchmark” and others may take “a view that deviates totally from the historical experience”. By implication, it is also not simple to remove the impact of the priming *ex post*, because the impact of the priming will vary across respondents as well as across time for each respondent. As discussed in section 2, the literature shows that an individual’s susceptibility to priming could be affected by their mood, and people with different levels of knowledge about the topic are likely to have different levels of susceptibility. Within the field of inflation expectations, factors such as the state of the economy (possibly affecting people’s level of attentiveness) will also play a role, for example.

The recent global experience of high inflation, which is now moderating again, does mean that we have a period when variation in the mean has been far higher than usual. Hence, priming, together with the fact that the BER only updates the historical number

at the beginning of the year, could exaggerate its impact at the start of each calendar year. In the face of the rapid increase in post-pandemic inflation, the updating of the reference number only once a year could potentially have made the impact of the priming more noticeable because inflation itself had varied substantially over that time.

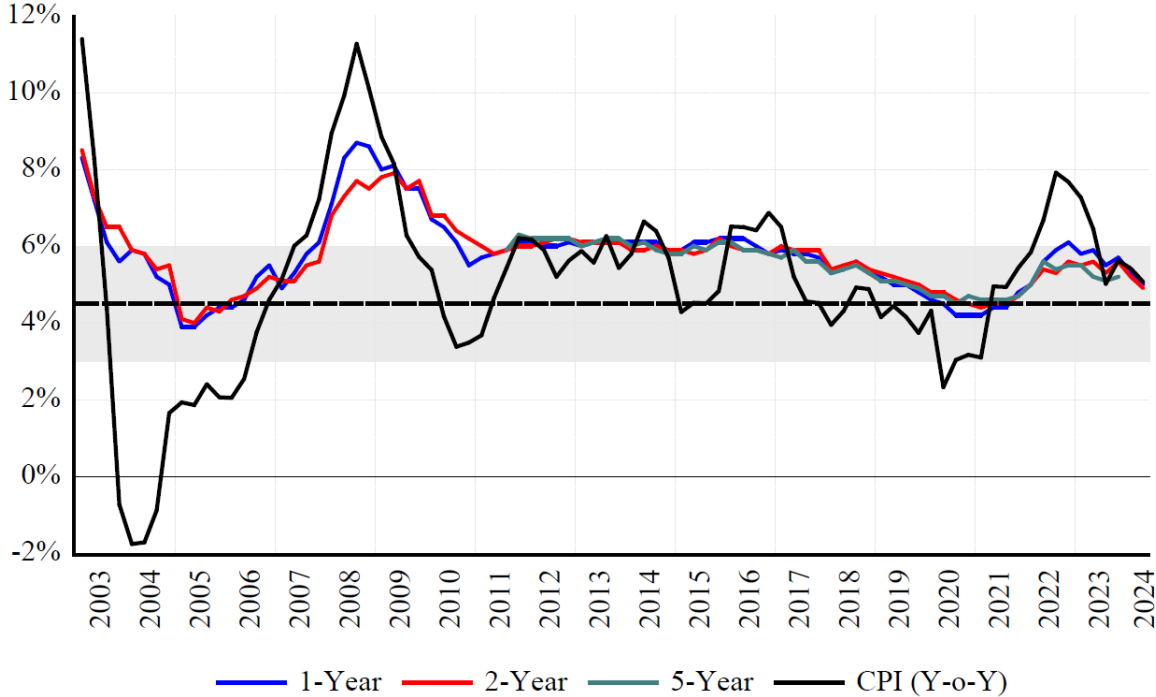
In Figure 1 we highlight the dynamic dependence between the one- and two-years-ahead BER survey (quarterly) with the consumer price index (CPI) released by Statistics South Africa (Stats SA).<sup>10</sup> After about 2009 (and the global financial crisis (GFC)), both inflation and inflation expectations tended to fluctuate within a narrower band, possibly reflecting a maturing inflation-targeting regime. However, between 2009 and 2017, inflation and inflation expectations remained close to the upper end of the target band. This continued until the SARB announced in 2017 that policymakers would henceforth target the middle of the band (4.5%). Inflation expectations of firms drifted lower after the announcement, but they never reached 4.5%. The difference between the one-year-ahead inflation expectations and CPI, as represented in Figure 2b, confirms the tendency for the inflation expectations of firms to be higher than the actual inflation outcome in South Africa since 2000. While this does suggest that they never fully anchored to the target, it is unsurprising. International literature regularly finds that survey respondents tend to overestimate inflation (Coibion, Gorodnichenko and Ropele 2020). Visual inspection reveals that throughout the sample period, changes in inflation expectations tend to be more moderate than inflation outturns. More evidence is provided in Figure 2, which shows the heavy tails (more extreme values) in CPI relative to the expectations data.<sup>11</sup>

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<sup>10</sup> Official indicator code: P0141-CPT00000. The raw inflation data are monthly but were converted into quarterly figures via arithmetic averaging.

<sup>11</sup> This suggests that the expectations data are more anchored around the long-term trend, which is slower to adjust in volatile inflationary periods.

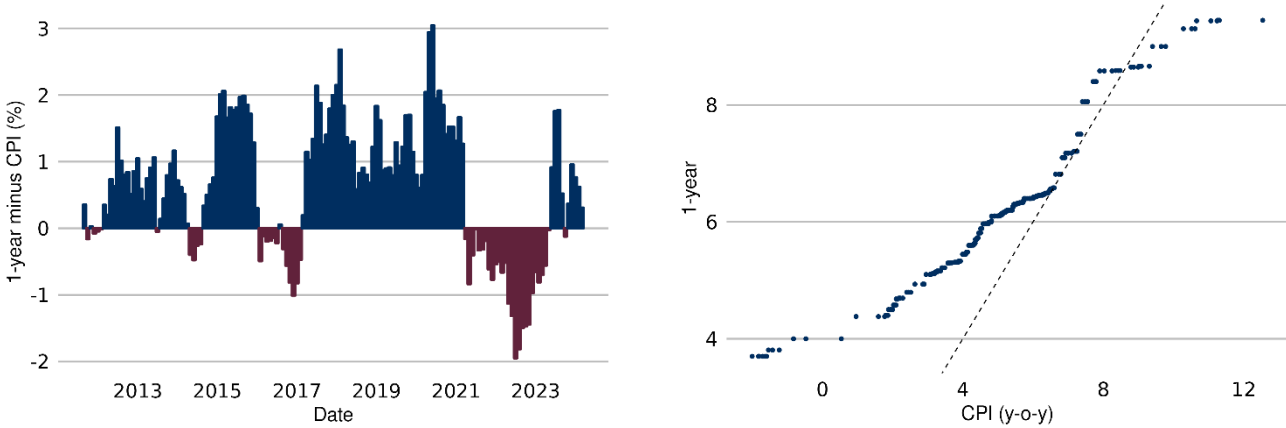
**Figure 1: Stats SA CPI vs BER survey**



Note: The graph visually represents the one-, two- and five-years-ahead BER survey with inflation (year-on-year change), overlaid with the SARB official target range of 3–6% from January 2003 to April 2024.

**Figure 2: Comparison of differences in BER survey and CPI**

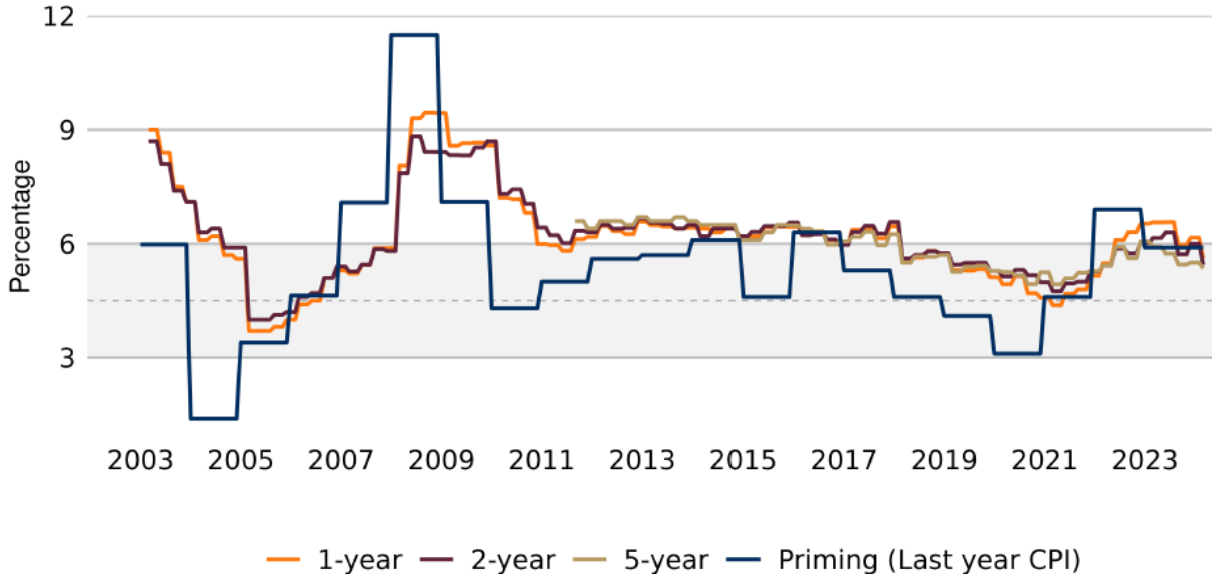
- (a) BER inflation expectations minus Stats SA CPI
- (b) Empirical quantile-quantile (or QQplot) between CPI and one-year



Note: Figures 2a and 2b visually represent the difference between the one-year-ahead BER inflation expectation and headline inflation (year-on-year change) on the left axis.

In Figure 3, the one-, two- and five-years-ahead inflation expectations are plotted against the historical priming number (previous year) that is given to respondents. In some years, the priming number was adjusted by large amounts at the start of the year (e.g. in 2004 and 2008). In some cases (notably after the exchange rate crisis and in the face of the GFC) the inflation expectations series display large discrete adjustments that could have been influenced by the adjustments of the priming number.

**Figure 3: BER survey vs priming number**



Note: The graph visually represents the one-, two- and five-years-ahead BER survey alongside the previous year’s inflation number. This number is presented to the business completing the survey.

**3.2 Experiment survey data**

In addition to the analysis of the official inflation expectations data for South Africa (the BER survey), a once-off experiment was conducted in May and June 2024, using a panel of C-level business leaders. The market research firm NielsenIQ was commissioned to survey 350 C-level business leaders from across South Africa via a five-minute telephonic interview. The questionnaire (available on request) was divided into two sections. Six of the 10 questions collected information about the characteristics of the respondent (age, gender) and the firm the person represented (industrial sector, firm size, region where the business operates).

The primary objective of the other four questions was to test the impact of priming on the survey responses and to understand respondents' opinions on factors that would influence their price-setting behaviour. The key question for this study is Question 6, which implements the priming experiment. The sample of 350 respondents was randomly split into two equal groups. The *treatment* group received the historical inflation figures before being asked for their inflation expectation. This is identical to the procedure followed in the BER survey. The *control* group was asked the same set of questions but *without* any prior information on historical inflation.

This survey experiment therefore delivered a cross-section of 350 firm respondents across South Africa in May/June 2024. It is a snapshot of what C-level decision-makers in firms believed at that point in time. The context was that inflation was decreasing from its post-pandemic high of 7.8% in July 2022. When the survey was conducted, inflation was recorded at 5.2% in May 2024 and 5.1% in June 2024.

The historical inflation figures for 2023 (average inflation for one year) and the average inflation over the past five years given to the respondents in the survey were 6% and 4.9%, respectively. Inflation was therefore coming down from a level not seen for many years in South Africa, with the result that respondents were likely far more attentive to inflation than they had been before the pandemic. It may also be noted that 6% is the top of the SARB's inflation target band.

## **4. Methodology and results**

In this section, we first test for the impact of priming in the official BER survey data, considering three survey groups: financial analysts, firms and trade unions. We then analyse the data from a once-off survey experiment conducted on senior decision-makers from firms in May and June 2024 to test for the influence of priming on their reported inflation expectations.

### **4.1 Analysis of the BER inflation expectations survey data**

The historical inflation number (priming) used in the survey question is updated at the beginning of each year. This reference number is one source of information about inflation that survey respondents might have, along with recent inflation figures reported in the media or relative prices of goods and services to which these individuals

are more exposed in their personal lives (e.g. groceries) or in the course of their work-life activities (e.g. input prices for production in the case of a firm).

It is difficult to isolate the impact of each of these sources of information on inflation expectations, but we investigate the relationships in a range of ways to try to establish some patterns. First, we explore whether inflation expectations in later quarters of the year (where the priming number does not change) are revised relative to the first quarter (when the priming number is changed). Since the majority of respondents do not consistently answer the survey every quarter (i.e. the number of respondents changes from one quarter to the next), we cannot construct a pure panel analysis. We cannot assume that the priming number is not news for the survey respondents in the later quarters of the year because it is not changed in the survey question, if many of them did not take part in the survey in the first quarter of the year. We can, however, reflect on the patterns of updating over the year.

The expected inflation rate is regressed on a constant and quarterly dummy variables, and the coefficients that are statistically significant at least at the 10% level are reported in Table 1. The results reported in the table are for the current-year inflation expectations ( $T_0$ ), whereas those for the other horizons are provided in Annexure A.

**Table 1: Updating of inflation expectations for the current year ( $T_0$ )**

| Year | Trade unions |      |      | Financial analysts |      |      | Business |      |      |
|------|--------------|------|------|--------------------|------|------|----------|------|------|
|      | Q2           | Q3   | Q4   | Q2                 | Q3   | Q4   | Q2       | Q3   | Q4   |
| 2001 |              |      | -0.7 |                    | 0.4  |      | -0.1     | -0.1 |      |
| 2002 |              |      | 2.3  | 0.9                | 1.9  | 0.6  | 0.6      | 1.8  |      |
| 2003 |              |      |      | -1.9               | -2.4 | 0.5  | -0.4     | -0.1 |      |
| 2004 |              | -2.4 | -3   |                    | -1.5 |      | -0.3     | -0.5 |      |
| 2005 |              | -0.6 | -0.6 | 0.4                |      |      | 0.3      |      |      |
| 2006 |              |      |      | 0.6                | 0.6  |      | 0.6      | 0.9  |      |
| 2007 |              | 0.7  | 0.6  | 1.0                | 1.3  | 0.2  | 0.7      | 0.7  |      |
| 2008 |              | 0.5  | 0.9  | 1.2                | 3.3  | 3.3  | 1.4      | 2.3  | 2.2  |
| 2009 |              | 1.7  | 2.4  | 0.8                | 1.1  | 1.0  |          | -0.4 |      |
| 2010 |              |      |      | -0.4               | -0.1 | -1.2 | -0.2     | -0.6 | -1.4 |
| 2011 |              |      |      | 0.3                | 0.4  | 0.4  |          | 0.3  |      |
| 2012 |              |      |      | -0.2               | -0.7 | -0.6 |          | -0.3 |      |
| 2013 |              |      |      |                    |      |      |          |      |      |
| 2014 |              |      |      | 0.1                | 0.1  |      |          | -0.1 |      |
| 2015 |              |      |      | 0.6                | 0.5  | 0.4  | 0.2      | 0.2  | 0.1  |
| 2016 |              |      |      | 0.2                |      | -0.2 |          | -0.2 | -0.3 |
| 2017 |              | -0.5 | -0.7 | -0.4               | -0.5 | -0.5 | -0.3     | -0.2 |      |
| 2018 |              |      |      |                    | -0.2 |      |          |      |      |
| 2019 |              |      |      | -0.3               | -0.5 |      |          | -0.3 |      |
| 2020 |              | -0.9 | -0.6 | -1.1               | -1.1 | -1.0 |          | -0.6 | -0.6 |
| 2021 | 0.5          |      | 0.8  | 0.2                | 0.2  | 0.4  | 0.2      | 0.5  | 0.7  |
| 2022 | 1.0          | 1.4  | 1.5  | 1.0                | 1.6  | 1.7  | 0.5      | 1.1  | 1.2  |
| 2023 |              |      |      | 0.3                | 0.3  | 0.2  |          | -0.5 | -0.5 |

Note: For each quarter, regress the expected inflation rate, here for the current-year horizon (i.e.  $T_0$ ), on a constant and quarterly dummies.

The results in Table 1 show that trade unions are notably less likely than the other two groups to update their expectations at the shorter horizons ( $T_0$  and  $T_1$ ), and financial analysts are slightly more likely to revise than the business sector, suggesting that financial analysts are most likely to use additional information to revise their expectations. This is likely due to the fact that financial specialists devote more attention to regularly collecting information about inflation and have more confidence to update based on this information. At the longer horizons ( $T_2$  and  $T_5$ ), financial analysts act more like trade unions, revising far less than the business sector. All three groups are more likely to revise their expectations at shorter horizons, with  $T_5$  recording

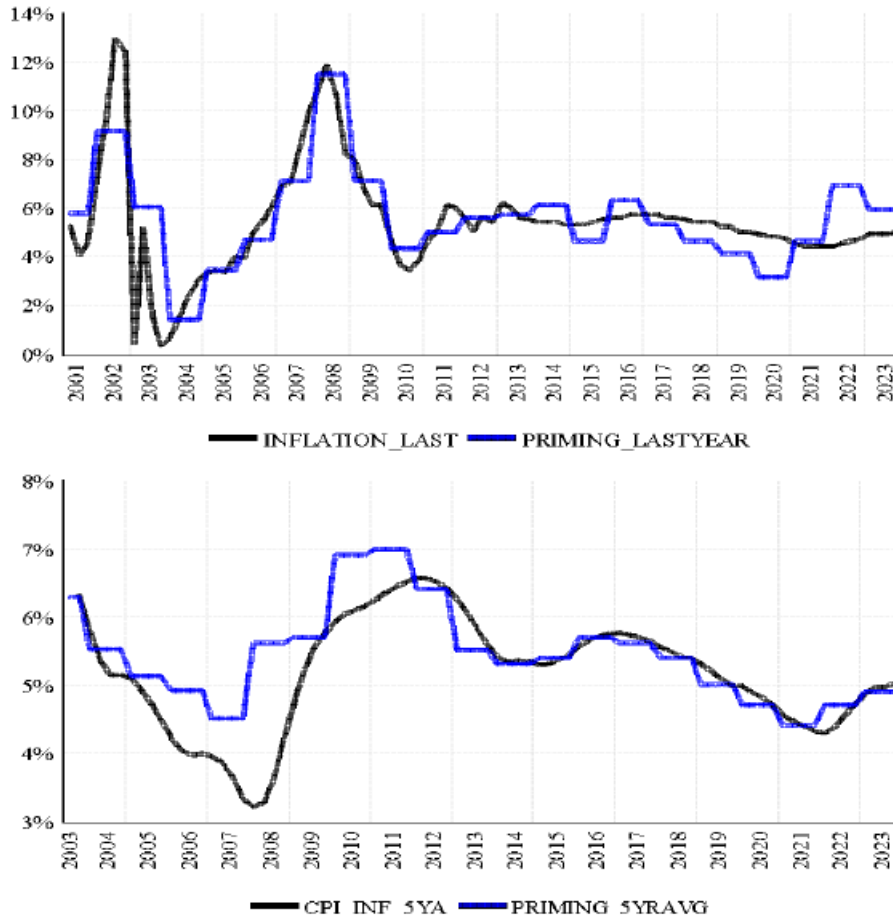
particularly few revisions. The new information they receive (whether from priming or some other source) is less likely to cause them to change their longer-term expectations. This suggests confidence in the SARB to maintain price stability in the longer run.

Since there is no news (new information) coming from the priming information after Q1, we can deduce that Q2 through Q4 expectations must be responding to new information, other than priming. It is interesting to note that the size of revisions is larger when observed inflation is high and volatile (the exchange rate crisis of 2002/2003, the GFC and after the COVID-19 pandemic). This also suggests that the level of inflation, and changes in observed inflation rates over time, likely influence respondents' attentiveness to the survey.

Next, we consider whether inflation expectations respond to inflation reported regularly in the media or to priming. A series labelled INFLATION\_LAST is constructed to capture the number the public is most likely to read about in the media. We plot INFLATION\_LAST together with the priming series in Figure 4 (for the one-year and five-year horizons separately).

At times, there are fairly large differences between these two series. Relatively better informed respondents are likelier to react more to the most recent inflation figures quoted in the media. These individuals pay more attention to inflation news and may also be more confident about taking a position compared with the priming number provided in the survey.

Figure 4: BER survey vs priming number



Note: The five-years-ahead question begins at the end of 2011 (2011Q3), so the gaps one observes before that time do not play any role in the analysis.

Regression analysis is then used to test the influence of these various sources of information about inflation on inflation expectations more formally. We also expand the sources of information about inflation that are considered to include the inflation target itself ( $IT$ ) and the historical aggregate BER inflation expectations survey number ( $BER$ ). In the regression, we consider separately how the aggregate inflation expectations of each of the three groups (business, financial analysts and labour) is formed, as follows:

$$\pi_{t,t+i}^E = \beta_0 IT_t + \beta_1 P_t + \beta_2 LAST_t + \beta_3 BER_{t-1} + \varepsilon_t \quad (1)$$

where  $\pi_{t,t+i}^E$  is the expected inflation rate from the BER survey at time  $t$  for the forecast horizon  $t+i$  ( $i = 0, 1, 2, 5$ ),  $IT$  is a constant equal to the midpoint of the inflation

target (4.5%),  $P$  (priming) is the one-year (or five-year) inflation number provided to survey respondents,  $LAST$  is the last available quarterly inflation value, which is the number typically quoted by the media, and  $BER$  is the mean one-year (or five-years) ahead inflation expectation published by the BER in the previous quarter.

The  $IT$  variable serves as the typical inflation-targeting anchor. To start with, we assume that the inflation rate targeted was at the midpoint of the target range (i.e. 4.5%). Given the variation in how the SARB's inflation target was actually applied over time (the official target is a band, without a point target), other options are possible. In Annexure A, we explain the institutional features that give us reason to consider how the de facto target varied over time, and we offer two alternative proxies for  $IT$ . With one exception, the broad interpretations we draw from the regression results are quite robust to these alternative assumptions. Besides the coefficient on the  $IT$  variable for the trade unions (which we discuss below), the signs and statistical significance of the coefficients follow generally consistent patterns across the three sets of regression results. In most cases, the size of the coefficients (the economic significance) also does not differ substantially or undermine the broad conclusions.

The  $LAST$  variable aims to capture attentiveness to the most recently published inflation data, which we hypothesise is more likely from industry experts. Finally,  $BER$  captures persistence in expectations, in the sense that if current expectations of the group also depend on past expectations of the group, there is slow updating of expectations. Slow updating of expectations may be typical of people who are not experts in the field and are therefore not regularly seeking new information, but it might also suggest that a group sees less reason to seek this information because they judge the SARB to be credible.

Table 2 presents the results of quantile regressions for the above equation. The table contains results for the mean as well as the 10th and 90th percentiles of the distribution of inflation expectations, given the recognised heterogeneity of inflation expectations in these surveys (Crowther-Ehlers 2019; Reid and Siklos 2023). A few patterns are notable from these results. First, the strong economic and statistical significance of the coefficients on the  $BER$  variable across social groups, across quantiles, is notable, irrespective of the assumption about the inflation target. In most cases it is the variable

with the largest significant coefficient. This suggests slow updating of expectations (persistence in expectations or inattention to new information). The impact of past expectations is, however, smaller for financial analysts relative to the other two groups, supporting the position that they are more attentive to other information and therefore more likely to update their expectations regularly. This is in line with past research that shows that they are also more rational than the other groups (Crowther-Ehlers 2019; Reid and Siklos 2025a).

On the other hand, the most recently published inflation (*LAST*) figure, which captures active attention to inflation data, was least likely to have an influence on inflation expectations. The coefficient on the one-year-ahead inflation expectations of analysts was consistently economically and statistically significant across the distribution and regardless of the assumption about the inflation target. A very limited number of other coefficients did become significant when the *IT* assumption was varied, but these were not robust, so we draw no other conclusions from this. This confirms that the analysts are paying attention to these figures in an active way that none of the other groups are doing. It is interesting, for example, that they rely on *LAST* so consistently for the one-year-ahead expectations, but there is limited evidence that they use it for forecasts at the other horizons, especially the current-year horizon. This appears deliberate and must be fairly consistent across the group.

Unsurprisingly, the results for the relationship of *IT* on inflation expectations varies a bit when the assumption about the inflation target is changed. The most robust pattern is that the current-year expectations of financial analysts show very limited response to the inflation target, but their expectations at the one-year and two-year horizons do show a reasonably consistent influence. This suggests that analysts recognise that shocks regularly move inflation away from the target in the short term, but they have confidence that inflation will tend back towards the target over the policy horizon. In the case of firms, the inflation target had limited impact at any horizon, and when it did, the coefficient was weakly significant and only registering for part of the distribution of expectations.

**Table 2: Quantile regression estimates: mean inflation expectations**

|                        | IT                 |          |         | Priming            |         |                    | Last inflation      |         |         | BER (last quarter) |         |         |
|------------------------|--------------------|----------|---------|--------------------|---------|--------------------|---------------------|---------|---------|--------------------|---------|---------|
|                        | 0.1                | 0.5      | 0.9     | 0.1                | 0.5     | 0.9                | 0.1                 | 0.5     | 0.9     | 0.1                | 0.5     | 0.9     |
| <b>Current year</b>    |                    |          |         |                    |         |                    |                     |         |         |                    |         |         |
| Business               | 0.084 <sup>@</sup> | 0.083    | 0.026   | 0.117 <sup>@</sup> | 0.177*  | 0.083              | 0.040               | -0.001  | 0.042   | 0.744*             | 0.811*  | 0.989*  |
|                        | (0.050)            | (0.051)  | (0.085) | (0.051)            | (0.053) | (0.071)            | (0.050)             | (0.044) | (0.048) | (0.043)            | (0.048) | (0.059) |
| Financial analysts     | 0.099              | -0.014   | -0.095  | 0.606*             | 0.647*  | 0.497*             | -0.037              | 0.034   | 0.074   | 0.237*             | 0.319*  | 0.592*  |
|                        | (0.096)            | (0.033)  | (0.060) | (0.099)            | (0.040) | (0.089)            | (0.103)             | (0.026) | (0.058) | (0.087)            | (0.030) | (0.065) |
| Trade unions           | 0.004              | 0.051    | 0.047   | 0.265*             | 0.185*  | -0.012             | -0.062              | -0.009  | 0.043   | 0.727*             | 0.790   | 1.070*  |
|                        | (0.058)            | (0.033)  | (0.133) | (0.066)            | (0.035) | (0.128)            | (0.048)             | (0.024) | (0.099) | (0.043)            | (0.040) | (0.127) |
| <b>One year ahead</b>  |                    |          |         |                    |         |                    |                     |         |         |                    |         |         |
| Business               | -0.082             | 0.028    | 0.012   | 0.147*             | 0.160*  | 0.167*             | -0.031              | -0.040  | 0.013   | 0.952*             | 0.933*  | 0.972*  |
|                        | (0.051)            | (0.049)  | (0.085) | (0.042)            | (0.035) | (0.041)            | (0.037)             | (0.029) | (0.034) | (0.041)            | (0.040) | (0.082) |
| Financial analysts     | 0.711*             | 0.511    | 0.752*  | -0.067             | 0.004   | -0.038             | 0.250*              | 0.195** | 0.226*  | 0.078              | 0.341*  | 0.260*  |
|                        | (0.121)            | (0.131)  | (0.151) | (0.094)            | (0.070) | (0.083)            | (0.069)             | (0.059) | (0.085) | (0.109)            | (0.110) | (0.137) |
| Trade unions           | -0.085             | -0.201** | -0.457* | 0.132**            | 0.103   | 0.162 <sup>@</sup> | -0.073 <sup>@</sup> | 0.043   | -0.012  | 0.951*             | 1.032   | 1.348*  |
|                        | (0.115)            | (0.097)  | (0.138) | (0.057)            | (0.068) | (0.082)            | (0.038)             | (0.059) | (0.066) | (0.096)            | (0.088) | (0.135) |
| <b>Two years ahead</b> |                    |          |         |                    |         |                    |                     |         |         |                    |         |         |
| Business               | 0.025              | 0.031    | -0.145  | 0.158*             | 0.150*  | 0.129**            | -0.003              | -0.023  | 0.051   | 0.834*             | 0.935*  | 1.087*  |
|                        | (0.052)            | (0.069)  | (0.104) | (0.028)            | (0.043) | (0.053)            | (0.006)             | (0.041) | (0.049) | (0.044)            | (0.051) | (0.080) |
| Financial analysts     | 0.647*             | 0.522*   | 0.635*  | -0.005             | -0.014  | -0.009             | 0.010               | 0.001   | 0.031   | 0.316*             | 0.497*  | 0.433*  |
|                        | (0.057)            | (0.065)  | (0.084) | (0.127)            | (0.036) | (0.049)            | (0.029)             | (0.033) | (0.034) | (0.047)            | (0.055) | (0.073) |
| Trade unions           | -0.127             | -0.295*  | -0.464* | 0.225*             | 0.159*  | 0.339*             | -0.024              | 0.017   | -0.128  | 0.841              | 1.089*  | 1.308*  |
|                        | (0.082)            | (0.089)  | (0.134) | (0.049)            | (0.043) | (0.100)            | (0.044)             | (0.043) | (0.092) | (0.064)            | (0.070) | (0.123) |

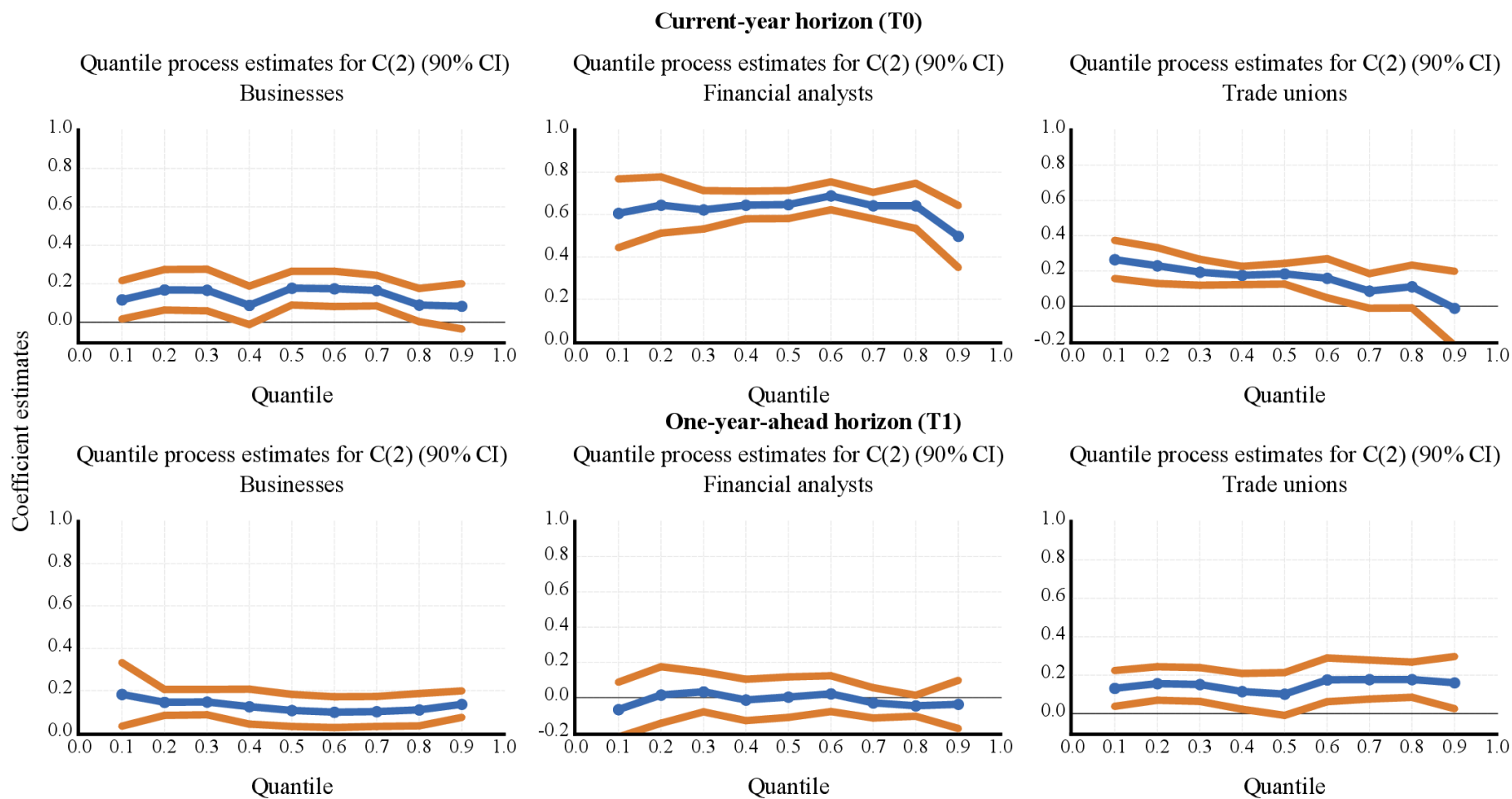
Note: Bootstrap standard errors via the Monte Carlo Marginal Bootstrap (MCMB) method. The Epanechnikov sparsity kernel and the Hall-Sheather bandwidth method used to obtain estimates. BER (last quarter) refers to the BER mean forecast of the previous quarter. \* means significant at the 1% level, \*\* at the 5% level and @ at the 10% level.

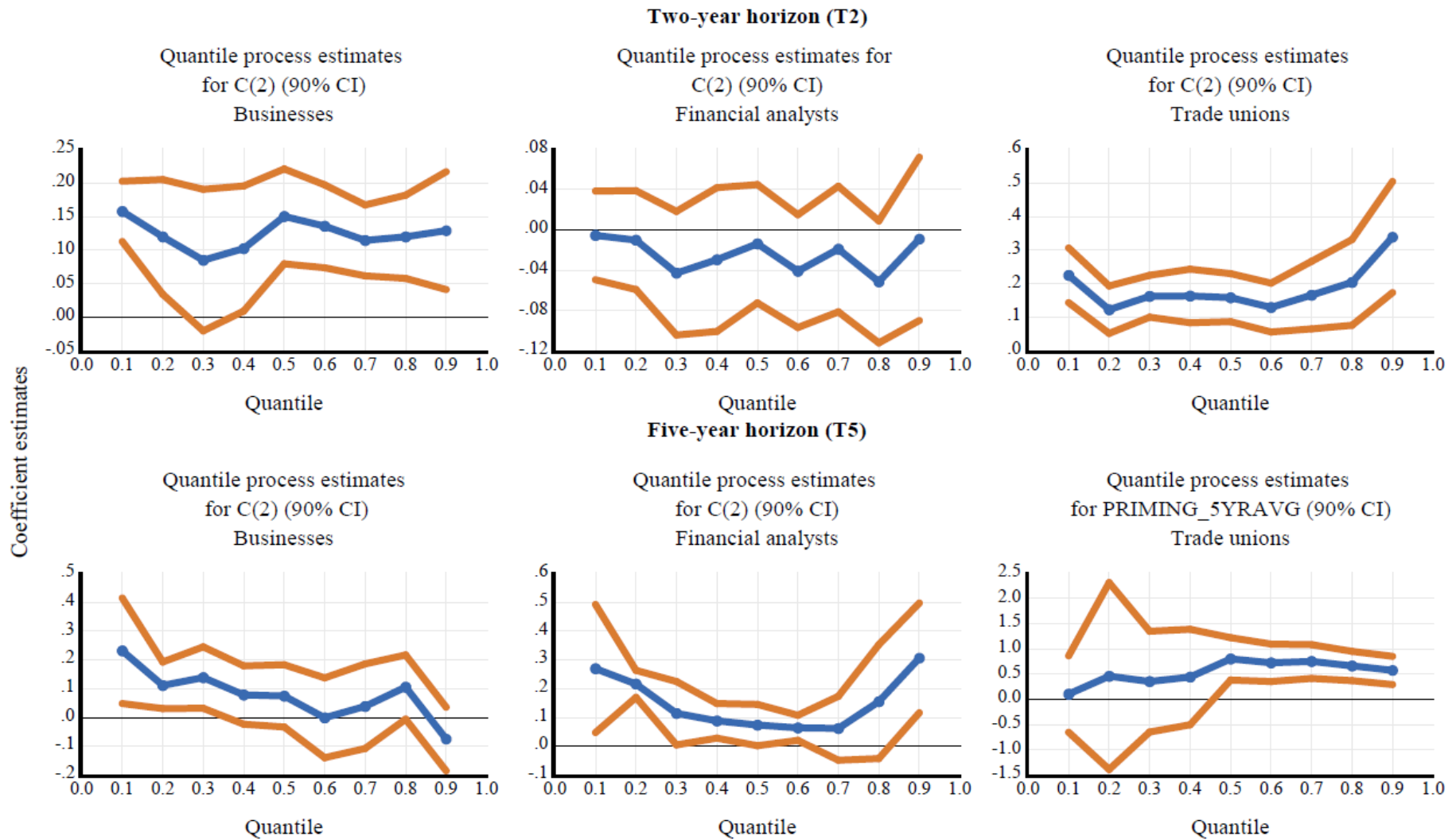
As highlighted earlier, the least robust or convincing results from the set of quantile regressions was the impact of the inflation target on trade union expectations. The coefficients for the trade unions at the longer horizons are notably negative and significant, when the first IT assumption is used (constant 4.5%), but, with the exception of the 0.9 quantile at the two-year horizon, this result disappears when the other two IT assumptions are used. When the constant 4.5% IT is used, the inflation target variable has no impact on the current-year expectations of trade unions. However, when the other two IT assumptions are used, the IT coefficient becomes significant and large (even close to 1) for much of the distribution at that short horizon. It is worth noting that the sensitivity of this particular result might also be explained by the relatively smaller sample size of this group, which might make these results slightly less reliable.

Finally, the results in the second column of Table 2 capture the impact of priming ( $P$ ), which is the primary focus of this paper. These suggest that priming has an impact on almost all the inflation expectations in the current quarter (across all three social groups and across different quantiles). It is interesting that the results suggest that priming has a far larger impact on financial analysts than the other two groups for the current-year forecasts, but plays no significant role for the expectations of the financial analysts at any of the longer horizons, which represent the policy horizon. Again, the analysts appear to use the information about past inflation in an active rather than a passive manner. As a group, they seem to believe that this is relevant information for the current-year projection but less so for longer horizons. In contrast, the responsiveness to priming of the other two groups' inflation expectations is fairly consistently significant across horizons and assumptions about the inflation target. Interestingly, the size of the impact also remains reasonably stable across horizons, reflecting a far more passive impact than that seen for analysts.

To allow us to more easily consider differences in the impact of priming across the distribution of inflation expectations, we plot the results of the priming variable per time horizon (rows) and per social group (columns) in Figure 5, together with their 90% confidence intervals. The first row displays the results for firms, financial analysts and trade unions (left to right) for the current year ( $T_0$ ).

**Figure 5: Quantile regression estimates for the priming variable and 90% confidence intervals**





Note: C is the coefficient on the priming variable in the quantile regressions. 90% confidence intervals are plotted against point estimates for the priming variable at quantiles from 0.1 to 0.9. The first plot is for the  $T_0$  horizon; the second plot is for the  $T_1$  horizon; the third plot is for the  $T_2$  horizon; and the bottom plot is for the five-years-ahead forecasts.

As we noted of the results in Table 2, the impact of priming on financial analysts is far larger than on the other two groups for this first horizon, but at the longer horizons priming has no measurable impact on the expectations of the analysts. From Figure 5, we can see that, in most cases, differences across the distribution are not very large. The biggest differences appear in the trade union sample, but it should again be noted that this is a particularly small sample.

We also test (not shown) the impact of the state of the economy (high versus low inflation) on the results. Are survey respondents more influenced by priming in low-inflation environments, when they feel less reason to be attentive? We find evidence that the positive coefficient reported below is due to the relatively higher inflation rates in the first few years of inflation targeting. However, the evidence is not overwhelming, as there is still a modest rise in expected inflation in several cases considered. Clearly, a look at the five-year moving average of inflation suggests a problem with the return-to-the-mean argument since this mean experiences substantial changes over time. Regressions for the full sample with allowance for structural breaks should give us some indication of whether the reliance of respondents changes notably at some point in the sample.

We estimate the same regression (results summarised in Table 3), but now ask whether one or more structural breaks exist in the estimated relationship. Except for the case of the mean inflation expectations for the two-years-ahead horizon, all structural breaks are found early in the sample when inflation targeting was new. In most cases, priming continues to influence inflation expectations after the structural break, and the coefficient remains positive in all cases.

**Table 3: Structural break test**

| <b>Inflation expectations</b> | <b>Break date</b> | <b>Priming</b> | <b>IT</b>       | <b>Inflation last</b> | <b>Lagged inflation</b> |
|-------------------------------|-------------------|----------------|-----------------|-----------------------|-------------------------|
| T0 Business                   | No break          | 0.143(0.066)** | -0.111(0.056)** | -0.011(0.030)         | 0.813(0.056)*           |
| T0 Fin. analysts              | 2003Q3            | 0.602(0.028)*  | -0.806(0.065)*  | -0.021(0.017)         | 0.781(0.028)*           |
|                               |                   | 0.682(0.102)*  | -0.066(0.066)   | -0.015(0.057)         | 0.260(0.089)*           |
| T0 Trade unions               | 2003Q3            | 0.038(0.157)   | -0.072(0.269)   | -0.015(0.063)         | 1.054(0.080)*           |
|                               |                   | -0.015(0.063)  | 0.070(0.051)    | 0.026(0.042)          | 0.777(0.049)*           |
| T1 Business                   | No break          | 0.174(0.042)*  | -0.012(0.061)   | 0.019(0.026)          | 0.927(0.057)*           |
| T1 Fin. analysts              | 2004Q1            | 0.217(0.168)   | 0.594(0.374)    | -0.239(0.090)*        | -0.001(0.186)           |
|                               |                   | 0.050(0.075)   | 0.605(0.113)*   | 0.049(0.073)          | 0.359(0.104)*           |
| T1 Trade unions               | 2003Q1            | -0.493(0.356)  | 2.21(0.939)*    | 0.428(0.216)**        | -0.441(0.489)           |
|                               |                   | 0.158(0.047)*  | -0.28(0.056)*   | -0.027(0.051)         | 1.117(0.060)*           |
| T2 Business                   | 2005Q1            | 0.153(0.037)*  | -0.528(0.100)*  | -0.044(0.028)         | 0.613(0.070)            |
|                               |                   | 0.122(0.054)** | -0.067(0.062)   | 0.084(0.056)          | 0.924(0.058)*           |
| T2 Fin. analysts              | 2010Q1            | 0.064(0.062)*  | 0.745(0.062)*   | -0.026(0.019)         | 0.259(0.060)*           |
|                               |                   | -0.021(0.033)  | 0.180(0.077)**  | 0.154(0.044)*         | 0.649(0.042)*           |
| T2 Trade unions               | 2003Q2            | 0.087(0.200)   | -0.989(0.809)   | -0.124(0.073)@        | 1.858(0.485)*           |
|                               |                   | 0.142(0.048)*  | -0.313(0.118)*  | 0.088(0.042)**        | 1.057(0.098)*           |

Note: Estimates for the five-years-ahead horizon are not shown because the sample only begins in 2011Q3. Estimates obtained using the Bai-Perron methodology. Null is L+1 versus L structural breaks, a 10% trim was used, a maximum of one break was permitted and the break had to be statistically significant at least at the 5% level. \* means significant at the 1% level, \*\* at the 5% level and @ at the 10% level.

## 4.2 Analysis of the experimental data

Guided by some findings in the literature, we formulate three hypotheses about the heterogeneous effects of priming across firms, as follows:

- **H1:** Firms with low *sensitivity to interest rate changes* are expected to display more of a response to priming, while firms with very high sensitivity may already closely monitor macroeconomic conditions, potentially diminishing the incremental effect (Mankiw and Reis 2002; Coibion and Gorodnichenko 2015). This may be explained by the effect of monetary policy on their cost structures and investment decisions (Bernanke and Gertler 1995; Galí 2015). Evidence from South African firms suggests substantial heterogeneity in sensitivity to monetary policy shocks across industries, supporting the need to account for structural differences (Kabundi, Schaling and Some 2015; Du Plessis 2002).
- **H2:** *Larger firms* are hypothesised to be less responsive to priming due to greater forecasting resources and exposure to global supply chains (Coibion, Gorodnichenko and Ropele 2020; Bryan, Meyer and Parker 2015). Prior South African studies indicate that larger firms have lower within-group disagreement about expected inflation (Reid and Siklos 2025a), possibly due to greater confidence about the accuracy of their expectations.
- **H3:** We hypothesise that the effect of priming is more pronounced for *longer forecast horizons*. Information salience tends to decay and uncertainty about future inflation tends to increase as the horizon lengthens, making firms more susceptible to priming when forming longer-term expectations. Recent work in South Africa finds that longer-term expectations (expectations at the five-year horizon, in particular) reflect a greater dispersion of beliefs, which is viewed as an indication of a higher level of uncertainty among the respondents at this longer horizon (Reid and Siklos 2025a). However, it is not clear whether disagreement about inflation expectations at the two-year horizon is greater than at the one-year horizon. In addition, comparisons of forecast errors across the survey groups and across forecast horizons in South Africa do not give a clear pattern of higher forecast errors for longer horizons (Reid and Siklos 2025b).

To test these hypotheses, we employ a Bayesian generalised linear modelling framework to investigate the influence of priming on firms' inflation expectations. Given the positive and skewed nature of the inflation expectations data, a standard Gaussian specification would lead to a misspecification of the process. Instead, we specify the outcome distribution as a Student-t distribution with a log link, which accommodates the heavy tails and rounding behaviour commonly observed in survey responses. The Student-t distribution is particularly suited to handling data with potential outliers or heaping at focal points as it is robust to deviations from normality while maintaining support on the positive real line.<sup>12</sup>

We estimate heterogeneous treatment effects of priming on inflation expectations, conditioning on firms' interest rate sensitivity, firm size and forecast horizon. Demographic characteristics (age and gender) are included as baseline controls for expectation levels but are not interacted with the treatment:

$$\log(\mu_i) = \alpha + \mathbf{Z}_i' \boldsymbol{\gamma} + \mathbf{W}_i' \boldsymbol{\delta} \quad (2)$$

$$y_i \sim \text{StudentT}(v, \mu_i, \sigma) \quad (3)$$

where  $\alpha$  is the intercept,  $\mathbf{Z}_i$  is a vector of covariates capturing interaction terms between treatment assignment and firm-level characteristics (interest rate sensitivity, forecast horizon and firm size),  $\mathbf{W}_i$  is a vector of additive control variables (age and gender) and  $\boldsymbol{\gamma}$  and  $\boldsymbol{\delta}$  are the associated coefficient vectors.

The outcome variable  $y_i$  is assumed to follow a Student-t distribution with mean  $\mu_i$ , scale parameter  $\sigma$  and degrees of freedom  $v$ . The log link ensures that the conditional mean  $\mu_i$  is positive, while the Student-t distribution accommodates the heavy-tailed nature of the data and provides robustness to potential outliers and rounding behaviour commonly observed in inflation expectation responses.

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<sup>12</sup> Respondents tend to provide rounded responses or favour certain digits by restricting their choices to integers or half percentages, labelled as digit preference (Pfajfar and Santoro 2010; Pfajfar and Žakelj 2018). This phenomenon was observed in the survey data as multiple peaks in the density functions of the individual survey responses. Digit preference or rounding behaviour may be ascribed to uncertainty (Branch 2007) or may be related to the costs of producing more accurate forecasts. According to Pfajfar and Žakelj (2018), inattentiveness may be a source of rounding behaviour, particularly when inflation is low and stable, lowering the incentive to forecast accurately (Crowther-Ehlers 2019).

In the Bayesian framework, prior distributions are specified for the model parameters to regularise estimates and avoid overfitting. Specifically, a gamma prior is imposed on the degrees of freedom parameter  $\nu$  of the Student-t distribution. The prior is specified as follows:

$$\nu \sim \text{Gamma}(2,0.1) \quad (4)$$

This prior favours moderate tail thickness, while allowing the data to inform the heaviness of the distribution's tails, providing robustness to outliers and rounding behaviour.<sup>13</sup> The model is implemented using Hamiltonian Monte Carlo as provided in the brms package (Bürkner 2018), interfacing with Stan for posterior sampling. The estimation is based on four parallel chains, each with 2 000 iterations (1 000 burn-in), `adapt_delta` set to 0.99 and `max_treedepth` set to 15.<sup>14</sup>

We estimate the full posterior distribution of the model parameters, which provides a more comprehensive picture of the uncertainty in the parameter estimates compared to point estimates alone. We report the posterior distributions using mean estimates (response) and 95% credible intervals.<sup>15</sup>

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<sup>13</sup> No explicit priors are placed on the regression coefficients ( $\beta$ ) or the residual scale parameter ( $\sigma$ ), allowing them to be estimated with the default, weakly regularising priors provided by the brms package. These defaults generally assume flat or minimally informative priors, letting the data dominate the posterior distribution for these parameters. The gamma prior on  $\nu$  encourages moderate tail behaviour, helping the model remain robust to outliers without forcing heavy tails unnecessarily. We evaluated the sensitivity of the results to the prior specifications. A more regularising set of priors was applied: the intercept was assigned a normal prior  $N(6,2)$ , the regression coefficients  $\beta$  were assigned a normal prior  $N(0,1)$ , the residual standard deviation  $\sigma$  was given an exponential prior  $\text{Exponential}(1)$ , and the degrees of freedom  $\nu$  were given a gamma prior  $\text{Gamma}(2,0.1)$ . The results remained largely unchanged.

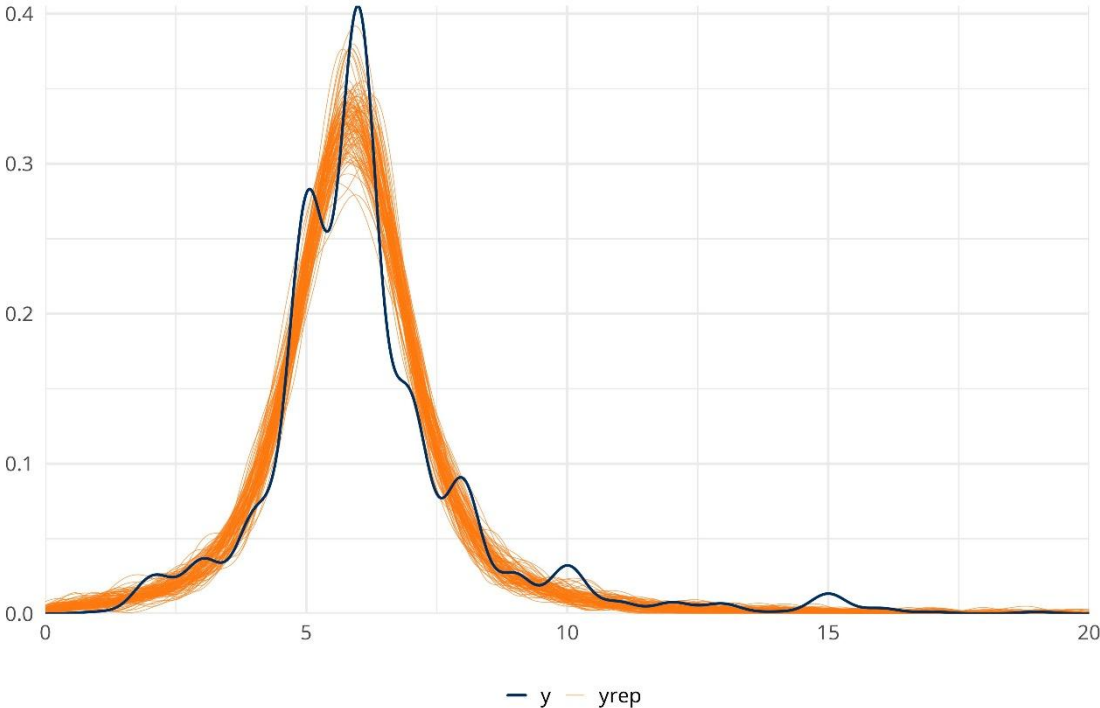
<sup>14</sup> The Hamiltonian Monte Carlo sampler was tuned with `adapt delta` set to 0.99 to reduce divergent transitions by enforcing a higher target acceptance probability, especially important for heavy-tailed distributions such as the Student-t. The maximum `treedepth` was set to 15 to allow for deeper exploration of the posterior, accommodating the complex curvature induced by hierarchical structure and interaction terms in the model. These adjustments were introduced to balance posterior accuracy and computational efficiency.

<sup>15</sup> The 95% highest posterior density (HPD) interval is the narrowest interval that contains 95% of the posterior probability mass. Unlike frequentist confidence intervals, HPD intervals directly quantify uncertainty about the parameter values given the observed data and the prior information. A 95% HPD interval indicates that, conditional on the model and priors, there is a 95% probability that the true parameter value lies within the interval.

### 4.2.1 Model diagnostics

We apply two diagnostic checks of the model after estimation – posterior predictive checks and trace plots. Posterior predictive checks indicate that the model captures the empirical distribution of inflation expectations well. As shown in Figure 6, the replicated datasets closely track the observed distribution across the entire support. Convergence diagnostics further support the adequacy of the estimation.

Figure 6: Posterior predictive check



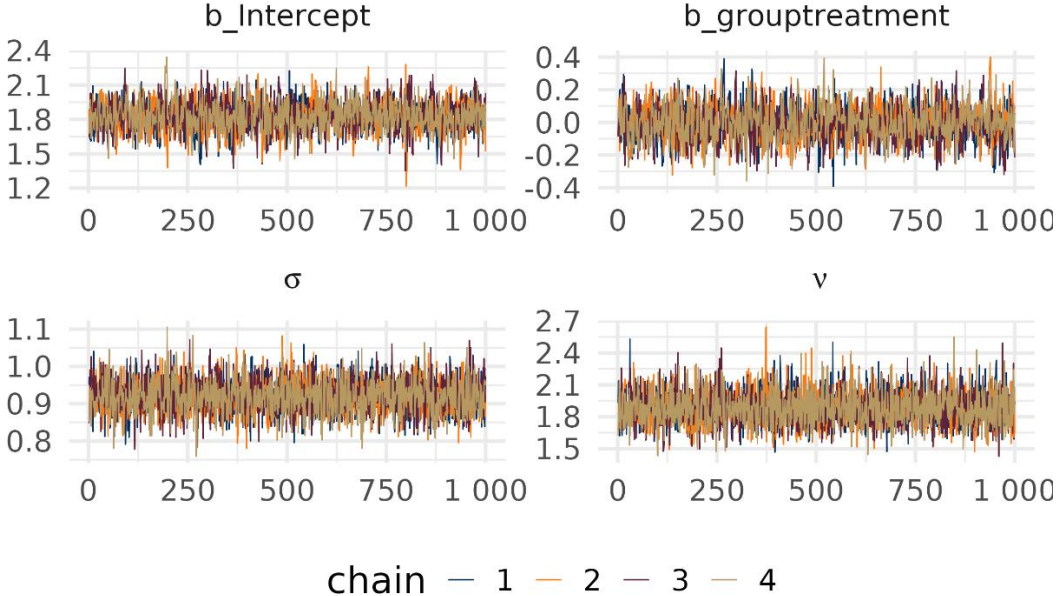
Note: The graph shows the posterior predictive distribution of inflation expectations (orange lines,  $Y_{rep}$ ) compared to the observed empirical distribution (blue line,  $Y$ ). Each orange line represents a simulated dataset drawn from the posterior predictive distribution. The close alignment between the simulated and observed distributions across the full support, including the heaping at focal points, indicates that the model captures both the central tendency and the heavy-tailed nature of the data.

Figure 7 shows the trace plots for a representative subset of model parameters, including the intercept, treatment effect and distributional parameters ( $\sigma$ ,  $\nu$ ). All chains demonstrate good chain mixing and convergence. The chains exhibit no signs of multimodality or non-stationarity.

Point estimates for the distributional parameters suggest a modest scale parameter ( $\hat{\sigma} = 0.92$ , 95% CI: [0.84, 1.01]) and heavy tails ( $\hat{\nu} = 1.89$ , 95% CI: [1.61, 2.23]). All  $\hat{R}$  statistics equate to 1.00, confirming convergence, while effective sample sizes for both

the bulk and tails of the posterior distributions exceed 2 400, the latter indicating high sampling efficiency.

**Figure 7: Trace and density plots for key parameters**



Note: The figure presents trace plots for a representative subset of model parameters, including the intercept, treatment effect, scale parameter ( $\sigma$ ) and degrees of freedom ( $\nu$ ).

Out-of-sample model performance, assessed via leave-one-out cross-validation (LOOIC), yields an estimate of 3 737.8 with a standard error of 77.7. All Pareto  $k$  diagnostics fall below 0.7, confirming that the model provides stable and reliable predictions without influential observations distorting the results.<sup>16</sup>

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<sup>16</sup> As a robustness check, we re-estimated the model including a covariate indicating whether the firm employed an in-house economist. Results were qualitatively unchanged. Firms without an in-house economist reported an expected inflation rate of 6.12% ([5.73%, 6.52%]), while firms with an economist reported 6.05% ([5.65%, 6.43%]). The overlap in credible intervals suggests that access to professional forecasting resources did not substantially alter responsiveness to priming, while also not improving LOOIC. Alternative distributional families were also tested, including the gamma and lognormal distributions. However, these specifications yielded higher LOOIC values and poorer fit based on posterior predictive checks, particularly in capturing the heaping observed in the data. Consequently, the Student-t distribution was selected for its superior out-of-sample predictive performance and its robustness to heavy tails and rounding-induced anomalies.

## 4.2.2 Results

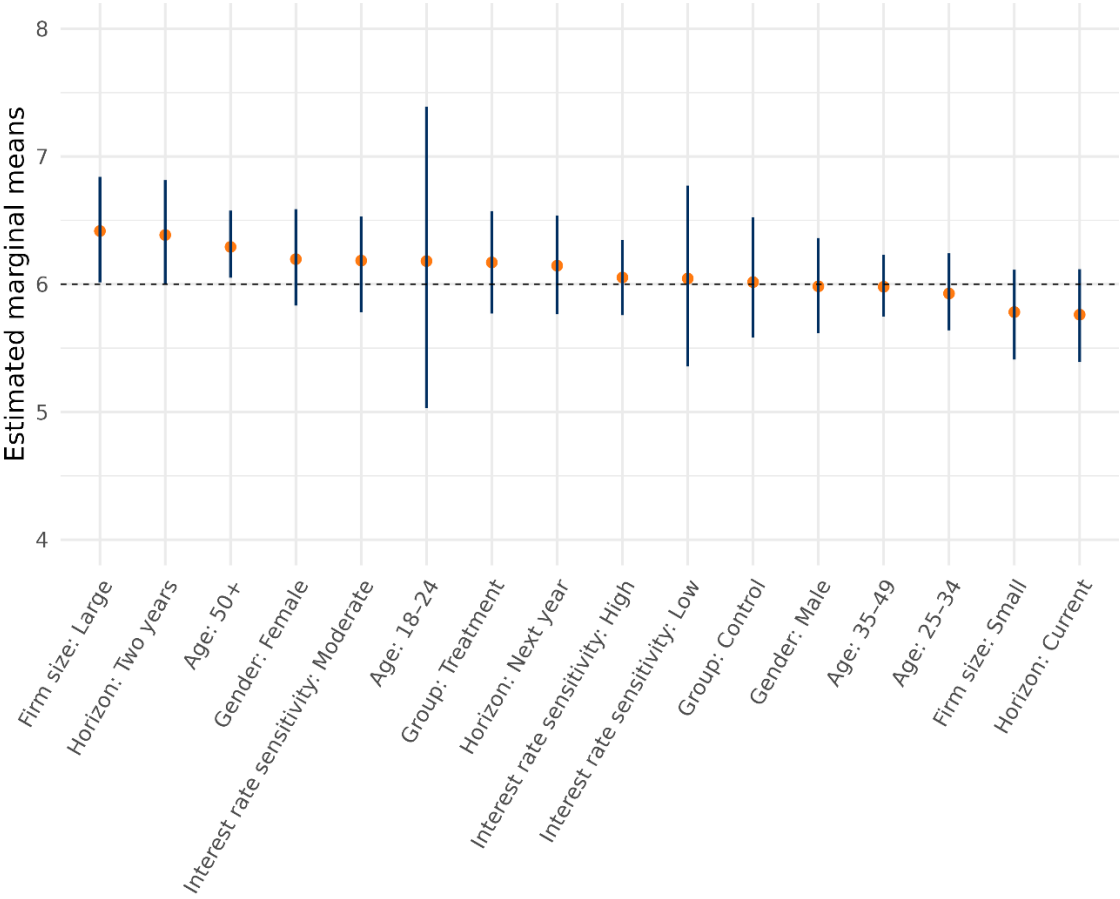
The baseline determinants of inflation expectations are modelled as a function of global treatment, time horizon, interest rate sensitivity, firm size, age and gender. These additive covariates provide insight into the underlying structure of expectations. The variables capture systematic heterogeneity that reflects differences in firms' and individuals' beliefs, experience and exposure to macroeconomic forces, independent of priming. Table 4 and Figure 8 show the estimated responses.

**Table 4: Estimated marginal means of inflation expectations (baseline)**

| Variable                         | Level              | Response | Lower/Upper 95% HPD |
|----------------------------------|--------------------|----------|---------------------|
| <i>Group</i>                     | Treatment (primed) | 6.17     | [5.77, 6.57]        |
|                                  | Control (without)  | 6.02     | [5.58, 6.52]        |
| <i>Horizon</i>                   | Current            | 5.77     | [5.41, 6.13]        |
|                                  | Next year          | 6.15     | [5.74, 6.51]        |
|                                  | Two years          | 6.39     | [5.99, 6.79]        |
| <i>Interest rate sensitivity</i> | Low                | 6.07     | [5.37, 6.78]        |
|                                  | Moderate           | 6.18     | [5.79, 6.54]        |
|                                  | High               | 6.05     | [5.77, 6.34]        |
| <i>Firm size</i>                 | Large              | 6.42     | [5.99, 6.83]        |
|                                  | Small              | 5.79     | [5.43, 6.11]        |
| <i>Age</i>                       | 18–24              | 6.19     | [5.08, 7.35]        |
|                                  | 25–34              | 5.92     | [5.62, 6.23]        |
|                                  | 35–49              | 5.99     | [5.73, 6.23]        |
|                                  | 50+                | 6.30     | [6.03, 6.58]        |
| <i>Gender</i>                    | Female             | 6.21     | [5.81, 6.58]        |
|                                  | Male               | 5.99     | [5.62, 6.35]        |

Note: The table reports the estimated marginal means of expected inflation across groups, forecast horizons, interest rate sensitivity levels, firm size, age and gender. Values are reported on the original scale (percentage points) after back transformation from the log scale. The 95% HPD intervals represent the highest posterior density credible intervals.

**Figure 8: Forest plot of estimated marginal means of inflation expectations**



Note: Estimated marginal means are averaged across all covariates, back-transformed from the log scale. 95% HPD intervals reflect the credible intervals for expected inflation rates.

Looking at the first row of Table 4, the unconditioned comparison between treatment and control groups suggests that priming has, on average, no discernible effect on expected inflation. Firm size seems to be a significant determinant of inflation expectations. Large firms report a higher mean expected inflation rate of 6.42% ([5.99%, 6.83%]), compared to a forecast of 5.79% ([5.43%, 6.11%]) by small firms. This gap suggests that larger firms, with broader operational footprints and greater exposure to macroeconomic volatility, anticipated higher future inflation at the time of the survey. One plausible explanation is that larger firms are more integrated with national and global supply chains and possess greater informational resources, leading to more proactive inflation forecasting (Candia, Coibion and Gorodnichenko 2024; Coibion, Gorodnichenko and Ropele 2020). At the time this survey was conducted, the geopolitical pressures from the Russian war on Ukraine, war in the

Middle East and a potential return of Donald Trump to the US Presidency may have influenced their views.

Inflation expectations vary systematically across age groups. Younger respondents (18–24) report relatively high mean expectations at 6.19% ([5.08%, 7.35%]), albeit with wider credible intervals, reflecting greater uncertainty. Expectations decrease modestly among the 25–34 (5.92%) and 35–49 (5.99%) age brackets, but rise again for respondents aged 50 and above (6.30%).

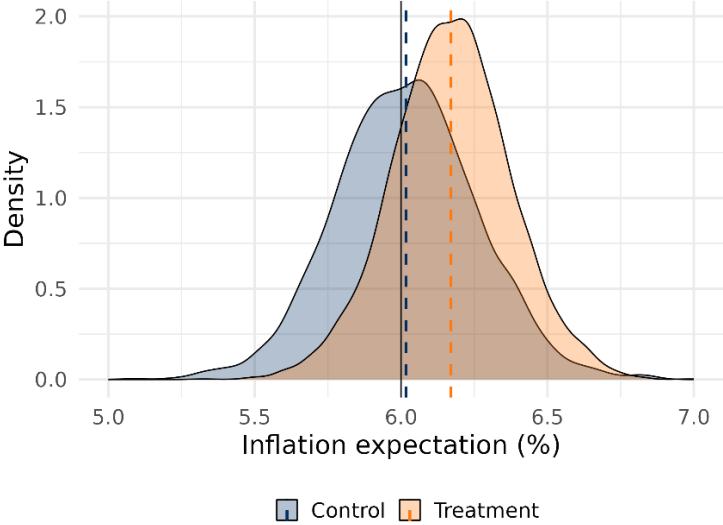
Gender differences are modest but notable. Female respondents exhibit higher inflation expectations at 6.21% ([5.81%, 6.58%]) relative to males at 5.99% ([5.62%, 6.35%]). This finding is consistent with prior research suggesting that women often report higher inflation expectations, potentially reflecting differences in their responsibility for grocery shopping, risk perceptions or economic information processing (Weber et al. 2022).

While the baseline estimates show some heterogeneity, the primary focus of the analysis is on the effect of priming on inflation expectations. Table 5 and Figure 9 present the estimated marginal means of expected inflation for the control and treatment groups, averaged across all covariates. The control group, which did not receive a priming statement, exhibit a slightly lower expected inflation rate of 6.02% ([5.58%, 6.52%]) compared to 6.17% ([5.77%, 6.57%]) for the treatment group, which was provided with historical inflation figures. Although the point estimate suggests a modest downward adjustment in expectations following priming, the overlap in credible intervals indicates that the average treatment effect is small and not statistically distinguishable at conventional levels.

**Table 5: Priming on inflation expectations**

| Group              | Response | 95% HPD interval |
|--------------------|----------|------------------|
| Treatment (primed) | 6.17     | [5.77, 6.57]     |
| Control (without)  | 6.02     | [5.58, 6.52]     |

**Figure 9: Visual indicator of priming**



Note: The difference (control – treatment) in expected inflation is -0.03, with a 95% HPD credible interval of [-0.09, 0.03]. The posterior probability that the difference is less than zero is approximately 77%, indicating moderate evidence of a downward adjustment in inflation expectations following priming:  $\Pr(Difference < 0) = \frac{1}{N} \sum_{i=1}^N \mathbb{1} \{Difference^{(i)} < 0\}$

While the average treatment effect is modest, theory and prior empirical work suggest that priming may have heterogeneous effects depending on the structural characteristics of firms such as sensitivity to interest rates and forecast horizon.

For firms classified as having low sensitivity, expected inflation is 6.08% ([4.93%, 7.23%]) in the control group and 6.00% ([5.24%, 6.74%]) in the treatment group (see Table 6). The estimated difference is close to zero (0.01 percentage points) and accompanied by wide credible intervals, indicating no meaningful effect of priming (see Figure 10).

For moderately sensitive firms, the pattern reverses: priming is associated with higher expected inflation, decreasing from 6.45% ([5.96%, 6.87%]) in the treatment group to 5.93% ([5.48%, 6.40%]) in the control group. This -0.09 percentage point effect is small in magnitude but statistically credible, suggesting that moderately sensitive firms adjusted expectations upwards when provided with historical inflation figures.

Among highly sensitive firms, the treatment and control groups exhibit nearly identical expected inflation rates (6.08% and 6.03%, respectively, with overlapping credible

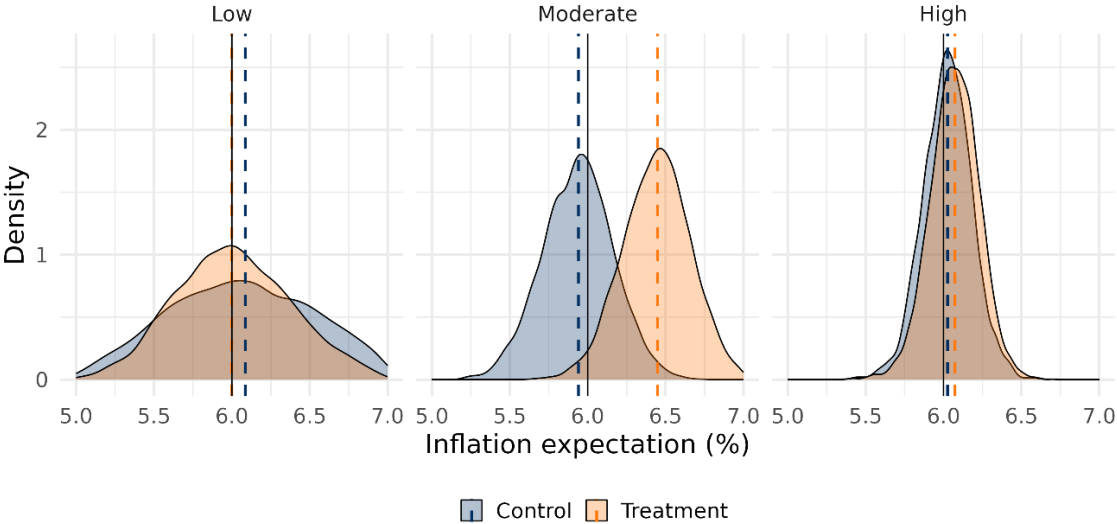
intervals). This indicates that firms highly sensitive to the interest rate are relatively unresponsive to priming, possibly because they already monitor macroeconomic indicators closely and incorporate such information into their baseline expectations (Blanchard, Gordon and Sims 1987; Galí 2015).

**Table 6: Estimated marginal means conditional on interest rate sensitivity**

| Interest rate sensitivity | Group     | Response | 95% HPD interval |
|---------------------------|-----------|----------|------------------|
| Low (N = 6)               | Treatment | 6.00     | [5.24, 6.74]     |
|                           | Control   | 6.08     | [4.93, 7.23]     |
| Moderate (N = 51)         | Treatment | 6.45     | [5.96, 6.87]     |
|                           | Control   | 5.93     | [5.48, 6.40]     |
| High (N = 294)            | Treatment | 6.08     | [5.72, 6.38]     |
|                           | Control   | 6.03     | [5.70, 6.34]     |

Note: Number of respondents in brackets.

**Figure 10: Density indicator of interest rate sensitivity**



Note: Differences (control – treatment) in expected inflation: *low sensitivity* = 0.01 [-0.17, 0.18], *moderate sensitivity* = -0.09 [-0.15, -0.03], *high sensitivity* = -0.01 [-0.04, 0.02]. HPD intervals reflect highest posterior density credible intervals based on posterior draws.

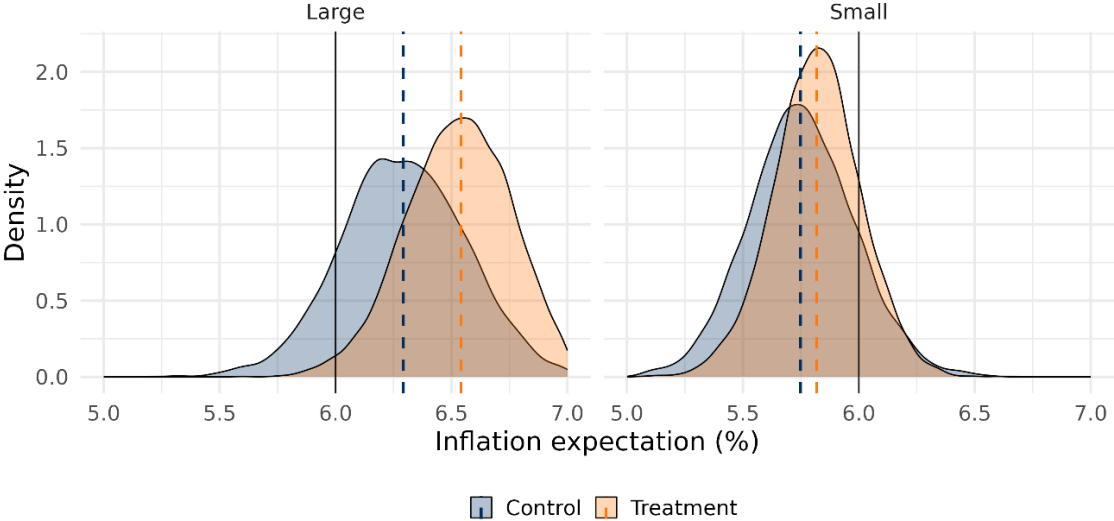
Table 7 and Figure 11 report treatment effects conditional on firm size.<sup>17</sup> Among large firms, priming is associated with an increase in expected inflation from 6.28% ([5.73%, 6.85%]) in the control group to 6.54% ([6.06%, 7.02%]) in the treatment group.

For small firms, the effect of priming is smaller, with expected inflation increasing from 5.75% ([5.28%, 6.20%]) to 5.81% ([5.43%, 6.19%]). Although the upwards adjustment is consistent across firm sizes, the effect is slightly more pronounced among larger firms, which is surprising given that they are more likely to have access to other information (Galí 2015).

**Table 7: Estimated marginal means conditional on firm size**

| Firm size       | Group     | Response | 95% HPD interval |
|-----------------|-----------|----------|------------------|
| Small (N = 286) | Treatment | 5.81     | [5.43, 6.19]     |
|                 | Control   | 5.75     | [5.28, 6.20]     |
| Large (N = 65)  | Treatment | 6.54     | [6.06, 7.02]     |
|                 | Control   | 6.28     | [5.73, 6.85]     |

**Figure 11: Visual indicator of firm size**



Note: Differences (control – treatment) in expected inflation: *large firms* = -0.04 [-0.12, 0.03]; *small firms* = -0.01 [-0.08, 0.05]. Differences are calculated from posterior draws and reflect the HPD credible intervals.

<sup>17</sup> Firms with an annual turnover exceeding R100 million are classified as *large*, while those with a turnover below R100 million are classified as *small*. The threshold was determined through visual inspection of the density distribution presented in Figure B.1.

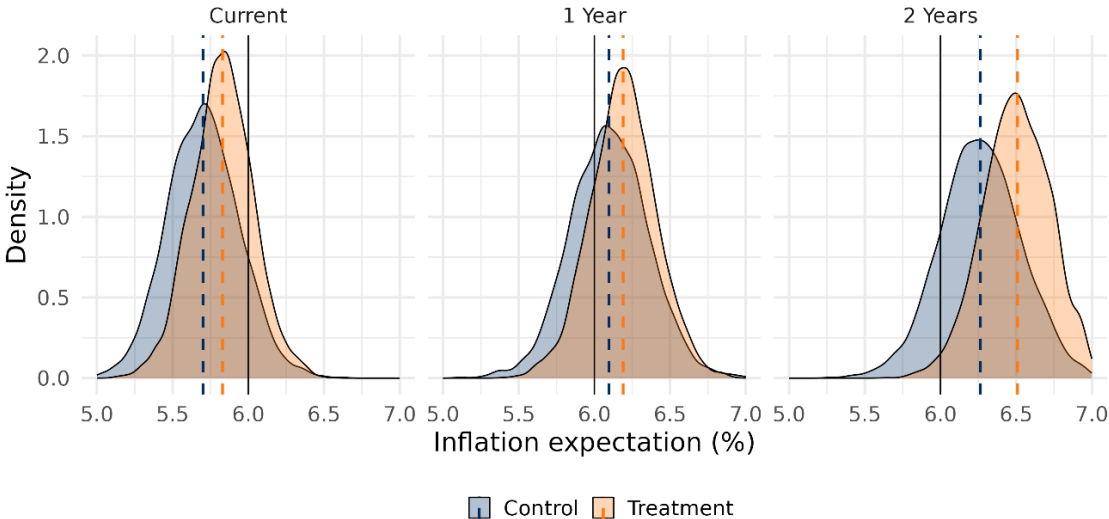
Turning to forecast horizons, Table 8 and Figure 12 present treatment effects across current-year, next-year and two-years-ahead expectations. In all horizons, priming leads to a slight reduction in expected inflation, though the magnitude of the effect increases with the forecast horizon.

For current-year expectations, primed firms (treated) report an expected inflation rate of 5.83% ([5.42%, 6.24%]) compared to 5.69% ([5.22%, 6.19%]) for controls. This gap widens slightly for next-year expectations (6.19% vs 6.09%) and becomes more pronounced at the two-year horizon (6.51% for treated vs 6.26% for controls).

**Table 8: Estimated marginal means conditional on forecast horizon**

| Horizon   | Group     | Response | 95% HPD interval |
|-----------|-----------|----------|------------------|
| Current   | Treatment | 5.83     | [5.42, 6.24]     |
|           | Control   | 5.69     | [5.22, 6.19]     |
| Next year | Treatment | 6.19     | [5.76, 6.61]     |
|           | Control   | 6.09     | [5.59, 6.63]     |
| Two years | Treatment | 6.51     | [6.04, 6.98]     |
|           | Control   | 6.26     | [5.71, 6.83]     |

**Figure 12: Visual indicator of forecast horizon**



Note: Differences (control – treatment) in expected inflation: *current year* = -0.03 [-0.10, 0.04], *next year* = -0.02 [-0.09, 0.05], *two years ahead* = -0.04 [-0.12, 0.03]. HPD intervals reflect highest posterior density credible intervals based on posterior draws.

## 5. Discussion and policy implications

Surveys have become a source of data that is highly valued by monetary policymakers, particularly in the effort to monitor and communicate with an audience that is broader than financial specialists and professional forecasters. This is reflected in the rise globally of central bank transparency (Dincer, Eichengreen and Geraats 2022) and in South Africa in the SARB's efforts to enhance its engagement with the public.<sup>18</sup> As surveys, especially about inflation, play an important role in, for example, the SARB's modelling, there is ongoing discussion about the best way to design them so they serve their purpose.

In this paper, we focused on one feature of the BER surveys – the impact of providing the historical inflation number to survey respondents before asking them to report their inflation expectations. Our approach involved first analysing the official data from the BER, then in mid-2024 conducting a once-off survey experiment on senior decision-makers from 350 firms across South Africa.

The analysis of the official BER data revealed that survey respondents updated their expectations at all horizons, not only at the beginning of the year when the priming number was adjusted, suggesting that they relied on a variety of information sources to form their expectations. The quantile regressions showed that while priming did have a non-negligible but significant impact on the expectations of trade unions and firms, financial analysts seemed to use the priming information alongside other information about the evolution of inflation in an active rather than passive manner. In addition, the quantile regression results show that the impact of past inflation expectations is far larger than that of priming or other sources of information we included. So, priming appears to influence the expectations of firms and trade unions, but not to a dramatic extent.

These results were then complemented by the analysis of the experimental data from mid-2024. While the average treatment effect found was small and not statistically distinguishable from zero, some modest, significant impacts emerge when accounting for structural heterogeneity across firm characteristics and forecast horizons. Most

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<sup>18</sup> See <https://www.resbank.co.za/en/home/newsroom/public-engagement>

notably, large firms and those that are moderately sensitive to interest rates systematically showed a tendency to report higher expected inflation if they were primed. The impact of priming was not convincingly different for different time horizons. Despite the fact that the results for most of the categories were insignificant, all the results (except for firms with a low sensitivity to interest rates) reported slightly higher inflation expectations after priming. It is worth noting that the test was done at a time when firms were likely to be more attentive (less sensitive to priming) due to the recent inflation experience. In addition, the historical number given for the previous year's average inflation was exactly 6%, which is equal to the top of the inflation-targeting band. The top of the band may very well also have been taken into account by survey respondents, making it more difficult to separate this from the impact of priming.

When the very modest impact of priming from the experiment in mid-2024 is considered together with the slightly larger measured impact (for firms and trade unions) from the quantile regressions for the period 2000–2024, we can conclude that priming appears to have a small impact. However, the results might suggest that priming has even less impact when survey respondents are highly attentive (after an experience of high inflation). This non-constant (state-dependent) impact of priming might be relevant when considering the policy implications too. Specifically, when inflation is low and stable, respondents might rely more on priming because they are inattentive, but it would have limited impact on the actual number as the changes in inflation itself are smaller. Conversely, if inflation has been high for some time and people are attentive, it appears that the priming has limited impact because people are searching for more information.

Given the modest impacts estimated for priming and the policy implications once we consider the level of attention of the public, it is more difficult to motivate for removing the priming number from the survey question. There is evidence that priming has some, limited distortionary impact, but removing the priming number from the survey would create a break in the series, which is now 25 years old. This must be weighed against the fact that the first purpose of this series is to inform current policy decisions, where policymakers value the most accurate information they can collect.

## **Annexures**

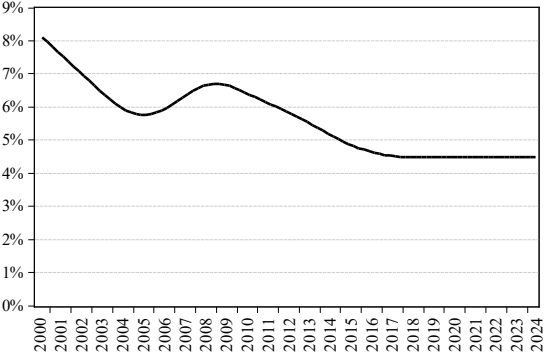
### **A. Alternative assumptions about the de facto inflation target**

The official inflation target for South Africa was 3–6% during the period under analysis. No point target within that band is formally specified by National Treasury. In practice, the application of the inflation target has changed a few times since 2000. In the early part of the inflation-targeting period, it was not explicitly indicated which level the Monetary Policy Committee was targeting, but it is not unreasonable to think that the midpoint could have been used. After the GFC, there was a move towards targeting the top of the band (just below 6%) that was never officially stated but was widely recognised and documented in research (Kabundi, Schaling and Some 2015). In 2017, the SARB announced that it would henceforth target the midpoint of the target range.

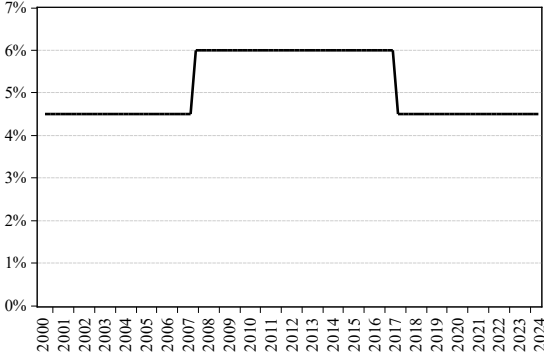
When we need a point target for the sake of empirical estimation we often have to make an assumption about how to represent the SARB's target band as a point target. It is simple to assume that the target has been 4.5% since 2017, but it is less clear how to treat the earlier part of the inflation-targeting period. In this paper, we therefore test the robustness of our results against three such assumptions: (i) a constant 4.5% inflation target, (ii) an implied inflation target, estimated from the SARB's forecasting model, and (iii) that the SARB targeted 4.5% from 2000 to 2008, 6% after the GFC (2009–2017) and 4.5% from the announcement in 2017 onward. The first assumption is used in the primary results in the main text of this paper and the two alternatives are represented in Figure A.1.

**Figure A.1: Comparison of implied inflation targets**

*(a) Implied inflation target (estimated from the SARB's forecasting model)*



*(b) Three-regime inflation target*



Note: Figure A.1a shows the implied inflation target, estimated from the SARB's forecasting model. Figure A.1b shows the assumption that the SARB targeted 4.5% from 2000 to 2008, 6% after the GFC (2009–2017) and 4.5% from the announcement in 2017 onward.

The quantile regression results that rely on these two alternative assumptions are presented in Table A.1 and Table A.2. Discussion of how these results support or contradict the baseline results are included in the main text.

**Table A.1: Quantile regression estimates: implied inflation target (estimated from the SARB's forecasting model)**

|                        | IT - SARB target            |                  |                 | Priming          |                   |                             | Last inflation  |                             |                             | BER (last quarter) |                  |                 |
|------------------------|-----------------------------|------------------|-----------------|------------------|-------------------|-----------------------------|-----------------|-----------------------------|-----------------------------|--------------------|------------------|-----------------|
|                        | 0.1                         | 0.5              | 0.9             | 0.1              | 0.5               | 0.9                         | 0.1             | 0.5                         | 0.9                         | 0.1                | 0.5              | 0.9             |
| <b>Current year</b>    |                             |                  |                 |                  |                   |                             |                 |                             |                             |                    |                  |                 |
| Business               | 0.01<br>(0.05)              | -0.04<br>(0.04)  | 0.23*<br>(0.06) | 0.14**<br>(0.07) | 0.09<br>(0.06)    | 0.04<br>(0.05)              | 0.04<br>(0.05)  | 0.09 <sup>Ⓢ</sup><br>(0.05) | 0.03<br>(0.03)              | 0.77*<br>(0.06)    | 0.90*<br>(0.05)  | 0.86*<br>(0.06) |
| Financial analysts     | -0.04<br>(0.10)             | -0.004<br>(0.03) | -0.03<br>(0.06) | 0.59*<br>(0.13)  | 0.64*<br>(0.04)   | 0.56*<br>(0.12)             | 0.01<br>(0.12)  | 0.03<br>(0.03)              | -0.04<br>(0.08)             | 0.34<br>(0.11)     | 0.32*<br>(0.03)  | 0.59*<br>(0.11) |
| Trade unions           | -0.12<br>(0.13)             | 0.84*<br>(0.08)  | 0.27*<br>(0.11) | 0.54*<br>(0.10)  | 0.50<br>(0.07)    | 0.16<br>(0.12)              | 0.24<br>(0.12)  | -0.10<br>(0.08)             | -0.10<br>(0.10)             | 0.16**<br>(0.07)   | -0.12*<br>(0.04) | 0.79*<br>(0.13) |
| <b>One year ahead</b>  |                             |                  |                 |                  |                   |                             |                 |                             |                             |                    |                  |                 |
| Business               | -0.09<br>(0.08)             | -0.02<br>(0.05)  | 0.17<br>(0.06)  | 0.11<br>(0.07)   | 0.14*<br>(0.04)   | 0.15*<br>(0.04)             | 0.01<br>(0.06)  | -0.02<br>(0.03)             | 0.01<br>(0.04)              | 0.97*<br>(0.08)    | 0.98*<br>(0.05)  | 0.84*<br>(0.07) |
| Financial analysts     | 0.43**<br>(0.21)            | 0.08<br>(0.08)   | 0.35*<br>(0.09) | -0.19<br>(0.12)  | -0.17**<br>(0.07) | 0.01<br>(0.07)              | 0.29*<br>(0.09) | 0.34*<br>(0.07)             | 0.16 <sup>Ⓢ</sup><br>(0.09) | 0.24<br>(0.22)     | 0.67*<br>(0.09)  | 0.54*<br>(0.10) |
| Trade unions           | -0.08<br>(0.13)             | 0.03<br>(0.07)   | -0.08<br>(0.23) | 0.13**<br>(0.06) | 0.19*<br>(0.06)   | 0.17<br>(0.14)              | -0.08<br>(0.06) | -0.02<br>(0.06)             | -0.01<br>(0.12)             | 0.97*<br>(0.10)    | 0.83*<br>(0.08)  | 1.05*<br>(0.25) |
| <b>Two years ahead</b> |                             |                  |                 |                  |                   |                             |                 |                             |                             |                    |                  |                 |
| Business               | -0.01<br>(0.04)             | 0.02<br>(0.04)   | 0.13<br>(0.10)  | 0.15*<br>(0.03)  | 0.15*<br>(0.04)   | 0.15*<br>(0.06)             | 0.01<br>(0.03)  | -0.02<br>(0.04)             | -0.05<br>(0.06)             | 0.86*<br>(0.04)    | 0.94*<br>(0.03)  | 0.94*<br>(0.10) |
| Financial analysts     | 0.30 <sup>Ⓢ</sup><br>(0.16) | 0.01<br>(0.04)   | 0.30*<br>(0.05) | -0.01<br>(0.06)  | -0.07**<br>(0.03) | -0.02<br>(0.02)             | 0.02<br>(0.05)  | 0.08*<br>(0.03)             | 0.15*<br>(0.04)             | 0.45*<br>(0.16)    | 0.88*<br>(0.04)  | 0.58*<br>(0.05) |
| Trade unions           | -0.04<br>(0.07)             | 0.05<br>(0.08)   | 0.14<br>(0.23)  | 0.25*<br>(0.06)  | 0.19*<br>(0.05)   | 0.24 <sup>Ⓢ</sup><br>(0.14) | -0.06<br>(0.05) | -0.02<br>(0.05)             | -0.03<br>(0.13)             | 0.79*<br>(0.07)    | 0.82*<br>(0.08)  | 0.81*<br>(0.20) |

Note: Bootstrap standard errors via the MCMB method. The Epanechnikov sparsity kernel and the Hall-Sheather bandwidth method used to obtain estimates. BER (last quarter) refers to the BER mean forecast of the previous quarter. \* means significant at the 1% level, \*\* at the 5% level and <sup>Ⓢ</sup> at the 10% level.

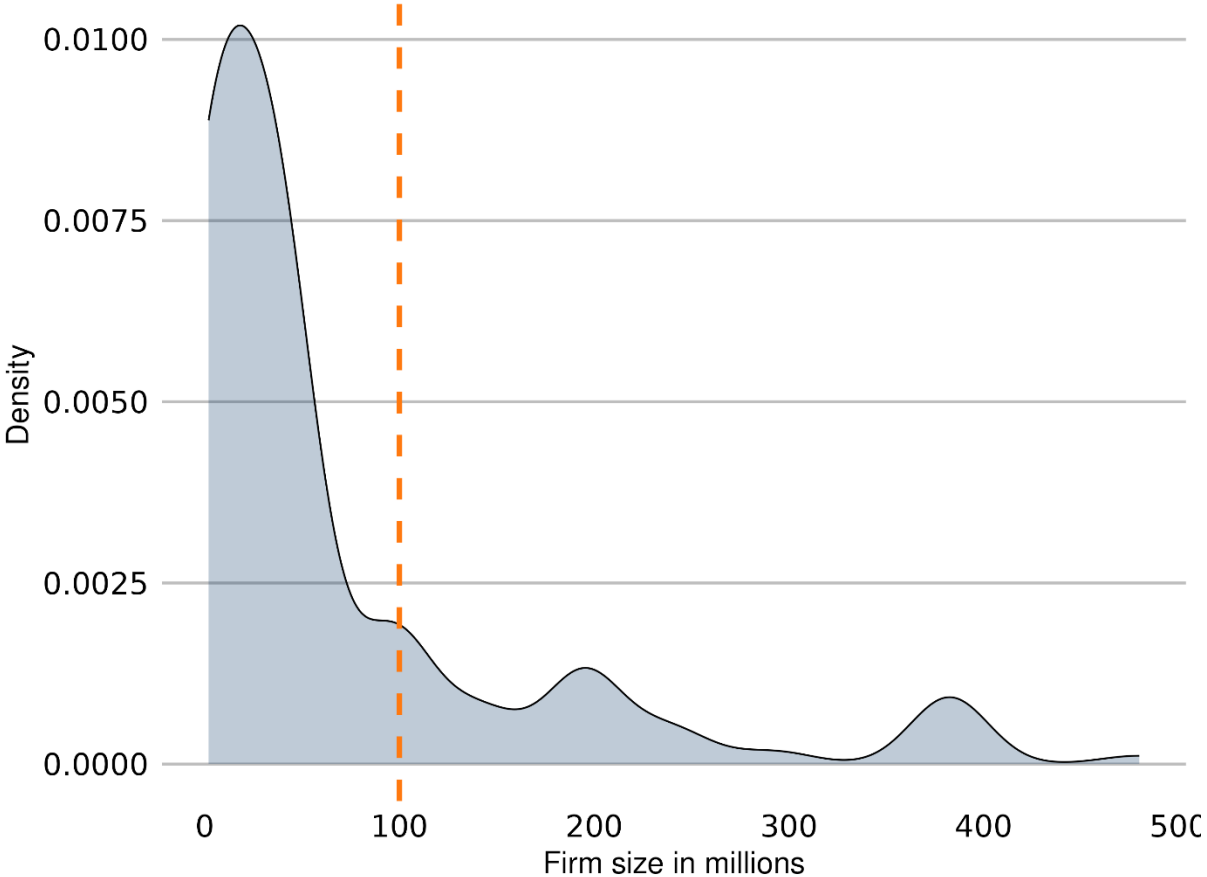
**Table A.2: Quantile regression estimates: three-regime inflation target**

|                        | IT - SARB target2  |        |                    | Priming |                   |        | Last inflation |                    |                   | BER (last quarter) |        |        |
|------------------------|--------------------|--------|--------------------|---------|-------------------|--------|----------------|--------------------|-------------------|--------------------|--------|--------|
|                        | 0.1                | 0.5    | 0.9                | 0.1     | 0.5               | 0.9    | 0.1            | 0.5                | 0.9               | 0.1                | 0.5    | 0.9    |
| <b>Current year</b>    |                    |        |                    |         |                   |        |                |                    |                   |                    |        |        |
| Business               | 0.11 <sup>@</sup>  | 0.01   | 0.03               | 0.21*   | 0.11 <sup>@</sup> | 0.08   | -0.03          | 0.04               | 0.04              | 0.68*              | 0.88*  | 0.99*  |
|                        | (0.06)             | (0.04) | (0.07)             | (0.09)  | (0.06)            | (0.06) | (0.06)         | (0.05)             | (0.05)            | (0.06)             | (0.05) | (0.06) |
| Financial analysts     | 0.07               | 0.02   | -0.11 <sup>@</sup> | 0.59    | 0.64*             | 0.55*  | -0.02          | 0.03               | 0.04              | 0.26**             | 0.30*  | 0.58*  |
|                        | (0.10)             | (0.03) | (0.06)             | (0.11)  | (0.04)            | (0.08) | (0.11)         | (0.02)             | (0.05)            | (0.11)             | (0.04) | (0.06) |
| Trade unions           | 1.06*              | 0.78*  | 1.13*              | 0.33*   | 0.63*             | 0.38*  | -0.14          | -0.25 <sup>@</sup> | 0.11 <sup>@</sup> | -0.31 <sup>@</sup> | -0.09  | -0.33* |
|                        | (0.16)             | (0.15) | (0.06)             | (0.09)  | (0.12)            | (0.06) | (0.09)         | (0.14)             | (0.06)            | (0.07)             | (0.07) | (0.05) |
| <b>One year ahead</b>  |                    |        |                    |         |                   |        |                |                    |                   |                    |        |        |
| Business               | -0.11 <sup>@</sup> | 0.01   | -0.07              | 0.14*   | 0.16*             | 0.18*  | -0.03          | -0.04              | 0.005             | 0.99*              | 0.94*  | 1.04*  |
|                        | (0.06)             | (0.06) | (0.12)             | (0.06)  | (0.05)            | (0.05) | (0.04)         | (0.04)             | (0.05)            | (0.06)             | (0.06) | (0.10) |
| Financial analysts     | 0.58*              | 0.43*  | 0.31               | -0.03   | 0.004             | -0.10  | 0.25*          | 0.15*              | 0.34*             | 0.09               | 0.38*  | 0.56*  |
|                        | (0.10)             | (0.05) | (0.20)             | (0.09)  | (0.05)            | (0.09) | (0.06)         | (0.05)             | (0.08)            | (0.09)             | (0.06) | (0.20) |
| Trade unions           | -0.03              | -0.09  | -0.37              | 0.17*   | 0.12 <sup>@</sup> | 0.21** | -0.09**        | 0.05               | -0.04             | 0.89*              | 0.95*  | 1.29*  |
|                        | (0.07)             | (0.08) | (0.15)             | (0.04)  | (0.06)            | (0.10) | (0.04)         | (0.06)             | (0.09)            | (0.06)             | (0.08) | (0.15) |
| <b>Two years ahead</b> |                    |        |                    |         |                   |        |                |                    |                   |                    |        |        |
| Business               | 0.06               | 0.02   | -0.24 <sup>@</sup> | 0.15*   | 0.15*             | 0.09   | -0.02          | -0.02              | 0.03              | 0.83*              | 0.94*  | 1.24*  |
|                        | (0.04)             | (0.05) | (0.13)             | (0.03)  | (0.04)            | (0.06) | (0.04)         | (0.04)             | (0.07)            | (0.03)             | (0.05) | (0.11) |
| Financial analysts     | 0.56*              | 0.27*  | 0.39*              | -0.02   | -0.03             | -0.01  | -0.06          | 0.03               | 0.04              | 0.39*              | 0.64*  | 0.58*  |
|                        | (0.06)             | (0.07) | (0.10)             | (0.04)  | (0.03)            | (0.05) | (0.04)         | (0.03)             | (0.03)            | (0.06)             | (0.06) | (0.09) |
| Trade unions           | 0.07               | 0.03   | -0.62*             | 0.21*   | 0.19              | 0.35*  | -0.04          | -0.03              | -0.05             | 0.72*              | 0.85*  | 1.44   |
|                        | (0.08)             | (0.09) | (0.15)             | (0.05)  | (0.05)            | (0.10) | (0.06)         | (0.05)             | (0.09)            | (0.08)             | (0.08) | (0.13) |

Note: The table results are based on the assumption that the SARB targeted 4.5% from 2000 to 2008, 6% after the GFC (2009–2017) and 4.5% from the announcement in 2017 onward. Bootstrap standard errors via the MCMB method. The Epanechnikov sparsity kernel and the Hall-Sheather bandwidth method used to obtain estimates. BER (last quarter) refers to the BER mean forecast of the previous quarter. \* means significant at the 1% level, \*\* at the 5% level and @ at the 10% level.

**B. Firm designation**

**Figure B.1: Visual indicator of interest rate sensitivity**



Note: Firms with an annual turnover exceeding R100 million are classified as *large*, while those with a turnover below R100 million are classified as *small*. The threshold was determined through visual inspection of the density distribution.

### **C. Industry classification methodology**

Interest rate sensitivity across industries reflects the extent to which firms' input costs, financing costs and pricing power respond to changes in the policy interest rate. In this classification, industries are grouped into high, moderate and low sensitivity categories based on their typical cost structures, capital intensity, demand elasticities and prevailing market conditions (Blanchard, Gordon and Sims 1987; Galí 2015).

Industries such as retail and motor trade, manufacturing, accommodation and catering, construction, wholesale trade, and agriculture, hunting, forestry and fishing are classified as highly sensitive to interest rate changes. These sectors typically exhibit short production cycles and are substantially exposed to input cost fluctuations and consumer demand shifts that are sensitive to financing conditions. Competitive pressures and high demand elasticity limit firms' ability to pass through cost increases. These constraints amplify the impact of interest rate adjustments on profitability (Bils and Klenow 2004; Nakamura and Steinsson 2008). For instance, retailers and wholesalers operate in markets where consumers are highly responsive to changes in credit conditions, affecting both sales volumes and margins.

The manufacturing sector, although sometimes able to hedge input costs or engage in forward contracts, remains vulnerable to the cost of capital and intermediate input prices. In a similar vein, accommodation and catering, as part of the discretionary consumption sector, are exposed to demand-side effects. Consumers tend to curtail non-essential spending during periods of tightening monetary policy.

Price rigidity has also been shown to vary significantly across sectors. The services sector in particular exhibits relatively infrequent price adjustments (Baudry et al. 2004). Capital-intensive industries such as construction are especially sensitive to interest rate changes due to their reliance on financing for large projects and their exposure to volatile input costs, such as the cost of steel, cement and labour. Agriculture faces direct exposure to input cost changes and typically operates with seasonal credit cycles, making it susceptible to interest rate fluctuations that affect both working capital and investment decisions.

In contrast, industries such as community, social and personal services; transport, storage and communication; and mining and quarrying are classified as moderately sensitive to interest rate changes. These sectors either benefit from more stable demand conditions or have a partial ability to insulate prices and financing structures from short-term interest rate fluctuations.

Finally, industries like electricity, gas and water are classified as having low sensitivity. Utility companies often operate under regulatory frameworks that allow for periodic tariff adjustments and are less reliant on external financing, mitigating the immediate impact of interest rate changes (Blanchard, Gordon and Sims 1987).

Overall, this classification captures sectoral heterogeneity in interest rate sensitivity by jointly considering input cost volatility, financing dependence, pricing power and demand elasticity. In doing so, the framework aligns with established theories of monetary transmission channels and sectoral vulnerability (Galí 2015; Blanchard, Gordon and Sims 1987).

**Table C.1: Industry classification by interest rate sensitivity**

| Industry  | Interest rate sensitivity |
|---|---------------------------|
| Retail and motor trade  | High                      |
| Manufacturing   | High                      |
| Accommodation and catering  | High                      |
| Construction  | High                      |
| Wholesale trade   | High                      |
| Agriculture, hunting, forestry and fishing  | High                      |
| Activities auxiliary to financial intermediation, real estate and other business services | High                      |
| Transport, storage and communication  | Moderate                  |
| Mining and quarrying  | Moderate                  |
| Community, social and personal services   | Moderate                  |
| Electricity, gas and water  | Low                       |

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