



VOXEU COLUMN | INFLATION

Why inflation may respond faster to big shocks: The rise of state-dependent pricing

Philip Bunn, Nicholas Bloom, Craig Menzies, Paul Mizen, Gregory Thwaites, Ivan Yotzov / 6 Feb 2026

Macroeconomic models distinguish time-dependent pricing, where firms change prices at fixed intervals, from state-dependent pricing, where firms change prices in response to changing demand or costs. This column presents new evidence on how firms set prices using direct questions from a large, economy-wide survey of UK firms. State-dependent pricing has increased since 2019 and is more common in smaller firms, those with higher non-labour costs, and those reporting higher uncertainty. Furthermore, empirical work shows that state-dependent firms respond faster to cost shocks, with larger differences for bigger shocks, consistent with theoretical predictions.

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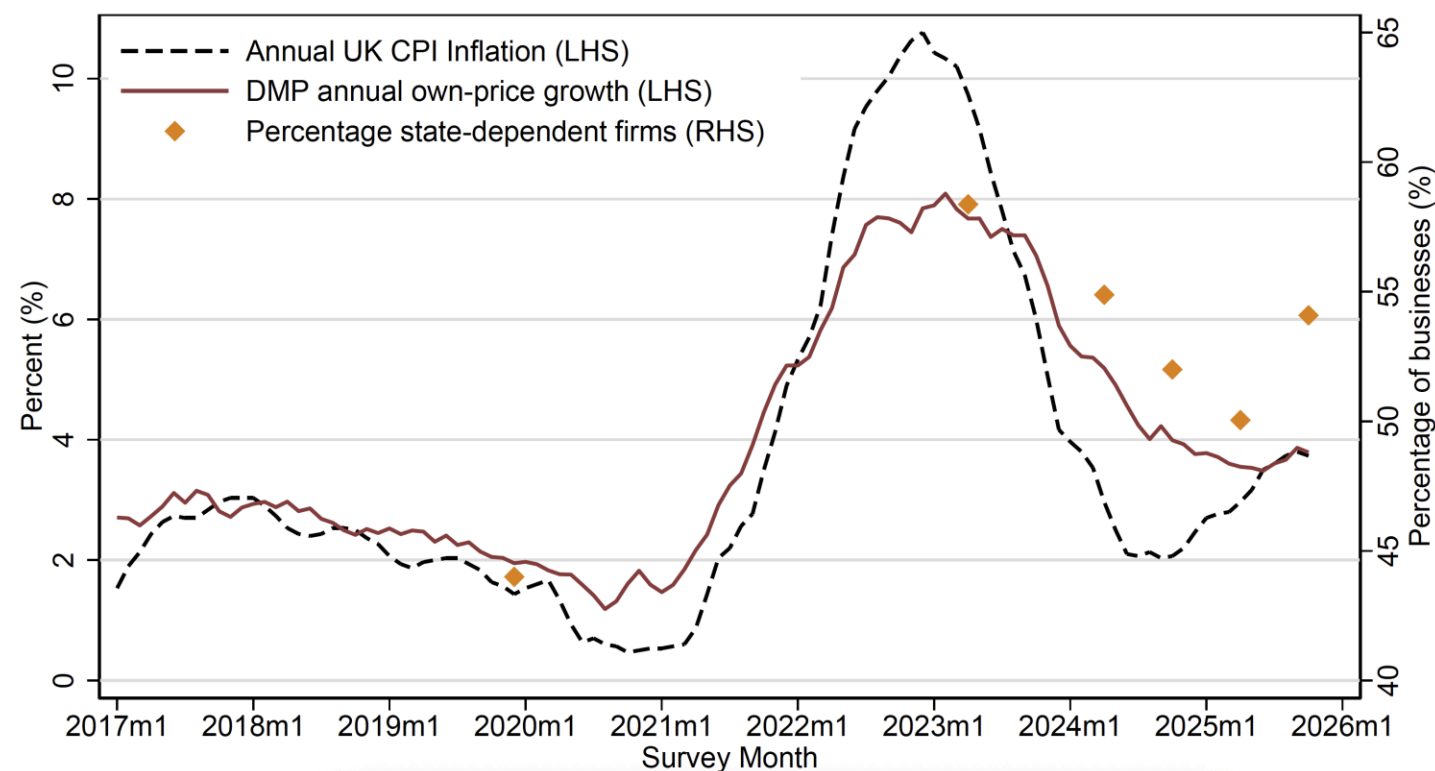
The recent inflation surge has subsided in most advanced economies, but its effects may linger in unexpected ways. Recent work has shown that inflation responds much more rapidly to large shocks than standard models predict, because firms adjust prices more frequently when

shocks are large (Cavallo et al. 2024), while VoxEU columns have argued that inflation dynamics are nonlinear, with shocks propagating faster when inflation is elevated (Gagliardone et al. 2025, Bunn et al. 2025).

But direct evidence on how firms change their pricing strategies when inflation is high has been limited. In a new paper (Bunn et al. 2026) building on an earlier VoxEU piece (Bunn et al. 2023), we find that the inflation shock did not just raise prices – it changed how firms set them. A growing share of UK firms now adjust prices in response to changing conditions rather than at fixed intervals. This shift has implications for how the economy will respond to future shocks.

Using data from the Decision Maker Panel, a large survey of UK firms, we find that since 2023, an average of 54% of firms have described their price setting as being consistent with state-dependent price setting, up from 44% in 2019. State-dependent price setters responded more aggressively to the recent inflation surge, both on the way up and on the way down. If the share of firms setting prices this way remains high, inflation may respond more sharply to large shocks in the future.

Figure 1 Firm annual price growth, CPI inflation, and share of state-dependent firms



Note: Three-month moving averages. The percentage of state-dependent firms is based on survey responses.

Source: Decision Maker Panel and Office for National Statistics.

Two ways firms set prices

Economists have long distinguished between two approaches to pricing. Time-dependent firms change prices at regular intervals – perhaps annually when contracts renew or at the start of a financial year – not because of what is happening to their costs or demand. State-dependent firms, by contrast, change prices in response to events: a spike in input costs, a shift in demand, or a change in competitors' prices.

This distinction matters for macroeconomics. In models where firms are time-dependent (Calvo 1983), prices adjust slowly and monetary policy has powerful real effects. In models where firms are state-dependent (Golosov and Lucas 2007), prices respond more quickly to large shocks, potentially limiting the real effects of monetary policy. Despite extensive theoretical work, direct evidence on how firms make these decisions and respond to shocks in practice has been limited.

The shift towards state-dependent pricing

We use data from the [Decision Maker Panel](#), a monthly survey of UK firms run by the Bank of England in collaboration with King's College London and the University of Nottingham since 2016. On a number of occasions, the survey has asked firms: "Which of the following best describes how your business usually sets prices?" Businesses could choose from two options: "Mostly change prices in response to specific events (e.g. changes in costs or demand)" or "Mostly change prices at fixed intervals (e.g. once a year or once a quarter, etc.)". We interpret the first option as corresponding to state-dependent pricing behaviour, and the second option as time-dependent pricing behaviour in our analysis.

Figure 1 shows the key finding: 44% of firms described their pricing behaviour in a way that is consistent with state-dependent price setting in 2019, while 56% indicated that their price setting approach was consistent with time-dependent price setting. State-dependency increased sharply to 58% of firms in February-April 2023. During these months, firm price growth was near its peak rate, at 7.7% on average.

Subsequently, the state-dependent share declined, and by February-April 2025 it was 50%. Output price inflation also fell over this period. In

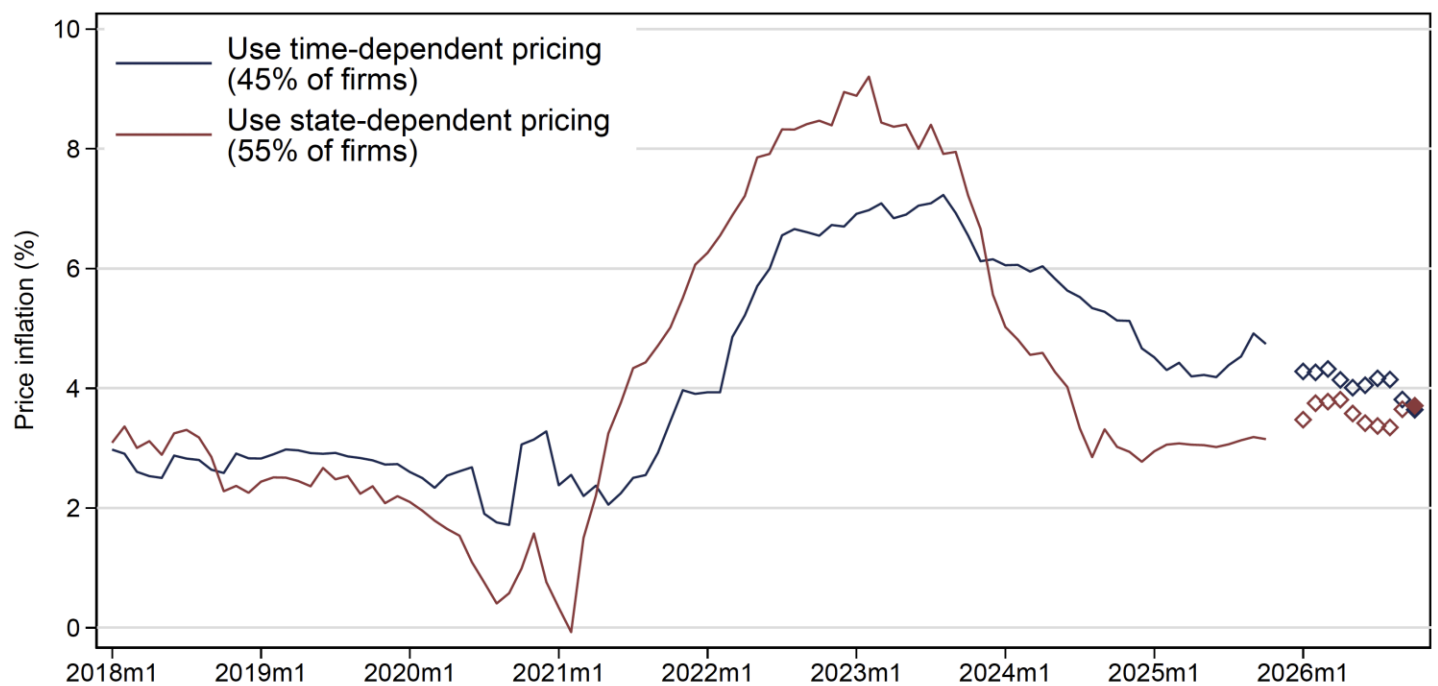
2025, firm output price growth and CPI inflation increased again. This was also reflected in an increase in the share of state-dependent firms over August-October 2025 to 54%. Overall, the proportion of state-dependent firms has increased in recent years compared to pre-pandemic averages and appears to be sensitive to the broader inflation environment as well.

Beyond the aggregate shares, we find substantial differences in price-setting behaviour across sectors and industries of the economy. State-dependent pricing is more common among firms in the goods sector (65% of firms, on average since 2023) than in the services sector (46% of firms), where firms are more likely to be time-dependent. We also show that smaller firms, and those with higher non-labour cost shares, are associated with being more likely to use state-dependent price-setting. Conversely, larger firms, and those that have relatively higher labour cost shares, are more likely to be time-dependent. Labour costs are likely to be less volatile and more predictable than non-labour costs and may therefore be more suitable for a time-dependent pricing strategy. Firms reporting higher uncertainty around their future prices and/or sales are more likely to be state-dependent, and we also show that increases in uncertainty are associated with a higher likelihood of switching from time-dependent to state-dependent pricing.

State-dependent firms respond differently

The distinction between state-dependent and time-dependent pricing is not merely semantic – it corresponds to real differences in behaviour. Figure 2 shows the output price growth reported by firms with different pricing approaches.

Figure 2 Firm output price growth by price-setting behaviour

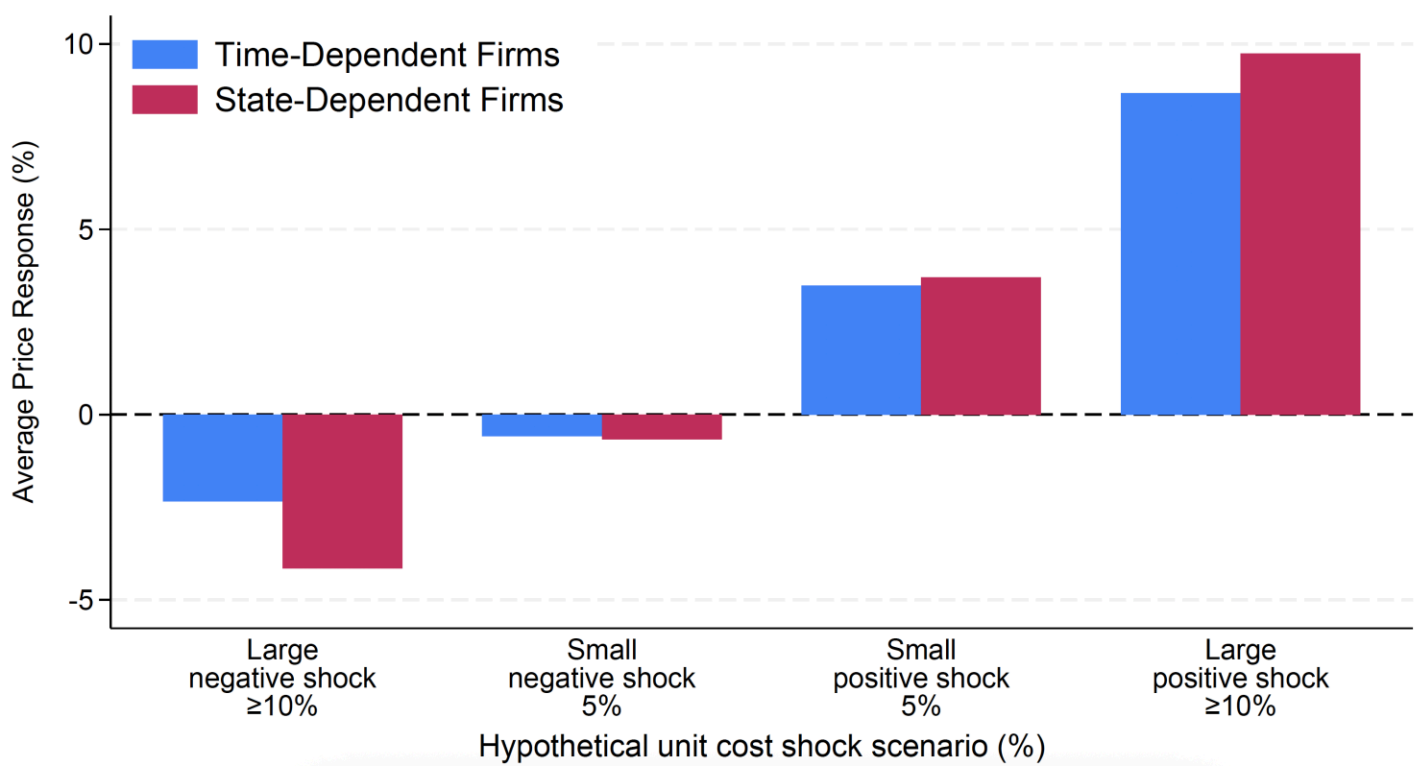


Note: This figure shows trends in own-price growth (solid lines) and expected year-ahead own-price growth (diamonds), split by price-setting behaviour. The sample includes only firms which have not changed their price-setting behaviour over 2023-2025. The series are three-month moving averages, with the latest data up to October 2025.

State-dependent firms raised prices more sharply during the inflation surge, with their price growth around two percentage points higher at peak than the price growth of time-dependent firms. But they also cut prices faster as cost pressures eased. By late 2023, price growth among state-dependent firms had fallen below that of time-dependent firms. The pattern is consistent with theory: state-dependent pricing leads to faster pass-through of cost changes in both directions.

We also examined how firms respond to hypothetical cost shocks of different sizes using a randomised survey experiment. Figure 3 shows average price responses to unit cost shocks of different sizes and signs. We define ‘large’ positive/negative shocks as those between 10% and 20%. Small shocks are defined as unit cost increases or decreases of 5%.

Figure 3 Average price responses to hypothetical cost shocks by price-setting behaviour



Note: This figure shows the average price response to hypothetical unit cost shocks for state-dependent and time-dependent firms. The questions on the price responses to unit cost shocks were asked over August-October 2024. The sample includes only firms which have not changed their price-setting behaviour. 'Small shocks' are defined as $\pm 5\%$ and 'large shocks' are defined as $\pm 10\%$; $\pm 15\%$; or $\pm 20\%$.

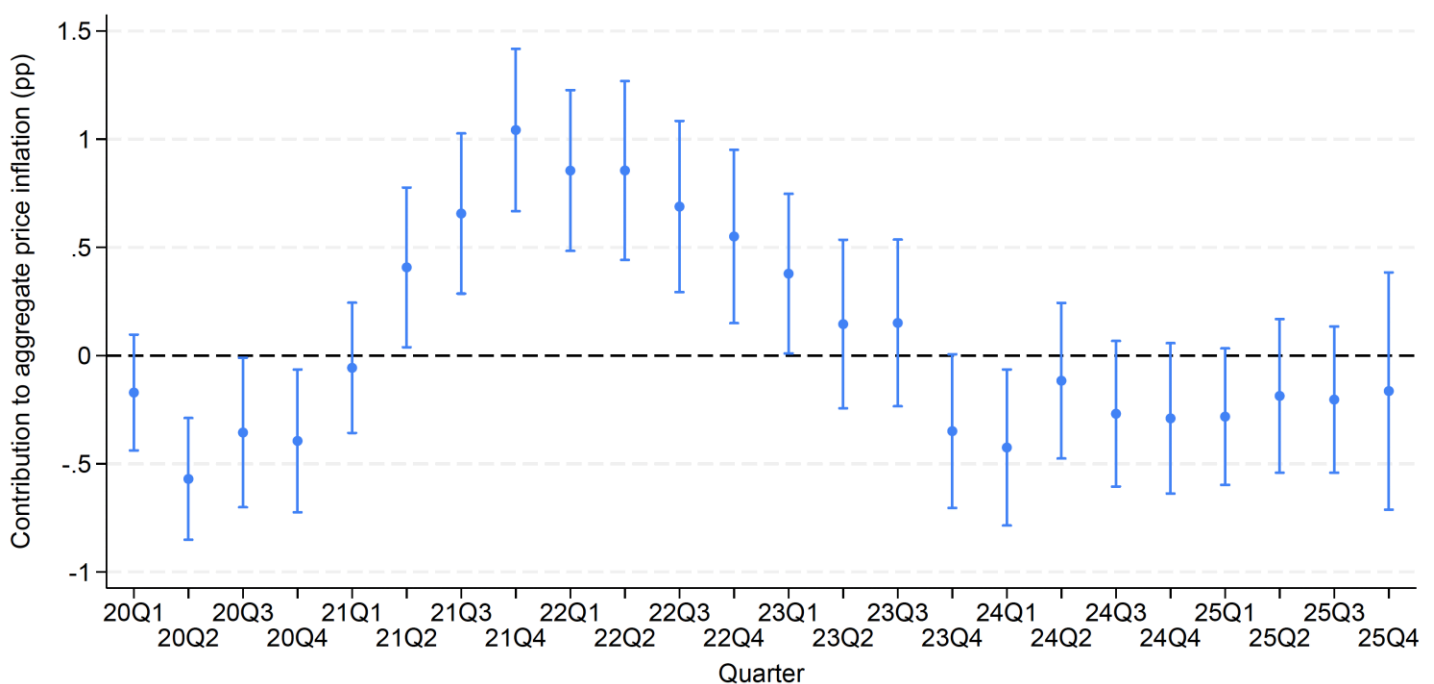
Two findings stand out. First, state-dependent firms pass through a larger share of cost increases at all shock sizes. Second, the gap between state-dependent and time-dependent firms widens as shocks get larger. For small cost increases, the difference in pass-through is modest; for large shocks, it is larger and statistically significant. This non-linearity is central to understanding why pricing behaviour matters: the distinction between state-dependent and time-dependent pricing becomes most consequential precisely when shocks are large.

Aggregate implications

How important are the differences between state- and time-dependent firms for understanding recent inflation dynamics? To answer this, we construct a counterfactual: what would have happened to aggregate output price inflation if we assumed all firms were time-dependent?

Figure 4 shows the estimated contribution. At its peak in late 2021, the use of state-dependent pricing contributed approximately one percentage point to aggregate output price inflation. The contribution then turned negative as state-dependent firms reduced their price growth more rapidly during the period of disinflation.

Figure 4 Contribution of state-dependent pricing to aggregate output price inflation



Note: This figure presents coefficient estimates from a regression of firm output price growth on a dummy for state-dependent pricing interacted with quarterly time dummies. The sample includes only firms which have not changed their price-setting behaviour. See Bunn et al. (2026) for further details.

The pattern illustrates a key implication: state-dependent pricing amplifies inflation dynamics in both directions when shocks are large. It contributed to the sharp rise in inflation but also contributed to its faster decline.

Looking forward

The shift towards more state-dependent pricing may be a lasting legacy of the recent inflation surge. If so, the economy may respond differently to future shocks than it did in the more stable pre-pandemic period.

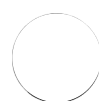
Our analysis of real-world energy shocks supports this view. Using oil supply news shocks identified by Känzig (2021) and gas supply shocks from Alessandri and Gazzani (2025), we find that state-dependent firms respond more strongly to these shocks than time-dependent firms. This suggests the behavioural differences we document in survey responses translate into different reactions to actual macroeconomic disturbances.

For monetary policy, the implications are nuanced. On one hand, a more state-dependent economy may see sharper inflation responses to large cost shocks, potentially requiring more aggressive policy action (e.g. Karadi et al. 2024). On the other hand, the faster pass-through works in both directions – state-dependent pricing also means faster disinflation when conditions improve. The recent inflation surge changed not just the level of prices but the responsiveness of the pricing system itself.

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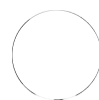
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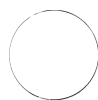
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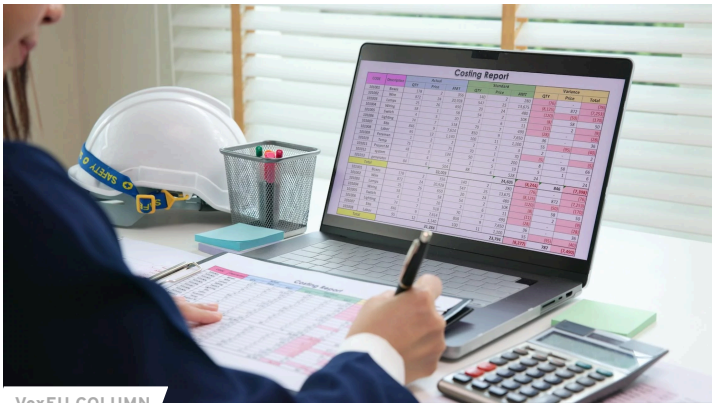


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