Regional Spotlight

Introducing PIES

Our new Price and Inflation Expectations Survey measures Third District firms' expectations.

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The views expressed in this article are not necessarily those of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

To conduct sound monetary policy, policymakers must closely follow not only changes in inflation but also changes in the public's expectations of future inflation. These expectations impact behavior and economic decisions made by individuals and businesses. In this way, inflation expectations can become self-fulfilling and contribute to actual inflation outcomes.[1] Therefore, measuring inflation expectations is central to understanding how and when inflation may rise.

Several surveys ask households and economists about their inflation expectations, but until the last decade relatively few surveys have asked business leaders.[2] This was a notable gap, given the important role businesses play in setting prices and wages. When firms expect higher inflation, they often respond by raising prices, adjusting wages, and revising investment and hiring decisions.[3]

To address the relative lack of information on firms' inflation expectations, the Federal Reserve Bank of Philadelphia developed the quarterly Price and Inflation Expectations Survey (PIES) in 2015. Soon after, other Federal Reserve Banks started

similar surveys. This article provides an overview of PIES, discusses the motivation for the survey, examines the relationship between PIES results and realized U.S. inflation, and briefly compares PIES with inflation expectations surveys conducted by other regional Reserve Banks and private firms.

The Philadelphia Fed's PIES

Since the fourth quarter of 2015, PIES has asked business leaders in the Third District about their short- and long-run inflation expectations and price-setting behavior. The survey is conducted quarterly (in February, May, August, and November of each year) as a supplement to the Philadelphia Fed's Manufacturing (MBOS) and Nonmanufacturing (NBOS) Business Outlook Surveys. Results have been published for each firm type as part of the MBOS and NBOS results since 2015.

Beginning in the fourth quarter of 2025, PIES results are being released as a separate quarterly report. In addition to the results for manufacturing and nonmanufacturing firms currently published as part of, respectively, the MBOS and the NBOS, the new PIES release includes results for all firms, which aggregates responses for both firm types. The aggregated all-firms results provide a more complete view of overall business expectations.

*See **PIES Questions***

By collecting data on both firm-specific and economywide expectations, PIES provides a comprehensive view of how businesses perceive inflationary pressures and how they accordingly adjust their expectations. In the current environment, where the economy is only recently removed from postpandemic inflation and faces further upside risks to inflation due to rising tariffs, understanding firms' inflation expectations is arguably more important than ever.

Furthermore, by collecting data on both near-term and long-term expectations, PIES allows policymakers to gauge whether firms anticipate persistent inflationary pressures or a return to price stability over time—dynamics that are likely to influence monetary policy. Firms' near-term expectations are often shaped by immediate cost pressures and changing economic conditions. But firms' longer-term expectations may reflect beliefs about the Federal Reserve's credibility and commitment to maintaining price stability.

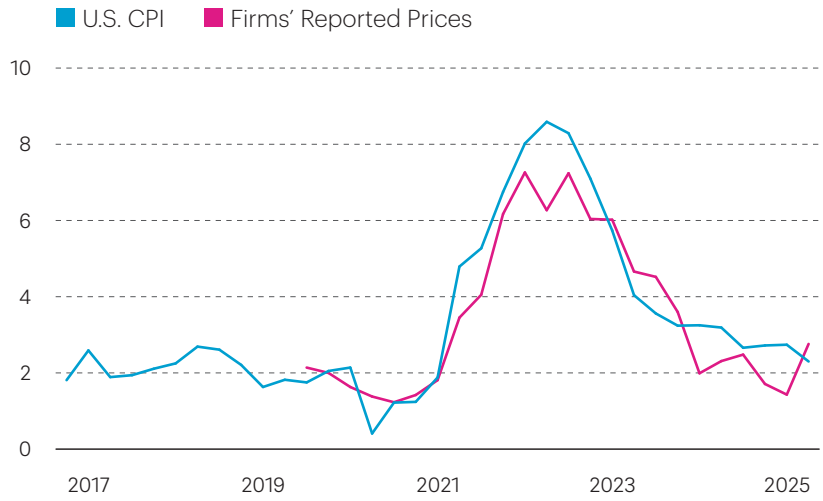
PIES' Past Prices Compared with Realized Inflation

With nearly 10 years of data and a sample that includes a period of rapidly changing inflation follow-

FIGURE 1

Firms' Reported Change in Own Prices Closely Tracked the CPI

Quarterly U.S. CPI; mean percentage of firms' reported change in own prices over the previous four quarters; 4q2016–2q2025



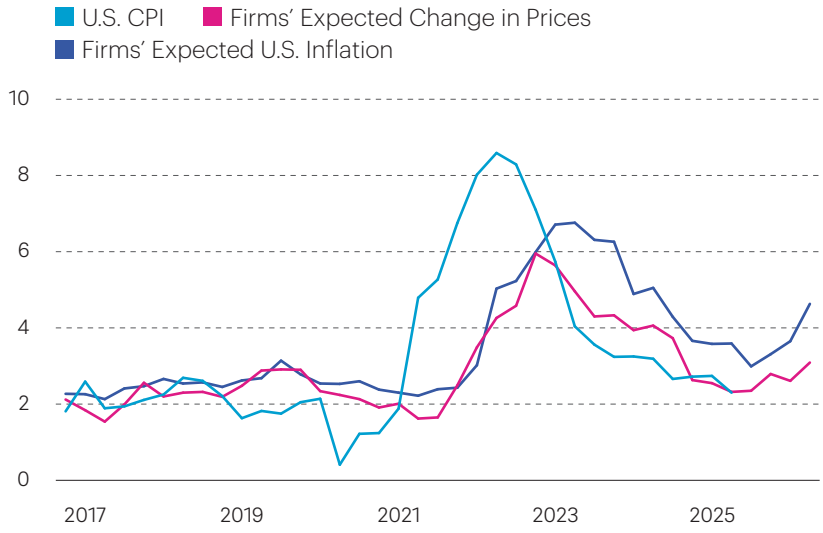
Data Sources: U.S. Bureau of Labor Statistics and Federal Reserve Bank of Philadelphia

Note: PIES data are the 10-percent trimmed mean of responses provided by firms. The CPI is published monthly by the BLS, but we have averaged the published series to a quarterly frequency for direct comparison with PIES.

FIGURE 2

Firms' Expectations Lagged Realized Inflation Prior to the Turning Point

Quarterly U.S. CPI; mean percentage of firms' expected change in own prices and U.S. inflation over the next four quarters; 4q2016–2q2026



Data Sources: U.S. Bureau of Labor Statistics and Federal Reserve Bank of Philadelphia

Note: PIES data are the 10-percent trimmed mean of responses provided by firms. PIES data are plotted four quarters ahead to reflect the period for which they are forecast. The CPI is published monthly by the BLS, but we have averaged the published series to a quarterly frequency for direct comparison with PIES.

FIGURE 3A

In Mid-2020, Firms Did Not Anticipate Price Shocks

Mean percentages of firms' expected change in own prices over the next four quarters and reported change in own prices over the previous four quarters

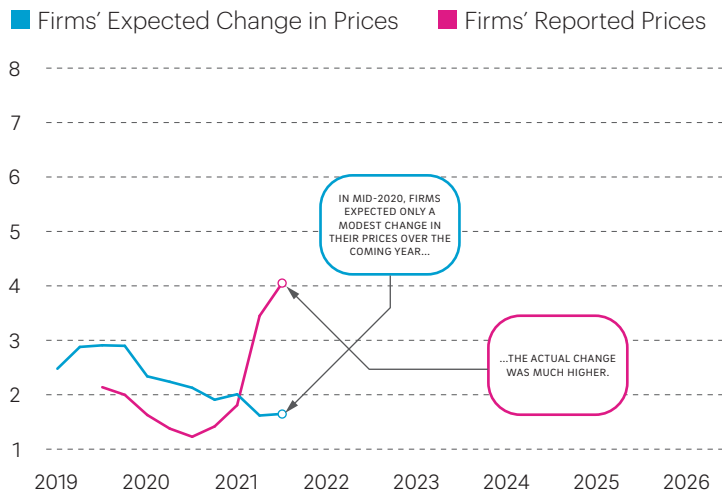


FIGURE 3B

By the Start of 2021, Firms Were Anticipating Larger Price Increases

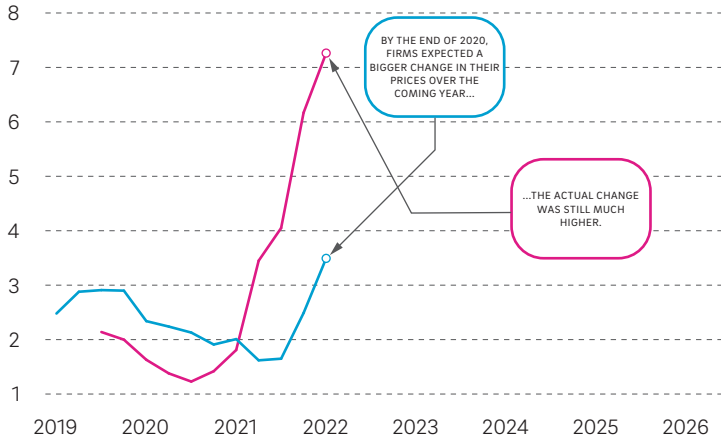


FIGURE 3C

Going into 2022, Firms Anticipated Smaller Price Hikes

Mean percentages of firms' expected change in own prices over the next four quarters and reported change in own prices over the previous four quarters

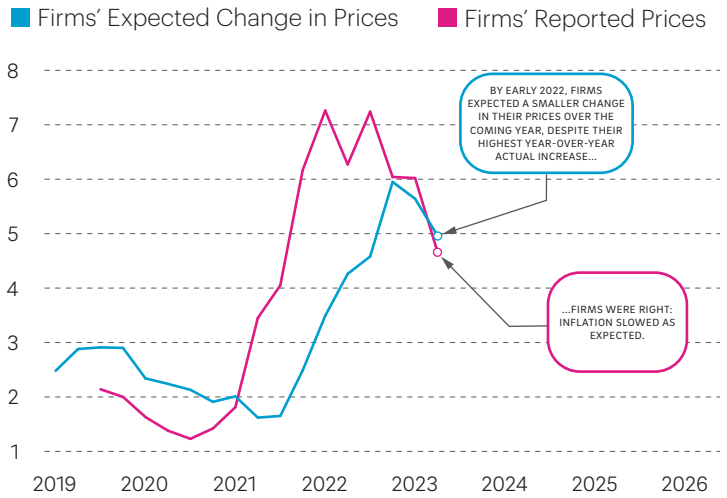
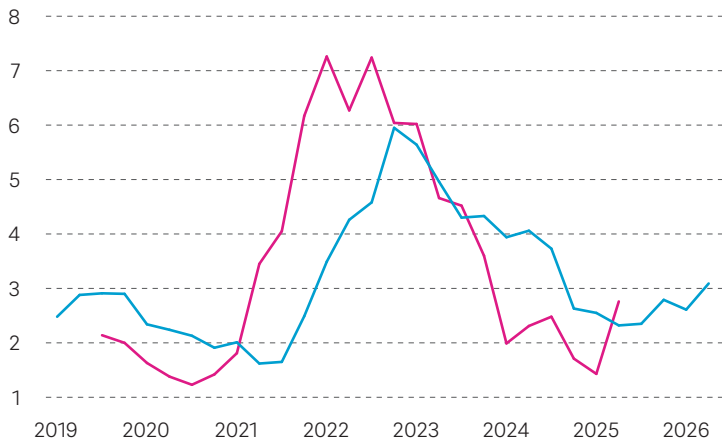


FIGURE 3D

However, Firms Mostly Overestimated Price Increases Until 2025



Data Source: Federal Reserve Bank of Philadelphia

Note: PIES data are the 10-percent trimmed mean of responses provided by firms. Firms' expected change in prices are plotted four quarters ahead to reflect the period for which they are forecast.

ing the pandemic, now is an opportune moment to take stock of how well PIES tracks and forecasts U.S. inflation. For all comparisons we use the Bureau of Labor Statistics' (BLS) headline Consumer Price Index (CPI) as our benchmark for realized U.S. inflation.[4]

Before comparing PIES' forecasts with the CPI, we compared the CPI with the average reported percentage change in firms' own prices over the previous four quarters. Although this retrospective question was added only in mid-2019, it allows for meaningful comparison through the volatile inflationary environment of 2021 to 2024.

We find that reported changes in firms' own prices closely mirrored the CPI throughout the inflationary period but peaked slightly lower than the CPI in 2022 (Figure 1). This alignment suggests that firms' reported price changes in PIES accurately reflect broader inflation dynamics, which lends credibility to responding firms' forecasts.

PIES' Future Prices Compared with Realized Inflation

Although individual firms and the aggregate U.S. economy experience similar changes in price growth, it is difficult to accurately predict *future* changes for either individual firms or the aggregate economy. This is especially true in times of economic and geopolitical uncertainty that lead to significant price instability.

Before the pandemic, firms' predictions of their own future price growth and future U.S. inflation generally tracked the realized CPI (Figure 2). The unprecedented nature of the pandemic and ensuing supply chain disruptions made forecasting future prices extremely difficult.

By mid-2020, many firms were experiencing weak overall price growth and did not anticipate the price shocks that lay ahead (Figure 3a). Having cut capacity earlier in the pandemic, firms may have been reluctant to ramp up production to meet surging demand. As a result, they continued to expect weaker price growth through mid-2021 even as the realized CPI and their own prices were accelerating due to revived demand and global supply bottlenecks.

By the end of 2020, firms expected higher prices, although their forecasts remained below the realized inflation rate (Figure 3b). Although firms anticipated continued price increases through 2022, their expectations were still lower than realized outcomes, due in part to their inability to predict further disruptions caused by events such as Russia's invasion of Ukraine.

Despite this, firms accurately anticipated the inflation cycle's turning point. Although they were reporting their highest year-over-year price increases in the fourth quarter of 2021, firms had begun to predict smaller price hikes for their own goods and services in the year ahead (Figure 3c). This roughly lined up with the start of disinflation. From the fourth quarter of 2022 through 2023, firms accurately forecasted lower price growth for their own goods and services. Although firms did not predict the steepness of actual disinflation, their forecasts were directionally correct (Figure 3d).

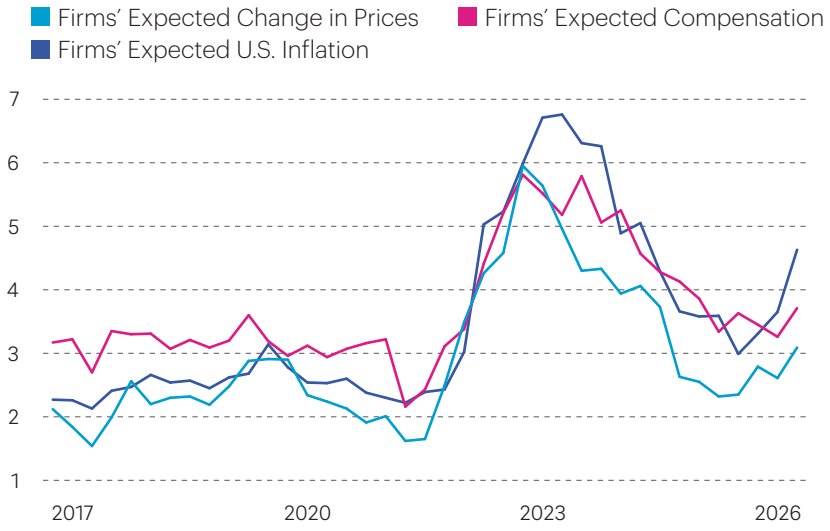
Notably, firms' forecast of U.S. inflation consistently exceeded their expectations for the growth of their own prices, even as inflationary pressures eased from 2023 through 2025. Although many firms anticipated or experienced easing inflationary pressures from supply costs, they continued to expect wage inflation to outpace their own price increases, driving expectations of overall U.S. inflation higher (Figure 4). This persistent gap between expected and realized inflation may also reflect the influence of prolonged exposure to news coverage that highlighted higher prices.[5] More recently, firms' expectations of changes in both their own prices and overall inflation have risen sharply for 2026 in response to new tariffs and potential shifts in trade policy.

In short, although PIES may not be a perfect indicator of the future level of inflation during and after an unprecedented crisis, it is still a valuable signal for turning points in inflation.

FIGURE 4

Firms' Expectations for U.S. Inflation and Changes in Compensation Remain Higher than Expected Changes in Own Prices

Mean percentages of firms' expected change in own prices, expected U.S. inflation, and expected change in compensation, 4q2016–2q2026



Data Source: Federal Reserve Bank of Philadelphia

Note: PIES data are the 10-percent trimmed mean of responses provided by firms. Data are plotted four quarters ahead to reflect the period for which they are forecast

PIES Compared with Other Inflation Expectations Surveys

PIES is not the only survey that captures the public's inflation expectations. Many surveys now track inflation expectations across different population segments. Comparing PIES with these surveys helps us understand how firms view inflation relative to households and experts.

For example, the Philadelphia Fed's Survey of Professional Forecasters (SPF) gathers the inflation expectations of professional forecasters. Both the University of Michigan's Surveys of Consumers and the New York Fed's Survey of Consumer Expectations (SCE) gather the inflation expectations of households. And the Atlanta Fed's Business Inflation Expectations survey (BIE) and the Cleveland Fed's Survey of Firms' Inflation Expectations (SoFIE) provide alternative measures of U.S. firms' inflation forecasts.

Although PIES has fewer than 10 years of data at the time of this publication, a preliminary comparison with other surveys is still informative. Using a Diebold-Mariano regression, we evaluated the accuracy of inflation expectations for PIES and each of the surveys mentioned above against the actual CPI inflation rate.[6]

Results suggest that the University of Michigan's Surveys of Consumers performed best, followed by PIES and the SCE (Figure 5). The well-anchored professional forecasters in the SPF were least accurate when inflation

FIGURE 5

Regression Results Suggest That the University of Michigan's Surveys of Consumers Performed Best, Followed by PIES and the SCE

Results from Diebold–Mariano regression used to evaluate the accuracy of inflation expectations for PIES and other inflation expectations surveys against the actual CPI inflation rate

> Indicates more accurate >> Indicates significantly more accurate

Survey	UMich	PIES	SCE	BIE	SoFIE	SPF
UMich		>	>	>	>>	>
PIES			>	>	>>	>
SCE				>	>	>
BIE					>	>
SPF						>
SoFIE						

Data Sources: Federal Reserve Bank of Philadelphia, Federal Reserve Bank of New York, Federal Reserve Bank of Atlanta, Federal Reserve Bank of Cleveland, University of Michigan

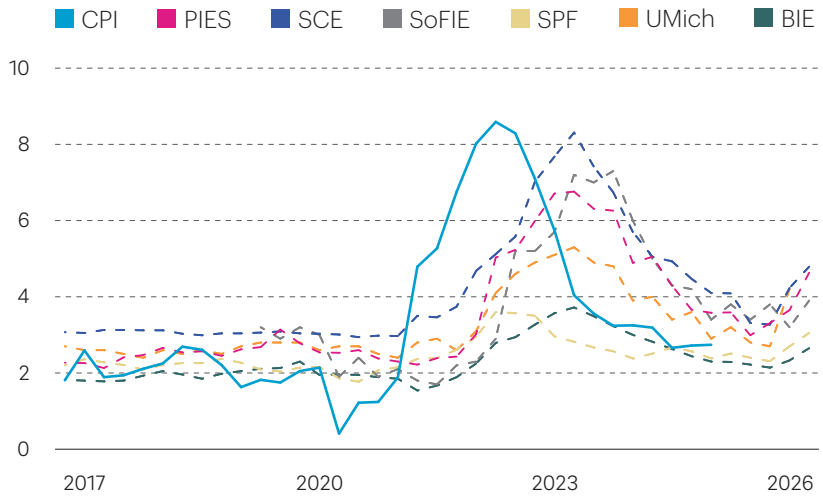
Note: PIES and SoFIE are means of responses; BIE, SCE, SPF, and UMich are median responses. The Diebold-Mariano (DM) test is a statistical method used to compare the predictive accuracy of two competing forecasts. Specifically, it tests whether the difference in forecast errors, measured as squared errors, is statistically significant over a given period. A significant result indicates that one forecast consistently outperforms the other in terms of accuracy. In the context of inflation expectations, the DM test helps us evaluate whether one survey provides systematically better predictions of realized inflation (CPI) than another.

FIGURE 6

Results Suggest All Respondent Types Were Slow to Increase Expectations of Inflation Compared with Realized Inflation

Some respondents expected higher inflation than others.

Quarterly U.S. CPI and results from inflation expectations surveys, 2017–2026



Data Sources: U.S. Bureau of Labor Statistics, Federal Reserve Bank of Philadelphia, Federal Reserve Bank of New York, Federal Reserve Bank of Atlanta, Federal Reserve Bank of Cleveland, University of Michigan

Notes: PIES and SoFIE are means of responses; BIE, SCE, SPF, and UMich are median responses. All surveys are plotted to reflect the period for which they are forecast.

surged over much of the analyzed period.

Differences across survey results may reflect the variation in how expectations are formed across respondent groups (Figure 6). Professional forecasters are typically anchored to monetary policy targets and macroeconomic models. Their forecasts for inflation stabilize around 2-3 percent, resting close to the Federal Reserve's 2 percent target.[7] In contrast, households often respond to and overweigh salient price changes in items such as food and gasoline.[8] Households have had consistently higher inflation expectations than professional forecasters since the early 1990s.[9]

Firms, as represented in PIES, appear to synthesize both cost-based pressures and broader economic signals. This produces expectations that are economically informed and responsive, although not necessarily accurate during periods of rapid change.

Conclusion

Measuring and understanding inflation expectations is an important aspect of understanding inflation dynamics overall. Surveys remain one of the most effective ways to gather information about these expectations.

Historically, few surveys focused on capturing the inflation expectations of businesses, a gap that PIES and other newer surveys have tried to fill. By surveying firms that set prices and wages, PIES plays an important role in the broader ecosystem of inflation expectations surveys.

PIES has performed as well as—or better than—most other surveys during the postpandemic inflationary cycle. Uniquely, PIES offers a comprehensive perspective on firms' thinking about inflation, capturing not only expectations for general inflation but also firm-specific projections for prices and compensation.

For policymakers, PIES and other inflation expectations surveys are an important complement to the CPI and model-based forecasts. Firm-level surveys such as PIES offer important insights into demand-side pressures, changing input costs, competitors' pricing behavior, and on-the-ground sentiment. In periods of heightened uncertainty, this information helps policymakers assess whether expectations remain anchored and how inflation risks are perceived across the economy.[10]

PIES Questions

To gather information on firms' price and inflation expectations, firms are asked a standardized core set of five quantitative questions each quarter. One retrospective question asks firms to report the actual percentage change in their own prices over the past year. Two questions address each firm's own inflation expectations for the next year. One of these questions asks for the expected percentage change in the prices the firm will receive for its goods and services. The other question asks for the expected percentage change in the firm's employee compensation (wages and benefits). The remaining two questions address broader inflation expectations. The first of these questions asks for the firm's forecast for the percentage change in U.S. consumer prices over the next year. The other question asks for the firm's forecast over the next 10 years.

In addition to the core set of quantitative questions outlined above, we gather information on the key motivators that play a role in how firms form their expectations.[11] In the second quarter of 2025, we introduced additional questions on the price sensitivity of firms' customers, expectations of industry costs, and expected price-setting behavior of firms' competitors.

Notes

1 See Armenter (2008), Armenter (2018), and Coibion and Gorodnichenko (2025).

2 See Coibion et al. (2018).

3 See Coibion et al. (2020) and Abberger et al. (2025).

4 The CPI is published monthly by the BLS, but we have averaged the published series to a quarterly frequency for direct comparison with PIES and other inflation expectations surveys.

5 See Chahrour et al. (2025).

6 The Diebold–Mariano test is a statistical method used to compare the predictive accuracy of two competing forecasts. See Diebold and Mariano (1995).

7 See Candia et al. (2024) and Coibion and Gorodnichenko (2025).

8 See D'Acunto et al. (2021) and Berge (2018).

9 See Candia et al. (2024).

10 See Coibion and Gorodnichenko (2025).

11 Blinder et al. (1998) provides a framework for asking about firms' price expectations and price-setting behaviors.

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