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Gauging Inflation Expectations with Surveys, Part 3: Do Firms Know What They Don't Know?

In the previous two *macroblog* posts, we introduced you to the [inflation expectations of firms](#) and argued that the question you ask [matters a lot](#). In this week's final post, we examine another important dimension of our data: inflation uncertainty, a topic of some deliberation at the last Federal Open Market Committee meeting (according to the [recently released minutes](#)).

Survey data typically measure only the inflation expectation of a respondent, not the certainty surrounding that prediction. As a result, survey-based measures often use the disagreement among respondents as a proxy for uncertainty, but as Rob Rich, Joe Tracy, and Matt Ploenzke at the New York Fed caution in [this recent blog post](#), you probably shouldn't do this.

Because we derive business inflation expectations from the probabilities that each firm assigns to various unit cost outcomes, we can measure the inflation uncertainty of a respondent directly. And that allows us to investigate whether uncertainty plays a role in the accuracy of firm inflation predictions. We wanted to know: Do firms know what they don't know?

The following table, adapted from our recent [working paper](#), reports the accuracy of a business inflation forecast relative to the firm's inflation uncertainty at the time the forecast was made. We first compare the prediction accuracy of firms who have a larger-than-average degree of prediction uncertainty against those with less-than-average uncertainty. We also compare the most uncertain firms with the least uncertain firms.

Uncertainty and Forecast Accuracy (Oct. 2011 - Dec. 2014)
By degree of uncertainty about future unit costs

	Forecast error	Squared error	Root-mean squared error (RMSE)	Number of responses
Overall	0.12	2.33	1.53	3248
Uncertainty less than average	0.07	2.06	1.44	1868
Uncertainty greater than average	0.19	2.70	1.64	1380
Least uncertain firms (25th percentile)	0.01	1.96	1.40	939
Most uncertain firms (75th percentile)	0.23	3.17	1.78	799

Notes: Forecast accuracy statistics calculated using mean and (variance about the mean) of firm's probabilistic unit cost forecast relative to their perceived unit cost growth (one year ahead). The average variance of firm's probability distribution was 2.33. The "least uncertain" firms have a variance lower than the 25th percentile (less than 1.0). The "most uncertain" firms have a variance equal to or above the 75th percentile (equal to or greater than 3.3). Equality of prediction tests (difference in squared forecasting errors) between groups with higher and lower variance (either above/below the average or in the tails) indicate that the mean squared forecast error in each group is statistically different from each other at the 1 percent level. Source: Firm inflation expectations are from the Atlanta Fed's Business Inflation Expectations Survey (October 2011 –December 2014) and authors' calculations

[\(enlarge\)](#)

On average, firms provide relatively accurate, unbiased assessments of their future unit cost changes. But the results also clearly support the conclusion that more uncertain respondents tend to be significantly less accurate inflation forecasters.

Maybe this result doesn't strike you as mind-blowing. Wouldn't you expect firms with the greatest inflation uncertainty to make the least accurate inflation predictions? We would, too. But isn't it refreshing to know that business decision-makers know when they are making decisions under uncertainty? And we also think that monitoring how certain respondents are about their inflation expectation, in addition to whether the average expectation for the group has changed, should prove useful when evaluating how well inflation expectations are anchored. If you think so too, you can monitor both on our website's [Inflation Project](#) page.



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