Federal Reserve Bank of Dallas

Has Inflation Surprised to the Downside?

November 15, 2017

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We forecast inflation by splitting it into three parts

- A noise component, which can't be predicted
- A trend, captured by the longer-run expectations of professional forecasters
- Other influences, including—but not limited to—labor-market slack and changes in slack

inflation forecast = noise forecast + trend forecast + "other" forecast

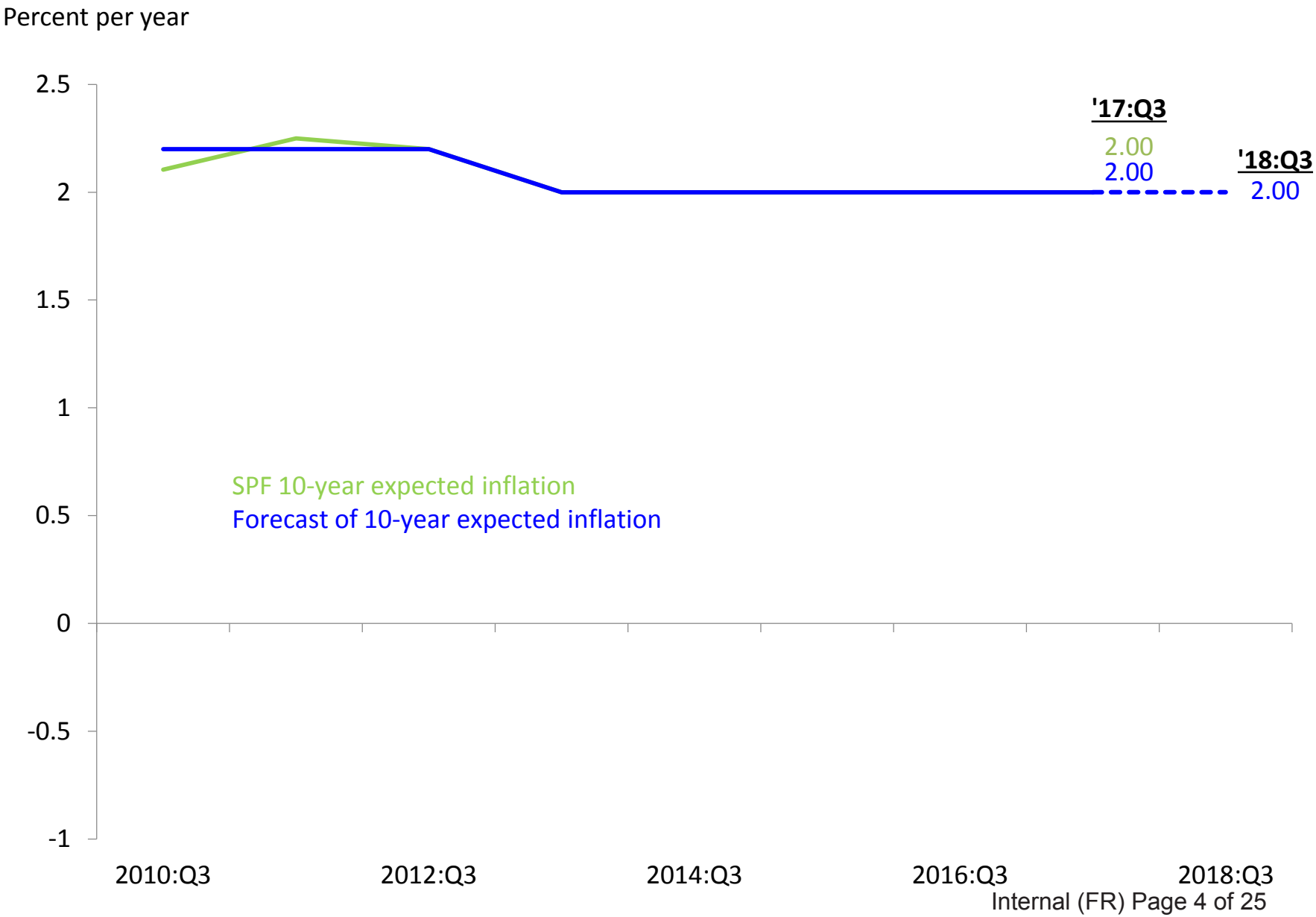
= 0 + trimmed-mean forecast

Deconstructing trimmed-mean inflation forecasts

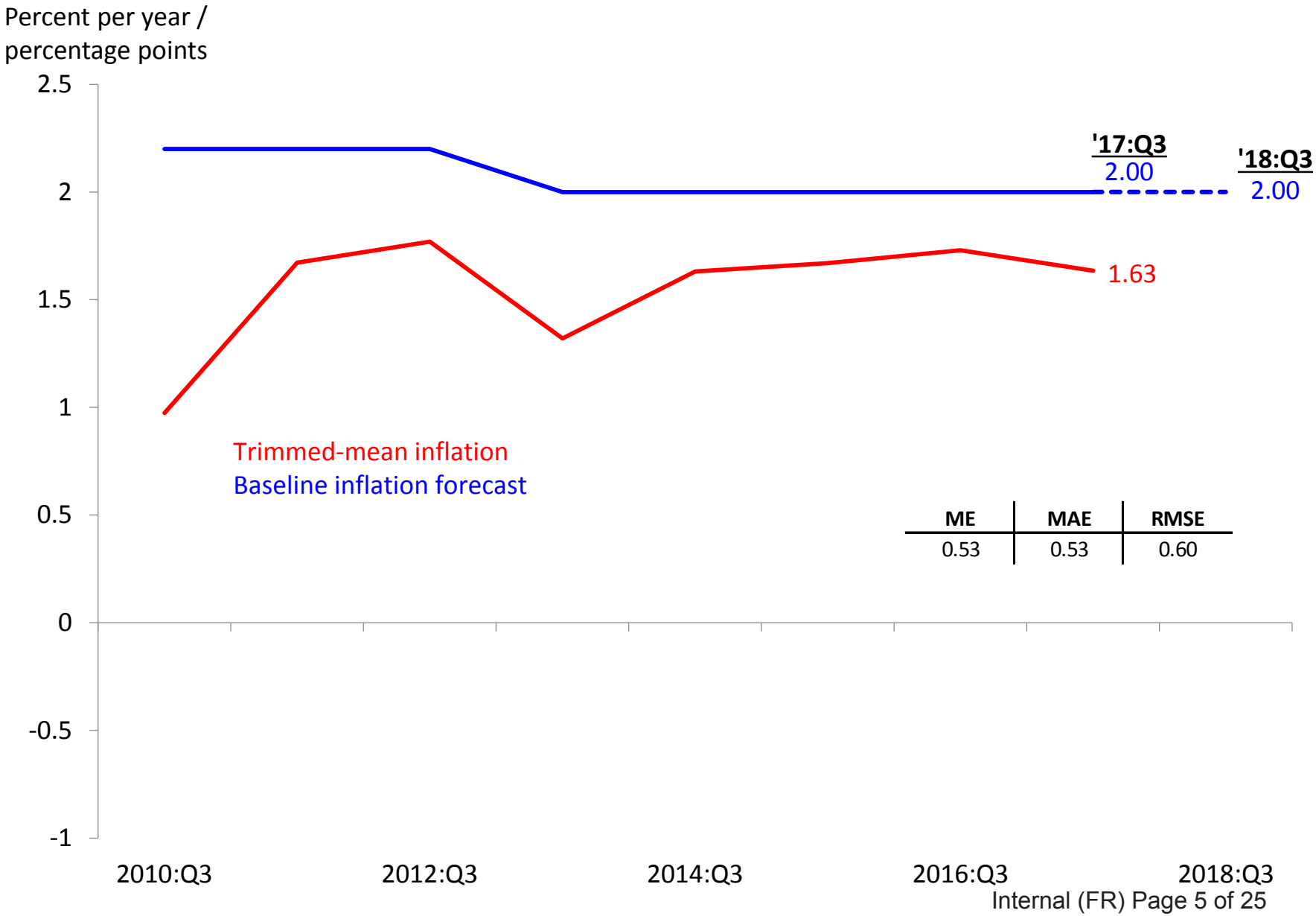
The charts that follow show how much various factors have affected our inflation forecasts over the past 8 years.

- The forecasts are “real time”: They rely only on data that would have been available to an analyst at the time. The model itself was developed in 2011.
- Each forecast extends 4 quarters into the future.
- Forecasts displayed are from the third quarter of each year—Q3 to Q3—but results obtained in other quarters are similar.

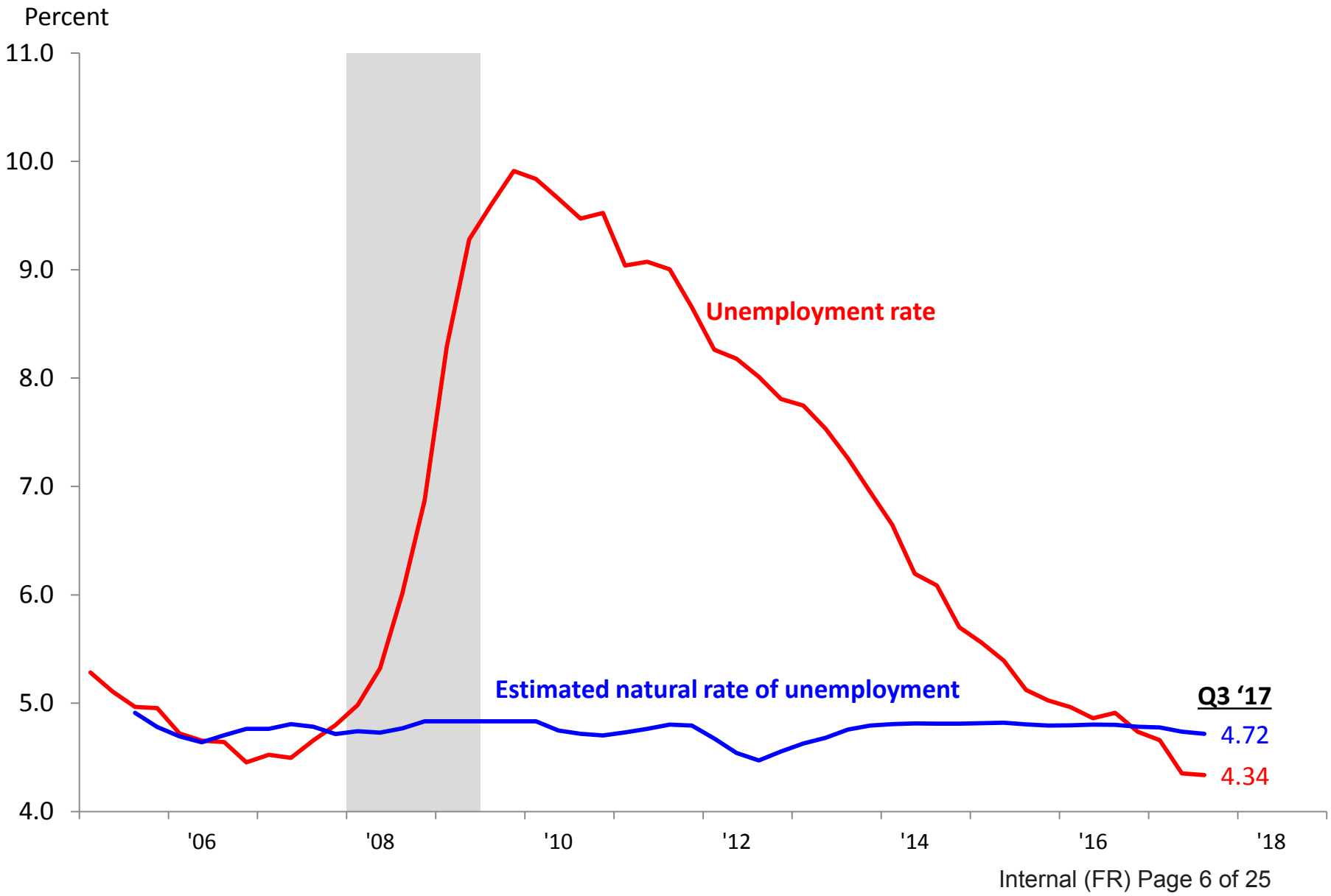
Our forecast of trend inflation has been 2.0 percent since 2013



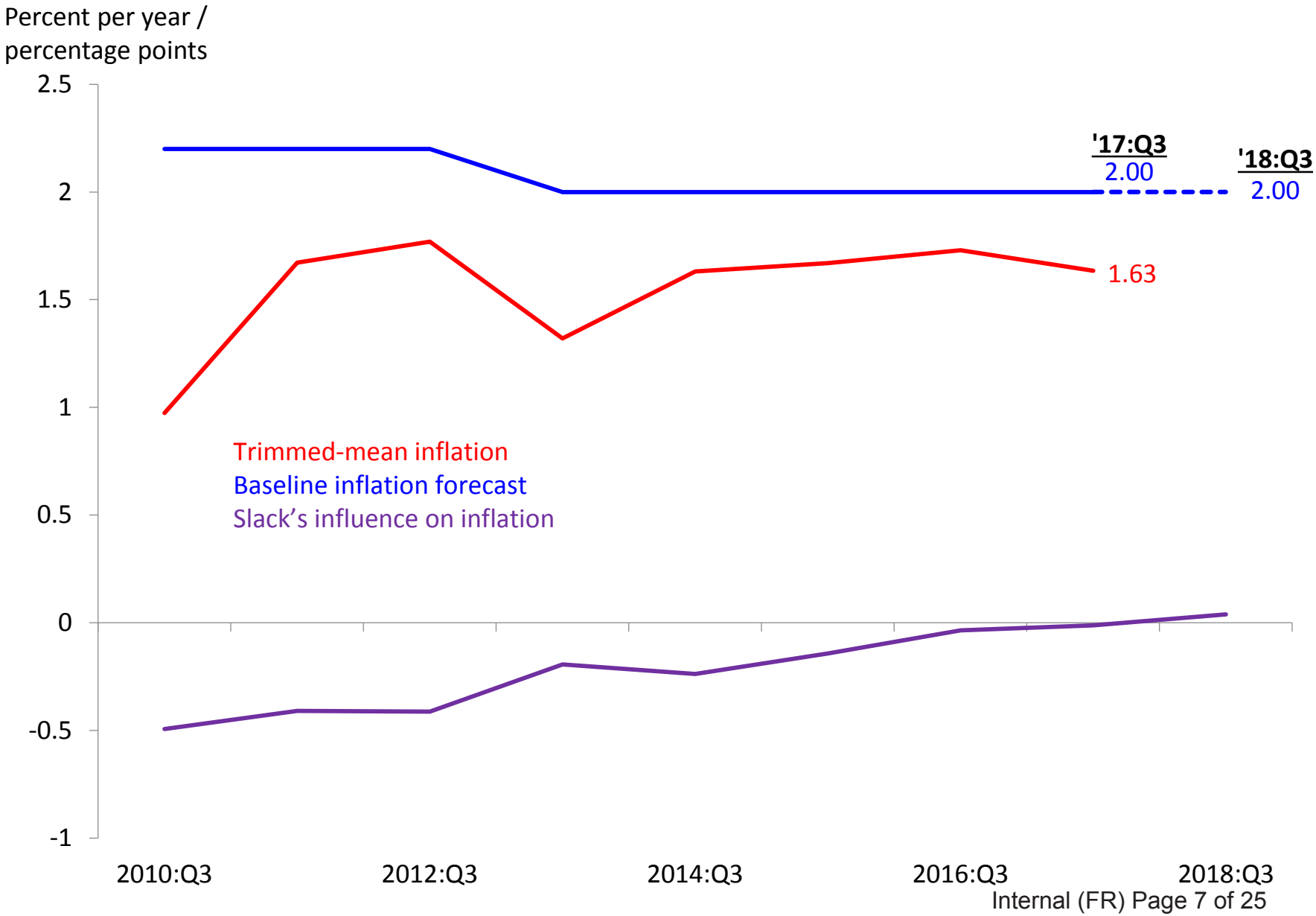
We use this estimate of inflation's longer-run trend as a baseline inflation forecast



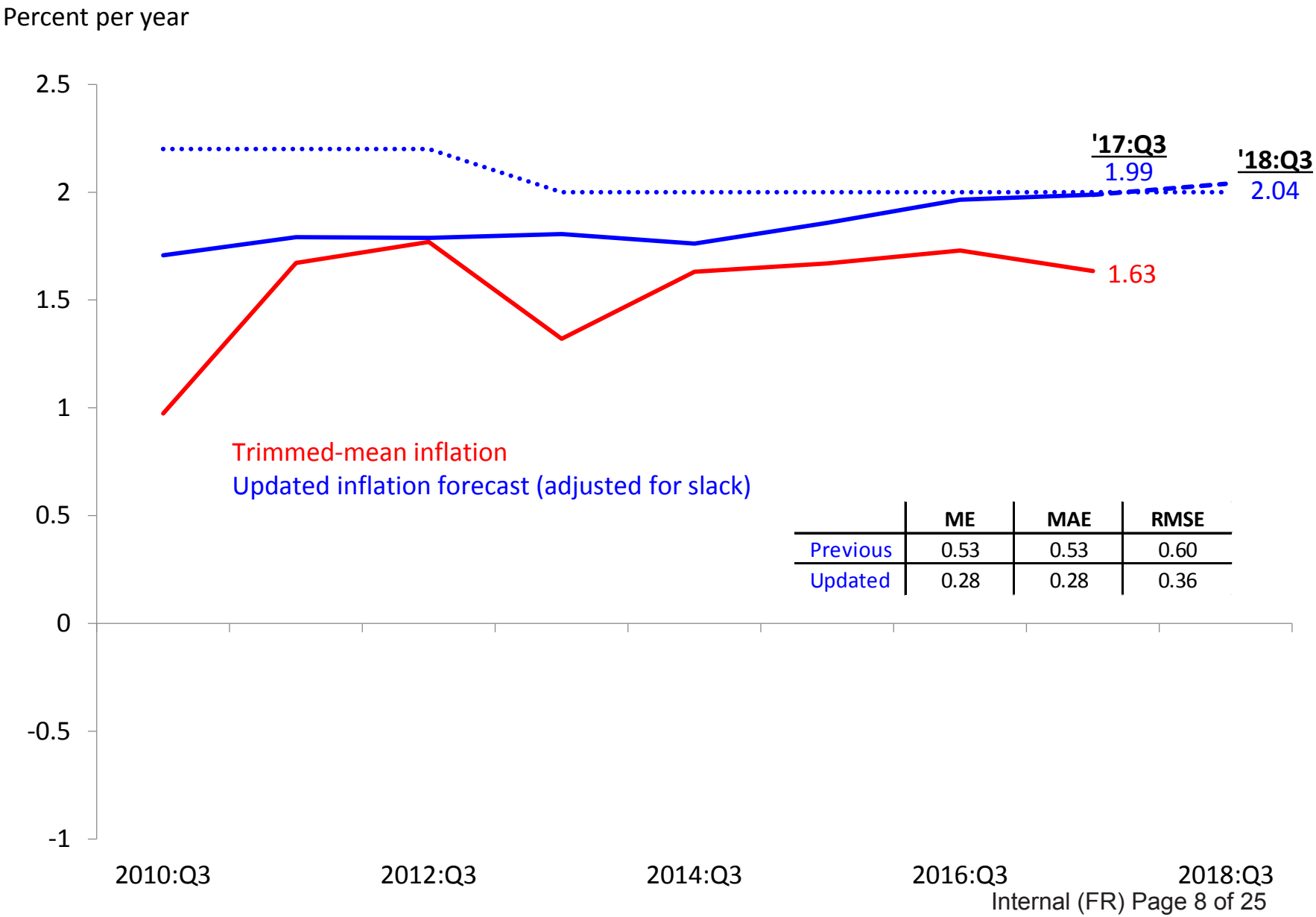
Besides long-run expectations, however, inflation is influenced by labor-market slack



Until very recently, labor-market slack has been a drag on forecasted inflation

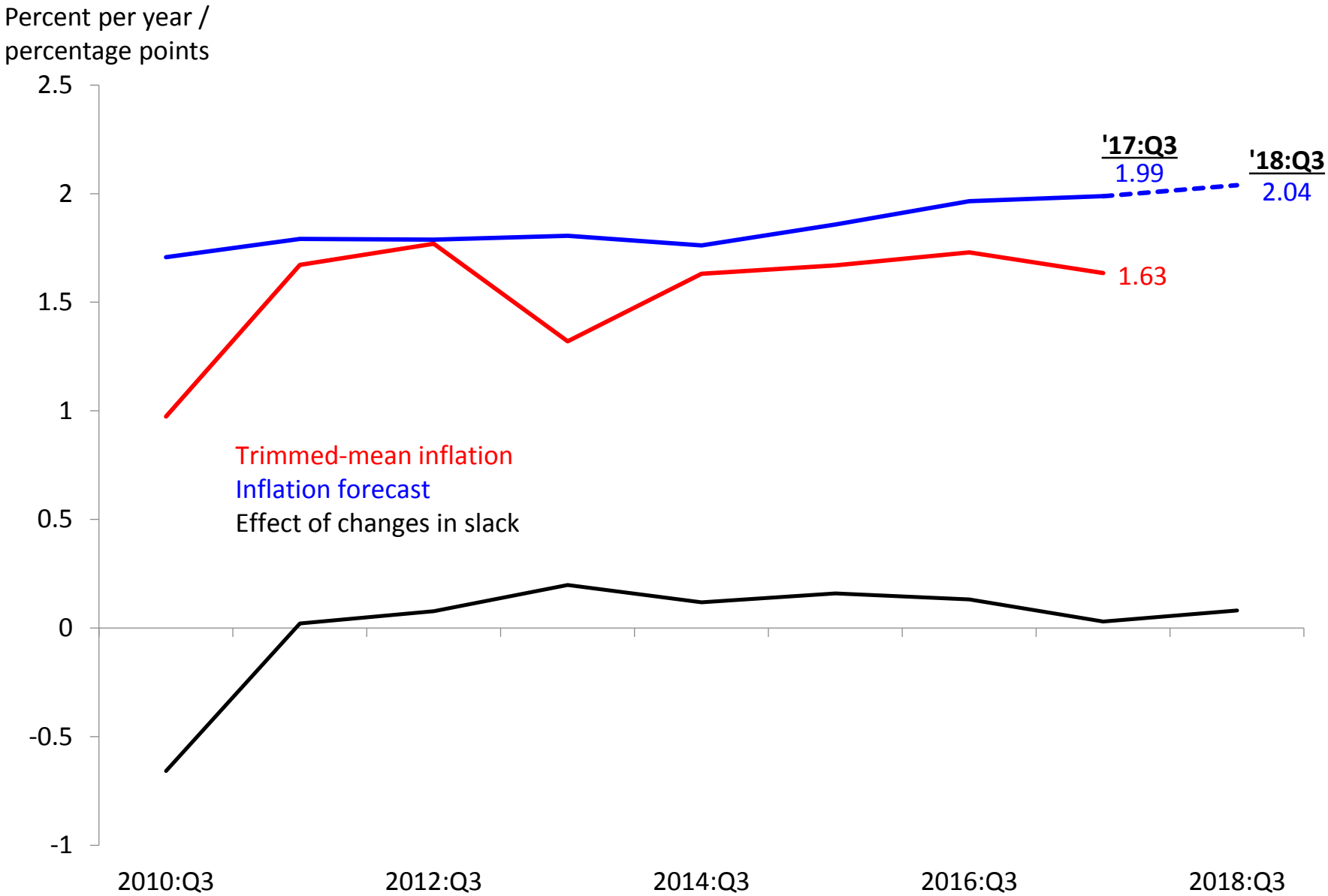


Accounting for slack shifts the inflation forecast downward, better matching actual inflation

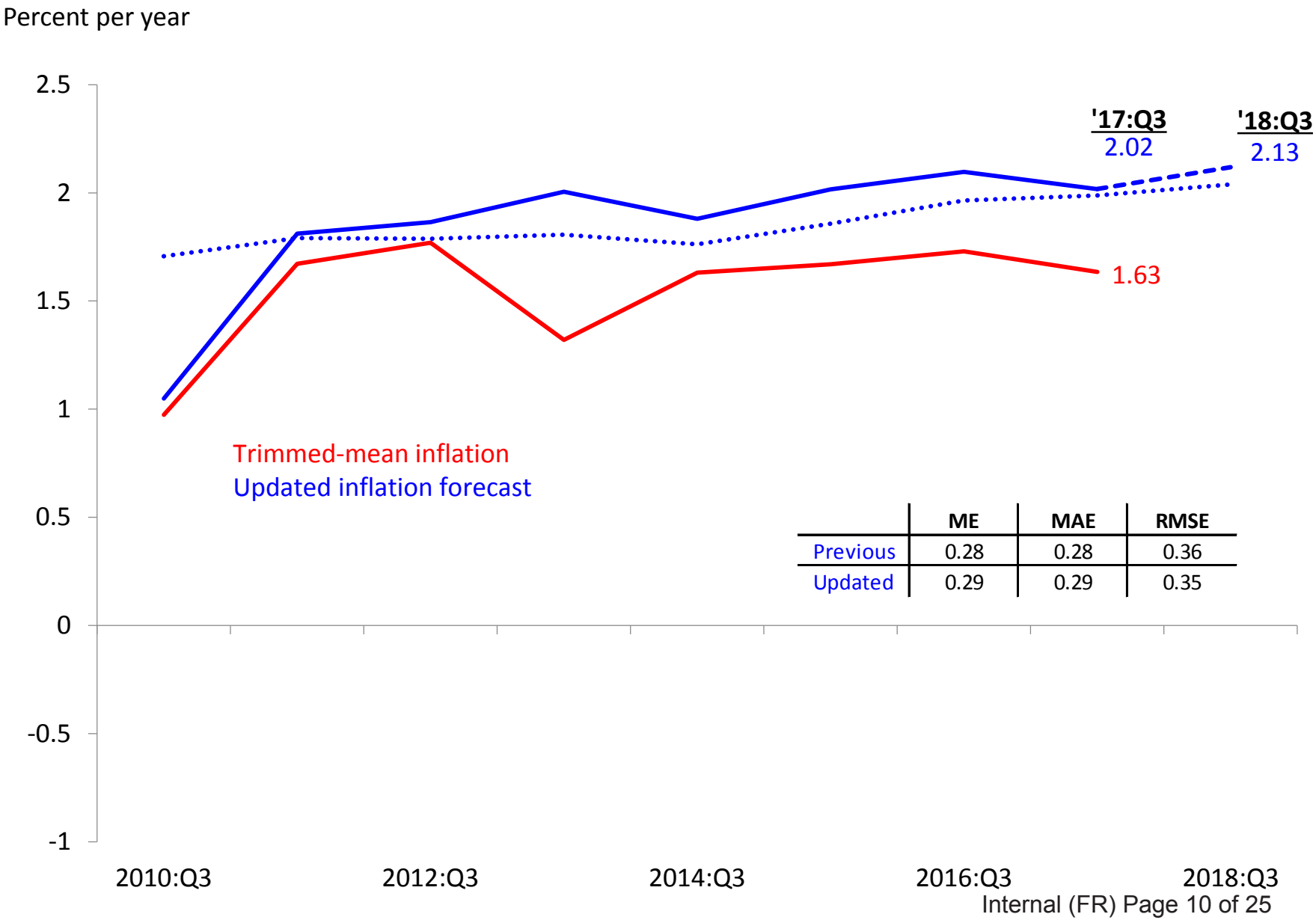


	ME	MAE	RMSE
Previous	0.53	0.53	0.60
Updated	0.28	0.28	0.36

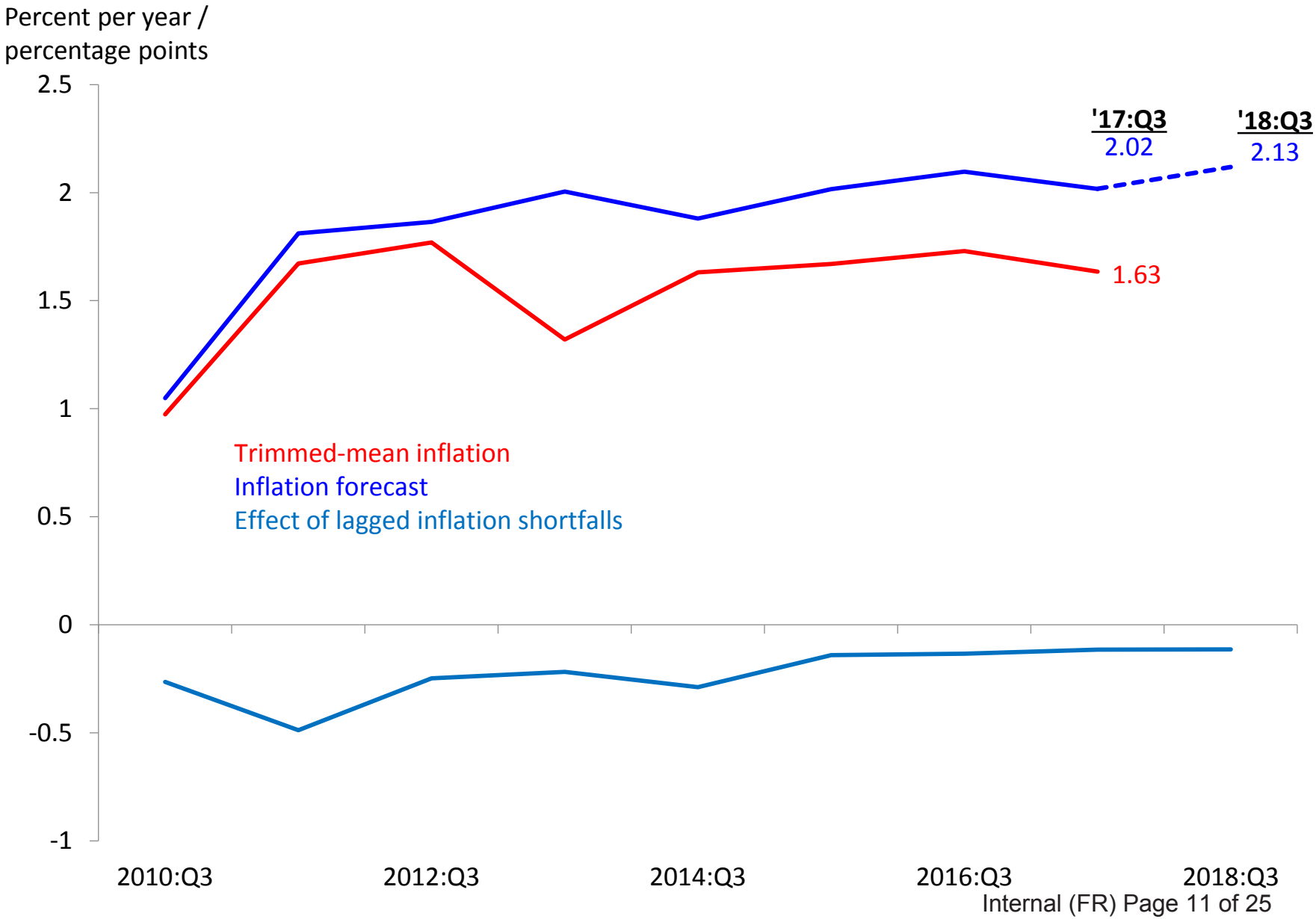
Changes in slack also seem to matter for inflation: Falling unemployment boosts forecasted inflation



Accounting for changes in slack improves early forecast performance, but harms late performance

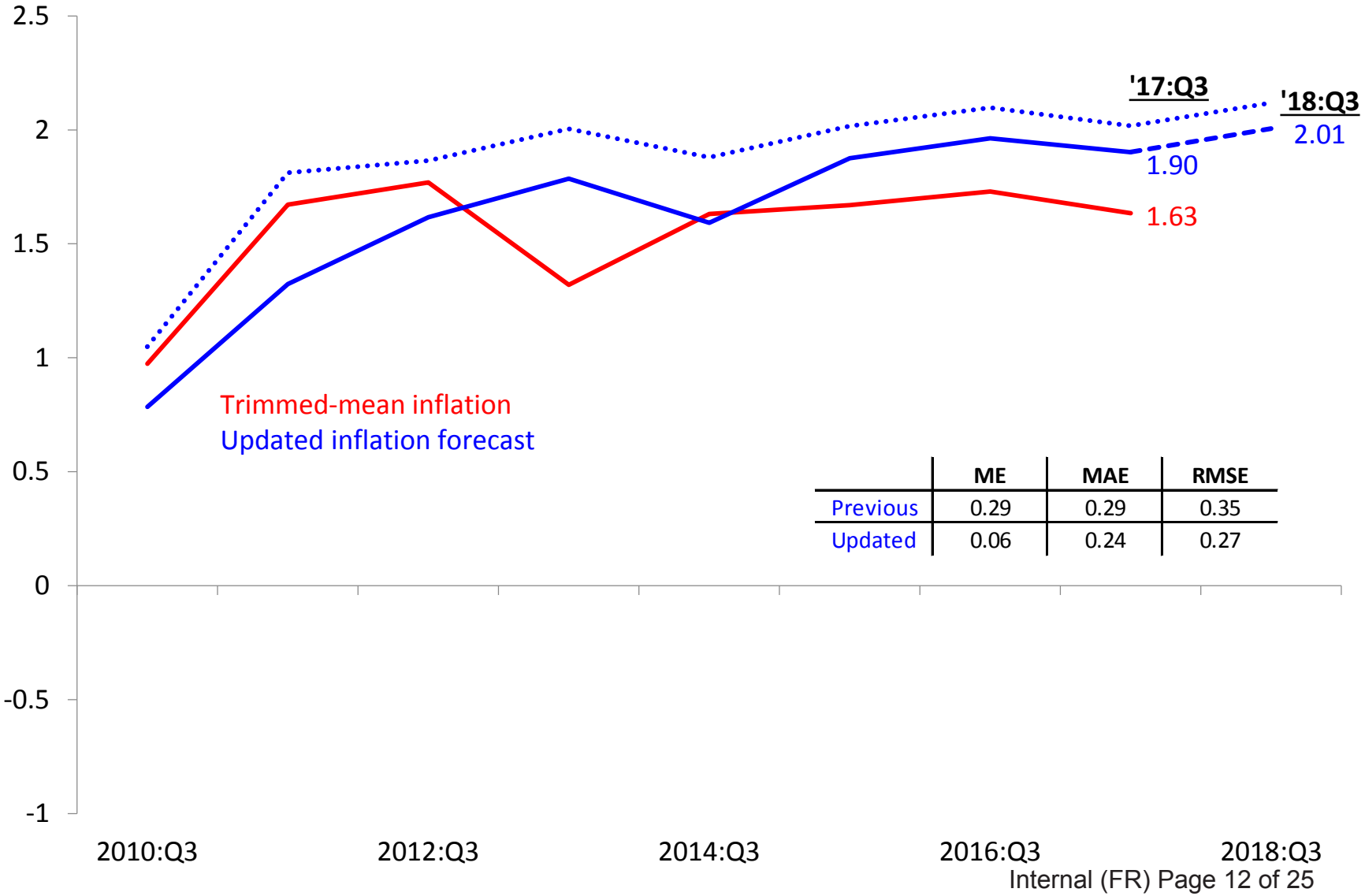


Inertia: If inflation has been running below trend, it tends to continue running below trend



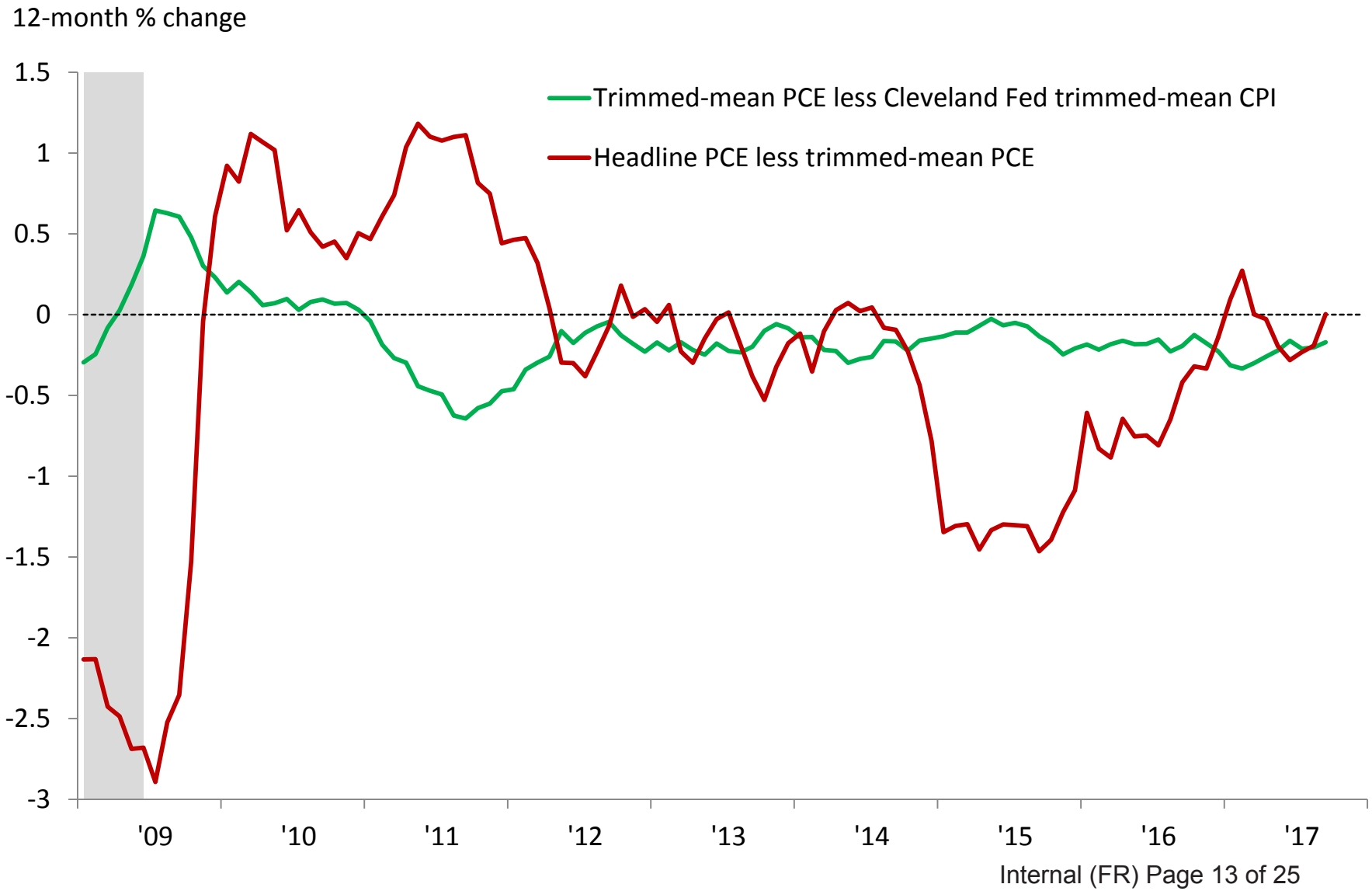
Taking inertia into account lowers inflation forecasts over the entire course of the expansion

Percent per year

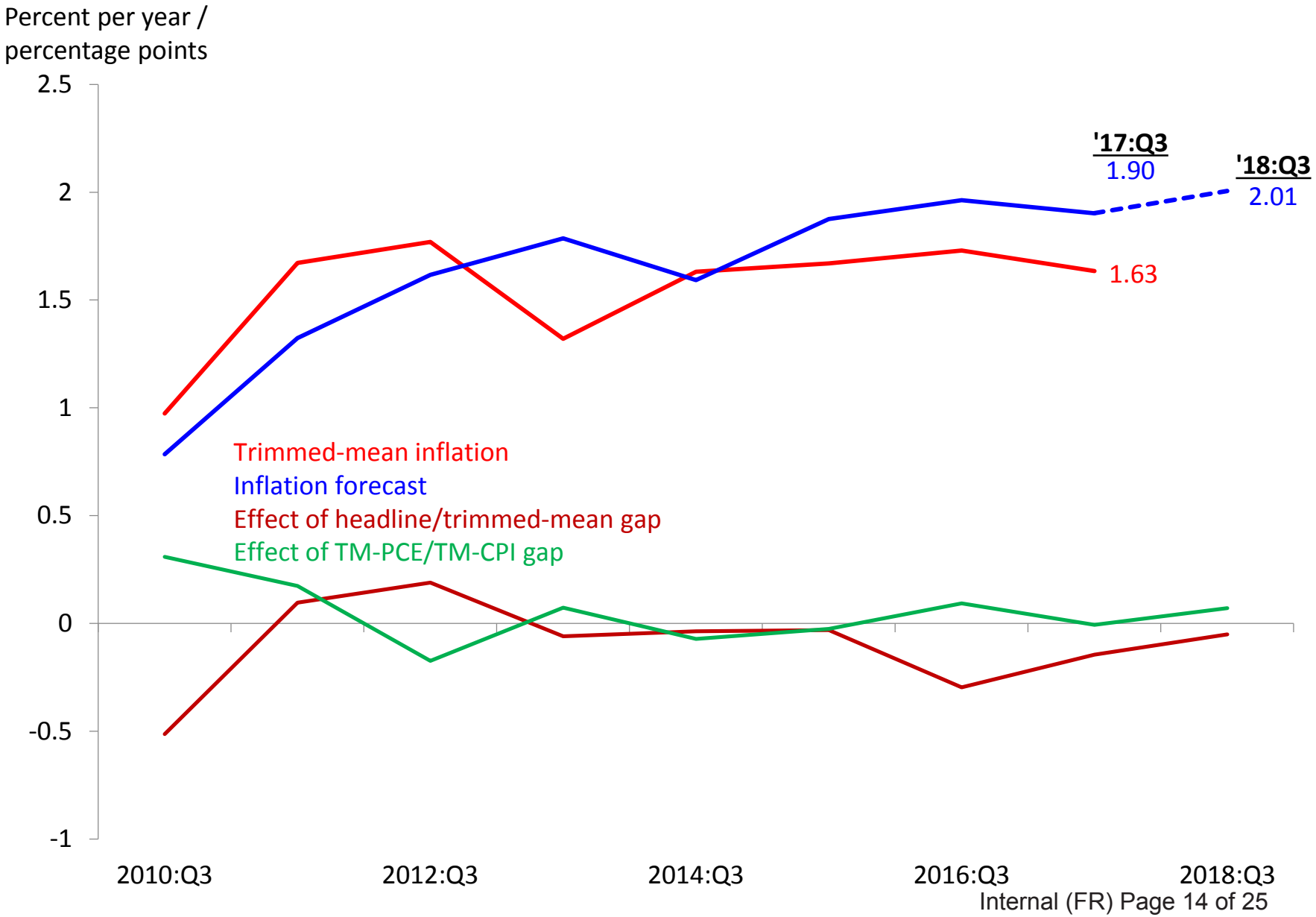


	ME	MAE	RMSE
Previous	0.29	0.29	0.35
Updated	0.06	0.24	0.27

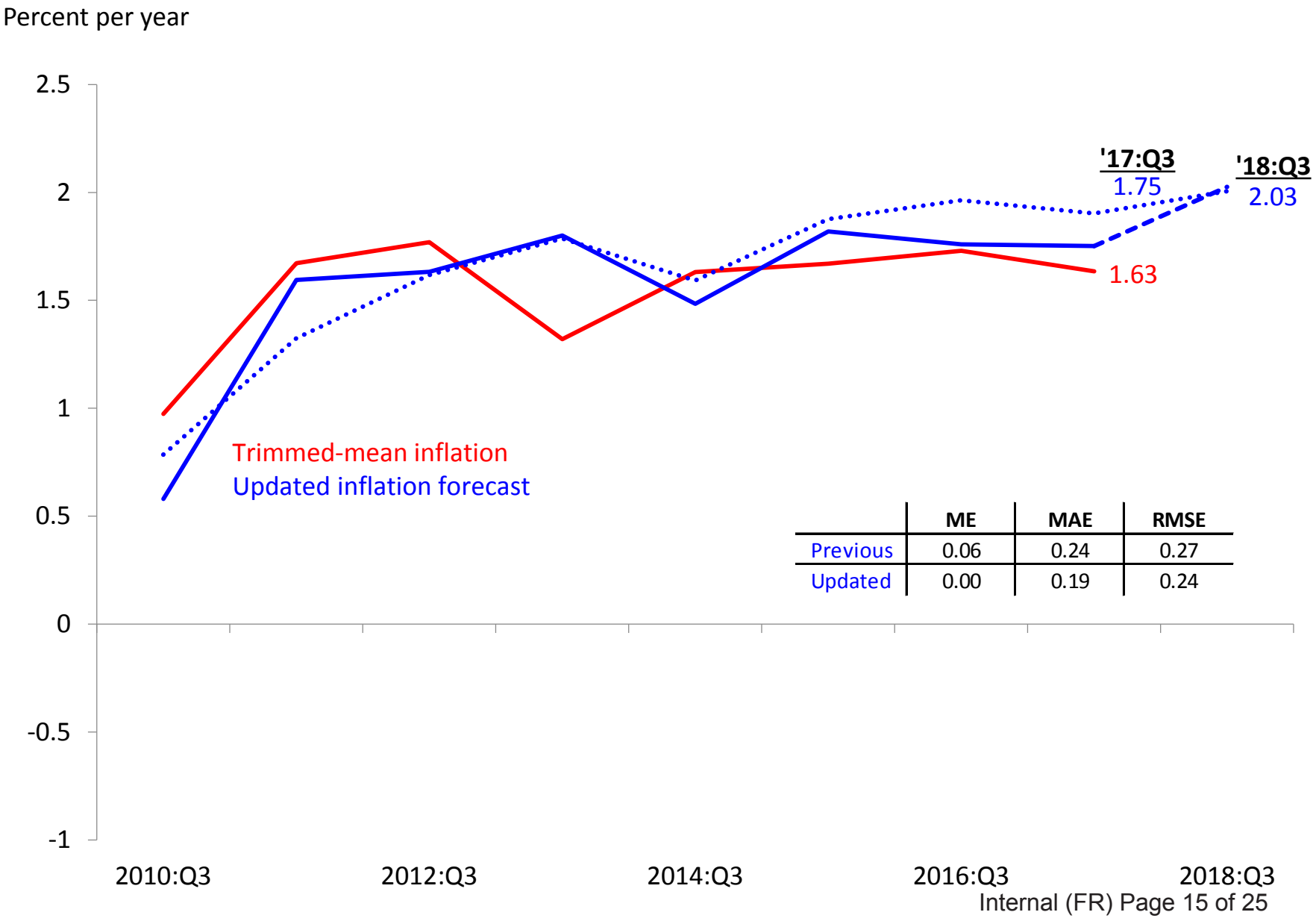
Gaps between headline & TM PCE inflation and between TM PCE & TM CPI inflation both help, too



The two gaps often have opposing effects on forecasted inflation, but they don't cancel out



Taking these influences into account, the model has predicted trimmed-mean inflation quite well



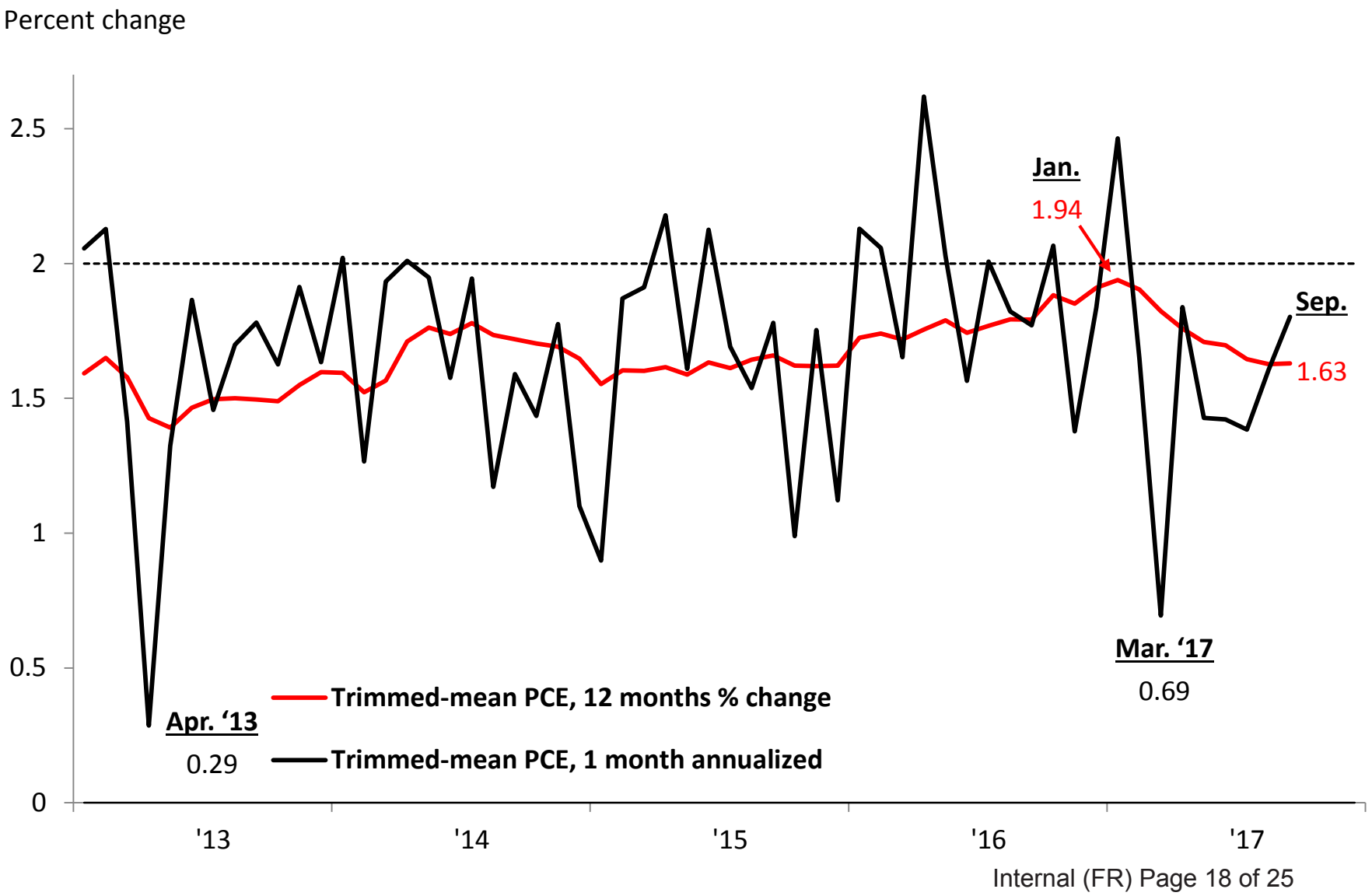
	ME	MAE	RMSE
Previous	0.06	0.24	0.27
Updated	0.00	0.19	0.24

Summary

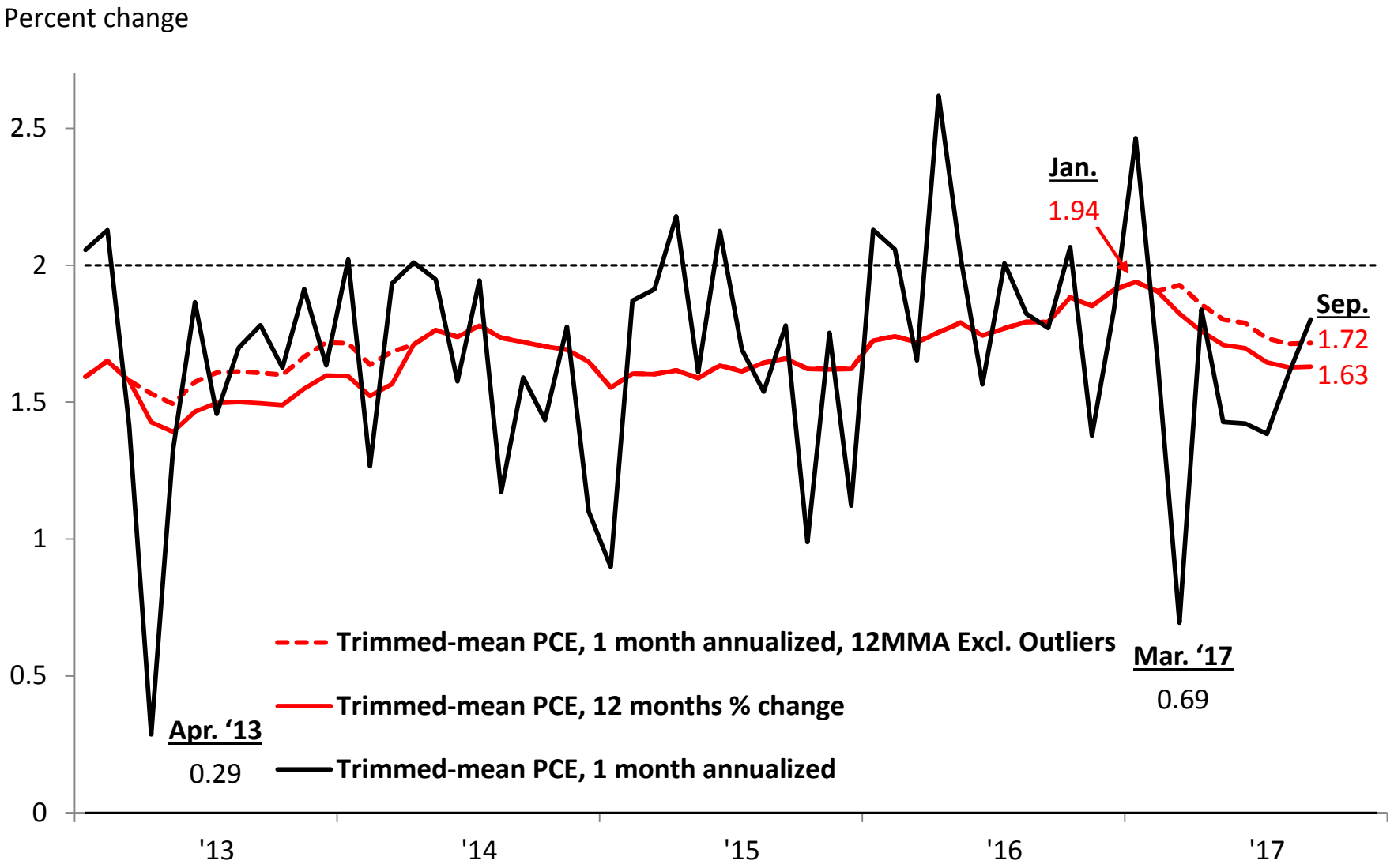
- Labor-market slack is just one of several factors influencing inflation
- When factors other than slack are taken into account, inflation's recent weakness is considerably less mysterious
- The most-likely scenario has inflation reaching 2.0 percent by the middle of 2018, as the lagged effects of 2015-16 declines in energy prices and a rising dollar finally dissipate

Appendix: Inflation Outliers

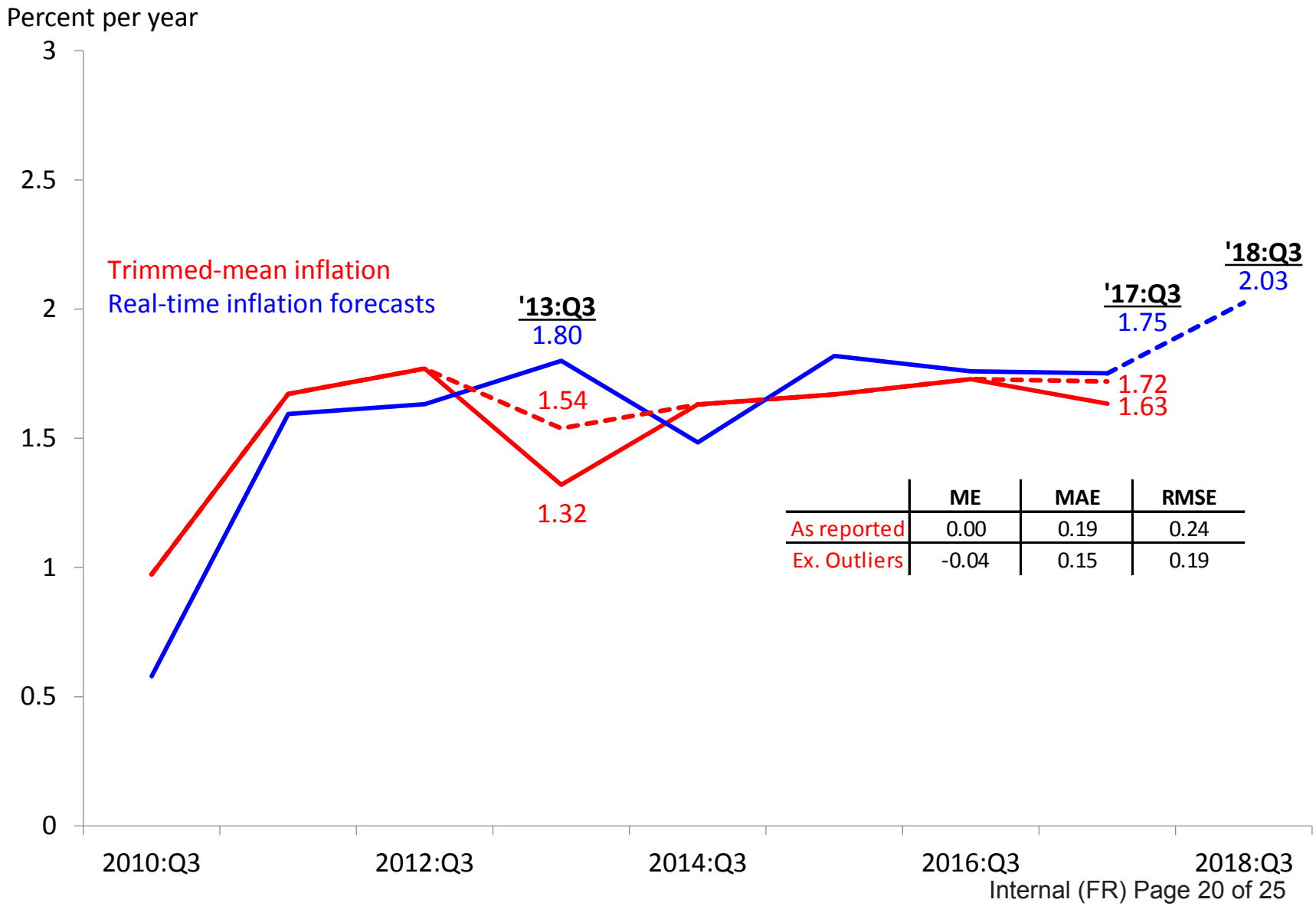
The decline in trimmed-mean inflation is partly attributable to one-off weakness in March



But even excluding March, trimmed-mean inflation has fallen nearly 20 b.p. since the end of 2016



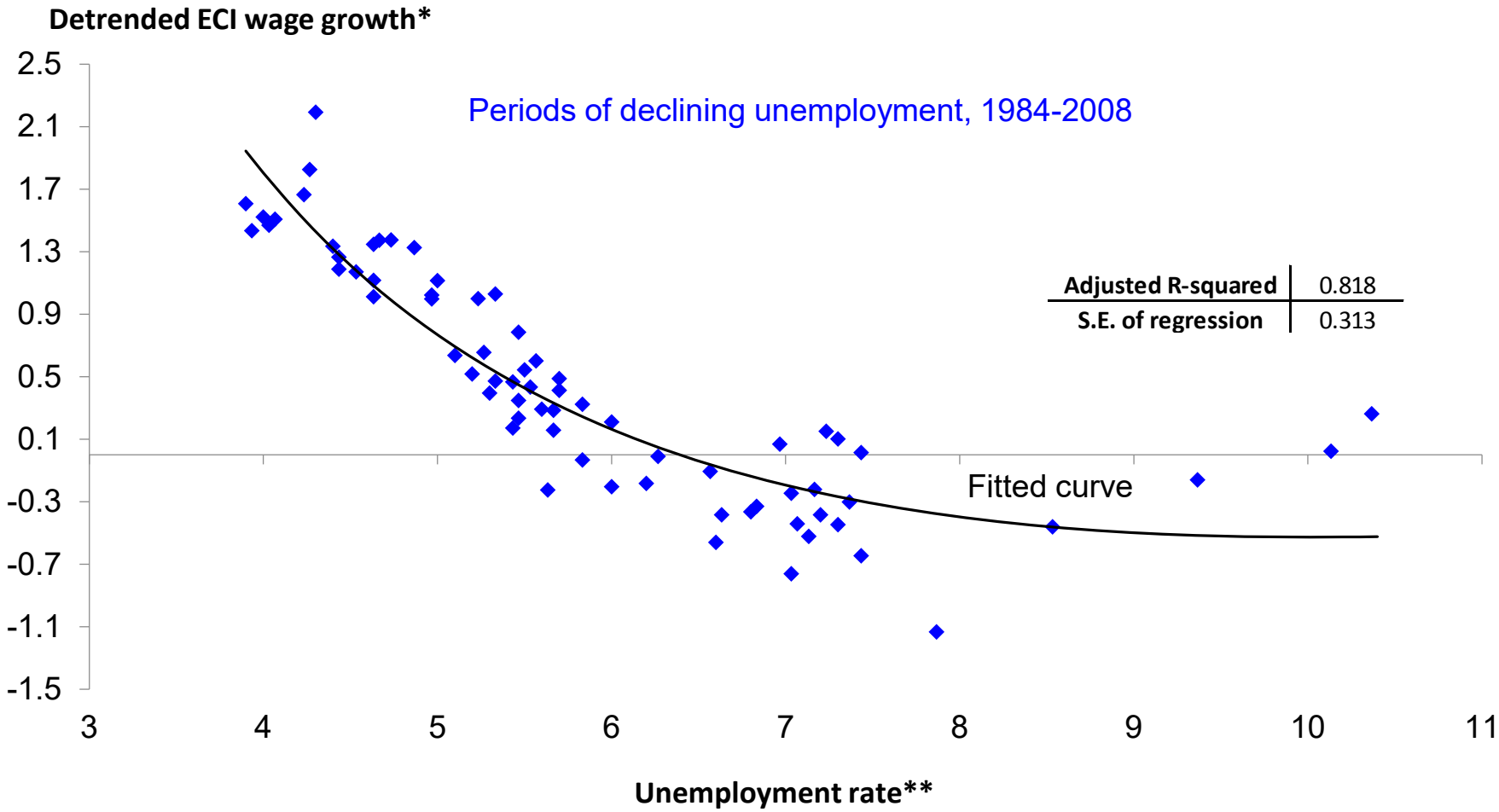
Our real-time inflation forecasts look even better when outlier effects are stripped from the data



	ME	MAE	RMSE
As reported	0.00	0.19	0.24
Ex. Outliers	-0.04	0.15	0.19

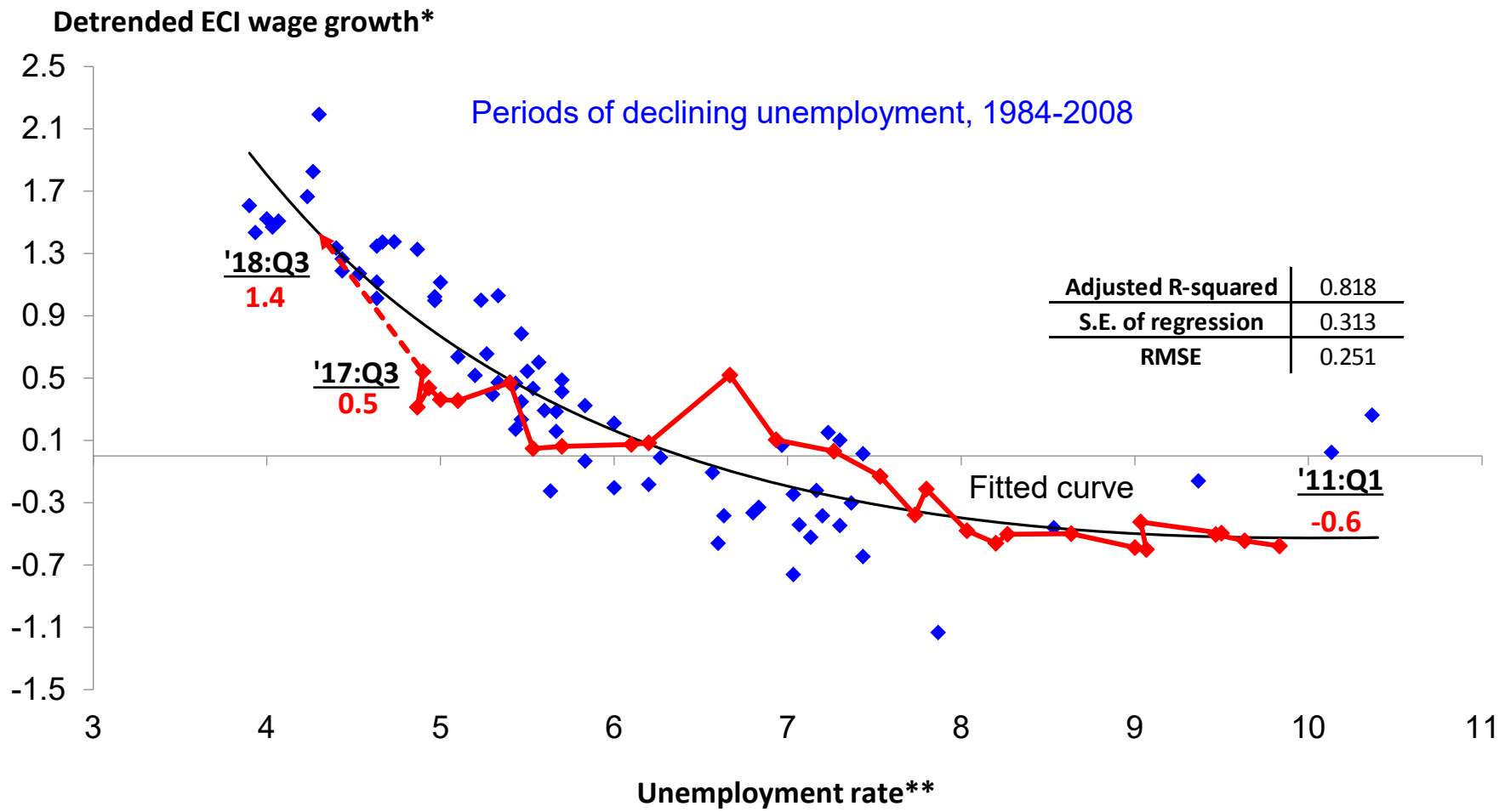
Appendix: Wage Inflation

Historically, real wages increase at an increasing rate as the unemployment rate falls



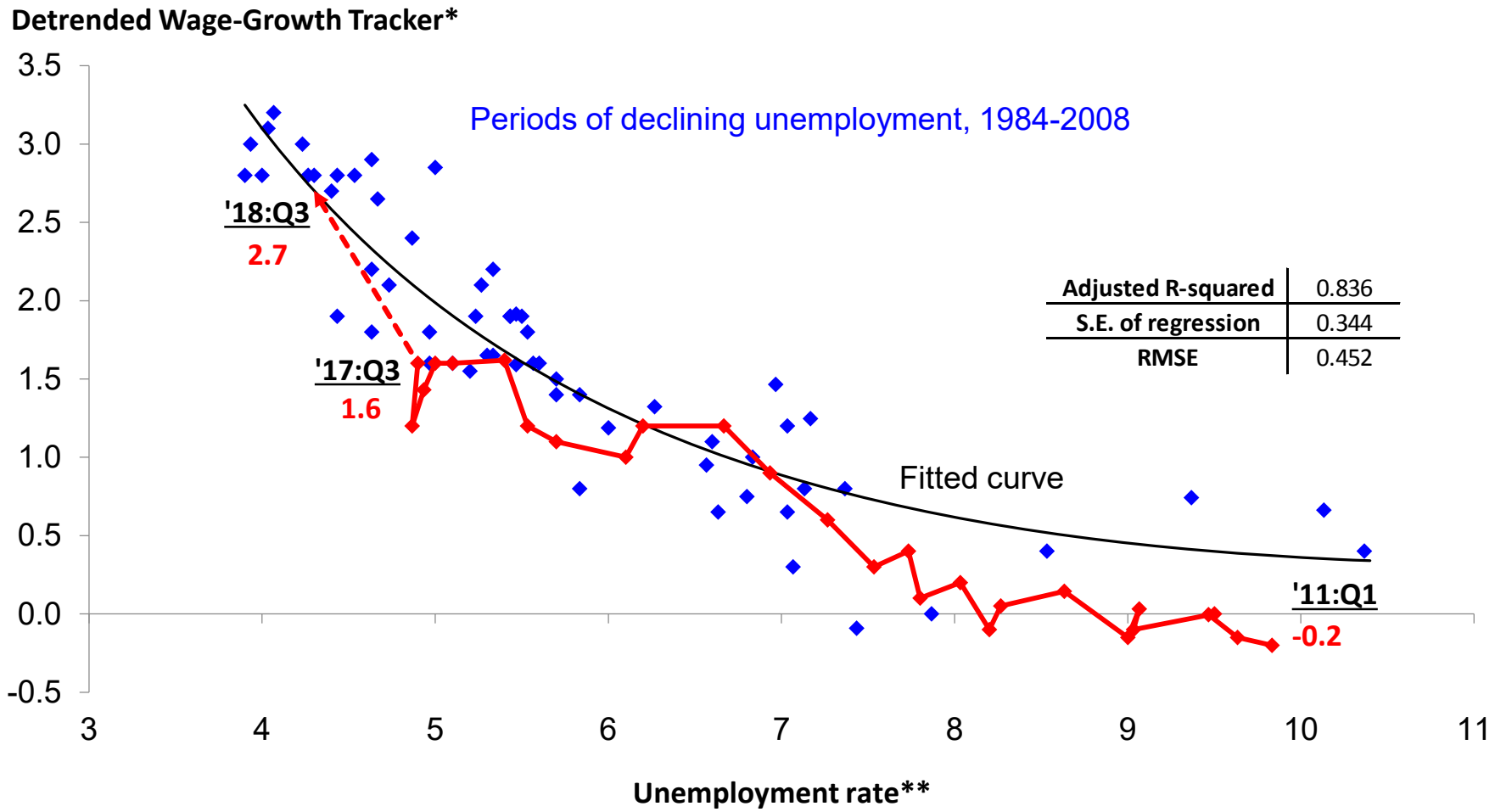
*ECI wages and salaries growth, less Survey of Professional Forecasters four-quarter lagged 10-year PCE inflation expectations, year/year.
**Lagged four quarters.

The current expansion fits the historical pattern



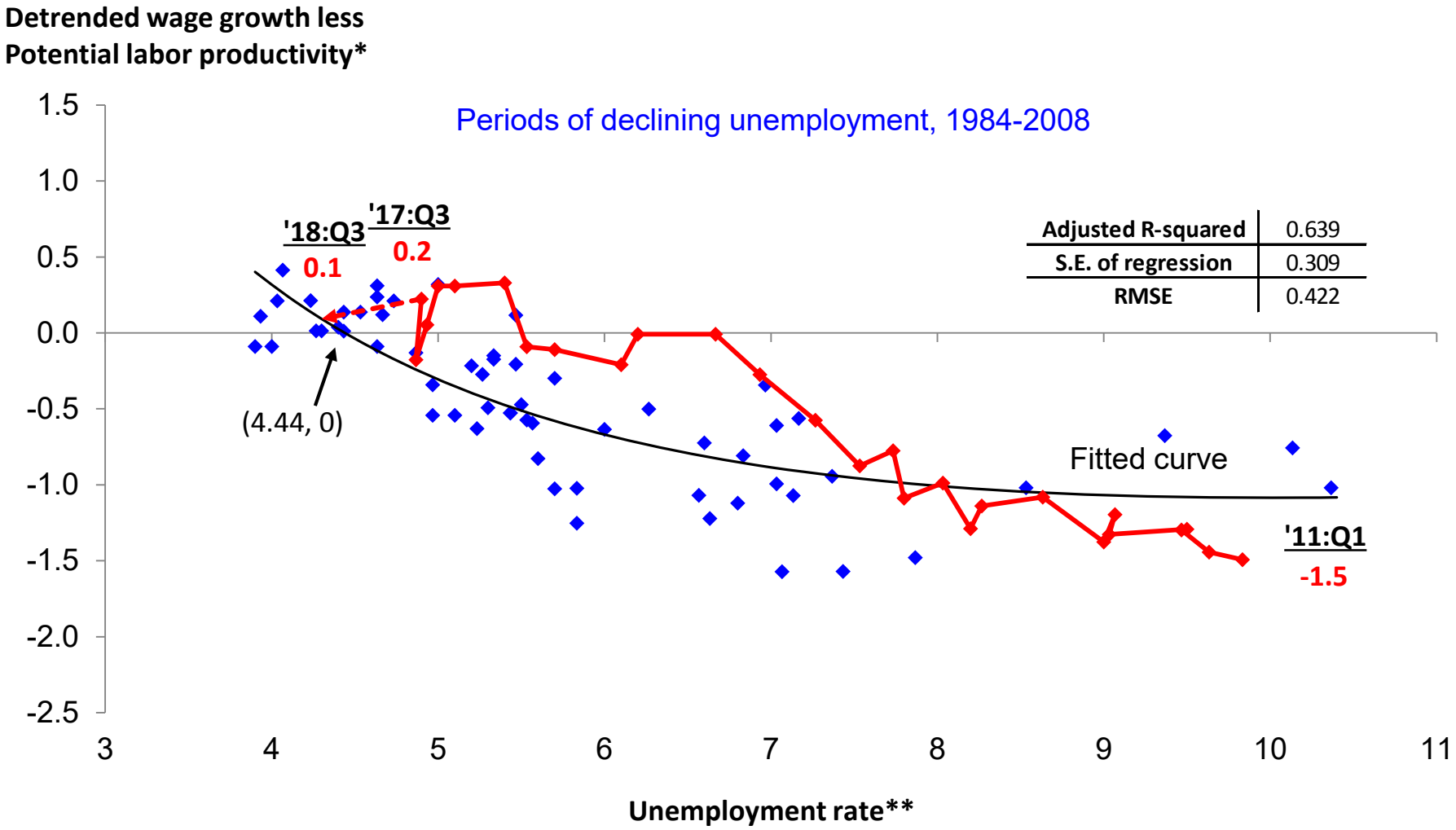
*ECI wages and salaries growth, less Survey of Professional Forecasters four-quarter lagged 10-year PCE inflation expectations, year/year.
**Lagged four quarters.

The Atlanta Fed "Wage-Growth Tracker" tells a very similar story



*Atlanta Fed Wage Growth Tracker, less Survey of Professional Forecasters four-quarter lagged 10-year PCE inflation expectations, year/year.
**Lagged four quarters.

Adjusted for productivity growth, Wage-Growth-Tracker inflation has been elevated



*Atlanta Fed Wage Growth Tracker, less Survey of Professional Forecasters four-quarter lagged 10-year PCE inflation expectations, year/year, less 10-year annualized centered percent change of potential labor productivity.
**Lagged four quarters.