Appendix to

"The Information Effect of Monetary Policy: Self-Defeating or Optimal?" 2020. Wesley Janson and Chengcheng Jia. Federal Reserve Bank of Cleveland, *Economic Commentary* 2020-15

This appendix describes data sources used in the *Commentary*, provides details on the construction of the change in expectations, and specifies the regression equations.

Data Sources

The data used in our empirical analysis come from three sources: (1) monetary policy shocks as constructed by Nakamura and Steinsson (2018), (2) Blue Chip Economic Indicators, and (3) Thomson-Reuters Economic Consensus.

Monetary Policy Shocks

We use the monetary policy shocks constructed by Nakamura and Steinsson (2018). The authors construct monetary policy shocks by measuring unexpected changes in interest rates over a 30-minute window surrounding scheduled FOMC announcements.[1] More precisely, we use the "PolicyNewsShocks1995" series in lieu of the "PolicyNewsShocks" series, as the former includes observations before February 2000. Furthermore, to merge with other variables used in the regressions, the observations that correspond to unscheduled FOMC meetings and those prior to February 1999 or after December 2013 are dropped.

Blue Chip Economic Indicators

We use survey-based measures of inflation expectations and output growth expectations taken from Blue Chip Economic Indicators, a resource of Wolters Kluwer Legal and Regulatory Solutions U.S. This survey of business economists is a collection of macroeconomic forecasts, and it has been ongoing since 1976. Each month, survey respondents give their forecasts for a number of economic variables for periods of 1-quarter to 8-quarters ahead. Forecasts are given in terms of the annualized percentage change in each variable from the prior quarter. Consensus forecasts for each period are an average of the respondents' forecasts. We use the 1-quarter to 4-quarter consensus forecasts of real GDP and consumer prices in our regressions.

Thomson-Reuters Economic Consensus

[1] The data are available at: https://eml.berkeley.edu/ enakamura/papers.html

Our measures of nonfarm payroll news shocks and consumer prices news shocks are taken from the Thomson-Reuters Economic Consensus (Reuters Poll), a survey of business economists on Wall Street. For consumer prices, the Thomson-Reuters Economic Consensus provides the market surprise, which is calculated as the difference between the values reported in the data release and the median of the survey respondents' expectations. For nonfarm payroll, we calculate the market surprise as the difference between the value reported in the data release that is published by the Bureau of Labor Statistics and the median forecasted value from the Thomson-Reuters Economic Consensus. The Reuters Poll data were accessed via Refinitiv Eikon.

Construction of the Change in Expectations

In our regression analysis, we test the effect of a monetary policy shock at time t on the change in expectations from t to $t + 1$. Importantly, the forecasted variables need to be of the same from t to $t + 1$.

One-Quarter Ahead Expectations

As an example, consider the March 19–20, 2019, FOMC meeting. The dependent variable of the regression is the change in expectations from March to April. Since March corresponds to the first quarter of the year, the first variable in the forecasting horizon is Q2. Since April corresponds to the second quarter of the year, the first variable in the forecasting horizon is Q3. These two forecasted variables (Q2 in the March survey and Q3 in the April survey) are not the same. Instead, in the March survey, we take the consensus forecast for Q3 and subtract from the April survey of the forecast for Q3.

The general formula is given by

$$\Delta s_t = y_{t+1,q(t+1)+1} - y_{t,q(t+1)+1} \tag{1}$$

In the above equations, Δs_t denotes the change in expectations from t to $t + 1$. For $y_{t,q(t+1)}$, the first subscript denotes the time at which the survey is conducted and the second subscript denotes the period (quarter) about which the survey respondents make their forecasts. For the example given above, t is March, $q(t + 1) + 1$ is Q3, and $y_{t,q(t+1)+1}$ is inflation expectations for Q3 that forecasters have in March.

Three-Quarter Ahead Average Expectations

For three-quarter-ahead average expectations, the change in expectations of economic variable s from t to $t + 1$ is given by

$$\Delta s_t = Series2_t - Series1_t \tag{2}$$

where $$Series2_t = \frac{y_{t+1,q(t+1)+1} + y_{t+1,q(t+1)+2} + y_{t+1,q(t+1)+3}}{3} \quad (3)$$

and $$Series1_t = \frac{y_{t,q(t+1)+1} + y_{t,q(t+1)+2} + y_{t,q(t+1)+3}}{3}. \quad (4)$$

To provide a graphical representation of the explanation above, Figure 1 illustrates how each observation is used in equation (2). For January, February, April, May, July, August, October, and November, the observations used in Series 2 at time t is the same as the observations used in Series 1 at time $t + 1$. However, as March, June, September and December are the last month of the quarter, different observations are used in Series 2 at time t and Series 1 at time $t + 1$.

Figure 1

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
YR_{k-1} Q4	.	.	.	.	.	.	.	.	.	.	.	.
YR_k Q1				.	.	.	.	.	.	.	.	.
YR_k Q2							.	.	.	.	.	.
YR_k Q3										.	.	.
YR_k Q4												
YR_{k+1} Q1	.	.										
YR_{k+1} Q2	.	.	.	.	.							
YR_{k+1} Q3	.	.	.	.	.	.	.	.				
YR_{k+1} Q4	.	.	.	.	.	.	.	.	.	.	.	

Used in *Series* 1
Used in *Series* 2
Used in both Series
Current Quarter

Regression Equations

The Baseline Estimation (Section 3.1)

In the baseline estimation, we estimate regressions for changes in output growth expectations and inflation expectations on the surprise components of monetary policy changes. The specific regression equation is given by

$$\Delta s_t = \alpha + \beta \Delta i_t + \varepsilon_t, \quad (5)$$

where Δs_t is the monthly change in average expectations for a variable of interest (e.g., 1-quarter-ahead inflation) and Δi_t is the monetary policy surprise.

The Regression with Control Variables (Section 3.2)

To test whether the information revealed by monetary policy surprises overlaps with other new information, we add news shocks as control variables to our baseline estimation. The specific regression equation is given by

$$\Delta s_t = \alpha + \beta_1 \Delta i_t + \beta_2 \Delta cpi_t + \beta_3 \Delta nonfarm_t + \varepsilon_t \quad (6)$$

where Δcpi_t is the surprise component of the consumer price index (CPI) news release, measured as the difference between the value of the CPI in the data release and the average of market expectations (i.e., the market expectation from the Reuters Poll). $\Delta nonfarm_t$ is the surprise component of the nonfarm payroll news release from the Reuters Poll.

References

Nakamura, Emi, and Jón Steinsson. 2018. "High-frequency identification of monetary non-neutrality: the information effect." *The Quarterly Journal of Economics*, 133(3): 1283–1330.