An Update of Romer and Romer (2004) Narrative U.S. Monetary Policy Shocks up to 2012Q4

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This short note describes how I update Romer and Romer (2004, RR04, henceforth) narrative U.S. monetary policy shocks up to the end of 2012Q4. Please signal me any typos or mistakes at max.breitenlechner@uibk.ac.at.

1 Methodology

To identify exogenous monetary policy actions, Romer and Romer (2004) purge intended Federal Funds rate changes from endogenous adjustments in the target rate. To control for current economic conditions and the future economic outlook, RR04 regress intended Federal Funds rate changes at FOMC meetings on Greenbook forecasts.[1] The estimated residuals are then interpreted as exogenous policy innovations, known as RR04 narrative monetary policy shocks. The original model is specified as follows:

$$\begin{aligned}\Delta ff_m = \ & \alpha + \beta ffb_m + \sum_{i=-1}^{2} \gamma_i \widetilde{\Delta y}_{m,i} + \sum_{i=-1}^{2} \lambda_i (\widetilde{\Delta y}_{m,i} - \widetilde{\Delta y}_{m-1,i}) + \sum_{i=-1}^{2} \phi_i \tilde{\pi}_{m,i} \\ & + \sum_{i=-1}^{2} \theta_i (\tilde{\pi}_{m,i} - \tilde{\pi}_{m-1,i}) + \rho \tilde{u}_{m0} + \epsilon_m, \end{aligned} \tag{1}$$

where the index m corresponds to the FOMC meetings, Δff_m is the intended Federal Funds rate change, ffb_m is the current interest target going into the associated meeting m, $\widetilde{\Delta y_{m,i}}$, $\tilde{\pi}_{m,i}$, and $\tilde{u}_{m,i}$ capture Greenbook forecasts of real output growth, inflation and the unemployment

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[1] Greenbook forecasts are realtime-forecasts for important U.S. economic aggregates and are prepared for each FOMC meeting.

rate for the previous ($i = -1$), current ($i = 0$) or subsequent ($i = 1, 2$) quarters at each FOMC meeting m.

I extend the original sample (January 1969 to December 1996) in two steps and provide two separate policy shock series:

- Policy shocks up to the end of 2008 (MP08Q)
- Policy shocks up to the end of 2012 (MP12Q)

To provide quarterly policy shocks, I sum the estimated innovations $\hat{\epsilon}_m$, within each quarter (Coibion et al., 2017; Romer and Romer, 2004). For the first extension until the end of 2008, the original RR04 sample is simply updated with more recent data. However, while Greenbook forecast are available until the end of 2012, from 2009 onwards interest rates approached the zero lower bound and the Federal Reserve implemented several unconventional monetary policy measures. Therefore, the policy target might not appropriately capture the Federal Reserve's intended policy target. To address this concern, in the second extensions until the end of 2012, I approximate the Federal Funds rate target with the shadow short rate (SSR), put forward by Krippner (2015). The SSR is an estimated short-term rate that is not bounded by zero. It is estimated based on longer-maturity interest rates capturing effects of unconventional monetary policy (see Krippner, 2015, for details).

2 Data

The original RR04 dataset is available online.[2] Greenbook forecast are available from the Federal Reserve Bank of Philadelphia.[3] To match the dates of the Greenbook forecast with FOMC meetings I use data collected by Chan (2015), who developed a web-scrape routine implemented in R that collects FOMC dates.[4] The policy target from January 1996 to December 2008 is obtained from the St. Louis Federal Reserve Economic Data (FRED) database. As FOMC meetings do not take place twice within one month during this perod, I use end of month values to construct changes in the policy target. The change in the policy target at the FOMC meeting m is calculated as the end of month value in the month where the meeting takes place minus the end of month value reported in the previous month. The value of the policy target going

[2]URL: `https://www.aeaweb.org/articles.php?doi=10.1257/0002828042002651`

[3]URL: `https://www.philadelphiafed.org/research-and-data/real-time-center/greenbook-data/philadelphia-data-set`

[4]URL: `https://www.r-bloggers.com/fomc-dates-full-history-web-scrape/`

Table 1: Variable description and data source

Variables		Source (Code)	Start	End
$\widetilde{\Delta y}_m$	Greenbook projections for Q/Q growth in real GDP, chain weight (annualized percentage points)	RR04[1] (GRAY)	1969M1	1996M12
		GB[2] (gRGDP)	1997M1	2012M12
$\tilde{\pi}_m$	Greenbook projections for Q/Q growth in price index for GDP, chain weight (annualized percentage points)	RR04 (GRAD)	1969M1	1996M12
		GB (gPGDP)	1997M1	2012M12
$\tilde{u}_m$	Greenbook projections for the unemployment rate (percentage points)	RR04 (GRAU)	1969M1	1996M12
		GB (UNEMP)	1997M1	2012M12
ff_m	Intended Federal Funds rate at FOMC meetings	RR04 (OLDTARG+ DTARG)	1969M1	1996M12
	Federal Funds target rate (end of month)	FRED[3] (DFEDTAR)	1997M1	2008M11
	FOMC's target Federal Funds rate (at FOMC meetings)	OMO[4]	2008M12	2008M12
	Shadow short rate (monthly averages)	Krippner (2018, ssr)	2009M1	2012M12

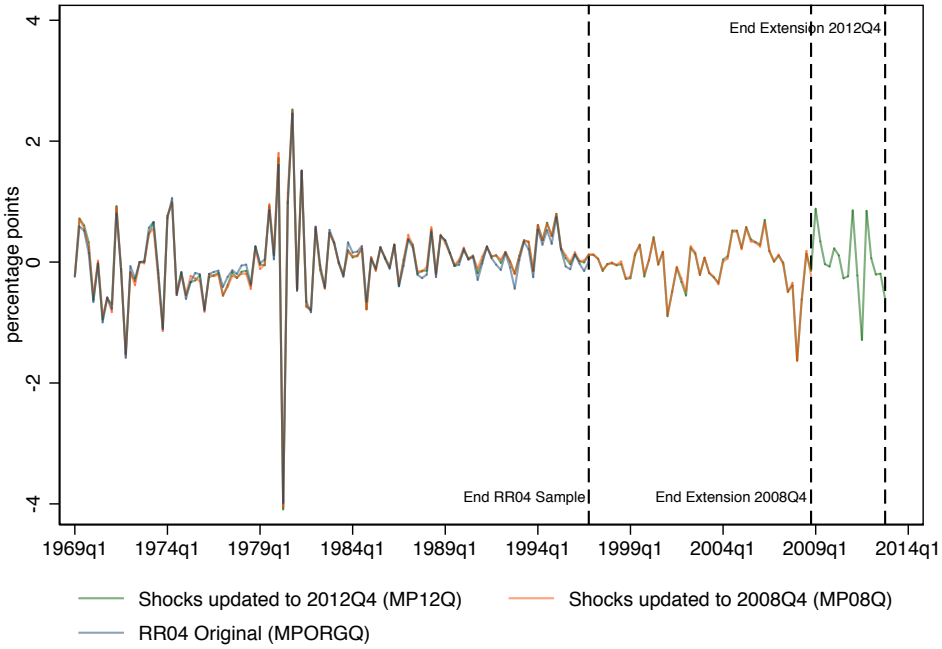
Notes: [1]Romer and Romer (2004); [2]Greenbook forecasts; [3]Federal Reserve Economic Data; [4]Open Market Operations reported by the Board of Governors of the Federal Reserve System (available at `https://www.federalreserve.gov/monetarypolicy/openmarket.htm`).

into the meeting m, i.e. the value before any changes take place, is calculated as the end of month value of the policy target from the previous month. After 2008 I principally calculate Δff_m and ffb_m analogously, however as the SSR is estimated on a daily basis, I rather take monthly averages as compared to end of month values. Table 1 summarizes the construction and the different datasources.

3 The Policy Shocks

Figure 1 shows the original RR04 shocks (MPORGQ) along with the policy shocks estimated based on the extended sample until 2008Q4 (MP08Q) and until 2012Q4 (MP12Q). This three time series are available in the accompanying data file. The dashed vertical lines indicate the different estimation horizons. Noteworthy, no spikes or jumps are observable at the indicated cutoffs. Furthermore, the policy shocks that are estimated until the end of 2008 (MP08Q) are highly correlated (99%) with RR04 shocks used in Coibion et al. (2017). Concerning the period after 2008, we observe negative policy shocks around the announcements of the second and third quantitative easing program in the U.S., in late 2010 and 2012 respectively. The largest negative shock appears in September 2011, when the Federal Reserve decided to extend the average maturity of its holdings of securities and thereby put downward pressure on long-term interest rates (FOMC, 2011).

Figure 1: Comparisons of estimated policy shocks



4 General Info

If you use the extended RR04 shock series or substantial parts of the code please cite my personal webpage as source (eeecon.uibk.ac.at/∼breitenlechner). Please let me also know if you find any mistakes.

References

Chan, P., 2015. FOMC dates – full history web scrape. `https://www.r-bloggers.com/fomc-dates-full-history-web-scrape/`, accessed: 2018-07-10.

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