Motivation

- Monetary policy decisions in real-time based on evaluating current economic conditions
- Accuracy of preliminary announcements of macroeconomics variable and subsequent revisions

Data revision of nominal GDP

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- Incorrect estimates → significant impact on policy outcome (Orphanides, 2001)
- Focus of current literature:
  - Rationality: forecasts unbiased/efficient?
  - Reliability: magnitude of revisions?

Under what circumstances do initial data tend to be irrational and unreliable?

Channels for Impact of Uncertainty

- Sampling Error
  - Only sampling from large firms
- Non-sampling Error
  - Firms allowed to report forecasts when actual data unavailable

Uncertainty

- Ghosal and Louagni (2000)
  - Uncertainty has negative impact on investments
  - Greater Impact for smaller firms
- Trueman (1994), Hong et al. (2000)
  - Herding behavior: market analysts’ forecasts tend to be biased and inefficient during high uncertainty periods

- Greater revisions under uncertainty
- Irrationality in first releases under uncertainty

Data

- U.S. real-time nominal output data
- Source: Federal Reserve Bank of Philadelphia
- Preliminary estimates 45 days after each quarter
- 1st Vintage: Feb. 1985
- Last vintage: May 2013
- Economic Policy Uncertainty Index (Baker et al., 2013):

Rationality test of initial data under uncertainty

Rationality test:
- Reporting agency used all available information at release time?
  - If so, the contemporaneous information should not have impact on final revision

Compare results during periods of high vs. low uncertainty

1. If uncertainty has impact on rationality, the contemporaneous information should have:
   - Significant impact on the final revision under high uncertainty (EPU > 1)
   - No impact under low uncertainty (EPU < 1)

Test impact of uncertainty on the reliability of the initial data

1. If the initial data tend to be over- or under-estimated under uncertainty, uncertainty should have significant impact on the final revisions.
2. Also, if uncertainty leads to both over- and under-estimation of the first releases, uncertainty might have no impact on the final revisions but have an impact on the revision magnitudes.

Uncertainty causes both over- and under-estimation in the initial data and leads to the unreliability of the first releases

Results

- Rationality test: contemporaneous information has significant impact on the final revisions only under high uncertainty (not report)
  - Contemporaneous info incl. unemployment rate, Standard and Poor’s index of 500 stock prices, and Treasury bill interest rate, etc.
- Reliability test (Table 1)
  - Col. 1: Impact of uncertainty on final revisions
    - Lack of evidence / inconclusive
  - Col. 2: Impact of uncertainty on magnitude of revisions
    - Significantly greater magnitude of revisions under uncertainty

Uncertainty leads to the irrationality of the first releases

Method

| Table 1: The Rationality in the First Releases Under Uncertainty |
|------------------|------------------|
| Uncertainty (EPU) | 0.262* |
| Constant          | -0.031 |
| Adj. R^2          | 0.017 |

* The coefficient is significant at 1% level

Conclusion

- Using U.S. nominal output real time data and an uncertainty measure from 1985 to 2013, this study shows that uncertainty leads to the irrationality and unreliability in the first releases
- Results imply that during times of greater uncertainty, policymakers should proceed with caution when utilizing the first releases of economic data