**The Impact of Uncertainty on Data Revision**

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

Data revision of nominal GDP

**Channels for Impact of Uncertainty**

- **Uncertainty**
  - Ghosal and Loungani (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

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

- **Irrationality**
  - 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?**

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**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):

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**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.

**Uncertainty leads to the irrationality of the first releases**

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

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**Method**

**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
  - 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**
- If the initial data tend to be over- or under-estimated under uncertainty, uncertainty should have significant impact on the final revisions.
  - 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.

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**Table 1:** The Rationality in the First Releases Under Uncertainty

<table>
<thead>
<tr>
<th></th>
<th>Revision</th>
<th></th>
<th>Revision</th>
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</thead>
<tbody>
<tr>
<td>Uncertainty (EPU)</td>
<td>-0.181</td>
<td></td>
<td>0.262*</td>
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<tr>
<td></td>
<td>[0.344]</td>
<td></td>
<td>[0.000]</td>
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<tr>
<td>Constant</td>
<td>0.21</td>
<td></td>
<td>-0.031</td>
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<tr>
<td></td>
<td>[0.241]</td>
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<td>[0.657]</td>
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<tr>
<td>Adj. R^2</td>
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* The coefficient is significant at 1% level

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**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