

## **DATA UNCERTAINTY: Evidence of a new economic policy challenge**

Macroeconomic data revisions have become an increasingly important source of uncertainty about the state of the Eurozone and US economies over the last decade. That is the central message of research by **Katharina Glass** and **Ulrich Fritsche**, to be presented at the annual congress of the European Economic Association in Mannheim in August 2015.

Most data on the economy as a whole have to be revised as new information becomes available. This study looks at the revisions themselves, examining the implied uncertainty in the United States and the Eurozone. It finds that macroeconomic variables (those relating to the whole of the economy) have become less certain over the last decade. The research also finds that uncertainty over economic policy leads to even more data uncertainty over time. The authors comment:

‘Our findings add to the recent recognition of increased macroeconomic and economic policy uncertainty during and after the Great Recession. We show that data uncertainty also has to be taken into account in policy analysis.’

### **More...**

Most macroeconomic data is continuously revised as additional information becomes available. This study suggests that data revisions are an increasingly important source of uncertainty about the state of the economy and offer an alternative channel of uncertainty: data uncertainty. The paper adds to the uncertainty literature and focuses on data uncertainty, which originates in the revision structure of data.

The researchers find that in addition to general and economic policy uncertainty, data uncertainty has been rising throughout the past decade in the US and Eurozone. To the best of their knowledge, this is the first study of Eurozone data uncertainty. The analysis shows that there is a positive lagged effect of economic policy uncertainty on data uncertainty for both regions. These findings correspond to the recent literature on increased macroeconomic and economic policy uncertainty during and after the Great Recession.

Prior work has documented increased uncertainty in terms of different uncertainty proxies. One study applies a news-based economic policy uncertainty index; other popular proxies are a stock market volatility index or ‘surprise’ index. But most uncertainty measurements are made based on US data, especially on the US SPF forecast probability distribution. For the Euro area there is less research concerning uncertainty, the focus of available papers is again on SPF data.

This study analyses how the information content for the Eurozone and the US has changed over time using Eurostat and FED real time data. It adds to the uncertainty literature and focuses on data uncertainty in terms of real gross domestic product and its component revisions as one possible component of the overall economic uncertainty. It shows that apart from general uncertainty measured typically by stock market volatility and economic policy uncertainty, data uncertainty has to be taken into account.

The study measures data uncertainty applying three methods: descriptive statistics, signal-to-noise ratios and entropy. It shows that data uncertainty of macroeconomic variables in the Eurozone and the US has become higher within the last decade. This finding extends a stylised fact on uncertainty based on the US data, which postulates that during a recession, uncertainty is much higher than within the stability and prosperity period.

The new study transfers this stylised fact to the revisions. Uncertainty has been continuously growing with the last decade for both regions. The increase is even more dramatic during the recession for all Eurozone macroeconomic variables, comparing with reference uncertainty proxies, which indicates relief of uncertainty.

Most notably, the uncertainty increase of the Eurozone real GDP is weaker than for its aggregates, probably because of the double aggregation effect. In addition, investment tends to be highly uncertain. According to signal-to-noise ratios, private and government consumption exhibited high uncertainty level and contradicted entropy measure. Unfortunately revisions of these variables are correlated with errors and therefore contain noise instead of new information. Revisions of all other variables fulfil the orthogonality condition, validating uncertainty calculations.

After establishing an entropy measure of data uncertainty, the researchers analyse its interactions with other recently discussed measures such as general uncertainty (VSTOXX and VIX) and economic policy uncertainty indices for both regions. The results underline that data has a publication lag, which is consistent with findings of real time literature.

Moreover, there is (one-way) Granger causal relation between economic policy uncertainty and entropy in the Eurozone. EPU shocks from the US and the Eurozone seem to have lagged positive influence on the entropy: economic policy uncertainty shock generates increase in data uncertainty. Hence, data uncertainty is an alternative channel of uncertainty and has to be included in the estimation models along with traditional uncertainty macroeconomic or economic policy uncertainty proxies.

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