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WARWICK BUSINESS SCHOOL
THE UNIVERSITY OF WARWICK

For the Intellectually Restless

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Communicating Data Uncertainty: ESCoE Project – Galvao and Mitchell

What did we learn? Ways of communicating uncertainty

1. Precise interval ranges.

2. Words: uncertainty value can be lower or higher; on average X will fall in this range 9 in 10 times.

3. Heat map: impact (low to high) versus likelihood (unlikely – very likely)

4. Pictures: how probability of rain translates to an image.

What did we learn? Impact on the Public

- Better decisions are made (run an ice cream business) when uncertainty is conveyed with carefully crafted graphical representations.

- When uncertainty about data (not the future) is communicated with words (instead of a precise range), there is a decline of about 10% in the trustworthiness of the report writers. This decline is smaller than the decline of trust in the data being communicated (which is about 20%).

# Data vs Forecasting Uncertainty in Economics

- In contrast to weather forecasters, economic forecasters' predictions affect economic decisions, so a forecast may lack accuracy because economic agents and policy makers react to the forecast.

- But this is not the case when dealing with economic data (unless one has a time machine …).

Data Uncertainty in Economics

- There are many key economic statistics that we shouldn't be as certain about as we perhaps sometimes are when using them for decision making.

- We were reminded of the fact that the number of people unemployed is an estimate based on a survey that, like all surveys, has an error margin.

- Key macroeconomic variables such as GDP growth are subject to data revisions because initial estimates are released based on incomplete datasets.

Should we care about the uncertainty one quarter ago?

- Galvao and Mitchell (2017) UK GDP Growth Data Uncertainty computed based on BoE Inflation Report Fan Charts

UK Data Uncertainty
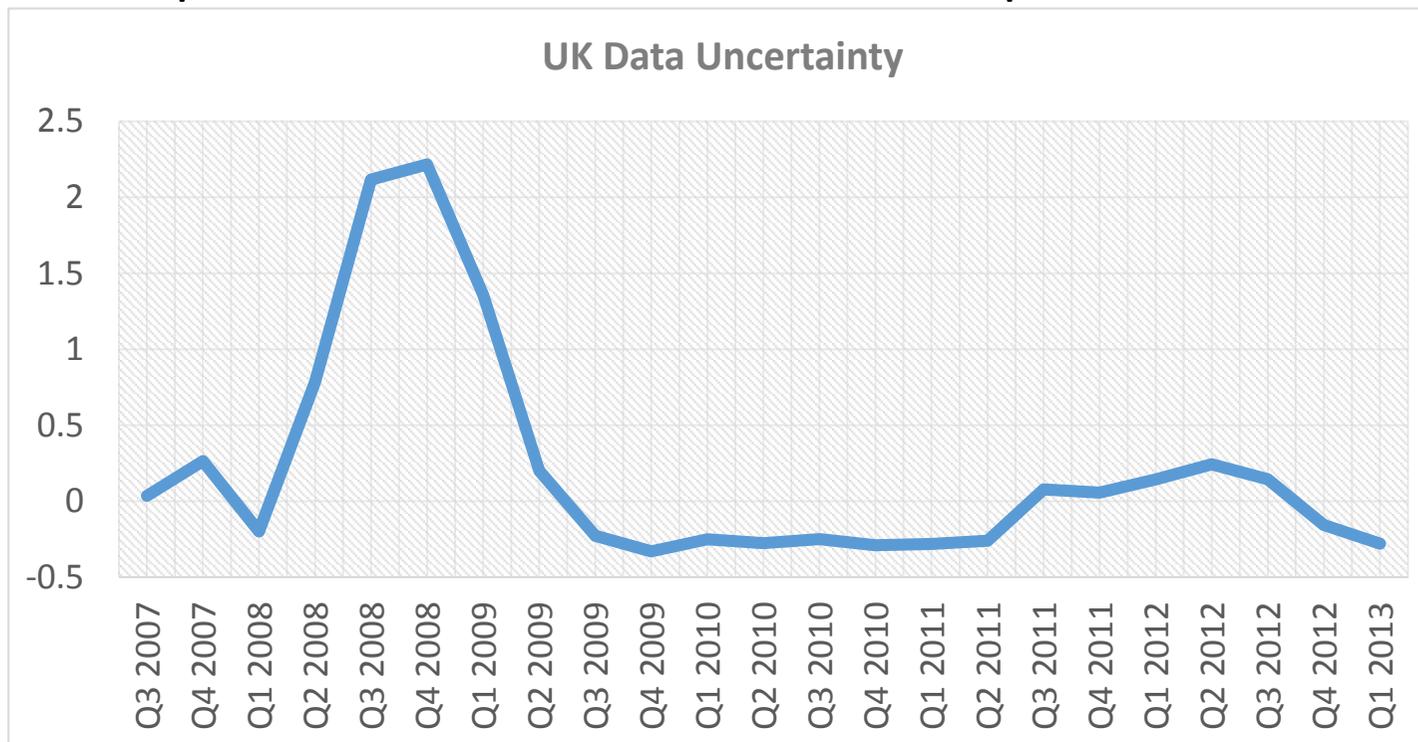
Std. dev scale. First estimate was released by ONS with 30 day delay.

Macroeconomic Data Uncertainty

- Additional confounding factor when making decisions that rely on a knowing where we are in terms of economic activity.

- It is more important at the onset of recessions.

Issues we are currently addressing in our Research Project

- How do the public interpret macroeconomic data usually released as point estimates? Do they take them as read? Or do they implicitly place 'confidence bands' around the data?

- How should data uncertainty be communicated by the Statistical Office? What visual methods and/or text work best? We will run experiments to try and find out...

Communicating Macroeconomic Data Uncertainty

- The public (and many economists) are not aware that GDP growth is an estimate and, as a consequence, has an "error margin".

- Better communicating the uncertainty about the GDP estimates might improve decision making (as suggested by K. Mylne) with possibly a minor effect on the perceived trustworthiness of the Statistical Office (as suggested by D. Spiegelhalter and A. van der Bles).