BANK OF ENGLAND

The promise and peril of big data for central banks

Discussion of Session 1 Papers

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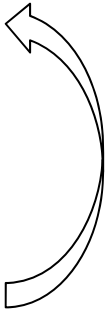
What central bankers do

- Goal: monetary and financial stability

- Interrelated challenges
  - Understanding the way the economy and financial system work
  - Measuring them in real time
  - Forecasting their behaviour
  - Identifying risks
  - Setting policies accordingly and measuring their transmission



Discussion of Session 1 Papers

The promise (based on titles of papers presented)

- Understanding the way the economy and financial system work
  - A short-run analysis of exchange rates and international trade
  - NETS: network estimation for time series
  - Mining big data using parsimonious factor and shrinkage methods
- Measuring them in real time
  - Social media and consumer confidence
  - Real-time nowcasting with a Baysian mixed frequency model with stochastic volatility
  - Nowcasting the economy using big data
  - Nowcasting GDP: electronic payments, data vintages and the timing of data releases
  - Macroeconomic nowcasting using Google probabilities
- Forecasting their behaviour
  - Netconomics: novel forecasting techniques from the combination of big data, network science and economics
  - Forecasting with many predictors: allowing for non-linearity
  - Big data and economic forecasting: a top-down approach using directed algorithmic text analysis
- Identifying risks
  - Networks for common asset holdings: aggregation and measures of vulnerability
  - News and narratives in financial systems: exploiting big data for systemic risk assessment
  - Differences of opinion make a market. Web-based inference of stock prices and volumes for a subset of systemically important banks
- Setting policies accordingly and measuring their transmission
  - Can information demand help to predict stock market liquidity? Google it!
  - A Belgian economic policy uncertainty index: improvement through text mining
  - Quantifying the effects of online bullishness on international financial markets
  - Investor attention and FX market volatility
  - Can Facebook predict stock market volatility
  - Measuring changing market expectations of bank resolution regimes using credit default swaps and news flow data
  - A preprocessing method of internet search data for prediction improvement: application to Chinese stock market

The promise (based on titles of papers presented)

3 X Understanding the way the economy and financial system work

5 X Measuring them in real time

3 X Forecasting their behaviour

3 X Identifying risks

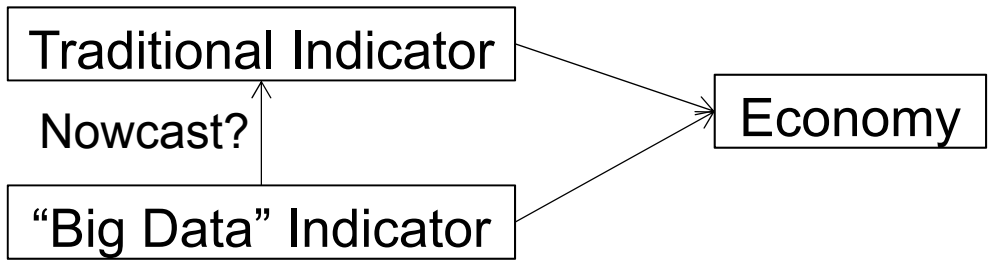
7 X Setting policies accordingly and measuring their transmission

Some promises illustrated by papers in Session 1

- Inference (i.e. understanding) vs. now-/forecasting
  - *A short-run analysis of exchange rate and international trade*

- Potential of pre-structured data and traditional techniques
  - *Can Information Demand Help Predict Stock Market Liquidity? Google It!*
  - *Social Media Sentiment and Consumer Confidence*
  - Aouadi + Daas: Did you feel constrained by the structured data?

- Nowcasting vs. new data
  - *Social Media Sentiment and Consumer Confidence*
  - Daas: Can you skip the nowcasting step? What is your target variable?

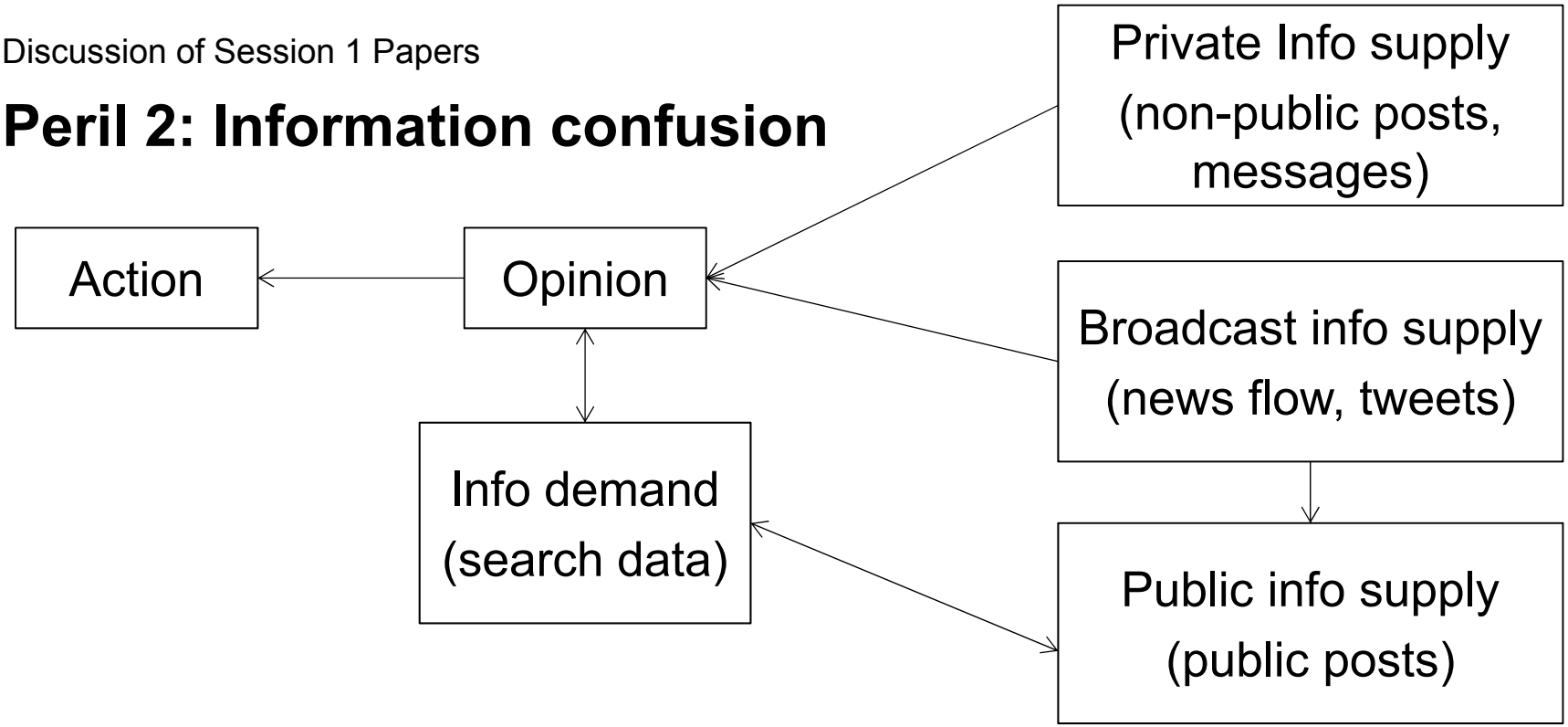


Peril 1: N≠all

- *Social Media Sentiment and Consumer Confidence*
  - Posts/Tweets > public ones > from unique users ≠ Consumers
  - General mood > Economic sentiment
  - Daas: Do you have any way to assess potential biases in your data? Is the problems with the UK data related?

- *A short-run analysis of exchange rate and international trade*
  - *Postal trade < international trade*
  - Anson: What does this dataset, where conditions for arbitrage are most favourable, tell us about trade more generally?

Peril 2: Information confusion



- *Can Information Demand Help Predict Stock Market Liquidity?*
  - Aouadi: Would your analysis benefit from the inclusion of news flow?
- *Social Media Sentiment and Consumer Confidence*
  - Daas: Do you think of the posts/tweets influencing or measuring mood?