

# A Bayesian Approach to Modelling Graphical Vector Autoregressions

Marco Zanotti

University Milano-Bicocca



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# 1. VARs

# Problem

To predict **timely and accurately** the election results

**Strategical task** in the political area since political forces spend millions of dollars in each candidate's campaign and need to know when and where to allocate them

The **US**: presidential election is the result of the voting process in each state

## 2. Graphical VARs

# Type of Data

Forecasting elections makes use of mainly two different types data:

- ▶ **Fundamental indicators**, that is economic or political variables
- ▶ **Trial-heat polls**, that is surveys with trial-heat questions issued by official pollsters' agency

### 3. Bayesian Model Assessment for Graphical VARs

# Type of Models

Over the years, three types of election forecasting models evolved:

- ▶ **Structural models**, econometric models based on fundamental indicators
- ▶ **Trial-heat models**, econometric models relying on polls data
- ▶ **Bayesian models**, models that use polls data to update historical forecasts, improving the performance of structural models through the incorporation of voters preferences' evolution

The variable of interest is usually the percentage election outcome of one of the two major parties ( $\pi_t$ )



## 4. Conclusions

# Conclusions

- ▶ A Bayesian approach produces **continuously revised forecasts** as new poll data is released
- ▶ Forecasting using **both** structural variables and poll data outperform others
- ▶ In general, forecasts are accurate **within 2 months** before the election day
- ▶ It is **still difficult** to produce timely and accurate forecasts
- ▶ **Problems** arise in forecasting accuracy and uncertainty for states that are polled few and in those days with no polls at all

# Bibliografy

*Corander, J. & Villani, M. (2006), 'A Bayesian Approach to Modelling Graphical Vector Autoregressions', Journal of Time Series Analysis 27(1), 141–156.*

Thank you!