

# Predicting the Results of the United Kingdom General Election: analysis of 2010 and 2015

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16.15 Exeter

EPOP Conference Friday 11 September 15.30 – 17.00  
Cardiff

# Part 1: preamble

- In 2015 I examined predictors of election results as part of an ongoing series for “Significance”.
- This examination entailed
  - How do we judge how well a predictor performs?
  - What are the predictors of election results?
  - What logistical challenges do they pose?
  - How did they perform just before the 2010 UK General Election?
  - How did they perform over time for the 2015 UK General Election?
- This presentation will detail those steps

# Part 2: How do we judge how well a predictor performs?

- A “prediction” is a set of numbers, an “election result” is another set of numbers, the “accuracy” is a statistic that measures of the distance between them.
- A search of the literature listed twenty four different statistics used to measure this distance.
- The literature recommends that graphical techniques be used in conjunction with dimensionless and dimensioned indices. Dimensioned indices are considered informative because they are in the units of the prediction, whereas dimensionless statistics can be interpretationally difficult but allow comparison between predictions with different units. Of the dimensioned indices, there is a debate about whether RMSE is better or MAE is better but since pollsters and modellers were already familiar with MAE or variants I chose MAE, which is better known as the “mean absolute error”
- So we will judge how well a predictor performs by calculating the Mean Absolute Error (MAE) between it and the final result
- For the full list and greater detail, see “APPENDIX 3: MEASURING PERFORMANCE” in <http://www.statslife.org.uk/files/Predicting-Elections-Article-and-Appendices.pdf>

# Part 2: What are the predictors of election results?

- Things that can be used as predictors of election results are:
  - Opinion polls - surveys of voting intentions
  - Exit polls - surveys of voting behavior
  - Betting odds - odds of an event happening
  - Bettingspreads - market index of a future event
  - Party donations - money given to parties
  - Campaign spending - money spent by parties
  - Modellers - models of voting behavior
- Exit polls and campaign spending are not collated until after voting so their use as predictors is limited. Spreads are difficult to access historically so judging how well they performed is difficult
- Consequently we will assess opinion polls, exit polls, betting odds, betting spreads and party donations against the final result

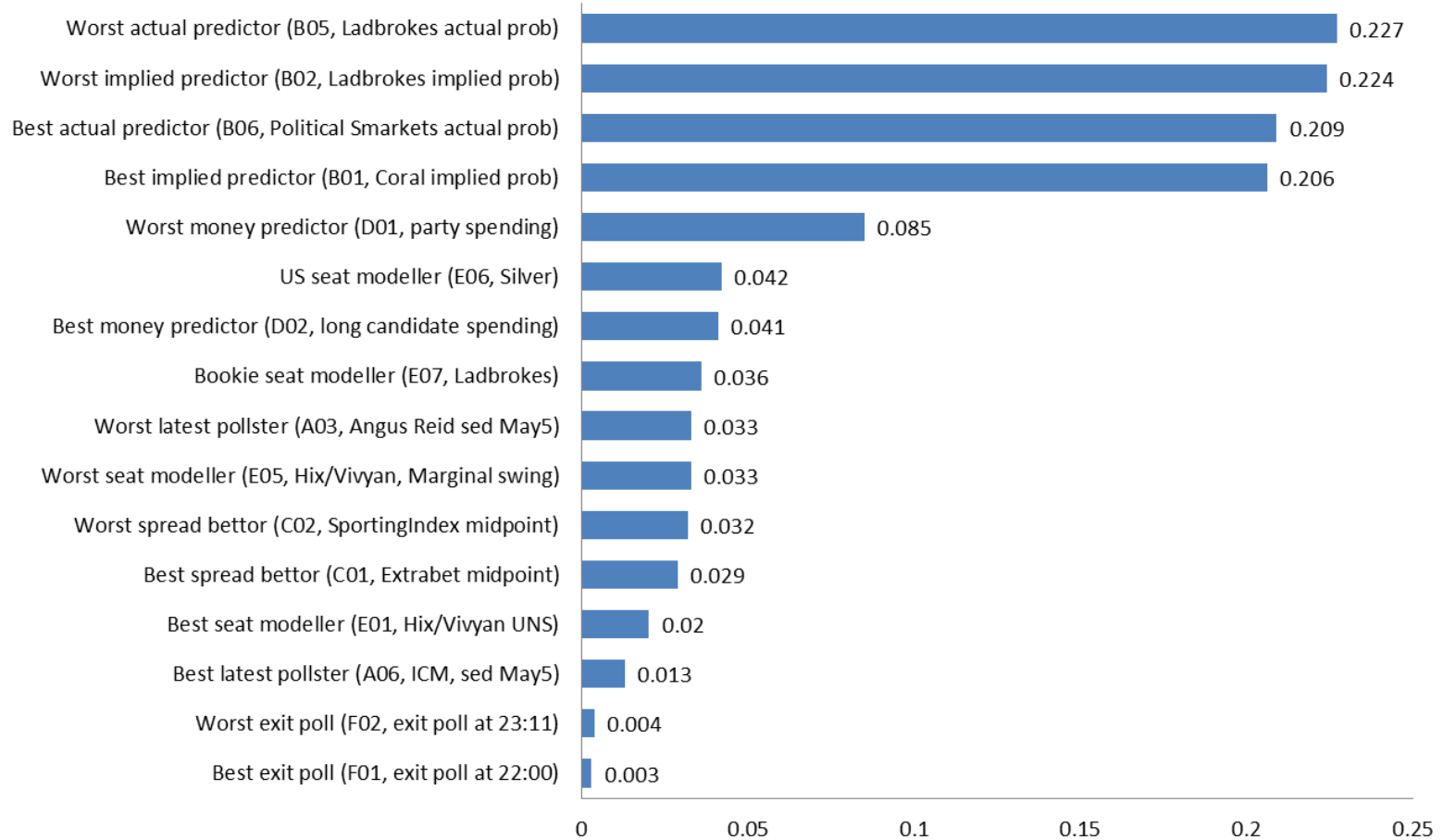
# Part 3: What logistical challenges do predictors pose?

- Predictors differ from each other, and these predictors pose challenges as follows:
  - Incompatible.
    - To enable comparisons, we will express all predictions in a four-party-forced format: Con/Lab/Lib/Other. This also compensates for the tendency of MAE to increase as the number of parties predicted increases.
  - Ephemeral.
    - Predictions can be reconstructed by trawling through Twitter, sites such as oddschecker, or archive sites such as archive.org. But not every change is archived. Consequently, we will not consider predictors that cannot be “reasonably reconstructed”. For the 2010 UK General Election, “reasonably reconstructed” means “immediately prior to the election”. For the 2015 UK General Election, “reasonably reconstructed” means “at least a year prior to the election”.
  - Imprecise.
    - Predictions expressed graphically without an associated set of numbers will be ignored.
- The 2010 UK General Election examination was of the latest figures immediately prior, but the 2015 one examined the whole five-year term. This longer period posed further challenges, thus
  - Asynchronous.
    - We will take the latest prediction on each Friday
  - Abundant.
    - We will limit our selection to a maximum of five per category
- So we have established which statistic to use, which predictors to consider, and how to collate the numbers. We will now examine how did they perform just before the 2010 UK General Election, and how did they perform over time for the 2015 UK General Election.

# Part 4: How did they perform just before the 2010 UK General Election?

- Predictors we examined included:
  - Opinion polls: Ipsos-MORI, ComRes, Angus Reid, Populus, YouGov, ICM, Opinium, Harris, TNS BMRB, ComRes, BPIX, YouGov
  - Betting odds: Coral, Ladbrokes, Political Smarkets
  - Betting spreads: Extrabet, SportingIndex
  - Money: Party spending, Candidate spending (long), Candidate (short)
  - Exit polls: BBC/ITN/Sky
  - Modellers: Hix, Vivyan (LSE), Ford, Jennings, Pickup, Wlezien (PoliticsHome Poll Centre), Baxter (Electoral Calculus), Silver (Five Thirty Eight), Matthew Shadwick (Ladbrokes)
- How well they did can be seen on the next slide

# MAE of the best and worst predictors of the 2010 UK General Election, for each category



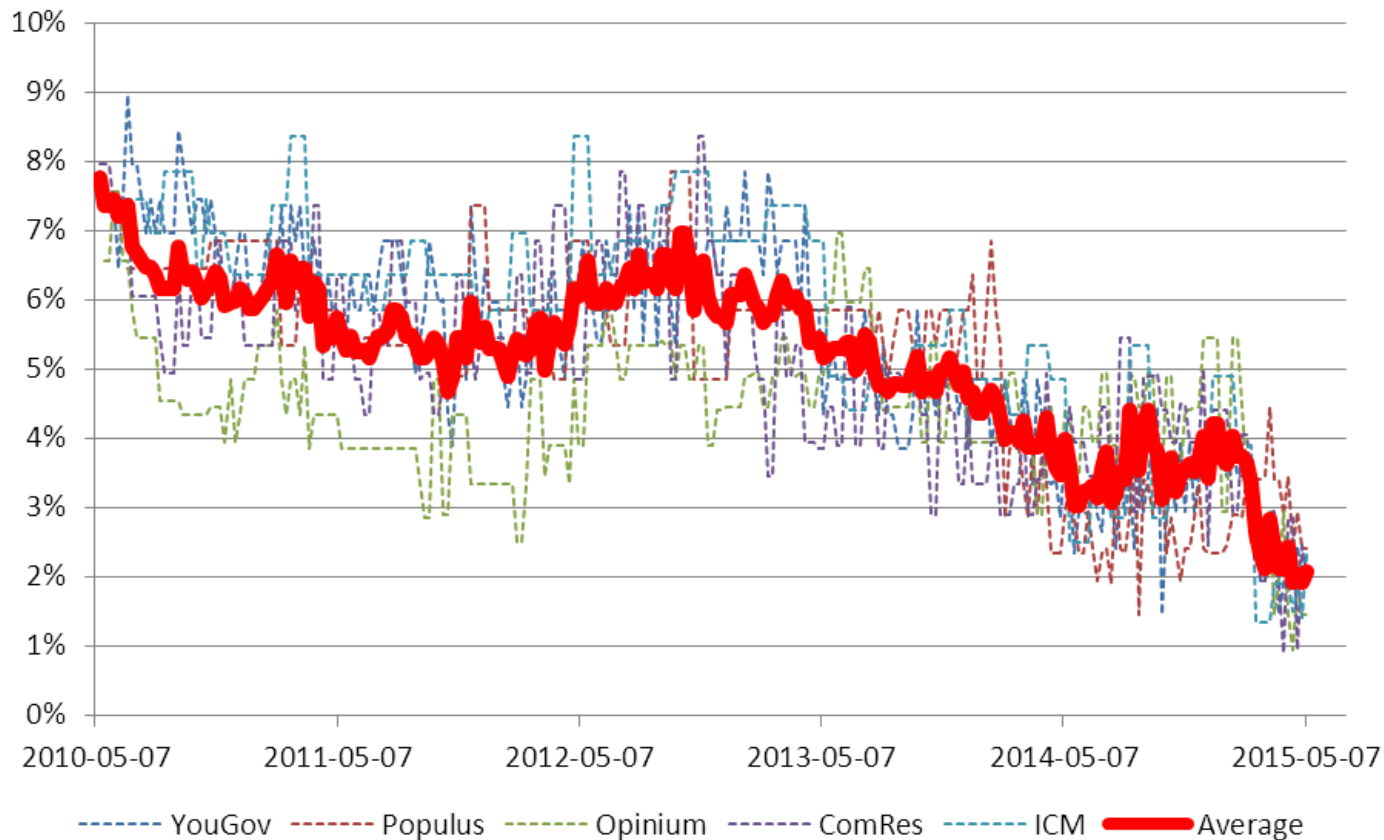
# Part 5: How did they perform just before the 2015 UK General Election?

- Predictors we examined included:
  - Opinion polls: Angus Reid, Ashcroft, BPIX, ComRes, Harris, ICM, Ipsos-MORI, Opinium, Panelbase, Populus, Survation, TNS BMRB, YouGov
  - Betting odds: 32Red, 888Sports, Bet365, Betdaq, Betfair, Betfair Exchange, BetFred, BetVictor, Betway, BoyleSports, Bwin, Coral, Ladbrokes, Matchbook, PaddyPower, SkyBet, SportingBet, SpreadEx, StanJones, TitanBet, ToteSport, UniBet, WilliamHill, Winner.
  - Modellers: Stegmaier and Williams (Missouri), Prosser (Oxford), Ford, Jennings, Pickup and Wlezien (Manchester/Soton/SimonFraser/Texas, collectively the Polling Observatory), Clarke, Stewart and Whitely (Texas/Essex), Rallings, Thrasher and Borisyuk (Plymouth), Hanretty, Lauderdale and Vivyan (UEA/LSE/Durham, collectively electionforecast.co.uk), Burnap, Gibson, Sloan, Southern and Williams (Cardiff/Manchester), Lewis-Beck, Nadeau and Bélanger (Iowa/Montreal/McGill), Lebo and Norpoth (Stony Brook), Fisher (Oxford), Matthew Shadwick (Ladbrokes), Martin Baxter (Electoral Calculus)
  - Money : Donations (spending figures were not available before the election)
  - Exit polls: not available until after the election
- How well they did can be seen on the next slides



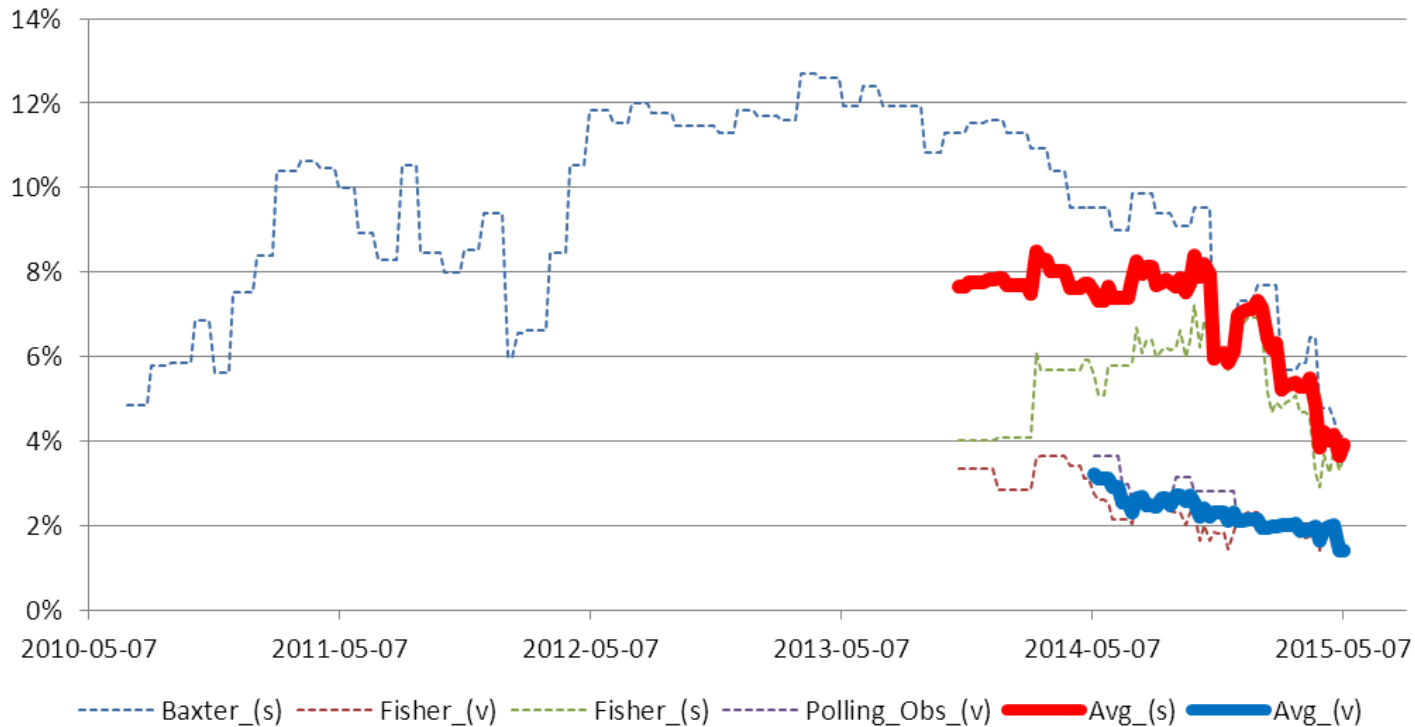
# MAE of selected opinion polls over time for the 2015 UK General Election

- We selected YouGov, Populus, Opinium, ComRes, and ICM – the five most frequent pollsters extending over a year prior to polling day. The MAE 2010-2015 are given in the graph below.



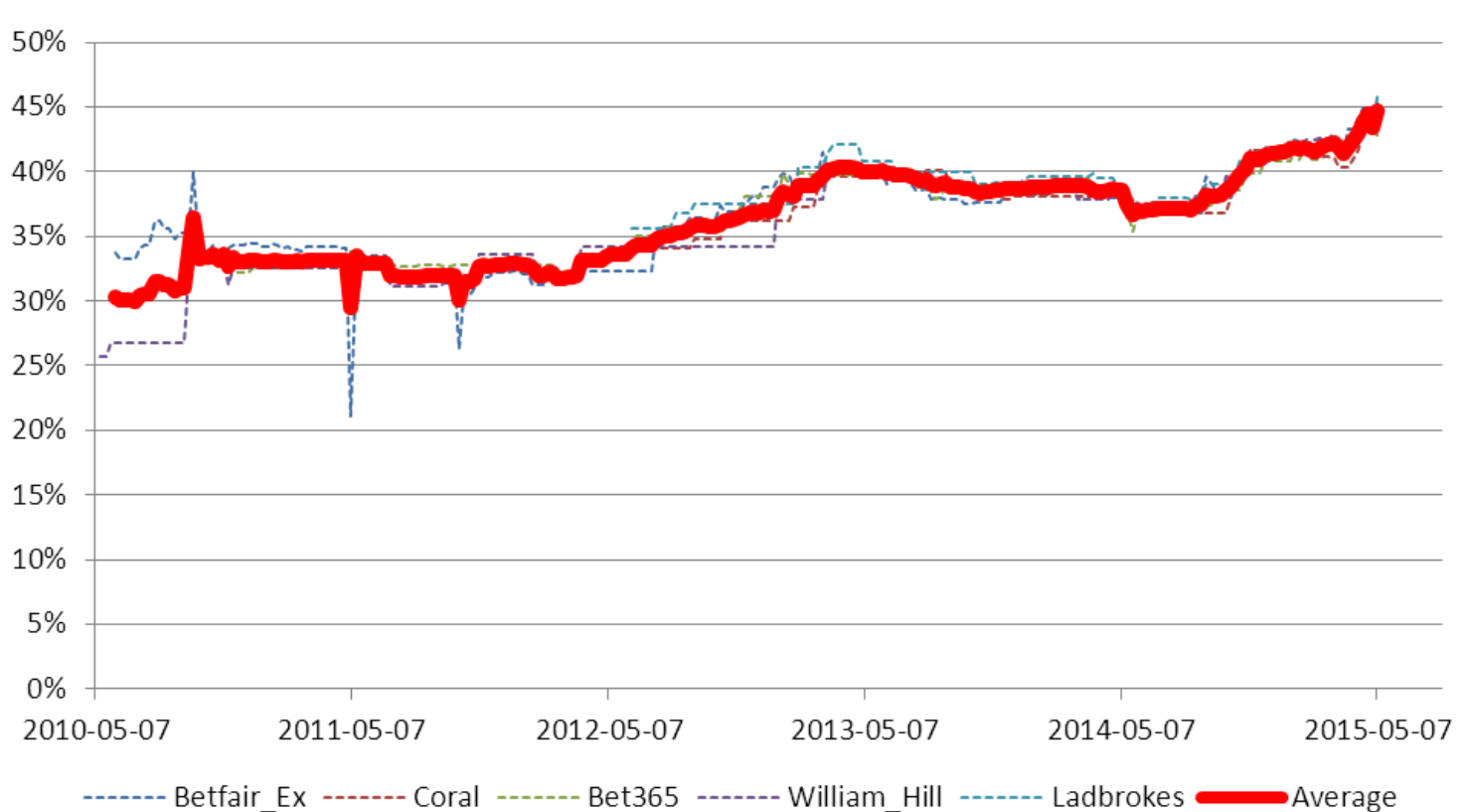
# MAE of selected modellers over time for the 2015 UK General Election

- Our need to have regular predictions for at least a year prior to the election left us only Fisher (Oxford/Elections Etc), Baxter (Electoral Calculus), Ford/Jennings/Pickup/Wlezien of Polling Observatory. The MAE 2010-2015 are given in the graph below.



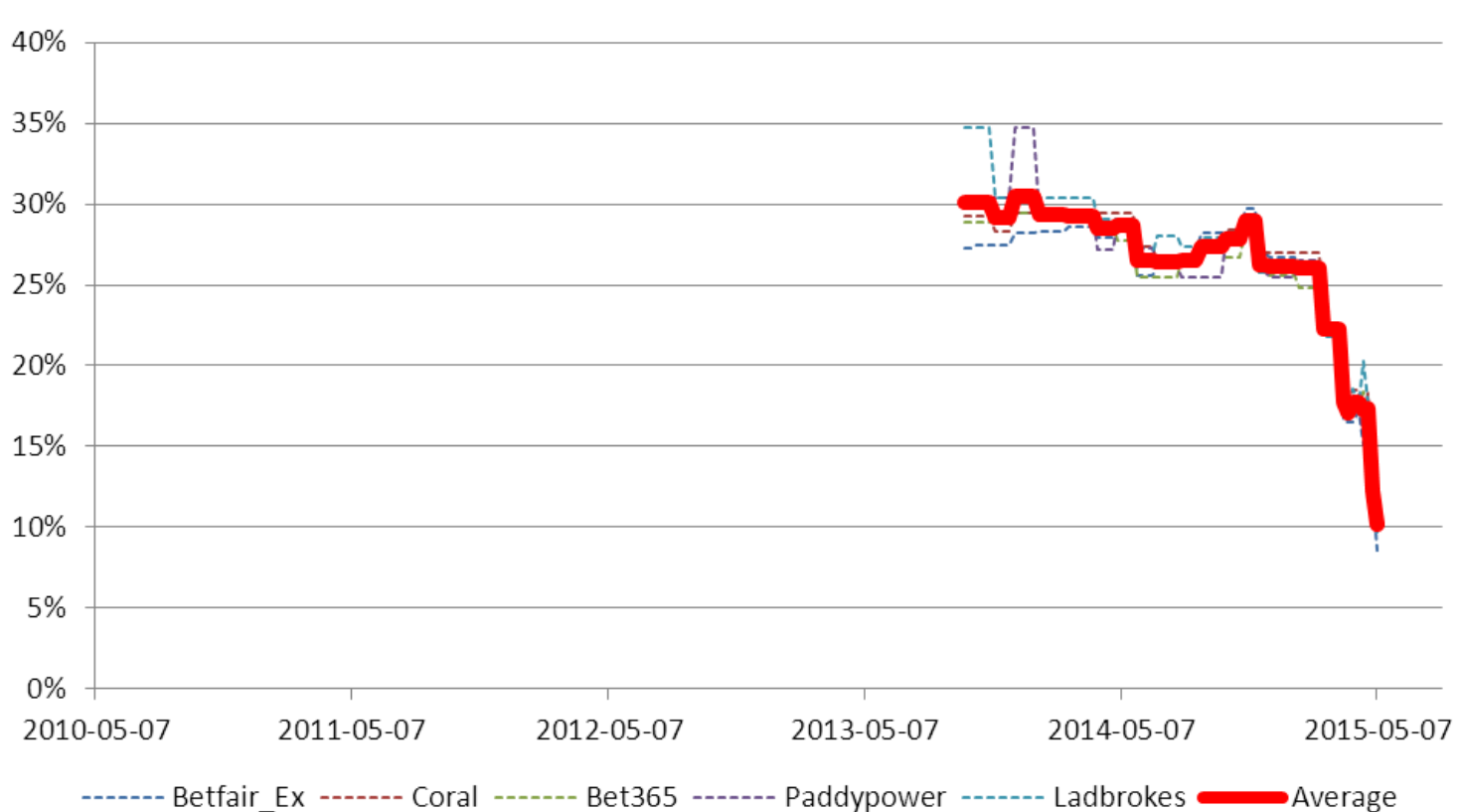
# MAE of selected bookies over time for the 2015 UK General Election (overall majority)

- The five most captured bookies offering overall majority extending over a year prior to polling day were Betfair Exchange, Coral, Bet365, William Hill and Ladbrokes, (SpreadEx were too difficult to handle). The MAE 2010-2015 for overall majority are:



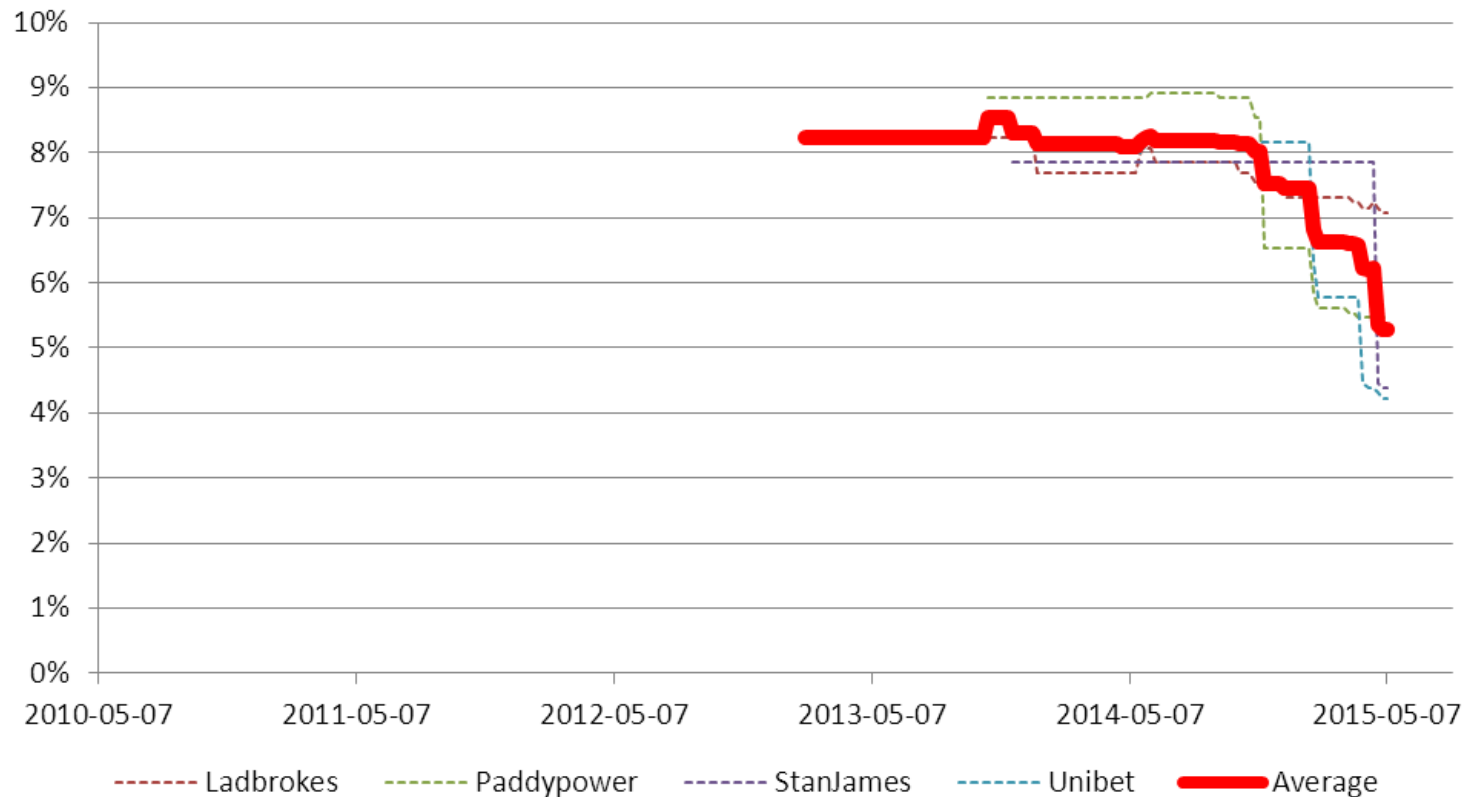
# MAE of selected bookies over time for the 2015 UK General Election (most seats)

- The five most captured bookies offering most seats extending over a year prior to polling day were Bet365, Betfair Exchange, Coral, Ladbrokes, and Paddypower (William Hill was too difficult to handle) . Note the sparseness. The MAE 2010-2015 for most seats are:



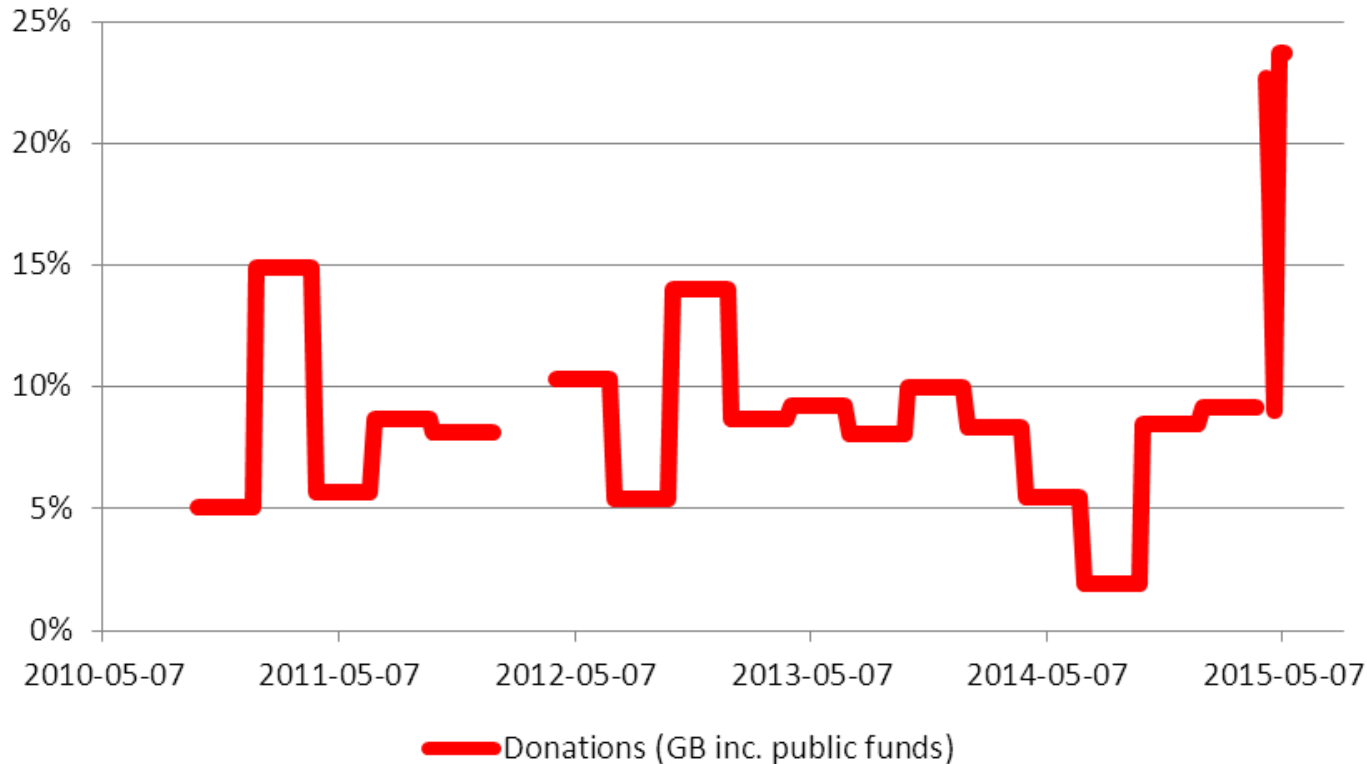
# MAE of selected bookies over time for the 2015 UK General Election (total seats)

- Total seats is sparse data, and I could only capture four bookies offering total seats extending over a year prior to polling day: Ladbrokes, Paddypower, StanJames, Unibet. The MAE 2010-2015 for total seats are below. Note that these only extend to May 3<sup>rd</sup> 2015:



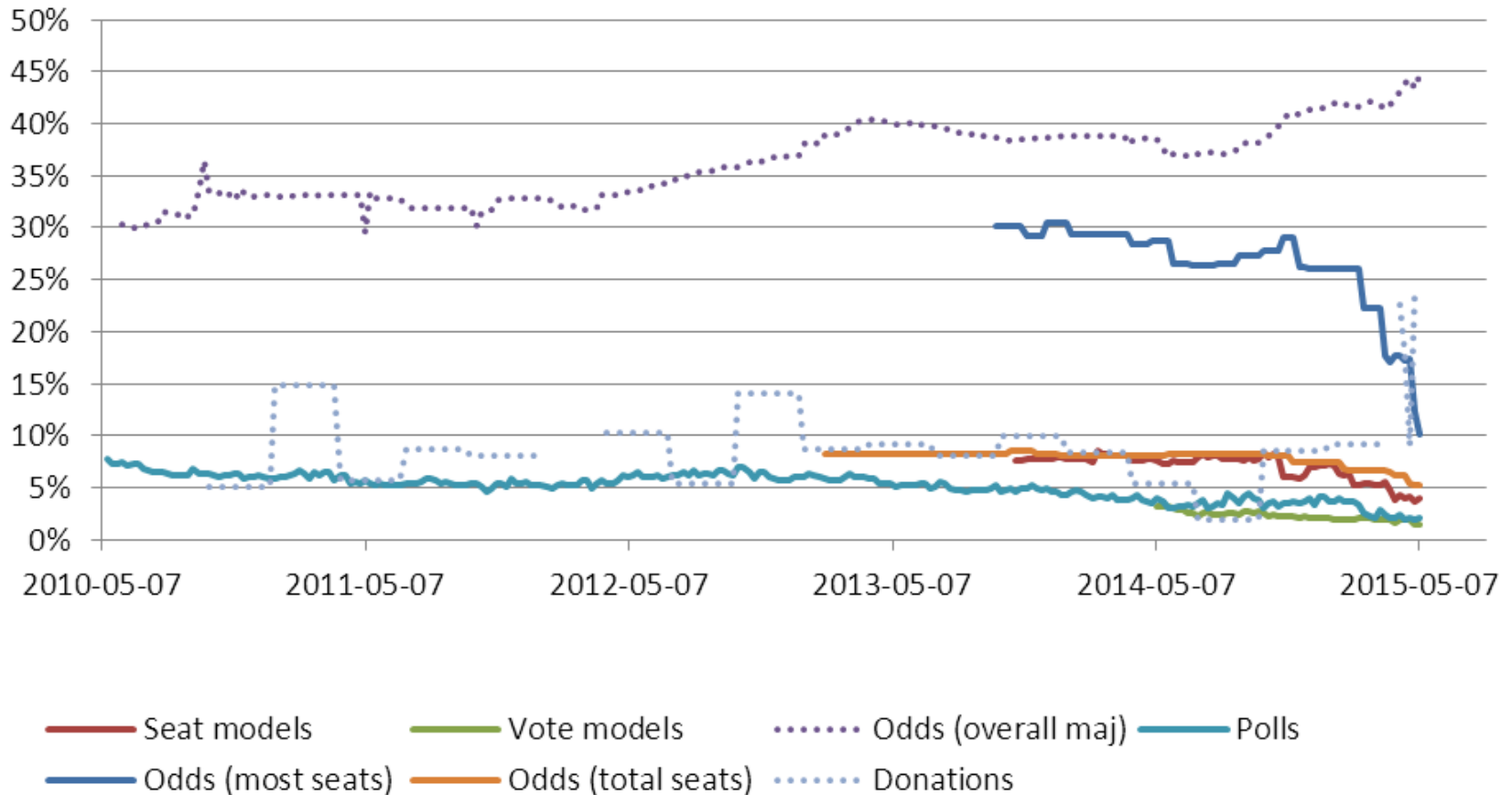
# MAE of donations (inc public funds) over time for the 2015 UK General Election (% per period)

- Electoral Commission periodically publishes reports on donations (inc public funds) to GB political parties. The MAE between the published proportion of donations gotten per period 2010-2015, and the proportion of votes gotten, are given below. Note that the Q42011 and Q12015 reports were not accessible before the election.



# MAE of selected polls, modellers and odds over time for the 2015 UK General Election

- Putting the graph averages on the same graph gives us this:



# Part 6: Summary and further work

- There are numerous indicators that one can use as predictors for a UK General Election
- Pollsters and modellers perform better than betting odds and donations.
- Other indicators may or may not have given a better picture, and future work will focus on them.
- But right now we do not have a good predictor of the outcome of a UK General Election
- Any questions, you can ask me now or via [myemailforrss2014@gmail.com](mailto:myemailforrss2014@gmail.com)



# Links

- [http://www.statslife.org.uk/files/Forecast\\_Error\\_-\\_full\\_version\\_including\\_appendices.pdf](http://www.statslife.org.uk/files/Forecast_Error_-_full_version_including_appendices.pdf)
- <http://www.statslife.org.uk/files/Predicting-Elections-Article-and-Appendices.pdf>

# Notes

- Total seat data only reconstructed to 3<sup>rd</sup> May 2015
- The final seat spreads before the exit poll from Sporting Index at 20:52 on May 7<sup>th</sup> 2015 were Conservative 285 - 289 Labour 266 - 270 Liberal Democrats 25.5 - 27.5. See <https://archive.is/SyJcS>