Learning (and Unlearning) from the Media and Political Parties: Evidence from a YouGov-SMaPP 2015 UK Election Survey

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May 16, 2017

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4. Heterogenous treatment effects:
   - (Individual characteristics)
   - **Sender** characteristics
   - **Issue** characteristics

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  - Caveat: Timeline is proxy for tweets seen

Hypothesis

*Exposure to information sent by certain political parties on strategically advantageous topic will be **positively** related to an increase in general surveillance knowledge associated with those issues:*

*(A) Tweets from incumbent parties will **increase** knowledge about decreases in unemployment;*

*(B) Tweets from opposition parties will **decrease** knowledge about decreases in unemployment;*

*(C) Tweets from UKIP will **increase** estimates of the number of immigrants coming to the UK.*

- Divide political accounts by party
- Divide media accounts by "expert coded" ideology
- Assign each tweet to a topic

Descriptive Statistics - Exposure Numbers

Distribution of Tweets Received by Followers of Each Group

	ISIS	EU	Economy	Immigration
Labour (532 resp)	3%	15%	**49%**	34%
Tory (472 resp)	3%	25%	**45%**	27%
LibDem (224 resp)	1%	29%	42%	28%
UKIP (102 resp)	1%	**36%**	19%	**44%**
Right Media (184 resp)	4%	25%	38%	33%
Centrist Media (763 resp)	6%	26%	35%	33%
Left Media (161 resp)	6%	33%	35%	25%

- (Unemployment) Compared to a year ago, has unemployment in Great Britain increased or **decreased**?

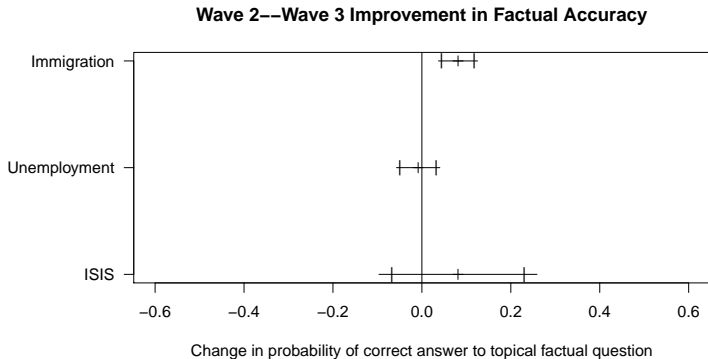|	Unemployment		
	Right W2	Wrong W2	Total W3
Right W3	51%	10%	61%
Wrong W3	13%	26%	39%
Total W2	64%	36%	

N = 1,226

- (Immigration) Over the past 5 years, has the number of immigrants to the United Kingdom from other EU countries been: Less than 100,000 per year, **Between 100,000 and 300,000 per year**, Between 300,000 and 500,000 per year, More than 500,000 per year?

	Immigration		
	Right W2	Wrong W2	Total W3
Right W3	31%	17%	48%
Wrong W3	20%	32%	52%
Total W2	51%	49%	

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Wave 2––Wave 3 Improvement in Factual Accuracy

Change in probability of correct answer to topical factual question
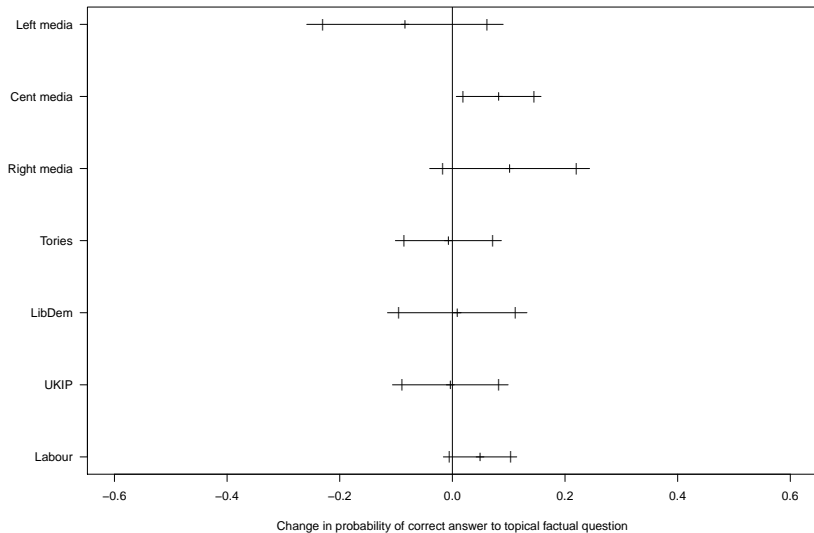
Effects of Tweets on Wave 2––Wave 3 Changes in Factual Question Accuracy
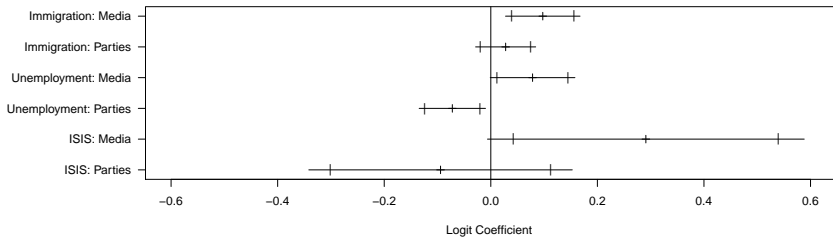
Tweets per Topic by Partisan Source: Immigration

Wave 2−−Wave 3 Improvement in Factual Accuracy: Immigration

Change in probability of correct answer to topical factual question

Tweets per Topic by Partisan Source: Unemployment

Wave 2––Wave 3 Improvement in Factual Accuracy: Unemployment

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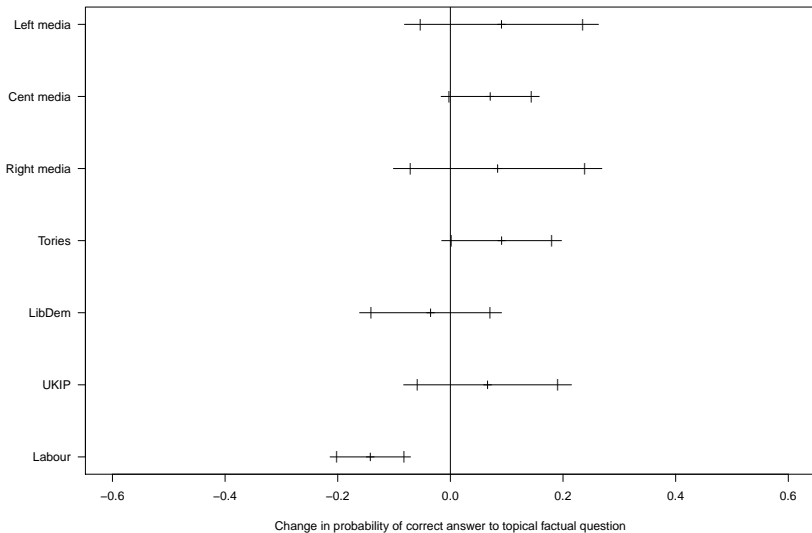
BUT.. Change in Direction by Partisan Source

	Dependent variable:	
	Estimate of Unemployment W3 - Estimate of Unemployment W2	Estimate of Immigration W3 - Estimate of Immigration W2
Labour Tweets	0.090** (0.020)	−0.040[†] (0.021)
UKIP Tweets	0.001 (0.041)	0.070* (0.030)
LibDem Tweets	0.014 (0.034)	−0.045 (0.037)
Tory Tweets	−0.041 (0.029)	− 0.003 (0.029)
Right Media Tweets	−0.101 [†] (0.060)	0.013 (0.044)
Center Media Tweets	− 0.029 (0.025)	0.017 (0.024)
Left Media Tweets	−0.066 (0.049)	0.085 (0.055)
Demographic controls	✓	✓
Media Use controls	✓	✓
Observations	1,713	1,398

Estimates of the impact of the number of tweets in the respondent's timeline sent by an account affiliated with that party or group of media outlets *and* related to the that topic, calculated from two separate regressions.

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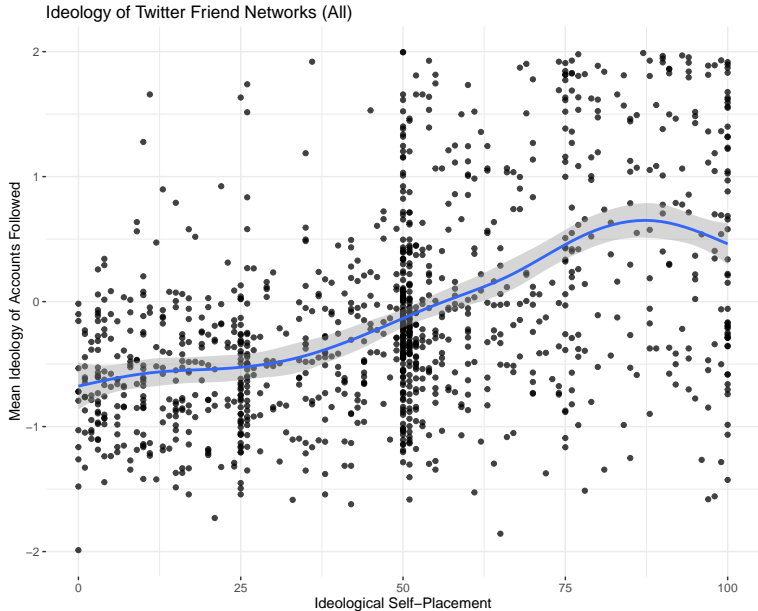   - Who saw/shared the most fake news stories?

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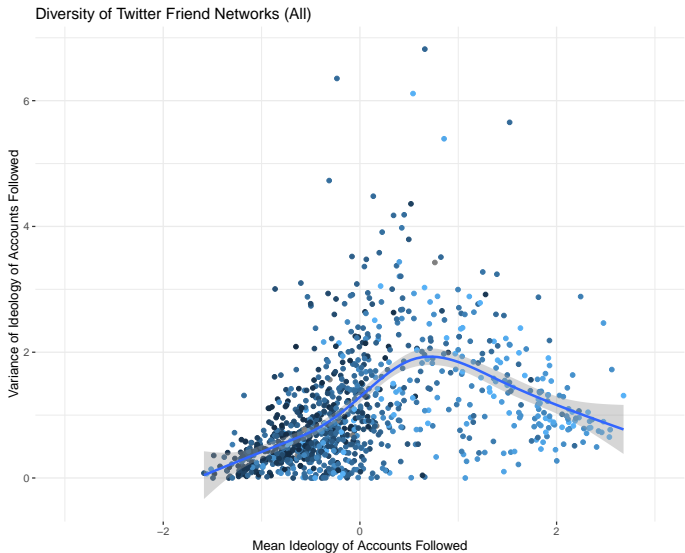   - Did people who changed their vote intention see a lot of partisan news?

Correlation Between Estimated and Self-Reported Ideology

Ideology of Twitter Friend Networks (All)

Diversity of Twitter Friend Networks (All)

Diversity of Twitter Friend Networks (Media/Journalists)
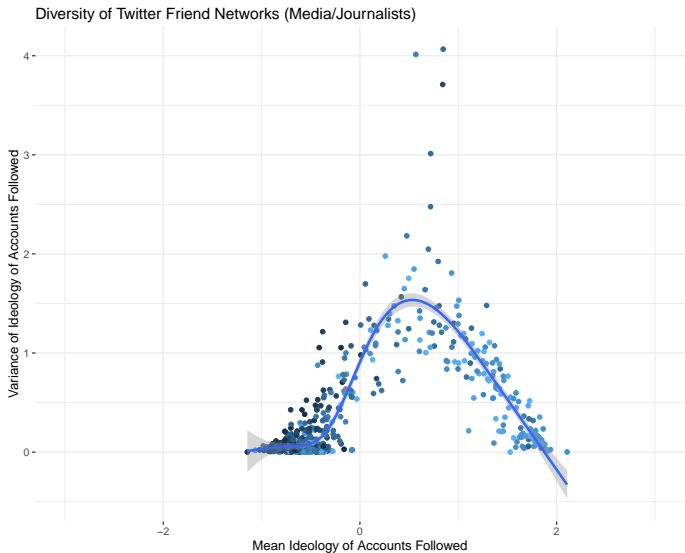
Objective Measures of Social Media Use

White Identity and Tweet Frequency
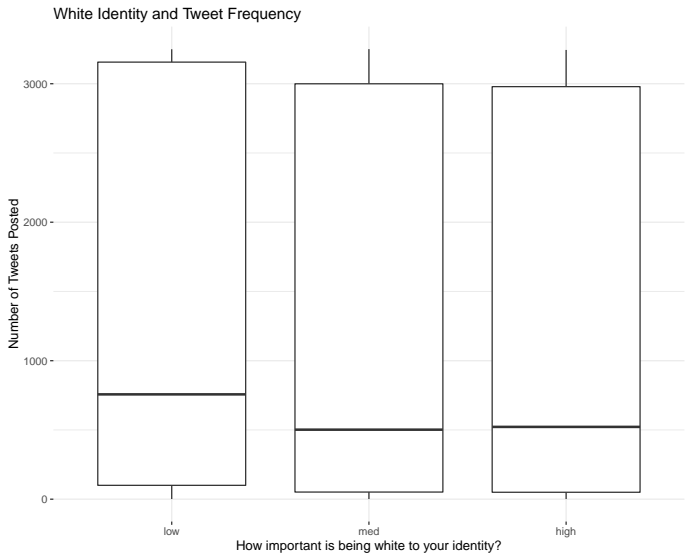
km2713@nyu.edu
@kmmunger

	SOMA	SOMA w Tweets	BES
Women	45%	43%	50%
15+ Years Education	52%	55%	41%
Median Age	48	48	53
Median HH Income	£34,200	£37,500	£27,500
Median L-R Ideology†	5.2	5.2	4.6

† Self-reported ideology, left to right; asked on a 0-100 scale in our survey and on a 0-10 scale in the BES.

Retention

Table: Retention Rates Among Survey Respondents

Sample	Wave 1	Wave 2	Wave 3	Wave 4	All Waves
NR	1,118	1,047	1,094	958	1,660
Retention		63%	71%	87%	465 (in all 4 waves)
SoMA	2,574	2,507	2,776	2,490	3,846
Retention		68%	79%	90%	1,308 (in all 4 waves)

Table: Retention rates were high, and there were 1,308 respondents in the SoMA sample that completed all 4 waves of the survey. Note that wave 4 is the only post-election wave.

	SOMA	SOMA w Tweets	Election
Conservative	33	32	37
Labour	34	35	31
Liberal Democrats	8	9	8
SNP	5	5	5
UKIP	9	8	13
Green	10	11	4
Other	1	1	3
	100%	100%	100%

Identifying Tweets on Topics

- Begin with anchor terms for each topic:
  - "Ties to the EU": 'brexit'
- Compute Relevancy Score per word:

$$Score_s^w = f_s^w f^w N_s^w$$

- f_s^w: relative frequency of word w in subset s
- f^w: frequency of word w overall
- N_s^w: count of word w in subset s
- s: combined text of all tweets containing eg 'brexit'

Table: Top Terms Pertaining to the Topic "Ties to the EU"

Term	Score
brexit	1000
no2eu	44
betteroffout	18
eureferendum	6.7
eu	6.7
euref	5.9
grexit	2.2
scoxit	1.5
stayineu	1.3
flexcit	1.3

Table: Examples of the terms we found to tend to co-occur with our anchor terms for the topic "Ties to the EU." We used this process to find terms that identify a tweet as pertaining to a topic of interest.

Placement of Parties in Waves 1 and 4

	EU, N= 1,220	
Correct Order W1	LibDem < Labour < Conservatives < UKIP	
Correct Order W4	LibDem = Labour < Conservatives < UKIP	
	Right W1	Wrong W1
Right W4	52%	26%
Wrong W4	5%	17%
	Immigration, N= 1,197	
Correct Order W1	Labour = LibDem < Conservatives < UKIP	
Correct Order W4	Labour = LibDem < Conservatives < UKIP	
	Right W1	Wrong W1
Right W4	62%	14%
Wrong W4	10%	14%
	Spending, N= 937	
Correct Order W1	Labour < LibDem < Conservatives = UKIP	
Correct Order W4	Labour < LibDem < Conservatives = UKIP	
	Right W1	Wrong W1
Right W4	36%	19%
Wrong W4	16%	29%