Fox News and Political Knowledge

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Motivation

- Media bias exists (ideological horizontal differentiation)
  - (Groseclose and Milyo, QJE, 2005; Gentzkow and Shapiro, Ecta, 2010)
- But is bias bad? Not necessarily
  - (Gentzkow, Shapiro and Stone, *Handbook of Media Economics* chapter in preparation)
- Empirically: Does bias decrease/increase knowledge?
  - Not much literature here (beyond correlations)
  - We contribute by studying Fox News.

Effects on voting

- DellaVigna and Kaplan (QJE 2007)
  - Fox News led to 0.4-0.7% increase in voting Republican
  - Identified by gradual, quasi-random rollout.
  - Hopkins and Ladd (forthcoming), Martin and Yurukoglu (2014)
- Why? One potential channel - knowledge effects.

Does bias decrease/increase knowledge?
Theory is ambiguous.

Table 2: Mechanisms identified by theory literature by which partisan news outlets can affect voter knowledge

Mechanism	Effect	Representative Paper
1. Cross-checking: biased outlet reports novel information that complements other news	+	Mullainathan and Shleifer (2005)
2. Rational delegation: biased outlet acts as an optimal advisor for partisan consumers, who (rationally) would be unpersuaded to change action by neutral outlet	+	Chan and Suen (2008)
3. Market expansion: biased outlet reaches consumers who otherwise would get no news	+	Burke (2008)
4. Entertainment and belief-confirmation utility: consumers enjoy biased news despite knowing it is uninformative	-	Bernhardt, Krasa, Polborn (2008)
5. Irrational delegation: biased consumers falsely think biased outlet gives better advice than neutral outlet	-	Stone (2011)
6. Supply-side, monopoly market: outlet uses bias to attempt to manipulate audience	-	Anderson and McLaren (2012)
7. Supply-side, competitive market w/obfuscation: consumers unwittingly obtain biased news due to naivete/ignorance	-	DellaVigna and Kaplan (2007)

Stylized Model

- Voters: Preferences for information (belief-changing) and political preference affirmation.
- News Outlet: Objective function includes voting influence and direct profits
  - Can report factual news or cheap talk report on valence of candidates
- Predictions:
  - Increase knowledge for policy issues that are favorable to Republicans
    - more so when beliefs would otherwise be inaccurate.
  - Decrease knowledge on issues favorable to Democrats.
  - All effects greatest for non-Democrats (most likely to watch)

Data

Knowledge data: The National Annenberg Election Survey (NAES)

- Conducted each presidential election year, starting 2000
- In 2000, 58,373 interviews; in 2004, 81,422; in 2008, 57,967.
- Hopkins and Ladd (2012) use to study 2000 voting effects (HL)
- Demographic, political/ideological/attitude, media consumption (no Fox in 2000)
- Merge with: Census ZCTA (zip) level demographic data for 2000, 2010, linear interpolation for 04 and 08 (population, race, education, income, employment)

Each poll includes 20+ *interesting* questions on political (mostly campaign) issues with factual answers

- Who favors doubling the amount families can deduct from their income tax for each child they have, George W. Bush or Al Gore? (Bush)
- Who favors paying down the national debt the most, George W. Bush or Al Gore? (Gore)

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- John Kerry says that he would eliminate George W. Bush's tax cuts on those making how much money - over $50,000 a year; over $100,000 a year; over $200,000 a year; or over $500,000 a year? ($200,000)

- Who favors the Medicare prescription drug law that was recently enacted - George W. Bush, John Kerry, both or neither? (Bush)

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- Who favors the Medicare prescription drug law that was recently enacted - George W. Bush, John Kerry, both or neither? (Bush)

- Which candidate(s) is proposing a health care reform plan that mandates that children have health insurance: John McCain, Barack Obama, both, or neither? (Obama)

- Which candidate(s) would provide individuals $2,500 or families $5,000 to help them buy their own health insurance: John McCain, Barack Obama, both, or neither? (McCain)

Fox and cable data

- Cable is local natural monopoly. Highly decentralized
- Fox News began in October, 1996; main (stated) goal to grow subscribers as quickly as possible (Collins, 2004)
- DK data: Fox availability in 2000 and 2003 for around 20,000 towns, 33 states
  - Also: number channels in 2000; cable system in 2000, 2003
- Collected from annual industry factbooks
- We add FNC access data from factbooks and number of channels for 2004 and 2008
- Updating issue
  - We look at 4 year intervals
  - Dynamic effects
  - Voting effects not too different

Summary stats

	2000	2004	2008
Fox	0.238	0.774	0.957
Knowledge Qs	13.44	9.62	9.15
% Correct	0.461	0.542	0.533
n	31,717	25,856	27,720

Power, data integrity and exogeneity

- Investigate power by checking treatment effects we know should occur
  - 1) Voting Repub (2000 especially);
  - 2) Watching Fox (questions in 04 and 08 only)
  - Verify that we can detect effects. (Voting 2% in 2000, 1% in pooled data)

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- Exogeneity of Fox access?
    - DK: yes (in 2000), with congressional district or county FEs (and other controls)
    - HL: yes (in 2000), with state FEs (+ controls)
    - We verify holds in all years, and check relation to *education*
    - $Fox_i = \delta^V V_i + \delta^E E_i + \beta X_i + \epsilon_i$
    - Some evidence of small effect of education on FNC access in 2000 and 2004.

Knowledge analysis

$$I_{ij} = \delta_j Fox_i + X_i\beta_j + \alpha_j + \epsilon_{ij}.$$

I_{ij} is dummy, equal to one if i answers question j correctly

X_i = respondent-specific controls; α_j is question-specific constant, captures question's difficulty

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So estimate:

$$\overline{y}_i = \frac{1}{n_i} \sum_j d_{ij} I_{ij} = \widetilde{\delta} Fox_i + X_i \widetilde{\beta} + \frac{1}{n_i} \sum_j d_{ij} \alpha_j + \widetilde{\epsilon}_i.$$

Specific knowledge

Model prediction: Positive/larger effects on issues more favorable to Rs.

- Exploit survey questions on respondents' own policy preferences.
  - Ex: "Do you personally favor or oppose requiring a license for a person to buy a handgun?"
- Code as pro-R if over half of likely viewers (non-Democrats) with a preference prefer R position or are opposed to D position.

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Effect should be proportional to percentage of people who are "persuadable" or "treatable".

- For pro-R questions, $\widehat{treatable} = 1 - \bar{y}_j^i$, the fraction of non-Democrats with Fox=0 who got question j wrong.
- For anti-R questions, $\widehat{treatable} = \bar{y}_j^i$,

Informativeness

Model prediction: Heterogeneous effects due to choice of issues to cover.

- Examine transcripts from FNC programs.
  - The *O'Reilly Factor* and *Special Report with Brit Hume*
  - Randomly chosen transcripts
- Use keywords to identify potentially relevant content.
- Use workers from Mechanical Turk and our own judgment to code content: misleading, irrelevant, informative.
- *TInfo*: mean 0.47, max 4, min -1.

Results: All knowledge questions
Dependent variable: % questions answered correctly

	(1)	(2)	(3)	(4)	(5)	(6)
2000 only						
Fox$_i$	-0.343	-0.096	-0.256	-0.449	-2.293**	0.957
	(0.383)	(0.549)	(0.450)	(0.741)	(1.153)	(2.121)
Adjusted R^2	0.253	0.261	0.248	0.258	0.245	0.259
N	29912	29912	20659	20659	14759	14759
Y-mean	47.297	47.297	46.420	46.420	46.570	46.570
2004 only						
Fox$_i$	1.050**	0.893	1.241**	1.149	1.487***	1.803*
	(0.480)	(0.759)	(0.566)	(0.888)	(0.563)	(0.979)
Adjusted R^2	0.354	0.363	0.354	0.367	0.353	0.365
N	22929	22929	15656	15656	11584	11584
Y-mean	53.099	53.099	52.473	52.473	51.997	51.997
2000-04-08						
Fox$_i$	0.068	-0.166	0.123	0.113	0.373	0.446
	(0.273)	(0.310)	(0.313)	(0.363)	(0.370)	(0.508)
Adjusted R^2	0.301	0.305	0.299	0.303	0.297	0.305
N	79285	79285	53512	53512	38318	38318
Y-mean	50.742	50.742	50.127	50.127	49.936	49.936
State FE	✓		✓		✓	
County FE		✓		✓		✓
Non-Democrat			✓	✓		
Low Channels					✓	✓

	Pro-Repub Questions ($\widehat{treatable}_i = (1 - \bar{y}_j^i)$)				Anti-Repub Questions ($\widehat{treatable}_i = \bar{y}_j^i$)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000 only								
$Fox_i \times \widehat{treatable}_i$	4.880	1.018	-8.870	4.237	-0.466	-0.373	2.227	1.010
	(3.059)	(3.924)	(9.892)	(3.628))	(1.383)	(1.876)	(5.240)	(1.735)
Adjusted R^2	0.188	0.197	0.190	0.173	0.220	0.210	0.220	0.205
N	23880	16580	11670	16627	25236	17474	12308	17674
Y-mean	64.758	66.664	63.942	72.258	46.107	44.749	45.323	50.476
2004 only								
$Fox_i \times \widehat{treatable}_i$	7.208**	7.320*	11.818***	8.555**	3.212	3.889	6.623**	-0.688
	(3.377)	(3.931)	(4.297)	(4.067)	(2.600)	(3.190)	(3.272)	(2.946)
Adjusted R^2	0.211	0.215	0.206	0.185	0.216	0.199	0.217	0.207
N	14141	9597	7081	10509	14141	9597	7081	10509
Y-mean	55.362	56.028	54.270	61.285	54.491	51.537	52.952	58.718
2000-04-08								
$Fox_i \times \widehat{treatable}_i$	2.175	3.166*	3.169*	3.199*	-0.719	0.026	0.854	-0.583
	(1.456)	(1.669)	(1.895)	(1.708)	(0.862)	(1.119)	(1.546)	(0.948)
Adjusted R^2	0.213	0.217	0.209	0.213	0.255	0.244	0.257	0.247
N	52667	35682	25376	39830	52346	35485	25236	39407
Y-mean	56.145	57.205	55.543	60.831	48.894	47.180	47.920	53.495
Non-Democrat		✓				✓		
Low Channels			✓				✓	
Follow News				✓				✓

Results: Transcript informativeness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000 only								
Fox_i	-1.475**	-1.207	-2.347***	-2.637**	1.004	7.097	-1.553*	-1.298
	(0.698)	(0.827)	(0.869)	(1.090)	(3.640)	(4.880)	(0.803)	(0.991)
$Fox_i \times TInfo_i$	2.518*	2.441*	4.667***	4.853***	-7.505	-13.774	3.137**	3.614**
	(1.406)	(1.440)	(1.723)	(1.794)	(8.195)	(9.565)	(1.541)	(1.602)
Adjusted R^2	0.253	0.261	0.248	0.258	0.245	0.259	0.235	0.248
N	29912	29912	20659	20659	14759	14759	20831	20831
2004 only								
Fox_i	0.828	0.504	0.916	0.711	1.324	1.454	1.023	0.526
	(0.772)	(1.035)	(0.874)	(1.222)	(0.914)	(1.277)	(0.878)	(1.210)
$Fox_i \times TInfo_i$	0.249	0.404	0.363	0.454	0.190	0.389	-0.365	-0.166
	(0.671)	(0.735)	(0.769)	(0.878)	(0.815)	(0.917)	(0.762)	(0.857)
Adjusted R^2	0.354	0.363	0.354	0.367	0.353	0.365	0.345	0.354
N	22929	22929	15656	15656	11584	11584	15506	15506
2000-04-08								
Fox_i	-0.910**	-1.155***	-1.308**	-1.254**	-0.895	-0.533	-0.528	-0.781
	(0.418)	(0.437)	(0.511)	(0.566)	(0.739)	(0.884)	(0.449)	(0.485)
$Fox_i \times TInfo_i$	1.649***	1.624***	2.409***	2.247***	1.720*	1.284	1.098*	1.019*
	(0.569)	(0.575)	(0.697)	(0.708)	(0.880)	(0.945)	(0.602)	(0.599)
Adjusted R^2	0.301	0.305	0.299	0.304	0.297	0.305	0.280	0.285
N	79285	79285	53512	53512	38318	38318	58847	58847
State FE	✓		✓		✓		✓	
County FE		✓		✓		✓		✓
Non-Democrat			✓	✓				
Low Channels					✓	✓		

Discussion

- Individual effects
  - 95% confidence intervals for full sample both fall within [-0.77, 0.60]
  - DK: Fox_i causes 3% increase in watching Fox 'a lot'; 9% in watching Fox 'a little'
  - Roughly, implies 95% interval of knowledge effects of [-31%,23%] for those who watch a lot
  - And [-9.0%,7.0%] for those who watch a little
  - Both are arguably small
- We are interested in aggregate effects anyway (incorporating spill-overs) - which are obviously even smaller

Results: Other outcomes

	Newspaper		Online News		Follow News	
	Def. 1	Def. 2	Def. 1	Def. 2	Def. 1	Def. 2
	(1)	(2)	(3)	(4)	(5)	(6)
2000 only						
Fox_i	-0.132*	-0.024**	0.014	0.004	-0.024**	-0.012
	(0.070)	(0.011)	(0.047)	(0.010)	(0.011)	(0.011)
Adjusted R^2	0.185	0.08	0.100	0.116	0.169	0.172
N	29,874	29,912	29,816	29,912	29,744	29,744
Y-mean	3.879	0.793	1.048	0.249	0.700	0.352
2004 only						
Fox_i	0.005	-0.005	0.109**	0.020*	-0.009	0.021
	(0.086)	(0.014)	(0.052)	(0.012)	(0.014)	(0.015)
Adjusted R^2	0.184	0.085	0.093	0.111	0.150	0.150
N	22,900	22,929	22,883	22,929	20,266	20,266
Y-mean	3.917	0.784	0.827	0.226	0.765	0.399
2000, 2004, 2008						
Fox_i	-0.027	-0.011*	0.016	0.002	-0.008	0.004
	(0.042)	(0.006)	(0.026)	(0.005)	(0.006)	(0.006)
Adjusted R^2	0.191	0.118	0.192	0.188	0.159	0.153
N	79,081	79,285	78,961	79,285	76,322	76,322
Y-mean	3.620	0.732	1.402	0.310	0.771	0.391
County FE						

Conclusion

- FNC access did not have large effects on political knowledge from 2000 to 2008
  - May have increased knowledge in 2004
  - Especially on topics favorable to Republicans (some evidence of this in other years as well).
- FNC access increased knowledge about topics on which it focused attention, and decreased knowledge on other issues.
- Variation across years
  - E.g., FNC may have sparked more consumption of online news in 2004
- Reasons our analysis could understate impact of Fox
  - non-local spillovers
  - influence content of other news
  - non-informative content that still affects voting