

14.770: Media Bias

Ben Olken

Why is the media special?

- Citizens need information in order to participate in politics
 - Information about the state of the world
 - Information about the political views of various political actors
 - Information about government policy
 - Information about the competence / honesty of political actors and government
- Information acquisition and transmission is a high fixed cost, low marginal cost activity.
 - So it doesn't make sense for each citizen to collect information directly (i.e., everyone can't be a reporter)
- The media are the organizations – either public, private non-profit, or private for-profit – that collect this information and distribute it to citizens.

Why is the media special?

- We'll discuss
 - Evidence that politicians may seek to influence the media
 - How the media may (or may not) filter the information in various ways.
 - How citizens deal with this filtration of information
 - How this information – and its distortions – affects voting
 - How this information – and its distortions – affects policy

- Does media matter for politics?
 - Politicians seem to think so.
- Media bias and voting.
 - Private media
 - Theory of endogenous media bias
 - Empirical implications for voting
 - Public media
- Media's impact on policy.

How much is media support worth?

McMillan and Zoido 2004

- Peru's President Fujimori bribed a wide variety of people for support during the May 2000 election
 - His cabinet, politicians, judges, media, etc.
- His chief security officer – Vladmiro Montesinos Torres – actually paid the bribes. Montesinos kept detailed records, with receipts, and even videotaped all bribe transactions.
- McMillan and Zoido (2004) analyze the videotapes and receipts to determine the price of support from various types of people
- Key finding: bribes to media owners are orders of magnitude larger than bribes to anyone else

Bribes of politicians

Table 2

Political Capture

| <i>Name</i> | <i>Party (Presidential candidate)</i> | <i>Bribe (Monthly)</i> | <i>Favors</i> |
|---|---|----------------------------|---|
| <i>Those who changed their party for Peru 2000 (Fujimori's party)</i> | | | |
| José Luis Cáceres Velásquez | FREPAP (Ataucusi) | US\$20,000 | (*) +US\$50,000 (one-time) +US\$100,000 (one-time) +Judicial favors |
| Róger Cáceres Pérez | FREPAP (Ataucusi) | US\$20,000 | |
| Ruby Rodríguez de Aguilar | APRA (Salinas) | US\$50,000 | Judicial favors for her husband |
| Jorge Polack Merel | PSN (Castañeda) | ** | Vice President of the Foreign Relations Commission in Congress |
| Juan Carlos Miguel | PSN (Castañeda) | US\$10,000 | |
| Mendoza del Solar | | | |
| Gregorio Ticona Gómez | PP (Toledo) | US\$10,000 | US\$15,000 (signing bonus) +US\$20,000 (car) +US\$3,000 (apartment). Land deal in Titicaca Lake that would insure his reelection |
| José Luis Elías Ávalos | A (Salas) | US\$15,000 | +US\$40,000 ("campaign reimbursement") +US\$60,000 (continue campaigning) |
| Antonio Palomo Orefice | PP (Toledo) | US\$20,000 | |
| Mario Gonzáles Inga | PP (Toledo) | US\$20,000 | |
| Alberto Kouri | PP (Toledo) | US\$15,000 | |
| Edilberto Canales Pillaca | PP (Toledo) | | Judicial favors, Apparently no payment |
| Eduardo Farah | PSN (Castañeda) | | |

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Bribes of television

Table 4

Media Capture

| <i>TV channels</i> | <i>Bribe estimates</i> |
|---|--|
| America Television (Channel 4) Jose Francisco Crousillat | US\$9,000,000 in a signed contract for US\$1,500,000 per month from November 1999 to April 2000, possibly more (C) US\$619,000 in October 1998, promised more monthly payments (C) (BH) |
| <i>Frecuencia Latina</i> (Channel 2) Samuel and Mendel Winter (owners after Baruch Ivcher exiled) | US\$3,000,000 in a signed contract for US\$500,000 per month from November 1999 to April 2000, possibly more (R) US\$3,073,407 on December 1999 for an increase of capital that gave 27 percent of shares to Montesinos (R) |
| Panamericanan Television (Channel 5) Manuel Delgado Parker (brother of Genaro) and Ernest Schutz (shareholders) | US\$9,000,000 contract agreed by Shutz and Montesinos on video 1783. In total Montesinos claims he handed \$10,600,000 to Schutz (BH) US\$350,000 handed by Montesinos to Shutz, video screened by congress on October 2, 2001 (BH) |
| <i>Cable Canal De Noticias CCN</i> (Cable Channel Network) Vicente Silva Checa (Video 1778) | US\$2,000,000 for his shares in the CCN to the Ministry of Defense in November 1999 (C) |
| <i>Andina de Televisión (ATV)</i> (Channel 9) Julio Vera | US\$50,000 to fire Cecilia Valenzuela and Luis Iberico (C) |
| Red Global (Channel 13) Genaro Delgado Parker (brother of Manuel) | In exchange business help and judicial favors, Delgado Parker fired popular commentator Cesar Hidelbrandt (C) |

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Interpretation

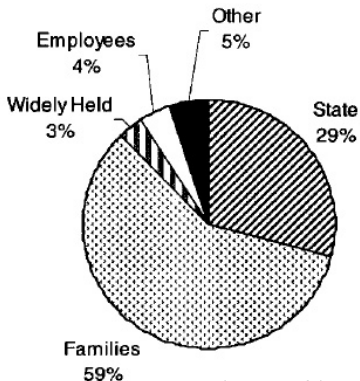
- Several potential explanations for why media's bribes are so much larger.
 - Income effects. Politician / judge bribes were between 1 - 10 times official salary. For television station owners, similar proportions of income would imply much larger bribes.
 - Hold-up power. Any single television station has potential to sway many voters, so each one has substantial bargaining power.
 - Note that in Congress, he bribed only enough people for a minimum winning coalition, plus a few more. This implies minority congressmen have very little bargaining power, and can compete rents down.
 - Note that for television, he bribes all television stations. Since even one television station can reach many people, you need to bribe all television stations. This implies that even one television station has a lot of bargaining power.
- Bottom line: at least as judged by bribe payments, media is a quite important part of the political process.
- Related aside: note that a top priority for coup holders is seizing control of the media

Political influence over media is systematic...

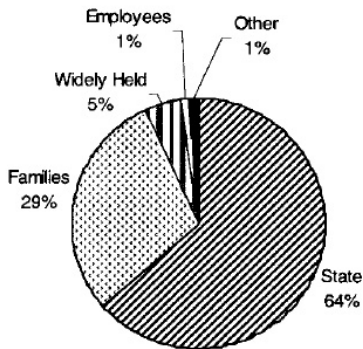
Djankov et al 2003

- Djankov et al (2003) study of 97 countries

Press Ownership, by Share



TV Ownership, by Share



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...and more common in autocratic regimes

TABLE 4

DETERMINANTS OF STATE OWNERSHIP OF THE MEDIA ($N = 97$ Countries)

| State Ownership | Gross National Product per Capita | State-Owned Enterprise Index | Autocracy | Primary School Enrollment | Constant | R^2 |
|-----------------------|-----------------------------------|------------------------------|---------------------|---------------------------|---------------------|-------|
| Press (by share) | -.0086** (.0026) | -.0181 (.0113) | -.6709** (.1441) | -.0031 (.0023) | 1.2522** (.2341) | .4920 |
| Television (by share) | .0046 (.0033) | -.0283* (.0132) | -.5849** (.1009) | -.0028 (.0017) | 1.4371** (.1719) | .3835 |
| Radio | -.0031 (.0060) | -.0463** (.0175) | -.3600** (.0983) | -.0041** (.0015) | 1.6043** (.1465) | .3058 |

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- Note that autocracy is defined so that 0 is most autocratic and 1 is least autocratic

More subtle forms of influence

- Influence can come even without ownership or censorship. How?
- Advertising
- Di Tella and Franceschelli (2011)
 - Governments need to advertise in newspapers (e.g. procurement tenders, legal notices, etc)
 - Look at relationship between government advertising and coverage of corruption in Argentina
 - One standard deviation increase in monthly government advertising correlated with reduction of 0.18 standard deviation in coverage of corruption

How about in the US?

Gentzkow, Petek, Shapiro, and Sinkinson, "Do Newspapers Serve the State? Incumbent Party Influence on the US Press, 1869-1928"

- Several examples.
- Gentzkow et al (2015):
 - They look at change in who is governor, and see if that affects the success (circulation, entry/exit, etc) of Democratic or Republican newspapers
 - Identified as diffs-in-diffs, and also using RDs, and find little
 - What does this tell us? But don't check slant of existing newspapers
- Qian and Yanagizawa-Drott (2015):
 - Study a particular example: coverage of foreign countries' human rights abuses by US newspapers
 - Find that allies get less coverage of abuses, and non-allies more, when they are on the UN Security Council
 - But is this the government? Best evidence is that it happens in Reagan and Bush Sr administrations only, consistent with anecdotal evidence they were working to manipulate the press more.
- Bottom line: I think there is more to do on understanding this question in US contexts

- The media plays an important role in the political process.
- But private media also has its own agenda: maximizing profits.
- How does the profit motive interact with media's special role as a purveyor of information?
- In particular, how does the media filter information?

What does media bias look like?

- Examples from Gentzkow and Shapiro (2006)
 - Fox News:
 - “In one of the deadliest reported firefights in Iraq since the fall of Saddam Hussein’s regime, US forces killed at least 54 Iraqis and captured eight others while fending off simultaneous convoy ambushes Sunday in the northern city of Samarra.”
 - New York Times:
 - “American commanders vowed Monday that the killing of as many as 54 insurgents in this central Iraqi town would serve as a lesson to those fighting the United States, but Iraqis disputed the death toll and said anger against America would only rise.”
 - Al-Jazeera.net:
 - “The US military has vowed to continue aggressive tactics after saying it killed 54 Iraqis following an ambush, but commanders admitted they had no proof to back up their claims. The only corpses at Samarra’s hospital were those of civilians, including two elderly Iranian visitors and a child.”

Theory: Gentzkow and Shapiro (2006)

- Model of reputations
 - Some (small fraction λ) of firms are “high quality,” receive perfect signal about the true state of the world, and report truthfully
 - Most firms ($1 - \lambda$) are “normal,” receive a noisy signal about the true state of the world, and can choose to report truthfully or not
- Key observation:
 - With Bayesian priors, individuals are more likely to believe a firm is “high quality” if the firm’s report matches the individual’s priors
 - So “normal” firms slant their reports so that they look more like the priors of their audience

Setup

- Binary state of the world $S \in \{L, R\}$
- Consumers must choose action (voting) $A \in \{L, R\}$.
- Payoff is 1 if $A = S$
- Normal firms receive a signal $s \in \{l, r\}$ which is accurate with probability $\pi > \frac{1}{2}$
- Consumers have prior belief about probability $S = R$ equal to $\theta \in (\frac{1}{2}, \pi)$.
- Firm strategies are the probabilities of reporting \hat{s} conditional on signal s : $\sigma_s(\hat{s})$.
- Firms perfectly price discriminate, so all consumers purchase news and observe the firm's report in equilibrium, and the firm extracts all surplus

Updating about quality

- Suppose consumer observes report \hat{r} . Likelihood ratio that this came from high quality firm is

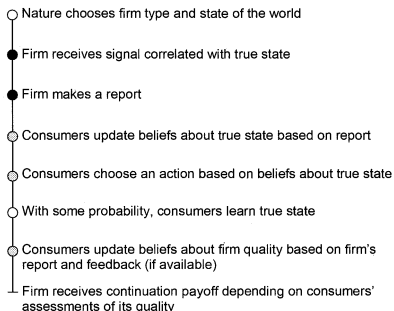
$$\frac{\Pr(\hat{r} \mid \text{high})}{\Pr(\hat{r} \mid \text{normal})} = \frac{\theta}{\theta [\rho_r(\hat{r}) \pi + \rho_l(\hat{r}) (1 - \pi)] + (1 - \theta) [\rho_r(\hat{r}) (1 - \pi) + \rho_l(\hat{r}) \pi]}$$

- Two key comparative statics:

- $\frac{\partial \frac{\Pr(\hat{r} \mid \text{high})}{\Pr(\hat{r} \mid \text{normal})}}{\partial \theta} > 0$. Intuition: as θ increases, probability that high type reports \hat{r} increases faster than probability normal type reports \hat{r} , because normal type doesn't have a perfect signal.
- $\frac{\partial \frac{\Pr(\hat{r} \mid \text{high})}{\Pr(\hat{r} \mid \text{normal})}}{\partial \rho(\hat{r})} < 0$. So low type can offset this by increasing probability of reporting \hat{r} .

Timing of the game

- After action taken, individual receives feedback about true state with probability μ .
- Denote posterior of *high* given report \hat{s} and feedback X as $\lambda(\hat{s}, X)$.
- Firm continuation values depend positively on $\lambda(\hat{s}, X)$.
- Timing of game:



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FIG. 3.—Timing of the monopoly game

Beliefs and equilibrium bias

- Given the game, all the results follow from Bayesian updating about quality.
- Suppose normal firms report both \hat{r} and \hat{l} with positive probability and $\theta > \frac{1}{2}$.
 - Then posterior belief about high quality given \hat{r} , $\lambda(\hat{r}, 0)$, is increasing in θ and decreasing in $\rho_r(\hat{r})$ and $\rho_l(\hat{r})$.
- Suppose $\mu = 0$ (no updating ex-post).
 - Then in equilibrium consumers don't update based on signals.
 - Firms are indifferent, so randomize such that consumers don't update in equilibrium, i.e. so that $\lambda(\hat{r}, 0) = \lambda(\hat{l}, 0)$. This implies that in equilibrium firms report \hat{r} with probability θ .
 - This involves distortion, since a truthful normal firm would report \hat{r} with probability $\theta\pi + (1 - \theta)(1 - \pi) < \theta$. So biased towards r .
 - One equilibrium that supports this is to report \hat{r} whenever receive an r signal, and also report \hat{r} sometimes when you receive an l signal.

Beliefs and equilibrium bias

- Suppose $\mu = 1$ (full updating ex-post).
 - Then in equilibrium consumers find out the truth exactly each time.
 - Firms therefore truthfully report, because they will be found out to be normal if they disagree with ex-post feedback.
 - No bias.
- Suppose $0 < \mu < 1$.
 - For μ low enough, there will be bias.
 - If there is bias, the bias is increasing in θ .

Competition

- In the model, competition is modeled as an increase in the probability you find out the truth (μ)
- J firms. One firm gets news first, $J - 1$ other firms report information after. Some fraction of population reads a second newspaper; this fraction is increasing in J .
- Simple version: suppose these subsequent firms report truthfully. Then probability of feedback μ is increasing in J , so by the above logic, increasing J reduces bias.
- Authors show that the same logic applies more generally.

Market segmentation

- Suppose two groups of consumers:
 - Group L has prior $1 - \theta$
 - Group R has prior θ
- Two firms. Each consumer can view only one firm's report.
- Key insight:
 - A firm that biases towards \hat{r} will always report r truthfully and sometimes distort l . This firm is more valuable to those with R prior.
 - So R prior people read the right-slanted newspaper, and L prior people read the left-slanted newspaper.
 - There is therefore an equilibrium where firms segment the market
 - And a signal of \hat{l} from a r -biased newspaper is more meaningful than a signal of \hat{r} from an r -biased newspaper.

Summary of predictions

- Media may introduce bias into its coverage
- Competition can either
 - Decrease bias if it increases probability of truth being revealed
 - Lead to segmentation of market according to bias
- Bias can affect actions of citizens, even if they understand there is bias
- Signals counter to a media source's normal bias are more informative than those that are consistent with slant
- People adjust their media consumption choices optimally given their priors and the bias of the media

Empirical questions

- Empirical questions we'll examine:
 - ① Is bias driven by profit-maximization or owner preferences?
 - ② Does biased media affect voting?
 - ③ Do people update more if signals are contrary to bias?
 - ④ Do people adjust media consumption endogenously in response to a change in bias?
- Note: this evidence all comes from the US

1. Does bias come from profit-maximization, or owner preferences?

Gentzkow and Shapiro (2010)

- Two views of where media bias comes from:
 - Media owners who have strong political ideologies (think: William Randolph Hearst historically, Rupert Murdoch vs. Arthur Sulzberger today)
 - Media voters just want to maximize profits, and bias is profit maximizing as in Gentzkow Shapiro 2006
- They develop a new empirical measure of media slant and test for profit maximization

Measuring media slant

- For each two and three word phrase, use the Congressional record to measure the relative likelihood it is used by Democrats or Republicans
 - e.g. "death tax" (R: 365, D:46) vs. "estate tax" (R:35, D: 195)
- Specifically, let f_{pld} and f_{plr} be number of times phrase p is uttered by Democrats and Republicans. $f_{\sim pld}$ is number of phrases that are not p uttered by Democrats, etc
- Slant measure is Pearson's χ^2 statistic:

$$S = \frac{(f_{plr} f_{\sim pld} - f_{pld} f_{\sim plr})^2}{(f_{plr} + f_{pld})(f_{plr} + f_{\sim plr})(f_{pld} + f_{\sim pld})(f_{\sim plr} + f_{\sim pld})}$$
$$= \frac{f_{\sim pld}^2 f_{\sim plr}^2 \left(\frac{f_{plr}}{f_{\sim plr}} - \frac{f_{pld}}{f_{\sim pld}} \right)^2}{(f_{plr} + f_{pld})(f_{plr} + f_{\sim plr})(f_{pld} + f_{\sim pld})(f_{\sim plr} + f_{\sim pld})}$$

- Test statistic for null hypothesis that the propensity to use phrase p of length l is equal for Democrats and Republicans.
- This captures asymmetry: note that $S = 0$ if $\frac{f_{plr}}{f_{\sim plr}} = \frac{f_{pld}}{f_{\sim pld}}$

Examples of slant

TABLE I
MOST PARTISAN PHRASES FROM THE 2005 CONGRESSIONAL RECORD^a

| Panel A: Phrases Used More Often by Democrats | | |
|---|-------------------------------|---------------------------------|
| <i>Two-Word Phrases</i> | | |
| private accounts | Rosa Parks | workers rights |
| trade agreement | President budget | poor people |
| American people | Republican party | Republican leader |
| tax breaks | change the rules | Arctic refuge |
| trade deficit | minimum wage | cut funding |
| oil companies | budget deficit | American workers |
| credit card | Republican senators | living in poverty |
| nuclear option | privatization plan | Senate Republicans |
| war in Iraq | wildlife refuge | fuel efficiency |
| middle class | card companies | national wildlife |
| <i>Three-Word Phrases</i> | | |
| veterans health care | corporation for public | cut health care |
| congressional black caucus | broadcasting | civil rights movement |
| VA health care | additional tax cuts | cuts to child support |
| billion in tax cuts | pay for tax cuts | drilling in the Arctic National |
| credit card companies | tax cuts for people | victims of gun violence |
| security trust fund | oil and gas companies | solvency of social security |
| social security trust | prescription drug bill | Voting Rights Act |
| privatize social security | caliber sniper rifles | war in Iraq and Afghanistan |
| American free trade | increase in the minimum wage | civil rights protections |
| central American free | system of checks and balances | credit card debt |
| | middle class families | |

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Examples of slant

TABLE I—Continued

| Panel B: Phrases Used More Often by Republicans | | |
|---|---------------------------|--------------------------|
| <i>Two-Word Phrases</i> | | |
| stem cell | personal accounts | retirement accounts |
| natural gas | Saddam Hussein | government spending |
| death tax | pass the bill | national forest |
| illegal aliens | private property | minority leader |
| class action | border security | urge support |
| war on terror | President announces | cell lines |
| embryonic stem | human life | cord blood |
| tax relief | Chief Justice | action lawsuits |
| illegal immigration | human embryos | economic growth |
| date the time | increase taxes | food program |
| <i>Three-Word Phrases</i> | | |
| embryonic stem cell | Circuit Court of Appeals | Tongass national forest |
| hate crimes legislation | death tax repeal | pluripotent stem cells |
| adult stem cells | housing and urban affairs | Supreme Court of Texas |
| oil for food program | million jobs created | Justice Priscilla Owen |
| personal retirement accounts | national flood insurance | Justice Janice Rogers |
| energy and natural resources | oil for food scandal | American Bar Association |
| global war on terror | private property rights | growth and job creation |
| hate crimes law | temporary worker program | natural gas natural |
| change hearts and minds | class action reform | Grand Ole Opry |
| global war on terrorism | Chief Justice Rehnquist | reform social security |

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A second measure of slant

- Observe ideology of congressman's district c , y_c , based on Presidential vote share in 2004 election (good measure?)
- For each congressperson, denote by \tilde{f}_{pc} as phrase p 's share of Congressperson's total phrases
- For each phrase p , regress \tilde{f}_{pc} on y_c . This yields intercept a and slope b . Slope b measures how likely phrase p is to be differentially used by Republicans.
- Note this does not use slant measure S above – that measure is only used to determine the 1000 most "slanted" phrases. Do you like this feature?

A second measure of slant

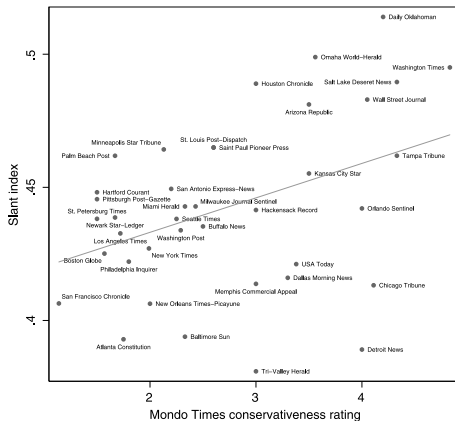
- For each newspaper, calculate average slant as

$$\hat{y}_n = \sum_{p=1}^{1000} \frac{b_p (\tilde{f}_{pc} - a_p)}{b_p^2}$$

which calculates relative bias of newspaper.

- Can calculate same measure, predicted \hat{y}_c , for Congresspeople
- Interpretation: "If a given newspaper was a congressperson, how Republican would that congressperson's district be?"

Validation of measure



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Demand for slant

- Demand for slant can be microfounded by 2006 JPE paper. In this paper, they treat it as a reduced form, i.e. each zip code z has ideology r_z and preferred slant

$$ideal_z = \alpha + \beta r_z$$

- Utility is decreasing in distance from ideal slant

$$u_{izn} = \bar{u}_{zn} - \gamma (y_n - ideal_z)^2 + \varepsilon_{izn}$$

where ε_{izn} is a logistic error.

- This allows them to write the share of households reading news papers as

$$S_{zn} = \frac{\exp \left[\bar{u}_{zn} - \gamma (y_n - ideal_z)^2 \right]}{1 + \exp \left[\bar{u}_{zn} - \gamma (y_n - ideal_z)^2 \right]}$$

- So, more conservative zip codes prefer more conservative newspapers, and demand for newspapers peaks when $y_n = ideal_z$

Supply of slant

- If newspapers profit maximized, they would set $y_n = ideal_n$, where $ideal_n$ is a weighted average over $ideal_z$ that maximizes share
- But, perhaps newspaper owners care about ideology as well as profits
- In this case equilibrium slant is given by

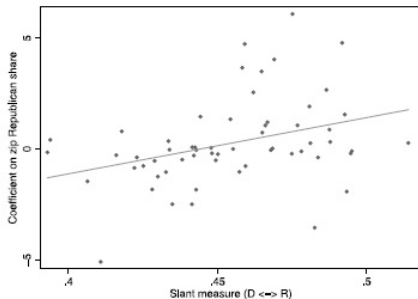
$$y_n^* = \rho_0 + \rho_1 ideal_n + \rho_2 \mu_g$$

where μ_g is firm ideology

- Key question of profit maximization is to test $\rho_1 = 1$
- Predictions are $\rho_1 > 0$ (newspapers respond to market slant) but also $\rho_2 > 0$ (newspapers respond to owner preferences)

- Newspapers cater to average slant in their circulation area
- But, conditional on supply of newspapers, consumers in different zipcodes will consume differently
- Issues in identification?
 - What if e.g. Southern people all use the word 'y'all' and Northern people do not? Do state fixed effects solve this?
 - What if conservative owners buy newspapers in right-wing areas?

- Regress demand on zip code ideology, with fixed effects for newspaper market

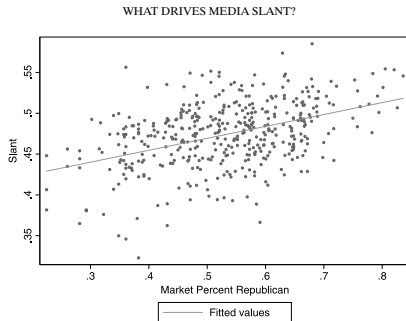


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TABLE II
EVIDENCE ON THE DEMAND FOR SLANT^a

| Description | Model | | | |
|--|---------------------|---------------------|------------------|---------------------|
| | OLS | OLS | OLS | 2SLS |
| (Zip share donating to Republicans) × Slant | 10.66 (3.155) | 9.441 (2.756) | 14.61 (6.009) | 24.66 (7.692) |
| Zip share donating to Republicans | -4.376 (1.529) | -3.712 (1.274) | — | -10.41 (3.448) |
| (Zip share donating to Republicans) ² | -0.4927 (0.2574) | -0.5238 (0.2237) | — | -0.7103 (0.2061) |
| Market–newspaper FE? | X | X | X | X |
| Zip code demographics? | | X | X | X |
| Zip code X market characteristics? | | X | X | X |
| Zip code FE? | | | X | |
| Number of observations | 16,043 | 16,043 | 16,043 | 16,043 |
| Number of newspapers | 290 | 290 | 290 | 290 |

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TABLE III
DETERMINANTS OF NEWSPAPER SLANT^a

| | OLS | 2SLS | OLS | RE |
|--|--------------------|--------------------|--------------------|--------------------|
| Share Republican in newspaper's market | 0.1460 (0.0148) | 0.1605 (0.0612) | 0.1603 (0.0191) | 0.1717 (0.0157) |
| Ownership group fixed effects? | | | X | |
| State fixed effects? | | | | X |
| Standard deviation (SD) of ownership effect | | | | 0.0062 (0.0037) |
| Likelihood ratio test that SD of owner effect is zero (<i>p</i> value) | | | | 0.1601 |
| Number of observations | 429 | 421 | 429 | 429 |
| <i>R</i> ² | 0.1859 | — | 0.4445 | — |

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Interpretation

- Key point: variance of owner FE is small, and can't reject that they are uniquely equal to 0.
- What does this mean?
- How to reconcile this with the fact that e.g. Murdoch newspapers all seem to be right-wing?

2. Does slanted media affect voting?

DellaVigna and Kaplan (2007): “The Fox News Effect”

- Examine entry of Fox News, which is a right-leaning cable news network in the US, on change in Republican vote share between 1996 and 2000 Presidential elections
- Key regressions include county fixed effects, so identify off which cities within counties received Fox news and which did not, i.e.

$$v_{k,2000}^R - v_{k,1996}^R = \alpha + \beta_F d_{k,2000}^{FOX} + X' \gamma + COUNTYFE + \varepsilon_k$$

TABLE III
DETERMINANTS OF FOX NEWS AVAILABILITY, LINEAR PROBABILITY MODEL

| Dep. var. | Availability of Fox News via cable in 2000 | | | | | | |
|--|--|-----------------------|----------------------|---------------------|---------------------|--------------------|---------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Pres. republican vote share in 1996 | 0.1436 (0.1549) | 0.6363 (0.2101)*** | 0.3902 (0.1566)** | -0.0343 (0.0937) | -0.0442 (0.1024) | 0.0902 (0.1321) | 0.0627 (0.1333) |
| Pres. log turnout in 1996 | 0.1101 (0.0557)** | 0.0909 (0.0348)*** | 0.0656 (0.0278)** | 0.0139 (0.0124) | -0.0053 (0.0173) | 0.0286 (0.0234) | 0.0257 (0.0258) |
| Pres. Rep. vote share change 1998-1992 | | | | | | 0.214 (0.2481) | -0.2548 (0.2345) |
| Control variables | | | | | | | |
| Census controls: 1990 and 2000 | — | X | X | X | X | X | X |
| Cable system controls | — | — | X | X | X | X | X |
| U. S. House district fixed effects | — | — | — | X | — | X | — |
| County fixed effects | — | — | — | — | X | — | X |
| <i>F</i> -test: Census controls = 0 | | <i>F</i> = 3.54*** | <i>F</i> = 2.73*** | <i>F</i> = 1.11 | <i>F</i> = 1.28 | <i>F</i> = 1.57** | <i>F</i> = 1.31 |
| <i>F</i> -test: Cable controls = 0 | | | <i>F</i> = 18.08*** | <i>F</i> = 21.09*** | <i>F</i> = 18.61*** | <i>F</i> = 8.19*** | <i>F</i> = 8.75*** |
| <i>R</i> ² | 0.0281 | 0.0902 | 0.4093 | 0.6698 | 0.7683 | 0.6313 | 0.7622 |
| <i>N</i> | <i>N</i> = 9,256 | <i>N</i> = 9,256 | <i>N</i> = 9,256 | <i>N</i> = 9,256 | <i>N</i> = 9,256 | <i>N</i> = 3,722 | <i>N</i> = 3,722 |

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TABLE IV
THE EFFECT OF FOX NEWS ON THE 2000–1996 PRESIDENTIAL VOTE SHARE CHANGE

| Dep. var. | Republican two-party vote share change between 2000 and 1996 pres. elections | | | | | | |
|--|--|--------------------|----------------------|-----------------------|-----------------------|---------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Availability of Fox News via cable in 2000 | -0.0025 (0.0037) | 0.0027 (0.0024) | 0.008 (0.0026)*** | 0.0042 (0.0015)*** | 0.0069 (0.0014)*** | 0.0037 (0.0021)* | 0.0048 (0.0019)** |
| Pres. Rep. vote share change 1988–1992 | | | | | | 0.0229 (0.0216) | 0.0514 (0.0219)** |
| Constant | 0.0347 (0.0017)*** | -0.028 (0.0245) | -0.0255 (0.0236) | 0.0116 (0.0154) | 0.0253 (0.0185) | -0.0377 (0.0258) | 0.0081 (0.0313) |
| Control variables | | | | | | | |
| Census controls: 1990 and 2000 | — | X | X | X | X | X | X |
| Cable system controls | — | — | X | X | X | X | X |
| U. S. House district fixed effects | — | — | — | X | — | X | — |
| County fixed effects | — | — | — | — | X | — | X |
| R^2 | 0.0007 | 0.5207 | 0.5573 | 0.7533 | 0.8119 | 0.7528 | 0.8244 |
| N | $N = 9,256$ | $N = 9,256$ | $N = 9,256$ | $N = 9,256$ | $N = 9,256$ | $N = 3,722$ | $N = 3,722$ |

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- Find that effects come through increases in turnout, not changes in votes of existing voters
 - In a model of endogenous abstentions (e.g. Feddersen and Pesendorfer 1996), this could be a persuasion effect
- Magnitude of effect
 - Estimate that Fox news increased share of population exposed to at least 30 minutes of Fox news by between 8.6 - 12.7%
 - Estimate that Fox news increased Republican vote share by 0.4% - 0.7%
 - Ratio implies that between 3%-8% of Fox news audience changed their votes

Similar evidence from Russia

Enikolopov, Petrova, and Zhuravskaya, "Media and Political Persuasion: Evidence from Russia" (2011)

- Looks at introduction of independent non-government TV in Russia
- Exploits distance to a television transmitter which determines whether households can receive independent television
- Findings
 - Independent television strongly reduced vote for government party and increased vote for opposition parties
 - No impact on a "placebo" election (1995) before station began broadcasting

But... older evidence from the US

Gentzkow, Shapiro, and Sinkinson, "The Effect of Newspaper Entry and Exit on Electoral Politics" (2011)

- A new study looks at entry and exit of newspapers in the US historically
 - Simple differences-in-differences approach
 - Compares impact of newspaper entry and exit on election results
- Findings
 - Strong impact on turnout in elections
 - But no findings of partisan bias (e.g. Republican newspapers don't lead to an increase in Republican vote share)

And an experimental approach

Gerber, Karlan, and Bergan (2008): “Does the Media Matter? A Field Experiment Measuring the Effect of Newspapers on Voting Behavior and Political Opinions”

- Randomized experiment to get at the same question
- About 3,000 registered voters in Virginia who previously received no newspaper were randomly subscribed to left-leaning *Washington Post* or right-leaning *Washington Times*
- Find:
 - No impact on knowledge, opinions, or turnout in Gubernatorial elections
 - Impact of getting either paper on voting for Democrat in Congress in 2006
- Thoughts? Maybe these are the wrong people? Standard errors also large – in some cases would not be able to reject Fox-News size impacts.
- Bottom line:
 - Seems like literature isn't fully worked out here
 - Important heterogeneity on media's impact... which we don't yet fully

3. Do people update more if signals are contrary to slant?

Chiang and Knight (2008): "Media Bias and Influence: Evidence from Newspaper Endorsements"

- Examine the impact of newspaper endorsements of Presidential candidates on support for the candidate.
- Prediction: those endorsements that are surprises – i.e., contrary to slant – have a bigger impact
- Approach:
 - Use daily tracking poll data to identify the impact of the endorsement per se
 - For each newspaper, calculate predicted probability of endorsing a Democrat or Republican based on the newspaper's owner and the demographics of the newspaper's readership.
 - Alternative approach: calculate historical endorsement probabilities.

- Candidates have both quality and political ideology
- Newspapers observe signal about candidate quality

$$\theta_n = q + \varepsilon_n$$

- Newspaper has editorial position p_n . Higher p_n implies more right-leaning.
- Newspapers trade off quality vs. ideology as follows: they endorse a democrat if

$$e_n = 1 \left[\frac{\theta_n}{\sqrt{\sigma_q^2 + \sigma_\varepsilon^2}} > p_n \right]$$

- Voter updates about quality following democratic endorsement as

$$E(q|e_n = 1) = E\left[q|\theta_n > \sqrt{\sigma_q^2 + \sigma_\varepsilon^2} p_n\right] = \frac{\sigma_q^2}{\sqrt{\sigma_q^2 + \sigma_\varepsilon^2}} \lambda_d(p_n)$$

where

$$\lambda_d(p_n) = \frac{\phi(p_n)}{1 - \Phi(p_n)}$$

- They define λ_d as the credibility of a newspaper for endorsing democrats

- First stage: calculate

$$\Pr(\textit{endorse } D) = \theta Z_n$$

- Second stage: calculate

$$\Pr(\textit{vote } D) = \textit{After}_{nt} [e_n \textit{Cred}D(\gamma Z_n) - (1 - e_n) \textit{Cred}R(\gamma Z_n)] \\ - \theta X_v + \alpha_t + \alpha_n + \varepsilon_{nt}$$

where *Cred* measures are either Mills ratios (motivated by the theoretical model), predicted probabilities, or historical probabilities

TABLE 4
Influence of top 20 newspapers in 2000[†]

| Newspaper | Reader support for Gore (%) | Group owner [‡] | Probability of endorsing Gore (%) | Actual endorsement | Implied influence (%) |
|--------------------------------|--------------------------------|--------------------------|--------------------------------------|-----------------------|--------------------------|
| <i>New York Times</i> | 75 | New York Times | 90 | Gore | 0.50 |
| <i>Washington Post</i> | 64 | – | 54 | Gore | 2.10 |
| <i>New York Daily News</i> | 67 | – | 58 | Gore | 1.90 |
| <i>Chicago Tribune</i> | 53 | – | 36 | Bush | -1.70 |
| <i>Newsday</i> | 57 | – | 44 | Gore | 2.60 |
| <i>Houston Chronicle</i> | 39 | Hearst | 34 | Bush | -1.60 |
| <i>Dallas Morning News</i> | 35 | – | 17 | Bush | -0.87 |
| <i>Chicago Sun Times</i> | 67 | – | 58 | Bush | -2.70 |
| <i>Boston Globe</i> | 72 | New York Times | 89 | Gore | 0.50 |
| <i>San Francisco Chronicle</i> | 74 | Hearst | 82 | Gore | 0.90 |
| <i>Arizona Republic</i> | 41 | – | 20 | Bush | -1.00 |
| <i>New York Post</i> | 49 | – | 31 | Bush | -1.50 |
| <i>Rocky Mountain News</i> | 47 | – | 28 | Bush | -1.30 |
| <i>Denver Post</i> | 52 | – | 35 | Gore | 3.10 |
| <i>Philadelphia Inquirer</i> | 59 | Knight Ridder | 82 | Gore | 0.90 |
| <i>Union-Tribune</i> | 51 | – | 34 | Bush | -1.60 |

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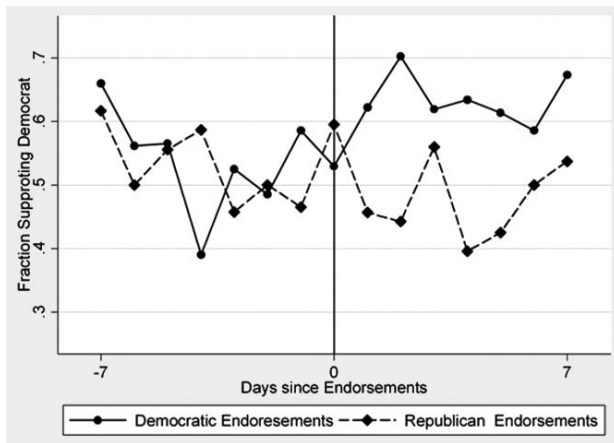


FIGURE 3
High-credibility endorsements and voting

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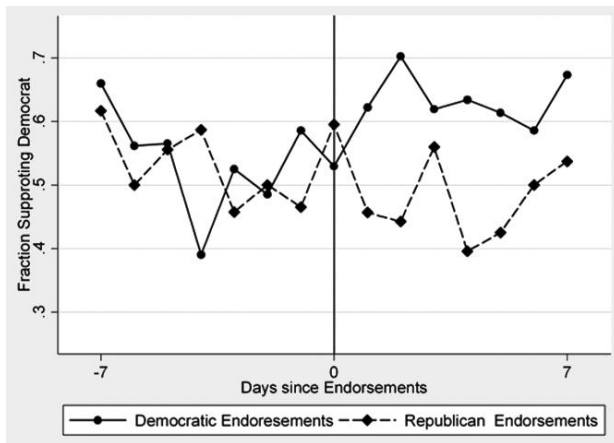


FIGURE 3
High-credibility endorsements and voting

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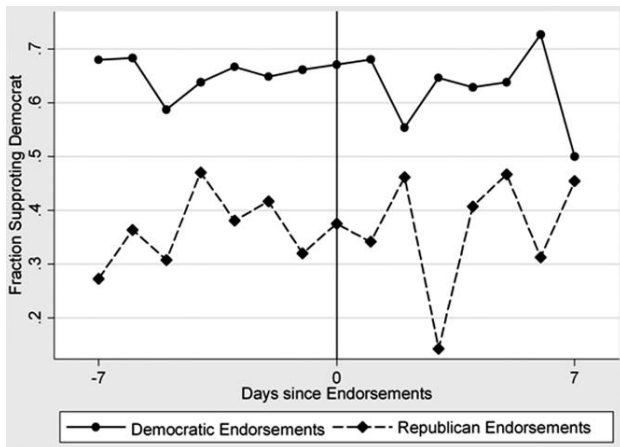


FIGURE 4
Low-credibility endorsements and voting

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TABLE 3
Second Stage: effect of newspaper endorsements on vote intention

| | Dependent variable: 1 if intend to vote for the Democrat | | |
|-----------------------------|--|----------------------|----------------------|
| | I | II | III |
| After×Credibility | 0.029** (0.013) | | 0.055** (0.026) |
| After×Endorsement | | 0.011 (0.008) | -0.020 (0.017) |
| High school | -0.047*** (0.016) | -0.047*** (0.015) | -0.047*** (0.016) |
| College | -0.013 (0.016) | -0.013 (0.016) | -0.013 (0.016) |
| Male | -0.088*** (0.006) | -0.087*** (0.006) | -0.088*** (0.006) |
| Black | 0.440*** (0.009) | 0.440*** (0.008) | 0.440*** (0.009) |
| Age | 0.002** (0.001) | 0.002** (0.001) | 0.002** (0.001) |
| Age squared | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) |
| Born-again Christian | -0.150*** (0.007) | -0.150*** (0.007) | -0.150*** (0.007) |
| Attend religious activities | -0.123*** (0.006) | -0.123*** (0.006) | -0.123*** (0.006) |
| Constant | 0.740*** (0.183) | 0.740*** (0.189) | 0.741*** (0.183) |
| Income categories | Yes | Yes | Yes |
| Newspaper fixed effects | Yes | Yes | Yes |
| Date fixed effects | Yes | Yes | Yes |
| Observations | 32,014 | 32,014 | 32,014 |

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TABLE 9
Alternative credibility measures

| | Dependent variable: 1 if intend to vote for the Democrat | | | | |
|--------------------------------------|--|---|--|------------------|--|
| | I | II | III | IV | V |
| After×Surprise measure | 0.047** (0.021) | | | | |
| After×Historical credibility measure | | 0.027* (0.017) | 0.051** (0.024) | | |
| After×Historical surprise measure | | | | 0.021 (0.022) | 0.129*** (0.043) |
| Sample | All | Papers with sufficient endorsement history ^a | Papers with more than five historical endorsements | All | Papers with more than five historical endorsements |
| Paper fixed effects | Yes | Yes | Yes | Yes | Yes |
| Date fixed effects | Yes | Yes | Yes | Yes | Yes |
| Observations | 32,014 | 14,574 | 6457 | 30,446 | 8793 |

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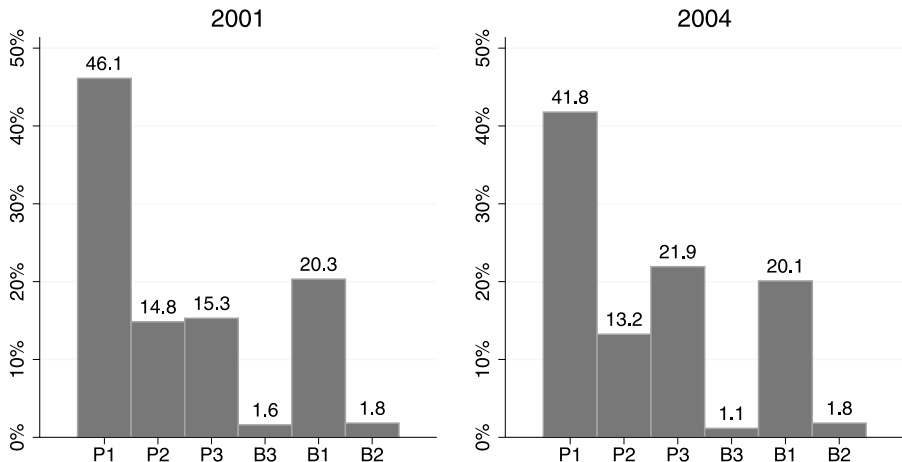
4. Do people adjust media consumption endogenously in response to bias?

“Partisan Control, Media Bias, and Viewer Response”

- Setting: Italy.
- Three state channels: RAI1, RAI2, and RAI3, plus three Berlusconi-owned private stations
- During this decade: RAI2 is always center-right, RAI3 is always left, but RAI1 (most popular) switches depending on who is in power
- Question: when RAI1 switches due to political control, do viewers adjust their news consumption accordingly?

After Berlusconi, left viewers switch from P1 to P3...

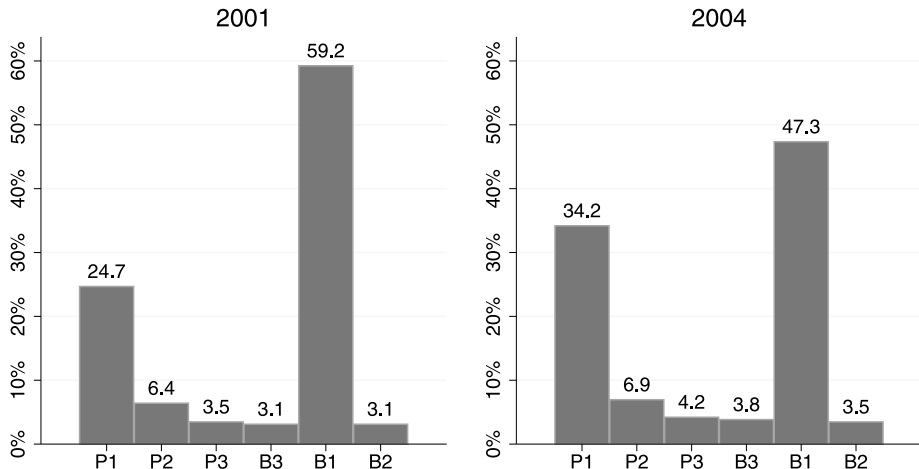
Left-Wing Voters Favorite News Channels 2001 vs. 2004



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...and right viewers switch to RAI1 from B1

Right-Wing Voters Favorite News Channels 2001 vs. 2004



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- Paper estimates
 - The change in content for each channel following Berlusconi's election victory (percent of time covering the right)
 - The change in viewership of each channel
- Authors combine these estimates to calculate how much of the change in exposure (due to change in coverage) was offset by change in which channels people watch

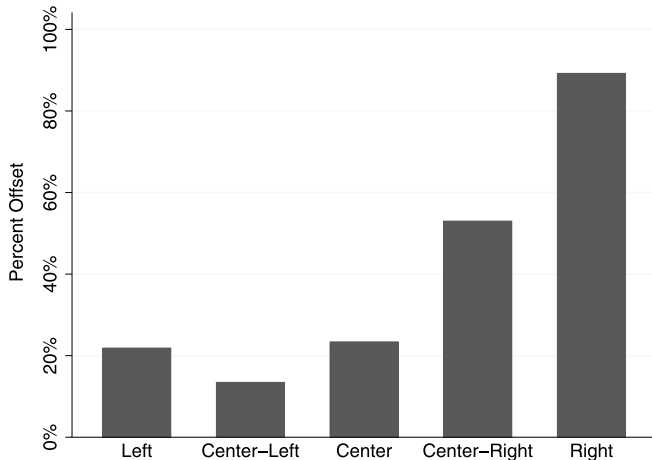


FIGURE 5. Percentage offset by political ideology.

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- Offset is substantial, but incomplete
- More generally extent of offset will depend on how many alternatives there are and how close substitutes they are on other dimensions
- For example, in this case, strong preference for RAI1 on other dimension drives results:
 - Left offset small because many prefer to watch RAI1 for other reasons
 - Right offset large because many switch to RAI1, which is more balanced than the private channel they watched before

Summary of results

- Bias is endogenous: it responds to consumers' preferences
- Consumers are partially sophisticated: they partially, but not completely, offset the effects of bias by disregarding signals that are in the same direction of the bias
- Given that bias still matters, politicians may seek to introduce bias in the media to further political ends
- Consumers are again partially sophisticated: they partially offset exogenous changes in bias by switching their news consumption, but not completely

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