Where Do People Get Their News?

Patrick J. Kennedy and Andrea Prat

UC Berkeley and Columbia University

1. INTRODUCTION

Voters can keep their governments accountable only if they are informed about what their governments are doing. In a modern democracy, such information comes mainly through the media. This makes the media a unique industry, in that it not only provides people direct utility through consumption of its services, but also provides indirect utility by improving the quality of government through its monitoring role. This potentially large externality has been the object of study of media economics (Anderson et al. 2015).

Media externalities on the democratic process take many forms. Distortions in coverage lead to distortions in political accountability and policy making (Stromberg 2015). News sources can engage in biased reporting both to respond to demand for biased news and to accommodate the political views of their owners (Gentzkow et al. 2015). Economists have developed a range of methodologies to measure reporting bias and its effect on political outcomes (Puglisi and Snyder 2015). Media bias can be the result of collusion between news sources and political factions (Prat 2015), and such media capture has been documented empirically (Enikolopov and Petrova 2015).

We thank Charles Angelucci, Claudio Ferraz, Guido Friebel, Alessandro Gavazza, Wojciech Kopczuk, Filip Matejka, Jim Minifie, Hideo Owan, Mirjam van Praag, Ricardo Reis, Miikka Rokkanen, Tano Santos, Dominik Thumfart, Tommaso Valletti, Pinar Yildirim and audiences at the European University Institute, the Federal Communications Commission, The LACEA-RIDGE Conference, POLECONUK, Princeton, and Science Po for useful comments. Patrick acknowledges financial support from the National Science Foundation Graduate Research Fellowship. Any opinion, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

The influence of media on the political process depends on the level of concentration in news provision. This is due to an obvious direct effect: a news organization with a large number of consumers is in a better position to manipulate the electorate. Indeed, research on the effect of media bias on voting focuses on large media organizations, like Fox News in the United States (Dellvigna and Kaplan 2006; Martin and Yurukoglu 2014). But there is also an indirect effect: a more concentrated media industry is more vulnerable to media capture (Mcmillan and Zoido 2004; Besley and Prat 2006).

After unexpected electoral outcomes in the United State and other countries, there is enormous interest in the ability of mainstream and new media to manipulate elections. This sometimes heated debate would benefit from more evidence on the magnitude of the potential channels of influence (Allcott and Gentzkow 2017; Boxell et al. 2017). As Jefferson's quote highlights, citizens' information requires both news production (the presence of "newspapers") and news consumption (whether "every man should receive those papers"). The distinction between production and consumption is particularly stark for news because of the non-rivalrous nature of the underlying good. While researchers have undertaken comprehensive analyses of the production side of this market,[1] less is known about overall consumption patterns by consumers. This paper contributes to this debate by providing facts about where and how citizens consume available political news in democracies around the world.

Unfortunately, most existing information on news consumption is *platform-centric*: it is collected to measure consumption on a particular media platform. Excellent data is available for newspapers (e.g., daily circulation statistics), television (e.g. Nielsen ratings), and Internet-based sources (e.g., from commercial sources like Comscore or non-profit organizations like the Pew Research Center) but these datasets are not linkable.

While platform-centric data is useful for commercial purposes, it is not sufficient for political economy research. To see this, consider a country with 15 million voters. Suppose we know from newspaper circulation data that 5 million read newspaper A, we learn from a TV ratings company that 5 million watch news channel B, and we are informed by an Internet usage survey that 5 million follow Internet news source C. This information is not very useful because it is consistent both with an egalitarian media landscape where every citizen accesses exactly one source and with a totally lopsided situation where two thirds of the population are uninformed. Indeed, one of the goals of this paper will be to measure the extent of information inequality across individuals.

The right data is *person-centric*, rather than platform-centric. We need to know, for a meaningful sample of the population, where voters get their news---covering all platforms and naming all major media sources. To our knowledge, no existing research provides

[1] Cagé (2016) provides a broad discussion of the crisis in the revenue model that sustains news production. Cagé (2017) builds a database of the timeline of news stories and analyse original production and subsequent copying.

such an analysis of news consumption patterns for any major world democracy (with the exception of Prat (2017) for the United States, to be discussed below).[2]

For the present analysis, we use data from a survey commissioned by the Reuters Institute for the Study of Journalism, conducted in 2017 in collaboration with the polling firm YouGov. The survey covers more than 72,000 subjects in 36 countries and identifies the set of news sources used by subjects in the week prior to the survey, covering all major media platforms.

The main drawback of the Reuters data is that it is collected via an online survey, and consequently under-represents the habits of non-Internet users. The severity of this selection bias depends on Internet penetration, which ranges from 40% in Malaysia to 96% in Denmark. To partly control for selection, we re-weight answers on the basis of observable respondent characteristics.

To verify the data's credibility, we compare the Reuters data from the United States and United Kingdom with data from three external sources: a 2012 survey by the Pew Research Institute on US media consumption; a 2016 survey by Ofcom of UK media consumption; and the 2014 US Simmons National Consumer Survey on consumption of a wide array of goods and services, including some news outlets. These external datasets suffer from other limitations but are based on telephone or face-to-face interviews. As one would expect, respondents to the online Reuters survey report higher consumption of Internet-based sources and greater news consumption in general. However, the rankings and usage rates of major news sources are similar in all three surveys.

We begin the analysis with a media consumption matrix for each country. Each row represents a subject, each column represents a news source, and the value of each cell is one if the subject follows that source and zero otherwise. As we will describe in detail, the matrix allows us to compute the attention share of each news source and hence its *power index*, defined as the maximal share of votes a news source can swing under various assumptions about the level of naiveté of news consumers. (The theory section provides a formal definition and micro-foundation of the index.)

We then compute the power index of individual media organizations. A media organization is defined as a company or a public agency that owns one or more news sources, possibly across multiple platforms. We attempt to identify the ultimate owner of major news sources in every country. We report both the maximal value of the power index under the assumption that all news consumers are naive and the minimal percentage of naive consumers a media organization needs to achieve a certain power level (2%, 4%,

[2] Djankov et al. (2003) identify the owners of major television, radio, and press companies in OECD countries. Noam (2015) reports in-depth analyses of media concentration around the world on the basis of platform-centered data. Prat (2017) uses a person-centric dataset but the data is limited to the United States and is from 2012. As mentioned above, a number of commercial and non-commercial sources provide in-depth platform-centric data for television, the press, or the Internet, but not about all three.

or 10%). Naive consumers are those who take the news they receive at face value without trying to detect and neutralize media bias.

The paper reports the reach, attention share, and media power index for the top 15 media organizations in each of the 36 countries. Given the intrinsic Internet bias of our survey data, it is perhaps surprising to find that traditional platforms still play a dominant role. This is best seen by restricting attention to the three most powerful media organizations in every country. Of 88 such distinct organizations, 72 specialize mainly in television broadcasting, 12 are print sources, and only 4 are mainly Internet sources. In France, Germany, and the UK, all three top media organizations are primarily television-based. This result reflects general news consumption patterns. Around 80% of subjects worldwide watch news on television and 40% read newspapers. In contrast, only 30% use pure-Internet sources. Internet sources are consumed more widely when they are associated with a traditional platform, especially newspaper websites. An important exception is Facebook, which is one of the top-three most powerful news outlets in 14 distinct countries and reaches the widest international audience of any media organization in our sample.

News concentration is quite high in every country. In the average country, the most powerful media organization controls an approximate 12% attention share, corresponding to a maximal power index of 15% under the assumption that all consumers are naive. In all 36 countries, there is at least one media organization with an attention share of at least 8%. If 25% of voters are naive, then every country has at least one media organization with the ability to swing a 1% vote share, corresponding to a 2% power. If 50% are naive, 31 countries out of 36 have at least one entity with the ability to control 2% of the vote share, corresponding to a 4% power.

News consumption depends on individual characteristics. More educated and wealthier subjects typically follow a larger number of sources. On average, a high-income man with a graduate degree follows approximately twice as many sources as a low-income woman with no college degree. This individual-level information inequality is reflected in country-level inequality. There is a positive correlation between the income Gini coefficient of a country and its information Gini coefficient, which we compute based on the number of sources individuals use. Among wealthy countries, the United States displays the highest level of inequality in terms of both income and information, while Northern European countries score lowest on both dimensions.

Public service broadcasters (PSBs) are highly salient in most countries. In 27 out of 36 countries, one of the top-3 media organizations is a state-sponsored or state-funded broadcasting organization. We add to our analysis data on per-capita PSB funding and find that it is positively correlated with a country's media concentration level. The country with the highest media concentration index is the United Kingdom, where BBC has a 34% attention share. This raises the question of whether PSBs should be considered differently

from commercial news providers: optimists contend PSBs are pluralistic and independent, while pessimists (like Djankov 2003) argue they are often easily captured by the government. We report data from Hanretty (2010) on the political independence of PSBs in a subset of countries, which indicates that vulnerability to capture varies considerably across countries. We find no indication that PSBs systematically reduce information inequality. If anything, the opposite may be true: PSB viewers are less likely than commercial television viewers to belong to information-poor socio-economic categories.

The paper proceeds as follows. Section 2 presents a minimalistic model of media influence and defines the notions of attention share and power index. Section 3 describes the Reuters dataset, presents descriptive statistics, discusses limitations of the dataset, and provides external validation with data from the Pew Research Center and Ofcom. Section 4 reports the main results. Section 5 discusses possible implications of our findings for policy-making and, specifically, media regulation.

2. Theory: Attention Share and Media Power

To describe media consumption, suppose that **M** is the set of all media sources in a given country. This includes newspapers, television networks, radio stations, websites, social media, and so forth. Voters can be categorized according to the subset of media sources $M \subset \mathbf{M}$ they consume. Let q_M denote the percentage of voters that follow all sources in M (and no other sources). The share $q_\varnothing$ comprises those voters who do not use the media at all. We must of course have that $\sum_{M \subset \mathbf{M}} q_M = 1$. All this information constitutes the media consumption matrix.

Table 1 contains an example of a hypothetical media consumption matrix. In this example, there are three platforms: television, the press, and new media. For each platform there are two sources. The example is constructed so that every source has the same number of followers *reach* is always 1/3, and the same share of platform users *market share* is always 1/2. If we only examined information on media penetration and market shares, the six sources would look similar to us and we might be tempted to conclude that each source exercises equal influence on the democratic process. However, a glance at the media matrix shows that there are important differences among the six media: for instance, TV1 is the only news provider for its viewers.

TABLE 1 ABOUT HERE

To capture these differences, Prat (2017) introduced the concept of *attention share.* The attention share of media source i in a particular segment is 1 if it is the only source used, 1/2 if there are two sources, 1/3 if there are three sources, and so on. The total attention share of media source i is given by the average attention share in all segments. Applying

this concept to Table 1, we see that TV1 has the largest attention share, TV2 and NP1 have an attention share of 1/6 and the remaining three sources have the smallest share.[3]

The distinction between media reach, platform share, and attention share formalizes the argument that we need a person-centric dataset comprising all media platforms, as mentioned in the introduction. Data that covers only a subset of platforms may conceal important media consumption patterns.

The news consumption matrix can be used to construct an index of media power. Prat (2017) considers a large class of possible measures and shows that an index based on attention shares represents a worst case scenario of how much influence a media source can exercise over the political process. In particular, the measure corresponds to a situation where voters do not realize that a particular set of news sources is trying to manipulate them and they do not attempt to undo the bias.

To illustrate the construction of the media power index in the simplest possible setting, suppose there are two candidates or parties, *A* and *B*. Suppose that in the election under consideration, if all news sources engage in unbiased reporting, candidate *B* would get a share *s* of the votes. He would be elected if $s \geq 1/2$.[4]

Suppose that one news source — or a set of news sources — puts all its weight in favor of one of the two candidates, say A. Assume that the effect of this manipulation affects a share of the electorate equal to the attention share, so that they all vote for A, and further assume that other news sources do not change their coverage decisions in response. Prat (2017) shows that this corresponds to a worst-case scenario where voters do not realize they are being manipulated and respond to biased information in the same way they treat unbiased information.[5]

If the set of manipulating sources controls an attention share *a*, now candidate B will no longer receive a share *s* of the votes but it will go down to $(1-a)*s$. The power of the media group can be measured by the highest value of *s* for which they can still get *A* elected, namely the value $\boldsymbol{s}$ such that

$$(1-a)*\boldsymbol{s} = \frac{1}{2} \qquad (1)$$

This means that the set of manipulating sources is able to turn an election where *B* would have beaten *A* by a vote share difference $\boldsymbol{s} - (1- \boldsymbol{s})$ into one where they both get 50% of

[3] The measure of attention share could be refined if one knew how much time individuals devote to each source, but this information is not available in our dataset.

[4] We model a first-past-the-post two-party system. Some of the countries in the sample have other systems, like multi-party proportional voting. For those systems, the analysis is still valid in terms of vote swinging but the consequences of the vote manipulation would be different.

[5] Of course, the general equilibrium effects may be either greater (e.g., if other outlets amplify the biased coverage) or smaller (e.g., if other outlets counteract the bias) than the direct effects. In this sense even the worst-case scenario is a conservative estimate.

the votes. Thus, this set of sources can close a vote gap of $2s - 1$. This will be our definition of media power for that set of sources, and it can be expressed as a function of the attention share:[6]

$$\pi(a) = \frac{a}{1-a} \tag{2}$$

In this worst-case scenario, the power of a set of news sources can be easily computed as a function of their attention share. It is reported in Table 1 and of course it is monotonic in attention share.

For instance, in the case of TV1 the power index says that, if voters are completely gullible, TV1 could turn an election that would be won by a candidate with 75% of the votes into a draw. By contrast, TV2 is not as powerful: the most it can do is swing a 60-40 election. The index also applies to sets of media. If TV1 and NP1 were owned by the same entity, their joint attention share would be 1/3 and their power would be 1/2.

The simple set-up used to construct the power index can be enriched in many ways (discussed in Prat 2017). For instance, news consumption may depend on ideology. Certain sources are more likely to be used by left-leaning or right-leaning voters. In that case, attention shares should be weighted by the probability that a voter is pivotal and the most powerful sources will tend to be those that cater to swing voters. Also, if one has information on consumption intensity, such as the number of minutes devoted to each source, one should incorporate it in the construction of the index. Unfortunately, our dataset does not include such information, so we agnostically give the same weight to all sources.

Finally, and perhaps most importantly, by construction the power index $\pi(a)$ represents an extreme worst case where all voters are naive.[7] One can define a class of intermediate indices by assuming that only a share v of voters are naive, while the others are impervious to manipulation (either because they switch to non-manipulated media or because they undo the effect of the bias). In that case, the index would become:

$$\pi(a) = \frac{va}{1-va} \tag{3}$$

In this more general formulation, the value of the power index ranges from zero when all voters are sophisticated to $\pi(a)$ when they are all naive. All intermediate values are possible. Thus, if we believe that the power of a media organization is Π and we know the organization's attention share, we can compute the naiveté index v that achieves such power level.

The bottom row of Table 1 reports the percentage of naive users v that each source must have in order to achieve a power $\pi = 0.1$. For instance, TV1 would need approximately

[6] The index is obtained as follows: $\pi(a) = 2s - 1 = 2\frac{1}{2(1-a)} - 1 = \frac{a}{1-a}$.

[7] For a direct empirical estimate of the sophistication of newspaper readers, see Chiang and Knight (2011). For a broader empirical review of the empirical evidence on media persuasion, see DellaVigna and Gentzkow (2010).

27% ($\frac{3}{11}$) of its voters to be naive to reach that level of influence, while TV2 would need 45%.

The goal of this short theory section was to argue that attention share and media power can be useful metrics to discuss the ability of a media source to influence the democratic process. The rest of the paper will estimate attention shares for major media organizations in the countries for which we have data.

3. Data

3.1. Reuters Digital News Reports: Background and Methodology

We obtain an individual-level media consumption matrix, similar to the hypothetical example in Table I, from the Reuters Institute for the Study of Journalism (Reuters (2017)). In January and February of 2017, Reuters contracted with the polling firm YouGov to conduct a series of international Internet surveys for their annual Digital News Report. All together, these surveys cover more than 72,000 individuals in 36 countries.[8]

The survey questionnaires are designed to be directly comparable across countries. For our purposes, the most relevant question asks, "Which, if any, of the following sources have you used to access news in the last week? Please select all that apply." A list of potential sources is tailored to each country, and the choice ordering is randomized for each respondent. The question is repeated to distinguish between traditional media platforms (television, radio, and print), online platforms (web, mobile, tablet, or e-reader), and social media platforms (such as Facebook and Twitter). As a result, some sources such as the *New York Times* and CNN are included in the survey twice, as both traditional and online sources. Others, such as Google News or the Huffington Post, are included only once as online sources.

Since we are interested in estimating the maximal ability of a media organization to influence the democratic process, we combine sources that are owned by the same media conglomerate. We define a media conglomerate as a corporate entity or individual that owns, directly or indirectly, a controlling stake in the companies that own the individual media sources. Identifying ownership is often difficult, especially in the case of private companies (Djankov et al. 2003). We employ the following process for every country: (1) List the top 25 news sources by attention share; (2) Combine sources that have the same name but operate on different platforms (for example, Fox News and www.foxnews.com); (3) Use publicly available sources to identify common ownership, where ownership is defined as at least 25% of the shares (such as Fox News and the Wall Street Journal); (4) As the original top-25 list is now shorter, re-populate it and start again at (1). When the

[8] The countries are: Australia, Austria, Brazil, the Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Poland, Portugal, Spain, Turkey, the United Kingdom, and the United States. The sample for Brazil only covers urban areas.

process converges, we consult outside experts to ensure we are not missing ownership links. The process is imperfect both because we may be missing ownership links and because we may omit smaller news sources. Therefore, all the attention shares and power indices should be viewed as lower bounds to the true values.

Reuters drops from the sample respondents who report that they did not consume any news over the past month.[9] For all remaining individuals, the dataset includes demographic information on each individual's age, gender, income, and education. Reuters uses these variables to compute individual-level survey weights, constructed to match demographic targets for each country.

3.2. Descriptive Statistics

Table 2 presents summary statistics, by country, for several key variables in the dataset. As the decision of whether to use survey weights does not significantly alter the results of our analysis, here we show only the unweighted data. Weighted results are available in Appendix A.

Reuters samples approximately 2,000 individuals in each country, split evenly by gender. The typical respondent is 45 years of age, does not have a college education, and uses about 7 news sources per week. The total number of distinct news sources in the surveys (that is, the total number of sources available on the survey menu) ranges from 41 in Singapore to 75 in Malaysia. At the individual level, we find a modest positive correlation between the number of news sources available in the survey and mean number of news sources used by individuals ($\rho = .156$).

The descriptive statistics also suggest room for caution. In particular, the high share of respondents with a college degree in developing countries such as Brazil, Malaysia, Mexico, and Turkey — and the low levels of Internet penetration in those countries — reflects the fact that Internet users in a given country are not necessarily representative of the general population. We consider this issue in greater detail in Section 3.3.

TABLE 2 ABOUT HERE

A final set of summary statistics is displayed graphically in Figure 1. These charts show the share of respondents in each country who reported getting news within the past week from television, print, radio, and online sources. We distinguish between three types of online sources: (1) those associated with a "traditional" media outlet, such as *The New*

[9] The share who report zero news consumption over the past month ranges from 9% of the sample in Australia to less than 1% in Finland. We also drop the top 1% of news users in each country, to weed out errors and cases in which respondents may not have taken the survey seriously. The sample sizes reported in Table 2 do not include these dropped cases. However, we do include the non-news users to compute country-level measures of information inequality in Section 4.

York Times online and CNN.com; (2) "pure" Internet sources, such as the Huffington Post and Google News, and; (3) social media sites, such as Facebook and Twitter.

FIGURE 1 ABOUT HERE

Figure 1 is illustrative of three stylized facts that will inform our results later on. First, television remains the most widely used source of news across all countries, even as Internet sources have grown increasingly popular in recent years. Second, online sources associated with print news brands are generally significantly more popular than pure Internet sources. Although these preferences may change over time, we will show in Section 4 that, for now, they tend to concentrate media power in the hands of established traditional news outlets. Finally, social media companies are salient news providers in all countries. In Section 4.2, we show that Facebook is far and away the most dominant player in this sphere.

3.3. Data Limitations

We note four limitations of the Reuters data. First, we test the external validity of the Reuters online survey, and find that while it is broadly representative, the methodology overstates the influence of some Internet-based news sources. Second, we are unable to observe the amount of time individuals spend using each source, and thus imperfectly estimate the attention share. Third, we consider how news may filter through the population and either amplify or attenuate media power. Fourth, we discuss issues relating to quality and ideological diversity of news coverage. We consider each of these points in turn.

3.3.1. Is the Reuters Sample Representative?

Reuters' online surveys are designed to be representative of Internet users in each country, but may not be representative of the general population. For each country in the sample, YouGov draws on an Internet panel of thousands of individuals who volunteer to participate in survey research, in exchange for modest financial compensation. These panels can be very large — for example, the YouGov panel in Great Britain contains over 400,000 people. A subsample of these individuals is then selected for the survey on the basis of representative demographic targets.

One concern with this method is that individuals who voluntarily participate in online surveys may be different from other individuals, even if they share the same observable demographic characteristics. Indeed, YouGov reports that, relative to the general population, survey respondents are heavier Internet users, better educated, more likely to vote in elections, and more interested and engaged in social and political issues (Reuters 2017). Furthermore, participants are likely to have stronger cognitive abilities than the

general population, even after controlling for education, since they must read and comprehend the questions without guidance in the self-administered surveys.[10]

To assess whether the online sampling method significantly biases our results, we compare the Reuters data from the United States and the United Kingdom with similar data from the Pew Research Center and Ofcom, respectively. Pew's 2012 Media Consumption Survey is a representative phone survey of approximately 1,500 American adults, and Ofcom's 2016 News Consumption Survey is a representative face-to-face survey of approximately 2,900 British adults. Like Reuters, both surveys ask respondents to indicate whether or not they consume news from a battery of traditional and online media sources. We use individual-level microdata from each survey to compute the reach and media power for each source, and present the results in Table 3.

TABLE 3 ABOUT HERE

While the Reuters sample appears to overestimate the influence of pure Internet sources such as the Huffington Post and Yahoo News, the overall rankings and orders of magnitude are similar in our comparison datasets. This suggests that, at least for the wealthier countries in our sample, the Reuters data are likely to be representative and credible. However, we advise caution in interpreting the data from the developing countries in the sample. As shown in Table 2, the lower levels of Internet penetration in these countries causes the sample to over-represent the media consumption habits of relatively well-off socioeconomic demographics.

To further probe the representativeness of the Reuters sample in the United States, we use data from the 2014 Simmons National Consumer Survey (NCS) to compare the reach of media sources in Reuters and Pew. We use data from both the 2017 and 2015 waves of Reuters surveys. Since we do not have individual-level NCS data, we are unable to estimate the total reach of conglomerate media organizations or compute the attention share or power index. Yet the information we do have, presented for top sources in Table IV, shows comparable magnitudes and similar rankings across Reuters, Pew, and NCS. Reuters again appears to overestimate the influence of some online sources, but the overall picture remains consistent. Notably, traditional American media outlets appear to have increased their reach in recent years, consistent with industry reports (Economist 2017).

TABLE 4 ABOUT HERE

[10] Of course, issues with selection bias and data credibility are not unique to Internet surveys. Recent research suggests modern phone surveys using random-digit dialling likely under-represent young people, who are by contrast more likely to participate in online surveys. Response rates for phone surveys are typically around 20%, compared to 40% for YouGov's Internet surveys. Moreover, Internet surveys may be more accurate than phone or face-to-face surveys, because they reduce the effects of interview bias and social desirability bias. See Yeager et al. (2011) and Chang and Krosnick (2009).

3.3.2. Intensity and Attention Share Estimation

A second limitation of the Reuters data is that we are unable to observe the intensity with which respondents follow each news source. Naturally, individuals use some sources more frequently than others. Ideally, we would like to know the number of minutes each respondent spends per week consuming news from each source, and this information could then be used to construct a more sophisticated estimate of the attention share. Without such granular data on usage, we presume individuals divide their time equally between the sources they follow, as in Table 1.

3.3.3. Secondary News Sources

Third, our data do not account for the indirect ways that news filters through the media and the general public. For example, individuals who do not watch Fox News or read the *New York Times* may nevertheless be influenced by those outlets' reporting if they discuss current events with family, friends, and co-workers who do consume news from those sources. Moreover, news content originally produced by one outlet may be picked up and reported second-hand by other media organizations or on social media platforms, with or without editorializing or repackaging the original material.

This latter point raises the question of how to treat news aggregators in our analysis. For example, Google News and MSN are pure aggregators, whereas sources like Yahoo News provide a mix of original and secondary content. In our model, a news aggregator that does not produce any original content could still influence voter information by modifying the underlying algorithm to favour certain types of news. If this ability is unfettered, the aggregator has the same ability to affect reporting as any other news source. For the purpose of the present exercise, we consider them as independent news sources.[11]

3.3.4. News Quality and Ideological Diversity

Finally, neither our dataset nor our model account for the fact that the quality of news coverage may vary across producers. One might object that, when considering two media companies with equivalent levels of power, we may want to distinguish, say, between a company that produces policy-based coverage from one that covers only political gossip. Similarly, we may want to distinguish between a media environment in which news providers are ideologically diverse from one in which providers are ideologically homogenous.

However, since measuring content quality is inherently subjective — which issues deserve coverage, what is the correct way to cover them, and what are the relevant axes and boundaries of ideological diversity? — and since both "hard" and "soft" news have the potential to change voters' opinions about political candidates (Baum 2002), we believe an approach that is agnostic with respect to quality and ideology offers a more useful and transparent benchmark. Related issues arise in policy evaluations of market

[11] To the extent that news aggregators simply amplify the coverage of biased news sources, then even the worst-case power index represents a conservative estimate.

power, where regulators typically place greater weight on objective measures of market concentration and risk rather than on controversial measures of product quality (OECD 2013; CMA 2018). Our approach is similar in this respect.

4. Results

This section presents the main results of our analysis. First, we examine the demographic characteristics of individuals who follow the news, and calculate measures of information poverty and information inequality at the individual- and country-level. Second, we present firm-level estimates of media power, document significant variation in the concentration of media power within and across countries, and perform sensitivity analyses. Finally, we consider the role of public service broadcasters in relation to measures of information inequality, media concentration, and political independence.

4.1. Information Inequality

In our model, it is difficult for a single media organization to exert significant influence over the democratic process if citizens consume news from a diverse portfolio of sources. Mathematically, this is because the individual-level attention share of a given media source is inversely proportional to the total number of sources used by that individual. Intuitively, it is because the effects of biased news are likely to be offset by coverage from unbiased (or oppositely biased) competitors. The model also posits that media will be less powerful when voters are sophisticated and can recognize and compensate for biased reporting.

It is therefore useful to understand who follows the news and how many sources the typical person uses. Toward this end, we regress the number of news sources an individual uses on a battery of demographic variables and country fixed effects. The regression coefficients, plotted in Figure 2, show that age, gender, income, education, and political ideology are all significant predictors of news consumption.[12] The model including all sources in Panel A predicts that a man with a high income and a graduate degree follows approximately 10 sources, whereas a typical woman with a low income and no college degree follows approximately 6 sources. Not surprisingly, consumption of traditional versus online and social media news sources is strongly correlated with age, as shown in Panels B, C, and D.

Figure 2 also illustrates how news consumption varies with a self-identified measure of political ideology. We find that left-leaning individuals follow 1-2 more news sources than

[12] A detailed regression table is available in Appendix B.2. Although it is not our aim to explain the causal factors affecting news consumption, we note that these results are consistent with a model in which news consumption is decreasing in both financial and cognitive costs.

right-leaning respondents, on average. In Appendix B.1, we estimate these regressions separately by country, and show that this ideological pattern is particularly stark in some countries, such as the United States, but weaker in others. Interestingly, Panel D suggests that individuals on the far poles of the political spectrum are more likely than centrists to consume political news from social media outlets.

FIGURE 2 ABOUT HERE

The relationship between income, education, and news consumption suggests that socioeconomic inequality is closely linked to *information inequality*. To explore this idea further, we construct an Information Gini, defined as the Gini coefficient estimated over the number of news sources individuals use. A high value of the Information Gini indicates that a relatively small share of the population consumes a disproportionately large share of news, while a low value means that citizens are approximately equally informed.[13] We also compute the share of the population using only one or zero news sources (a measure of *information poverty*) and the probability that two randomly selected individuals share at least two news sources (a measure of *connectedness*). In Figure 3, we plot each of these measures against the standard Gini coefficient for income, as reported by the Organization for Economic Cooperation and Development in 2015. In light of the data issues described in Section 3, we show these results separately for countries with above and below median Internet penetration.

In countries with high internet penetration, the data show a suggestive correlation between income inequality, information inequality, information poverty, and connectedness. In the Scandinavian countries, levels of income and information inequality are low, connectedness is high, and only a small share of the population does not regularly use at least two sources for news. By contrast, approximately one in ten individuals meets our definition of information poverty in the US, UK, and Australia, where levels of income and information and inequality are relatively high and connectedness is low. In developing economies this pattern appears tenuous, although we again emphasize that the survey data in these countries are unlikely to representative of their general populations. Taken together with the regression results from Figure 2, the plots suggest that inequality at the individual level is also reflected at the national level.

FIGURE 3 ABOUT HERE

High levels of information inequality and poverty may be interesting or concerning for reasons beyond the strict confines of our model.[14] In the United States, for instance, research suggests highly informed individuals are more likely to participate in political

[13] The implicit assumption is that individuals who follow more news sources are likely to consume a larger volume of news overall. Platform-based datasets, such as the web-tracking Comscore database, suggest this is a valid assumption.
[14] The interaction between income inequality and information inequality may also be mediated by media capture. Petrova (2008) develops a political economy model where higher levels of income inequality make media capture more likely, and its predictions are supported by both cross-country and panel data.

life and exert disproportionate influence over the political process (Verba et al. 1995; Galston 2001). Such disparities may violate the democratic principle of equal voice in the political process. Like Thomas Jefferson, we may also question whether a society with high levels of information poverty can sustain a responsible and accountable democracy, even in the absence of powerful and biased media.

4.2. Concentration

4.2.1. Firm-Level Media Power

We now present firm-level estimates of media power. Table 5 shows the reach, attention share, power, and platform type of the three most powerful media organizations in each country.[15] Recall that *reach* refers to the share of the population that reports using each source for news, while *attention share* and *power* relate to the maximal ability of a media organization to swing an election, as described in Section 2.

As foreshadowed in Figure 1, the most powerful media outlets tend to be producers of television news. Of the 88 distinct media organizations shown in the table, 72 specialize in some form of television programming, 12 are primarily print sources, and only 4 are pure Internet players.[16] The dominance of television news in the power rankings is primarily due to its large audiences—it is not uncommon for a popular television news channel to reach over half a country's population. In many countries, the most powerful source is a televised public service broadcaster (denoted with asterisks in the table), a point we examine further in Section 4.3.

Facebook reaches the widest international audience of any media organization in our sample, appearing as one of the top-three most powerful sources in 14 distinct countries. In several countries, such as Australia and the United States, Facebook has the highest reach and yet does not hold the top position in the power rankings. This is because Facebook users tend to consume news from more sources than television users, and this attenuates both Facebook's attention share and power value.

In terms of power, the table shows significant concentration in a small handful of media organizations. In many cases, the estimated power indices are quite large. For example, the power value of 0.34 for the BBC in the UK means that the BBC could control a vote share of 17 percentage points with biased reporting, under the worst-case modeling assumptions that voters are naive and biased signals are not offset by other factors. The results imply that even relatively weaker outlets such as TF1 in France or News Corp. in the United States could control a vote share of 4 to 6 percentage points.

[15] Estimates for the top 15 sources in each country are available in Appendix A. Here we show only the top three for brevity.
[16] Since virtually all modern news media have a website, only pure Internet players are labelled as web sources in the table.

From a comparative perspective, the table also reveals significant variation in the distribution of media power across countries. The most powerful media organization in the sample, Taiwan's commercial conglomerate Naver, is nearly three times more powerful than the most powerful news outlets in the Germany (ARD) and Japan (NHK), for instance. And while the distribution of media power among the top three providers in Australia is relatively equal, the distribution in Austria is highly skewed toward the top.

TABLE 5 ABOUT HERE

These subtleties are more clearly discernible in Figure 4, which summarizes the distribution of attention shares for the five most powerful media organizations in each country. The chart illustrates how media power tends to be disproportionately concentrated in a relatively small number of news outlets. On average, the top five media organizations in a country control about a third of the total attention share. Yet even this understates the level of concentration, as the attention share of the largest media organization is typically greater than or equal to the attention shares of the fourth and fifth largest organizations combined.

FIGURE 4 ABOUT HERE

4.2.2. Country-Level Media Power

Another useful way to summarize the data is to compute a power measure analogous to the Herfindahl-Hirschman Index (HHI). For each country, we use our estimates of attention shares to compute the following measure:

$$HHI_i = \sum (100 * a_{ji})^2 \quad (4)$$

where the Attention HHI of country *i* is equal to the summation of the squared attention shares of news source *j* in country *i*. By construction, the sum of the attention shares for all news sources in a country must add up to one. Therefore, if a country's entire population received all its news from the same source, the value of this index would be 10,000. By contrast, if the market for news were highly fragmented between a large number of providers then this value would be close to zero.

Figure 5 graphs the Attention HHI by country. The chart shows significant variation across countries, with HHI values ranging from about 200 to 1,500. Taiwan exhibits the highest degree of concentration, driven by commercial media conglomerate Naver and the public service broadcaster TVBS. High levels of concentration in the UK, Denmark, and Sweden are also explained by the popularity of their public service broadcasters (PSBs). The United States is near the bottom of the pack, registering an Attention HHI more than four times smaller than the value for the United Kingdom, and reflecting a media sector

that is diverse, fragmented, and highly competitive by international standards. Since several countries with high HHI values have large PSBs, Figure 5 raises the question – discussed in Section 4.3 – of whether PSBs and commercial providers should be treated differently.

FIGURE 5 ABOUT HERE

4.2.3. Sensitivity Analysis 1: Ideological Rigidity

If some voters are ideologically rigid, they may choose only to consume news that confirms their pre-existing viewpoints. In this case we may overestimate the maximal power of a media company to persuade voters. To address this concern, we restrict the Reuters sample to include only self-identified ideological centrists and re-compute the firm-level power indices. The share of centrists ranges from 9% of respondents in Finland to 58% in Taiwan, and the average across countries is 25%. The results, shown for the most powerful news outlets in Table 5, are similar in magnitude and rank to the values computed over the full sample.

4.2.4. Sensitivity Analysis 2: Voter Naivete

In the last three columns of Table 5, we compute the minimum share of the electorate that would need to be perfectly naive for each media organization to control a vote share of 1%, 2%, and 5%, respectively. This value corresponds to the parameter ν in equation 3. Since the assumption of complete naivety represents an extreme worst case, estimating this parameter allows us to gauge the power of each media organization when we relax that assumption. Of course, the value of v remains directly proportional to the attention share and the power index.

For many countries, even a small share of naive voters would mean that media organizations could exercise significant political influence. In the United Kingdom, the results suggest that only about 8% of voters would need to be naive for the BBC to swing a close election by 1 percentage point. Less than 10% of voters would need to be naive in Austria, Switzerland, Taiwan, and the UK for the most powerful media organizations in those countries to also swing a vote by 1 percentage point. By contrast, the naive shares are generally higher in more media-fragmented countries such as Australia and the United States. In some cases, the share of naive voters necessary to swing a 5 percentage point vote share is greater than 1, implying that it would be impossible for that source to control such a large share of the electorate.

Figure 5 graphs the values of v for 15 of the most powerful private and public media organizations in the global sample. Smaller values correspond to greater electoral power. Naver (Taiwan), MediaCorp (Singapore), and Tamedia (Switzerland) are the most powerful private media organizations, while BBC (UK), ORF (Austria), and SVT (Sweden) are the most powerful public service broadcasters. The chart highlights stark

variation in the power of PSBs. Whereas British BBC is estimated to be one of the most powerful news sources in the world, the American PSBs do not even register on the chart.

FIGURE 6 ABOUT HERE

While we do not attempt to directly measure voter naivete or susceptibility to manipulation, a review of recent empirical research on the effects of political persuasion on election outcomes by DellaVigna and Gentzkow (2010) suggests persuasion rates ranging from 6-20%.[17] Moreover, Allcott and Gentzkow (2017) present survey evidence showing that large shares of Americans, typically ranging from 5-25%, have reported belief in media-fueled conspiracies in recent decades.[18] These magnitudes, while hardly conclusive, nevertheless suggest our computed values of *v* are within a range of empirical plausibility.

Finally, it is interesting to note the contrast between the HHI values and those in Figure 6. The HHI values are not high from a competition policy perspective. The US Federal Trade Commission and other competition authorities set a threshold of 2,500 for an industry to be highly concentrated and 1,500 for it to be moderately concentrated. As these thresholds are used to determine the need for regulatory scrutiny in the event of a proposed merger, the level of concentration in the market for news as measured by HHI does not appear to be particularly high. However, if we approach this question from a political economy angle, we see that, under conservative assumptions on the percentage of naive users, most countries in our sample have a private media company that could have a sizeable influence on electoral outcomes.[19]

This section has documented that media power tends be concentrated in a small number of news outlets. These findings, as well as the results on inequality from the previous section, are summarized in Table 6. Columns 1 and 2 show the information and income Gini for each country, while columns 3 shows the share of survey respondents who meet our information poverty threshold of using one or fewer news sources. Column 4 reports our measure of connectedness, defined as the probability two randomly selected individuals share at least two news sources. Under concentration, column 5 displays the Attention HHI, and column 6 sums the attention shares of the three most powerful media organizations in each country. The final column re-computes the HHI without public service broadcasters, which are the subject of the following section. We discuss this measure in greater detail below.

[17] DellaVigna and Gentzkow (2010) define the persuasion rate as $100 \times \frac{y_T - y_C}{e_T - e_C} \times \frac{1}{1-y_0}$, where T and C represent the treatment and control groups, e_i is the share of group i receiving a media message, y_i is the share of group i exhibiting the behavior of interest (such as voting for a candidate), and y_0 is the share that would display that behavior even if there were no message.

[18] Examples of such conspiracies in Allcott and Gentzkow (2017) include that Barack Obama is not an American citizen, or that Lyndon Johnson was involved in the assassination of John F. Kennedy.

[19] Influence of a similar magnitude has been documented by the empirical literature by DellaVigna and Gentzkow (2010). This illustrates a point made by Polo (2005) and Ofcom (2009) that standard competition policy tools are not sufficient when dealing with media mergers and must be complemented with an analysis of the potential influence that the merged entity could impose on the democratic process.

TABLE 6 ABOUT HERE

4.3. The Role of Public Service Broadcasters

We use the term public service broadcasters (PSBs) in reference to producers of television and radio news that receive significant funding or special legal privileges from the government. Typically, such organizations are endowed with a mission similar to that of the United Kingdom's BBC: "to inform, educate, and entertain." Supporters of PSBs argue they provide free, high-quality news and programming to segments of the population that would otherwise lack the means to access it. On the other hand, critics warn that state-run media may fall prey to the whims of politicians and be used as a tool to advance political ends.[20] We use the framework of our model and the Reuters data to inform these debates, and also consider how PSBs may affect a country's distribution of media power.

4.3.1. PSBs and Information Inequality

In Section 2, we showed that measures of media power are directly influenced by the number of sources individuals use to consumer news, and in Section 4.1 we documented how socioeconomic inequality is closely linked to measures of information inequality and information poverty. Given the public mission of PSBs, it is natural to ask: Do public service broadcasters help to ameliorate these inequalities?

As a rough answer to this question, in Table 7 we simply compare the demographics of public service broadcaster users with those of private media users, non-consumers of news, and the full sample population.[21] We find that PSB users are generally older, wealthier, more educated, and more likely to be male relative to the comparison groups. The differences with the full sample are minor, reflecting that most public service broadcasters appear to serve a general audience.

TABLE 7 ABOUT HERE

To more precisely describe these patterns, we use a pooled sample with country fixed effects to regress the probability that an individual uses a PSB on demographic characteristics, and compare this with the probability of using a private media source. The results are shown below in Figure 7. Relative to a median benchmark category, individuals who are under the age of 25, female, and have low income or education are significantly more likely to use a private media source than a PSB.[22] These are precisely the same demographic characteristics of information-poor individuals discussed in Figure 2.

[20] For an economic overview of the role of public service broadcasting see Armstrong (2005).
[21] For brevity, we show results only for the pooled sample of respondents from all countries.
[22] We show relative probabilities because the benchmark (absolute) probabilities show considerable variation by country. Moreover, we note that these categories are not mutually exclusive, as an individual can follow both private and public media or neither. The mirror image of private and public media usage in the plot thus is not a mere statistical artefact.

FIGURE 7 ABOUT HERE

But could PSBs help to reduce information *poverty*, even if they do not reduce information inequality, *per se*? Of the 37,203 PSB users in our sample, fewer than 800 use a PSB as their only source of news, even if we discount or exclude social media sources like Facebook. These consumers do indeed tend to be younger, less wealthy, and less well-educated than the general population. However, PSBs cannot make a serious dent in reducing information poverty by serving such individuals, who are estimated to comprise roughly 2% of the general population. Whatever their other merits and aims, public service broadcasters do not appear to cater to the most information-deprived segments of the population.

We also find suggestive evidence that powerful PSBs tend to be substitutes rather than complements to private media, and are generally associated with an overall news diet containing fewer media sources relative to countries with weaker PSBs. The two panels in Figure 8 plot, respectively, the attention share of each country's PSB and the country-level attention HHI against the US dollar value of per capita government funding allocated to public media. Panel A shows that individuals living in countries with a powerful PSB tend to consume a less diversified diet of news. For the reasons discussed in Section 4.1, this translates into a higher attention share, as shown in Panel B. These results are consistent with the hypothesis that public and private media are substitutes rather than complements, or, put differently, that public media may "crowd out" independent news from the media marketplace.

FIGURE 8 ABOUT HERE

4.3.2. PSBs and Media Concentration

In many countries, public service broadcasters reach a large share of the population and are consequently characterized by our model as possessing significant media power. But what might the distribution of power look like in a world without PSBs? While this is an inherently speculative exercise, we employ a strategy aimed at estimating a plausible upper-bound for the concentration of media power in the absence of PSBs. In particular, we re-compute the attention HHI for each country under the assumption that the attention share vacated by the PSB is redistributed to private media outlets in proportion to their attention shares. The results are shown in Figure 9.

FIGURE 9 ABOUT HERE

The hollow markers plot the actual attention HHI by country when PSBs are included in the market, as previously reported in Figure 5. The crosses then estimate the attention HHI excluding PSBs, as described above. Most countries see a substantial increase in the concentration of media power without PSBs. In countries where one or two companies dominate the private media market, as in Germany and Switzerland, the increase in

concentration is especially stark. This result is driven by the assumption that the PSB attention share is redistributed in proportion to the attention shares in the private market, thus amplifying the advantage of powerful players.

By contrast, in three countries where the PSB is very powerful --- including Austria, Denmark, and the United Kingdom --- media concentration actually declines in our counterfactual. In these countries, private media companies are very competitive in terms of attention share, and no company benefits so disproportionately from the exit of the PSB.

4.3.3. PSBs and Political Independence

When a society relies heavily on its public service broadcasters for news, it runs the risk of politicians using their prerogatives of office and influence to exercise control over the state-funded media and distort the democratic process. For proponents and defenders of democracy, ensuring the political independence of the PSBs is therefore of the utmost importance.

In this final analysis, we compare the media power of PSBs in our sample against empirical measures of PSB independence. In particular, we use data from Hanretty (2010). who constructs a measure of *de facto* PSB independence based on the rate of turnover of the chief executive (*TOR*) and a political vulnerability index (*VUL*). *TOR* is equal to the reciprocal of the average tenure of the chief executive in years, and *VUL* is the percentage of government changes followed within six months by a change in the chief executive. The political independence index is then calculated as follows:

$$I = 1 - \frac{TOR+VUL}{2} \quad (5)$$

where higher values of *I* indicate greater de facto independence. The resulting measure is plotted against each PSB's attention share in Figure 10. Values of the political independence index range from .35 for Hungary's MTV to .96 for Switzerland's SRG-SSR. In general, the attention share and political independence are positively correlated for the PSB's in our sample. One interpretation consistent with this evidence is that voters react to PSB reporting in a sophisticated manner: citizens grant their time and attention to PSBs deemed to be politically independent and credible, but ignore those perceived to be biased or untruthful.

FIGURE 10 ABOUT HERE

The main outlier in the sample is Italy's RAI, which wields significant media power but has been repeatedly subjected to political influence (Durante and Knight 2012; D'Arma 2015). Political patronage and conflict of interest scandals have been common over the decades; *The Economist* (2015) reports RAI's payroll recently financed more than 900 political appointees, although regulators have since considered taking steps toward reform. The data do not cover Turkey, but the recent erosion in democratic institutions and civil

liberties suggest its public service broadcaster TRT would not score favourably on the independence dimension.

On the other end of the spectrum, many countries have developed regulatory frameworks to successfully ensure PSB independence. Research suggests effective policy measures include multi-year funding periods, independent regulators serving multi-year terms, and legal firewalls preventing politicians from influencing journalistic and editorial content (Benson and Powers 2011). While Hanretty's (2010) independence measure does not measures all these attributes, the data nevertheless suggest countries including the United States, France, Spain, and Italy could take steps to improve regulation of their public service broadcasters.

5. Conclusion

Our analysis of the available evidence on news consumption raises three concerns related to how news providers are regulated.

First, media power around the globe is concentrated in a relatively small number of news outlets, especially in television companies and in Facebook. Moreover, measures of socioeconomic inequality, information inequality, and information poverty are tightly linked and suggest that substantial fractions of voters may be vulnerable to political manipulation by those large companies. Media regulators are often empowered to approve or block mergers and other operations involving those companies — an example is Rupert Murdoch's repeated attempts in 2011 and 2017 to acquire the British Sky Broadcasting Group (BSkyB) — and yet many commentators have expressed concern that existing competition policies do not pay sufficient attention to the risk of political manipulation and capture (Polo 2005; Ofcom 2009; Leveson 2012; Prat 2017). The patterns we observe in the data support that concern. Our analysis also highlights that HHI, even when applied to attention shares, does not capture such potential risk. Media regulators should therefore consider complementing standard competition policy indices with additional media-specific measures to better assess and redress media externalities.

Second, the data highlights the centrality of public service broadcasters in most Western democracies. This role could be very beneficial if state media organizations were highly independent from the government and if they focused their efforts on fighting information inequality. There seems to be room for improvement on both counts. Some public service broadcasters, like Italy's RAI, clearly must strengthen their institutional independence. All public media should ask themselves if and how they can play a role in reducing information inequality.

Finally, an important lesson of this analysis is that existing data on news consumption is inadequate. While we commend Reuters for providing a person-centric picture of news consumption in 36 countries, the data nevertheless suffer from a number of limitations that

have been discussed at length in the paper. It is surprising that media regulators around the world do not collect much more in-depth information about where citizens get their news. A clearer understanding of current news flows is a necessary condition to analyse the potential effects that private and public news providers can have on those flows. The ideal dataset would include granular information on usage (such as minutes devoted to each source) as well as political knowledge questions to assess the actual absorption of news content.

REFERENCES

Allcott, H. and Gentzkow, M. (2017). Social media and fake news in the 2016 election. *The Journal of Economic Perspectives*.

Anderson, S., Waldfogel, J., and Strömberg, D. (2015). Introduction. In Anderson, S. P., Waldfogel, J., and Strömberg, D., editors, *Handbook of Media Economics*. Elsevier, North Holland.

Armstrong, M. (2005). Public service broadcasting. *Fiscal Studies*. Benson, R. and Powers, M. (2011). Public media and political independence. *Lessons for the Future of Journalism from Around the World. New York: New York University*.

Baum, M. (2002). Sex, lies, and war: How soft news brings foreign policy to the inattentive public. *American Political Science Review*.

Benson, R. and Powers, M. (2011). Public media and political independence. *Lessons for the Future of Journalism from Around the World. New York: New York University*.

Besley, T. and Prat, A. (2006). Handcuffs for the grabbing hand? Media capture and government accountability. *The American Economic Review*.

Boxell, L., Gentzkow, M., and Shapiro, J. M. (2017). Is the internet causing political polarization? Evidence from demographics. NBER working paper.

Cagé, J. (2016). *Saving the Media*. Harvard University Press.

Cagé, J., Hervé, N., and Viaud, M.-L. (2017). The production of information in an online world: Is copy right? CEPR discussion paper.

Chang, L. and Krosnick, J. A. (2009). National surveys via rdd telephone interviewing versus the Internet comparing sample representativeness and response quality. *Public Opinion Quarterly*.

Chiang, C.-F. and Knight, B. (2011). Media bias and influence: Evidence from newspaper endorsements. *Review of Economic Studies*.

CMA (2018). Anticipated acquisition by 21st Century Fox, Inc of Sky Plc. Technical report, Competition and Markets Authority.

D'Arma, A. (2015). *Media and Politics in Contemporary Italy: From Berlusconi to Grillo*. Lexington Books.

DellaVigna, S. and Gentzkow, M. (2010). Persuasion: Empirical evidence. *The Annual Review of Economics*.

DellaVigna, S. and Kaplan, E. (2006). The Fox News effect: Media bias and voting. *Quarterly Journal of Economics*.

Djankov, S., McLiesh, C., Nenova, T., and Shleifer, A. (2003). Who owns the media? *The Journal of Law and Economics*.

Durante, R. and Knight, B. (2012). Media bias and influence: Evidence from newspaper endorsements. *Journal of the European Economic Association*, 10(3):451–481.

The Economist (2015). Sliced RAI.

The Economist (2017). Traditional media firms are enjoying a Trump bump.

Enikolopov, R. and Petrova, R. (2015). Media capture: Empirical evidence. In Anderson, S. P., Waldfogel, J., and Strömberg, D., editors, *Handbook of Media Economics*. Elsevier, North Holland.

Galston, W. A. (2001). Political knowledge, political engagement, and civic education. *Annual Review of Political Science*.

Gentzkow, M., Shapiro, J. M., and Stone, D. F. (2015). Media bias in the marketplace: Theory. In Anderson, S. P., Waldfogel, J., and Strömberg, D., editors, *Handbook of Media Economics*. Elsevier, North Holland.

Hanretty, C. (2010). Explaining the de facto independence of public broadcasters. *British Journal of Political Science*. Leveson, L. J. B. H. L. (2012). *An Inquiry into the Culture, Practices and Ethics of the Press: Executive Summary and Recommendations [Leveson Report]*, volume 779. The Stationery Office.

Leveson, L. J. B. H. L. (2012). *An Inquiry into the Culture, Practices and Ethics of the Press: Executive Summary and Recommendations [Leveson Report]*, volume 779. The Stationery Office.

Martin, G. J. and Yurukoglu, A. (2017). Bias in cable news: Persuasion and polarization. *The American Economic Review*.

McMillan, J. and Zoido, P. (2004). How to subvert democracy: Montesinos in peru. *The Journal of Economic Perspectives*.

Noam, E. M. (2015). *Who Owns the World's Media?: Media Concentration and Ownership Around the World*. Oxford University Press.

OECD (2013). The role and measurement of quality in competition analysis. Technical report, Organization for Economic Cooperation and Development.

Ofcom (2009). Second public service broadcasting review: Putting viewers first. Technical report.

Petrova, M. (2008). Inequality and media capture. *Journal of Public Economics*.

Pew Research Center (2015). Media consumption report.

Polo, M. (2005). Regulation for pluralism in the media markets. *The Economic Regulation of Broadcasting Markets: Evolving Technology and the Challenges for Policy*.

Prat, A. (2015). Media capture and media power. In Anderson, S. P., Waldfogel, J., and Strömberg, D., editors, *Handbook of Media Economics*. Elsevier, North Holland.

Prat, A. (2017). Media power. *The Journal of Political Economy*.

Puglisi, R. and Snyder, J. M. J. (2015). Empirical studies of media bias. In Anderson, S. P., Waldfogel, J., and Strömberg, D., editors, *Handbook of Media Economics*. Elsevier, North Holland.

Reuters (2015). Digital news report. Technical report, Reuters Institute for the Study of Journalism.

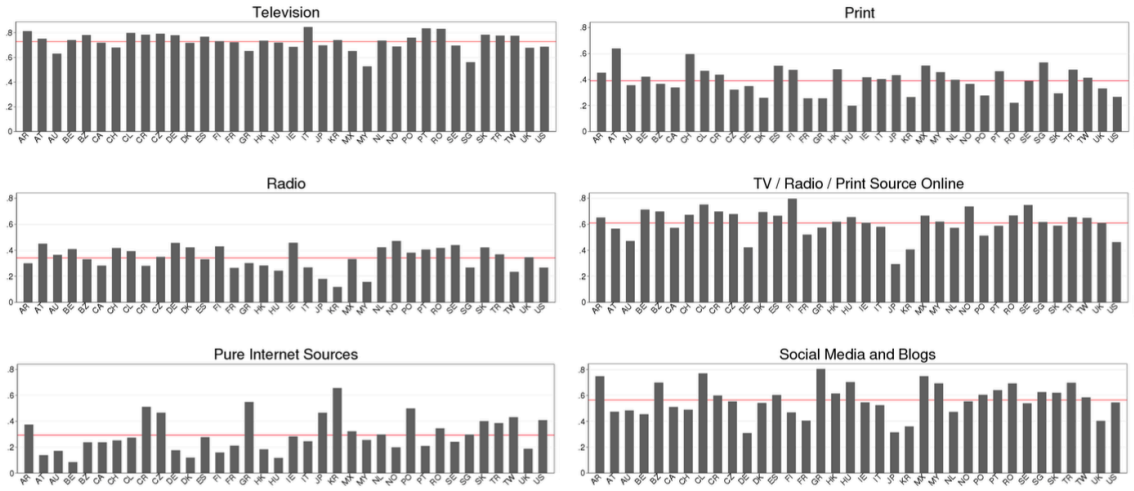
Strömberg, D. (2015). Media coverage and political accountability: Theory and evidence. In Anderson, S. P., Waldfogel, J., and Strömberg, D., editors, *Handbook of Media Economics*. Elsevier, North Holland.

Verba, S., Schlozman, K. L., and Brady, H. E. (1995). *Voice and equality: Civic voluntarism in American politics*. Harvard University Press.

Yeager, D. S., Krosnick, J. A., Chang, L., Javitz, H. S., Levendusky, M. S., Simpser, A., and Wang, R. (2011). Comparing the accuracy of RDD telephone surveys and Internet surveys conducted with probability and non-probability samples. *Public opinion quarterly*.

FIGURES

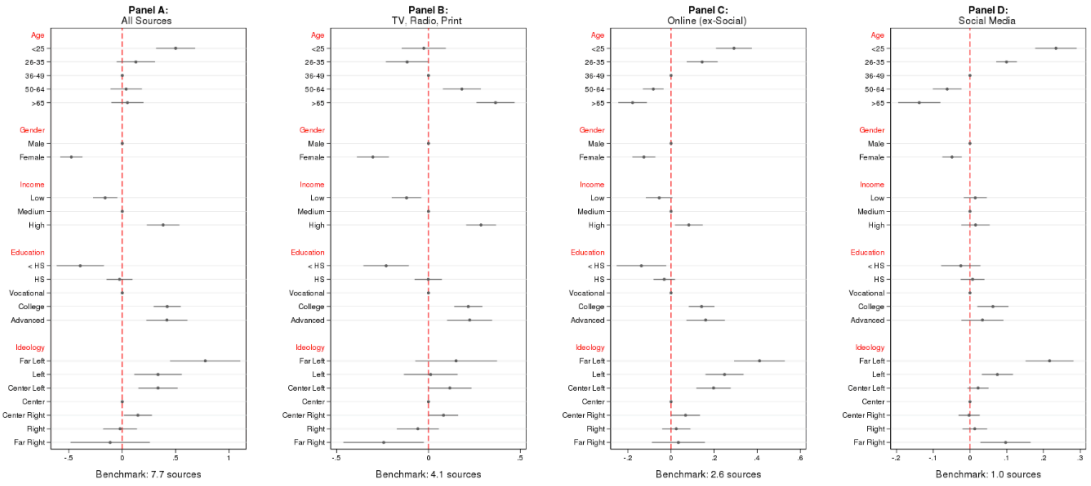
FIGURE 1
NEWS CONSUMPTION BY PLATFORM AND BY COUNTRY



Data: Reuters 2017. Figure shows the share of respondents in each country who report getting news from each platform type.

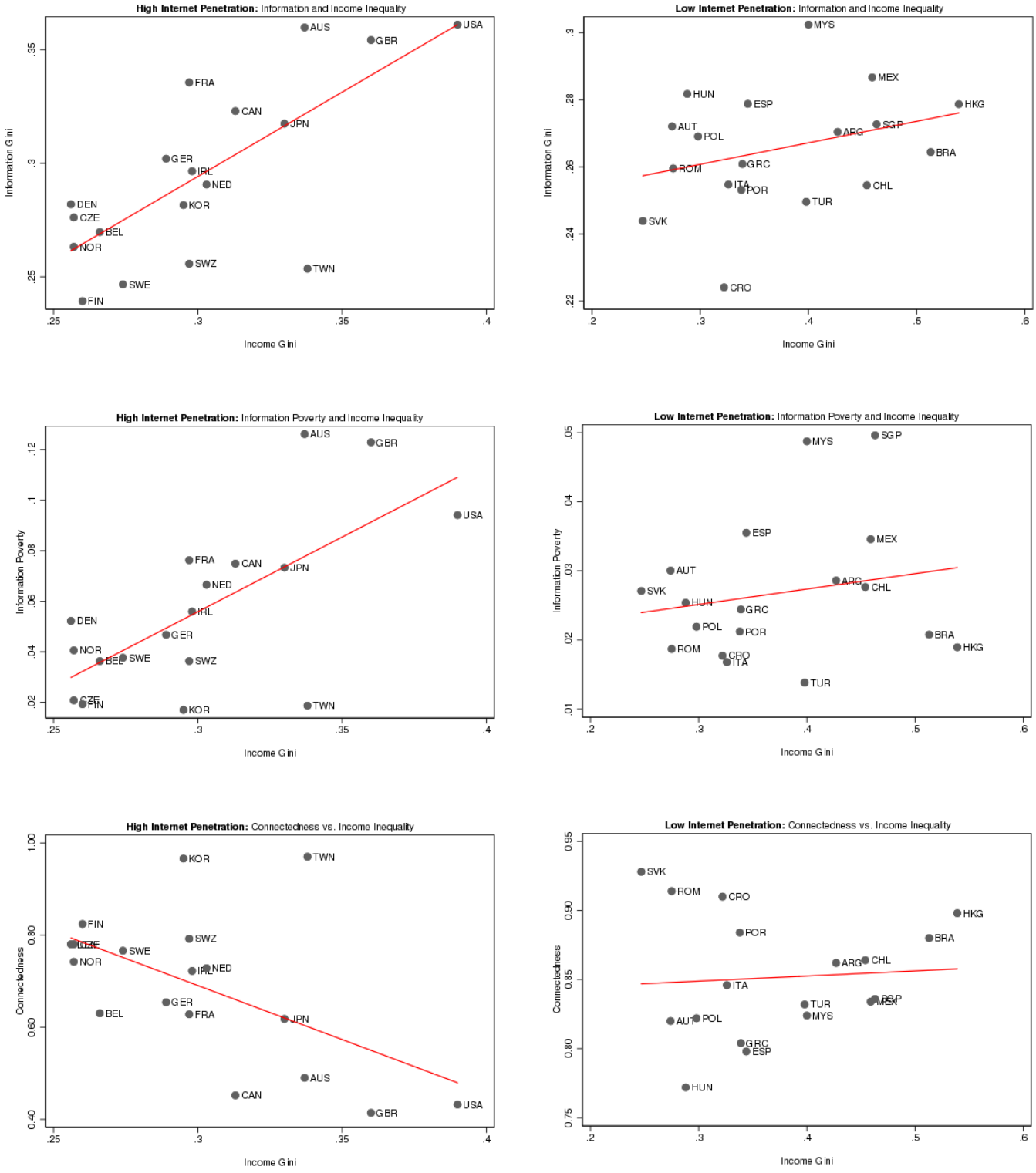
FIGURE 2

PREDICTORS OF NEWS CONSUMPTION



Data: Reuters 2017. Outcome variable is the number of news sources an individual sources. Multivariate OLS results using a pooled sample and country fixed effects. N = 50,872. Plots show 95% confidence intervals. Standard errors clustered by country.

FIGURE 3
INCOME INEQUALITY, INFORMATION INEQUALITY,
AND CONNECTEDNESS



Data: Reuters 2017 and OECD 2015. High and low internet penetration defined as being above or below the sample median of 0.85.

FIGURE 4
DISTRIBUTION OF ATTENTION SHARES:
FIVE LARGEST MEDIA ORGANIZATIONS IN EACH COUNTRY

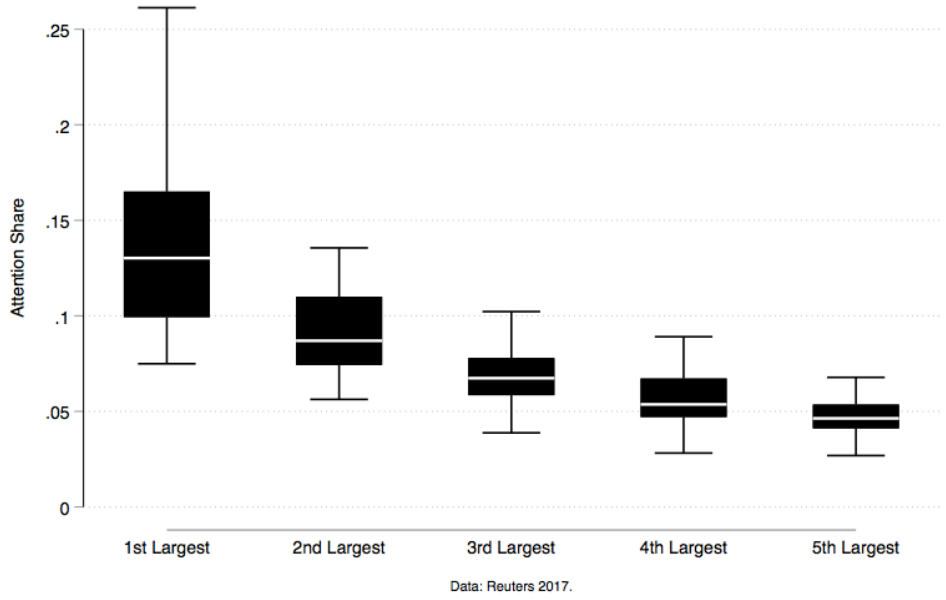
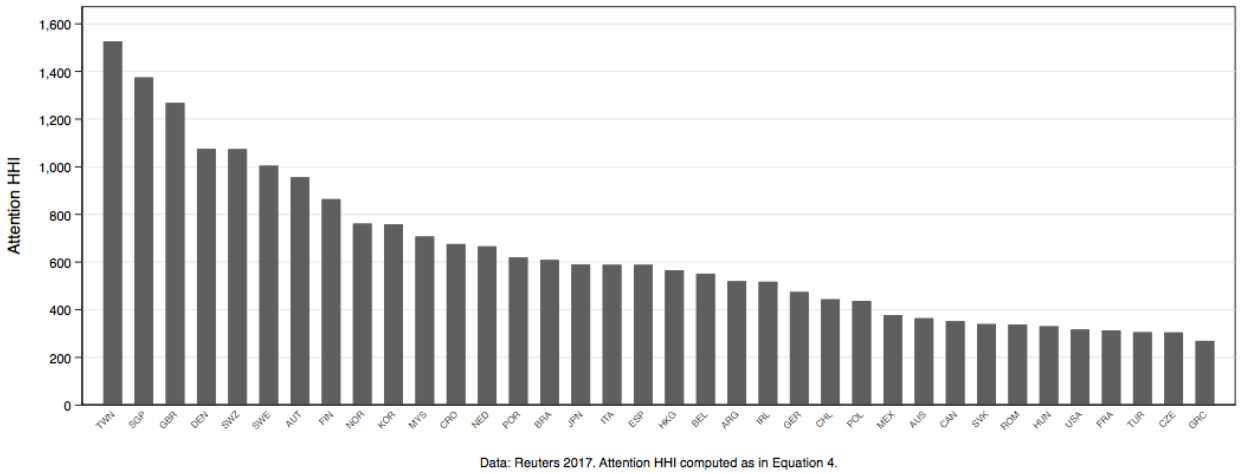
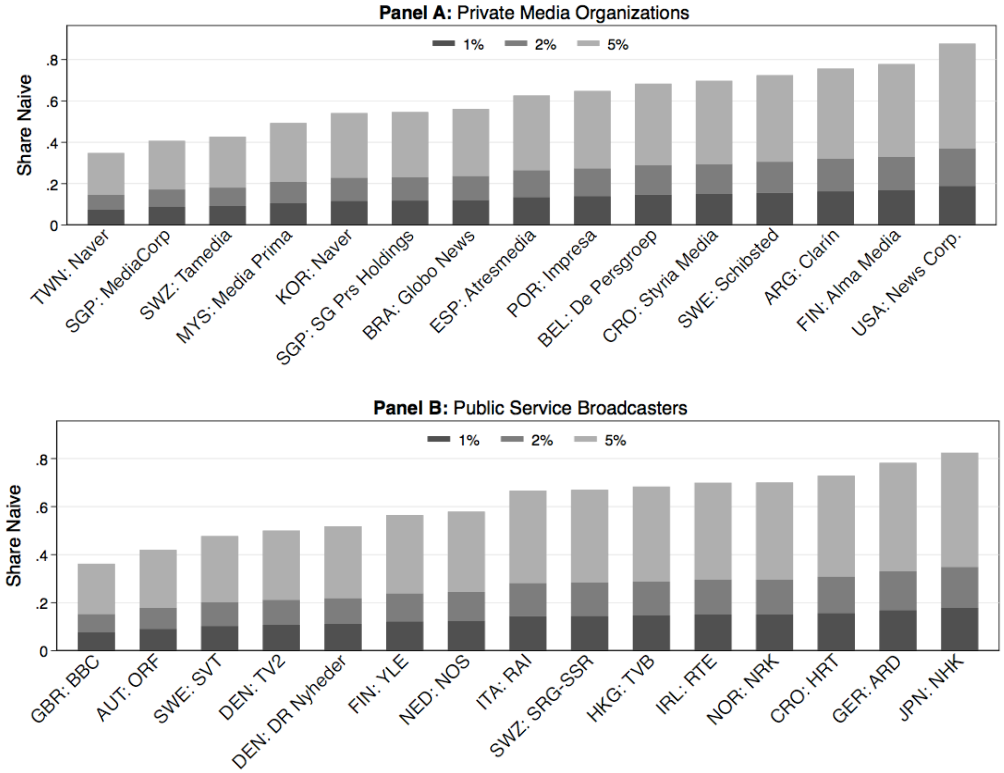


FIGURE 5
ATTENTION HHI BY COUNTRY



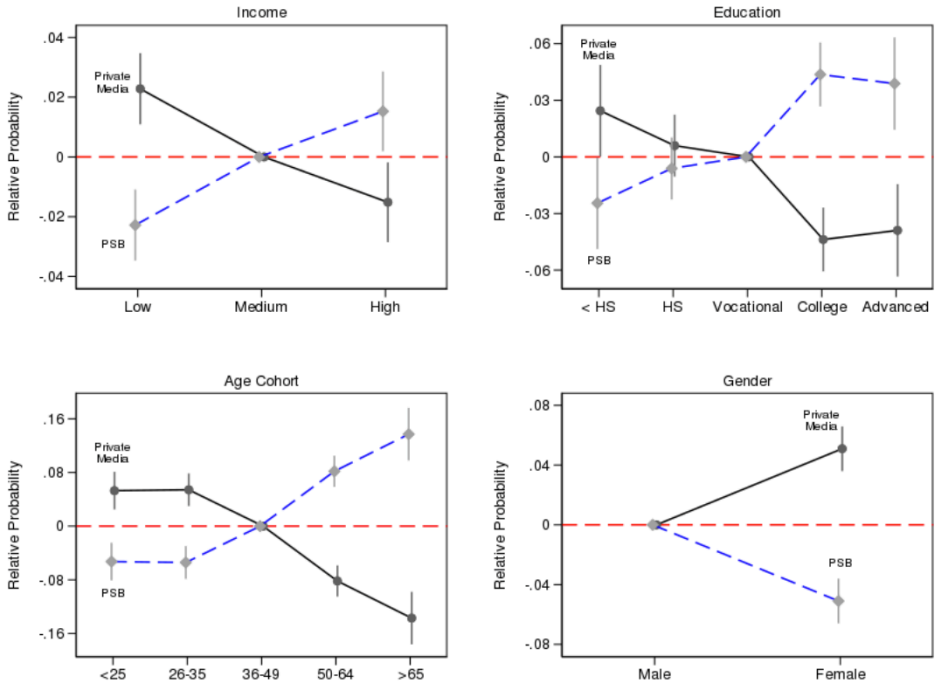
Data: Reuters 2017. Attention HHI computed as in Equation 4.

FIGURE 6
SHARE OF NAÏVE VOTERS IN ELECTORATE
TO SWING 1%, 2%, AND 5% OF THE VOTE



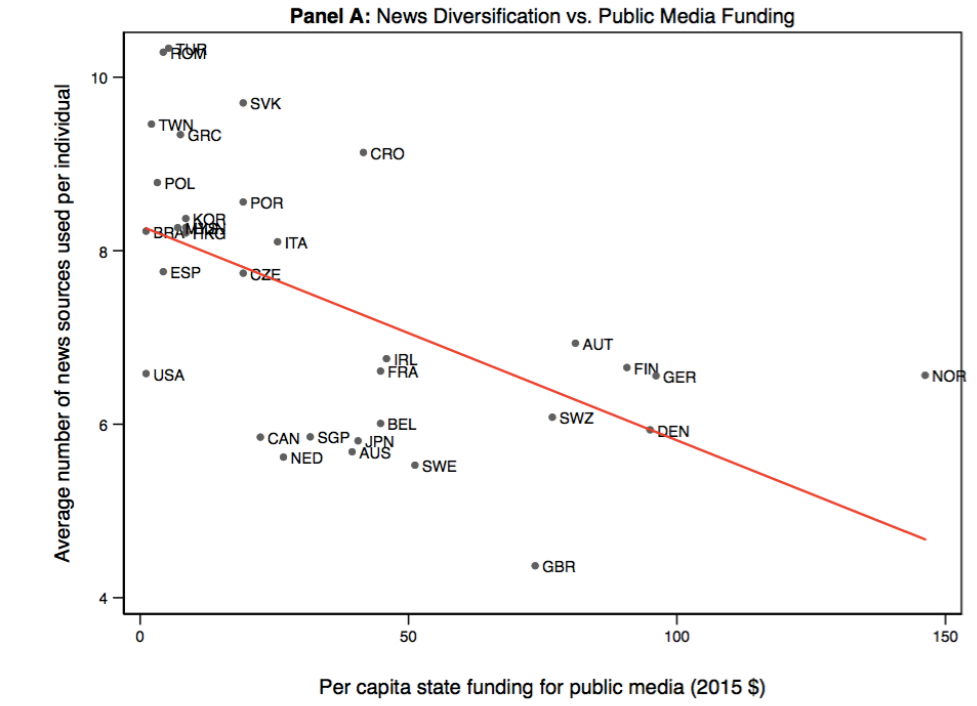
Data: Reuters 2017. Bars represent the minimum share of perfectly naive voters necessary for each private or public media organization to swing 1%, 2%, and 5% of the vote share, as described in Section 2, Equation 3. For example, in Panel B, if (8%, 15%, 37%) of British voters are perfectly naive, then the BBC could control a vote share of (1, 2, 5) percentage points. Panels show selected powerful private and public news sources.

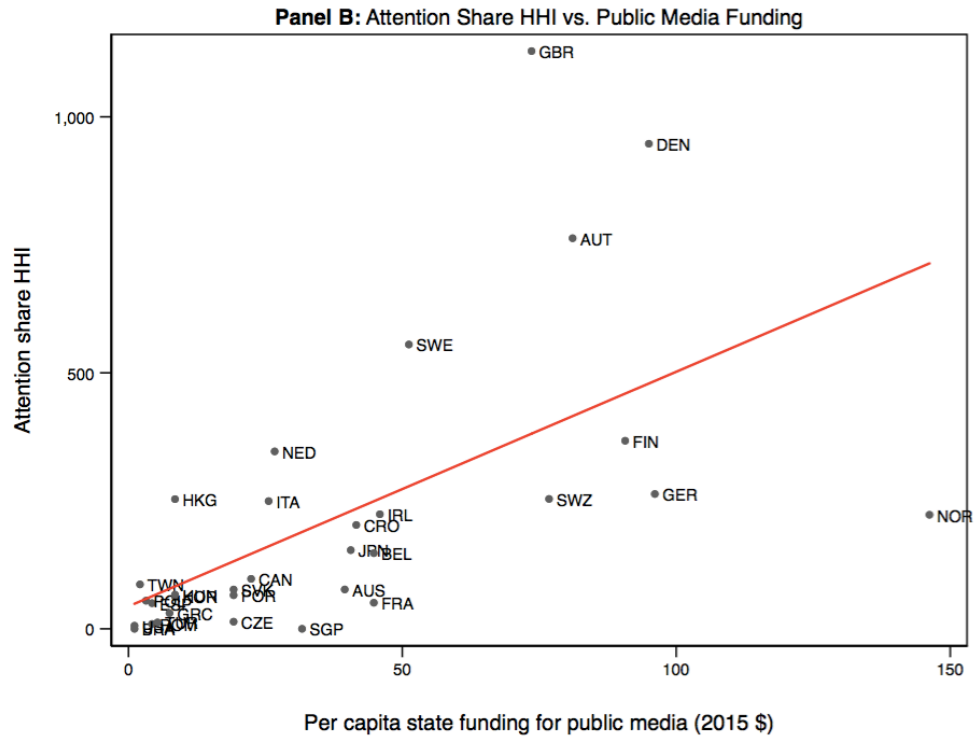
FIGURE 7
DEMOGRAPHIC PREDICTORS OF PUBLIC AND PRIVATE MEDIA USAGE



Data: Reuters 2017. Two outcome variables: (a) an indicator for whether the respondent uses at least one privately owned news source; (b) an indicator for whether the respondent uses at least one publicly owned news source. Multivariate OLS results using a pooled sample and country fixed effects. Plots show 95% confidence intervals. Standard errors clustered by country. Y-axes show probabilities relative to the reference category. Excludes countries with no PSB. N=59,481.

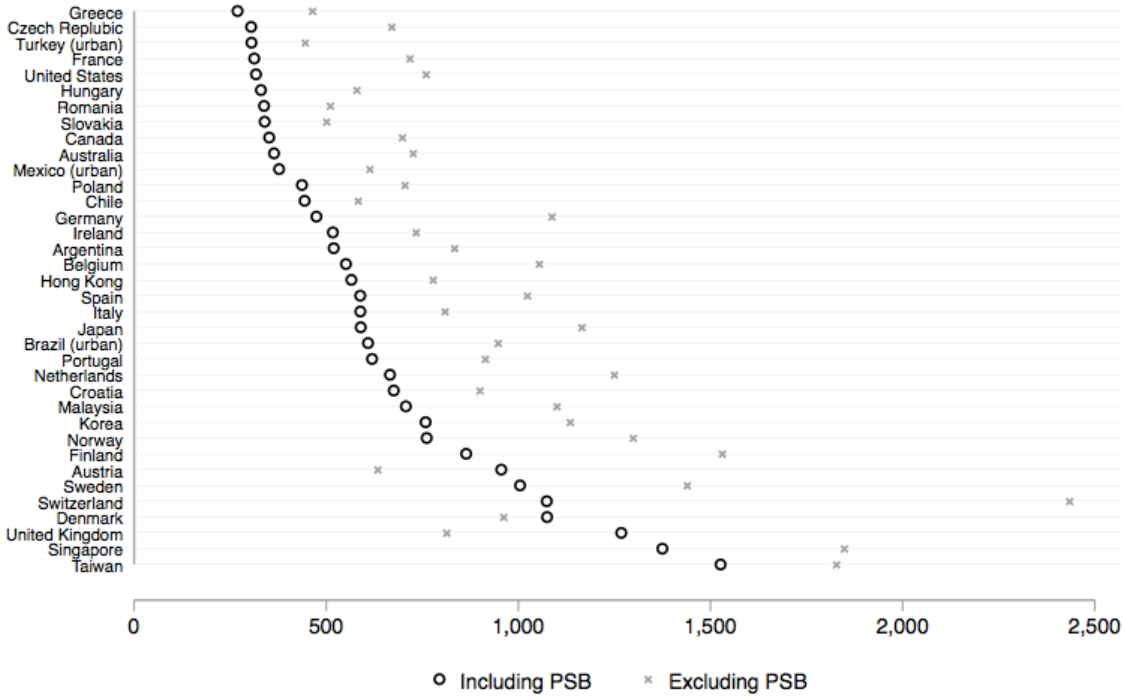
FIGURE 8
NEWS DIVERSIFICATION, ATTENTION HHIs,
AND STATE FUNDING FOR PSBs





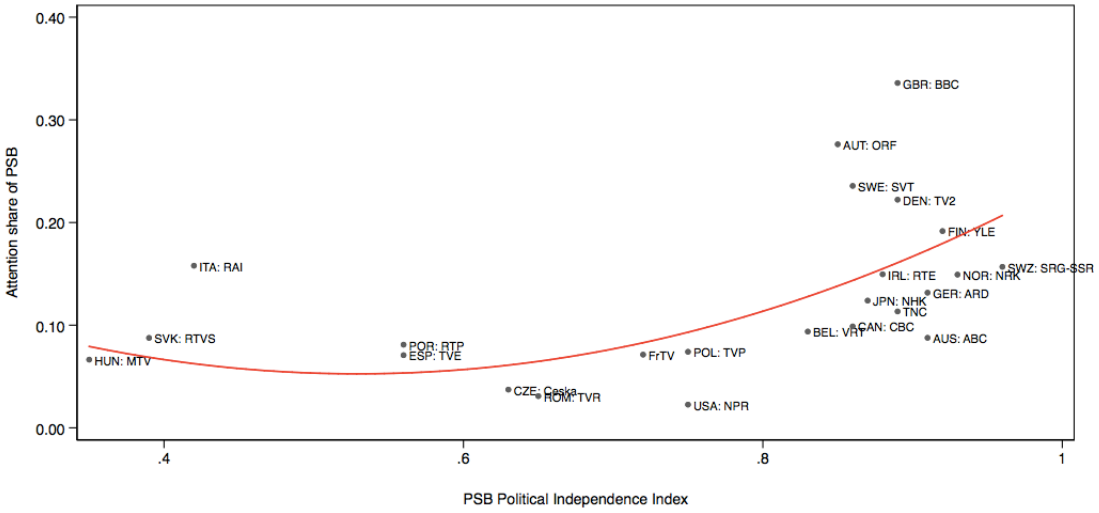
Data: Reuters 2017, European Broadcasting Union

FIGURE 9:
ATTENTION HHI EXLCUDING PSBs



Data: Reuters 2017

FIGURE 10:
ATTENTION SHARE VS. POLITICAL INDEPENDENCE OF PSBs



Political independence data from Hanretty (2010). Excludes countries with no PSB.

TABLES

TABLE I: EXAMPLE NEWS CONSUMPTION MATRIX

	Television		Press		New Media	
Segment	TV1	TV2	NP1	NP2	WS1	WS2
A	■					
B		■	■			
C				■	■	■
Reach	1/3	1/3	1/3	1/3	1/3	1/3
Market Share	1/2	1/2	1/2	1/2	1/2	1/2
Attention Share (a)	1/3	1/6	1/6	1/9	1/9	1/9
Power Index (π)	1/2	1/5	1/5	1/8	1/8	1/8
Naive Share $v(\pi = 0.1)$	3/11	5/11	5/11	8/11	8/11	8/11

TABLE II: REUTERS DESCRIPTIVE STATISTICS

Country	Sample Size	Female (Share)	Age (Mean)	College (Share)	Sources (Total)	Sources (Mean)	Sources (SD)	Internet Penetration
Argentina	2,028	0.51	42.7	0.53	62	8.4	4.2	0.79
Australia	2,188	0.50	46.6	0.37	48	5.7	3.8	0.92
Austria	2,031	0.52	47.0	0.21	60	6.9	3.5	0.83
Belgium	2,175	0.51	47.9	0.50	74	6.0	3.0	0.88
Brazil (urban)	2,022	0.51	41.4	0.61	59	8.2	4.0	0.68
Canada	2,671	0.50	47.9	0.36	64	5.9	3.5	0.93
Chile	2,025	0.52	43.1	0.27	63	9.2	4.2	0.80
Croatia	2,031	0.52	44.2	0.42	59	9.1	3.7	0.74
Czech Replubic	2,020	0.51	47.0	0.27	65	7.7	3.9	0.88
Denmark	2,068	0.50	46.6	0.43	52	5.9	3.1	0.96
Finland	2,023	0.51	47.8	0.28	46	6.7	2.9	0.92
France	2,085	0.53	47.0	0.36	65	6.6	4.1	0.86
Germany	2,097	0.50	48.8	0.21	57	6.6	3.7	0.96
Greece	2,007	0.45	46.5	0.64	61	9.3	4.4	0.65
Hong Kong	2,007	0.52	45.3	0.44	67	8.2	4.2	0.82
Hungary	2,010	0.53	46.5	0.37	72	8.3	4.2	0.81
Ireland	2,074	0.51	45.2	0.39	51	6.8	3.6	0.94
Italy	2,025	0.52	48.0	0.25	55	8.1	3.8	0.63
Japan	2,088	0.52	49.7	0.52	57	5.8	3.4	0.94
Korea	1,999	0.51	45.0	0.65	62	8.4	4.3	0.89
Malaysia	2,154	0.48	39.4	0.47	75	8.3	4.5	0.40
Mexico (urban)	2,024	0.52	39.6	0.66	55	8.0	4.2	0.56
Netherlands	2,105	0.51	48.8	0.29	53	5.6	3.0	0.96
Norway	2,095	0.53	46.2	0.47	54	6.6	3.1	0.96
Poland	2,008	0.52	45.9	0.48	69	8.8	4.2	0.68
Portugal	2,027	0.52	46.4	0.51	46	8.6	3.9	0.68
Romania	1,980	0.52	44.5	0.63	67	10.3	4.8	0.56
Singapore	2,076	0.50	40.4	0.50	41	5.9	3.0	0.81
Slovakia	2,030	0.53	44.8	0.37	71	9.7	4.3	0.83
Spain	2,056	0.51	46.5	0.44	54	7.8	4.0	0.77
Sweden	2,045	0.50	45.7	0.29	50	5.5	2.5	0.95
Switzerland	2,558	0.51	46.6	0.24	70	6.1	2.9	0.87
Taiwan	1,015	0.49	43.5	0.61	58	9.5	4.3	0.88
Turkey (urban)	1,953	0.48	40.0	0.60	69	10.3	4.6	0.60
United Kingdom	2,262	0.56	48.3	0.40	54	4.3	2.9	0.92
United States	2,434	0.56	48.6	0.34	54	6.6	4.4	0.90
All Countries	**72,302**	**0.51**	**45.6**	**0.42**	**59**	**7.4**	**4.1**	**0.81**

Data: Reuters 2017. Demographic data is not available for respondents who report zero news sources.

TABLE III: EXTERNAL VALIDITY IN THE US AND THE UK

United States	Reuters (Internet, 2017)			Pew (Phone, 2012)		
	Power	Reach	Rank	Power	Reach	Rank
News Corp.	0.12	0.46	1	0.22	0.31	1
Facebook	0.06	0.52	2	0.01	0.01	26
Time Warner	0.05	0.34	3	0.09	0.21	3
Comcast	0.05	0.32	4	0.15	0.27	2
ABC	0.05	0.31	5	0.07	0.14	4
CBS	0.04	0.29	6	0.04	0.09	7
Yahoo News	0.03	0.25	7	0.06	0.13	6
Huffington Post	0.03	0.25	8	0.01	0.02	19
The New York Times	0.03	0.23	9	0.03	0.08	9
NPR*	0.02	0.17	10	0.06	0.14	5
United Kingdom	Reuters (Internet, 2017)			Ofcom (Face-to-Face, 2016)		
	Power	Reach	Rank	Power	Reach	Rank
BBC*	0.34	0.79	1	0.65	0.80	1
Rupert Murdoch	0.08	0.36	2	0.11	0.34	3
Daily Mail	0.05	0.29	3	0.06	0.17	4
ITV News	0.05	0.29	4	0.19	0.39	2
Facebook	0.04	0.32	5	0.04	0.13	5
The Guardian / Observer	0.03	0.20	6	0.01	0.05	8
Huffington Post	0.02	0.16	7	0.00	0.02	27
Daily Mirror	0.02	0.10	8	0.01	0.05	9
The Daily Telegraph	0.01	0.10	9	0.01	0.05	10
Twitter	0.01	0.13	10	0.01	0.04	11

Data from the Reuters Institute for the Study of Journalism 2017 Digital News Report, the Pew Research Center 2012 Media Consumption Survey, and the 2016 Ofcom News Consumption Survey. *Power* is defined as the maximal ability of a media organization to swing an election, as defined in Section 2. *Reach* is the share of the population that reports getting news from each source. n.a.=not available.

TABLE IV: EXTERNAL VALIDITY IN THE UNITED STATES

Source **Survey Method**	Reuters (2017) Internet *Reach*	Reuters (2015) Internet *Reach*	NCS (2014) Phone *Reach*	Pew (2012) Phone *Reach*
News Corp.	0.46	0.42	n.a.	0.31
Fox News	0.33	0.35	n.a.	0.27
Cable	n.a.	n.a.	0.18	0.17
Broadcast	n.a.	n.a.	0.17	0.23
Online	0.20	0.19	0.05	0.07
Wall Street Journal	0.12	0.10	n.a.	0.06
Print	0.06	0.07	0.03	0.05
Online	0.09	0.06	0.08	0.03
Comcast	0.33	0.29	n.a.	0.27
NBC or MSNBC	0.26	0.26	n.a.	0.27
MSNBC (Cable)	n.a.	n.a.	0.10	0.12
NBC (Broadcast)	n.a.	n.a.	0.23	0.16
Online	0.14	0.11	0.02	0.06
Time Warner (CNN)	0.34	0.28	n.a.	0.23
CNN (Cable)	0.27	0.23	0.17	0.17
CNN (Online)	0.22	0.13	0.06	0.11
Disney (ABC)	0.31	0.24	n.a.	0.15
ABC (Broadcast)	0.25	0.21	0.29	0.13
ABC (Online)	0.12	0.06	0.04	0.02
Yahoo News	0.25	0.24	0.26	0.19
CBS	0.29	0.23	n.a.	0.09
Broadcast	0.24	0.21	0.20	0.08
Online	0.10	0.06	0.03	0.01
Huffington Post	0.25	0.22	0.04	0.03
NPR	0.18	0.16	n.a.	0.14
New York Times	0.23	0.15	n.a.	0.08
Print	0.11	0.10	0.03	0.06
Online	0.18	0.12	0.02	0.05

n.a.=not available. Data from the Reuters Institute for the Study of Journalism 2017/2015 Digital News Reports; Simmons National Consumer Study 2014; and Pew Research Center 2012 Media Consumption Survey. *Reach* is the share of the population that reports getting news from each source.

TABLE V: MEDIA POWER BY SOURCE

Country	Media Organization	Platform	Reach	Attention Share	Power (All)	Power (Centrists)	Share naive to swing 1%	2%	5%
Argentina	Clarín	TV / Radio	0.661	0.120	0.137	0.155	0.163	0.320	0.756
	TN	TV	0.659	0.110	0.123	0.125	0.179	0.351	0.830
	Facebook	Web / Social	0.748	0.082	0.090	0.085	0.238	0.466	>1
Australia	ABC*	TV / Radio	0.458	0.081	0.088	0.077	0.243	0.477	>1
	Nine Entertainment Co.	TV	0.461	0.078	0.084	0.087	0.253	0.496	>1
	Rupert Murdoch	TV / Radio / Print	0.428	0.076	0.082	0.076	0.258	0.506	>1
Austria	ORF*	TV / Radio	0.862	0.216	0.276	0.280	0.091	0.178	0.420
	Kronen Zeitung	Print	0.551	0.093	0.102	0.106	0.212	0.416	0.983
	Facebook	Web / Social	0.424	0.039	0.040	0.038	0.506	0.992	2.345
Belgium	De Persgroep	TV / Radio	0.535	0.133	0.154	0.168	0.147	0.289	0.683
	VRT*	TV / Radio	0.366	0.086	0.094	0.106	0.229	0.449	>1
	Mediahuis	TV / Radio / Print	0.351	0.079	0.086	0.093	0.247	0.485	>1
Brazil (urban)	Globo News	TV	0.773	0.162	0.193	0.210	0.121	0.237	0.561
	Facebook	Web / Social	0.760	0.085	0.093	0.089	0.230	0.450	>1
	Jornal do SBT	TV	0.397	0.050	0.053	0.050	0.392	0.768	>1
Canada	Quebecor	TV / Radio / Print	0.324	0.097	0.108	0.103	0.202	0.395	0.935
	CBC*	TV / Radio	0.501	0.090	0.099	0.083	0.218	0.428	>1
	Facebook	Web / Social	0.491	0.054	0.057	0.055	0.363	0.711	>1
Chile	Televisión Nacional de Chile*	TV	0.659	0.102	0.113	0.123	0.193	0.378	0.893
	Facebook	Web / Social	0.811	0.078	0.084	0.088	0.252	0.495	>1
	Time Warner	TV	0.609	0.078	0.084	0.091	0.253	0.496	>1
Croatia	Styria Media Group	Print	0.753	0.130	0.150	0.158	0.150	0.295	0.697
	HRT*	TV / Radio	0.767	0.125	0.142	0.145	0.157	0.309	0.729
	RTL Group	TV / Radio	0.646	0.071	0.077	0.075	0.275	0.539	>1
Czech Replubic	Andrej Babiš	TV / Radio / Print	0.609	0.094	0.104	0.103	0.209	0.409	0.967
	Seznam/zpravy	Web	0.541	0.069	0.074	0.076	0.284	0.556	>1
	Facebook	Web / Social	0.506	0.044	0.046	0.047	0.443	0.868	2.052
Denmark	TV2*	TV	0.694	0.182	0.222	0.250	0.108	0.212	0.500
	DR Nyheder*	TV / Radio	0.755	0.176	0.213	0.221	0.112	0.219	0.518
	Politiken	Print	0.451	0.074	0.080	0.071	0.264	0.518	>1
Finland	YLE*	TV	0.763	0.161	0.192	0.199	0.122	0.239	0.565
	Alma Media	Web	0.657	0.117	0.132	0.122	0.168	0.329	0.778
	MTV	TV	0.651	0.102	0.114	0.134	0.192	0.376	0.889
France	TF1	TV	0.506	0.086	0.094	0.085	0.228	0.447	>1
	BFM TV	TV	0.474	0.075	0.081	0.079	0.261	0.512	>1
	France Télévisions*	TV	0.426	0.067	0.071	0.068	0.295	0.578	>1
Germany	ARD*	TV / Radio	0.600	0.116	0.132	0.129	0.169	0.331	0.782
	Bertelsmann	TV / Radio / Print	0.566	0.104	0.116	0.125	0.188	0.369	0.873
	ZDF*	TV	0.482	0.087	0.095	0.106	0.226	0.444	>1
Greece	Skai Group	TV / Radio / Print	0.600	0.081	0.088	0.096	0.242	0.474	>1
	Facebook	Web / Social	0.660	0.056	0.060	0.057	0.348	0.683	>1
	ERT*	TV / Radio	0.394	0.052	0.055	0.054	0.374	0.733	>1
Hong Kong	TVB*	TV / Radio	0.751	0.133	0.154	0.166	0.147	0.289	0.683
	Sing Tao News Corp.	TV / Radio / Print	0.579	0.094	0.104	0.123	0.208	0.408	0.965
	Next Digital	Print	0.502	0.078	0.084	0.074	0.252	0.495	>1
Hungary	RTL	TV / Radio	0.614	0.081	0.088	0.093	0.243	0.477	>1
	MTV*	TV / Radio	0.422	0.062	0.066	0.066	0.315	0.617	>1
	Facebook	Web / Social	0.662	0.062	0.066	0.061	0.318	0.624	>1
Ireland	RTE*	TV	0.672	0.130	0.150	0.152	0.151	0.296	0.699
	Rupert Murdoch	TV / Radio / Print	0.601	0.104	0.116	0.111	0.188	0.369	0.873
	Irish Independent	Print	0.426	0.058	0.061	0.068	0.339	0.665	>1
Italy	RAI*	TV / Radio	0.746	0.136	0.158	0.155	0.144	0.282	0.666
	Silvio Berlusconi	TV / Radio	0.618	0.111	0.125	0.127	0.177	0.347	0.820
	Fox	TV	0.425	0.062	0.066	0.068	0.315	0.617	>1

Data: Reuters 2017. Asterisks denote public service broadcasters. *Reach* is the share of the population using each source for news. *Attention Share* and *Power* refer to the maximal ability to swing an election, as defined in Section 2. The last three columns show the share of the electorate that would need to be perfectly naive for each source to control a vote share of 1, 2, and 5 percentage points, as defined in Equation 3. Value >1 implies election cannot be swung.

MEDIA POWER BY SOURCE (CONT.)

Country	Media Organization	Platform	Reach	Attention Share	Power (All)	Power (Centrists)	Share naive to swing 1%	2%	5%
Japan	NHK*	TV / Radio	0.592	0.110	0.124	0.140	0.178	0.349	0.824
	Asahi Shimbun	Print	0.540	0.095	0.105	0.108	0.207	0.406	0.959
	Yomiuri Shimbun	Print	0.538	0.091	0.100	0.106	0.216	0.424	>1
Korea	Naver	Web	0.028	0.168	0.202	0.222	0.117	0.229	0.541
	JTBC	TV / Radio	0.642	0.111	0.124	0.112	0.177	0.348	0.822
	KBS*	TV / Radio	0.481	0.063	0.067	0.073	0.312	0.613	>1
Malaysia	Media Prima	TV / Radio / Print	0.773	0.184	0.226	0.241	0.106	0.209	0.493
	Facebook	Web / Social	0.762	0.079	0.085	0.087	0.249	0.489	>1
	Star Media Group*	Print	0.469	0.067	0.072	0.075	0.294	0.576	>1
Mexico (urban)	Facebook	Web / Social	0.772	0.085	0.093	0.093	0.231	0.452	>1
	Time Warner	TV	0.504	0.069	0.075	0.073	0.283	0.555	>1
	Grupo Reforma	Print	0.530	0.069	0.074	0.075	0.286	0.560	>1
Netherlands	NOS*	TV / Radio	0.747	0.157	0.186	0.192	0.125	0.245	0.579
	Sanoma	TV / Radio / Print	0.520	0.088	0.097	0.094	0.222	0.436	>1
	Telegraaf Media	Print	0.444	0.078	0.085	0.100	0.251	0.492	>1
Norway	NRK*	TV / Radio	0.651	0.130	0.149	0.157	0.151	0.296	0.700
	Schibsted	TV / Radio / Web	0.617	0.117	0.132	0.131	0.168	0.330	0.779
	TV 2 Group	TV / Radio / Web	0.627	0.112	0.126	0.129	0.175	0.343	0.810
Poland	TVN Group	TV	0.645	0.101	0.113	0.124	0.193	0.379	0.897
	Axel Springer	Print / Web	0.621	0.080	0.087	0.091	0.245	0.481	>1
	Bauer Verlagsgruppe	TV / Radio / Print	0.546	0.070	0.075	0.075	0.280	0.550	>1
Portugal	Impresa	TV / Print	0.807	0.140	0.163	0.166	0.140	0.274	0.648
	TVI	TV	0.642	0.097	0.108	0.119	0.202	0.396	0.936
	RTP*	TV / Radio	0.568	0.075	0.081	0.076	0.262	0.513	>1
Romania	CME	TV / Radio / Web	0.728	0.102	0.113	0.116	0.193	0.379	0.895
	RCS and RDS	TV / Radio / Web	0.458	0.059	0.063	0.059	0.331	0.649	>1
	Facebook	Web / Social	0.751	0.059	0.063	0.065	0.332	0.651	>1
Singapore	MediaCorp	TV / Radio / Print	0.825	0.224	0.288	0.321	0.088	0.172	0.407
	Singapore Press Holdings	Print / Radio / Web	0.783	0.166	0.200	0.210	0.118	0.231	0.546
	Facebook	Web / Social	0.706	0.082	0.089	0.092	0.239	0.468	>1
Slovakia	RTVS*	TV / Radio	0.568	0.081	0.088	0.082	0.243	0.478	>1
	JOJ Group	TV	0.610	0.071	0.076	0.077	0.278	0.545	>1
	CME	TV / Radio	0.567	0.063	0.068	0.073	0.310	0.607	>1
Spain	Atresmedia	TV / Radio	0.768	0.145	0.170	0.176	0.135	0.265	0.626
	Mediaset	TV / Radio	0.525	0.081	0.088	0.075	0.242	0.474	>1
	PRISA	TV / Radio / Print	0.489	0.068	0.073	0.074	0.288	0.565	>1
Sweden	SVT*	TV	0.749	0.191	0.236	0.237	0.103	0.202	0.477
	Schibsted	TV / Radio / Web	0.633	0.126	0.144	0.135	0.156	0.306	0.724
	Bonnier AB	TV / Radio / Print	0.516	0.094	0.104	0.106	0.209	0.410	0.968
Switzerland	Tamedia	TV / Radio / Print	0.797	0.213	0.270	0.256	0.092	0.181	0.427
	SRG-SSR*	TV / Radio	0.763	0.136	0.157	0.173	0.145	0.284	0.670
	Ringier	TV / Radio / Print	0.302	0.060	0.064	0.080	0.328	0.644	>1
Taiwan	Naver	Web	0.451	0.261	0.354	0.363	0.075	0.147	0.348
	TVBS*	TV	0.646	0.085	0.093	0.095	0.230	0.451	>1
	Want Want	TV / Print	0.544	0.059	0.063	0.064	0.331	0.650	>1
Turkey (urban)	Dogan Media	TV / Radio / Print	0.621	0.075	0.081	0.086	0.262	0.513	>1
	Time Warner	TV	0.608	0.073	0.079	0.079	0.267	0.523	>1
	Facebook	Web / Social	0.673	0.053	0.056	0.053	0.371	0.727	>1
United Kingdom	BBC*	TV / Radio	0.789	0.251	0.336	0.307	0.078	0.153	0.362
	Rupert Murdoch	TV / Radio / Print	0.365	0.072	0.078	0.108	0.271	0.531	>1
	ITV News	TV	0.291	0.048	0.050	0.056	0.412	0.809	>1
United States	News Corp.	TV / Radio / Print	0.458	0.104	0.116	0.081	0.189	0.371	0.877
	Facebook	Web / Social	0.517	0.058	0.062	0.068	0.336	0.659	>1
	Time Warner	TV	0.344	0.050	0.053	0.070	0.389	0.763	>1

Data: Reuters 2017. Asterisks denote public service broadcasters. *Reach* is the share of the population using each source for news. *Attention Share* and *Power* refer to the maximal ability to swing an election, as defined in Section 2. The last three columns show the share of the electorate that would need to be perfectly naive for each source to control a vote share of 1, 2, and 5 percentage points, as defined in Equation 3. Value >1 implies election cannot be swung.

TABLE VI: Media Power in 36 Countries

	Inequality				Concentration		
Country	(1) Info Gini	(2) Income Gini	(3) Info Poverty	(4) Connect-edness	(5) Attention HHI	(6) Attention of Top 3	(7) HHI Ex-PSB
Argentina	0.270	0.427	0.029	0.86	519	0.312	833
Australia	0.360	0.337	0.126	0.49	364	0.234	725
Austria	0.272	0.274	0.030	0.82	956	0.348	633
Belgium	0.270	0.266	0.036	0.63	551	0.298	1,054
Brazil (urban)	0.264	0.513	0.021	0.88	609	0.297	947
Canada	0.323	0.313	0.075	0.45	351	0.241	697
Chile	0.255	0.454	0.028	0.86	444	0.257	582
Croatia	0.224	0.322	0.018	0.91	676	0.326	899
Czech Replubic	0.276	0.257	0.021	0.78	305	0.207	670
Denmark	0.282	0.256	0.052	0.78	1,075	0.432	961
Finland	0.239	0.260	0.019	0.82	864	0.380	1,530
France	0.336	0.297	0.076	0.63	313	0.228	717
Germany	0.302	0.289	0.047	0.65	474	0.307	1,087
Greece	0.261	0.339	0.024	0.80	269	0.190	464
Hong Kong	0.279	0.539	0.019	0.90	565	0.305	777
Hungary	0.282	0.288	0.025	0.77	330	0.205	579
Ireland	0.297	0.298	0.056	0.72	517	0.292	733
Italy	0.255	0.326	0.017	0.85	589	0.310	808
Japan	0.317	0.330	0.073	0.62	590	0.296	1,165
Korea	0.282	0.295	0.017	0.97	759	0.341	1,134
Malaysia	0.302	0.400	0.049	0.82	707	0.330	1,100
Mexico (urban)	0.287	0.459	0.035	0.83	377	0.223	613
Netherlands	0.291	0.303	0.067	0.73	666	0.323	1,249
Norway	0.263	0.257	0.041	0.74	761	0.359	1,298
Poland	0.269	0.298	0.022	0.82	437	0.251	704
Portugal	0.253	0.338	0.021	0.88	619	0.312	913
Romania	0.260	0.275	0.019	0.91	338	0.220	510
Singapore	0.273	0.463	0.050	0.84	1,375	0.472	1,848
Slovakia	0.244	0.247	0.027	0.93	340	0.214	500
Spain	0.279	0.344	0.036	0.80	589	0.294	1,023
Sweden	0.247	0.274	0.038	0.77	1,004	0.410	1,439
Switzerland	0.256	0.297	0.036	0.79	1,074	0.408	2,434
Taiwan	0.254	0.338	0.019	0.97	1,526	0.406	1,827
Turkey (urban)	0.250	0.398	0.014	0.83	306	0.201	444
United Kingdom	0.354	0.360	0.123	0.41	1,268	0.371	813
United States	0.361	0.390	0.094	0.43	317	0.212	759

Data: Reuters 2017. Income Gini from OECD (2015).

TABLE VII: WHOM DO PUBLIC SERVICE BROADCASTERS SERVE?

Media Consumption	Sample Size	Age (Mean)	Female (Share)	College (Share)	Low Income (Share)	High Income (Share)
Public Service Broadcaster Only	9,209	50.9	0.48	0.41	0.20	0.24
Largest Private Media Only	25,442	42.6	0.55	0.45	0.24	0.23
Both	27,994	47.3	0.49	0.41	0.21	0.26
Neither	9,657	43.7	0.51	0.42	0.23	0.24

Data: Reuters.