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## Media versus Special Interests

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**Working Paper No. 224**

**“Media versus Special Interest”**

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# Media versus Special Interests

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## Abstract

We argue that profit-maximizing media help overcome the problem of “rational ignorance” highlighted by Downs (1957) and in so doing make elected representatives more sensitive to the interests of general voters. By collecting news and combining it with entertainment, media are able to inform passive voters on politically relevant issues. To show the impact this information has on legislative outcomes, we document the effect “muckraking” magazines had on the voting patterns of U.S. representatives and senators in the early part of the 20<sup>th</sup> century. We also show under what conditions profit-maximizing media will cater to general (less affluent) voters in their coverage, providing a counterbalance to special interests.

*Keywords:* Regulation, media, muckraking.

*JEL Codes:* P16, L51, N41.

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*[T]here is only one way to get a democracy on its feet in the matter of its individual, its social, its municipal, its State, its National conduct, and that is by keeping the public informed about what is going on. There is not a crime, there is not a dodge, there is not a trick, there is not a swindle, there is not a vice which does not live by secrecy. Get these things out in the open, describe them, attack them, ridicule them in the press, and sooner or later public opinion will sweep them away.*

Joseph Pulitzer<sup>1</sup>

On July 29, 2005, Senate Majority Leader Bill Frist announced that the U.S. Senate would take up permanent repeal of the estate tax immediately after its summer recess. Many analysts characterized estate-tax repeal as the Republicans' top legislative priority for the second half of 2005. When the Senate reconvened on September 6, however, this proposal had disappeared from the Republicans' agenda and it took until June 2006 for them to bring it back. What had happened?

The two-word answer is Hurricane Katrina. Republicans shifted their agenda not because of the cost that reconstruction imposed on the federal budget (other deficit-enhancing measures such as further reductions in taxes on dividends and capital gains were pursued anyway), but rather because of the exposure that the devastation in New Orleans gave to the problem of poverty in America. As the *Washington Post* reported, "All of a sudden the poor have emerged from the shadows of invisibility...."<sup>2</sup> Such exposure can be easily documented quantitatively. Figure 1 plots the number of articles concerning poverty published in the *New York Times* before and after hurricane Katrina (the figure for the *Washington Post* and *USA Today* are very similar). Between August and September there was a two-and-a-half fold increase. This heightened awareness of poverty in America made voting on a tax cut for the very rich all but political suicide, as *Newsweek's* Jonathan Alter (2005) – and numerous other political pundits – observed at the time.

This example highlights the importance of media coverage on political outcomes, as documented in several recent papers (Besley and Burgess (2002), DellaVigna and Kaplan (2007, 2008), Strömberg (2004), Eisensee and Strömberg (2007)). One aspect that has not received much attention, however, is the impact that media coverage can exert in shifting the

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<sup>1</sup> Quoted in Ireland (1914), p. 115.

<sup>2</sup> Kevin Merida and Michael A. Fletcher, "For the Poor, Sudden Celebrity," *Washington Post*, September 22, 2005, p. A1; Stephanie Grace, "Don't Let the Plight of the Poor Fade From View," *Times-Picayune*, September 20, 2005, p. B7.

balance of power against special interests in the legislative process<sup>3</sup>. In this paper we try to fill this gap.

Starting with Stigler (1971), economic theory predicts that regulation is dominated by narrow private interests. However, as Stigler himself acknowledged and as Baron (1994), Grossman and Helpman (1996), and Strömberg (2004b) make clear, this conclusion depends crucially on a large fraction of voters remaining uninformed. The foundation for this assumption is the so-called rational ignorance model put forward by Downs (1957) – namely, that it is too expensive for voters to become informed on the relevant issues given the infinitesimal payoff to the individual voter for doing so.

Media, however, reduce this cost in two ways. First, by collecting, verifying, and summarizing the facts, they eliminate the collective action problem associated with gathering information that is socially beneficial. Second, by repackaging information in a way that makes it entertaining, media overcome even the private cost that individuals face in processing the gathered information. Even if it is not in each individual's monetary interest to become informed, the utility benefit provided by the entertainment component can overcome the cost of the time spent in absorbing the information.

By informing the public in this way, media can make a difference and regulatory capture is less likely. In the age of national TV (not to mention the internet), it is very difficult to test this conclusion.<sup>4</sup> Since nearly everyone gets exposed to news at the same time, it is hard to tell whether media content affects voters or voters' demand for information drives media content.

To address this challenge, we look back in time to the so-called muckraking era (1902-1917). This period saw the rise of investigative journalists, who wrote about contemporary events with the express purpose of changing public attitudes and legislative behavior. Since this era predates national radio and television, exposure to the ideas in these articles would be greatest for those citizens who read the magazines. And since sales of these magazines differed by congressional district, we can expect the influence of their articles to vary with sales in the district.

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<sup>3</sup> Exceptions include Strömberg (2004b), Law and Libecap (2006), and Moss and Oey (2008).

<sup>4</sup> Recent successful examples of how this challenge can be addressed in special circumstances are DellaVigna and Kaplan (2007), who utilize the geographic expansion of Fox News channel, and George and Waldfogel (2006), who exploit the gradual expansion of national distribution of the *New York Times*.

We analyze roll call votes of US representatives on all domestic regulatory legislation from 1902-1917. To control for the ideological preferences of elected representatives we use the x co-ordinate of Poole (2004) developed in a series of articles by Poole and Rosenthal (1997, 2001). We show that representatives vote differently on issues that were previously exposed in muckraking magazines, the more so the more diffused are muckraking magazines in their districts. The advantage of our specification is that it controls for any specific characteristics of the representatives and the district, and it uses only the interaction between issues that are muckraked and diffusion of the muckraking magazine. The disadvantage is that it cannot rule out the possibility that voters who are more sensitive to certain issues are more likely to buy magazines that cover those issues, and thus that the political preferences of voters within a particular district may be the source of *both* the voting behavior of their Congressional representatives *and* the diffusion of muckraking magazines in their districts.

To test this alternative interpretation directly we study the changes in the votes of U.S. senators following one of the most celebrated series of muckraking articles: David Graham Phillips's "Treason of the Senate," which appeared in William Randolph Hearst's *Cosmopolitan* magazine in 1906. The series chronicled severe corruption in the U.S. Senate and is widely believed to have galvanized public support for the Seventeenth Amendment, providing for the direct election of senators.

We first focus on the targeted senators to see if their voting behavior on regulatory legislation is more sensitive to regulation that is muckraked. Next, we exploit the fact that the proposed Seventeenth Amendment was voted on by the Senate twice: once before Phillips's series (1902) and once after it (1911). In this case, our finding that senators from states where *Cosmopolitan* was more highly diffused were more likely to switch their votes (from negative in 1902 to positive in 1911) cannot be explained in terms of a higher sensitivity of the state's electorate to the issue, since we show that the senator from the same state voted differently before the issue was muckraked.

This evidence that media coverage can influence regulatory choices suggests that studying how such coverage is determined is essential to understanding the conditions under which special interests do and do not prevail in the political process. In other words, it is crucial to understand whose interest media promote when they cover a topic. If they cater to

the interest of the owners and the advertisers (as Herman and Chomsky (1998) claim), then the original “capture” argument put forward by Stigler (1971) becomes even stronger. By contrast, if there exists a reason to cater to the interest of the broader public, then media can potentially provide a counterbalance to the power of vested interests.

When media maximize profits, Strömberg (2004b) shows that the choice of news is tilted in the direction of the biggest group, most valuable to the advertisers. We analyze how the slant of reporting is affected. We follow Mullinaithan and Shleifer (2005) and Gentzkow and Shapiro (2006) and model the positioning in news reporting of profit-maximizing media. The key distinguishing feature of our model is that we assume a link between a customer’s preferred ideological position and his income and thus his willingness to pay. Since each customer consumes at most one unit of the good, profit maximization corresponds to maximization of sales (we address advertising later). In our framework, maximization of sales implies luring the marginal customers with the lowest willingness to pay. In order to maximize their reach, media are thus likely to cater in their reporting to their more marginal customers, who tend to be poorer. For example, in talking about environmental issues, media have a profit motive to present the facts from the consumers’ rather than the producers’ point of view: since consumers are poorer than producers, they are more likely to drop out as customers if the reporting is more distant from their economic interest. This effect is potentially amplified if we allow for the endogenous selection of journalists. Journalism presumably attracts individuals who want to reach a large audience. As we show in the model, however, the pursuit of readership leads to the same populist tilt as does the maximization of profits: a bias toward less affluent readers who are more marginal customers. For both of these reasons, media lean toward informing voters with the interest of the less affluent in mind.

In identifying this countervailing force, we make no claims that this will produce an optimal outcome: it could lead to overshooting in the direction of populism or it could be insufficient to counteract the power of special interests. Our main result is that this populist tendency will be stronger when media maximize profits and when an issue is newsworthy. This focus on the marginal, less affluent consumer is sensitive to other factors we do not explicitly address in our base model, but we do consider in our discussion: advertising as a source of revenue; owners motivated by factors other than profits; and competitive

pressures.<sup>5</sup>

Recognizing the media's role in informing voters (and its incentive to cater to marginal, less affluent voters) has important implications for the economic theory of regulation. First, it suggests regulatory capture will vary predictably based on the ability to write "newsworthy" stories about regulatory issues. The extent to which profit-maximizing media can overcome rational ignorance, by informing voters about a particular issue, depends upon the intrinsic appeal of the issue involved. The economics of pension plans is not a topic generally conducive to exciting news reports and, as a result, the regulation of plans may easily fall prey to vested interests.<sup>6</sup> Other issues, such as the safety of the water we drink, by contrast, are – almost by their nature – more conducive to "entertaining stories" (e.g., the movie *Erin Brockovich*). On issues like this, media coverage can easily shift the balance of power in favor of the public. In fact, it can even encourage politicians to take up populist initiatives. Hence, by introducing the role of the media into the standard economic theory of regulation we can explain why the process is sometimes completely dominated by special interests, while at other times it is not (or, in the extreme, may take on a populist orientation).

Second, since the source of this countervailing force is profit maximization, media owned by investors only interested in profits are more likely to play this role. In fact, if media owners have a vested interest in industry (e.g. they also own regulated firms), the media could become the instrument of vested interests as feared by Herman and Chomsky (1998). If we assume that domestic owners of media outlets are more likely than foreign ones to have political objectives (beyond pure profit maximization), our model can help to explain why corruption is negatively correlated with foreign ownership of the media (Besley and Prat (2006)) and with government ownership of the media (Djankov et al, 2003).

Finally, our model shows that media's slant in favor of less affluent (i.e., marginal) consumers depends crucially on universal access to the media. If cultural barriers (especially illiteracy) or cost barriers (poverty) shut off a segment of the population from accessing the

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<sup>5</sup> We also ignore the process of how media collects information and how they can be influenced activists (Dyck, Volchkova and Zingales (2008)) and industry lobbyists (Baron (2005)).

<sup>6</sup> Of course, with a large enough scandal, even seemingly uninteresting or inaccessible issues can be made newsworthy. For example, the spectacular failure of a major pension plan (with a large number of financial casualties) has the potential to attract media attention and, in turn, provoke public demand for legislative reform.



media, media slant toward the less affluent may be severely reduced. Hence, the model suggests that cross-country variation in the power of special interests may be associated with a country's level of literacy and poverty.

Our analysis of the impact of muckraking is related to a growing literature on the effect of media coverage on political outcomes: on voting behavior (DellaVigna and Kaplan, 2007), government intervention (Besley and Burgess, 2002), subsidies (Strömberg, 2004), and foreign aid (Eisensee and Strömberg, 2007).<sup>7</sup> Like Strömberg (2004), we use historical evidence to identify differential exposure to news. In showing that muckraking facilitated the approval of progressive-era legislation, our paper is similar to Law and Libecap (2006), who document that vested interests have less power in explaining Congressional votes on the Pure Food and Drug Act after the publication of muckraking stories. We add to this paper in two ways. First, our combination of time-series and cross sectional evidence on a range of regulatory legislation enables us to identify with greater certainty that muckraking led representatives to become more sensitive to the public interest. Second, we provide a theory of why media help counteract the power of vested interests.

The rest of the paper proceeds as follows. Section 1 discusses how media can overcome the problem of rational ignorance (Downs 1957) by entertaining their customers. Section 2 tests the impact media information has on policy outcomes by focusing on the voting behavior of congressmen with respect to muckraked issues. Section 3 applies the same logic to the effect of one major muckraking series, "The Treason of the Senate," on the voting behavior of U.S. senators. Section 4 presents a model of how (and when) media will inform the public. Section 5 discusses the implications of these results for the economic theory of regulation. Section 6 concludes.

## **1. The role of the media in overcoming "rational ignorance"**

Starting with Stigler (1971), the economic theory of regulation presupposes that voters remain poorly informed about regulatory issues. The foundation for this assumption goes back to Downs (1957), who suggested that it was rational for voters not to invest in acquiring such information on their own since the payoff (in terms of influence over policy outcomes) was infinitesimally small for individual voters. There are two reasons why this

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<sup>7</sup> For a nice summary of this work see DellaVigna and Kaplan (2008).

result holds, both relating to the cost of information acquisition. First, there is a collective action problem in gathering the information. While everyone might benefit from such information being gathered, no one individually wishes to cover the cost of collecting it. Second, even if the collective action problem were resolved and a third party took charge of collecting, verifying, and summarizing the information, the individual cost of processing it (e.g., the time involved in reading or viewing the news) might still exceed the payoff in terms of the marginally increased likelihood of a more favorable policy outcome as a result of a more informed vote being cast.

The media can potentially resolve both of these problems. First, by collecting, verifying, and summarizing relevant facts, the media can essentially resolve the collective action problem. In fact, each media outlet may be interpreted as an agent delegated by the multitude of its customers to collect information on their behalf. This delegation of responsibility (and pooling of resources) solves the collective action problem but simultaneously introduces an agency problem: namely, whose interest determines exactly what information is collected? We will address this issue in Section 4.

Second, by repackaging information in a way that makes it entertaining (or otherwise attractive to consumers), the media may succeed in inducing voters to process it and thus become informed. Even if the cost of processing the information remains greater for the voter than the expected benefit to be derived from a more informed vote, the utility provided by the entertainment component may repay readers for the time spent absorbing the information, thus making it worthwhile to become informed. Stromberg (2004b) overcomes voters' apathy by assuming that there is a private return from becoming informed, i.e. one learns how best to exploit subsidies. While this aspect is important in many types of welfare legislation, it is unlikely to be the primary force in the case of regulatory decisions, like the Clean Air Act. To get the public informed on those topics, media must rely on the entertainment component.

As an illustration of this point from outside the realm of economic policy, consider the case of President Clinton's quadruple bypass surgery in 2004. At the time, there was enormous interest in the story – presumably not mainly because readers and viewers wanted to learn more about heart disease, but rather because of their interest in the travails of a national celebrity, the former president. But many readers and viewers did end up learning

about heart disease as a byproduct, as both print and electronic media were flooded with stories about the former president, which included extensive information about his medical condition, lack of the typical warning signs, and so forth. Indeed, this information appears to have hit home and had a significant effect on behavior: there was a sharp increase in people seeking heart exams immediately following news of Clinton's surgery, as data from HeartCheck America's Chicago offices show (Figure 2). Unless we think that their worries about the President's health literally broke their hearts, we have to conclude that information provided broadly for entertainment purposes (i.e., interest in a national celebrity) did impact people's understanding of certain risks and ultimately their behavior as well.<sup>8</sup>

This complementarity between news and entertainment thus has the potential to induce even completely selfish individuals to become informed. As Baron (1994), Grossman and Helpman (1996), and Strömberg (2004b) show theoretically, once voters become informed, it is harder for elected representatives to cater to special interests. This seems clear in the Hurricane Katrina example: even Republican lawmakers who strongly favored repeal of the estate tax were apparently afraid to schedule a vote for permanent repeal at a moment when voters appeared particularly concerned about rising poverty and inequality following intense news coverage of Katrina's victims.

Unfortunately, this hypothesis is hard to test persuasively in an age of national television, not to mention the internet. Thanks to these modern media, nearly everyone can potentially be exposed to the same news at about the same time, as in the case of Hurricane Katrina, making the identification problem very difficult: how can we identify the casual link only from the time series, when many other events occurred at the same time?

## **2. Evidence from Muckraking of Regulatory Issues**

Before the introduction of national radio and television broadcasting, however, there was greater diversity in exposure to news. For this reason, to identify whether press coverage influences political voting behavior we focus on the so-called muckraking period of American journalism, in the early years of the twentieth century. Changes in technology

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<sup>8</sup> An even more extreme example of this phenomenon is what happened to the small island of Lampedusa, Italy. Located to the South of Sicily, closer to Libya than to Italy, this island was completely ignored by the larger public until the 1980s. In 1986, in retaliation for the U.S. bombing of Libya, Khaddafi shot two missiles, which fell into the water just short of Lampedusa. That episode, widely reported on television and in the print media, effectively "advertised" the island to the larger public, dramatically expanding tourism to the island.

and demand created fertile ground for an explosion of newspapers and magazines, such as *Cosmopolitan*, *Everybody's*, *McClure's*, and *Collier's*.<sup>9</sup> These magazines sought and realized a mass audience. Conservative estimates place sales of all such magazines at 3 million, the top 4 magazines at 2 million, and total readership as high as 20 million, all at a time when the U.S. population was 80 million and the national Presidential vote was 15 million.<sup>10</sup>

Initially focusing mainly on fictional accounts, these magazines reached the larger public by covering real-world scandals of all sorts. A quick perusal of the titles of notable articles reveals their focus. In 1905 and 1906 attention focused on producers of medicines and meat-packers in articles such as “The Great American Fraud,” “The Patent Medicine Conspiracy Against Freedom of the Press,” “Is Chicago Meat Unclean,” “Stockyard Secrets,” and “The Condemned Meat Industry.” Others, such as “Water Power and the Pork Barrel” and “Water Power and the Price of Bread,” were featured in 1908 and 1909; and throughout the most active muckraking period from 1902-1912 there appeared numerous investigations of business power and political corruption, such as “The Treason of the Senate” in 1906 and “An Exposition of the Sovereign Political Power of Organized Business,” published in 1910.

Since these magazines were not equally read throughout the country, we can use data on their coverage and circulation to test the models of Baron (1994), Grossman and Helpman (1996) and Strömberg (2004b) that the fraction of informed voters alters the balance of power between private interest and public interest.<sup>11</sup>

Before discussing our tests, however, we need to explain how we collected these data, how we identified those pieces of legislation that were muckraked, how we identified those areas of the country that were more exposed to muckraking ideas, and how we coded legislators’ voting behavior.

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<sup>9</sup> For further descriptions, see Hamilton (2003) and Glaeser and Goldin (2006).

<sup>10</sup> Figures from Fitzpatrick (1994), p. 108. Votes for President were in 1904, 13.52 mn, in 1908 14.88 mn, in 1912 15.04 mn, and in 1916 18.53 mn (*Historical Statistics of the United States*).

<sup>11</sup> We are not saying that these articles were not reproduced, as Law and Libecap (2006) illustrate for the debate surrounding patent medicine legislation, but rather we are relying on the assumption that exposure to these ideas was more intense in areas with higher circulation.

## 2.1 Sample of Regulatory Legislation

To assemble a list of all regulatory legislation with available roll call voting records, we start from the VoteView dataset and use Kenneth Poole's classification of the votes. Following Peltzman (1976), Poole has classified all votes into one of eight categories. We focus on the two categories of regulation (regulation general interest, regulation special interest), where all the literature starting with Stigler (1971) has suggested special interests will be most active. We assembled all such regulation votes from the 57<sup>th</sup>-64<sup>th</sup> Congresses, both House and Senate (1902-1917), which includes and slightly extends the period generally understood to be the era of muckraking.<sup>12</sup>

To make our task more manageable, we further restrict ourselves only to final votes<sup>13</sup> and to votes on issues that relate to domestic policy.<sup>14</sup> When votes on the same bill occurred in both legislative chambers, we included both votes, even if only one was classified as "Regulation."<sup>15</sup>

The final sample of legislation is provided in Table 1, which includes 40 final votes in the House and 34 final votes in the Senate. This list includes almost all of the notable "muckraked" legislation, such as that which created the F.D.A. It does not include the Seventeenth Amendment which we evaluate later, as this was not classified as an issue of "regulation."

## 2.2 Issues Covered in Muckraking magazines

To measure coverage of issues that are relevant to legislation we examine all the famous muckraking articles. We start from the book *The Muckrakers*, which categorizes and reprints 27 notable muckraking articles and also includes an uncategorized bibliography listing 98 important but less notable muckraking articles.<sup>16</sup>

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<sup>12</sup> Weinberg and Weinberg, (1961) and DeNevi and Friend, ( 1973). We used Voteview version 3.03c.

<sup>13</sup> To do so, we searched the keywords "Pass S" and "Pass H," which retrieves only the votes whose description indicates a vote to pass a bill, marked by "H.R." or "S."

<sup>14</sup> A number of votes dealt with managing federal territories such as Alaska, the Philippines or the District of Columbia.

<sup>15</sup> Because of inconsistencies in coding, a vote that is classified as "Regulation" in one chamber might not be coded that way in the other. E-mail, Poole to Jon Lackow, sent 26 June 2004.

<sup>16</sup> The Weinberg and Weinberg (1961) categorization appears in the table of contents and is as follows: "Behind Political Doors," which we have labeled government corruption, and which includes the subcategories "The United States Senate," "The United States House of Representatives," "The State," "The City," "The Ward," and "Bureaucracy;" "Poison—Beware!," which we have labeled food and drug, and which includes the

Based on a reading of the notable articles, and a review of the less notable ones, we construct a measure of whether a regulatory issue was muckraked. We assign a value of 1 if the regulatory issue was covered in muckraking magazines, and zero otherwise. This number is provided in the last column of Table 1.<sup>17</sup> As Table 1 shows, 23 of 40 House votes were subject to discussion in the muckraking magazines, while 28 of 34 Senate votes were muckraked.

### *2.3 Cross-Sectional Differences in Exposure to Muckraking Magazines: Circulation by District*

We also construct a measure of cross-district differences in exposure to articles in muckraking magazines. Here we exploit the fact that we have detailed data on circulation by city/town for *McClure's*, one of the most prominent muckraking magazines of that era, which had circulation figures over this period ranging from 360,000 to over 500,000 per issue. In 1917 *McClure's* published a detailed breakdown of its circulation, providing circulation not only by state but for every town with a population greater than 5,000 citizens.

Table 2 provides summary statistics on this circulation, which averaged 1,332 per district. Importantly, there is significant cross district variation, with a minimum level sales per district of 90 (North Dakota (2<sup>nd</sup>)), sales of 584 at the 25<sup>th</sup> percentile (Pennsylvania (12<sup>th</sup>)), 991 at the median (Maine (3<sup>rd</sup>)), 1,641 at the 75<sup>th</sup> percentile (Ohio (8<sup>th</sup>)), and a max of 11,284 (California (7<sup>th</sup>)).

To construct the district-level circulation we aggregate the circulation by town and county by utilizing additional information on the geographic boundaries of districts using the Historical Atlas (by county and sometimes town, or specific city blocks). Because the number of districts, and the boundaries of the districts, changed for each Congress, we

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subcategories “Patent Medicine” and “Pure Food;” “People in Bondage,” which we did not use, and which covered racial issues; “High Finance,” which included the subcategories “Mother of Trusts,” which we have labeled monopoly; “Stock Market,” “Insurance,” and “Railroads,” to which we added the further subcategory “Water Power,” due to the preponderance of articles on water power; “The Church,” which we did not use; “Prisons,” for which we focused on prison labor and labeled as such; “Labor,” including the categories “Workmen’s Compensation” and “Child Labor,” and to which we added a further subcategory, “Working Hours;” and, finally, “Vice,” for which we focused on liquor, and labeled as such.

<sup>17</sup> In an earlier version of the paper we also introduced and evaluated a more nuanced measure that could take on three values: 2 every time an issue is dealt with in a central piece; 1 if an issued is covered only in one minor article; and zero otherwise. Since our results are unchanged with this specification, and the simpler one-or-zero coding involves less judgment, we focus on this specification in the paper.

recalculate the *McClure's* circulation per congressional district for each Congress in our sample period.<sup>18</sup> We do not divide this number by population as all districts are supposed to have similar population levels.<sup>19</sup>

## 2.4 Voting Behavior

We seek to test whether the public attention generated by muckraking forced representatives to vote more frequently in favor of regulation that served the general interest. This is not straightforward, since it is arbitrary (and ideologically charged) to determine where the general interest lies in each piece of legislation. For this reason, we choose instead to test whether muckraking led representatives to vote *differently* from what they normally did. To compute this deviation, we exploit the fact that political scientists have already developed measures that they claim capture the ‘normal’ voting behavior of representatives. Our technique is simply to compare a measure of the actual voting behavior on a specific issue with a measure of their predicted normal voting behavior from these studies. Our conjecture is that there will be greater distance between actual and predicted normal values on issues that are muckraked, as compared to those that are not. Or, stated differently, we expect the exposure provided by muckraking to move representatives away from their traditional voting stance.

As the measure of predicted voting behavior we use the score for the x co-ordinate developed by Keith Poole and Howard Rosenthal. They pooled all of the data on voting behavior in roll call votes in the US congress and, based on this data, identified two factors, which they call the x coordinate (and label “ideology”) and the y coordinate (which they label “geography”), that predict votes. We use their x coordinate as the predicted voting

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<sup>18</sup> The source for geographic boundaries of districts is Maris (1982).

<sup>19</sup> When a town was included in our *McClure's* list, but was not mentioned specifically in the Historical Atlas, we allocated the town to the district that in our judgment (based upon maps of the area) seemed most likely. When there were multiple districts in the same city identified by *McClure's* (e.g. Manhattan) we divided the city's circulation equally across all districts in that city. In addition, *McClure's* always had some ‘excess circulation’ by state that was not attributed to specific towns or cities (likely arising from circulation in towns of less than 5,000 or perhaps mismeasurement in the geographic breakdown). Here, we distributed this excess circulation equally across all districts in the state. When there was a district, but no other indications of circulation, the district was just assumed to have the average excess circulation. At this time, in some states, there were representatives without congressional districts – i.e., “general ticket” or “at large” representatives. For these districts, we attributed the average circulation per district in the state. Finally, we restrict our sample for the 64<sup>th</sup> Congress to those states that did not have redistricting that changed the number of representatives or the apportionment of them across general ticket/at-large and geographically assigned districts, reducing our sample by 8 states.

behavior of representatives.

Poole and Rosenthal scores are unique to individual lawmakers. To make this measure vary by issue as well, in each roll call vote we assign to each representative the average score of representatives who voted in the same way. As an example, suppose that there are 40 Democrats and each had an x score of -0.19 and there are 60 Republicans and each had a score of 0.27. On a particular issue 11 Republicans join the Democrats in voting in favor. In this case the score of all those who voted in favor would be -.091 [= ((40 \* (-0.19))+(11 \* 0.27))/51], while the score of those voting against would be 0.27 since all have a score of 0.27.

This scoring system has the defect of underestimating variation in voting behavior since those who deviate in their vote tend to pull the average toward them. Since this biases against finding our results, we are willing to tolerate the defect.

## 2.5 The Results

In Table 2 we provide summary statistics of the data on congressional districts used in the regressions. In Table 3 we regress each individual vote in all “regulatory” bills on a representative fixed effect and an indicator variable for issues that were muckraked:

$$VS_{ij} = \alpha_j + \beta m_i + \varepsilon_{ij}$$

where  $VS_{ij}$  is the voting score described in section 2.4,  $\alpha_j$  is a representative fixed effect, and  $m_i$  is an indicator variable equal to 1 or 0 depending on the intensity of muckraking.

The idea is to see whether a representative deviates from his individual mean in the face of muckraking. As expected, the estimated  $\beta$  in column I of Table 3 is negative (muckraking moves a representative “to the left”) and statistically significant. In an issue that was actively muckraked (muckraking variable equal to 1), a representative vote moves “to the left” by an amount equal to 73% of the mean value of the x-coordinate.

While this is consistent with muckraking influencing the congressmen’s votes, it is not a proof of it. It is possible that on certain issues everybody voted more to the left. More compelling (and more direct) evidence of the impact of muckraking would be to show that this effect is stronger for congressmen elected in districts where muckraking magazines were more highly diffused.



This is what we do in column II, where we insert both the level of sales of *McClure's* in different districts and an interaction between this and the muckraking indicator variable.

$$VS_{ijc} = \alpha_j + \beta m_i + \gamma s_{jc} + \delta m_i s_j + \varepsilon_{ij}$$

Note that the level of sales of *McClure's*,  $s_{jc}$ , in different districts is not perfectly collinear with the representative fixed effects because we recalculate the district figure for each Congress ( $c$ ). While the sign of the muckraking indicator turns positive, the interaction has a negative and statistically significant coefficient. Congressmen coming from districts with an average diffusion of *McClure's* are only slightly moved to the left in issues that are muckraked. But Congressmen coming from districts that have one-standard deviation more diffusion of *McClure's* vote 79% more to the left of their own average on issues that are muckraked.

In column III we insert an even more refined control: a fixed effect for each piece of legislation.

$$VS_{ijc} = \alpha_j + \beta_i + \gamma s_{jc} + \delta m_i s_j + \varepsilon_{ij}$$

Even after these controls have been added, the diffusion of *McClure's* seems to affect the congressmen's votes on the muckraking issues (and only those).

In sum, Congressmen from districts with high diffusion of a major muckraking magazine vote more to the left with respect to their own individual record on issues that were muckraked.

## 2.6 Robustness

This result does not necessarily imply that the treatment of certain issues by the muckraking magazines led Congressmen to alter their votes. An alternative interpretation of our results is that the media, instead of catering to the audience's demand for entertainment, cater to demand for information (e.g., Gentzkow and Shapiro, 2006). In this case, the districts where voters are more sensitive to certain issues are likely to have both higher diffusion of magazines that cover those issues *and* representatives who are more likely to vote accordingly (in response to their voters' exogenous preferences). This interpretation is able to account for most of our empirical results, without assuming any causality between

newspaper reporting and congressional votes. To address this problem we will show some alternative tests that are not subject to the same criticism.

### 3. Evidence from Muckraking of Senators

#### 3.1 ‘Targeted’ Senators

First, we exploit the fact that a series of articles entitled “Treason of the Senate” appeared in William Randolph Hearst’s *Cosmopolitan* magazine in 1906. Hearst commissioned the novelist David Graham Phillips to write the articles and is said to have doubled the circulation of his magazine within a short time of their publication. The series stirred enormous controversy, accusing the Senate of being “the eager, resourceful, and indefatigable agent of interests as hostile to the American people as any invading army could be” (Phillips 1906). In fact, it was in response to Phillips’s articles that President Theodore Roosevelt coined the pejorative term “muckraker” for such journalists (McGovern 1966, p. 337).<sup>20</sup>

Most notably for our purposes here, the “Treason of the Senate” series targeted 21 senators (18 Republicans and 3 Democrats), identifying all them by name and highlighting behavior that Phillips described as consistent with being captured by special interests. If the series influenced public opinion regarding these senators, and provided additional scrutiny of their votes, it should also have had an impact on the way these senators voted subsequently. To examine this issue we gathered information on their voting behavior regarding the same pieces of regulatory legislation described above, and explore whether their voting behavior changed after they had been targeted by *Cosmopolitan*.

##### 3.1.1 Results

In Table 4 we regress the x-coordinate of each senator in each vote on a senator fixed effect, a dummy for the post 1906 period, a dummy equal to one for the Senators targeted by *Cosmopolitan*, after they had been targeted, and in column II an issue fixed effect. Our focus is on the targeted-senator dummy. While on average after 1906 all senators’ votes moved to the right, the senators targeted by the “Treason of the Senate”

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<sup>20</sup> Another illustration of such journalism is Upton Sinclair’s expose on the meat packing industry (published in a book, *The Jungle*), which has been widely credited for spurring passage in 1906 of the Meat Inspection Act and the Pure Food and Drug Act (which created the Food and Drug Administration [FDA]).

series voted more to the left after they had been targeted and the coefficient on the “targeted” dummy is statistically significant.<sup>21</sup> Since there is no other obvious reason why these senators should behave in a different way, this evidence suggests that shaming in the media did alter their behavior.

This outcome is not consistent with the idea that the effect is due only to the fact that magazines report what readers want to hear. This conclusion is even stronger in the next test.

### *3.2 Evidence from Votes on the Seventeenth Amendment*

As a second alternative test, we examine whether exposure to muckraking magazines influenced a specific vote. By the dawn of the twentieth century, there was growing discomfort with the constitutional provision requiring that U.S. Senators be appointed by their state governments, rather than directly elected by their constituents. Some critics charged that the insulation of the senate-selection process from the will of the voters allowed business interests to control senate appointments and pick sympathetic senators who were likely to support their special interests. “Strictly speaking we had no Senate; we had only a chamber of butlers for industrialists and financiers” (Russell quoted in Grenier, 1964, p. 20).

In line with this public concern, legislators took steps to amend the Constitution to allow for the direct election of U.S. senators. The ratification process required, first, that both the House and the Senate pass the amendment with two-thirds majorities and, next, that the amendment be approved by three-quarters of the states. While there was clear support in the House of Representatives for such a move (with votes that were nearly unanimous in 1893, 1894, 1898, 1900, 1902, and 1911) the Senate generally refused to bring the issue to a vote. When the Senate finally did allow for a roll call vote in 1902, the proposed amendment failed by a significant margin. Another nine years passed before the Senate voted on the amendment again (in 1911), but this time the provision passed. After the requisite super majority was achieved in the states, the Seventeenth Amendment was officially ratified in 1913.

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<sup>21</sup> We did not find, however, that targeted senators from states with high diffusion of *Cosmopolitan* moved more to the left than targeted senators from low-diffusion states.

### 3.2.1 *Treason of the Senate and the Seventeenth Amendment*

In our test of the impact of muckraking on voting behavior in the Senate, we focus our attention on the 1902 and 1911 Senate roll call votes. For both of these votes we assembled roll call voting records from the Poole and Rosenthal Voteview program. Following Poole and Rosenthal, we use direct votes and “paired” voting to identify the voting behavior of individual senators.<sup>22</sup>

As our measure of exposure to information about corruption in the Senate, we take advantage of the “Treason of the Senate” series mentioned above, which appeared in William Randolph Hearst’s *Cosmopolitan* magazine in 1906.

To explore whether exposure to the stories in this series influenced senators’ voting patterns, we take advantage of the fact that we have information on the sales of *Cosmopolitan* magazine by state. This information was difficult to assemble as *Cosmopolitan* did not keep such records. Fortunately, in 1914 the Audit Bureau of Circulation was created to measure circulation of newspapers and magazines across the country. We contacted the Audit Bureau and assembled the data for the first year available for *Cosmopolitan* (1915). We paired this information with data from the census on population per state, which was available for 1910 and 1920, and we took the average value for 1915. In the key regressions presented below, our measure of the diffusion of muckraking is thus the *Cosmopolitan* circulation by state (in 1915) per state population (in 1915). As a check, we also assembled similar sales data by state for *McClure’s*, another prominent muckraking magazine.

Figures 3 and 4 illustrate the diffusion of *Cosmopolitan* and *McClure’s* by state, measured by circulation per capita. On average, *Cosmopolitan* sold 11 copies per thousand inhabitants and *McClure’s* 6. But there was a wide dispersion. Both magazines were sold more in the West and in the Northeast, while they were less present in the South. Consistent

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<sup>22</sup> In the U.S. Senate, it is not uncommon for a Senator to reveal his voting preferences not through an explicit vote but rather through a declaration that he will withhold his vote as a result of a pairing with another Senator. For the most part in such pairs, a Senator is paired with another Senator who intends to vote on the other side of the issue. By withholding votes in this paired way, the final outcome is unaffected. Poole and Rosenthal attribute votes using information on the specific pairs of senators and their announced intentions. For the 1902 vote we assembled the pairing on our own based on the Senators’ statements about their voting intentions, resulting in more precise reflections of voting intentions than in the Poole and Rosenthal database.

with this, *McClure's* circulation was not highly correlated with urbanization rates ( $\text{corr}=0.34$ ), and it was even less correlated with newspaper circulation per capita (0.11). As is evident in the Figures, there was quite a large overlap between *McClure's* and *Cosmopolitan* circulation, with a correlation of 0.91.

To increase our confidence that we are estimating the effect of differences in the availability of information about corruption of the Senate, it is important to control for other factors that may have influenced voting behavior. Two relevant issues are (a) the presence of provisions for direct election already at the state level<sup>23</sup> and (b) increased awareness of the senate at the state level arising from other sources, such as a sharply contested or disputed selection process.<sup>24</sup>

To capture these two issues we include two variables: a dummy variable that identifies whether the state had moved toward direct election of senators on its own (i.e., adopted the so-called Oregon plan) prior to 1911, and a dummy variable equal to one if the state experienced a contested selection prior to 1911. We added one other control variable – namely, the number of years until the next selection of senators after 1911, assuming that senators might be more sensitive to public opinion if they were up for reappointment in a shorter period of time. The time-to-election differs across senators since only one third of senators are selected every 2 years.

Table 5 presents the summary statistics of our 1911 sample of senators. We have data for 91 senators (out of a total of 92 slots – 2 for each of 46 states – at the time). A slight majority of these senators were Republicans, and 44 percent represented states with some provision for the direct election of Senators.

In the first column of Table 6 we estimate a simple probit model of the probability a senator voted in favor of the Seventeenth Amendment as a function of a Republican party dummy and the diffusion of *Cosmopolitan* in the senator's state. The coefficients reported

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<sup>23</sup> By the time of the second Senate vote, many states had already begun taking action on their own. Particularly during the federal lull between 1902 and 1911, some states began trying to move the selection of their senators closer to the electorate. The Oregon legislature took the most notable action, introducing provisions in the state legislature and constitution (later collectively called the Oregon plan) to ensure that their U.S. senators were directly elected, rather than appointed. By the time of the second vote in the U.S. Senate in 1911, 20 states had adopted similar plans, and a variety of other states had taken smaller steps in the same direction.

<sup>24</sup> A second important issue was that there might be heightened attention arising independent of corruption concerns: notably, some disputes at the state level resulted in no senator being appointed at the requisite time. As a result, states could be underrepresented in the Senate for significant periods of time.

are the marginal increase in the probability of a ‘yes’ vote calculated at the average value of the independent variables. The probability a Republican Senator voted in favor of the Seventeenth Amendment was 21.6 percentage points lower (as compared to non-Republicans). Senators from states where *Cosmopolitan* was more diffused were more likely to vote in favor of the Seventeenth Amendment. One standard deviation increase in the diffusion of *Cosmopolitan* increased the probability of a “yes” vote by 15 percent.

This effect persists (in fact, it becomes quantitatively stronger) when we control for others possible determinants of the vote. In column II we insert a dummy equal to one if a senator came from a state with some provision for direct voting. As might be expected, this variable positively affects the probability of a “yes” vote. The estimated impact of *Cosmopolitan* sales increases by 50 percent.

In column III we control for the number of years until a senator has to be re-selected. This has a positive but not statistically significant effect. In column IV we insert instead a dummy equal to one if a senator’s most recent selection was contested. If the indirect election was contested, a senator might find it more appealing to switch to a different system of selection. The effect is positive, but not statistically significant.

These regressions alone are hardly convincing. Given the geographical concentration of *Cosmopolitan*, its level of sales might just pick up any variable with a similar geographical concentration. To increase the level of confidence in the result, we insert five regional dummies (column V). Once again, the effect of *Cosmopolitan* sales increases – this time by another 65 percent. In the more comprehensive specification, one standard deviation increase in the diffusion of *Cosmopolitan* raises the probability of a “yes” vote by 38 percent.

The regional dummies are not perfect controls. It would be useful to have a variable with a similar pattern of concentration, but with no reason to be correlated with the probability of a “yes” vote, to use in the regression as a “placebo”. The diffusion of *McClure’s* is such a variable. As Figures 3 and 4 show, the pattern of geographical diffusion is similar, but *McClure’s* sales have less reason to be causing the vote, because *McClure’s* did not publish the “Treason of the Senate” series. In column VI we insert this variable. The effect of *Cosmopolitan* is substantially unchanged.

Based on these regressions alone, we cannot be sure that the effect captured by the diffusion of *Cosmopolitan* is not spurious. It is possible that senators from states where *Cosmopolitan* was very diffused were naturally more inclined to vote in favor of the Seventeenth Amendment in the first place, regardless of the pressure exerted by muckraking magazines.

Fortunately, in 1902, senators voted on essentially the same amendment. If the relationship visible in 1911 were spurious – that is, if Senators from states with high diffusions of *Cosmopolitan* were more inclined to vote for the amendment, regardless of the muckraking articles that appeared in 1906 – then one would expect the same basic pattern of voting in 1902 as well. But this did not prove to be the case. In unreported regressions we find that the estimated effect of the diffusion of *Cosmopolitan* on the 1902 vote is often negative (not positive) and is never statistically significant.<sup>25</sup>

In Table 7 we look at changes in voting behavior between 1902 and 1911. In this way, any state characteristics that did not change over time are kept constant. In the first four columns we look at changes in the votes of senators from the same state, while in columns V-VII we look at the change in vote of the same senator (if he was not replaced in the interim). For this reason, the number of observations in the final 3 specifications drops to only 20.

We classify as +1 if the vote went from “no” to “yes”, 0 if it did not change, and -1 if it went from “yes” to “no”. As a consequence we ran an ordered probit. The diffusion of *Cosmopolitan* has a statistically significant and positive effect on the probability that a senator from the same state switched his vote in favor of the Seventeenth Amendment between 1902 and 1911 (column I). This is true even if we control for the party the senator belongs to and the introduction of some form of direct election in the state during this period (column II). The effect is also quite large. One standard deviation increase in the diffusion of *Cosmopolitan* increases the probability a senator switched from a “no” vote to a “yes” vote by 14 percentage points. This effect is robust (in fact, it becomes larger) when we control for the *McClure*’s sales (column IV).

The same is true if we restrict our attention to the 20 senators who were present in the Senate both in 1902 and in 1911. Indeed, the effect is again even larger. One standard

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<sup>25</sup> Regression omitted for space reasons, available from the authors upon request.

deviation increase in the diffusion of *Cosmopolitan* increases the probability that the same senator switched from a “no” vote to a “yes” vote by 31 percentage points.

In sum, we find very consistent evidence that the diffusion of *Cosmopolitan* in their states influenced the senators’ positions on the Seventeenth Amendment. This effect does not seem to be driven by a spurious correlation between diffusion of *Cosmopolitan* and political preferences, since the diffusion of *Cosmopolitan* in a senator’s state does not have any predictive power on his 1902 vote on the same issue, and the effect is present even when we control for the diffusion of a similar magazine (*McClure’s*) that did not publish the “Treason of the Senate” series. More telling, the probability a senator *changed his vote* between 1902 and 1911 is correlated with the diffusion of *Cosmopolitan* in his state. While omitted variables can explain individually the House evidence and the Senate evidence, the only explanation that is consistent with both is that media reporting affected legislative outcomes.

#### **4. Media’s choice of coverage<sup>26</sup>**

Given these results, it becomes interesting to study what drives media coverage and, in particular, to whom media are most likely to cater.

Strömberg (2004b) shows that profit maximizing media choose to cover news of interest to the largest, most valuable group of customers. His model is based on a private interest in becoming informed: citizens want to learn how best to exploit subsidies offered to them. While this is an important consideration in many types of welfare legislation (as the one studied in Strömberg (2004)) it is not necessarily the driving force when it comes to general regulatory decisions, like the Meat Inspection Act. For this reason, we analyze the direction of news slant associated with information provided for entertainment purpose.

As a starting point, we consider a media firm interested only in profit maximization. As Gentzkow and Shapiro (2007) show, this assumption seems to fit well the behavior of newspaper owners in the United States. To identify the different slants in coverage, we assume that each potential customer wants to read news written from the perspective of someone with the same economic status, which we identify with level of income. Ordering people according to their status (level of income) from left to right, we can represent the

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<sup>26</sup> We thank Marco Di Maggio for his help with this model.



media choice as a location decision ( $r$ ) along the unit interval  $[0,1]$ . This allows us to use the Hotelling model to analyze this problem, following Mullainathan and Shleifer (2005).

Since consumers presumably dislike a slant distant from their economic interest, positioning affects media demand. As is standard in this literature, we model this dislike as equivalent to a transportation cost:

$$|s - r|t.$$

The demand for a media outlet located at  $r$  is then given by:

$$(1) \quad q(p, r) = a(r) - b(r)p$$

where  $a(r)$  and  $b(r)$  are strictly positive and vary as a function of location.

Because of the link between a customer's preferred position and his or her income, we assume a difference in price sensitivity: poor customers (located close to zero) are more price sensitive than rich customers (located close to one). More specifically, we assume

$$A1 \quad \int_0^{1/2} b(r)dr > \int_{1/2}^1 b(r)dr.$$

For simplicity we assume that potential customers are uniformly distributed along the unit interval. As we will see, our results are even stronger if we drop this assumption in favor of a more realistic distribution, where the mass of poor consumers is greater than the mass of rich ones. We also assume that all media revenues come from sales. Finally, we assume that the media's marginal cost is constant and, without loss of generality, we set it at zero. Profit maximization thus coincides with revenue maximization.

#### 4.1 The Monopolist Case

To isolate the impact that the interaction between consumers' interest and sensitivity to price has on the location decision, we initially abstract from any strategic consideration and consider a monopolist media. Given (1), the media profit function is given by

$$pQ(p, s) = p \left\{ \int_0^s \{a(r) - b(r)[p + (s - r)t]\} dr + \int_s^1 \{a(r) - b(r)[p + (r - s)t]\} dr \right\}$$

This can be rewritten as

$$(2) \quad pQ(p, s) = p[I(s) + \int_0^1 b(r)dr],$$

where  $I(s)$  equals

$$I(s) = \int_0^1 a(r)dr - t \int_0^s b(r)(s-r)dr - t \int_s^1 b(r)(r-s)dr,$$

From (2) we can see that the choice of location will change only the intercept of the total demand function; thus a change in location will increase total demand if and only if it raises  $I(s)$ . Since the equilibrium profits increase with an increase in total demand, the optimal location  $s^*$  must correspond to the highest value of  $I(s)$ . For a given  $p$ , the FOC for location  $s$  is given by:

$$(3) \quad I'(s) = -t[\int_0^s b(r)dr - \int_s^1 b(r)dr] = 0$$

Which is sufficient since the SOC =  $I''(s) = -2tb(s) < 0$ . We then have

**Proposition 1:** The optimal location  $s^*$  is on the left half of the unit interval, that is:

$$s^* < \frac{1}{2}$$

*Proof:* From (3) we have that  $s^* < \frac{1}{2} \Leftrightarrow \int_0^{1/2} b(r)dr > \int_{1/2}^1 b(r)dr$ , which is true because of A1.

Proposition 1 states that if the average price sensitivity is higher for people with lower

income ( $\int_0^{1/2} b(r)dr > \int_{1/2}^1 b(r)dr$ ), then the media will position itself “ideologically” to the left

of the median, even if we assume that people are uniformly distributed along the unit interval. If the distribution is not assumed to be uniform, the population density at a given location  $r$  determines the value of  $b(r)$ , this implies that the media will locate in the half interval with more people, which is certainly the poorer one. Hence, a profit maximizing

media may be thought of as having a “populist” slant (i.e., appealing to a broad set of possible consumers on the less-affluent portion of the income spectrum), since this is its way to maximize demand and hence profits. This is where our conclusions differ from Stromberg (2004b). In his model, profit maximization leads media to cater to the largest group (probably the middle class), not to the less affluent.

If we are willing to interpret the populist slant in our model as a left-leaning bias (which, admittedly, is not necessarily true), then our results are consistent with the findings of Groseclose and Milyo (2005) that media’s reporting is positioned to the left of center with respect to congressmen.

#### 4.2 The Impact of Technology

In the previous section we assumed that every member of the population could potentially be a customer of this particular media outlet. Technological constraints, however, can prevent a fraction of the market from accessing it. If the media outlet is a newspaper, there could be a fraction of the population that is illiterate and thus unable to read it. If it is television (or the internet), some fraction of the population might not own a television set or a computer. We wish to analyze how these limitations in access affect the media’s ideological position.

To do so, we can write the intercept of the demand function as:

$$I(s) = \int_0^1 \phi(s) a(r) dr - t \int_0^s b(r)(s-r) dr - t \int_s^1 b(r)(r-s) dr$$

where  $\phi(s)$  is a function of the location decision and represents the shift in the intercept of the demand function. For example, if the firm is not able to sell to all consumers, because the left tail of the distribution exits the market, we can assume that  $\phi'(s) > 0$  and there exists an  $s$  such that  $\phi(s) = 0$ . This sets weight equal to zero for that part of the distribution. We then have

**Corollary 1:** When the consumers’ distribution is truncated on the left half of the interval, the location choice of the firm will be  $s^{**} > s^*$ .

*Proof:* The FOC is given by

$$-\int_0^s b(r)dr + \int_s^1 b(r)dr + \frac{\phi'(s)}{t} \int_0^1 a(r)dr = 0.$$

Comparing this with (3), the conclusion follows.

Corollary 1 makes an obvious but important point. In countries where access problems cut out the lower fraction of the population from access to media, media will cater more to the interest of the rich. The same result can be thought of also in historical terms: in periods where the cost of printing and distributing newspapers was so high that a large fraction of the population was shut out of the market, newspapers presumably catered more to the interests of the upper classes.

#### 4.3 The Duopoly Case

In this section we will show that the main intuition of Proposition 1 survives if we consider a duopoly as in Mullainathan and Shleifer (2005).

Consider two firms, denoted by 1 and 2, producing a homogeneous output  $q_i$ . Let  $a$  and  $b$  denote the distance of firm 1 from the left endpoint and firm 2 from the right endpoint, respectively, and suppose without loss of generality that  $a < b$ . If there is some boundary  $r^*$ , such that everyone located on the left of  $r^*$  buys from firm 1 and everyone on the right from firm 2, then  $q_1 = r^*$  and  $q_2 = 1 - r^*$ .

We define  $r_1$  and  $r_2$  as the distance between  $r$  and the firms' locations. These are given by the following conditions:

$$r_1 = \frac{1}{2}(1 - a - b) + \frac{p_2 - p_1}{2t}$$

$$r_2 = \frac{1}{2}(1 - a - b) - \frac{p_2 - p_1}{2t}$$

Hence, the profits of firm 1 are given by the following:

$$\pi_1 = p_1 \left\{ \int_0^{r_1} [a(r) - b(r)[p + (a - r)t]]dr + \int_{r_1}^{r_2} [a(r) - b(r)[p + (r - a)t]]dr \right\}$$

Starting from the second stage we have that the prices are implicitly given by the following

first order conditions:

$$p_1^* \frac{\partial r_1}{\partial p_1} \{tb(r_1)(r_1 - a) + p_1^* b(r_1) - a(r_1)\} = \int_0^a \{a(r) - b(r)(a - r)t\} dr + \int_a^{r_1} \{a(r) - b(r)(r - a)t\} dr$$

Now we can consider the location choices of the firms. Consider firm 1's decision. As in the monopoly case, the location choice is obtained by maximizing demand. The only difference in the duopoly case is that the effect of location is not limited to the intercept of the demand. The maximization of the demand with respect to  $a$  gives:

$$\Gamma(a) \equiv a(r_1) \frac{\partial r_1}{\partial a} - t \int_0^a b(r) dr + \int_a^{r_1} b(r) dr - tb(r) \frac{\partial r_1}{\partial a} - p_1 b(r_1) \frac{\partial r_1}{\partial a} = 0$$

We are interested in comparing the outcome with the unbiased outcome, which is  $r_1 = 1/4$  and  $r_2 = 3/4$ . Hence, we have

**Proposition 2:** The optimal location of firm 1 is to the left of  $1/4$  if :

$$\int_0^{1/4} b(r) dr > \int_{1/4}^{1/2} b(r) dr + \frac{1}{2t} [tb(1/2) + p_1^* b(1/2) - a(1/2)]$$

And optimal location of firm 2 is to the left of  $3/4$  if :

$$\int_{1/2}^{3/4} b(r) dr > \int_{3/4}^1 b(r) dr + \frac{1}{2t} [tb(1/2) + p_2^* b(1/2) - a(1/2)]$$

Conditions for Proposition 2 are similar to conditions for Proposition 1. When the demand of the left segment of the population is more sensitive to prices, the media choose to locate “ideologically” more toward the interest of the less affluent.

#### 4.4 Demand and supply of slant

Our paper follows Strömberg (2004b), Mullainathan and Shleifer (2005), and Gentzkow and Shapiro (2006) in deriving a slant from profit maximizing producers catering to consumer demand. Explanations for slant, however, can come from the supply side as well: from a desire to serve the public (Baron (2005)), from preferences of journalists (Baron (2005) and (2006)), or from those of editors and owners (Besley and Prat (2006)). These supply stories, however, assume the existence of an ideological bias in a certain group of people. For example, Baron (2006) assumes the existence of a left-leaning ideological bias in journalists. Publishers, then, find it cheaper to cater to this ideology rather than to

pay journalists more. This interesting alternative, however, begs the question of why journalists tend to be biased toward the left.

When we interpret populist slant as left-lean bias, our model helps to answer this question. A journalist who is interested in being read has the objective of maximizing readership. As (2) shows, this goal leads to the same choice of location as profit maximization. Hence, journalists interested in maximizing readership will tend to have the same populist slant as newspaper owners interested in profits.

#### 4.5 Limitations

Thus far, we have ignored ideological preferences by media owners and pressures from advertisers. Since our analysis is based on profit maximization, it is obvious that the results will differ dramatically if owners, including the Government (Djankov et al, (2003)), have other objectives beyond profits. In general, if we assume that media owners will typically harbor political objectives that would serve them economically, we can say that media's role as a countervailing force against vested interests will tend to be stronger when media owners are focused only on profits.<sup>27</sup> If domestic owners are more likely than foreign ones to have objectives other than profit maximization, our results may explain the finding by Besley and Prat (2006) that corruption in a country is negatively correlated with foreign ownership of the media.

Our model assumes that media rely only on sales revenues. Although early muckraking magazines relied more heavily on sales revenues than is typical now, even here this is a strong assumption.<sup>28</sup> More generally, media outlets rely on both advertising and sales revenue. The presence of advertising can affect our results in at least two ways. First, as Strömberg (2004b) has emphasized, the rich are more valuable customers, and thus a magazine will be more careful in traveling away from rich readers for fear of losing customers who are more valuable to the advertisers. In this sense, advertising mitigates the

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<sup>27</sup> Of course, it is possible that owners of media will in some cases favor political outcomes that are not in their own economic interest and encourage news coverage accordingly. But we assume that these cases would represent more the exception than the rule.

<sup>28</sup> On average at the beginning of the 20<sup>th</sup> century, magazines and newspapers relied less on advertising revenues in general: only 45 percent (*Historical Statistics of the United States*) versus 60-80 percent today (Stromberg 2004b). In their early years, muckraking publications may have relied on ads even less than other contemporaneous newspapers. Significantly, though, muckraking magazines increased their reliance on ad revenues when they moved away from investigative pieces, as *McClure's* did after 1914. See esp. Weinberg and Weinberg (1964, pp. xxii-xxiii) and Hofstadter (1955, pp. 192-196).

populist tendencies of the media. Nevertheless, advertisers are concerned with the number of readers too, and hence our effect is still at play.

Second, the media might bias their reporting as a form of payback to large advertisers, as Reuter and Zitzewitz (2006) find in financial magazines. Once again this force will tend to reduce, but not eliminate, the effect described in our model. Interestingly, Reuter and Zitzewitz (2006) find that the distortion is present only in specialized magazines, with a very concentrated base of advertisers. Hence, an implication is that the populist slant will be more present in media/countries where the advertising base is more diversified. From an historical standpoint, it is believed that the decline of muckraking journalism in the 1910s can be attributed at least in part to the relevant publications' increased reliance on advertising income.<sup>29</sup>

## 5. Implications for the Economic Theory of Regulation

Since Stigler's (1971) seminal article, the economic literature on regulation has struggled to explain why not all regulation/legislation is necessarily captured by special interest groups. Coupled with a political economy model our paper can help to explain this. In Baron (1994) and Grossman and Helpman (1996), private interests prevail as long as there is a sizable fraction of uninformed voters. In our paper we argue that profit-maximizing media will be able to overcome voters' rational apathy in some cases. Catering to their customers' desire to be entertained, media will educate voters, which in turn will allow those voters to monitor more effectively their elected representatives' votes. As the

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<sup>29</sup> Weinberg and Weinberg (1964, p. xxii), relying on a leading muckraker, suggest that the decline in muckraking after 1912 stemmed partly from an increased desire on the part of the magazines for advertising revenue and to pressure from advertisers themselves:

Charles Edward Russell, a muckraker in his own right, in an article in *Pearson's*, 'The Magazines Soft Pedal,' [February 1914] put the blame on the advertising departments of magazines who put the damper on the muckrakers. He also pointed to advertisers, and cited the fact that *Everybody's*, as an example, lost seven pages of advertising when his own series on the beef trust was running. The ads which were withdrawn were those for ham, preserved meats, soaps, patent cleaners and fertilizers, and a railroad.

But they also note, citing Will Irwin, that "the average subscriber ... grew tired of reading about civic corruption, predatory trusts, injustice to labor, and the stripping of natural resources. The public felt that the politicians had taken notice ... and that [through regulatory bodies] the government was doing its own muckraking" (Weinberg and Weinberg, 1964, p. xxiii). As Hofstadter put it, "Certainly business was hostile and made its hostility felt, but it also seems that the muckraking mood was tapering off [after 1912]" (Hofstadter, 1955, p. 196).

Katrina example shows, even Republican lawmakers were afraid to vote for the permanent repeal of the estate tax when voters had recently been informed about the intensity of poverty in New Orleans and, more broadly, the extent of inequality between rich and poor across the nation.

Our simple idea has several additional implications. First, by enlarging the set of potential media customers (as Strömberg (2004b) already recognizes) and by expanding the set of issues that are actively covered in the media (because of increased opportunity to cover issues in an entertaining way), changes in technology can reduce the power of vested interests. When a new technology (such as at the dawn of television in the 1950s-60s) enlarges potential media audiences, profit-maximizing media in their pursuit of market share will end up informing more voters about their interests.<sup>30</sup> Similarly, a new technology may expand the range of issues that can be packaged in an entertaining and thus attractive way. Natural disasters, for example, are thought to have received far more news coverage after the advent of television, since video coverage of the devastation was (and still is) far more compelling than comparable coverage over radio or in the newspaper – at least for a great many customers. Either way, such information promises to attenuate the rational ignorance problem and, in the presence of political competition, may better align representatives' behavior to the public interest. In fact, it may be more than a coincidence that each of the three major eras of policy reform in the twentieth century (the progressive era, the New Deal, and the Great Society) immediately followed the introduction of a new technology for mass communication (national periodicals, radio, and television, respectively).

Our model shows that the desire of profit-maximizing media to maximize their readership may have positive spillover effects in the political arena. The extent to which this potentially beneficial force will have an impact, however, depends upon the ownership structure of the media industry and the concentration of advertising revenues. Where media are concentrated in the hands of industrial interests, their profit-maximizing populist impulse may be outweighed by the private political interests of their owners. In such a situation, not only can the media lose its beneficial role, but it can actually serve or become part of the factory of consensus dreaded by Herman and Chomsky (1998).

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<sup>30</sup> Strömberg (2004) tests this idea focusing on the introduction and expansion of radio and its impact on the power of rural consumers in regards to federal spending.



The same can be said if the advertising base is very concentrated. With a more concentrated set of advertisers, the power of each media outlet to resist the pressure of politically interested advertisers is limited. A more concentrated set of advertisers may thus lead to a less inquisitive press and, hence, to political decision making that is more responsive to private interests. An important factor in determining the concentration of advertisers is a country's openness to trade. Regardless of a country's internal industrial structure, its set of potential advertisers is generally larger if its economy is open. Hence, the opening up of an economy may provide an additional benefit, reducing advertisers' power vis-à-vis the media, thus freeing the media to inform the public. This is a different mechanism through which openness reduces the power of vested interests from the one identified by Rajan and Zingales (2003a and 2003b), but it operates in the same direction.

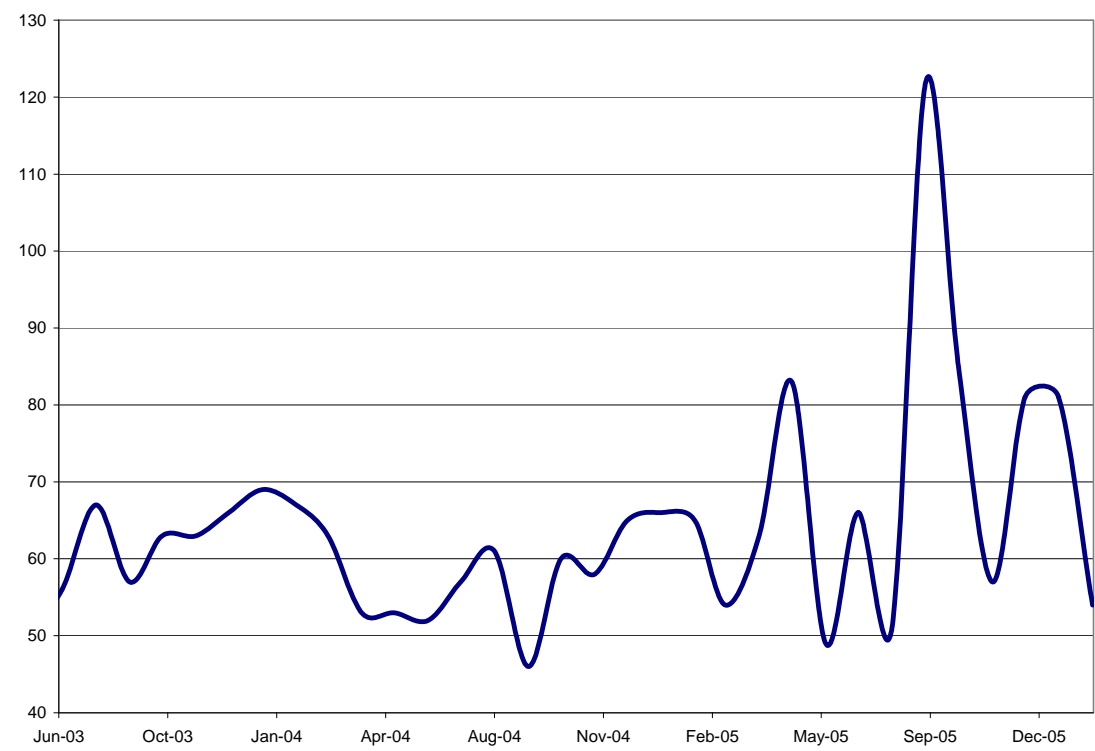
## **6. Conclusions**

In this paper we argue that profit-maximizing media firms can play an important role in reducing the power vested interests have on policymaking. Motivated to reach big audiences by the lure of large profits, media firms typically seek to transform real events and issues – including public policy issues – into entertaining stories. In so doing, they end up informing the public about these issues and events, thus helping to overcome the problem of rational ignorance highlighted by Downs (1957). By informing voters, media help make elected representatives more sensitive to the interests of their constituencies and less prone to being captured by special interests.

We document the importance of this channel by studying the impact muckraking articles had on the voting behavior of U.S. representatives and senators at the beginning of the 20<sup>th</sup> century. We find this effect to be not only statistically significant but also quantitatively large.

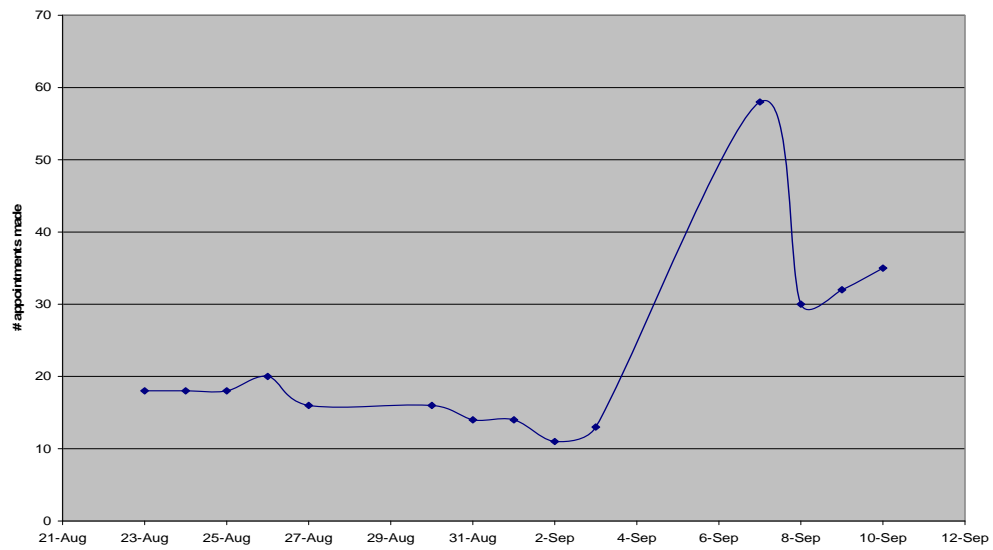
These results point toward a new theory of the limits of regulatory capture, able to differentiate where and when vested interests have more or less power. Our theory predicts that vested interests will have less influence over the legislative agenda on issues that can be more easily transformed into entertainment (which may be one definition of “newsworthy”). They will also have less power when media ownership and advertising budgets are less concentrated. Examining these additional implications is next on our agenda.

**Figure 1: Articles about poverty published in the New York Times around the time of Hurricane Katrina**



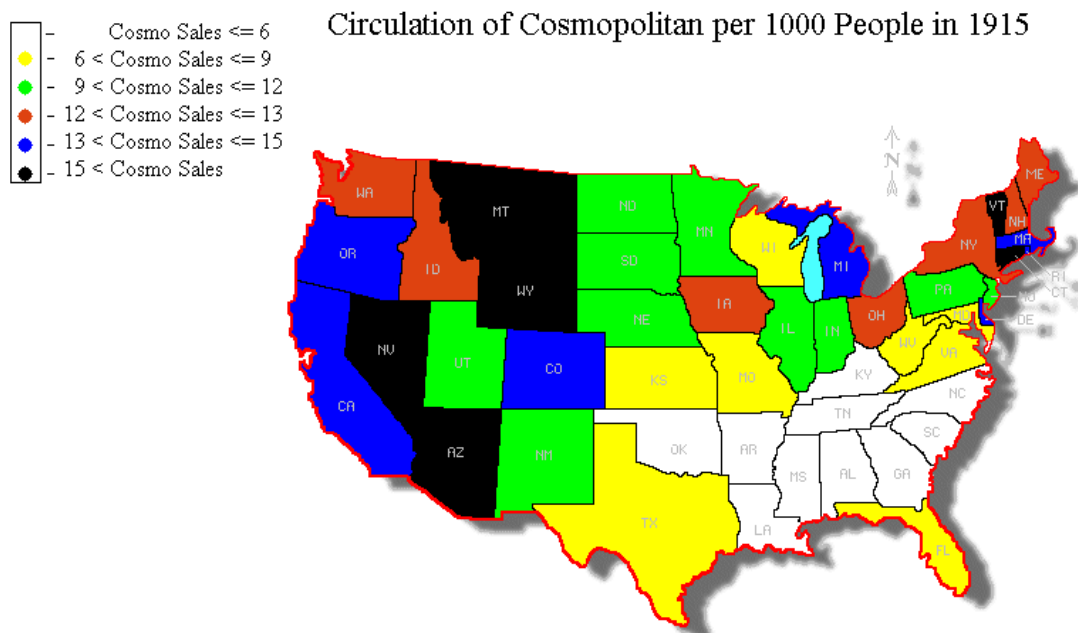
Source: Factiva searches of *New York Times*.

**Figure 2: - Number of appointments made at Chicago-area HeartCheck America Centers, around the date of Clinton's heart problems**



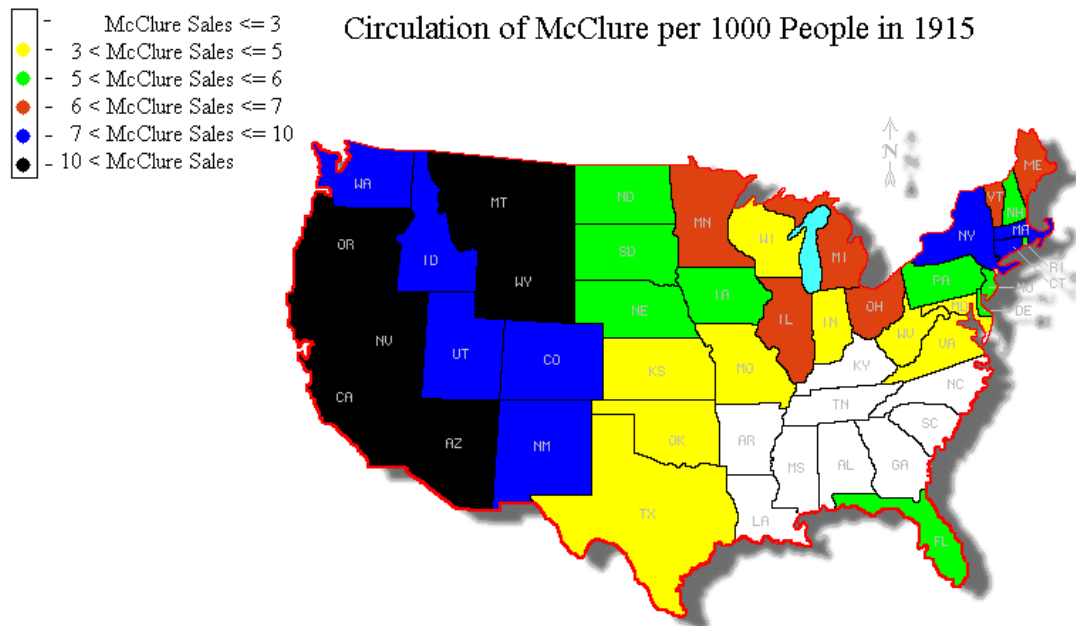
Source: [Data provided by Bruce Friedman, President of HeartCheck America, during interview conducted by Peter Epstein, December 2004.]

**Figure 3: Geographical Diffusion of Cosmopolitan**



Source: Audit Bureau of Circulation, Historical Statistics of the United States.

### Figure 4: Geographical Diffusion of McClure's



Source: McClures (1917), Historical Statistics of the United States.

**Table 1: Domestic Regulatory Legislation with Final Roll Call Votes, 1902-1917**

This table lists all domestic regulatory legislation with final roll call votes between 1902 and 1917. To construct this sample we start from the VoteView dataset and use Kenneth Poole's classification of the votes focusing on the two categories labeled regulation (regulation general interest, regulation special interest). Based on a reading of the notable articles, and a review of the less notable articles, we constructed a muckraking dummy that takes the value 1 if an issue is muckraked and a value of 0 if it is not muckraked.

Date	Chamber	Subject	Muckraking dummy
13-Feb-03	House	Regulate interstate commerce	1
21-Feb-06	Senate	Prevent food/drug/liquor misbrand (pass)	1
23-Jun-06	House	Pure food and drugs	1
15-Feb-11	Senate	Protect watersheds--appt comm to acquire land	1
11-Jan-13	Senate	Prohib interstate commerce of liquor (prc.)	1
8-Feb-13	House	Interstate shipment of liquor	1
2-Feb-14	Senate	Interst commerce comm advise gov institute suits (pass)	1
4-Mar-14	House	Regulate convict labor made goods	1
1-May-14	Senate	Inspect grain in interst commerce (pass)	1
5-Jun-14	House	Regulate interstate commerce	1
4-Aug-14	House	Regulate construction of dams	1
5-Aug-14	Senate	Create interstate trade comm..def power (pass)	1
2-Sep-14	Senate	Anti-trust regulations (pass)	1
4-Jan-15	House	Uniform grain grading	1
2-Feb-16	House	Prohibit child labor items from interst. Commer.	1
16-Feb-16	Senate	Committee for interstate commerce (pass)	1
8-Mar-16	Senate	Reg dam construct (pass)	1
8-Aug-16	Senate	Prevent interst commerce of child labor prods (pass)	1
4-Jan-17	House	Water may be diverted from niagara falls	1
7-Feb-03	House	Protect commerce ag. Monopolies	1
6-Feb-05	House	Regulate railroad rates	1
9-Feb-05	House	Regulate railroad rates	1
10-Jan-07	Senate	Promote safety on rails...limit employ service hours (pass)	1
6-Apr-08	House	Liability of common carriers	1
8-Jul-09	Senate	Provide gov rev..equalize duty..encourage us indust (pass)	1
3-Jun-10	Senate	Reg interstate commerce (pass)	1
8-May-11	House	Place agricultural implements on free list	1
27-Jul-11	Senate	Reduce wool duty (pass)	1
27-Jul-11	Senate	Reduce wool duty (pass)	1
1-Aug-11	Senate	Place var. Items on free list (pass)	1
1-Aug-11	Senate	Place var. Items on free list (pass)	1
3-Aug-11	House	Reduce duty on cotton goods	1
17-Aug-11	Senate	Reduce cotton manufacture duty (pass)	1

**Table 1: Domestic Regulatory Legislation with Final Roll Call Votes, 1902-1917 (cont.)**

<b>Date</b>	<b>Chamber</b>	<b>Subject</b>	<b>Muckraking dummy</b>
29-Jan-12	House	Equalize duties	1
21-Feb-12	House	Equalize duties	1
15-Mar-12	House	Equalize duties	1
1-Apr-12	House	Reduce duties on wool and woolen goods	1
6-May-12	Senate	Carrier employ injury/death comp (pass)	1
30-May-12	Senate	Prov gov rev...equalize duty (pass)	1
31-May-12	Senate	Limit hours of laborers and mechanics	1
25-Jul-12	Senate	Reduce duty on wool and wool prods (pass)	1
27-Jul-12	Senate	Provide rev... equalize duties..encourage indust	1
2-Aug-12	House	Duty on cotton manf.	1
14-Aug-12	Senate	Reduce duty on cotton manufactures (pass)	1
1-Mar-13	House	Workman's compensation in d.c. and interstate commer	1
9-Sep-13	Senate	Provide gov rev...equalize duties (pass)	1
20-May-16	House	Develop merch. Marine for u.s. commerce	1
18-Aug-16	Senate	Merchant marine bill (pass)	1
1-Sep-16	House	8 hour day ppl in interstate commerce	1
2-Sep-16	Senate	Est 8 hour day carrier employs	1
5-Sep-16	Senate	Increase rev re duties (pass)	1
31-Jan-02	House	Subject oleomargine to state laws	0
17-Mar-02	Senate	Ocean mail service and deep-sea fisheries	0
3-Apr-02	Senate	Tax, reg, def oleomargarine (pass)	0
14-Jan-03	House	Rebate duties on coal	0
14-Jan-03	House	Rebate duties on coal	0
2-Mar-03	House	Laws concerning tobacco	0
3-Mar-03	House	Vet. Pref. For civil appts.	0
1-Mar-04	Senate	Require employ us vessels for pub purposes	0
2-Apr-06	House	Laws abt. Fortification of pure sweet wines	0
2-Apr-06	House	Laws abt. Fortification of pure sweet wines	0
18-Feb-07	House	Limit hours of serv. Rr employees	0
21-Apr-08	House	Simplify customs laws	0
24-Apr-08	House	Safety during regattas and marine events	0
13-May-08	House	Prot. Of patents	0
13-May-08	House	Prevent import of impure tea	0
14-May-08	House	Protect bank depositors	0
15-May-08	Senate	Amend national bank laws (pass)	0
26-May-08	House	Regulate explosives in interstate commerce	0
27-May-08	House	Regulate max. No. Steerage passengers	0
19-Mar-12	House	Extend special excise tax	0
26-Jul-12	Senate	Extend special excise tax (pass)	0
13-Jan-15	House	Define stand. Barrel for fruits and vgs. Export	0
5-Sep-16	Senate	Report re tariff—prot indust + prevent monopoly	0

**Table 2: Summary Statistics for Votes on Domestic Regulatory Legislation in the House, 1902-1917**

This table reports summary statistics for the variables included in the regressions in Table 3. The sample is based on the voting behavior of House Representatives on 40 final roll call votes on domestic regulation legislation from 1902-1917. Poole and Rosenthal have estimated an x co-ordinate for each Representative based on the voting record over his career. The dependent variable we use for our tests is the average x co-ordinate of all of those who voted the same way on the issue. *McClure's* in the electoral district is the total sales of *McClure's* in the electoral district (all electoral districts have roughly the same population). The muckraking dummy equals one when an issue has been covered in one of the muckraking magazines, and this dummy is provided in Table 1.

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>St. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>N</b>
Poole and Rosenthal x-coordinate	0.032	-0.127	0.480	-0.995	0.987	11,184
Average Poole and Rosenthal x-coordinate	0.032	0.067	0.320	-0.526	0.608	11,184
Muckraking dummy	0.632	1.000	0.482	0.000	1.000	11,184
McClure's in the electoral district in ('000)	1.332	0.992	1.179	0.090	11.285	9,247
Interaction between muckraking dummy and McClure's sales	0.899	0.598	1.136	0.000	11.285	9,247



**Table 3: Impact of Muckraking on House Votes**

The sample is based on the voting behavior of House Representatives on 40 final roll call votes on domestic regulation legislation from 1902-1917 . The dependent variable is the average ideological (x) co-ordinate on every vote, which we derived from Poole and Rosenthal. Poole and Rosenthal have estimated an x co-ordinate for each House member based on the voting record over his career. For each vote we calculate the average x coordinate of those who voted on the same side of the issue and assign this value to the Representative. This is the dependent variable. This is regressed on an individual fixed effect, a muckraking dummy, and (in columns II, III) an interaction between the muckraking dummy and the sales of *McClure's* in the representative electoral district. In column III we insert also a fixed effect for each roll call. The standard errors (reported in brackets) are heteroskedasticity robust.

	I	II	III
Muckraking dummy	-0.023*** (0.006)	0.006 (0.011)	
Interaction between muckraking dummy and McClure's circ.		-0.022*** (0.007)	-0.024*** (0.005)
Representative fixed effect	Yes	Yes	Yes
Vote fixed effect			Yes
Observations	11,184	9,247	9,247
R-squared	0.530	0.564	0.572

**Table 4: Impact of Muckraking on Targeted Senators**

This Table is based on the voting behavior of Senators on 34 final roll call votes on domestic regulation legislation from 1902-1917. The legislation is listed in Table 1. Poole and Rosenthal have estimated an x co-ordinate for each Senator based on the voting record over his career. The dependent variable, and our score for a Senator, is the average x co-ordinate of all of those who voted the same way on the issue. As control variables we include a muckraking dummy that takes the value 1 if the regulatory issue was muckraked (see Table 1). We also include a control for all votes post 1906. The focus of our attention is on the targeted Senator dummy that takes the value 1 if a Senator was identified by name in the 'Treason of the Senate' series (21 Senators were named in this way). Both specifications include individual fixed effects with column II including issue-specific fixed effects. The standard errors (reported in brackets) are heteroskedasticity robust.

	<b>I</b>	<b>II</b>
Muckraking dummy	0.007 (0.014)	0.070 (0.039)
Post 1906	0.040 (0.022)	0.087* (0.041)
Targeted Senator	-0.085* (0.044)	-0.098** (0.044)
Individual fixed effects	Yes	Yes
Vote fixed effects	No	Yes
Observations	2453	2453
R-squared	0.618	0.625

**Table 5: Seventeenth Amendment Summary Statistics**

This Table presents summary statistics for the variables included in the regressions (Table 6-7) that explore the determinants of voting behavior for the Seventeenth Amendment. Switch is a variable that takes the value -1, 0, or 1 depending on whether the senate seat moved from a yes to a no vote, remained unchanged (yes to yes or no to no), or went from no to yes. *Cosmopolitan* sales is based on Audit Bureau Circulation state level data for *Cosmopolitan* sales in 1915 per state citizen. *McClure's* sales is based on "An Analysis of the Distribution of the Circulation of McClure's Magazine" based on the issue of May 1917. In both cases, the 1915 population is computed as an average of the Census 1910 and 1920 population. State provision for direct election of Senators is a dummy variable that takes the value 1 if a state has adopted a version of the "Oregon plan" that introduced provisions at the state level for direct election of Senators. Years to re-selection (or re-election) identifies the number of years until next selection (or election) for the senate seat, and varies from 1 year to 5 years as one third of senate is up for re-selection (or re-election) in each even year. Contested selection (or election) dummy takes the value 1 if selection (or election) was contested.

Variable	Mean	St. Dev.	Min	Max	N
1911 vote (yes=1)	0.73	0.45	0.00	1.00	91
Switch between 1902 and 1911	0.33	0.65	-1.00	1.00	82
Cosmopolitan sales over pop.	10.66	5.20	2.53	26.37	91
McClures sales over pop	5.89	3.21	1.60	13.89	91
Republican party dummy	0.55	0.50	0.00	1.00	91
State provision for direct election dummy	0.44	0.50	0.00	1.00	91
Years to re-selection (or re-election)	3.24	1.60	1.00	5.00	91
Contested selection (or election) dummy	0.18	0.39	0.00	1.00	91

**Table 6: Impact of Muckraking on the 1911 Vote**

In this Table we explore whether voting on the Seventeenth Amendment in the final Senate vote on the amendment in 1911 is influenced by the diffusion of information about corruption in the Senate. As a proxy for this variable in Panels we use *Cosmopolitan* sales in the state per citizen of the state (based on Audit Bureau circulation data for 1915 and 1915 population, computed as an average of the Census 1910 and 1920 population). As control variables we include a dummy variable for Republican Party, and for columns II-VI if there is a state level provision for direct election of Senators. To examine the robustness of these results we introduce additional controls in columns III-V including the number of years until next selection or election (column III), whether the previous selection (or election) was contested (column IV), and regional dummies (column V). In column VI we include in addition *McClure's* circulation over population. (*McClure's* was a muckraking magazine that did not publish the "Treason of the Senate" series of articles.) Robust standard errors are reported in brackets. These are probit regressions and as a coefficient we report the impact of on the probability of a marginal change in the right hand side variable, calculated at the mean value.

	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>
Cosmopolitan sales over pop.	0.020*	0.031**	0.030**	0.031**	0.051**	0.058**
	(0.012)	(0.014)	(0.015)	(0.014)	(0.021)	(0.027)
Republican party dummy	-0.216**	-0.299**	-0.291**	-0.304***	-0.400***	-0.401***
	(0.097)	(0.119)	(0.125)	(0.115)	(0.152)	(0.152)
State with direct election		0.245***	0.243***	0.243***	-0.003	0.011
		(0.094)	(0.094)	(0.094)	(0.103)	(0.106)
Years until selection (or election)			0.009			
			(0.030)			
Contested selection (or election)				0.031		
				(0.118)		
McClures circulation over pop						-0.018
						(0.043)
North Atlantic region					-0.315	-0.412
					(0.248)	(0.348)
North Central region					0.221**	0.188
					(0.088)	(0.138)
North East region					-0.699***	-0.758***
					(0.173)	(0.199)
South Atlantic region					-0.232	-0.335
					(0.389)	(0.512)
South Central region					-0.062	-0.149
					(0.301)	(0.437)
Observations	91	91	91	91	91	91

**Table 7: Impact of Muckraking on the Probability of a Change in Vote between 1902 and 1911**

This Table explores whether switches in voting behavior by senate seat (columns I-IV) and by the same Senator (columns V-VII) are influenced by the diffusion of information about corruption in the Senate, proxied using *Cosmopolitan* sales per population, with additional controls for party (columns II-IV) and state provision for direct election (columns II-III and VI-VII). In column IV and VII we include in addition *McClure's* circulation over population. (*McClure's* was a muckraking magazine that did not publish the "Treason of the Senate" series of articles.) The dependent "switch" variable takes the value -1, 0, or 1 depending on whether the senate seat moved from a yes to a no vote, remained unchanged (yes to yes or no to no), or went from no to yes. The regression is run as an ordered probit. Robust standard errors are reported in brackets.

	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>	<b>VII</b>
Cosmopolitan sales over pop.	0.074** (0.029)	0.071* (0.037)	0.087** (0.041)	0.176** (0.069)	0.206*** (0.074)	0.317*** (0.110)	0.397** (0.197)
Republican party dummy		0.046 (0.341)	-0.108 (0.376)	-0.049 (0.378)			
State provision for direct election dummy			0.465 (0.290)	0.574* (0.295)		1.477** (0.749)	1.709** (0.759)
McClures circulation over pop				-0.160* (0.096)			-0.121 (0.238)
Observations	82	82	82	82	20	20	20

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