

Media versus Special Interests

Alexander Dyck*

University of Toronto

David Moss

Harvard University

and

Luigi Zingales

University of Chicago, NBER, and CEPR

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Abstract

In this paper we argue that profit-seeking media firms can play an important role in reducing the influence of powerful economic interests 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 overcoming the standard problem of rational ignorance (Downs 1957), which lies at the heart of the economic theory of regulation and Stigler’s hypothesis of regulatory capture. Consistent with this idea, we document that the rise of investigative journalism through ‘muckraking’ magazines helps to explain the emergence of important progressive-era legislation in the early part of the 20th century. To clarify the circumstances under which media can serve as a constraint on the political influence of vested interests, and why this constraint is often not more effective, we introduce a simple model of profit-maximizing media. The model suggests the media are particularly effective in this role when the audience is large, when an issue can be more easily converted into entertaining news, and when subscriptions are a more important source of revenues than advertising.

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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 Pulitzer¹

Stigler (1971) revolutionized the debate on regulation by modelling it as the outcome of a decision made by utility-maximizing politicians, who care about votes and money. Since it is rational for most voters to remain ignorant (Downs (1957)) and passive (Olson (1965)) – argued Stigler – self-interested politicians will be captured by small groups of producers, whose stakes in the game are so high that they suffer from neither rational ignorance nor rational apathy and use their financial clout to influence legislators.

Subsequent work by Peltzman (1976) and Becker (1983) have suggested limits to Stigler’s result, showing that even in the presence of rational apathy political competition will tend to deliver a more efficient outcome. Since the political payoff to regulation arises from distributing wealth, the regulatory process is sensitive to deadweight losses and hence will favor more efficient regulation. Unless all lobbies have the same information and the same cost of coordination, however, a regulatory bias in favor of concentrated groups will persist.

Yet, the maintained assumption in all this debate is that Downs’ rational ignorance result always holds. If it did not, the balance of power in Peltzman’s (1976) framework will heavily shift in favor of consumers. If voters were informed on issues, a self-interested politician would want to cater to their interest, to capture more votes.

Voters’ rational ignorance does not seem such a strong assumption, since it is true that it is prohibitively expensive for them to collect information directly. But voters do not have to collect this information directly. There are information intermediaries (the media), that collect, filter, and aggregate information.

An obvious point, albeit not adequately emphasized in the literature, is that the collection and aggregation of information performed by the media can dramatically reduce voters’ cost of information collection.

¹ Quoted in Ireland 1914, p. 115.

More importantly, however, media can also eliminate the personal cost of absorbing this information by making news entertaining. If there is any complementarity between information and entertainment (as assumed in the Becker and Murphy (1993) model), then profit seeking media will inform in order to entertain. In so doing media can overcome Downs' rational ignorance result and thus potentially change the balance of power in political decision making.

Is this just a theoretical possibility or can this mechanism explain the emergence of public interest legislation? When and to what extent can we expect the media to perform this role in an unbiased way? What prevents the media from falling captive to the same interests that capture the legislators?

In this paper we try answer these questions. We start by documenting that this mechanism is more than a mere possibility. In fact, it is one of the driving forces behind the first major wave of public interest legislation: the progressive era reforms at the beginning of the 20th century. Investigative journalism emerged at the same time as these reforms. It was particularly evident in a handful of national magazines, including *Cosmopolitan*, *McClure's*, *Collier's*, and *Everybody's*. While many historians (e.g., Weinberg and Weinberg (1964), Cook (1972), and Janssen (1981)) have attributed legislation such as the the Pure Food and Drug Act of 1906 and the Mann Act ("White Slavery Act") of 1910 to the public awareness created by these so called muckraking magazines, there is no direct evidence linking the diffusion of these magazines to the approval of progressive legislation.² Thus, the first part of the paper is dedicated to building such evidence.

To document this link we start by analyzing the impact of one of the most celebrated series of muckraking articles entitled "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 U.S. Senators. (At the time, most U.S. Senators were still appointed by state governments.) The Senate voted on the proposed Seventeenth Amendment twice: once before Phillips's series (1902) and once after it (1911). To analyze the influence of muckraking on voting behavior, we exploit not

² The best evidence in this sense is Law and Libecap (2003). They show that vested interests have less power in explaining Congressional votes on the Pure Food and Drug Act after the publication of muckraking stories.

only the time series dimension (before and after the muckraking series) but also the cross sectional dimension: different penetration of muckraking magazines across states. Hence, we look at the Senators' voting behavior on the Seventeenth Amendment as a function of the penetration of muckraking magazines in their home states.

Consistent with our hypothesis, we find that Senators from states with high per capita circulations of *Cosmopolitan* (which published the "Treason of the Senate" series) were more likely to have voted for the amendment in 1911 than Senators from states with low per capita circulations. 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. In fact, the probability that a Senator changed his vote between 1902 and 1911 is correlated with the diffusion of *Cosmopolitan* in his state. More telling, this effect persists even when we include as a "placebo" effect the diffusion of another muckraking magazine (*McClure's*).

This variable notwithstanding, in this sample we cannot perfectly control for all the state characteristics that might have influenced the change in voting behavior. We are able to include more controls, however, when we consider the full sample of domestic regulatory legislation with roll call voting records from the so-called progressive period, 1902-1917.

In this larger sample we exploit the fact that only some issues were covered in the muckraking press, since we cannot find identical bills before and after the publication of relevant muckraking for all the issues to be considered (and thus cannot rely on the before-and-after method described above). Specifically, we test whether Representatives demonstrated different voting behavior on muckraked issues than other regulatory issues, and whether the influence of muckraking is more pronounced in districts with greater exposure to muckraking.

Consistent with our hypothesis, we find that Representatives and Senators alter their voting behavior on issues that were muckraked, and this effect is more pronounced the greater the circulation of *McClure's* in their electoral district (the sole muckraking magazine for which we were able to identify circulation with a sufficient level of disaggregation to establish district-level circulation).

Having provided some evidence that media can constitute a powerful limit on regulatory capture, we ask why this constraint is not more effective. In other words, why did muckraking arise only in the United States at the beginning of the 20th century? Why did it subside after 1912? And, more generally, why don't media always overcome voters' rational ignorance?

To clarify the circumstances under which media will find it profitable to provide a curb to vested interests we build a very simple model of profit-maximizing media. Media like to inform on controversial issues because this increases their demand, and hence their revenues both from subscription and from advertising. Informing the public with the interest of the public in mind, however, may also be costly for the media. In the model we focus on one potential cost. A magazine that portrays an advertiser in a poor light runs the risk of losing that advertiser, as recently happened to the *Los Angeles Times* for some negative articles about General Motors (Steingerg and Hallinan, 2005). And, in general, entire groups of producers might shun media that become too controversial or take positions that are inconsistent with their own interests. Hence, the optimal amount of pro public interest slant will arise from trading off these conflicting forces.

The model predicts that media are more likely to serve the public interest as information providers when their market share is small and when their elasticity of demand vis-à-vis certain issues is high. This elasticity, in turn, depends on the newsworthiness of certain events. Media, for instance, provide more coverage to AIDS than to hepatitis (even if the latter is a more deadly disease), presumably because AIDS is more likely to affect glamorous artists and is a more grotesque disease that strikes at younger victims.

The model also predicts that media are more likely to serve (or cater to) diffused interests when they derive proportionately more revenues from subscription than from advertising and when advertisers have less power vis-à-vis the magazine (because advertisers have few substitute outlets that their consumers read, because the magazine has a strong reputation, or because its advertisers are less concentrated).

Most, though not all, of these features are closely associated with technological change that introduces a new mechanism for communicating with consumers. When technological change creates a new media market, the media in this market have no initial market share, very little advertising revenues, and very high elasticity of demand (because

they can capture new customers, rather than steal customers from other similar media). Hence, at these times media are especially likely to resort to aggressive journalism.

The model thus provides one explanation for why investigative journalism arose in the United States at the beginning of the 20th century. At that time a dramatic reduction in the cost of printing paper and of the printing process itself created a huge and profitable market for newspapers and magazines. Not only did this market free newspapers from political patronage (Gentzkow et al. (2004)), it also motivated them to report information that interested their readers. Since “the journalism of special interests is seldom in itself profitable” (Irwin, 1911), the quest for bigger market share turned popular magazines into advocate of the public interest.

As these magazines become more established, however, advertising revenues become more important and they started to tone down the more aggressive muckraking behavior. As William Irwin reported in his study, *The American Newspaper*:

a veteran Hearst man gives one reason which may enter into the calculation. “It’s profit-taking time,” he says: by which he means that circulation is now established and advertisers are slow in patronizing a newspaper which attacks what they believe to be their interests.

The idea that profit-seeking media are a natural counterforce to special interests on newsworthy issues and that technological change creates ripe conditions for such activity can apply to other media and to other periods as well.

The rise of radio broadcasting, for instance, enlarged the potential audience, including people who were less educated and those living in more remote areas. All of a sudden, arcane events could be broadcast to a large public and create a huge political demand for more regulation. The new political coalitions that supported New Deal reforms may have coalesced, at least in part, as a result of this new communications technology, which FDR himself regularly exploited through his “fireside chats” (see also Stromberg, 2004). Significantly, another major reform era followed the rise of television broadcasting several decades later. The extensive television coverage of Martin Luther King’s voter registration drive and the associated clash with Sheriff James Clark in Selma, Alabama in January 1965, for example, clearly helped precipitate passage of the Voting Rights Act several months later. Many scholars, moreover, believe that television exposes on broken

pension promises (including NBC's "Pensions: The Broken Promise") played a role in generating support for the Employee Retirement Income Security Act (ERISA) in the early 1970s (Moss and Wooten 2003; Wooten 2004).

Finally, the model suggests that cross-country variation in the power of special interests may be associated with the presence or absence of the market conditions necessary to support investigative journalism. Where the conditions for effective investigative journalism are lacking, meaningful democracy – in which government is dominated by the people, rather than the interests – may not be possible.

Our paper is linked and builds upon contributions in different areas. As Becker and Murphy (1993), we assume a complementarity between information and entertainment. In their model, however, advertisement (which is a bad in the sense that people must be paid to accept it) increases the valuation for a product, which is sold. In our case, however, the complementarity is in the production: a dramatic story becomes more interesting if it is real, i.e., information increases the entertainment value of a story.

In showing that muckraking helped the approval of progressive era legislation, our paper is similar to Law and Libecap (2003). They show that vested interests have less power in explaining Congressional votes on the Pure Food and Drug Act after the publication of muckraking stories. Indeed, theirs is another valuable illustration of the broader point that we wish to make: profit-maximizing media can overcome Downs's rational ignorance, and they do. Beside the independent test, our paper adds new insights on the theory and evidence of when media are likely to be effective in protecting the public interest. In this respect our paper is related to Gentzkow et al. (2004). They show how technological shocks in the middle of the 19th century created the pre-conditions for newspapers' independence from political power. Our focus, however, is not on independence from political power, but independence from vested interests. We derive the different conditions under which such independence arises and under which it vanishes.

Our interpretation of the progressive era legislation is complementary to Glaeser and Shleifer (2003). They interpret this legislation as "a response to the dissatisfaction with litigation as a mechanism of social control of business". Even if regulation became the more efficient instrument of social control, however, it is hard to explain how, in a world where Downs' rational ignorance prevails, this regulation was approved when its introduction was

expected to hurt the power of established businesses such as patent medicine manufacturers, railroads, and oil companies. Muckraking magazines, which combined information with entertainment, can explain these developments, since in the process of entertaining readers they informed them about risks associated with the status quo.

Finally, our evidence that reporting can change the voting behavior of elected officials is consistent with a growing literature documenting that media can influence political outcomes (Baron (2003), Besley and Burgess (2002), Besley and Prat (2003), Djankov et al, (2003)) as well as corporate policies (Dyck and Zingales (2002) and (2004) and Dyck, Volchkova, and Zingales (2004)).

The rest of the paper proceeds as follows. In Section 1 we study the effect of one of the most famous muckraking series, called the “Treason of the Senate”, on the voting behavior of Senators. Section 2 applies the same logic to test the impact of muckraked issues on the voting behavior of Congressmen across a broad sample of votes. Section 3 presents a simple model of the market conditions that determine the diffusion of investigative journalism. Section 4 explores model implications with qualitative evidence from the early 20th century. Section 5 discusses the implications of our results for the theory of regulatory capture. Section 6 concludes.

1. Do Media Limit Capture? – Evidence From One Muckraking Campaign

We start by focusing on the golden era of muckraking journalism in the early years of the twentieth century. In this period, an aggressive new form of investigative journalism emerged. Popular magazines, such as *Cosmopolitan*, *McClure’s*, and *Collier’s*, which initially published only literary pieces, started to produce hard-hitting investigative articles, which boosted their circulations. These real-life stories were highly entertaining, covering scandals of all sorts and focusing particular attention on how business interests worked hand-in-hand with politicians to the detriment of the public.

Did such coverage limit capture? To explore this question we begin by focusing on the “Treason of the Senate” series, which 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, which attacked some of President Roosevelt’s erstwhile allies in the Senate, that Roosevelt coined the pejorative term “muckraker” for such journalists (McGovern 1966, p. 337).³

We want to test whether the media attention arising from these articles had a measurable effect on the voting decisions of Senators, measured using voting behavior on legislation.

1.1 Legislative Activity on the Direct Election of Senators

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, p20).

Coincident 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.

³ 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]).

By the time of the Senate vote, however, 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 Senators were directly elected, rather than appointed by the governor or legislature. 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.

1.2 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.⁴

As our measure of exposure to information about corruption in the Senate, we use data 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 diffusion of muckraking ideas is thus the *Cosmopolitan* circulation (in 1915) per population (in 1915). As a check we also assembled similar sales data by state for *McClures*, another prominent muckraking magazine.

⁴ 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 and their announced intention on the side they were on in the issue. 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.

Figures 1 and 2 illustrate the diffusion of *Cosmopolitan* and *McClure's* 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 North East, while they were less present in the South. Consistent with this, McClure's circulation was not highly correlated with urbanization rates (corr=0.34), and it was even less correlated with newspaper circulation per capita (0.11). As is evident in the Figure, 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 highlighted in the previous historical section are (a) the presence of provisions for direct election already at the state level – which we capture by inserting a dummy variable that identifies whether the state adopted the Oregon plan prior to 1911, and (b) whether the appointment of the Senator was contested⁵ – which we capture with 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 are up for reappointment in a shorter period of time. This differs across Senators since only one third of Senators are selected every 2 years.

Table 1 presents the summary statistics of our 1911 sample of Senators. We have data for 91 Senators. A slight majority are Republicans; 44 percent come from a state with some provision for direct election of Senators.

In the first column of Table 2 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 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. Senators from states where

⁵ Not infrequently, disputes at the state level resulted in no Senator appointed being appointed at the requisite time. As a result, states could be underrepresented in the Senate for significant periods.

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 comes from a state with some provision for direct voting. As might be expected, this variable positively affects the probability for 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 very contested, a Senator might find it more appealing to switch to a different system of selection. The effect is positive, but not statistically significant.

This regression alone is 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 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 1 and 2 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. Table 3 re-estimates the main regressions of Table 2 using the 1902 vote. In two specifications the estimated effect of the diffusion of *Cosmopolitan* is negative (not positive) and in none it is statistically significant.

In Table 4 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). For this reason, the number of observations 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 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 switches from a No vote to a Yes vote by 14 percentage points. This effect is robust (in fact, it becomes bigger) when we control for the *McClure*'s sales (column III).

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 even larger. One standard deviation increase in the diffusion of *Cosmopolitan* increases the probability that the same Senator switches from a No vote to a Yes vote by 31 percentage points.

In sum, we find very consistent evidence that *Cosmopolitan* influenced the Senators' position 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". More telling, the probability a Senator changed his vote between 1902 and 1911 is correlated with the diffusion of *Cosmopolitan* in his state.

1.3 *Treason of the Senate and Subsequent Voting Behavior on Regulatory Legislation*

The "Treason of the Senate" series targeted 21 Senators (18 Republicans and 3 Democrats). 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 they voted subsequently. To examine this issue we gather information on a larger sample of votes and explore whether their voting behavior changed after they had been targeted by *Cosmopolitan*.

To assemble a list of all legislation with available rollcall voting records where capture is more likely, we start from the VoteView dataset and use Kenneth Poole's classification of the votes. Following Peltzman (1984), Poole has classified all votes into one of eight categories. We focus on the two categories labeled regulation (regulation general interest, regulation special interest), where Stigler (1971) and others have suggested special interests will be most active. We assembled all such regulation votes from the 57-64th House and Senate (1902-1917), which includes and slightly extends the period generally understood to be the era of muckraking.⁶

To make our task more manageable, we further restrict ourselves only to final votes⁷ and to votes on issues that relate to domestic policy.⁸ When votes on the same bill occurred in both legislative chambers, we included both votes, even if only one was classified as "Regulation."⁹

The final sample of legislation is provided in Table 5, which includes 40 final votes in the House and 34 final votes in the Senate. This list includes almost all of the notable 'muckraker' legislation, such as that which created the F.D.A. It does not include the Seventeenth Amendment, as this was not classified as an issue of 'regulation.'

⁶ Weinberg and Weinberg, *op. cit.*, at xvi. Donald P. DeNevi and Helen M. Friend, *Muckrakers and Robber Barons* ii (Danville, CA: Replica Books, 1973). We used Voteview version 3.03c.

⁷ 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."

⁸ A number of votes dealt with managing federal territories such as Alaska, the Philippines or the District of Columbia.

⁹ Because of inconsistencies in coding, a vote that is classified as "Regulation" in one chamber might not be in the other. E-mail, Poole to Lackow, sent 26 June 2004.

To determine which pieces of legislation were “muckraked”, 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.¹⁰

Based on a reading of the notable articles, and a review of the less notable articles, we constructed a measure of muckraking. We assigned a value of 1 to our muckraking variable whenever an issue was covered in muckraking magazines. Otherwise, we classify an issue as not muckraked and hence we set its value to zero.¹¹

We want to explore for these votes whether the public attention arising from the muckraking on the issue influences the voting behavior of representatives away from the position that powerful interests support. While this was straightforward for the vote regarding direct election of Senators¹², it is not so straightforward in this larger sample of votes on regulatory legislation. The reason is that a vote on a new piece of regulatory legislation could either benefit or harm powerful interests. And even if one could say a particular bill unambiguously harmed powerful interests, this particular bill could be being pursued as opposed to an alternative bill that was even more prejudicial to their interests.¹³

The solution we adopt is to test whether the extent of muckraking on an issue leads to voting behavior that *differs* from the normal voting behavior of that representative. To do this 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

¹⁰ Arthur Weinberg and Lila Weinberg, *The Muckrakers* (NY: Simon & Schuster 1961). The Weinberg 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 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,” and 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.

¹¹ We experimented also with a more nuanced measure equal to two every time an issue is dealt with in a central piece. If an issue is covered only in one minor article, we attribute a value of 1, and zero otherwise. The results are unchanged.

¹² There was widespread belief that direct election would make it more difficult for powerful interests to influence Senators (add some support here, maybe note law school authors who are less sure).

¹³ An alternative solution of constructing an in-depth investigation of each vote is beyond the scope of this paper for the large number of votes in our data set.

compare a measure of the actual voting behavior on this 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 normal values on issues that are muckraked, than those that are not. Or, stated differently, the exposure provided by muckraking forces them 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, identify two factors, which they call the x coordinate (and suggest we think of as ideology) and y coordinate (which they suggest we think of as geography) that predict votes. We use their x coordinate as the predicted voting behavior of representatives. In our sample of votes, for example, the average x co-ordinates of Republican representatives is 0.27, the average x co-ordinate for Democrats is -0.19. As the measure of actual voting behavior on an issue, we construct this from the actual votes on that issue. Our score for a representative is the average x co-ordinate of all of those who voted the same way on the issue.

An example helps to clarify our procedure. Suppose for simplicity 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, and on a particular issue they all followed the party line, we would record an actual vote score of -0.19 for Democrats and 0.27 for Republicans. Now consider another issue that is muckraked and 11 Republicans join the Democrats in voting for the issue. In this case the score we would record for all those who voted for the issue would be $-.091 = (40 \cdot -.19 + 11 \cdot .27) / 51$, while those voting against would remain .27 since all are Republicans. In this case we would see a significant difference between actual and predicted for the 11 republicans that voted with the democrats, a slight difference for the Democrats and no difference for the Republicans who stuck to their party line.

As this example makes clear, this method tends to underestimate the differences in voting patterns, because those who deviate in their vote tend to pull the average toward them. Hence, in the example the Republicans who broke ranks had a deviation in their x-coordinate of only -0.36 (-0.09- 0.27) rather than -0.46 (-0.19- 0.27).

In Table 6 we regress the x-coordinate of each Senator in each vote on a Senator fixed effect, an issue fixed effect, a dummy for the post 1906 period and a dummy equal to

one for the Senators targeted by *Cosmopolitan*, after they have been targeted. Our focus is on the targeted senator dummy. While on average after 1906 the Senators' vote moved to the right, the Senators targeted by the "Treason of the Senate" series voted more to the left after they had been targeted (and the coefficient on the "targeted" dummy is statistically significant). Since there is no other obvious reason why these Senators should behave in a different way, this evidence suggests that shaming in the media does alter a politician's behavior.

2. Do Media Limit Capture? – Evidence from Available Regulatory Legislation

To show that the influence of muckraking journalism on Congressional voting behavior was a general phenomenon – and not just limited to the Seventeenth Amendment, we consider the full sample of domestic regulatory legislation associated with roll call voting during the progressive era (from 1902 to 1917). Unfortunately, in this broader sample of legislation, we cannot typically identify identical bills before and after the publication of a relevant muckraking article (as we did in the case of the Seventeenth Amendment). So here we adopt a different empirical strategy, exploiting the fact that only some of these issues, but not all, were covered in the muckraking press. (After all, as is suggested in the model presented below, not all issues are newsworthy.)

We concentrate our attention on voting behavior in the House and test whether members of the House of Representatives demonstrated different voting behavior on muckraked issues than on non-muckraked issues, and whether the influence of muckraking is more pronounced in districts with greater exposure to muckraking, as proxied by the district level of sales of *McClure's*.

2.1 Data

As we did for the Senate, we assemble a list of all regulatory votes from the VoteView dataset.

As a measure of the influence of muckraking magazines we construct a measure of circulation of *McClure's* per congressional district. We focus on *McClure's* because it is one of the most prominent muckraking magazines of that era, and because it is the only muckraking magazine for which we have detailed information on circulation by city/town. We take advantage of the fact that McClures published a detailed breakdown of its

circulation in 1917, providing circulation not only by state but for every town with a population greater than 5,000 citizens. To provide comparable data across states we divide the state circulation by the state population as reported in the 1910 census.

To construct the district-level circulation we aggregate the circulation by town and county by utilizing additional information on the geographic boundaries of districts. Because the number of districts, and the boundaries of the districts, changed for each Congress, we recalculate the *McClure's* circulation per congressional district for each Congress in our sample period.¹⁴ We do not divide this number by population as all districts are supposed to have similar population levels.

For the most part, it was straightforward to relate the geographic breakdown in *McClure's* circulation (provided by town and county) to that in the Historical Atlas (by county and sometimes town, or specific city blocks). But we did have to make the following judgment calls.

When a town was included in our *McClure's* list, but was not mentioned specifically in the Historical Atlas, we allocated a 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. Another set of difficulties arose from the fact *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 town was just assumed to have the average excess circulation. Another important set of difficulties arose from the practice in some states of having representatives without congressional districts, but rather being 'general ticket' or 'at large' representatives. For these representatives, we attributed the average circulation per district in the state. Finally, for the 64th Congress, we only focus on those states that did not have redistricting that changed the number of representatives or the apportioning of them across general ticket/at-large and geographically assigned districts

¹⁴ The source for geographic boundaries of districts is the Kenneth C. Martis, *The Historical Atlas of United States Congressional Districts: 1789-1983* (New York: Free Press, 1982).

2.2 The Results

In Table 7 we provide summary statistics of the data used in these regressions on congressional districts. In table 8 we regress each individual vote in all “regulatory” bills on a representative fixed effect and an indicator variable for issues that were muckraked. The idea is to see whether a representative deviates from his individual mean when pressured by muckrakers. As expected the estimated coefficient is negative (muckraking moves a representative “to the left”) and statistically significant. In an issue that was actively muckraked (muckraking variable equal to 2), 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 changing the Congressmen’s vote, 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 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. Note that the level of sales of *McClure’s* in different districts is not perfectly collinear with the representative fixed effects because we recalculate the district figure for each Congress. 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, while they vote more to the right of their own average in issues that are not muckraked.

In column III we insert an even more refined control: a fixed effect for each piece of legislation. Even after these controls have been added, the diffusion of *McClure’s* seems to affect the Congressmen votes on the muckraking issues (and only those).

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

2.3 Robustness

Does this result necessarily imply that the treatment of certain issues by the muckraking magazines lead Congressmen to alter their votes? Not necessarily. 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. In this case, the districts/states where voters are more sensitive to certain issues (like the corruption in the Senate) are more likely to buy magazines that talk about these issues and are more likely to influence their representatives' vote on the same issues. This interpretation is able to account for most of our empirical results, without assuming any causality between newspaper reporting and outcomes.

In our empirical analyses in this section and in section 1 we try our best to refute this alternative. Our finding that Senators change their votes in states where *Cosmopolitan* was more diffused after the behavior of Senators was exposed in muckraking articles cannot be explained with an unobserved sensitivity to the issue, unless we postulate an (unexplained) change in voters' sentiment between 1902 and 1911. The fact that targeted Senators change their voting pattern strengthens this result. Furthermore, there are additional factors that make our interpretation more likely.

First, because of data limitations we do not use the sales of muckraking magazines at the time an issue is discussed, but a few years later. This measure minimizes the concern of reverse causality, because it does not capture the interest for specific issues, but the general interest for the magazine.

Second, to explain the House results as spurious correlation we have to postulate that the muckraking magazines endogenously selected the issues that their readers (and only their readers) were particularly sensitive about. A quick look at the list of issues (Table 5), however, suggests that they differ for their newsworthiness. Child labor and safety of drugs or railways are issues that can be easily dramatized in magazines stories. Tariffs on cotton are intrinsically less entertaining. Hence, it was not presumably the muckraking magazines that chose what stories to feature; it was the (exogenous) nature of the issues that drove what stories were reported.

Third, this alternative explanation presupposed that there is a clear demand for information on certain issues and that muckraking magazines cater to this demand. But we

know, in at least one case, that the muckrakers inadvertently discovered the interest of the public for a certain topic, while covering it for a different purpose. In *The Jungle*, perhaps the most famous muckraking book in American history, the goal of the author (Upton Sinclair) was to illustrate the poor conditions of meat packing workers. But his book became famous for its description of the unsanitary conditions of the meat industry and their potentially adverse effect on meat consumers. In Sinclair's own words: "I aimed at the public's heart, and by accident I hit it in the stomach."

Last, but not least, the alternative explanation assumes away any spillover of entertainment on information. But these spillovers are very strong. To provide some evidence that this channel is important and affects people's behavior we resort to a more recent event.

When President Clinton underwent quadruple bypass surgery, newspapers were flooded with medical information about heart disease. The scope of this information was not to inform the public about heart disease, but to satisfy a curiosity about a disease that hit a famous person. Nevertheless, this information had a significant effect on the behavior of a large number of people. In the week following news of Clinton's surgery, Dr. Patricia Corey, director of emergency medicine at St. Lukes-Roosevelt Hospital in New York City, reported that the hospital received eight or nine patients complaining of chest pains each day, compared to the normal average of five per day.¹⁵ This is not an isolated instance. The phenomenon was so diffused that was labeled the "Clinton syndrome".

Data from HeartCheck America's Chicago offices support the idea that more people sought heart exams immediately following news of Clinton's surgery (Figure 3). While on a normal day the number of appointments never exceeds 20, the day after Clinton's surgery it shot up to 58 and only slowly returned to normal. Interestingly, the same phenomenon is not observed in the Los Angeles offices of HeartCheck America, which do not advertise directly to the general public, but work through doctors' referrals. So it was not the sad news of Clinton's disease that broke Americans' heart, but the surge of information uneducated readers absorbed as a result of the sudden popularity of the disease.

This episode illustrates that information provided for entertainment purposes does impact people's behavior. The muckrakers exploited this channel, making entertaining

¹⁵ Ibid.

otherwise boring topics with the purpose of informing the public about social injustices. It is very hard to argue, thus, that they were simply providing the information the public demanded.

3. Endogenous Limits to Muckraking

That profit maximizing media can attenuate the rational ignorance paradigm does not imply that they always do. This section tries to determine under what circumstances this is likely to occur. We first derive a set of conditions that encourage production of muckraking articles in a simple static framework. We then use a two period extension to show the cyclicity of muckraking. To complete our set up, we characterize the political equilibrium and the impact of such muckraking behavior, and explore robustness and extensions.

3.1 Magazine Choice of Muckraking

Consider a simple model, where a profit maximizing magazine has to decide how much muckraking (m) to do. The benefit of muckraking is that it increases sales (q) beyond their initial level (q_0):

$$q = q_0 + f(m, n, l),$$

We also identify two additional parameters that influence the sensitivity of sales to muckraking: n is what we call the ‘newsworthiness’ of a topic and l is the level of literacy of the population in the area. The obvious assumptions here are

- i) $f_m(m, n, l) > 0, f_{mm}(m, n, l) < 0$;
- ii) $f_n(m, n, l) > 0, f_{nn}(m, n, l) > 0; f_l(m, n, l) > 0, f_{ll}(m, n, l) > 0$;

i.e., muckraking increases sales but at a decreasing rate and both newsworthiness and literacy increase the marginal impact of muckraking on sales.

Muckraking has both a direct cost, in hiring reporters, and an indirect cost. To simplify matters, and without loss of generality, we focus on the indirect cost - that advertisers are less willing to buy ads in a muckraking magazine (either because they want to retaliate against negative news or because they do not want to be associated with the negative image). Let $a(m, k)$ be the price per unit of sales that advertisers are willing to pay for an ad. Then, we have

iii) $a_m(m, k) < 0, a_{mm}(m, k) < 0$

muckraking decreases the price per eye contact a magazine can charge to advertisers, the more so the higher the level of muckraking.

We also introduce a parameter k that captures the power of the advertiser vis-à-vis the magazine and

iv) $a_k(m, k) < 0, a_{mk}(m, k) < 0$

the power of advertisers decreases the price per eye contact a magazine can charge to advertisers and increases (in absolute value) the sensitivity of this price to the amount of muckraking. This power stems from a variety of non-modelled factors such as the number of alternative outlets which reach the same consumers, the reliance of the magazine on this advertising revenue, the importance of reputation, etc.

The magazine profit function is thus given by multiplying the revenues per unit of sales times sales, where revenues stem first from newsstand sales and subscriptions, and second from advertising,

$$(1) \quad [p + a(m, k)][q_0 + f(m, n, l)] ,$$

where p is the profit margin (over variable cost) per unit of sale (which can possibly be negative) from newsstand and subscription sales.

The FOC for the maximization of (1) with respect to m is given by:

$$a_m(m, k)[q_0 + f(m, n, l)] + [p + a(m, k)]f_m(m, n, l) = 0$$

The second order condition of the magazine profit maximization is

$$a_{mm}[q_0 + f] + 2a_m f_m + (p + a)f_{mm} < 0$$

which is satisfied because of assumptions i) and iii).

Result 1: Magazines that start with a larger share of the market will do less muckraking.

Proof of Result 1:

By implicit differentiation of the FOC we have

$$\frac{dm}{dq_0} = -\frac{a_m}{SOC} < 0, \text{ since by iii) } a_m < 0.$$

The intuition is straightforward. A higher level of initial sales makes the cost of muckraking higher because the drop in the price advertisers are willing to pay for each customer reached is paid on a larger share of customers. The natural consequence is that muckraking will generally be done by magazines that want to break into the market or significantly expand their market share, rather than by established incumbents.

Result 2: Muckraking will be higher when the profit margin per unit of sales derived from newsstand sales and subscriptions is higher.

Proof of Result 2:

$$\frac{dm}{dp} = -\frac{f_m}{SOC} > 0 \text{ because of assumption i).}$$

Since muckraking increases sales, magazines that make more money on each unit sold are more willing to muckrake. Unfortunately, we are unable to observe profit margins back then, but we can observe the fraction of revenues from sales. Hence, magazines with a higher proportion of their revenues coming from sales will be more willing to muckrake.

Result 3: Muckraking will be more intense on issues where the elasticity of demand with respect to muckraking is high (technically, $\frac{\partial \log f_n}{\partial m} > -\frac{\partial \log(p+a)}{\partial m}$).

Proof of Result 3:

By implicit differentiation of the FOC we have

$$\frac{dm}{dn} = -\frac{a_m f_n + (p+a) f_{mn}}{SOC} > 0 \text{ if } \frac{\partial \log f_n}{\partial m} > -\frac{\partial \log(p+a)}{\partial m}.$$

Given the loss in advertising revenues that muckraking generates, it is worthwhile to muckrake only on issues that generate a wide interest, i.e., only on issues where the

elasticity of demand with respect to muckraking is high ($\frac{\partial \log f_n}{\partial m} > -\frac{\partial \log(p+a)}{\partial m}$). We will label those issues *newsworthy*. One important implication of *Result 3* is that general interest magazines are more willing to muckrake than specialized magazines, because the elasticity of demand with respect to muckraking is much lower for specialized magazines. As we will see momentarily this effect is reinforced by the fact that specialized magazines have a narrower set of potential advertisers and hence these will have more power over them.

Result 4: Muckraking will take place only when literacy significantly increases the elasticity of demand with respect to muckraking (technically, $\frac{\partial \log f_l}{\partial m} > -\frac{\partial \log(p+a)}{\partial m}$).

Proof of Result 4:

By implicit differentiation of the FOC we have

$$\frac{dm}{dn} = -\frac{a_m f_l + (p+a) f_{ml}}{SOC} > 0 \text{ if } \frac{\partial \log f_l}{\partial m} > -\frac{\partial(p+a)}{\partial m}.$$

The intuition is the same as for *Result 3*. Given the loss in advertising revenues muckraking generates, it is worthwhile only when there is a potential basis of readership that increases the elasticity of demand with respect to muckraking.

Result 5: The greater is the power of the advertisers (k), the less muckraking will take place.

Proof of Result 5:

By differentiating the FOC we have

$$\frac{dm}{dk} = -\frac{a_{mk}[q_0 + f(m, n, l)] + a_k f_m}{SOC} < 0 \text{ because of assumptions ii) and iii).}$$

When advertisers are more concentrated and hence are better able to retaliate against magazines that muckrake, magazines will muckrake less. Consistent with this interpretation, Reuters and Zitzewitz (2004) find that advertisers have an effect in biasing the content of financial magazines only for the more specialized magazines, such as *Money* and *Smart*

Money, and not general interest journals like the *New York Times* and the *Wall Street Journal*.

In this model we emphasize only one possible source of bias in media. Of course, there are several. First, the pressure to cater to readers' common beliefs (Mullainathan and Shleifer (2005)) or to signal quality (Gentzkow and Shapiro, 2005) can bias media reporting. Second, media's owners can have an interest in distorting the information reported. Consistent with this possibility, Djankov et al. (2003) find evidence of "worse" outcomes associated with higher state ownership of the media (especially the press). Finally, media can be biased as a result of a "quid pro quo" relationship between reporters and sources (Dyck and Zingales, 2003).

Another potential limitation of our model is that special interest groups, having a strong incentive to stop the flow of politically damaging information to the public, could simply capture the press directly by buying up news organizations. Without denying this possibility (it does appear to occur in some countries, such as Italy where all major newspapers are owned by industrial interests) we do not incorporate that feature into this paper. During the progressive period in which muckraking arose, some industrial interests apparently did consider trying to capture the press, but gave up on the idea on the grounds that special-interest publications would not be profitable.¹⁶ Of course, an industrialist could afford to subsidize a newspaper that lost money in order to support his view. But the fact that industrialist-owned newspapers were not expected to be profitable indicates they were not expected to sell a lot of copies, thus defying the purpose of industrialists owning them in the first place.

Finally, there is another factor, absent from the model: libel laws. The lack of strict libel laws in the US, in contrast to Britain and the Continent, likely provided a more conducive environment for muckraking activity. As the journalist William Irwin remarked in a landmark study *The American Newspaper (1911)*, "We freed our press from the restrictions of the English common libel laws that it might perform a function which law cannot – defending the body social from the perverters of laws. Against these evils we have no other sentinel."

¹⁶ "What we need is a permanent and healthy control of the Associated Press" Evidence from the Archibold papers, cited in Irwin, 1911.

3.2 Dynamic Optimization Problem - A Two-Period Model

This static setup does not allow us to address issues of changes in muckraking over time. To address this issue we introduce a slight modification to this set up and consider a two period model where the magazine will choose m_1 and m_2 . In particular we assume that muckraking has a carryover effect to subsequent periods (e.g. those who buy magazines in the first period then buy subscriptions). Consequently, the profit-maximizing editor faces this problem:

$[p + a(m_1, k)][q_0 + f(m_1, n, l)] + \beta\{[p + a(m_2, k)][q_0 + f(m_1, n, l) + f(m_2, n, l)]$
where β is a discount factor.

Then the FOCs are given by:

$$a_{m_1}(m_1, k)[q_0 + f(m_1, n, l)] + [p + a(m_1, k)]f_{m_1}(m_1, n, l) + \beta\{[p + a(m_2, k)]f_{m_1}(m_1, n, l) = 0$$

$$a_{m_2}(m_2, k)[q_0 + \delta f(m_1, n, l) + f(m_2, n, l)] + [p + a(m_2, k)]f_{m_2}(m_2, n, l) = 0$$

The second order conditions of the magazine profit maximization are

$$i) a_{m_1 m_1}[q_0 + f] + 2a_{m_1} f_{m_1} + (p + a)f_{m_1 m_1} + \beta(p + a)f_{m_1 m_1} < 0$$

which is satisfied because $f_{m_1 m_1} \leq 0$, $a_{m_1 m_1} \leq 0$.

$$ii) \det \begin{pmatrix} A & B \\ B & C \end{pmatrix} = AC - B^2 > 0.$$

$$\text{where } A = a_{m_1 m_1}[q_0 + f] + 2a_{m_1} f_{m_1} + (p + a)f_{m_1 m_1} + \beta(p + a)f_{m_1 m_1} < 0$$

$$B = \beta a_{m_2} f_{m_1} < 0$$

and

$$C = \pi_{m_2 m_2}[q_0 + f(m_1, n, l) + f(m_2, n, l)] + 2a_{m_2} f_{m_2} < 0$$

Result 6: Muckraking is negatively serially correlated.

Proof of Result 6:

By implicit differentiation of the FOC for m_2 we have

$$\frac{dm_2}{dm_1} = -\frac{\beta\pi_{m_2} f_{m_1}}{C} < 0.$$

The intuition for this result is that when starting, a magazine's focus is on getting readers, who then stick with the magazine. Once the magazine has those readers, and the advertising revenues that come with them, then it becomes more sensitive to advertiser's interests, causing a reduction in muckraking in the second period.

Taken together, Result 1 and Result 6 indicate that muckraking will be cyclical. It will be more aggressive in new publications or at times where technological shocks expand the size of the potential market and it will start to subside when the muckraking magazines have reached a critical mass.

4. The Economic Preconditions for Muckraking

Why did investigative journalism emerge in the United States at the beginning of the 20th century? Why did it appear mostly in the United States and not in other countries in Europe? Finally, why did it become much less pronounced as the century progressed? The model, together with a few stylized facts, help shed some light on these questions.

The answer to the first question comes straight from Results 2 and 3. Muckraking exploded at the beginning of the 20th century because of a dramatic reduction in the cost of printing paper and of the printing process itself, which increased news publications' profit margins. As shown in Figure 4 and extensively discussed in Gentzkow et al. (2004), the last three decades of the 19th century witnessed a dramatic decline in the cost of printing paper. The cost went from 12 cents per pounds to 2 cents per pound. This followed a dramatic reduction in printing costs. While a traditional hand press of the beginning of the 19th century was making roughly 250 copies an hour, the first rotary press of the middle of the century was able to produce 12,000 copies an hour (Starr, 2004).

Not surprisingly, the percentage of newspaper subscribers as a fraction of the population rose steadily during the second half of the 19th century (see Figure 5). This created a bigger market where investigative journalism could be supported.

There are two reasons why this phenomenon took place mostly in the United States.

First of all, as Result 3 says, muckraking is directly related to the level of literacy. In this respect the United States was far ahead of Europe. By 1850 illiteracy among white adults was only 10 percent in America, as compared to 50 percent in Europe (Cipolla, 1969). Hence, while in Europe newspapers and magazines mostly remained a product for the elites, in the United States the existence of a large literate public created the incentives for profit maximizing media to create a more popular product. One important dimension of this popular slant was exposing producers' abuses at the expenses of costumers.

The second reason for the European lag stems from a different policy toward newspapers and magazines. While in the United States the distribution of newspapers was highly subsidized by the Post Office, in most European states that was not the case. In fact, newspapers were taxed. In 1830 half of the cost of an English newspaper was attributable to taxes (Wiener, 1969). By contrast, in the United States, the Stamp Act crisis during the Revolution left behind a bias against any special taxes on the press (Starr, 2004).

The third question is probably the most difficult to answer. But our conjecture is that advertising played a role. As Figure 6 shows, while in 1879 subscriptions represented 56% of the revenues, by 1925 they had dropped to 30%. While advertisers like big audiences, they dislike being associated with controversial issues. More importantly, they do not like to advertise in magazines that attack, directly or indirectly, their own interests. Hence, as magazines become more established and as advertising revenues become more important, they have an interest in toning down the more aggressive muckraking behavior. As William Irwin reported in his study, *The American Newspaper*:

a veteran Hearst man gives one reason which may enter into the calculation. "It's profit-taking time," he says: by which he means that circulation is now established and advertisers are slow in patronizing a newspaper which attacks what they believe to be their interests.

During the period 1902-1912, the volume of advertisements in non-muckraking magazines was substantially higher than that in muckraking magazines. This is evident by comparing the *Saturday Evening Post* (a non-muckraking magazine) with *Cosmopolitan* and *McClure's* (two of the most famous muckraking magazines from the progressive period and the two we relied on in this paper). While *The Saturday Evening Post* contained over 70 (and at times as many as 150) ads per issue during the period from 1905 to 1912, the two

muckraking magazines typically had few ads per issue, if any.

A perusal of *McClure's* reveals that it regularly carried advertisements from 1896 to 1901, prior to the muckraking period (1902-1912). Beginning in May 1901, however, ads disappeared from the magazine (except at times from the front and back covers). Ads within the pages of the magazine remained absent until June 1912, when they gradually began to return. In December of 1912 and January of 1913, the magazine included a message from the "Manager of the Advertising Department" calling for companies to place ads in the magazine. From February of 1913 onward, *McClure's* began to look like the *Saturday Evening Post*, with many advertisements mixed in with its articles.

Advertising in *Cosmopolitan* followed a similar – though not identical – pattern. From 1886 to 1910, the magazine published a special advertising section about once every six months. This section (sometimes in two parts, one at the beginning of the issue one at the end) contained, for the most part, pages devoted solely to ads. They were numbered separately from main body of the magazine, if they were numbered at all. Other issues of the magazine had little or no advertising (usually a single ad on the inside cover and perhaps one on the inside and/or outside of the back cover). In 1910, there were no ads at all in the issues published between June and November, except on the covers. This pattern continued through 1913, with the lone exception of an ad for "Cosmopolitan Magazine Gold Bonds." Beginning in 1914, however, advertising in *Cosmopolitan* increased dramatically, to the point where each issue had its own advertising section, and the ratio of pages of ads to pages of articles was roughly 1:1.

It seems likely that these leading muckraking magazines, in contrast to the non-muckraking ones, were able to finance their operations through non-advertising means (subscriptions, donations). Since most issues contained no ads at all, or at most one to three ads on the covers, as opposed to the scores of ads per issue in the non-muckraking magazines, the muckraking magazines must have been relying on other sources of revenue.

An example stemming from the well researched 1906 Pure Food and Drug Act provides a vivid illustration of the impact advertising could have on print media. At the time, patent medicine manufacturers were an important source of advertising revenue for many newspapers and magazines, and muckrakers (who, as we have said, relied less on advertising) reported on how patent medicine manufacturers were using this power to

muzzle the press, and to hide information about the dangers of their product. Mark Sullivan, writing in *Collier's* on November 4, 1905, revealed the schemes. James Young (1989, p. 198-199) summarizes the article (cited in Law and Libecap, p. 23-24):

[Sullivan] unearthed the "red clause" that proprietary advertisers had come to insist upon in their contracts with newspapers ...requiring the cancellation of all advertising should the state in which the newspaper was located enact a law to restrict or prohibit the manufacture or sale of proprietaries. Cheney boasted of how he had used the clause in Illinois to energize newspapers into defeating a tax on patent medicines threatened by the legislature. Cheney's fellows learned the lesson quickly, and "muzzle-clauses" proliferated.

Muckraking articles such as these, as well as others by Samuel Hopkins Adams (also published in *Collier's* in 1905), are credited with creating widespread concern and anger that culminated in passage of the 1906 Pure Food and Drug Act.

Weinberger and Weinberger (1964, p. xxii), relying on a leading muckraker, attribute the ultimate decline of muckraking after 1912 – at least in part – to 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 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).

5. Toward a New Theory of Regulatory Capture

One of the goals of this paper is to highlight when media are more likely to help voters overcome the rational ignorance problem.

First, we have identified the role technological change has in (temporarily) reducing the power of vested interests. When a new technology enlarges media audiences and allows social issues to be made more entertaining, profit-maximizing media will end up informing and alerting voters about their interests in order to gain a greater market share. This information will attenuate the rational ignorance problem and, in the presence of political competition, it will align representatives' behavior to the public interest. It may be more than a coincidence that each of the three major shifts in political coalitions (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).

Unfortunately, the very success of this information dynamic may sow the seeds of its own demise. The same profit motive that made media outlets effective conveyors (or even advocates) of the public interest when a new market opened up, makes them more attuned to private interests when their market position becomes entrenched. Once they secure a market position, media outlets find it profitable to cash it in through higher advertising revenues.

The extent to which this retrenchment will occur depends on several factors that may differ across countries. Obviously, where media are more concentrated and are concentrated in the hands of industrial interests, this retrenchment will be more severe. In addition, our model predicts that countries with a more concentrated industrial structure (and thus a more concentrated set of advertisers) will have a less inquisitive press and, hence, politicians will be less sensitive to concerns other than those raised by vested interests. Note that the industrial structure of production corresponds to the structure of sales only if a country is closed to foreign trade. In an open economy, the advertisers will not necessarily be domestic. Hence, the opening up of the economy has an additional benefit: it reduces advertisers' power vis-à-vis the media, thus freeing the media. 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 overcoming the standard problem of rational ignorance (Downs 1957), which lies at the heart of the economic theory of regulation. By creating an informed constituency, moreover, they help to create a context that political entrepreneurs can exploit to their own advantage.

To document the importance of this channel we study the impact muckraking articles had on the voting behavior of Senators and representatives at the beginning of the 20th century. We find this effect to be not only statistically significant but also quantitatively large.

We argue that media are more likely to exhibit muckraking behavior when they rely mostly on subscription revenues and when they need to conquer an audience, which is generally the case at the introduction of a new means of mass communication.

These results point toward a new theory of the limits of regulatory capture, able to differentiate where and when vested interests have more power. Besides the time series fluctuations following the introduction of a new media technology, our theory predicts that vested interests will have less influence on the legislative agenda on issues that are more newsworthy (i.e., can be more easily transformed into entertainment). They will also have less power when media ownership and advertising budgets are less concentrated. Documenting these additional implications is next on our agenda.

Figure 1: Geographical Diffusion of Cosmopolitan

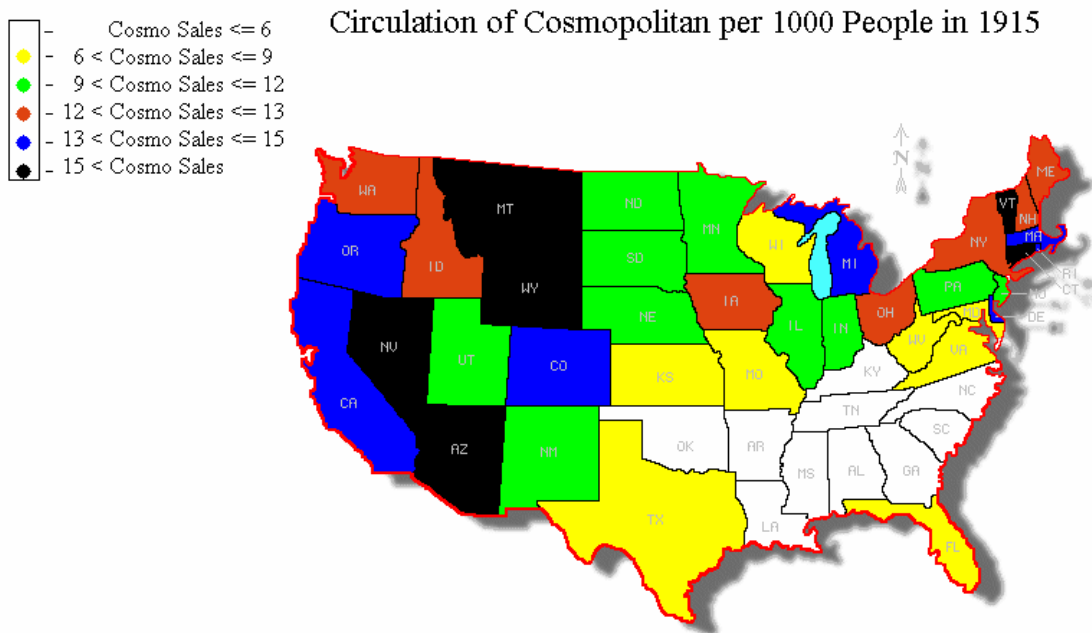


Figure 2: Geographical Diffusion of McClure's

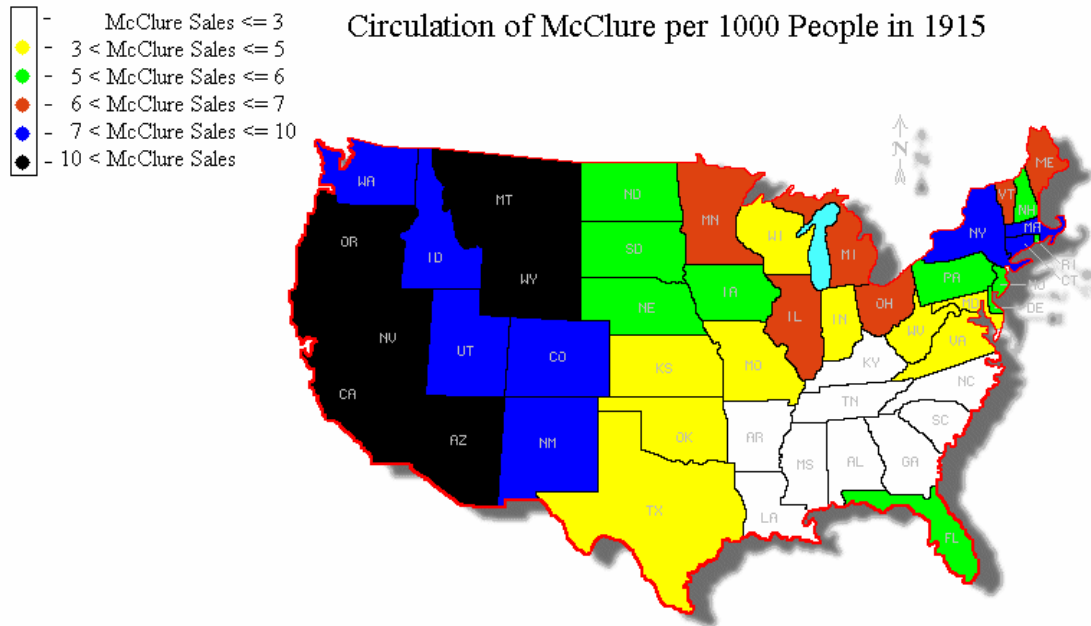


Figure 3: Effect of Information Communicated Through Entertainment

Number of Appointments made at a Chicago-area Heart Check America around the date of Clinton's heart's problems

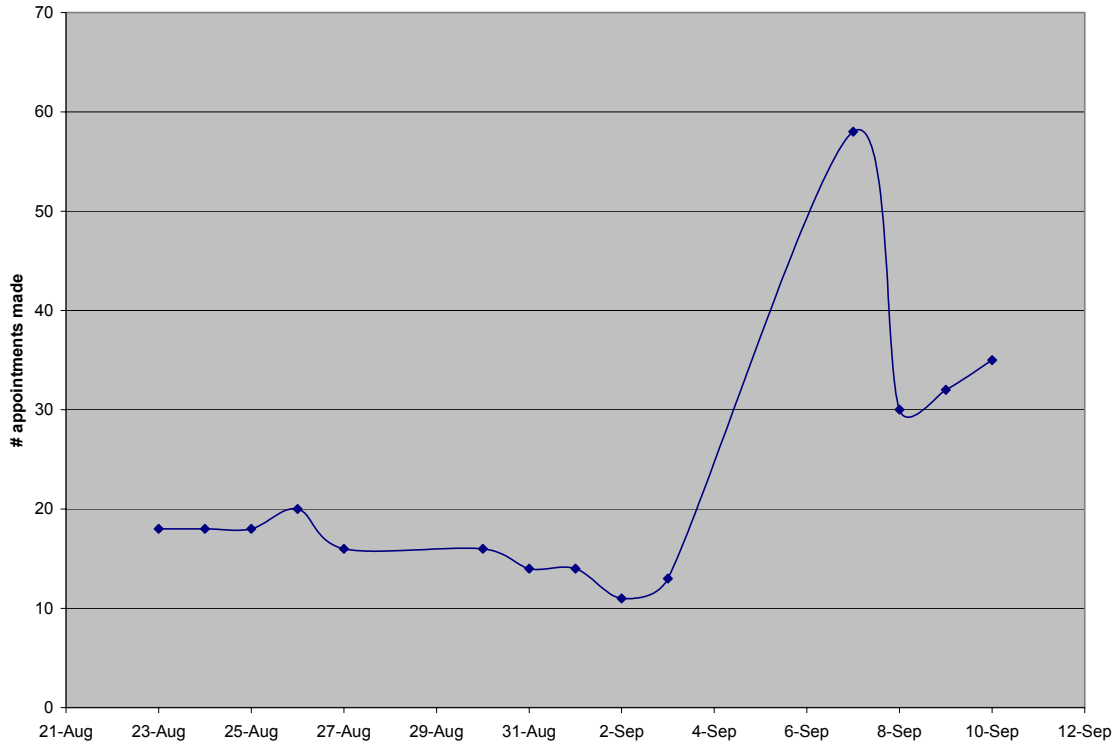


Figure 4: Cost of printing paper (\$ per lbs)

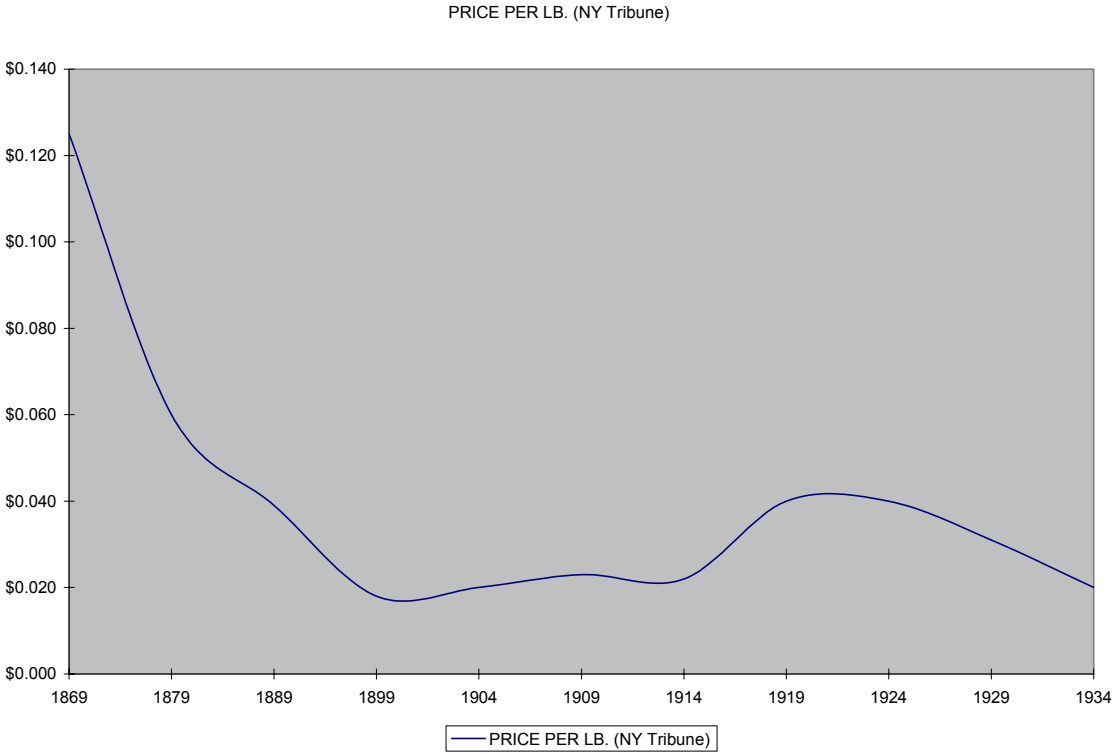


Figure 5: Rise in Newspapers Subscribers

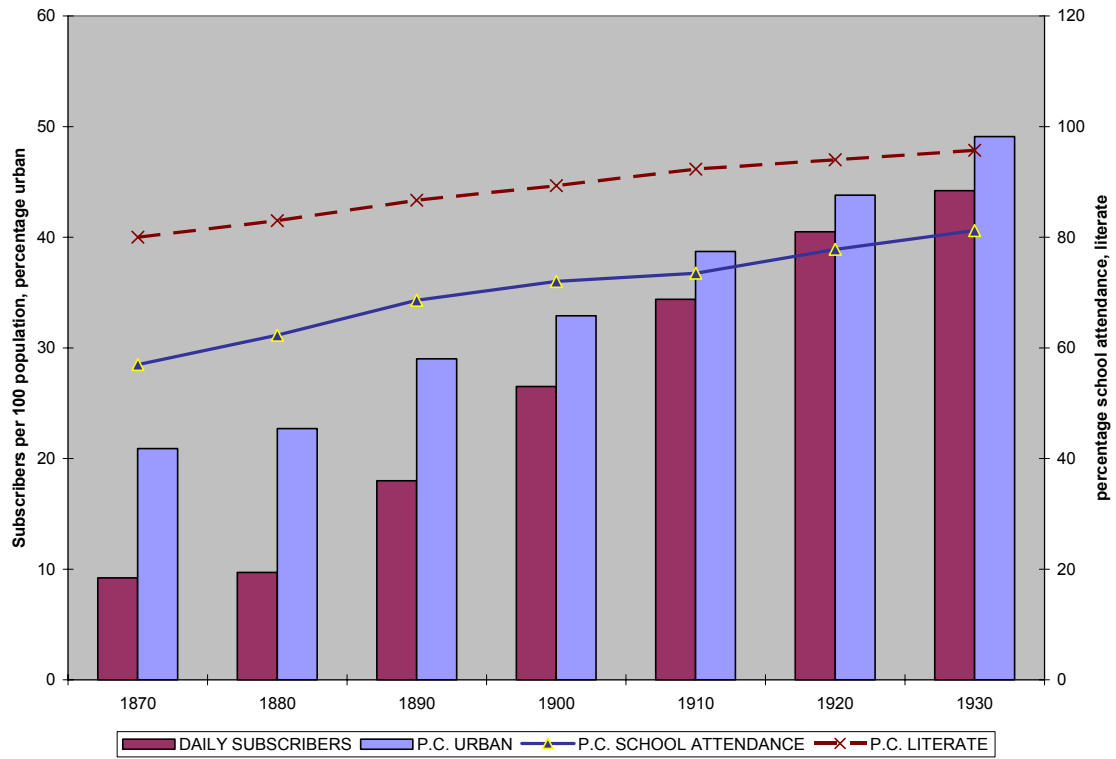


Figure 6: Newspaper Revenues from Subscriptions and not Advertising (% of total)

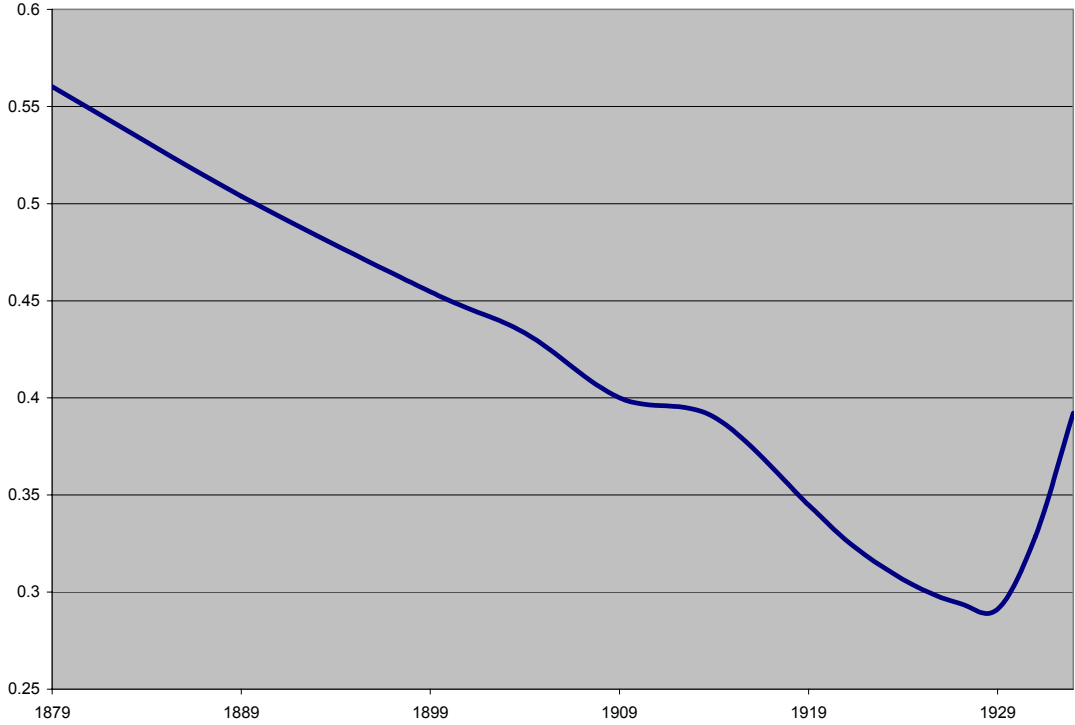


Table 1: Summary Statistics

This table presents summary statistics for the variables included in the regressions (Table 2-4) 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 introduces restrictions at the state level for direct election of Senators. Years to reelection identifies the number of years until next election for the senate seat, and varies from 1 year to 5 years as one third of senate is up for reelection in each even year. Contested election dummy takes the value 1 if election is 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-election	3.24	1.60	1.00	5.00	91
Contested election dummy	0.22	0.42	0.00	1.00	91

Table 2: Impact of Muckraking on the 1911 Vote

In this table we explore whether voting on the Seventeenth Amendment in the final 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 election (column III), whether the previous election was contested (column IV) and regional dummies (column V). In column VI we include in addition McClures circulation over pop (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 r.h.s variable, calculated at the mean value.

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

Table 3: Impact of Muckraking on the 1902 Vote

This table explores whether some fixed characteristic of the state helps explain voting behavior on the Seventeenth Amendment, by running the same regressions as Table 2 on the nearly identical 1902 vote on the Seventeenth Amendment (that failed). In these probits we again include *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), a dummy variable for Republican party, and for columns II-III if there is a state level provision for direct election of Senators. To examine the robustness of these results we introduce regional dummies (column III) with a more limited set of regions due to clustered voting behavior. As coefficients we report the impact on the Yes vote probability of a marginal change in the r.h.s variable, calculated at the mean value. Robust standard errors are reported in brackets.

	I	II	III
Cosmopolitan sales over pop.	-0.009 (0.013)	-0.006 (0.013)	0.009 (0.017)
Republican party dummy	-0.660*** (0.097)	-0.699*** (0.097)	-0.712*** (0.114)
State with direct election		0.164 (0.130)	0.121 (0.153)
North Central region			0.212 (0.214)
South Atlantic region			0.166 (0.241)
South Central region			0.258 (0.278)
Observations	87	87	87

Table 4: 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 McClures circulation over pop (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.

	I	II	III	IV	V	VI	VII
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

Table 5: 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 interst 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 interst 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 interst 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 rr rates	1
9-Feb-05	House	Regulate rr 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 interst 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 5: Domestic Regulatory Legislation with Final Roll Call Votes, 1902-1917 (cont.)

Date	Chamber	Subject	Muckraking dummy
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 vegs. Export	0
5-Sep-16	Senate	Report re tariff—prot indust + prevent monopoly	0

Table 6: 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 5. Poole and Rosenthal have estimated an x co-ordinate for each Senator based on the voting record over their 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 5). 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 named by name in the ‘Treason of the Senate’ series (21 Senators were named in this way). This regression includes individual fixed effects.

	I	II
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)
Observations	2453	2453
R-squared	0.618	0.625
Individual fixed effects	yes	yes

Table 7: 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 8. 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 their career. The dependent variable 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 5.

Variable	Mean	Median	St. Dev.	Min	Max	N
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 8: 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 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 their 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 *McClure's* sales in the representative electoral district. In column III we insert also a fixed effect for each rollcall. 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 Cosmopolitan 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

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