Media versus Special Interests

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Abstract

We argue that profit-maximizing media help to overcome the "rational ignorance" problem highlighted by Downs (1957). By collecting news and combining it with entertainment, media are able to inform passive voters on regulation and other public policy issues, acting as a (partial) counterbalance to small but well-organized groups. To show the impact this information has on regulation, we document the effect "muckraking" magazines had on the voting patterns of U.S. representatives and senators on regulatory issues in the early part of the 20th century. We also discuss the conditions under which media can serve to counterbalance special interests.

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

Joseph Pulitzer[1]

According to the economic theory of regulation (ETR), government intervention is shaped by the competition among interest groups, where the winners are the groups with the lowest cost of organizing relative to the per capita benefit of organizing (Olson, 1965, Stigler, 1971, Peltzman, 1976). In the context of industry regulation, ETR predicts that the winners tend to be small groups with a strong interest. Yet in practice we observe many regulations, ranging from antitrust law to zoning restrictions that aim to protect small and dispersed interests against big and concentrated ones.

One possible explanation for the existence of regulation that seems to favor dispersed groups is that such regulation may only *appear* to be in the interest of these groups, when in fact it secretly serves the interests of large incumbents. This explanation is consistent with the major role that large incumbents often play in shaping regulatory implementation. Yet it has difficulties explaining why lawmakers enacted these types of regulation in the first place, often over the strong objections of large incumbents. Even if some incumbents might have benefitted from antitrust law, for example, in most instances large incumbents' interest likely would have been better served with no antitrust legislation at all, or at least so many incumbents believed when federal antitrust law was first enacted in the late nineteenth century. So why do so many public policies that appear to constrain large incumbents exist?

An alternative to the ETR is the so-called public interest view, where regulation arises whenever the social benefits outweigh the social costs. Proponents of this more benign view, however, have traditionally had trouble explaining how dispersed interests are able to come together and solve the collective action problem, overpowering more concentrated interests where the costs of organizing are much less.

A third explanation, which we explore in this paper, is that in a representative democracy, profit-maximizing media may play an important role in minimizing collective-

[1] Quoted in Ireland (1914), p. 115.

action costs for dispersed actors and therefore help to tip the political balance against concentrated interests (including large incumbents) in certain cases. By helping to inform the broad public about certain public policy issues, media can create a more informed electorate, to which politicians are likely to try to cater. Recognizing this role that the media can play provides a richer theory of regulation, where outcomes depend on the relative strength of the media in informing and, in turn, empowering dispersed versus concentrated interests.

To understand how profit-seeking media can undermine the simple predictions of the ETR, we need to return to the conceptual foundation of the ETR. The reason why narrow, concentrated interests dominate is that it is rational for broad, dispersed interests not to invest in informing themselves given the infinitesimal payoff they receive from doing so. This is Downs's (1957) theory of rational voter ignorance. If voters remain ignorant about public policies that would serve their interest, it does not pay politicians to try to protect them by enacting these policies. Media, however, reduce the cost to voters (and others) of getting informed, and they do this in two ways. First, by collecting, verifying, and summarizing relevant facts, they minimize the collective action problem associated with gathering information for a dispersed group. Second, by repackaging information in a way that makes it entertaining, media create a compelling rationale for individuals to bear the small cost of obtaining the gathered information. Even if it is not in each individual's economic interest to become informed about a policy issue, the utility benefit provided by the entertainment component of a news story (e.g., the scandalous, shocking, or titillating dimension) can more than compensate for the costs to the individual of obtaining the information, including the price of the newspaper and the time spent in reading it. Thus, media can potentially overcome the rational ignorance problem. But do they have an interest in doing so?

The increasing-returns-to-scale technology used in most media induces them to cater their news provision to the interests of large groups (Strömberg (2004)). This can be viewed as a negative outcome, as in Strömberg's (2004) view that this tendency generates a welfare-reducing bias toward policies that favor large groups (Prat and Stromberg (2010)). In the context of regulation, however, this bias in profit-seeking media generates a natural counterbalance to the power of small, concentrated groups, which lie at the center of

traditional ETR. Why? By informing large and dispersed groups on policy-relevant issues, media create an interest in politicians to cater to them.

How important is the counterbalancing role played by profit-seeking media in shaping actual regulation? In the age of national television (not to mention the internet), it is very difficult to tell.[2] Since nearly everyone is exposed to news at the same time, it is hard to know whether media content affects voters or voters' demand for information drives media content.

To address this challenge, we look back in time to the so-called muckraking era (1902-1917). This period saw the rise of investigative journalists, who wrote about contemporary events with the express purpose of changing public attitudes and legislative behavior. Because this era predates national radio and television, exposure to the ideas in these articles would be greatest for those citizens who read the magazines. Since sales of these magazines differed by congressional district, we can expect the influence of their articles to vary with sales in the district. We focus our attention on circulation data by congressional district and by state that we collected for two of the most prominent muckraking magazines, *McClures* and *Cosmopolitan*.

We analyze roll call votes of U.S. representatives on all domestic regulatory legislation from 1902-1917. To control for the ideological preferences of elected representatives and the role of regional factors in voting behavior, in addition to party and regional dummies we use the x and y co-ordinates of Poole (2004) developed in a series of articles by Poole and Rosenthal (1997, 2001). We show that representatives vote differently on regulatory issues that were previously exposed in muckraking magazines, the more so the more diffused are muckraking magazines in their districts.

The advantage of our specification is that it controls for any specific characteristics of the representatives and the district, and we focus our attention on the results based on the interaction between issues that are muckraked and diffusion of the muckraking magazine. The disadvantage is that it cannot rule out the possibility that voters who are more sensitive to certain issues are more likely to buy magazines that cover those issues, and thus that the political preferences of voters within a particular district may be the source of both the

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

voting behavior of their Congressional representatives and the diffusion of muckraking magazines in their districts.

To try to address this concern, we test the same specification on the voting behavior of senators to see if exposure to muckraking and the interaction of exposure with diffusion influences their voting behavior. Until 1913 the vast majority of senators were appointed, not elected. This process insured that they reflected the ideology or preferences of the governor or the state legislature that appointed them, but not necessarily the sensitivities or preferences that voters developed after becoming informed on particular issues. If the muckraking magazine circulation is just a proxy for the prevailing ideology in a certain area, then this circulation should affect the way senators voted as well. It does not, in general. We do find some impact, however, if we split the sample between senators who were in states that provided for direct election and senators who were not directly elected. Specifically, directly elected senators are affected, much like their elected counterparts in the House of Representatives, whereas appointed senators are not.

This test alleviates the concern that our results are driven solely by the fact that the muckraking magazine circulation is a proxy for the prevailing ideology in a certain area. Yet, it is still possible – albeit unlikely – that our results are driven by the fact that the muckraking magazine circulation is a proxy for some voters' preferences that are not captured by a senator's party affiliation or by his Poole and Rosenthal coordinates.

Taking this Senate and House evidence together illustrates the mechanism through which profit-seeking media influence regulatory outcomes. Elected officials are sensitive to informed voters, and media help voters become informed even on issues where their direct interest in being informed is minimal. This is a different, but complementary point, to that made in Stromberg (2004a and b). He shows that media are effective in informing interested voters of the policies that benefit them directly. We show here that the point is more general and applies also to public interest policies where few if any voters have a large economic interest.

To illustrate this point further we look at the influence of media reporting on voting behavior around a reform that, while arguably benefitting the country overall, was not in the specific interest of any group: the Seventeenth Amendment, which provided for direct election of senators. Prior to ratification of this amendment, most senators were appointed,

rather than elected. The insulation of the senate-selection process from the will of the voters allowed business interests to exert considerable control over senate appointments and pick sympathetic senators who were likely to support their special interests. In 1906 one of the largest muckraking magazines, *Cosmopolitan*, published David Graham Phillips's "Treason of the Senate" series. 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). Did this exposure of weakness – including potentially corruption – in the appointment process influence senators' voting behavior?

To test this idea, we examine patterns in Senate votes on the Seventeenth Amendment that preceded (a vote in 1902) and followed (1911) the publication of this series. These votes provide us with a quasi-experiment to study the effect of exposure to the "Treason of the Senate" series on senator voting behavior. Senators from states where *Cosmopolitan* was more highly diffused are more likely to switch their votes (from negative in 1902 to positive in 1911). This effect cannot be explained in terms of a higher sensitivity of the state's electorate to the issue, since we show that the senator from the same state voted differently before the issue was muckraked. Similarly, this effect is not simply that areas where muckraking magazines were more diffused became more sympathetic to the idea of an elected Senate, since the diffusion of another muckraking magazine, *McClures* (which did not feature the "Treason of the Senate" series), has no independent effect on voting behavior.

In showing that media during the muckraking period contributed to regulation that favored broad and dispersed groups, we are not suggesting that this is always the case, nor that the outcome (in this case or any other) is necessarily optimal from a social welfare standpoint. Media involvement may be insufficient to overcome the power of large incumbents and other concentrated interests, or its overwhelming effect may be so strong as to trigger impulsive and potentially inefficient initiatives. Rather, the point we want to emphasize is that these results suggest that the media can play a countervailing role to the power of concentrated interests in the theory of regulation.

To transform this insight into a positive theory of regulation, we need to address the question of when media are more or less likely to play this countervailing role. We discuss this issue in Section 4.

Our analysis of the impact of muckraking is related to a growing literature on the effect of media coverage on a range of political factors, including voting behavior (DellaVigna and Kaplan, 2007), government intervention (Besley and Burgess, 2002; Moss and Oey, 2010), subsidies (Strömberg, 2004), and foreign aid (Eisensee and Strömberg, 2007).[3] Like Strömberg (2004a and 2004b), we use historical evidence to identify differential exposure to news. In showing that muckraking facilitated the approval of progressive-era legislation, our paper is similar to Law and Libecap (2006), who document that vested interests have less power in explaining Congressional votes on the Pure Food and Drug Act after the publication of muckraking stories. We add to this paper in two ways. First, we provide a mechanism through which media in general (and not just the muckrakers) help counteract the power of vested interests. Second, through a combination of time-series and cross sectional evidence on a range of regulatory legislation we are able to identify the working of this mechanism.

The remainder of the paper proceeds as follows. Section 1 discusses how media can overcome rational ignorance by entertaining their customers in the context of policy-relevant issues. Section 2 tests the impact media information has on policy outcomes by focusing on the voting behavior of representatives and senators on regulatory issues and how this is influenced by muckraking and the diffusion of muckraking magazines. Section 3 tests the impact of one of the major muckraking series, "The Treason of the Senate," on the voting behavior of U.S. senators on the Seventeen Amendment. Section 4 discusses the conditions under which the media are more likely to act as a countervailing force to private special interests. Section 5 concludes.

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

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

[3] For a nice summary of this work see DellaVigna and Kaplan (2008).

the information. While everyone might benefit from such information being gathered, no one individually wishes to cover the cost of collecting it. Second, even if the collective action problem were resolved and a third party took charge of collecting, verifying, and summarizing the information, both the per-capita cost of the information and the individual cost of processing it (e.g., the time involved in reading or viewing the news) might still exceed the payoff in terms of the marginally increased likelihood of a more favorable policy outcome as a result of a more informed vote being cast.[4]

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

Second, by repackaging information in a way that makes it entertaining, the media may succeed in inducing voters to process it and thus become informed. Even if the cost of processing the information remains greater for the voter than the expected benefit to be derived from a more informed vote, the utility provided by the entertainment component may repay readers for both the cost (if any) of obtaining the information from the media outlet (i.e., the price of the newspaper) and the time spent absorbing the information, thus making it worthwhile to become informed.

That people may become informed for "consumption reasons" was present already in Downs (1957) and it is emphasized by Hamilton (2004), but it has not played a big role in the economic literature as a factor to overcome rational apathy. In fact, Becker and Murphy (1993) emphasize the opposite channel: advertisers pay for entertainment to inform their customers. In our case, information is a simple byproduct of the production of entertainment, like the program "The Daily Show" by Jon Stewart.

An alternative way to overcome voters' rational apathy is to assume a private return from becoming informed – e.g., one may learn how best to exploit subsidies (Stromberg

[4] Naturally, in practice, there may be other reasons for individuals to become informed about policy-relevant issues and facts (including civic mindedness), which the economic theory of regulation tends to overlook.

(2004a)). While this aspect is important in many types of welfare legislation, it is unlikely to be the primary force in the case of regulatory decisions, such as the Clean Air Act, or Constitutional amendments, such as the Seventeen Amendment. For the public to become informed on these sorts of issues (where there is little private benefit), the entertainment factor is a more likely facilitating mechanism.

Once voters become informed, several papers (Baron (1994), Grossman and Helpman (1996), and Strömberg (2004a)) show theoretically why it is harder for elected representatives to cater to special interests.

This link between media coverage and regulatory outcomes is difficult to test persuasively in an age of national television, not to mention the internet. Thanks to these modern media, nearly everyone can potentially be exposed to the same news at about the same time, making the identification problem very challenging: how can we identify the casual link only from the time series, when many other events occurred at the same time?

2. Evidence from Muckraking of Regulatory Issues

Before the introduction of national radio and television broadcasting, there was great diversity in exposure to news. For this reason, to identify whether press coverage influences the political support for regulation we focus on the so-called muckraking period of American journalism, in the early years of the twentieth century. Changes in technology and demand created fertile ground for an explosion of newspapers and magazines, such as *Cosmopolitan*, *Everybody's, McClure's*, and *Collier's.*[5] These magazines sought and realized a mass audience. Conservative estimates place sales of all such magazines at 3 million, the top 4 magazines at 2 million, and total readership as high as 20 million, all at a time when the U.S. population was 80-90 million and the national Presidential vote was 15 million.[6]

Initially focusing mainly on fictional accounts, these magazines reached a far broader audience by covering real-world scandals of all sorts. A quick perusal of the titles of notable articles reveals their focus. In 1905 and 1906 attention focused on producers of medicines and meat-packers in articles such as "The Great American Fraud," "The Patent

[5] For further descriptions, see Hamilton (2004) and Glaeser and Goldin (2006).

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

Medicine Conspiracy Against Freedom of the Press," "Is Chicago Meat Unclean," "Stockyard Secrets," and "The Condemned Meat Industry." Others, such as "Water Power and the Pork Barrel" and "Water Power and the Price of Bread," were featured in 1908 and 1909; and throughout the most active muckraking period from 1902-1912 there appeared numerous investigations of business power and political corruption, such as "The Treason of the Senate" in 1906 and "An Exposition of the Sovereign Political Power of Organized Business," published in 1910.

Because these magazines were not equally read throughout the country, we can use data on their coverage and circulation to test the models of Baron (1994), Grossman and Helpman (1996), and Strömberg (2004a) that the fraction of informed voters alters the balance of power between private interest and public interest.[7]

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

2.1 Sample of Regulatory Legislation

To assemble a list of all regulatory legislation with available roll call voting records, we start from the VoteView dataset and use Kenneth Poole's classification of the votes. Following Peltzman (1976), Poole has classified all votes into one of eight categories. We focus on the two categories of regulation (regulation general interest, regulation special interest), where all of the literature starting with Stigler (1971) has suggested special interests will be most active. We assembled all such regulation votes from the 57^{th} - 64^{th} Congresses, both House and Senate (1902-1917), which includes and slightly extends the period generally understood to be the era of muckraking.[8]

To make our task more manageable, we further restrict ourselves only to final votes[9]

[7] We are not suggesting that these muckraking articles were not reproduced or conveyed elsewhere, as Law and Libecap (2006) illustrate for the debate surrounding patent medicine legislation. Rather, we are relying on the assumption that exposure to these ideas was more intense in areas with higher circulation.

[8] Weinberg and Weinberg, (1961) and DeNevi and Friend, (1973). We used Voteview version 3.03c.

[9] 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."

and to votes on issues that relate to domestic policy.[10] When votes on the same bill occurred in both legislative chambers, we included both votes, even if only one was classified as "Regulation."[11]

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

2.2 Issues Covered in Muckraking Magazines

To measure coverage of issues that are relevant to legislation, we examine all of the famous muckraking articles. We start from the book *The Muckrakers*, which categorizes and reprints 27 notable muckraking articles and also includes an uncategorized bibliography listing 98 important but less notable muckraking articles.[12]

Based on a reading of the notable articles, and a review of the less notable ones, we construct a measure of whether a regulatory issue was muckraked. We assign a value of 1 if the regulatory issue was covered in muckraking magazines, and zero otherwise. This number is provided in the last column of Table 1. As Table 1 shows, 23 of 40 House votes were subject to discussion in the muckraking magazines, while 28 of 34 Senate votes were muckraked.[13]

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

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

[12] The Weinberg and Weinberg (1961) categorization appears in the table of contents and is as follows: "Behind Political Doors," which we have labeled government corruption, and which includes the subcategories "The United States Senate," "The United States House of Representatives," "The State," "The City," "The Ward," and "Bureaucracy;" "Poison—Beware!," which we have labeled food and drug, and which includes the subcategories "Patent Medicine" and "Pure Food;" "People in Bondage," which we did not use, and which covered racial issues; "High Finance," which included the subcategories "Mother of Trusts," which we have labeled monopoly; "Stock Market," "Insurance," and "Railroads," to which we added the further subcategory "Water Power," due to the preponderance of articles on water power; "The Church," which we did not use; "Prisons," for which we focused on prison labor and labeled as such; "Labor," including the categories "Workmen's Compensation" and "Child Labor," and to which we added a further subcategory, "Working Hours;" and, finally, "Vice," for which we focused on liquor, and labeled as such.

[13] In an earlier version of the paper, we introduced in addition to a 1/0 coding of whether an article was muckraked a subjectively coded measure of the intensity of muckraking. Since our results were qualitatively and quantitatively similar with both measures, in this version we have used the more objective muckraking

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

We also construct a measure of cross-district differences in exposure to articles in muckraking magazines. Here we exploit the fact that we have been able to assemble detailed data on circulation by city/town for *McClure's*, one of the most prominent muckraking magazines of that era, which had circulation figures over this period ranging from 360,000 to over 500,000 per issue. In 1917 *McClure's* published a detailed breakdown of its circulation, providing circulation not only by state but also for every town with a population greater than 5,000 people. Figure 1 provides a first glimpse at the heterogeneity in circulation, here aggregated to the state level to illustrate cross state differences. *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).

Table 2 provides summary statistics on the circulation that we focus on for our tests, which is the more finely disaggregated circulation per district, which averaged 1,330 per district. At that time the average size of an electoral district had 193,200 people, so on average slightly less than 1% of the inhabitants bought *McClure's*. This figure, though, vastly understates the potential importance of muckraking magazines such as *McClure's.* On the one hand, Fitzpatrick (1994) estimates that muckraking magazine readership was up to six times their circulation. On the other hand, only 15% of the population voted and people who read *McClure's* were probably more likely voters.

Importantly, there is significant cross-district variation in circulation, with a minimum level sales per district of 90 (North Dakota (2^{nd})), sales of 584 at the 25^{th} percentile (Pennsylvania (12^{th})), 991 at the median (Maine (3^{rd})), 1,641 at the 75^{th} percentile (Ohio (8^{th})), and a max of 11,284 (California (7^{th})). While the highest sales are in the West , they are also present in the South (593 in the South Atlantic, 458 in East South Central and 825 in West South Central).

To construct the district-level circulation we aggregate the circulation by town and county by utilizing additional information on the geographic boundaries of districts using the Historical Atlas (Maris 1982), by county and sometimes town, or even specific city

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dummy.

blocks, where necessary. 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] For a number of our tests we divide this number by the average population per district to express circulation as a percentage of average district population.[15]

2.4 Voting Behavior

We seek to test whether the public attention generated by muckraking forced representatives to vote more frequently in favor of regulation that served the interest of broad dispersed groups. This is not straightforward, since there is no obvious, non-arbitrary way to determine where the general interest lies with respect to each piece of legislation.

To address this problem, we begin by assuming that pieces of legislation supported by a higher proportion of Democrats than Republicans are more likely to be in the interest of consumers. Thus, we label as "consumer-oriented" any legislation where the percentage of Democrats voting in favor exceeds the percentage of Republicans voting in favor by at least 10 percentage points. If the difference between the two percentages is less than 10 percentage points we drop this vote from the sample (11 House votes and 4 Senate vote are dropped as a result). If the percentage of Republicans voting in favor exceeds the percentage of Democrats voting in favor by at least 10 percentage points, we label this as "not consumer-oriented" legislation. Of the 30 remaining pieces of legislation, 12 are labeled consumer-oriented. We then classify each representative's vote on each piece of legislation as consumer-oriented if he voted in favor of a pro-consumer legislation or against an anti-consumer proposal. As Table 2 panel A shows, in the House 47% of the votes are pro-

[14] The source for geographic boundaries of districts is Maris (1982).

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

consumer. Our main test is whether the exposure to muckraking of the constituents of a representative positively affects the probability this representative will cast a pro-consumer vote.[16]

To address the arbitrariness of this classification in a previous version of the paper[17] we tested instead whether muckraking led representatives to vote differently from how they normally voted,[18] and we obtained very similar results. In addition, in an unreported

[16] Although there was certainly nothing like a direct one-to-one connection between party affiliation and consumer orientation during the Progressive Era (in fact, many of the most notable reformers during this period were Midwestern Republicans, often characterized as "insurgent Republicans"), the relevant historical literature suggests that Democrats in Congress tended to vote more regularly for reform measures than Republicans, especially after 1910. Romero (2007) reports, for example, that "[b]ackground literature suggests that the institutional characteristic most likely to have influenced reform support [during the Progressive Era] is the partisan makeup of the chamber, indicating in particular the significance of Democrats and insurgent Republicans" (p. 822). Similarly, in characterizing partisan orientation in Congress on reform legislation during the Progressive Era, Allen and Clubb (1974) write, "Democrats tended to support progressive reform legislation most consistently, and most Republicans opposed these same reform measures" (p. 133). See also McDonagh (1992) and Sanders (1999). However, because the party-based classification system used here is far from perfect (and it ends up filtering out some famous examples of consumer-protection legislation), we also employed an alternative method in an earlier version of the paper, which did not rely on partisan margins of victory in classifying regulatory legislation as consumer oriented or not consumer oriented. We report on this in the text immediately below and the next footnote.

[17] See our NBER working paper, Dyck, Moss and Zingales (2008). In particular, from pp. 13-14:

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

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

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

"In Table 3 we regress each individual vote in all "regulatory" bills on a representative fixed effect and an indicator variable for issues that were muckraked… In an issue that was actively muckraked (muckraking variable equal to 1), a representative vote moves "to the left" by an amount equal to 73% of the mean value of the x-coordinate."

[18] To compute this deviation, we exploited the fact that political scientists have already developed measures that

regression we classify as pro-consumer votes only those where a majority of northern Democrats was in favor. The results are similar.

Besides the exposure to muckraking, as determinants of pro-consumer votes we also use the x and y co-ordinate developed by Keith Poole and Howard Rosenthal. They gathered all of the data on voting behavior in roll call votes in the US Congress and, based on this data, identified two factors, which they call the x coordinate (and label "ideology") and the y coordinate (which they label "geography"), that predict votes. The value of these variables is summarized in Table 2 with panel A presenting summary statistics for the House vote regressions in Table 3 and panel B presenting summary statistics for the Senate regressions in Table 4.

2.5 Results for House Votes on Regulatory Legislation

In Table 3 we focus on House votes on regulatory legislation. Specifically, we estimate a probit model of the probability that representative *j* will cast a pro consumer vote on issue *k*:

$$\text{Prob}\left\{V_{jk} = 1\right\} = f\{X_j, X_k, m_{jk}\}$$

where X_j and X_k are representative-specific and issue-specific control variables (including the x and y coordinates) and m_{jk} is the exposure to muckraking of district *j* in issue *k*. The coefficients reported are the marginal effect computed at the average value of the independent variables.

Column 1 presents the basic specification, with the level of sales of McClure in the district standardized by population, the Poole and Rosenthal x and y coordinates, two dummy variables for Republican and the Third Party, and a dummy variable equal to one if an issue was muckraked. In addition, we insert nine census division fixed effects (coefficients not reported). The standard errors are clustered at the congressional district level.

Not surprisingly, the x-coordinate is highly significant. A higher value of the x coordinate, which ostensibly corresponds to a more right-wing ideological position,

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they claim capture the 'normal' voting behavior of representatives. The results (see Table 3 from the NBER version of our paper) were very consistent.

decreases the probability of a pro-consumer vote. A higher value of the y coordinate, which captures geography, increases the probability of a pro consumer vote, but the effect is marginally significant. The Republican and Third Party dummies are not statistically significant , which is not surprising since we control for the x-coordinate.

As expected, the muckraking dummy has a positive and statistically significant effect on the probability of a pro-consumer vote (a 3 percentage point increase, equal to a 6 percent increase). This positive correlation, noted by several historians, lies at the heart of the existing belief that muckraking contributed to the progressive era legislation. It does not, however, address the question of causality. It could be that muckrakers focused on topics where the sensitivity was already high and where a pro-consumer vote was more likely, regardless of what they published.

More compelling (and more direct) evidence of the impact of muckraking would be to show that this effect is stronger for congressmen elected in districts where muckraking magazines were more highly diffused. This is what we show in column 2, where we insert the level of sales of *McClure's* in different districts. A one standard deviation increase in the circulation of *McClure's* in the district leads to a 4 percentage point increase in the probability of a pro-consumer vote (a 9 percent increase with respect to the sample mean).

A one standard deviation in McClure's circulation corresponds to 1,187 people. Can 1,187 more informed people have such impact? According to Campbell and Jurek (2003) Table 2, in the period 1900-1924 the median victory spread in a congressional margin was 11.8%. Since the average district had a population of 193,200 and only 15% of people voted (based on presidential elections), the median congressional election was decided by 1,700 people. Fitzpatrick (1994) estimates that at that time muckraking magazine readership was up to six times their circulation. Thus, a one standard deviation increase in circulation of a muckraking magazine implied that 7,122 more people in a congressional district were informed about an issue. Even assuming that half of them were women who did not vote at that time and only half of the male readers' voting preferences shifted as a result of the information contained in the muckraking magazine, a one standard deviation in circulation would potentially be able to move 1,780 voters, i.e. a sufficient number of voters to change the results in at least half of the congressional elections.

Finally, in Column 3 we insert an issue fixed effect. If there are topics where

everyone tends to vote more pro-consumer, this should be captured by these fixed effects. The results are unchanged.

2.6 Evidence from Senate Votes on Regulatory Legislation

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

To assess the strength of this alternative interpretation, in Table 4 we test the same specifications of the determinants of voting behavior on regulatory legislation applied to members of the Senate as opposed to the House. Until 1913 most senators were appointed by state governors, not elected. Therefore, they reflected the prevailing ideology in the state, but they were not necessarily sensitive to voters' pressure. If the muckraking magazine circulation is just a proxy for the component of the prevailing ideology in a certain area that is not captured by the Poole and Rosenthal coordinates, then this circulation should also affect the way senators voted, since they should share the same ideology. By contrast, if elected officials simply react to the voters alertness created by the muckraking articles, then appointed senators should not necessarily be affected in their votes by the muckraking magazine circulation.

In Table 4 we re-estimate the same specification as in Table 3 by using the Senate regulatory votes, the only difference is that we cluster the standard errors at the state level because this is a state-level regression. As columns 1-3 show, the diffusion of *McClure's* in the state did not increase the probability of a pro-consumer vote. In all columns this measure has a negative effect, sometimes statistically significant. The interaction of this variable with the issues that are muckraked has a positive coefficient, but it is never statistically significant. This result is consistent with the hypothesis that *McClure's* circulation has no

effect on the probability of a pro-consumer vote of non-elected officials.

The best evidence of the differential response of elected and non-elected officials, however, can be obtained by looking at changes in behavior in the senate as more senators were elected. Even before the introduction of the Seventeenth Amendment there was a movement at the state level to increase accountability of senators. Oregon was the first to introduce provisions in the state legislature and constitution (later collectively called the Oregon plan) to ensure that its U.S. senators were directly elected, rather than appointed. By 1911, 20 states had adopted similar plans, and a variety of other states had taken smaller steps in the same direction.

Did senators who expected to face an election behave in a different way? To test this hypothesis in the last two columns of Table 4 we split the sample between unelected senators and senators coming from states with a provision for direct election by 1911. As we can see, the interaction between muckraked issues and circulation of muckraking journal is positive and statistically significant only among elected senators. This evidence illustrates the mechanism through which this influence takes place. Elected officials are sensitive to informed voters, and media help voters become informed even on issues where their direct interest in being informed is minimal.

This test helps to alleviate the concern that our results are driven solely by the fact that the muckraking magazine circulation is a proxy for the prevailing ideology in a certain area. Yet, it is still possible – albeit unlikely – that our results are driven by the fact that muckraking magazine circulation is a proxy for some voters' preferences that are not captured by a senator's party affiliation or by his Poole and Rosenthal coordinates.

Stromberg's (2004a and b) shows that media are effective in informing interested voters about the policies that benefit them directly. We show here that the point is more general and applies also to public interest policies where no voter has any significant personal interest. While this distinction seems small, its implications are big. If media are effective only in informing interested voters, then they will cater to special interests, exacerbating the problem identified by the ETR. If, by contrast, media are also effective in informing voters about issues of public interest, then media can be a countervailing force to special interests in the regulatory arena.

3. Evidence from Votes on the Seventeenth Amendment

In this section we introduce an additional test as a further attempt to address the potential competing interpretation for our findings that media attention is just capturing demand for information.

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

In line with this public concern, legislators took steps to amend the Constitution to mandate 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.

3.1 "Treason of the Senate" and the Seventeenth Amendment

In between the two votes on the proposed amendment, more precisely in 1906, *Cosmopolitan* magazine published the above-mentioned "Treason of the Senate" series, a major expose of corruption in the Senate.

To explore whether exposure to the stories in this series influenced senators' voting patterns, we take advantage of the fact that we have information on the sales of *Cosmopolitan* magazine by state. This information was difficult to assemble as *Cosmopolitan* did not keep such records. Fortunately, in 1914 the Audit Bureau of

Circulation was created to measure circulation of newspapers and magazines across the country. We contacted the Audit Bureau and assembled the data for the first year available for *Cosmopolitan* (1915). We paired this information with data from the census on population per state, which was available for 1910 and 1920, and we took the average value for 1915. In the key regressions presented below, our measure of the diffusion of muckraking is the number of copies of *Cosmopolitan* sold in a state in 1915 divided by the state population in 1915 (in thousands of people).

Figure 2 illustrates the diffusion of *Cosmopolitan* by state, measured by number of copies sold per thousands of people. On average, *Cosmopolitan* sold 11 copies per thousand inhabitants and *McClure's* 6 (Figure 1). But there was a wide dispersion. Both magazines were sold more in the West and in the Northeast, while they were less present in the South. As is evident in comparing the Figures, there was quite a large overlap between *McClure's* and *Cosmopolitan* circulation, with a correlation of 0.91.

To increase our confidence that we are estimating the effect of differences in the availability of information about corruption of the Senate, it is important to control for other factors that may have influenced senate voting behavior. Two relevant issues are (a) the presence of provisions for direct election already at the state level as mentioned earlier [19] and (b) increased awareness of the U.S. Senate at the state level arising from other sources, such as a sharply contested or disputed selection process.[20] To capture these two issues we include two variables: a dummy variable that identifies whether the state had moved toward direct election of senators on its own (i.e., adopted the so-called Oregon plan) by 1911, and a dummy variable equal to one if the state experienced a contested selection prior to 1911.

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

In the first column of Table 6 we estimate a simple probit model of the probability a senator voted in favor of the Seventeenth Amendment as a function of Poole and Rosenthal

[19] Between the votes in 1902 and 1911, 20 states had adopted similar plans to the Oregon plan.

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

x and y coordinates and a Republican Party dummy (there were no third party senators). As an additional control for regional effects on voting, in the first four columns we use the 9 census division dummies. Some of these dummies perfectly predict the vote, so we lose 20 observations. For this reason in columns 5 to 8 we re-estimate with the six macro region dummies (New England, North East, South East, North Central, South Central and West). The coefficients reported are the marginal increase in the probability of a 'yes' vote calculated at the average value of the independent variables. "Right wing" senators (high x-coordinate) were less likely to vote in favor of Seventeenth Amendment, while senators with a higher value of the y-coordinate were more likely to vote in favor. Interestingly, controlling for their x-coordinate, Republican senators were more likely to vote for the Seventeenth Amendment (i.e., progressive Republicans were in favor).

In column 2 we insert the circulation of *Cosmopolitan.* Senators from states where *Cosmopolitan* was more diffused are 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 35 percent. This effect persists when we control for other possible determinants of the vote. In column 3 we insert a dummy equal to one if a senator came from a state with some provision for direct voting, and a dummy equal to one if a senator's most recent selection was contested. The coefficient of the diffusion of *Cosmopolitan* is unchanged.

Even if we control for regional dummies, *Cosmopolitan's* level of sales might just pick up any variable with a similar geographical concentration. It would be useful to have a another magazine, with a similar pattern of concentration, that did not cover the *Treason of the Senate,* to use in the regression as a "placebo". *McClure's* is such a magazine. 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 4 we insert this variable. The effect of *Cosmopolitan* is substantially unchanged.

In columns 5-8 we re-estimate the same specifications with 6 regional dummies, which allows us not to lose 20 observations. The results are substantially unchanged, even if the magnitude of the coefficient dropped by half.

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 the "Treason of the Senate" series.

Fortunately, in 1902, senators voted on essentially the same amendment. If the relationship visible in 1911 were spurious – that is, if senators from states with high diffusions of *Cosmopolitan* were more inclined to vote for the amendment, regardless of the muckraking articles that appeared in 1906 – then one would expect the same basic pattern of voting in 1902 as well. But this did not prove to be the case. In unreported regressions, we find that the estimated effect of the diffusion of *Cosmopolitan* on the 1902 vote is often negative (not positive) and is never statistically significant.[21]

In Table 7 we look at changes in voting behavior between 1902 and 1911. In this way, any state characteristics that did not change over time are controlled for. In the first four columns we look at changes in the votes of senators from the same state, while in the last two we look at the change in vote of the same senator if he was not replaced in the interim. For this reason, the number of observations in the final specification 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[22]. Column 1 reports results where the only explanatory variable for the change in voting behavior is exposure to the "Treason of the Senate" series, measured by the circulation/state population of *Cosmopolitan.* The diffusion measure has a statistically and economically significant impact on the probability of switching to a 'yes' vote.

In column 2 we control for two other factors that also changed between 1902 to 1911, the possibility that the state introduced provisions for direct election, and the possibility that the state experienced a contested selection of a senator. These controls increase slightly the economic and statistical significance of the diffusion measure. In

[21] Regression omitted for space reasons, available from the authors upon request.

[22] The standard ordered probit (see for example *Stata*) imposes what is called the parallel regression assumption, i.e., the effects of the explanatory variables do not vary with the point at which the categories of the dependent variable are dichotomized. Our results are robust to a more general formulation, the generalized ordered probit introduced by Maddala (1983) and Terza (1985)..

column 3 we introduce an additional control of the Poole and Rosenthal x and y coordinates in 1911 and a Republican dummy, producing substantially similar results. These controls allow for possible ideological changes between senators coming from the same state.

In columns 4 and 5 we restrict our attention to the 20 senators who were present in the Senate both in 1902 and in 1911. We re-estimate the same model where the dependent variable is change within senator and find similar results for the importance of muckraking magazine's circulation on voting behavior. Indeed, the effect is even larger. Given that they are the same people there is no need to control for individual effects, and controlling for direct and contested elections leads to larger coefficient estimates for diffusion in column 6.

In sum, the diffusion of *Cosmopolitan* in a state seems to have influenced its senators' position on the Seventeenth Amendment. One possible reason why all senators, not just the elected ones, are more sensitive now is that if the amendment is successful, they will all face scrutiny by the public. This effect does not seem to be driven by a spurious correlation between diffusion of *Cosmopolitan* and political preferences, since the diffusion of *Cosmopolitan* in a senator's state does not have any predictive power on his 1902 vote on the same issue, and the effect is present even when we control for the diffusion of a similar magazine (*McClure' s*) that did not publish the "Treason of the Senate" series. More telling, the probability a senator *changed his vote* between 1902 and 1911 is correlated with the diffusion of *Cosmopolitan* in his state. It is difficult to explain both the House and Senate evidence on regulatory issues and the change in Senate vote on the Seventeenth Amendment without a role of the media in influencing voting behavior of elected representatives.

4. Implications for the Economic Theory of Regulation

During the muckraking period, the media had a powerful effect in promoting regulation. This does not imply that the media always has this impact nor that all the regulation passed under the media pressure was beneficial to consumers. The natural question, then, is when media are more or less likely to play this role as a countervailing force. Answering this question provides a positive theory of regulation. Our historical examination suggests three additional factors need to be considered.

First, both the interest and the ability of media to inform voters on an issue are directly linked to the "*newsworthiness*" of that issue. Some issues, such as the safety of the

water we drink, are by their nature more conducive to "entertaining stories" (e.g., the movie Erin Brockovich). On this type of issue, media coverage can more easily shift the balance of power in favor of broad, dispersed interests. In fact, it can even drive politicians to take up "populist" initiatives. Yet, the implementation of regulation is much less newsworthy, explaining why Congress can be pushed by public opinion to approve pro-consumer legislation, which later, in the implementation phase, may be wholly or partly captured by vested interests.

Although it is difficult to say with precision what makes an issue "newsworthy", two factors that likely make an issue more newsworthy are (1) when it is novel and (2) when it seems out of the ordinary. With respect to the first factor, regulation that serves broad and dispersed interests is more likely to be enacted when the underlying issue is novel or when a new means of communication puts an old issue in a new light (e.g., as the rise of television did for natural disasters). Indeed, it may be more than a coincidence that each of the three major eras of policy reform in the twentieth century (the progressive era, the New Deal, and the Great Society) immediately followed the introduction of a new technology for mass communication (national periodicals, radio, and television, respectively). Similarly, news that is out of the ordinary is more likely to attract attention than coverage that is familiar. This may help to explain why public demand for regulation sometimes seems to be directed towards addressing the exception, rather than the norm, including very low probability events, such as shark attacks (Sunstein and Zeckhauser, 2010).

More broadly, in the framework we have used in this paper, the media are motivated to convey information to the public out of a desire to maximize profits. This is the likely goal of media whose ownership is dispersed or whose large shareholders own only (or principally) media companies. By contrast, when controlling shareholders in media companies have a vested interest in industry (e.g., they also own regulated firms outside of the media sector), or if they have a specific political goal, the media might pursue a different agenda. Where media are concentrated in the hands of industrial interests, their populist impulse (i.e., to appeal to a broad group of consumers) may be outweighed by the particular political interests of their owners (e.g., to avoid regulation of their industry). In such a situation, not only can the media lose their beneficial role, but they may actually serve or become part of the so-called factory of consensus dreaded by Herman and Chomsky (1998).

If we assume that domestic owners of media outlets are more likely than foreign ones to have political objectives (beyond pure profit maximization), this observation can help to explain why corruption is negatively correlated with foreign ownership of the media (Besley and Prat (2006)) and with government ownership of the media (Djankov et al, 2003).[23]

Third, we have assumed that profit maximization derives from sales maximization while the most important source of revenues for modern media is advertising, not sales. Interestingly, early muckraking magazines relied almost exclusively on sales (which may help to explain their activism). Very often advertising revenues follow circulation and the two goals coincide. Yet to an advertiser, the value of an audience is driven by its aggregate purchasing power. Hence, smaller more wealthy groups can receive more media attention than larger, but less wealthy ones. This suggests that even when the media play a large role in presenting information on particular issues, and thus blunt the influence of large incumbents, they may still cater to the interests of a relatively affluent constituency.

Sales maximization also can diverge from profit maximization when advertisers have some market power over the media outlet. Reuter and Zitzewitz (2006), for example, find that financial advice is biased in favor of advertisers in publications with a more concentrated set of advertisers. The idea is that in these publications, the power of a media outlet to resist the pressure of each advertiser is reduced. A more concentrated set of advertisers may thus lead to a less inquisitive press and, in turn, to a less informed electorate and thus to political decision making that is more responsive to private interests. Regardless of a country's internal industrial structure, its set of potential advertisers is generally larger if its economy is open. Hence, the opening up of an economy may provide an additional benefit, reducing advertisers' power vis-à-vis the media, thus freeing the media to inform the public.

All of these factors help to explain why muckraking arose, flourished, and subsided at the time it did. As Glaeser and Goldin (2006) argue, at the beginning of the 20th century major technological innovations made magazine production dramatically cheaper, opening up a large market for periodicals, a market made even larger by the increasing level of literacy. The muckraking magazines, initially literary publications, discovered the marketing

[23] Of course, not all foreign owners of media outlets are devoid of political objectives, as critics of Australian-born Rupert Murdoch (and his American Fox network) regularly make clear. Murdoch became a naturalized citizen in the United States in 1985.

power of investigative journalism driving their remarkable and rapid increases in circulation. The muckraking magazines' success, however, reduced the newsworthiness of additional inquiries, saturating the public with news of scandals. Their success in building circulation also led to increased opportunities to advertise and thus increased influence of advertisers, who were likely less than enthusiastic about investigative pieces critical of business.

If profit-maximizing media have the potential to inform the public and thus to limit the power of special interests, then the cycle just recounted – of new communications technology, followed by vigorous investigative journalism to build market share, and finally by retreat from aggressive investigation – may help to explain why major reform initiatives tend to be episodic and why (in the U.S. at least) the key reform eras of the twentieth century (Progressive Era, New Deal, and Great Society) tended to follow the introduction of major new communications technologies (mass printing, radio, and television, respectively).

5. Conclusions

The economic theory of regulation emphasizes the power of the narrow, concentrated interests over broad, dispersed ones. In this paper we argue that a missing element from this theory is the role of profit-maximizing media. In representative democracies, profit-seeking media increase the relative power of broad, highly dispersed groups, by reducing their cost of becoming informed. Motivated to reach big audiences by the lure of large profits, media firms typically seek to transform real events and issues – including public policy issues – into entertaining stories. In so doing, they end up informing the public about these issues and events, thus helping to overcome the problem of rational ignorance highlighted by Downs (1957). By informing voters, media help to make elected representatives more sensitive to the interests of their constituencies and less prone to excessive influence or capture by special interests. Several characteristics of the media market help determine to what extent the media will be a countervailing force to private interests and to what extent they themselves will be captured.

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

The results point toward a revised economic theory of regulation able to differentiate where and when vested interests will prevail. Our analysis suggests that vested interests will have less influence over the legislative agenda on issues that are more “newsworthy”. They will also have less influence when media ownership and advertising budgets are less concentrated.

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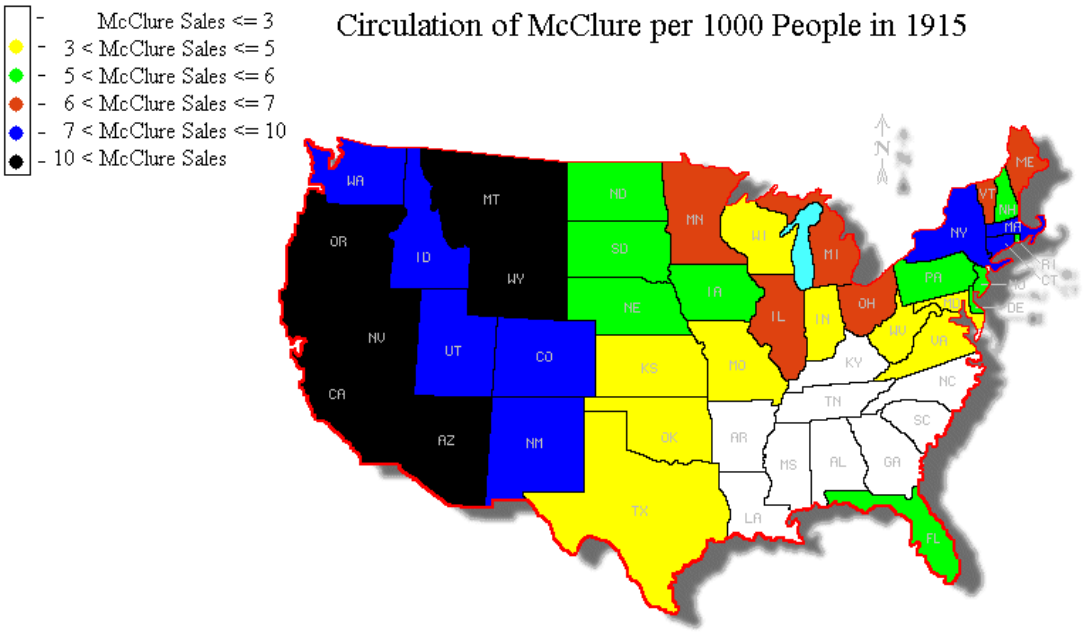
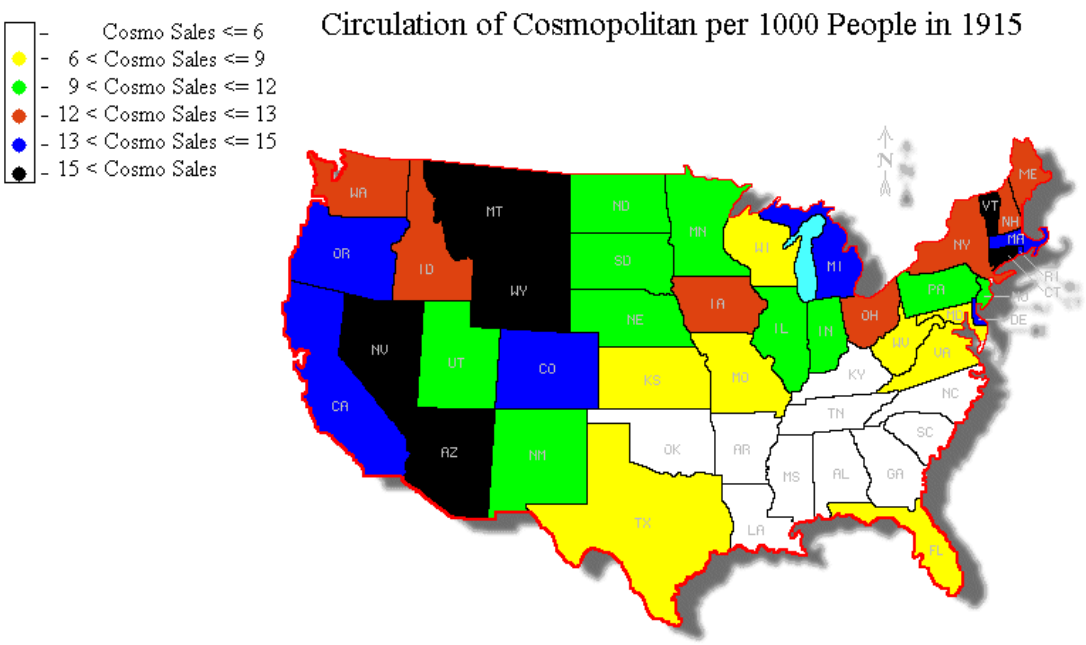
Figure 1: Geographical Diffusion of *McClure's*



Source: McClure's (1917), Historical Statistics of the United States.

Figure 2: Geographical Diffusion of *Cosmopolitan*



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

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

Domestic regulatory legislation with final roll call votes between 1902 and 1917. This sample includes all votes in the VoteView dataset labeled as regulation (regulation general interest, regulation special interest) introduced by Poole based on Pelzman's classification. 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 the issue central to the vote was featured in 'muckraking' magazine articles described in more detail in the text.

Date	Chamber	Subject	Muckraking dummy
31-Jan-02	House	Subject oleomargine to state laws	0
17-Mar-02	Senate	Ocean mail service and deep-sea fisheries	0
03-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
07-Feb-03	House	Protect commerce ag. Monopolies	1
13-Feb-03	House	Regulate interstate commerce	1
02-Mar-03	House	Laws concerning tobacco	0
03-Mar-03	House	Vet. Pref. For civil appts.	0
01-Mar-04	Senate	Require employ us vessels for pub purposes	0
06-Feb-05	House	Regulate railroad rates	1
09-Feb-05	House	Regulate railroad rates	1
21-Feb-06	Senate	Prevent food/drug/liquor misbrand (pass)	1
02-Apr-06	House	Laws abt. fortification of pure sweet wines	0
02-Apr-06	House	Laws abt. fortification of pure sweet wines	0
23-Jun-06	House	Pure food and drugs	1
10-Jan-07	Senate	Promote safety on rails...limit employ service hours (pass	1
18-Feb-07	House	Limit hours of serv. railroad employees	0
06-Apr-08	House	Liability of common carriers	1
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
08-Jul-09	Senate	Provide gov rev..equalize duty..encourage us indust (pass)	1
03-Jun-10	Senate	Reg interstate commerce (pass)	1

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

Date	Chamber	Subject	Muckraking dummy
15-Feb-11	Senate	Protect watersheds--appt comm to acquire land	1
08-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
01-Aug-11	Senate	Place var. Items on free list (pass)	1
01-Aug-11	Senate	Place var. Items on free list (pass)	1
03-Aug-11	House	Reduce duty on cotton goods	1
17-Aug-11	Senate	Reduce cotton manufacture duty (pass)	1
29-Jan-12	House	Equalize duties	1
21-Feb-12	House	Equalize duties	1
15-Mar-12	House	Equalize duties	1
19-Mar-12	House	Extend special excise tax	0
01-Apr-12	House	Reduce duties on wool and woolen goods	1
06-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
26-Jul-12	Senate	Extend special excise tax (pass)	0
27-Jul-12	Senate	Provide rev… equalize duties..encourage indust	1
02-Aug-12	House	Duty on cotton manf.	1
14-Aug-12	Senate	Reduce duty on cotton manufactures (pass)	1
11-Jan-13	Senate	Prohib interstate commerce of liquor (prc.)	1
08-Feb-13	House	Interstate shipment of liquor	1
01-Mar-13	House	Workman's compensation in d.c. and interstate commerce	1
09-Sep-13	Senate	Provide gov rev...equalize duties (pass)	1
02-Feb-14	Senate	Interst commerce comm advise gov institute suits (pass)	1
04-Mar-14	House	Regulate convict labor made goods	1
01-May-14	Senate	Inspect grain in interst commerce (pass)	1
05-Jun-14	House	Regulate interstate commerce	1
04-Aug-14	House	Regulate construction of dams	1
05-Aug-14	Senate	Create interstate trade comm..def power (pass)	1
02-Sep-14	Senate	Anti-trust regulations (pass)	1
04-Jan-15	House	Uniform grain grading	1
13-Jan-15	House	Define stand. Barrel for fruits and vegs. Export	0
02-Feb-16	House	Prohibit child labor items from interst. Commer.	1
16-Feb-16	Senate	Committee for interstate commerce (pass)	1
08-Mar-16	Senate	Reg dam construct (pass	1
20-May-16	House	Develop merch. Marine for u.s. commerce	1
08-Aug-16	Senate	Prevent interst commerce of child labor prods (pass)	1
18-Aug-16	Senate	Merchant marine bill (pass)	1
01-Sep-16	House	8 hour day ppl in interstate commerce	1
02-Sep-16	Senate	Est 8 hour day carrier employs	1
05-Sep-16	Senate	Increase rev re duties (pass)	1
05-Sep-16	Senate	Report re tariff—prot indust + prevent monopoly	0
04-Jan-17	House	Water may be diverted from Niagara falls	1

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

Summary statistics for the variables included in the regressions in Tables 3 and 4. In Panel A the sample is based on the voting behavior of the U.S. House Representatives on 40 final roll call votes on domestic regulation legislation from 1902 to 1917. In Panel B the sample is based on the voting behavior of U.S. Senators on 34 roll call votes call from 1902 to 1917. The Poole and Rosenthal x and y coordinates represent a measure of a representative's ideology and geography based on his voting record over his career up to that point. Reported circulation is the circulation of *McClure's* magazine in the district (panel A) and the state (panel B). The muckraking dummy equals one when an issue has been covered in one of the muckraking magazines (see Table 1).

Panel A - Summary Stats for Table 3 House Regulatory Vote Regressions

	Observations	Mean	Standard Deviation	Min	Max
Pro-consumer vote	7497	0.47	0.499	0	1
X coordinate	7497	0.028	0.478	-0.905	0.987
Y coordinate	7497	-0.030	0.512	-1.268	1.342
Republican dummy	7497	0.473	0.499	0	1
Third party dummy	7497	0.008	0.088	0	1
Circulation in district	7497	1330	1187	90	11284
Circulation as percentage of avg. district population	7497	0.689	0.614	0.047	5.84
Muckraking dummy	7497	0.634	0.482	0	1
Circulation as percentage of population interacted with muckraking *100	7497	0.432	0.581	0	5.841

Panel B - Summary Stats for Table 4 Senate Regulatory Vote Regressions

Variable |	Observations	Mean	Standard Deviation	Min	Max
Pro-consumer vote	2161	0.523	0.499	0	1
X coordinate	2161	-0.001	0.435	-1.22	0.821
Y coordinate	2161	-0.227	0.6389	-1.381	1.386
Republican dummy	2161	0.518	0.500	0	1
Third party dummy	2161	0.003	0.053	0	1
Circulation in state	2161	11265	13681	1106	78242
Circulation in state/population in 1910	2161	0.651	0.357	0.162	1.526
Muckraking dummy	2161	0.805	0.396	0	1
Circulation as percentage of population interacted with muckraking *100	2161	0.526	0.414	0	1.526

Table 3: Impact of Muckraking on House Regulatory Votes

The sample is based on the voting behavior of the U.S. House Representatives on 40 final roll call votes on domestic regulation legislation from 1902 to1917. The dependent variable is a dummy variable that takes a value of 1 if it is a consumer-oriented vote and 0 otherwise. We classify a vote as consumer-oriented if the percentage of Democrats who vote in favor of the vote exceeds the percentage of Republicans who vote for it by 10 percentage points. Votes for which the difference is less than 10 percentage points are excluded. (For further discussion of this approach, see footnote 16.) Explanatory variables include a 'muckraking' dummy for legislation that is featured in muckraking magazines from Table 1, the circulation of McClure's in the congressional district/population, an interaction of muckraked legislation with magazine circulation in the district. Controls include the representatives' x and y coordinates from Poole and Rosenthal, and dummies for party affiliation of Republican and third party dummies with Democrat the excluded category. There are 9 census division fixed effects. All of these controls are also interacted with the muckraking dummy in columns 2 and 3. The coefficients reported are the marginal effect of a probit estimation computed at the average value of the independent variables. The standard errors (reported in brackets) are heteroskedasticity robust and clustered at the Congressional District level. Column 3 includes an issue fixed effect. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)
Interaction of muckraked		7.405***	7.572**
and circulation		(2.506)	(3.568)
Muckraked legislation	0.0296**	0.252***	
	(0.0120)	(0.0800)	
Muckraking magazine circulation	5.388***	0.719	0.464
divided by population	(1.364)	(1.708)	(3.098)
X co-ordinate	-0.897***	-1.177***	-1.362***
	(0.0641)	(0.129)	(0.170)
Y coordinate	0.0286*	0.0101	-0.00169
	(0.0166)	(0.0328)	(0.0464)
Republican dummy	-0.0535	0.247**	0.188
	(0.0522)	(0.108)	(0.152)
Third party dummy	0.0628	0.0222	-0.0348
	(0.0780)	(0.243)	(0.175)
Census division fixed effects?	yes	yes	yes
interactions of muckraking with P-R coordinates, census divisions, and party dummies	na	yes	yes
Observations	7,497	7,497	7,497

Table 4: Impact of Muckraking on Senate Regulatory Votes

This table is based on the voting behavior of U.S. Senators on 34 final roll call votes on domestic regulation legislation from 1902 to1917. The dependent variable is a dummy variable that takes a value of 1 if it is a consumer-oriented vote and 0 otherwise. We classify a vote as consumer-oriented if the percentage of Democrats who vote in favor of the vote exceeds the percentage of Republicans who vote for it by 10 percentage points. Votes for which the difference is less than 10 percentage points are excluded. (For further discussion of this approach, see footnote 16.) Explanatory variables include a 'muckraking' dummy, the circulation of McClure's in the congressional district/population, and an interaction of muckraked legislation with magazine circulation in the district. All regressions also include controls for a senator's x and y coordinates from Poole and Rosenthal, republican and third party dummies with democrat the excluded category and 9 census division fixed effects. In columns 2-5 regressions include their interactions with the muckraked legislation dummy. Columns 3-5 also include issue fixed effects. In column 4 and 5 we split the sample into those senators from a state with no provision for direct election (column 4) and those states with a provision for direct election (column 5), as of 1911. The reported coefficients are the marginal effects of a probit estimation computed at the average value of the independent variables. The standard errors (reported in brackets) are heteroskedasticity robust and clustered at the State level. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)
Interaction of muckraked		31.99	34.52	-0.562	189.1***
and circulation		(27.85)	(36.94)	(45.55)	(61.74)
Muckraked legislation	-0.0257	-0.390**	-0.388*		
	(0.0377)	(0.162)	(0.212)		
Muckraking magazine circulation	-1.431	-28.82	-36.19	-23.37	-178.9***
divided by population	(7.681)	(21.86)	(29.50)	(35.61)	(63.34)
X coordinate	-0.728***	-1.165***	-1.374***	-1.639***	-1.291***
	(0.183)	(0.265)	(0.319)	(0.392)	(0.485)
Y coordinate	0.0455	-0.0355	-0.0471	-0.425***	0.0296
	(0.0442)	(0.0803)	(0.0996)	(0.143)	(0.157)
Republican dummy	-0.316**	-0.178	-0.0983	-0.281	-0.221
	(0.135)	(0.184)	(0.217)	(0.257)	(0.408)
Third party dummy	-0.189	-0.422***	-0.475***		-0.464***
	(0.185)	(0.0659)	(0.0730)		(0.119)
Issue fixed effects	no	no	yes	yes	yes
States included	all	all	all	all other	direct election
Census division fixed effects?	yes	yes	yes	yes	yes
Interactions of muckraking with P-R coordinates, census divisions, and party dummies	na	yes	yes	yes	yes
Observations	2,161	2,161	2,161	1,238	923

Table 5: Seventeenth Amendment Summary Statistics

This table presents summary statistics for the variables included in the regressions (Tables 6-7) that explore the determinants of voting behavior for the Seventeenth Amendment. 1911 vote is a dummy variable that takes the value '1' if the senator voted in favor of the amendment. Switch is a variable that takes the value -1, 0, or 1 depending on whether the senator's seat moved from a yes to a no vote between 1902 to 1911, remained unchanged (yes to yes or no to no), or went from no to yes. *Cosmopolitan* sales is based on Audit Bureau of 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 had adopted a version of the "Oregon plan" that introduced provisions at the state level for direct election of senators. Contested selection (or election) dummy takes the value 1 if selection (or election) was contested.

Variable	Obs	Mean	Std.	Min	Max
1911 vote (yes=1)	91	0.725	0.449	0	1
Switch between 1902 and 1911	82	0.329	0.649	-1	1
Cosmopolitan sales over pop.(in 000s)	91	10.539	4.903	2.530	26.368
McClures sales over pop. (in 000s)	91	5.772	3.057	1.599	13.887
X coordinate	91	0.025	0.441	-1.220	0.708
Y coordinate	91	-0.278	0.640	-1.343	1.236
Republican dummy	91	0.549	0.500	0	1
State provision for direct election dummy	91	0.440	0.499	0	1
Contested selection (or election) dummy	91	0.220	0.416	0	1

Table 6: Impact of Muckraking on the 1911 Vote

In this table we explore whether senators' votes on the Seventeenth Amendment in 1911 were influenced by the diffusion of information about corruption in the Senate. As a proxy for this we use *Cosmopolitan* sales in the state per citizen of the state (based on Audit Bureau of Circulation data for 1915 and 1915 population, computed as an average of the Census 1910 and 1920 population). Additional explanatory variables include: the x and y co-ordinates of Poole and Rosenthal; a state provision for direct election of Senators dummy variable that takes the value 1 if a state had adopted a version of the "Oregon plan" that introduced provisions at the state level for direct election of Senators; whether the previous selection (or election) was contested and party and regional dummies. In column 4 we include in addition *McClure's* circulation over population. (*McClure's was* a muckraking magazine that did not publish the "Treason of the Senate" series of articles.) Robust standard errors are reported in brackets. These are probit regressions and as a coefficient we report the impact of on the probability of a marginal change in the right hand side variable, calculated at the mean value. The standard errors (reported in brackets) are heteroskedasticity robust and clustered at the State level. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		9 Census division dummies				6 Regional dummies		
Cosmopolitan's circulation divided by population in the state		0.0467** (0.0205)	0.0437** (0.0194)	0.0541** (0.0251)		0.0229* (0.0136)	0.0200* (0.0117)	0.0240* (0.0143)
X coordinate	.315***	-1.107***	-1.023**	-1.097***	-0.643***	-0.513**	-0.463**	-0.515**
	.321)	(0.316)	(0.432)	(0.335)	(0.237)	(0.207)	(0.206)	(0.202)
Y coordinate	419***	0.297**	0.226**	0.281**	0.182***	0.137**	0.116**	0.136**
	.139)	(0.131)	(0.105)	(0.125)	(0.0625)	(0.0631)	(0.0587)	(0.0633)
Senator's direct election dummy			-0.252** (0.117)				-0.0681 (0.0518)	
Contested election for senator dummy			0.107 (0.0898)				0.0618* (0.0373)	
McClures' circulation divided by population in the state				-0.0187 (0.0499)				-0.00263 (0.0216)
Republican dummy	766***	0.595**	0.411*	0.583**	0.463*	0.299	0.189	0.298
	.172)	(0.251)	(0.248)	(0.265)	(0.256)	(0.245)	(0.173)	(0.245)

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

This table explores whether switches in voting behavior by senate seat (columns 1-4) and by the same senator (columns 5-6) are influenced by the diffusion of information about corruption in the Senate. 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 on the Seventeenth Amendment between 1902 to 1911, remained unchanged (yes to yes or no to no), or went from no to yes. We proxy for information about corruption in the Senate using *Cosmopolitan* sales per population, with additional controls for changes that might have influenced senators including whether state had adopted provisions for direct election, whether state had a contested election, x and y coordinates and party dummy to capture possible changes in ideological position of senators, and in column 3 census division fixed effects. The regression is run as an ordered probit. Robust standard errors clustered at the state level are reported in brackets. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)
Cosmopolitan's circulation divided	0.0737***	0.0809***	0.112**	0.206***	0.389**
by population in the state	(0.0275)	(0.0285)	(0.0490)	(0.0792)	(0.165)
Senator's direct election dummy		0.445	-0.765		1.788**
		(0.299)	(0.523)		(0.870)
Contested election for senator		-0.0610	1.659***		-0.810
dummy		(0.323)	(0.487)		(1.077)
X coordinate			-2.864***		
			(0.901)		
Y coordinate			0.0760		
			(0.381)		
Republican dummy			1.442*		
			(0.825)		
Constant	0.594*	0.364	0.180	-0.367	-1.886*
	(0.347)	(0.379)	(1.061)	(0.751)	(1.122)
Census division dummies?	no	no	yes	no	no
Observations	82	82	82	20	20