

DISCUSSION PAPER SERIES

No. 10638

**MEDIA COVERAGE AND POLITICAL
ACCOUNTABILITY: THEORY AND
EVIDENCE**

David Strömberg

PUBLIC ECONOMICS



Centre for Economic Policy Research

MEDIA COVERAGE AND POLITICAL ACCOUNTABILITY: THEORY AND EVIDENCE

David Strömberg

Discussion Paper No. 10638

May 2015

Submitted 22 May 2015

Centre for Economic Policy Research
77 Bastwick Street, London EC1V 3PZ, UK
Tel: (44 20) 7183 8801
www.cepr.org

This Discussion Paper is issued under the auspices of the Centre's research programme in **PUBLIC ECONOMICS**. Any opinions expressed here are those of the author(s) and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as an educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

Copyright: David Strömberg

MEDIA COVERAGE AND POLITICAL ACCOUNTABILITY: THEORY AND EVIDENCE

Abstract

This chapter investigates how media coverage filters information and how this affects political accountability and policy. I first present a baseline model of media coverage and its affect political accountability. The model is used to discuss the welfare consequences of private provision of news. It shows how media regulation and public broadcasting may correct market failures, notably the under-provision of news. The model also supplies an array of testable implications, used to organize the existing empirical work. The key empirical questions are: what drives media coverage of politics; how does this coverage influence the information levels and the voting behavior of the general public, the actions and selection of politicians and government policy?

JEL Classification: D03, D72, H5 and L82

Keywords: media, policy, regulation and voting

David Strömberg david.stromberg@iies.su.se

IIES, Stockholm University and CEPR

Media Coverage and Political Accountability: Theory and Evidence

David Strömberg*

May 22, 2015

Abstract

This chapter investigates how media coverage filters information and how this affects political accountability and policy. I first present a baseline model of media coverage and its affect political accountability. The model is used to discuss the welfare consequences of private provision of news. It shows how media regulation and public broadcasting may correct market failures, notably the under-provision of news. The model also supplies an array of testable implications, used to organize the existing empirical work. The key empirical questions are: what drives media coverage of politics; how does this coverage influence the information levels and the voting behavior of the general public, the actions and selection of politicians and government policy?

1. Introduction

This chapter investigates how media coverage filters information and how this affects political accountability and policy. Because information gathering and transmission is costly, information frictions are unavoidable. By transmitting

*IIES, Stockholm University. E-mail: david.stromberg@iies.su.se.

In preparation for the Handbook of Media Economics, Simon Anderson, David Strömberg and Joel Waldfogel (eds.).

information to mass audiences, the media will lower these frictions. How much they will lower the frictions may depend on factors such as the degree media competition, the size of the market, demand for advertising and delivery costs. This chapter will provide theory and evidence of how media coverage depend on these factors, and what the effects of this are. The chapter models news media that do not conscientiously lie or distort information. Capture and ideological bias are discussed in Chapters [Gentzkow et al.], [Puglisi and Snyder], and [Prat]. This chapter focusses on political accountability effects. It does not cover how the degree and direction of information filtering by news media affects economic outcomes such as investor attention (Merton, 1987) and price stickiness (Sims, 2003). This is discussed in chapter [Tetlock].

This chapter first present a baseline model of how informative media affect political accountability. The model is used to discuss the welfare consequences of private provision of news and how media regulation and public broadcasting may correct market failures, notably the under-provision of news. The model also supplies an array of testable implications, used to organize the existing empirical work. The key empirical questions are: what drives media coverage of politics; how does this coverage influence the information levels and the voting behavior of the general public, the actions and selection of politicians and government policy?

2. Theory

In the standard model of how informative media affect political accountability and policy, there are three classes of actors: voters, politicians and the media. Voters try to elect politicians who will give them most utility, politicians try to get re-elected and perhaps enjoy political rents, and the mass media select political coverage to maximize profits. The model contains two building blocks, the first analyzes the role of information in politics and the second analyzes how media's news selection affects information levels. This set-up has been used in a number of papers (e.g. Besley and Burgess, 2001, 2002, Besley and Prat, 2006, Prat and Strömberg, 2013, Strömberg, 1999, 2001, 2004a,b).

2.1. The role of information in politics

The first building block describes how information from media influences policy. The key role of media is to provide political information. This information increases the responsiveness of votes to the quality and effort of politicians, which

improves political selection and incentives, and eventually policy and welfare.

In these models, the specific type of information provided by media varies. To cast the right vote, citizens need to know who proposes, or is responsible for, what policies, and to what effect. Media matter because they transmit information to voters about any of these facts. In Strömberg (1999), they carry information about who proposes, or is responsible for, what policy. In other models, this is instead information about the incumbent's type with respect to e.g. altruism (Besley and Burgess, 2002), quality – good or bad (Besley and Prat, 2006), or competence (Prat and Strömberg, 2013).

I will use a slightly modified version of the model in Prat and Strömberg (2013) as a basis for the discussion. Rather than restating the full model with these marginal changes, I will here only describe these changes and explain how they modify the results.

The timing of the model is the following. In the first period, nature selects the incumbent politician's type (competence), which remains unknown. The incumbent selects effort, which together with the incumbent's type affects the quality of government policy. Media cover the policy outcome. Voters use information from the media to guide a private action and their voting decision. In the second period, the elected political candidate selects effort and the second-period policy is determined.

I make three modifications to the model of Prat and Strömberg (2013). First, I assume that there is a continuum of voters of size n that all belong to one group. The model of Prat and Strömberg (2013) allows for many groups. The present model is thus a special case of their model. This is because I first want to focus on the total amount of political news coverage rather than the distribution across groups.

Second, I add a parameter a that affects the demand for public spending. The voters' utility from policy derives from their public goods consumption, given by

$$g = a(\theta + e) \tag{1}$$

where θ is the innate ability (type) of the incumbent. This θ is drawn from a uniform distribution with mean zero. The variable e is the amount of government resources spent per capita on the public good by the incumbent. The added parameter a measures the need for spending. This parameter is included in e.g. Strömberg (1999, 2004a,b) and Besley and Burgess (2002). It is needed to show how government responsiveness is affected by media coverage.

Third, I let the utility from the private action be realized before the election,

rather than after as in Prat and Strömberg (2013). The media inform voters of the level of public goods provision, g . This information has a private value for voters because they select a private action whose optimal value depends on government policy. If voters set their private action α equal to the actual level of the public good g , they realize the value T . Otherwise, they receive no utility from the action. If this is realized after the election, then media coverage creates an incumbency advantage. I do not want to focus on this here, and assume that T is realized before the election.

In this model, the political effects are driven by the share s of voters who are informed by the media about the policy outcome g . The following three equations (corresponding to equations 2-4 in Prat and Strömberg, 2013) describe the equilibrium. The vote share of the incumbent is

$$v^I = \frac{1}{2} + s(g - ae^*) = \frac{1}{2} + sa(\theta + e - e^*). \quad (2)$$

The baseline vote share is one half. However, politicians who are more competent than average ($\theta > 0$), or who exert more effort than expected ($e > e^*$), receive a higher vote share. The voting choices of better-informed voters react more to differences in effort, e , and competence, θ , of politicians. In consequence, the electoral outcome becomes more responsive to these differences the larger is the share of informed voters, s .

This increased responsiveness improves political incentives and selection. It can be proven that in a pure-strategy sincere equilibrium, the incumbent selects effort

$$e^* = Bsa, \quad (3)$$

where B is the marginal voter density. The expected competence of re-elected politicians is

$$E[\theta | s] = sa \frac{\bar{\theta}^2}{12}. \quad (4)$$

Both politician effort and competence are hence increasing in the share of informed voters, s .

Voters receive utility from the private action and from public goods consumption. Only the share s of informed voters realizes the value from the private action. Hence, aggregate voter welfare from the private action is nsT . Public goods consumption depends on effort and competence as shown by equation 1. However, the expected public good consumption in period one is simply effort, e^* , because the expected competence in that period is zero. In contrast, the expected public

good consumption in period two only depends on competence, $E[\theta | s]$. This is because it is a dominant strategy for the incumbent to keep all resources in the second period and set effort to zero. Consequently, voter welfare is

$$nsT + n(e^* + E[\theta | s]). \quad (5)$$

We will re-write this as

$$ns(W + T) = ns\theta, \quad (6)$$

where

$$W = a \left(B + \frac{\bar{\theta}^2}{12} \right),$$

from equations (3) and (4) and $\theta = T+W$. Importantly, voter welfare is increasing in the share s of voters informed by mass media.

I finally specify how the share of informed voters s is affected by media consumption and coverage. Let x be the share of media consumers. The probability ρ that a consumer finds the information about g is assumed to be increasing in the amount of media coverage devoted to politics, q . Hence, the share of informed voters is the share x that consumes the media, multiplied by the share $\rho(q)$ that finds the news, conditional on consuming,

$$s = x\rho(q). \quad (7)$$

The following proposition summarizes the effect of informative media on politics.

Proposition 1. *An increase in*

- (a) *the share of media consumers, x , or*
- (b) *the media coverage of politics, q ,*

causes an increase in

- (i) *the share of informed voters, s ,*
- (ii) *the responsiveness of votes to perceived competence,*
- (iii) *the effort (spending) and expected competence of politicians,*
- (iv) *the responsiveness of government effort to need, a ,*
- (v) *and a fall in political rents.*

The letters a-b distinguish the type of media variation, consumption and coverage that causes the media effects. The numbers i-v describe the affected outcomes. Part i follows directly from equation (7), (ii) follows from equation (2), (iii) and

(iv) follow from equations (3) and (4), part (v) follows from part (iii) since rents are decreasing in effort.

The proposition explains how the media improve political accountability. The letters a-b distinguish the type of media variation and the numbers i-iv the affected outcomes. The proposition states that (a) who gets the news and (b) what issues are covered matter for voter information. Informed voters are more responsive to differences in competence across politicians. This improves political incentives and selection and, eventually, the quality of policy.

2.2. Market provision of news

The second building block of the model opens up the black box of information demand and supply. A first question to be answered is why voters demand news about politics. Some political news may be read for entertainment such as scandals and personal details. Other news may be of interest because it influences the individuals' private actions and welfare, for example, the building of a new road, the placement of a new military installation, or the introduction of a school voucher system. Finally, voters may require the information because it helps make the right vote choice. The private action motive is probably most commonly used (e.g. Anderson and McLaren, 2010, Strömberg 1999, 2004a), followed by the voting motive (e.g. Chan and Suen, 2008, Larcinese, 2007).

Our model contains both a private and a social value of information. More exact news about future policies makes it more probable that the reader will take the right private and electoral action. However, the voter only internalizes the private value T . Since there is a continuum of voters, the social value, W , from improved political accountability is not internalized at all.

The expected probability of finding the news, $\rho(q)$, is a function of media coverage, q . Coverage can be increased at a cost. To save on notation, we will analyze the problem directly in terms of ρ , and its associated cost, rather than in terms of q . The expected private value of ρ is $T\rho$, while the expected social value is $(T + W)\rho = \theta\rho$.

A reader's valuation of a newspaper also depends on other pieces of news, and some characteristics that the newspapers cannot change by assumption. This other news is omitted from the analysis.¹ The fixed characteristics include, for

¹If voters' utility from other news were additively separable from news on election platforms, the equations below would still characterize news coverage of the subset of news on election platforms.

example, the paper's editorial stance and the name and logotype of the newspaper. Voter j buys the newspaper if

$$T\rho + \gamma_j \geq p, \quad (8)$$

γ_j captures individual j 's valuation of the exogenous aspects of the newspaper and p is the newspaper price. We assume that $-\gamma_j$ is distributed with the cumulative distribution function $G(\cdot)$ and density function $g(\cdot)$. The share who buys the newspaper is then $G(T\rho - p) = x$. Let the inverse demand curve be $p(\rho, x) = T\rho - G^{-1}(x)$.

2.2.1. Total coverage of politics

Having specified the demand for newspapers, we now turn to their costs. News production is an increasing returns to scale industry. Once the fixed "first-copy" cost of gathering the news, writing and editing of the news stories has been borne, the variable cost of producing an additional copy is just the cost of reproducing and distributing the newspaper (Reddaway, 1963, and Rosse, 1967). We will write the cost function as additively separable in the first copy cost of news coverage, ρ , and a per copy distribution and delivery cost, d . We will assume that it becomes increasingly costly to inform an increasingly larger share of the voters, more precisely, that the cost is quadratic in ρ . The distribution cost is assumed to be linear in the number of copies sold, nx . The costs are

$$c(\rho, x) = \frac{1}{2}\rho^2 + dnx.$$

Monopoly media A monopoly newspaper chooses news coverage and output (price) so as to maximize the expected profits,

$$\max_{x, \rho} p(\rho, x) nx - c(\rho, x).$$

Assuming concavity, its maximum is characterized by the first-order conditions,

$$p^m = d + xg^{-1}(x), \quad (9)$$

$$\rho^m = nxT. \quad (10)$$

The first equation is the classical Lerner formula. The monopoly price is above the marginal cost and more so the less elastic is demand (the smaller is $g(x)$).

The second equation says that news coverage is increasing in audience size and in the private value of news.

To get a closed form solution, suppose that G is a uniform distribution on $[-\frac{1}{2}, \frac{1}{2}]$. Then

$$x^m = \left(\frac{1}{2} - d\right) \frac{1}{2 - nT^2}, \quad (11)$$

$$\rho^m = \left(\frac{1}{2} - d\right) \frac{nT}{2 - nT^2}. \quad (12)$$

The second-order conditions imply that $1 > \frac{n}{2}T^2$.

This simple model makes clear a couple of simple but important points. First, the provision of political news is increasing in market size, n . This is because news production is an increasing returns to scale industry in the sense that the first copy cost is fixed. This is a general point related to quality choice with quality-dependent fixed costs (Shaked and Sutton, 1987). The political implications are that large countries, and large political jurisdictions within countries, will have higher-quality political reporting, thus leading to better informed voters and better political selection and incentives. Second, news provision is falling in news delivery costs.

Third, news provision is increasing in the private value of news, T . While this is exogenous in our model, Strömberg (2004a) endogenizes the private value of news and finds that it is higher for policy issues where the variance in need is larger. The model of Strömberg (2004a) also predicts that politicians will distort policy to manage publicity. They will focus increases in spending on a few projects that attract the attention of the media, and finance this by making many small cutbacks, each of which is not newsworthy.

Advertising can easily be included in our framework. Strömberg (2004a) also includes informative advertising and pricing in two-sided markets. Voters can buy an advertised good. Advertising informs consumers of their value of the good and consumers who are made aware that their valuation is high will purchase the good. This has the effect of lowering the monopoly media's subscription price to attract consumers.

Importantly, advertising improves political accountability by increasing news coverage and newspaper sales. To see this in our simplified model, suppose that the media is a price taker in the advertising market, and advertising prices are p_a per media subscriber. This has the same effect as reducing the cost of delivering the newspaper from d to $d - p_a$. The above equations 11 and 12 continue to

hold, but with d replaced by $d - p_a$. Hence, advertising revenues increase political coverage and media consumption.

Competition The effect of media competition on voter information is theoretically unclear. Competition may increase the share of informed voters, by reducing subscription prices and hence, increasing the consumption of news. On the other hand, competition may reduce political news coverage because of the increasing-returns caused by the fixed first-copy cost.

To see this, consider the duopoly case where media A and B compete. Suppose that there is no multi-homing, so that consumers subscribe to one of the two media at most. The problem of selecting quality and price in a duopoly setting with a quality-dependent fixed cost has been studied by e.g. Anderson, de Palma and Thisse (1992). In general, there exist both symmetric and asymmetric equilibria. Here, we just want to highlight a few features and, for this reason, focus on the pure-strategy, symmetric equilibria, and suppose that consumers first decide whether to buy a newspaper (based on their expectation of media prices and coverage) and then which newspaper to buy.

Suppose that consumers first choose whether to consume a media product based on expected quality and price. As in the monopoly case, this is decided by equation (8). A share x of consumers is in the market for media. A consumer who has decided to buy a newspaper chooses newspaper A if

$$T(\rho^A - \rho^B) - (p^A - p^B) \geq \varepsilon,$$

where the parameter ε describes consumer preferences for exogenous and fixed media features, and where ε has a cumulative distribution function $H(\varepsilon)$ and density function $h(\varepsilon)$. The inverse demand of firm A is then

$$p^A = T(\rho^A - \rho^B) + p^B - H^{-1}\left[\frac{x^A}{x}\right].$$

Both duopoly firms simultaneously choose news coverage and output (price) so as to maximize the expected profits. Firm A 's problem is to maximize

$$\max_{x, \rho} np^A x^A - C(\rho^A, x^A).$$

Given our functional form assumptions, the first-order conditions evaluated at the symmetric equilibrium are

$$p^d = d + \frac{x^d}{2} h^{-1}\left(\frac{1}{2}\right), \tag{13}$$

and

$$\rho^d = n \frac{x^d}{2} T. \quad (14)$$

Total demand is determined by

$$x^d = G(T\rho^d - p^d).$$

Equation 13 is the Lerner formula, where the markup over the marginal cost depends on the demand elasticity. It seems likely that the demand elasticity between media A and media B is higher than that between the monopoly media and the outside good. In this case, the duopoly price will be lower than the monopoly price. However, because of the increasing returns to scale caused by the fixed cost of increasing coverage, political coverage may be higher or lower. Comparing equations (10) and (14), it is clear that for political coverage to increase, total demand must double.

The positive welfare effect through accountability depends on the share informed voters that both consumes media and is exposed to news ($s = \rho x$), so lower political coverage by the duopoly media can be compensated by larger total sales resulting from lower prices. With our parametric assumptions, the share of informed voters is higher under duopoly than under monopoly if $x^d > \sqrt{2}x^m$.

Under both monopoly and duopoly, media coverage and media consumption are increasing in n and T , and falling in d . The proposition below summarizes the results.

Proposition 2. *Political coverage and the share of media consumers and, consequently, political effort and competence, are greater if: (a) the electorate is larger; (b) the advertising market is larger; or (c) the private value of news is high, and (d) it is inexpensive to distribute news. Political coverage and media consumption may increase or decrease with competition, depending on whether demand elasticity or scale effects dominate.*

The above proposition discusses the determinants of the total amount of political coverage. The political implications are that large countries, and large political jurisdictions within countries, will have higher-quality political reporting, leading to better informed voters and better political selection and incentives. Similarly, a growing advertising market is likely to increase the amount of political coverage and media consumption, and create similar positive effects on political accountability. I will discuss the empirical evidence on competition in the empirical section.

2.2.2. Coverage across issues and multitasking

In a world where politicians are charged with a variety of tasks that compete for their attention, information may also create perverse incentives. The tasks about which voters are informed (e.g. by the media) are not necessarily the most important. Because of the externality in news consumption, political information will be a by-product of the demand for entertainment or information used to guide private actions. Thus, electing politicians based on information from the media would risk diverting the attention from the most socially valuable allocation of time and resources. This is the familiar multitasking problem analyzed in Holmstrom and Milgrom (1991). The link to media is explored by Strömberg (2004a).

To discuss this, we temporarily expand the model to deal with multiple groups, thus making the model more similar to that of Prat and Strömberg (2013). Suppose that there are two groups, with population shares n_i , $i \in \{1, 2\}$. Their utility from the public good is

$$g_i = a_i (\theta_i + e_i). \quad (15)$$

The media informs a share s_i of voters of the level of public goods provision, g_i . Their private value is T_i . Suppose that the cost of exerting effort for the incumbent is $\frac{1}{2}(n_1 e_1 + n_2 e_2)^2$.

The following three equations (corresponding to equations 2-4 in Prat and Strömberg, 2013) characterize the equilibrium. The expected vote share of the incumbent is

$$\frac{1}{2} + \sum_{i=1}^2 s_i n_i a_i (\theta_i + e_i - e_i^*). \quad (16)$$

It can be proven that, in a pure-strategy sincere equilibrium, the incumbent selects effort

$$e_i^* = \begin{cases} s_i a_i & \text{if } s_i a_i > s_j a_j \\ 0 & \text{otherwise} \end{cases} \quad (17)$$

and the expected competence of re-elected politicians is

$$E[\theta_i | s_i] = \begin{cases} s_i a_i \frac{\bar{\theta}^2}{12} & \text{if } s_i a_i > s_j a_j \\ 0 & \text{otherwise.} \end{cases} \quad (18)$$

In this model, it is socially efficient for the incumbent to always work on the issue with the highest need (a_i). However, the politician instead works on the issue with the highest news-exposed need ($s_i a_i$). This is the multitasking problem.

We now analyze what issues the media will cover. Suppose that a monopoly media is covering the two issues. This media selects price and political coverage of the two political jurisdictions to maximize its expected profits

$$\max_{p, \rho} \sum_{i=1}^2 n_i (p - d_i) x_i - \frac{1}{2} (\rho_1 + \rho_2)^2,$$

and the demand for newspapers is again determined by equation (8) for each separate group.

Assuming concavity, its maximum is characterized by the first-order conditions

$$p = d + xg^{-1}(x), \quad (19)$$

$$\rho_i = \begin{cases} n(p - d_i) T_i & \text{if } n_i(p - d_i) T_i \geq n_j(p - d_j) T_j \\ 0 & \text{otherwise.} \end{cases} \quad (20)$$

The media only covers one issue. Media coverage of an issue is increasing in n_i , d_i and T_i . As discussed, if the monopoly media is a price taker in the advertising market, then $p - d_i$ is replaced by $p_s + p_a - d_i$, where p_s is the subscription price and p_a is the advertising price per media user. We have

Proposition 3. *The media coverage of issues that concern group i , and, consequently, political effort and competence, is greater if: (a) group i is larger; (b) it has a larger advertising potential; or (c) the issue is more journalistically newsworthy, and (d) it is inexpensive to distribute news to that group.*

Because the media will only inform voters about one issue, the politician will exclusively work on this. The above proposition characterizes how the media directs the multi-tasking problem. It provides predictions for what issues will receive too much attention and resources, relative to the welfare maximizing benchmark if mass media are the main information providers. Strömberg (1999, 2004a) discusses the welfare losses induced by this type of bias in more detail.

2.3. Optimal regulation and public provision of news

We now return to the case with only one group. A social planner maximizes

$$n \int_0^x p(\rho, z) dz - c(\rho, x) + nx\rho W,$$

where the first two terms describe the consumer utility and the producer cost, and the last term is the value of the externality $\theta - T = W$. The first-order conditions are

$$p^{sp} = d - \rho^{sp}W, \quad (21)$$

$$\rho^{sp} = nx^{sp}\theta. \quad (22)$$

Assuming again that G is a uniform distribution on $[-\frac{1}{2}, \frac{1}{2}]$

$$x^{sp} = \left(\frac{1}{2} - d\right) \frac{1}{1 - n\theta^2}, \quad (23)$$

$$\rho^{sp} = \left(\frac{1}{2} - d\right) \frac{n\theta}{1 - n\theta^2}. \quad (24)$$

The above can be compared to the market solution; see equations 11, 12.

The social planner sets a price p^{sp} that is below the marginal cost, d , see equation (21). This Pigouvian subsidy compensates for the positive externality of an informed citizenry. Absent the subsidy, consumers have too low a valuation of news and news consumption will be too low. The social planner also supplies more political coverage, ρ^{sp} , than the market solution; See equations (22) and (10). This is because the social planner internalizes the positive externality of news on political accountability ($\theta > T$), and because the higher consumption level increases the marginal social benefit of coverage ($x^{sp} > x^m$).

One question is how the social planner solution could be implemented. Disregarding the market power effect, a subsidy to the media firm equaling $nx\rho W$ would correct the market failure. This subsidy is proportional to the size of the audience of the informative content, nx , which will induce the media firm to lower its price to attract audience. This could be achieved by explicitly lowering the subscription or pay-per-view price, or by reducing advertising (lowering the consumers' nuisance cost). The subsidy is also increasing in the informativeness of the content, ρ . This will induce the media firm to increase its political coverage. To reach the social optimum, an additional output subsidy to correct for the market power effect, of size $xg^{-1}(x)$, is needed.

Note that we achieve two goals by a subsidy of size $nx\rho W$. This subsidy increases both the media consumption and political coverage, because the subsidy is increasing in both these targets. Just regulating a fixed low subscription price will increase the suboptimally low consumption, but will reduce political coverage (quality) even further. This is because the lower price reduces the incentives to invest in quality (Spence, 1975, Sheshinski, 1976). Similarly, just setting a fixed

quality standard, $\rho = \rho^{sp}$, would lead the monopolist to over-price, thus making media consumption too low.

An alternative solution is public service media. A first question is whether voters would like to implement the social planner solution.

People internalize the social value of media coverage as voters, although they do not as consumers. To see this, suppose that public media provision and financing are voted upon in a separate election. Suppose that the public media is financed by a license fee, which is a lump-sum tax on all voters, and a subscription price as before.² Let L be the license fee, set so that this fee and the subscription revenue cover the cost of running the public service media,

$$nL + np x = C(\rho, x).$$

If there is no heterogeneity among voters at the time of the election over public service media, then voter utility will be perfectly aligned with social welfare. This follows since the voter utility from government policies and media is

$$E [g_1 + g_2 + u_{pb} - L \mid p, \rho]$$

where u_{pb} is the utility from watching public media, which is

$$TI(a_j = g_1) + \gamma_j - p$$

if the voter watches and zero otherwise. Since the license fee is $L = \frac{1}{n}C(\rho, x) - px$, and since the ex ante probability of watching public media is x , this simplifies to the social planner's problem.

The next proposition describes the optimal media policy and how market provision and public media provision relate to this policy.

Proposition 4. (a) *Because of a positive externality from news consumption, the market solution produces less than optimal levels of news consumption and political coverage.*

(b) *Optimal media policy can be achieved by public service media or by regulation. Optimal media regulation involves a Pigouvian subsidy equal in size to the positive externality from news consumption, combined with a subsidy to counter mark-up due to market power. The size of the Pigouvian subsidy is increasing in the amount of political coverage and in the audience of this coverage.*

²The license fee is modeled on the BBC's annual television license fee, which is charged to all British households, companies and organizations using any type of equipment to receive live television broadcasts.

(c) *As voters, people internalize the consumption externality. Under a veil of ignorance, they prefer the socially optimal media policies. These policies are hence not paternalistic.*

Below, we will present mounting empirical evidence that the media play a key role in enhancing political accountability. Because one voter's consumption of news affects the quality of political selection and incentives, which benefits all voters, this creates an externality to news consumption. Given this, the market under-provision of news follows from standard economic theory. This has been argued at least since Downs' (1957) model of rational ignorance. The explicit modeling of this externality helps us describe the nature of the problem and the optimal regulation to solve it.

Should this be implemented by regulated private firms or by public service media? The generic arguments from Hart, Shleifer and Vishny (1997) apply. An argument in favor of public service media is that the amount and informativeness of political coverage are hard to observe and hence in some dimensions non-contractible. Private providers are likely to save costs by reducing quality in these dimensions. There are two main arguments against public service media. One is that these may not be independent of the politicians they are supposed to monitor and hence will not be able to fulfill their role in enhancing political accountability. The public service implementation thus requires a strong *de facto* independence. The second argument is that the media sector is rapidly evolving and that quality innovation is important. Private providers are likely to have stronger economic incentives to innovate.

3. Evidence

I now discuss empirical evidence related to the positive implications of the above theory, summarized in Propositions 1 and 2. Before going into the substantive results, I briefly discuss different strategies used to identify media effects. The share informed voters is affected by media consumption and the amount of informative media coverage. Studies of media effects typically use variation in one of these factors.

I start with effects of media consumption. These effects are probably most easily measured when new media are introduced. Mass media are not neutral devices, uniformly distributing information to everyone. Rather, each of the large mass media creates its specific distribution of informed and uninformed citizens,

partly because of its specific costs and revenue structure. As a result, in the wake of mass-media technology changes, there are dramatic changes in who has access to political information.

Because new media may crowd out consumption of older media, the effects depend on their relative informativeness. Recall from equation 7 that the share of informed voters, s , is the share x that consumes the media, multiplied by the share ρ that finds the news, conditional on consuming, $s = x\rho$. The share that finds the news in turn depends on the amount of news coverage q , but we suppress that notation here and simply refer to ρ as the media's informativeness.

Suppose that media B enters in a market with the pre-existing media A . Let x^B denote consumers of media B that previously did not use any media, x^{AB} consumers who move from A to B and x^A consumers who stay with A .³ Let ρ_t^J be the informativeness of media $J = A, B$, before and after entry, $t = 1, 2$. The change in the share informed voters is

$$\Delta s = \underbrace{x^B \rho_2^B}_{\text{new audience}} + \underbrace{x^{AB} (\rho_2^B - \rho_1^A)}_{\text{movers}} + \underbrace{x^A (\rho_2^A - \rho_1^A)}_{\text{stayers}}.$$

Audiences that did not previously use a mass media, x^B , become better informed. This is the obvious case to look for positive media effects. For example, in the 1920s many people in rural America did not have access to a daily newspaper because these were too costly to deliver to remote areas. Radio provided these people access to a daily mass media. Hence, we would expect the introduction of the radio to have a positive impact on voter information levels in these areas.

For audiences that switch media, x^{AB} , the effect depends on $\rho_2^B - \rho_1^A$, the relative informativeness of the new media post-entry to the old media pre-entry. From Proposition 2, we would expect this informativeness to depend on audience shares, advertising revenues, etc. For example, a small share of the audience of the New York Times or a TV-station is likely to care about any particular congressional district. Hence, they will not cover local politics much and their entry into a market dominated by a local newspaper may lower voter information levels on this topic.

For audiences that stay with the pre-existing media, x^A , the effect depends on the change in informativeness of this media. As discussed, entry and the resulting increase in competition, could lead existing media to cover politics more or less. Evidence presented below supports more the latter.

³We abstract from the final logical category which are move from A to not consuming any media.

Media consumption is often instrumented because it is related to factors such as income and education that are directly related to political behavior and influence. Strömberg (1999, 2004b) measures the effects of the introduction of radio across US counties 1920-1940, instrumented by factors affecting the quality of reception (ground conductivity and share of woodland). Gentzkow (2006) studies the introduction of television, instrumented by distance to a TV antenna. Olken (2009) improves this instrumentation by taking into account the topography between the antenna and the receiver. Falck, Gold and Heblich (2014) study the introduction of broadband internet in Germany, instrumented using technical thresholds in the distance to a main distribution frame. The introduction of individual media has also been used. For example, Della Vigna and Kaplan (2007) study the entry of Fox News in cable markets, and Gentzkow, Shapiro and Sinkinson (2011) and Cage (2014) study the entry and exit of individual newspapers in markets in the US and France, respectively.

Other strategies have been developed to identify effects of media coverage, holding media consumption fixed. One cannot credibly identify effects by regressing outcomes on media coverage, because this coverage is endogenous. Media tend to cover issues and politicians that are more important, and to cover politics more in areas where consumers are more interested in politics. To identify the effects of the total coverage of politics, Snyder and Strömberg (2010) use exogenous variation in the match between media markets and political jurisdictions, as discussed below. Other studies use randomized controlled trials. Banerjee et al.'s (2011) random sample of slums in a large Indian city received newspapers containing report cards with information on the performance of the incumbent legislator and the qualifications of the incumbent and two main challengers. This randomization affects both media consumption and content.

To identify the effects of particular news stories, Eisensee and Strömberg (2007) use the crowding out of news stories by other news. In particular, they use crowding out of news coverage of natural disasters by coverage of the Olympic Games.

3.1. Volume of coverage

I will first discuss how coverage of politics is affected by two factors: audience size and competition. The above theory predicts that political news coverage will also be increasing in the size of the advertising market, in issue newsworthiness, and falling in delivery costs (Propositions 2 and 3). These other determinants will be discussed in section 3.5 on multi-tasking.

Evidence suggests that media competition reduces the volume of political coverage. The most convincing evidence is perhaps that provided by Cage (2014). She studies a county-level panel data-set of local newspapers in France, from 1945 to 2012. She finds that newspaper competition is associated with fewer journalists and news articles in counties with homogeneous populations, with little impact on counties with heterogeneous populations. In a cross sectional study of coverage of U.S. congressmen, Arnold (2004) finds that newspapers with at least one competing daily paper published fewer articles about its local representative than did a monopoly newspaper, controlling for newspaper circulation and the number of representatives in a newspaper’s core circulation area.

As discussed above, standard economic theory does not provide any clear prediction on this issue. The lower political coverage under competition could arise because the greater scale economies for monopolies are more important than the higher demand elasticity under competition. Competition may also affect the amount of political news for other reasons. Cage (2014) argues that competing newspapers may differentiate in quality to avoid price competition. Zaller (1999) argues that it is good for the individual careers of journalists to cover politics; this can help them win awards and recognition among colleagues. Competition forces journalists to instead focus on audience demands.

We next turn to the effect of audience size on political coverage. It may seem obvious that audience size affects coverage. We will still discuss evidence quantifying these effects because they are such central drivers of coverage. Audience size effects are important because they may harm the interest of fragmented audiences, such as minority groups scattered across media markets. Audience size effects are also important to understand the effects of the introduction new media technologies.

The audience shares of ethnic groups have been related to media coverage and entry (Siegelman and Waldfogel, 2001; George and Waldfogel, 2003; Oberholzer-Gee and Waldfogel, 2009). Audience effects are also central in the strategy used by Snyder and Strömberg (2010) to identify media effects. They analyze the effects of media coverage on U.S. congressional politics. They note that the match or congruence between media markets and political districts drives the media coverage of congressional politics. Congruence is based on the share of a newspaper m ’s readership that lives in a certain congressional district d , called the $ReaderShare_{md}$. Newspaper coverage of a congressman should be increasing in this readership share. Since more than one newspaper is sold in each district, they define congruence as the market-share weighted average $ReaderShare_{md}$ for all

newspapers sold in a district.

To illustrate the concept, suppose that there are two media, A and B . Media A 's market covers district 1 and media B 's market covers district 2; see the left-hand image in Figure 1(a). In this case, $ReaderShare_{md}$ is one for both papers, and congruence is high (one). Suppose instead that the two monopoly newspapers, A and B , are located in two cities on the border between the political districts. Each media has half of its audience in each political district; see the right-hand image in Figure 1(a). In this case, $ReaderShare_{md}$ is one half for both papers and congruence is low (one half).

They first document the relationship between congruence and coverage. They study coverage of U.S. House representatives in 161 newspapers covering 385 districts in each congress from 1991-2002. Their measure of the amount of coverage of the representative from district i is the number of articles mentioning the representative's name. This was found searching online editions of the newspapers. On average, the newspapers write 101 articles about each congressman in each two-year congressional period. They estimate that an increase in congruence from zero to one is associated with 170 more articles written about the congressman.

3.2. Voters

Information In the above model, media matter because they provide voters with information relevant for political accountability. I now discuss evidence of this. That the media provide voters with this type of information seems a priori likely. Knowing who is responsible for what policy to what effect is quite remote from the experience of most people. Hence, citizens in large societies are dependent on others for most of their political information, such as political campaigns and the mass media. Of these possible sources, survey respondents regularly cite mass media as their main source of political information.

Evidence on learning from news media (Proposition 1i) consistently finds significant effects. In their classic study, Berelson, Lazarsfeld and McPhee (1954) found that voters with high media exposure learned more during the electoral campaigns of 1940 and 1948 than other voters. Naturally, it could be that voters who used media more were more interested in politics and learned more directly from the campaign and from personal interactions. Therefore, the effect from newspapers may be hard to identify. These selection issues are avoided in laboratory studies (e.g., Neuman, Just, and Crigler, 1992, and Norris and Sanders 2003) that find that people learn from watching news in a laboratory. However, it is

hard to generalize these results to the effects of years of daily media exposure on voters' knowledge or choices on Election Day.

Snyder and Strömberg (2010) argue that some variation in the congruence discussed above is exogenous and can be used to identify media effects. One specification investigates the consequences of the changing congruence between media markets and congressional district due to redrawing of the district lines. For example, a newspaper's coverage of a congressman may fall because part of its readers are moved to a different congressional district. Remaining newspaper readers hence get less relevant news about their congressman. Another specification compares differences across counties in the same congressional district and year to identify effects.

Snyder and Strömberg find that local newspapers are key providers of political information. They analyze survey responses from the American National Election Studies 1984 to 2004, and find that voters are considerably better informed about their representatives in areas where, for the exogenous reasons explained above, the newspapers cover the House representatives more. More precisely, they are better able to correctly name at least one of the candidates in the House election. Figure 1d plots the bivariate version of this relationship. They are also more willing to place their representative ideologically, to rate their feelings toward the representative, and mention things that they like or dislike about their representative. The share who can correctly name the House representative increases by one percent for every four exogenous additional newspaper articles about the representative. These estimates suggest that the share who can name their representative would drop from 31 to 15 percent, without newspaper coverage.

Snyder and Strömberg find that people do not learn significantly about their House Representative from radio or TV. This could be because local television stations do not cover congressmen to any considerable extent. Prat and Strömberg (2005) study the effects of the entry of commercial TV in Sweden. They find that people who start watching commercial TV increase their level of political knowledge and political participation more than others.

Responsiveness A key role of political information in the above model is to increase voter responsiveness (Proposition 1ii): information enables voters to identify and punish politicians that are bad for them, and reward good politicians and policies. This creates good incentives and selection.

Media effects on voter responsiveness have been studied in a couple of papers. Ferraz and Finan (2008) find that radio increased the voters' responsiveness to

information about corruption among Brazilian mayors. Voters in places with a local radio station punished more mayors who were more corrupt than average and rewarded more mayors who were less corrupt than average.

Larreguy, Marshall and Snyder (2014) study the effect of media on Mexican voters' responsiveness to municipal audit reports. Similarly to Ferraz and Finan, they compare mayors who engage in malfeasant behavior that is revealed in audit reports published in the year before an election to similar mayors whose audit reports are not published until after the election. They use within-municipality variation in the electoral precincts that are covered by radio and television stations located within the municipality and that, consequently, cover the relevant audit reports to a larger extent. They find that voters punish the party of malfeasant mayors, but only in electoral precincts covered by local media stations.

Banerjee et al. (2011) find similar results in India. In the run-up to elections, residents in a random sample of slums in a large Indian city received newspapers containing report cards with information on the performance of the incumbent legislator and the qualifications of the incumbent and two main challengers. Relative to the control slums, treatment slums saw a higher turnout, reduced vote buying, and a higher vote share for better performing incumbents and relatively more qualified incumbents.

The media coverage of a particular issue can also increase the voter responsiveness on that issue. This is a prediction of the above model (Prop. 1bii) and also a key prediction of the agenda setting and priming theories of media influence. A very extensive literature tests the agenda setting and priming hypotheses (see e.g. Dearing and Rogers, 1996).

Political participation Although not part of our theoretical framework, I now discuss evidence of media effects on voter turnout. For most people, voting is the main form of political participation. A high voter turnout may be desirable for a number of reasons. Voting is an effective means of holding elected officials accountable for their decisions and behavior in office. A high turnout in fair elections gives legitimacy to public officials and their decisions, while abstention may erode citizens' satisfaction and confidence. It is a priori plausible that media influence voter turnout, because they provide information and may increase the strength of political preferences and interest in politics.

Strömberg (1999, 2004b) measures the effects of the introduction of radio 1920-1940 on voter turnout. He finds that increased radio consumption led to more people voting in gubernatorial races. Quantitatively, an increase in the share of

households with radios from 0 to 1 is estimated to have increased the turnout by 7 percentage points in the 1920-1940 period. The effects are particularly pronounced in rural areas where the prior newspaper readership was low, due to high newspaper delivery costs. In a study of the effects of the introduction of television in the 1940s and 1950s, Gentzkow (2006) finds that television reduced the turnout in congressional races by two percent.⁴ He argues that this was because TV was less informative than the newspaper consumption that it crowded out. Looking at the introduction of individual news media, Oberholzer-Gee and Waldfogel (2009) find that a Spanish-language local television station increases the turnout among Hispanics in a metro area by 5-10 percentage points. Gentzkow and Shapiro (2010) study the entry and exit of US newspapers 1869-2004. They find that one extra newspaper is associated with an increase in voter turnout of .3 percent.

A couple of recent papers also study the effects of high-speed internet on voting. Falck, Gold and Heblich (2014) find negative effects of internet broadband access on voter turnout, which they relate to a crowding-out of more informative TV consumption and increased entertainment consumption. In a similar study, Campante, Durante and Sobbrío (2013) find that broadband access initially decreased the turnout in parliamentary elections, but then increased it after 2008, when local online protest groups coalesced into a new electoral list. Broadband access was positively associated with other forms of political participation, both online and offline.

These effects depend on whether the new media are more informative than the old ones that they replace. Snyder and Strömberg (2010) instead look at variation in the amount of informative content. They find that exogenously increased media coverage of politics increases voter turnout. The effects are small, perhaps because when people vote for Congress, they typically also vote for more important offices such as president and this drives people to the polls. See Figure 1(e) for the bivariate relationship between Congruence and turnout.

3.3. Politicians

We now discuss effects on politicians. Our theory suggests that both media consumption and coverage will improve the political selection as well as the incentives (Proposition liii).

Snyder and Strömberg (2010) find that media coverage affects politicians' behavior. US congressmen from districts where media coverage is high, for exogenous

⁴This is for years with no simultaneous presidential election.

reasons, are less ideologically extreme, vote more frequently against the party leaders, are more likely to stand witness before congressional hearings, and they are, perhaps, more likely to serve on constituency-oriented committees and also less likely to serve on broad policy-oriented committees. This was found after analyzing data on roll-call voting, committee assignments and witness appearances for 1982-2004. See Figure 1(f,g) for the bivariate relationship between Congruence and these outcomes.⁵

The effects seem to work through both incentives and selection (by studying whether the actions of the same politician change over time with press coverage, they can separately identify the incentive effects). Snyder and Strömberg find that selection effects are entirely responsible for the ideological moderation in roll-call voting, whereas incentive effects are entirely responsible for the increase in witness appearances. Effects on votes against party leadership are a mix of the two. These results make sense, since we would expect selection effects for preferences and constant characteristics (competence in the model and ideology in this example) and incentive effects for variables that capture effort (effort in the model and witness appearances in this example). In terms of magnitudes, their estimates imply that an exogenous increase of about 110 newspaper articles about the House representative is associated with one additional witness appearance, and there is one additional vote against the party leadership per every four exogenous additional newspaper articles about the House representative.

3.4. Policy

We have presented evidence that mass media inform voters, and that this information increases both voter turnout and voter responsiveness. This, in turn, improves political incentives and selection. We now finally present evidence that this affects policies. We look at three types of media variation: variation in the access to media; the volume of political coverage; and in the coverage of particular events.

3.4.1. Who gets the news?

Are voters with media access better able to hold their representatives accountable, and do they consequently receive better policy outcomes? We will now investigate

⁵Congressmen may work for their constituency, for example, by considering constituency (rather than party) interests in voting, and by appearing as witnesses before congressional hearings.

the hypothesis in Proposition 1aiii, that public expenditures are increasing in the share of media users in a group.

As mentioned, Strömberg (1999, 2004b) measures the effects of the introduction of radio in the US 1920-1940. Interestingly, this was also an era of rapid changes in economic policymaking. The New Deal was launched in the middle of the radio's expansion period. Strömberg finds that access to radio increased federal spending in the New Deal programs. The effects are economically important. The estimates of this study imply that a one standard deviation increase in the share of households with radios in a certain county would lead the governor to increase per capita relief spending by 9 percent. The spread of radio particularly improved the situation of rural voters, accounting for as much as 20 percent more in social assistance funds to a rural county than an identical urban county. The results are robust to instrumenting radio ownership with exogenous factors that affect the quality of reception: ground conductivity and the share of woodland.

Besley and Burgess (2002) study how the responsiveness of policy to need is affected by media consumption (Proposition 1aiv). They study public food distribution and calamity relief in a panel of Indian states (1958-1992). Their main finding is that the interaction term between newspaper circulation and measures of need for relief is positive. This means that spending correlates more with the need in states where many have access to newspapers, in other words that spending is more responsive to need in states with a high newspaper circulation. The results are driven by the circulation of newspapers in local languages (other than Hindi and English). A potential concern is that states with a high circulation of newspapers are different, for example by having a more politically interested and active population. Consequently, the authors instrument newspaper circulation with the share of newspapers that are owned by political parties, societies and individuals. After instrumentation, the key results remain or become stronger.

3.4.2. Volume and focus of political coverage

Our theory suggests that not only media consumption, but also media coverage affects government spending (Proposition 1biii). We first discuss evidence of the effect of total coverage of politics and the effects of what issues are covered.

As mentioned, Snyder and Strömberg's (2010) study find that political coverage increases voter information, voter turnout, and the selection and incentives of politicians. The final question is whether the additional effort and better selection of politicians are noticeable in public spending. Snyder and Strömberg find that

more federal funds per capita were allocated to areas where the media covered their representative to a larger extent. The estimated effects are substantial. A one standard deviation increase in congruence (which is associated with around 50 additional articles per congress) increases per capita federal spending by 3 percent. See Figure 1(h) for the bivariate relationship between Congruence and this outcome. Similarly, Lim et al. (forthcoming) study the effect of newspaper coverage of U.S. state-trial-court judges, using the congruence between judicial districts and newspaper markets to identify effects. They find that press coverage significantly increases the sentence length.

What issues are covered? Not only the volume, but also the distribution of coverage may influence policy. This is important to investigate empirically because excessive coverage of certain topics may distract political attention from more socially important tasks.

Can a news editor, by publishing a particular news story, influence government policy? This is the main hypothesis investigated in the agenda setting research on policy effects. This research typically performs case studies, or studies the co-movement over time in coverage of an issue in the media, the importance the public attaches to the issue and some policy outcome; see Dearing and Rogers (1996). However, convincing evidence of media effects is hard to establish from these types of correlations. More severe issues are both likely to be in the news and receive policy attention, and it is very hard to convincingly control for severity. In addition, political agendas might drive both media coverage and policy, thus creating a reverse causality problem.

In an attempt to address this problem, Eisensee and Strömberg (2007) analyze the effect of natural disasters being covered because not much else news is around. The idea is that some marginally newsworthy disasters will not be covered in the news because they occur when many competing news stories are available, for example, from Olympic Games. Others are covered because they occur when few alternative stories are available. However, disasters striking during the Olympics will be similar in all other respects to disasters striking at the same time of the year in non-Olympic years.

Eisensee and Strömberg find that the Olympic Games crowd out news coverage of natural disasters and that this decreases the probability of U.S. government relief. They find similar effects using a more general measure of the amount of other available news (the time spent on the top three news stories). The conclusion is that news coverage has a causal effect on relief. Specifically, they study

relief from the United States Agency for International Development (USAID) Office of Foreign Disaster Assistance (OFDA) to 5,212 natural disasters taking place worldwide between 1968 and 2002. This is combined with data on whether the disaster was covered by the U.S. television network news. They used the Vanderbilt Television News Archives, which has compiled data on the content of the evening news broadcasts of the major U.S. television networks (ABC, CBS, NBC) since 1968 and CNN since the 1990s.

3.5. Multi-tasking

Proposition 2 above and Strömberg (2004a) identify policy biases generated by the news-making process, related to group size, newsworthiness, advertiser target group, and media access. I now discuss empirical evidence of these.

Audience share bias This is probably the most well documented type of bias. Media tend to focus their coverage on issues that concern a large share of their audience (which is not perfectly collinear with group size). Politically, this may hurt small groups, such as minorities and special interests, and favor large groups, such as majority ethnic groups and dispersed consumer interests.

A difficulty in empirically identifying the effects of group size is that many factors vary with group size (other than media coverage). An area with many Hispanics is more likely to have a Spanish language local TV-news show. But it is also likely to be different in many other respects, for example, having a strong local Hispanic community and connected organizations.

Is it possible to vary the audience size of a group, while holding the total population of the group fixed? Consider the setting in Snyder and Strömberg (2010). House Districts have approximately the same population, but can differ in size measured by audience size. This is because audience size depends on what papers people buy. Suppose that people in one area of a House district read newspapers that mainly sell outside of their district. Because they constitute a small share of the audience share of these newspapers, their representative will receive little coverage. We know from Snyder and Strömberg (2010) that people in these types of areas are less well informed, vote less, and receive less public spending. This is direct evidence of an audience size bias in policy.

There is also evidence that where ethnic group are small, there will be less targeted media and the minority consumption of media will be low and, consequently, the voter turnout will be low (Siegelman and Waldfogel, 2001, George

and Waldfogel, 2003, Oberholzer-Gee and Waldfogel, 2009).

Assuming that there is no pre-existing policy bias, the model of Strömberg (2004a) shows that the audience size effect biases policy against the interest of small groups. However, absent mass media, small special interest groups may have an information advantage in relation to dispersed consumer groups. The audience size effect may counter this disadvantage. Therefore, the expanding use of mass media may have lowered the influence of lobby groups. Dyck, Moss and Zingales (2008) investigate this. They find that the more the McClure magazine (one of the most prominent muckraking magazines of that era) sold in a House Representative's district, the more pro-consumer was the Representative's voting on legislation that was muckraked in the McClure magazine. A potential concern is that the areas where the demand for the McClure magazine is high are different also in other respects.

Media access bias There is also relatively strong evidence that people with access to media receive better policies (Strömberg, 1999, 2004b, Besley and Burgess, 2002). The other side of the coin is that voters without access to media risk being neglected by politicians. This may be of particular concern to poor voters in developing countries, whose lack of access to media could hinder their access to public services (Keefer and Khemani, 2005). The most direct evidence of this is perhaps Reinekka and Svensson (2005) who find that schools to which it was cheaper to deliver newspapers, because they were closer to a newspaper outlet, received more government funds. In this way, newspaper provision of news may produce a political bias disfavoring remote and rural areas.

Newsworthiness bias There is some evidence that journalistically newsworthy issues receive disproportionate policy attention. Eisensee and Strömberg (2007) estimate that 46 times as many people must be killed in a disaster in Africa to achieve the same probability of being covered by U.S. television network news as an otherwise similar disaster in Eastern Europe. Because they find that news coverage triggers relief, they conclude that this biases U.S. relief against African disaster victims. Similarly, a drought must have 2,395 times as many casualties as a volcano to have the same estimated probability of coverage, potentially biasing U.S. relief.

Target group bias It seems likely that advertising biases increase the coverage of interest to groups valuable to advertisers and that, consequently, this biases

policy in favor of these groups. However, there is less supporting evidence. The literature is still struggling to uncover the first stage of this effect: that media coverage is shaped to target the interest of this group. For example, Hamilton (2005) correlates the number of news stories on 20 issues on each of the networks with the share of different demographic groups that consider that the issue should be the president's top priority. He finds that the news selection correlates most with the interests of young viewers. He notes that this might be because advertisers target marginal consumers, for example, the young with less stable purchasing behavior. Although plausible, there is little convincing evidence that groups that are valuable to advertisers benefit politically from media provision of news.

4. Conclusion

The existing evidence on media effects surveyed in this paper seems to support the following general statements about the political effects of mass media:

There are strong theoretical reasons to believe that the market under-supplies political news. This is because of an empirically documented positive externality from the consumption of political news on political accountability. Socially optimal news provision can be induced by a subsidy that is increasing in both the informativeness of the news media and in the size of the audience attending the news. It can also be achieved by public service media.

Media scrutiny increases the political accountability, which appears to improve policy. A number of surveyed studies find that an increase in media activity is associated with better policy outcomes, some of which use methods that reasonably convincingly identify causal media effects. There is some evidence that these media effects occur because the media transmit information to voters, which improves both the incentives and the selection of politicians.

A caveat to the positive effects is that the media may sometimes induce politicians to work on the wrong issues. Media provision of news systematically benefits groups that are large as audience shares, groups who care about newsworthy issues and groups to whom it is cheap to deliver news. Theory suggests that media also benefit groups who are more valuable to advertisers. However, there is little empirical evidence to this effect.

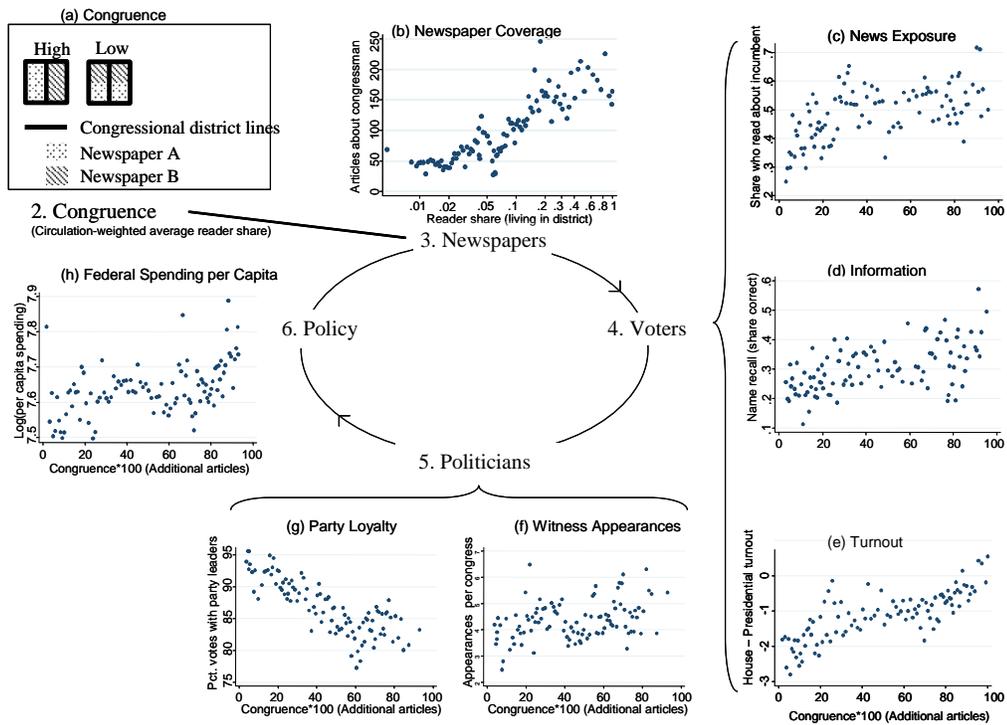
References

- [1] Anderson, Simon P., Andre De Palma, and Jacques F. Thisse. *Discrete choice theory of product differentiation*. MIT press, 1992.
- [2] Anderson, Simon P., and John McLaren. 2012. *Media mergers and media bias with rational consumers*. *Journal of the European Economic Association* 10.4: 831-859.
- [3] Arnold, R. Douglas. 2004. *Congress, the Press, and Political Accountability*. Princeton, NJ: Princeton University Press.
- [4] Banerjee, A. V., Kumar, S., Pande, R., and Su, F. 2011. *Do Informed Voters Make Better Choices? Experimental Evidence from Urban India*. Unpublished manuscript, Harvard university.
- [5] Berelson, B., Lazarsfeld, P., and McPhee, W. N. 1954. *Voting: A study of opinion formation in a presidential campaign*. Chicago University Press.
- [6] Besley, Timothy and Robin S. L. Burgess. 2002. The Political Economy of Government Responsiveness: Theory and Evidence from India. *Quarterly Journal of Economics* 117(4): 1415–51.
- [7] Besley, Timothy and Andrea Prat. 2006. *Handcuffs for the Grabbing Hand? The Role of the Media in Political Accountability*. *American Economic Review*, 96(3): 720-736, June 2006.
- [8] Cage, Julia, 2014. *Media Competition , Information Provision and Political Participation*. Unpublished manuscript, Harvard University.
- [9] Campante, Filipe R., Ruben Durante, and Francesco Sobbrino. "Politics 2.0: The multifaceted effect of broadband internet on political participation". No. w19029. National Bureau of Economic Research, 2013.
- [10] Chan, Jimmy and Wing Suen. 2008. *A Spatial Theory of News Consumption and Electoral Competition*. *Review of Economic Studies* 75(3): 699-728. July 2008.
- [11] Dearing, James W. and Everett M. Rogers. 1996. *Agenda Setting*. SAGE Publication, Inc., Thousands Oaks California.

- [12] DellaVigna, Stefano and Ethan Kaplan. 2007. *The Fox News Effect: Media Bias and Voting*. Quarterly Journal of Economics. 122: 1187-1234.
- [13] Downs, Anthony. 1957. *An economic theory of democracy*. New York: Harper Collins.
- [14] Dyck, A., Moss, D., and Zingales, L. 2008. *Media versus Special Interests*. Unpublished manuscript.
- [15] Eisensee, Thomas and David Strömberg. 2007. *News Floods, News Droughts, and U.S. Disaster Relief*. Quarterly Journal of Economics. 122(2).
- [16] Falck, O., Gold, R., & Heblich, S. 2014). *E-lections: Voting behavior and the internet*. CESIFO WORKING PAPER NO. 3827.
- [17] Ferraz, Claudio and Frederico Finan. 2008. *Exposing Corrupt Politicians: The Effects of Brazil's Publicly Released Audits on Electoral Outcomes*. Quarterly Journal of Economics 123(2): 703-745. May 2008.
- [18] Gentzkow, Matthew 2006. "Television and Voter Turnout." *Quarterly Journal of Economics* 121(3): 931-972.
- [19] Gentzkow, Matthew, Jesse M. Shapiro, and Michael Sinkinson. 2011. *The Effect of Newspaper Entry and Exit on Electoral Politics*. The American Economic Review 101.7: 2980-3018.
- [20] George, Lisa and Joel Waldfogel 2003. *Who Affects Whom in Daily Newspaper Markets?* Journal of Political Economy. University of Chicago Press. 111(4): 765-784.
- [21] Hamilton, James T. 2005. *The market and the media*. New York: Oxford University Press.
- [22] Hart, O., Shleifer, A., & Vishny, R. W. (1997). The proper scope of government: theory and an application to prisons* o. Quarterly Journal of Economics, (November).
- [23] Holmström, Bengt and Paul Milgrom. 1991. *Multitask principal-agent analyses: Incentive contracts, asset ownership, and job design*. Journal of Law, Economics and Organization. 1991(7), 24-52.

- [24] Keefer, P., & Khemani, S. 2005. *Democracy, Public Expenditures, and the Poor: Understanding Political Incentives for Providing Public Services*. The World Bank Research Observer, 20(1), 1–27.
- [25] Larcinese, Valentino. 2007. *The Instrumental Voter Goes to the Newsagent*, Journal of Theoretical Politics 19, 2007, 249-276.
- [26] Larreguy, Horacio A., John Marshall, and James M. Snyder Jr. 2014. *Revealing Malfeasance: How Local Media Facilitates Electoral Sanctioning of Mayors in Mexico*. No. w20697. National Bureau of Economic Research, 2014.
- [27] Lim, Claire SH, James M. Snyder Jr, and David Strömberg. Forthcoming. "The Judge, the politician, and the press: Newspaper coverage and criminal sentencing across electoral systems." American Economic Journal - Applied Economics.
- [28] Merton R.C. 1987. "A simple model of capital market equilibrium with incomplete information." Journal of Finance 42, 483-510.
- [29] Neuman, W. Russel, Marin R. Just and Ann N. Crigler. 1992. *Common Knowledge: News and the Construction of Political Meaning*. University of Chicago Press, Chicago.
- [30] Norris, Pippa and David Sanders. 2003. *Message or Medium? Campaign Learning During the 2001 British General Election*. Political Communication. 20: 233-262.
- [31] Oberholzer-Gee, Felix and Joel Waldfogel. 2009. *Media Markets and Localism: Does Local News en Espanol Boost Hispanic Voter Turnout?* American Economic Review. 99(5): 2120-28.
- [32] Olken, Benjamin A., "Do Television and Radio Destroy Social Capital? Evidence from Indonesian Villages", American Economic Journal: Applied Economics 1:4, 2009, 1–33.
- [33] Prat, Andrea and David Strömberg 2013. *The Political Economy of Mass Media*. Advances in Economics and Econometrics. Cambridge University Press.
- [34] Reddaway, W. B., & Journal, T. E. (1963). "The Economics of Newspapers" W. B. Reddaway, 73(290), 201–218.

- [35] Reinikka, Ritva, and Jakob Svensson 2005. *Fighting Corruption to Improve Schooling: Evidence from a Newspaper Campaign in Uganda*, Journal of the European Economic Association 3: 259-267.
- [36] Rosse, J. (1967). "Daily newspapers, monopolistic competition, and economies of scale". The American Economic Review. Retrieved from <http://www.jstor.org/stable/1821652>
- [37] Shaked, Avner, and John Sutton. "Product differentiation and industrial structure." The Journal of Industrial Economics (1987): 131-146.
- [38] Sheshinski, Eytan. "Price, quality and quantity regulation in monopoly situations." *Economica* (1976): 127-137.
- [39] Siegelman, Peter, and Joel Waldfogel. 2001. *Race and radio: Preference externalities, minority ownership, and the provision of programming to minorities*. *Advances in Applied Microeconomics* 10: 73-107.
- [40] Sims, Christopher A. 2003. "Implications of rational inattention." *Journal of Monetary Economics* 50.3: 665-690.
- [41] Snyder, James M. and David Strömberg. 2010. *Press Coverage and Political Accountability*. *Journal of Political Economy*. 118(2). 2010.
- [42] Strömberg, David. 1999. *The Political Economy of Public Spending*. Ph. D. Dissertation, Princeton University.
- [43] Spence, A. Michael. "Monopoly, quality, and regulation." *The Bell Journal of Economics* (1975): 417-429.
- [44] Strömberg, David. 2001. *Mass Media and Public Policy*. *European Economic Review*. 45: 652-663.
- [45] Strömberg, David. 2004b *Radios Impact on Public Spending*. *Quarterly Journal of Economics* 119(1):189-221.
- [46] Strömberg, David. 2004a. *Mass Media Competition, Political Competition, and Public Policy*. *Review of Economic Studies* 71(1): 265-284.
- [47] Zaller, John. 1999. "A theory of media politics." Unpublished manuscript, 1999.



**Figure 1: Structure of empirical investigation of Snyder & Strömberg (2010).
Figure produced with permission from Snyder & Strömberg (2010).**