PARTISAN CONTROL, MEDIA BIAS, AND VIEWER RESPONSES: EVIDENCE FROM BERLUSCONI'S ITALY

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Abstract
This paper examines whether and how viewers respond to changes in partisan bias in media news. We use data from Italy, where the main private television network is owned by Silvio Berlusconi, the leader of the center-right coalition, and the public television corporation is largely controlled by the ruling coalition. We first document that after the 2001 national elections, when the control of the government moved from the center-left to the center-right, news content on public television shifted to the right. Using individual survey data, we find robust evidence that viewers responded to these changes by modifying their choice of favorite news programs. On the one hand, right-leaning viewers increased their propensity to watch public channels which, even after the change, remained to the left of private channels. On the other hand, left-wing viewers reacted by switching from the main public channel to another public channel that was controlled by the left during both periods. We show that this behavioral response, which tended to shift ideological exposure to the left, significantly, though only partially, offset the movement of public news content to the right. (JEL: D7, H0)

1. Introduction

Since the introduction of newspapers, there has been substantial concern over partisan control of the media. Some observers worry that impressionable voters may be influenced by an ideological media and that this may result in an electoral advantage for the favored party. According to this view, an overtly partisan media may lead to the election of low-quality candidates and to the enactment of poor policies.

This argument rests upon three key assumptions. First, it assumes that ideological control of the media will lead to biased news content. The opposing view is that, under private ownership of the media, market forces and viewers' ideology (in particular) are sufficiently strong that the profit motive will dominate any influence motive. If the media are publicly owned, by contrast, then the profit motive may be less of

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a driving force. The second key assumption is that consumers will not respond to ideological control of the media by shifting to outlets more in line with their own ideology, a behavioral response that will only be possible with a sufficiently pluralistic media sector. Third, voters must respond to media content when choosing between candidates.

In this paper, we investigate these issues in the context of the television industry in Italy, where a single politician with easily identified ideology, Silvio Berlusconi, owns the main private television network, and where the public television corporation is traditionally controlled by the ruling political coalition. In particular, we examine news content and viewership of the six top national television channels before and after the 2001 change in government, which shifted control of the public television corporation from the center-left coalition to the Berlusconi-led center-right coalition.

We first investigate whether or not partisan control of the media affects news content. To address this question, we first develop an absolute, but time invariant, measure of station ideology. We find that Berlusconi's private network provided more speaking time to the right during the period in which the right was in power than to the left during the period in which the left was in power. Based upon this finding of an asymmetry, we conclude that Berlusconi's private network is biased towards the right. We then develop a relative, but time varying, measure of station ideology. Based upon this measure, we find that the public network shifted to the right, relative to the private network, following the change in control of the public network from the left to the right.

We then investigate whether and how viewers responded to these changes in media control. Given our finding that the public network shifted to the right on the ideological spectrum following the change in its control from the left to the right party, did viewers respond to the change in content by switching to a channel with an ideological leaning closer to their own? To answer this question, we develop an econometric model of viewer's choice of media outlets. In the model, viewers have incomplete information and thus potentially benefit from media reports. This benefit, however, is larger when the ideology of the station is closer to that of the voter. We then estimate this model using panel data on viewership and ideology before and after the shift in control. Our primary finding is that, after the change in control of the public network from the left to the right, right-leaning viewers become much more likely to watch news on public television channels. Conversely, we find that some left-wing viewers reacted to this change in control by switching from the main public channel to another public channel that was controlled by the left even after the change in government.

Given that (1) the ideological content of public channels moved to the right but remained to the left of the private channels, and (2) that viewers responded to this change by switching to more like-minded channels, we next examine the net change in the ideological exposure of viewers with differing political ideologies. We find that, while those viewers who continued to watch public channels were eventually exposed to a more right-leaning news coverage, this effect is offset in part by an opposite effect

on those viewers who switched channels and ended up being exposed to a more left-leaning coverage. In fact, for one group of viewers we find that, on average, overall ideological exposure was largely unchanged following the shift in control and content to the right.

Finally, we provide five additional pieces evidence on viewer responses. First, we show that results are similar when using a measure of the frequency of watching each channel. Second, we investigate second choices by consumers. Third, we show that the relationship between viewer trust in the public network and ideology changed in an analogous manner following the change in government. Fourth, we investigate measures using aggregate ratings of news programs. Finally, we investigate possible substitution between viewership of television news and newspaper readership.

2. Literature Review

Our paper is related to a literature on the relationship between ideological control of the media and media content. In terms of private media ownership, Besley and Prat (2006) theoretically examine the case for government capture of the media sector in the context of a political agency model. They find that capture is less likely when voters have access to a wide variety of outlets and when ownership is independent in the sense that it is costly for the government to provide transfers to the media. They also find that media capture affects political outcomes. Snyder and Strömberg (2008) empirically examine this relationship between media coverage and political accountability based upon a measure of the geographic congruence between media markets and Congressional districts. In a theoretical contribution, Baron (2006) demonstrates that media bias can persist even in competitive markets environments due to the incentives for career-oriented journalists to write sensationalized stories.

Several empirical studies provide support for the notion that control of the media matters for media content as well as other outcomes. Djankov et al. (2003) examine control of the media in a variety of countries and find that government control of the broadcast media is pervasive and that this public control is associated with poor government outcomes. Gentzkow et al. (2006) document the movement from a partisan to an informative press in the United States between 1880 and 1920. They argue that this shift is largely driven by reductions in marginal costs of production and the associated increases in readership along with heightened competition in the marketplace. In a case study of coverage of Gary Hart's 1988 Presidential campaign by the newspaper chain Knight-Ridder, Glasser et al. (1989) demonstrate that private group ownership of newspapers led to more uniform coverage across newspapers in this instance. Pritchard (2002) examines the role of private group ownership of newspapers in the United States on coverage of the 2000 Presidential campaign. Finally, Puglisi and Snyder (2008) find that bias in news coverage of political scandals is related to a newspapers' ideological leaning as measured by editorial endorsements.[1]

1. There is also a larger literature on media bias and its effects on voters' behavior. See Groseclose and Milyo (2005), DellaVigna and Kaplan (2007), George and Waldfogel (2006), and Gerber et al. (2009).

An alternative view is that reader preferences are the dominant factor in driving news coverage. Mullainathan and Shleifer (2005) and Gentzkow and Shapiro (2006) formalize this argument and demonstrate that viewers choose media outlets with content conforming to their own ideology. Gentzkow and Shapiro (2010) empirically examine this issue in the US newspaper industry and show that newspaper content is closely related to the prevailing ideology of readers in the marketplace. They argue that reader ideology, rather than private owner ideology, is the key driver of newspaper slant.

3. Background on Italian Television

The Italian broadcast television industry is composed of two main national networks—one public and one private.[2] The Italian public service broadcaster (RAI) operates three national terrestrial channels: RAI 1, RAI 2, and RAI 3 (labeled respectively P1, P2, and P3 henceforth, where P refers to public). RAI's main competitor is Mediaset, the main Italian commercial television network, founded and controlled by Silvio Berlusconi through his family's holding Fininvest, which also broadcasts three national channels: Canale 5, Italia 1, and Rete 4 (respectively B1, B2, and B3 henceforth, where B refers to Berlusconi). Taken together, RAI and Mediaset account for approximately 85%–90% of the average TV viewership.[3] This high degree of concentration and corresponding lack of pluralism in this market is particularly salient given that television represents the main source of political information for the vast majority of the Italian population.[4]

For several reasons, the relationship between the political system and the media in Italy is particularly close. First, the leader of one of the two main political coalitions is the owner of the top private media conglomerate. This issue has generated debate about both Berlusconi's potential use of the private media for political gain and potential regulation of this conflict of interest. Second, the political majority has substantial influence over public television. During our sample period, the news director of P1—the most viewed and influential public channel—was replaced following changes in the majority coalition (Table 1).[5] These two issues were particularly salient between

2. Along with a multitude of regional and local channels, there is a smaller national network (La7), which is currently owned by Telecom Italia Media. La7 is fairly small relative to the two other networks and only represents about 3% of the market.

3. The average daily audience share of RAI and Mediaset combined was 90.4% in 2001, 89.6% in 2002, 89.0% in 2003, 87.5% in 2004, 85.5% in 2005, 83.9% in 2006, and 82.7% in 2007. The data come from Auditel, the research company responsible for television audience measurement in Italy.

4. According to a recent survey by Diamanti et al. (2007), for example, broadcast television represents one of the principle sources of information for 94% of the population. Other surveys present similar results (ISTAT 2008; CENSIS 2008). Furthermore, for a significant segment of the population, broadcast television represents the *only* source of news.

5. Traditionally, the executive body of the Italian public broadcasting corporation has been representative of the ruling political coalition. RAI is governed by a nine-member administrative council. Seven members are elected by a parliamentary committee while the remaining two, including the president, are nominated by the largest shareholder—the Ministry of Economy and Finance. The council appoints the director-general, the channels' directors, and the directors of each channel news service. The latter are very influential figures

TABLE 1. Public TV—news directors (2000–2007).

P1 (Channel 1)	
June 2000	G. Lerner (Center-Left)
October 2000	A. Longhi (Center-Left)
2001 Elections	
April 2002	C. Mimum (Center-Right)*
2006 Elections	
September 2006	G. Riotta (Center)
P2 (Channel 2)	
1994–2002	C. Mimum (Center-Right)*
April 2002	M. Mazza (Center-Right)
P3 (Channel 3)	
1998–2000	E. Chiodi (Center-Left)
June 2000	A. Rizzo Nervo (Center-Left)
July 2001	A. Di Bella (Center-Left)

*From 1991 to 1994 and after July 2007 served, respectively, as deputy director of Berlusconi's Channel 5 News.

2001 and 2006, when Silvio Berlusconi was also the head of the ruling coalition and hence in a position to exert influence on both private and public television. Despite the undeniable influence of the majority, the opposition is generally granted control of one of the three public channels. During our entire sample period, P3 news remained within the sphere of influence of the left-wing coalition, whereas P2 news directors were closer to the center-right parties.

4. Content Analysis

We next investigate the evolution of news coverage of the two major coalitions, the center-right and the center-left.[6] Monthly data on content for the top six national channels are available from the Italian Communications Regulatory Authority (AGCOM) and cover the period between January 2001 and September 2007. These data include measures of both speaking time—defined as airtime in which each political

since they are responsible for setting the news program editorial line and agenda, therefore influencing which issues or events are covered. These appointments are made according to a long-standing system of political quotas (*lottizzazione*). In fact, most of the time those appointed to these positions can be linked to one political coalition or even to a specific political party according to previous political or professional experience.

6. Over the course of the last decade the Italian political system has been characterized by the presence of these two main political coalitions. Despite considerable within-coalition ideological differences and attrition, these alliances have not experienced major transformations over the period under examination (2001–2007). It seems therefore appropriate for the period under examination to treat these coalitions as the key players in the Italian political arena.

actor speaks directly to the public (statements, interviews, etc.)—and news time—defined as airtime devoted to the coverage of issues and/or events related to a political actor.[7]

In constructing our measure of station ideology, we choose to focus on speaking time rather than news time. Unlike news time, which may include both positive and negative reports, speaking time measures the opportunity for a political actor to communicate its views directly to the audience, and can hence be considered a better measure of favorable coverage.[8] To compute the speaking time of a coalition, we aggregate the speaking time devoted to the affiliate parties, and, for the coalition in power, we also include the time assigned to the government (Prime Minister and other members of government) and to the Speakers of the two Houses.[9]

Note that our speaking time measure may still include unfavorable coverage if, for example, Berlusconi's network provides airtime to extreme left parties that are critical of the center-left coalition. For this reason, we also present results focusing on the distribution of speaking time among the different members, such as the Prime Minister, within the majority coalition. More generally, the presence of negative coverage should only bias our analysis against the key hypotheses since right-leaning channels may tend to air positive coverage of the center-right coalition but negative coverage of the center-left coalition and likewise for left-leaning channels.

We begin by developing an absolute, but time-invariant, measure of station ideology. In particular, we examine how speaking time on each station is distributed between the majority and the opposition over this period. This measure of station ideology is based upon a test for symmetry. If a channel provides equal coverage of the right when the right is in power and the left when the left is in power, we conclude that this channel is unbiased, and deviations from symmetry provide evidence of bias.

As shown in Figure 1(a), the right receives more extensive coverage on Berlusconi's channels than does the left, even when the latter is in power. Thus, we find evidence that Berlusconi's network is biased to the right. The same pattern does not apply to public channels (Figure 1(b)) which, on aggregate, devote a fairly stable fraction of time to the majority, regardless of who is in power. With regard to differences between Mediaset channels (Figure 2), while news coverage on B2 and B3 is more favorable to the right throughout the entire period, B1 covers the two coalitions in a rather more balanced way, devoting more time to the left when this is in power. Nevertheless, on B1, the gap between the majority and the opposition is also much

7. We also developed measures based upon coverage of different issues by channels. This analysis documents that Berlusconi's private channels, relative to the public channels, tended to devote more coverage to issues, such as crime and security, that are commonly considered to be more salient to right-leaning voters. See Durante and Knight (2009) for further details.

8. Gentzkow and Shapiro (2010) circumvent this problem of negative coverage by measuring ideology via the printing of political phrases in newspapers in the United States. Unfortunately, such a measure is infeasible in the Italian context, since, to the best of our knowledge, there is no systematic database of television news transcripts.

9. We do not consider the time devoted to the President of the Republic since this figure cannot be associated with any of the coalitions. We also disregard the time devoted to the European Union, and to those parties that are not affiliated with any of the two major coalitions.

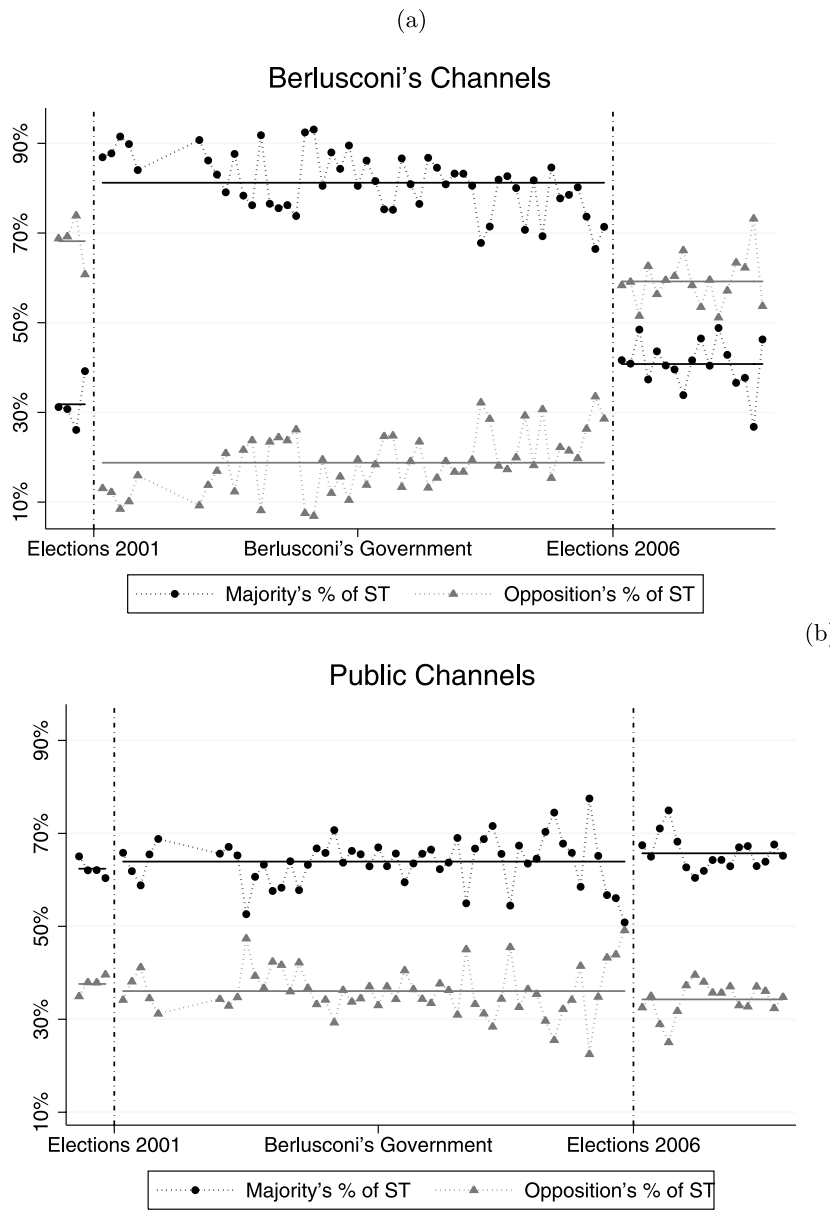

FIGURE 1. Majority versus opposition share of total speaking time by group.

larger when Berlusconi is in power. Turning to public television (Figure 3), all three channels devote on average a larger fraction of time to the ruling coalition. However, on P2 the gap between majority and opposition is larger during Berlusconi's government, while the opposite is true for P3, which provides particularly favorable coverage of the left-wing coalition when it is in the opposition. P1 is characterized by the most regular

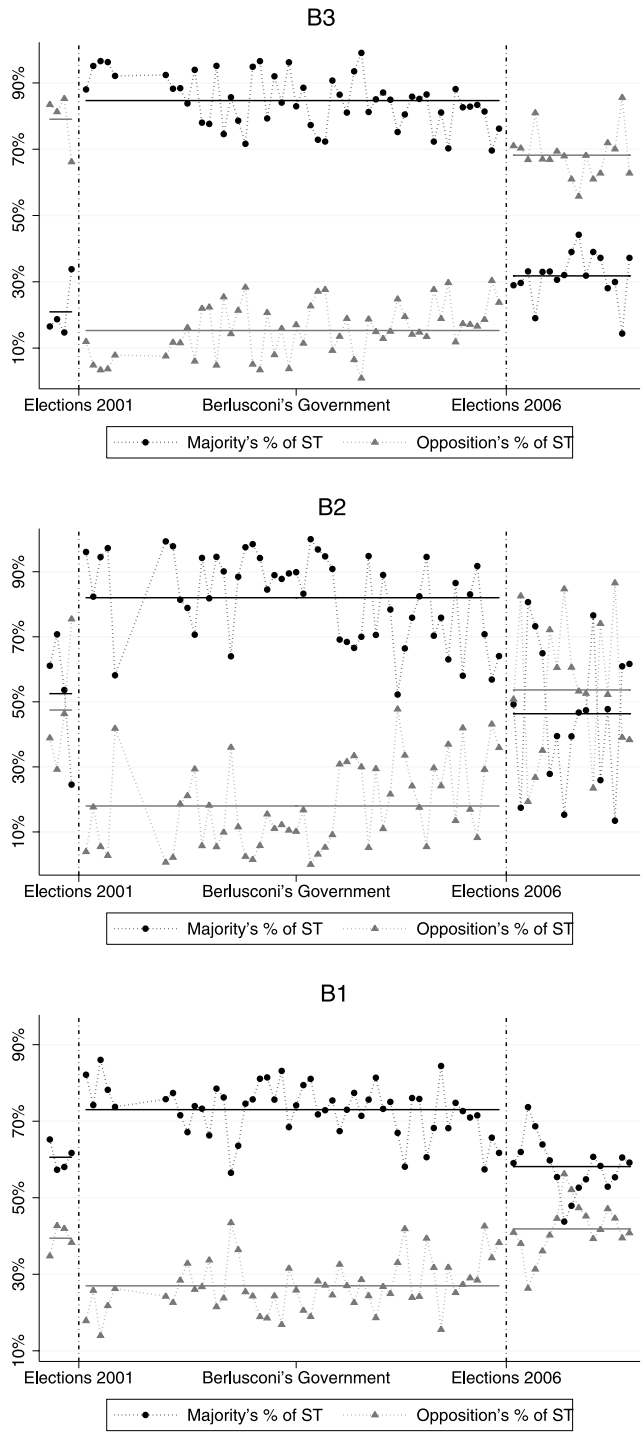

FIGURE 2. Majority versus opposition share of total speaking time by channel (mediaset).

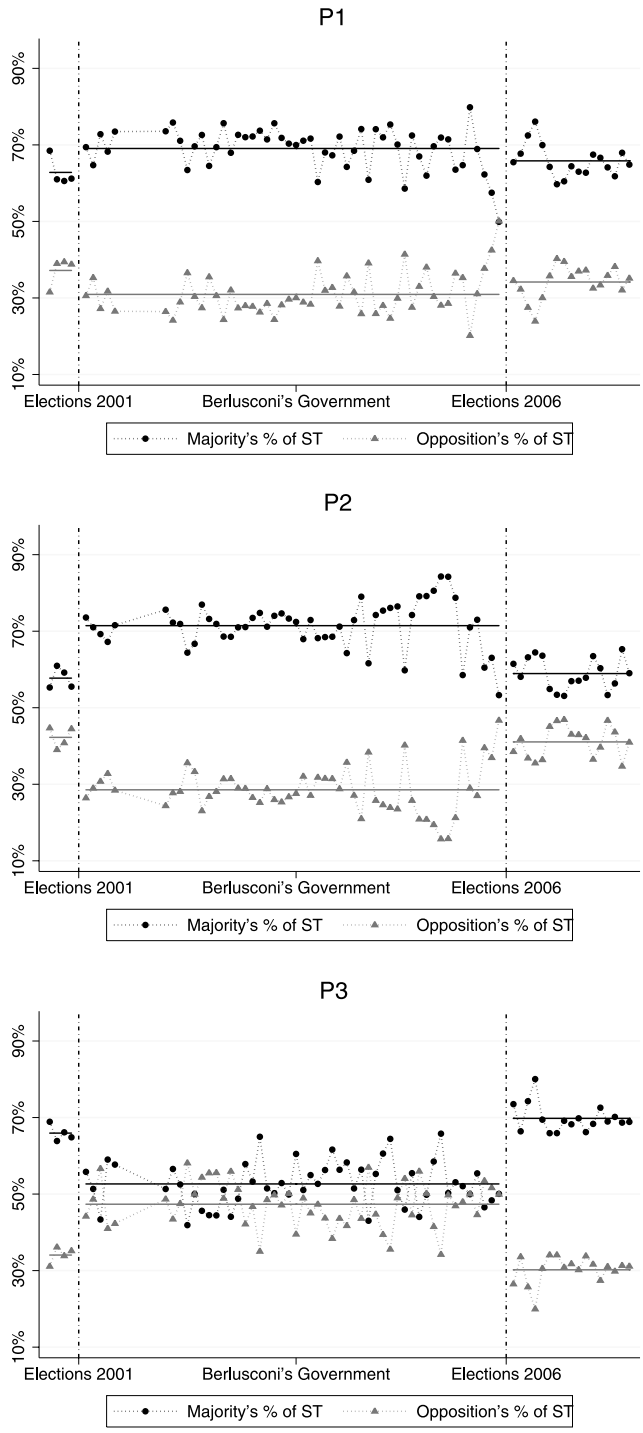

FIGURE 3. Majority versus opposition share of total speaking time by channel (RAI).

pattern. Over the period analyzed, in fact, time is distributed in a fairly stable fashion between majority and opposition.

To further test these patterns we regress the share of total speaking time devoted to the majority on group dummies and interaction terms with a dummy for Berlusconi being in power.[10] The coefficient on this interaction term provides a summary measure of the degree of bias towards to the right. As shown in column (1) of Table 2, the coefficient on the interaction term for Berlusconi's channels is large, positive, and statistically significant, confirming a much more favorable coverage of the majority when the right is in power. As depicted in column (2), this result is more pronounced for B2 and B3, but the difference is also large and significant for B1. Turning to public channels, the coefficient on the interaction term for P2 is positive and significant, confirming a clear bias in favor of the right-wing coalition. In contrast, coverage on P3 is more favorable to the left-wing majority than to the right-wing majority. Finally, P1 slightly favors the right coalition.

This measure of station ideology is based upon the assumption that an unbiased station provides equal coverage to the majority regardless of which coalition is in power. Even without this assumption, however, one can compare coverage across stations in order to measure the relative positions of the stations on the ideological spectrum. According to this comparison, which is based upon the coefficients on the interactions terms in column (2) of Table 2, we can order the stations from left to right as follows: P3, P1, P2, B1, B2, and B3. Thus, the public stations all lie to the left of the private stations, and the public station controlled by the left throughout the sample (P3) is the furthest to the left of the three.

One limitation of these measures of station ideology is that they do not account for changes over time in the party controlling the main public channel (P1), which will be the key source of variation in the behavioral responses section to follow. To examine the role of changes in control, we next develop a time-varying, but relative, measure of station ideology. This measure gauges the change in content on the public network following changes in ideological control, relative to the change in content on the private network, which was controlled by Berlusconi for the entire sample.

In order to implement this relative measure, we use the fraction of speaking time devoted to the right party rather than the fraction of speaking time devoted to the majority. We again regress speaking time on group dummies and on interaction terms with a dummy for Berlusconi being in power. The coefficient on this interaction term provides a measure of how each channel shifted their coverage of the right after Berlusconi's party is in control. We omit the key coefficients for one channel, and all results should be interpreted as relative to this omitted category. Thus, this measure captures changes in the relative positions of stations on the ideological spectrum but

10. Some members of the majority coalition may be particularly exposed to the media during certain periods of the year (e.g. the Ministry of Economy during the discussion of the budget law). To control for possible seasonal variations in the coverage of the majority, regressions in Tables 2 and 3 include calendar month fixed effects.

TABLE 2. Distribution of total speaking time by group and channel.

	Dependent variable: Share of Total Monthly Speaking Time			
	Majority		Right	
	(1)	(2)	(3)	(4)
Berlusconi_Gov			0.281***	0.339***
			[0.030]	[0.026]
Berlusconi's Channels	0.471***		0.187***	
	[0.029]		[0.035]	
Berlusconi_Gov * B.'s Channels	0.345***		−0.030	
	[0.030]		[0.043]	
Public Channels	0.658***			
	[0.029]			
Berlusconi_Gov * P. Channels	0.000			
	[0.030]			
B1		0.603***		0.065**
		[0.025]		[0.031]
Berlusconi_Gov * B1		0.143***		−0.024
		[0.025]		[0.037]
B2		0.492***		0.176***
		[0.025]		[0.031]
Berlusconi_Gov * B2		0.344***		−0.046
		[0.025]		[0.037]
B3		0.313***		0.355***
		[0.025]		[0.031]
Berlusconi_Gov * B3		0.550***		−0.198***
		[0.025]		[0.037]
P1		0.669***		
		[0.025]		
Berlusconi_Gov * P1		0.037		
		[0.025]		
P2		0.603***		0.066**
		[0.025]		[0.031]
Berlusconi_Gov * P2		0.127***		−0.042
		[0.025]		[0.037]
P3		0.707***		−0.038
		[0.025]		[0.031]
Berlusconi_Gov * P3		−0.164***		−0.125***
		[0.025]		[0.037]
Constant			0.356***	0.350***
			[0.029]	[0.026]
Observations	438	438	438	438

Notes: Calendar month fixed effects included in all regressions. Public Channels is the base outcome in column (3); P1 (Channel 1) is the base outcome in column (4). GLS estimates assuming autocorrelation (AR1) within channel*time period (before, during and after Berlusconi's government) group. Standard errors in brackets; $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

cannot measure whether a particular station or the sector as a whole is biased to the left or to the right.

As shown in column (3), we find that the private network devoted less coverage to the right, relative to the public network, during the period in which Berlusconi was in government and hence controlled the public network. This finding is consistent

with the idea that the public network shifted to the right when Berlusconi was in power. This effect, however, is small and statistically insignificant, perhaps reflecting the fact that the news director changes with the government in only one of three public channels (P1). We next examine more fully this heterogeneity in coverage within the public and private networks. As shown in column (4) of Table 2, where channel P1 is the omitted category, we find that, relative to each of the five other channels, the main public network (P1) moved to the right during the period in which the center-right was in control. These results are statistically significant for channel P1 relative to channels B3 and P3. In terms of comparing P1 and the Mediaset channels (B1, B2, and B3), we can say that P1 remained to the left of the Mediaset channels in all periods but that these ideological differences between the two were smaller when the right was in power.[11] In terms of comparing P3 and P1, we conclude that P1 was to the right of P3 in all periods and that these ideological differences between the two were larger when the right was in power. Taken together, these results document that P1 was a less extreme version of P3 when the left was in power and a less extreme version of the Mediaset channels when the right was in power.

While our interpretation is that these changes in content were due to changes in control of the public channel, there are other possible explanations for this result. If media outlets favor the party that is more popular among voters, as documented by Gentzkow and Shapiro (2010), then coverage of the majority may be higher than the minority for this reason since majority status necessarily reflects the preferences of voters for this party. If this demand-side view applies to both the public and private networks, however, it would not explain why content on the public shifts to the right relative to the private. On the other hand, it is possible that Berlusconi's private network was already so biased to the right that there was little capacity for increased coverage of the right when Berlusconi was in power. This capacity issue would not explain, however, the variation within the public channels and why, in particular, P1 shifts to the right, relative to P3, which was always controlled by the center-left and had plenty of capacity for additional coverage of the right. Of course, we cannot rule out an alternative explanation in which P1 is simply more responsive to viewer preferences than other channels. This duly noted, we see no reason why P1 would differentially respond in this manner, and thus view changes in partisan control of media as the most likely explanation for changes in the pattern of coverage.

Returning to our measure based upon speaking time devoted to the majority, another question of interest is how this time is distributed between different members

11. In fact, some commentators suggested that news content on P1 might have become even more pro-Berlusconi than on B1. This impression, however, was not based on a systematic comparison of political coverage on the two news channels, but rather on anecdotal evidence of P1's patently unbalanced coverage of particular political events. One notable example was P1's decision to not broadcast the EU Parliament session in which prime minister Berlusconi replied to Martin Schulz—a German MEP who had criticized Berlusconi's domestic policy—by comparing him to a Nazi concentration camp guard, an episode which was instead broadcast on B1's news programs.

TABLE 3. Distribution of majority speaking time across different members of the ruling coalition.

	Dependent Variable: Share of Majority Speaking Time				
	Government	Prime Minister	Others in Government	Majority Parties MPs	Speakers
	(1)	(2)	(3)	(4)	(5)
B1	0.490***	0.112***	0.389***	0.484***	0.036***
	[0.051]	[0.037]	[0.041]	[0.054]	[0.010]
Berlusconi_Gov * B1	0.094*	0.108***	−0.006	−0.096	−0.008
	[0.056]	[0.036]	[0.042]	[0.060]	[0.010]
B2	0.462***	0.165***	0.313***	0.499***	0.050***
	[0.051]	[0.037]	[0.041]	[0.054]	[0.010]
Berlusconi_Gov * B2	0.104*	0.169***	−0.063	−0.066	−0.049***
	[0.056]	[0.036]	[0.042]	[0.060]	[0.010]
B3	0.145***	0.008	0.167***	0.853***	0.005
	[0.051]	[0.037]	[0.041]	[0.054]	[0.010]
Berlusconi_Gov * B3	0.498***	0.400***	0.084**	−0.487***	−0.014
	[0.056]	[0.036]	[0.042]	[0.060]	[0.010]
P1	0.432***	0.135***	0.319***	0.530***	0.047***
	[0.051]	[0.037]	[0.041]	[0.054]	[0.010]
Berlusconi_Gov * P1	0.070	−0.025	0.089**	−0.105*	0.027***
	[0.056]	[0.036]	[0.042]	[0.060]	[0.010]
P2	0.359***	0.125***	0.264***	0.614***	0.036***
	[0.051]	[0.037]	[0.041]	[0.054]	[0.010]
Berlusconi_Gov * P2	0.127**	−0.027	0.137***	−0.156***	0.022**
	[0.056]	[0.036]	[0.042]	[0.060]	[0.010]
P3	0.408***	0.124***	0.322***	0.557***	0.046***
	[0.051]	[0.037]	[0.041]	[0.054]	[0.010]
Berlusconi_Gov * P3	0.030	−0.022	0.028	−0.060	0.020**
	[0.056]	[0.036]	[0.042]	[0.060]	[0.010]
Observations	438	414	414	438	426

Notes: Calendar month fixed effects included in all regressions. Public Channels is the base outcome in column (3); P1 (Channel 1) is the base outcome in column (4). GLS estimates assuming autocorrelation (AR1) within channel*time period (before, during and after Berlusconi's government) group. Standard errors in brackets; $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

of the ruling coalition and whether the distribution changes depending on who is in power. As shown in Table 3, when Berlusconi is in power his channels tend to cover the government disproportionately more. Interestingly, this result is mostly driven by a steady increase in the coverage of the Prime Minister himself, rather than coverage of others in governments, majority parties, MPs, and Speakers. For the public channels, by contrast, we find little increase in coverage of the Prime Minister when the right is in power.

In summary, we have found that the Italian television market for news appears to be segmented along different lines. Overall, Berlusconi's channels provide a more favorable coverage of the right-wing coalition relative to public channels. We also find evidence of substantial heterogeneity within Berlusconi's channels with B2 and

B3 offering a more unbalanced coverage than B1. We find significant heterogeneity within the public channels with P2 leaning towards the right and P3 toward the left. P1, by contrast, is not characterized by a particular left or right bias and generally favors the ruling coalition over the opposition, regardless of the color of the majority.

5. Theoretical Framework

In this section, we examine how viewers altered their viewing habits in response to the changes in media ownership and content previously documented. We begin by deriving a theoretical model of consumer choice of media outlets. The model is based upon a media sector that provides potentially valuable information to imperfectly informed consumers. We then use the theoretical model to generate an empirical specification of the choice of media outlet by viewers of differing ideologies.

5.1. Preliminaries

Society must choose between two policy alternatives, $p \in \{L, R\}$. These options could be interpreted in a variety of ways, including an election featuring two parties, a decision over whether to go to war, or proposed changes to immigration policy. There is a set of individual voters, indexed by v, and a set of news stations, indexed by s. Voter's payoffs from each policy option depend upon two factors. First, each voter's judgment of the policy options is affected by a certain ideological position. Thus, left-leaning voters are predisposed to the left-wing option and likewise for right-wing voters. In addition to this ideological dimension, we assume that there is a payoff that is common to all voters. We refer to this payoff as the quality of the policy option, and the options thus can be interpreted as "good policy" or "bad policy". In the electoral context, this quality dimension can be interpreted as the experience or integrity of the candidates. In the conflict context, the common payoff would depend upon the degree of the threat posed by the hostile nation.

More formally, we assume that voter v receives the following payoff from policy option p:

$$U_{vp} = q_p - \tau(i_v - i_p)^2, \tag{1}$$

where q_p represents the quality of p, i_v represents voter ideology, i_p represents the policy's position in the ideological spectrum, and τ represents the relative importance of the ideological dimension. We assume that $i_L < i_R$ so that increases in ideology are associated with movements to the right. Defining relative utility as $\Delta_v = U_{vL} - U_{vR}$, we have that

$$\Delta_v = q + \alpha - \beta i_v, \tag{2}$$

where $q = q_L - q_R$ represents relative quality, $\alpha = \tau(i_R^2 - i_L^2)$ is a constant, and $\beta = 2\tau(i_R - i_L)$ represents the coefficient on voter ideology.

We assume that voters know the ideological positions of the policy options (i_L, i_R) but are uncertain over quality. Priors over relative quality $(q = q_L - q_R)$ are unbiased and normally distributed with variance σ_q^2. Voters potentially observe a news report (n_s) from station s. Before observing any news, voter v supports L if his ideology is below a threshold:

$$E[\Delta_v] > 0 \iff i_v < \frac{\alpha}{\beta}. \tag{3}$$

After observing a report, voter v supports L if his ideology is below a quality-adjusted threshold:

$$E[\Delta_v | n_s] > 0 \iff i_v < \frac{\alpha + E[q|n_s]}{\beta}. \tag{4}$$

Thus, if voters update favorably with respect to L upon observing report n_s, then $E[q|n_s] > 0$ and the threshold shifts to the right. This convinces some voters who supported R ex ante to now support L. Similarly, if voters update favorably with respect to R, then $E[q|n_s] < 0$ and the threshold shifts to the left. In order to understand how voters update their beliefs following news reports, we next present a framework for news station coverage choices.

Similarly to voters, stations can be characterized by their ideology (i_s). We take station ideology as exogenous and assume that it reflects the political preferences of the owner.[12] News stations are assumed to have better information than voters about the quality of the policy options and may provide valuable guidance. In particular, we assume that station s receives an unbiased signal over the relative quality of the two options:

$$\theta_s = q + \varepsilon_s, \tag{5}$$

where ε_s is the noise in the signal and is assumed to be normally distributed with mean zero and variance σ_ε^2. Given this information, stations update over quality as follows:

$$E[q|\theta_s] = \omega\theta_s, \tag{6}$$

where the weight on the signal is given by $\omega = \sigma_q^2/(\sigma_q^2 + \sigma_\varepsilon^2)$.

Following the literature, we assume that news reports are *coarse* in the sense that news organizations cannot feasibly provide all of their information gathered during their investigations in a single news report.[13] As a simplification of this idea that news

12. For several reasons, we have abstracted from endogenous station ideology. First, in a model with endogenous ideology, one would have to make assumptions regarding the objectives of the different stations. In our context, with private media owned by a political leader and the public media controlled by the majority party but financed heavily through advertising revenues, objectives may involve a mix of ideological and profit motives and also differ across channels. In addition, our context involves six channels, whereas most tractable models with an endogenous supply of slant, such as Mullainathan and Shleifer (2005), focus on the case of monopoly or duopoly. Gentzkow and Shapiro (2006) allow for more than two firms but assume that, from the perspective of consumers, newspapers are ex-ante identical.

13. See, for example, Suen (2004) and Baron (2006).

reports are coarse, we assume that news stations provide binary reports, which are favorable to one of the two policy options. That is, voters observe a news report from station n favoring either the left policy option ($n_s = L$) or favoring the right option ($n_s = R$).

Given these assumptions, station s thus provides a report supportive of L if the signal exceeds a station-specific threshold:

$$n_s = L \text{ if } \theta_s \geq \frac{\beta i_s - \alpha}{\omega}, \tag{7}$$

where the threshold is increasing in the ideology of the owner. If the signal does not exceed this threshold, the station provides a report supportive of R.

5.2. Value of an Informative Media

Readers attempt to learn about quality from these news reports but this inference is potentially complicated by the ideological position of stations. The value of information from station s thus depends upon the preferences of the voter. For a left-leaning voter [$\alpha - \beta i_v > 0$], the value of information (W) is the possibility of a report favoring R:

$$W = \Pr(R) E[-\Delta_v | n_s = R]. \tag{8}$$

Using the properties of the censored normal distribution, this value can be rewritten as follows:

$$W = \Phi\left(\frac{\beta i_s - \alpha}{\sqrt{\omega}\sigma_q}\right)(\beta i_v - \alpha) + \sqrt{\omega}\sigma_q \phi\left(\frac{\beta i_s - \alpha}{\sqrt{\omega}\sigma_q}\right). \tag{9}$$

The first term is negative and represents the cost of voting against one's prior. The second term is positive and represents the value of information. This second term is maximized at $i_s = \alpha/\beta$, which can be interpreted as the ideology of an unbiased station, and is thus declining in the degree of bias. For a right-leaning voter [$\alpha - \beta i_v < 0$], the value of information is the possibility of a report favoring L:

$$\begin{aligned} W &= \Pr(L) E[\Delta_v | n_s = L] \\ &= \left[1 - \Phi\left(\frac{\beta i_s - \alpha}{\sqrt{\omega}\sigma_q}\right)\right](\alpha - \beta i_v) + \sqrt{\omega}\sigma_q \phi\left(\frac{\beta i_s - \alpha}{\sqrt{\omega}\sigma_q}\right). \end{aligned} \tag{10}$$

Combining these two measures into a single expression for the value of news to consumers, we have that

$$W = \min(\alpha - \beta i_v, 0) + \Phi\left(\frac{\beta i_s - \alpha}{\sqrt{\omega}\sigma_q}\right)(\beta i_v - \alpha) + \sqrt{\omega}\sigma_q \phi\left(\frac{\beta i_s - \alpha}{\sqrt{\omega}\sigma_q}\right). \tag{11}$$

The first and second terms combined are negative for both left-leaning and right-leaning voters and again represent the cost associated with voting against one's prior. The final term, by contrast, is positive and represents the value of information to the voter. We next use this derived value of informative media in order to understand the choice of news stations by viewers of differing ideologies.

5.3. Analysis of Choice of Outlet

As a benchmark, consider the case in which voters with differing ideologies can directly choose the ideology of the station (i_s^*). Using the fact that $\phi'(z) = -z\,\phi(z)$, we can show that the relevant first-order condition is given by

$$\frac{\partial W}{\partial i_s} = \phi\left(\frac{\beta i_s - \alpha}{\sqrt{\omega}\sigma_q}\right)\left(\frac{i_v - i_s}{\sqrt{\omega}\sigma_q}\right) = 0. \tag{12}$$

Thus, readers prefer a station with ideology equal to their own ($i_s^* = i_v$). This result is similar to Suen (2004), who examined a similar model but with binary signals and binary payoffs.

As a first step towards generating an empirical specification of the choice of media outlets, suppose next that voters cannot choose station ideology directly. Instead, each chooses to watch one station from a limited menu of $S + 1$ outlets, which are indexed by $s = \{0, 1, 2, \ldots, S\}$. In order to make this choice probabilistic, we next assume that, in addition to the deterministic payoff in equation (11), voter v receives an idiosyncratic payoff from station s equal to ϵ_{vs}. We can then write the payoff to voter v from watching station s as follows:

$$W_{vs} = \theta_v + \theta_s + \lambda_s i_v + \epsilon_{vs}, \tag{13}$$

where

$$\theta_v = \min(\alpha - \beta i_v, 0),$$
$$\theta_s = \sqrt{\omega}\sigma_q \phi[(\beta i_s - \alpha)/\sqrt{\omega}\sigma_q] - \alpha\Phi[(\beta i_s - \alpha)/\sqrt{\omega}\sigma_q],$$
$$\lambda_s = \beta\Phi[(\beta i_s - \alpha)/\sqrt{\omega}\sigma_q].$$

Thus, the station-specific coefficient on voter ideology (λ_s) is related to the ideological leanings of the network. Assuming that ϵ_{vs} is distributed type-I extreme value and normalizing the payoff from station 0 to equal zero, viewership probabilities are given by

$$\Pr(v \text{ chooses } s) = \frac{\exp(\theta_s + \lambda_s i_v)}{1 + \sum_{t=1}^{S} \exp(\theta_t + \lambda_t i_v)}. \tag{14}$$

Thus, a multinomial logit model of the choice of station by viewers of differing ideology allows for identification of the channel-specific parameters (λ_s), which, as previously shown, are closely related to the ideology of the station owner.

6. Empirical Analysis

In this section, we estimate a model of the individual choice of channel before and after the 2001 change in government. This model suggests that viewers may migrate to like-minded outlets following a change in control of the government from center-left to center-right. Given the findings of the content analysis, we hypothesize that left-leaning voters may switch from channel P1 to channel P3. Correspondingly, we hypothesize that right-leaning voters may move from the private network to channel P1.

6.1. Primary Switching Measures

To test these hypotheses, we use survey data on political attitudes and electoral behavior from the Italian National Election Study series (ITANES), which includes a set of novel questions on individual media and news consumption.[14] A complete description of the questions used is provided in the Appendix. Following the national elections on 13 May 2001, the first wave was conducted between 18 May and 15 June and involved 3209 individuals. 1882 of these (58.6% of the original sample) were re-interviewed in the second wave, which was conducted between April and June of 2004. Note that the first wave was conducted right after the election but that almost all of the interviews were completed before the change in government, which occurred on 11 June 2001. Thus, the first and second waves can be interpreted as periods in which the left and right, respectively, controlled the main public channel P1.

Before turning to the econometric results, we first present trends in viewership between 2001 and 2004 for viewers of differing ideologies. As shown in Figure 4, there was no reduction among left-leaning viewers, defined as those with self-reported political ideology equal to 1 or 2 on a 5-point scale in 2001, in the propensity to view news on channel B1, which remained low in both periods. There is a noticeable increase, however, in viewership of channel P3, which was controlled by the center-left coalition both before and after the elections. This increase was associated primarily with a reduction in viewership of channel P1. This switch from P1 to P3 is striking given that these two news programs are broadcast at different times, and these viewers must thus alter their viewing schedule in order to accommodate this change.[15] Among centrists, defined as those with political ideology equal to 3 on a 5-point scale, there was a small increase in viewership of channel P3 news. The more prevalent factor, however, is a significant shift in viewership away from channel B1, the most popular channel of the private network, to channel P1, the most popular channel of the public network. As shown in the bottom panel, the shift from channel B1 to channel P1 is even stronger among right-wing voters, defined as those with a self-reported political ideology equal to 4 or 5 on a 5-point scale. Taken together, these results suggest that right-leaning viewers responded to the shift in control and content of channel P1 to the right by increasing their consumption of this channel, while left-leaning viewers responded by increasing their propensity to consume news from the left-leaning channel P3.

We investigate these patterns more completely by estimating an econometric model of viewer choice of news channel. We start with a simple analysis of the choice between public and private channels in which public is the omitted category. As shown in the

14. ITANES is a long-term research project on electoral behavior established in the early 1990s by the Istituto Carlo Cattaneo Research Foundation (www.cattaneo.org). Several pre- and post-electoral survey studies have been conducted in the context of the ITANES project over the course of the last 14 years (1994, 1996, 2001, and 2006). In many aspects the questions included in the ITANES surveys are analogous to those used in the surveys of the American National Election Study (ANES).

15. The following are the broadcasting time for the main news programs on the six national channels. P1 (TG1): 1:30 pm and 8 pm; P2 (TG2) 1:30 pm and 8:30 pm; P3 (TG3) 2:20 pm and 7 pm; B1 (TG5) 1 pm and 8 pm; B2 (Studio Aperto) 12.25 pm and 6:30 pm; B3 (TG4) 1:30 pm and 6:55 pm.

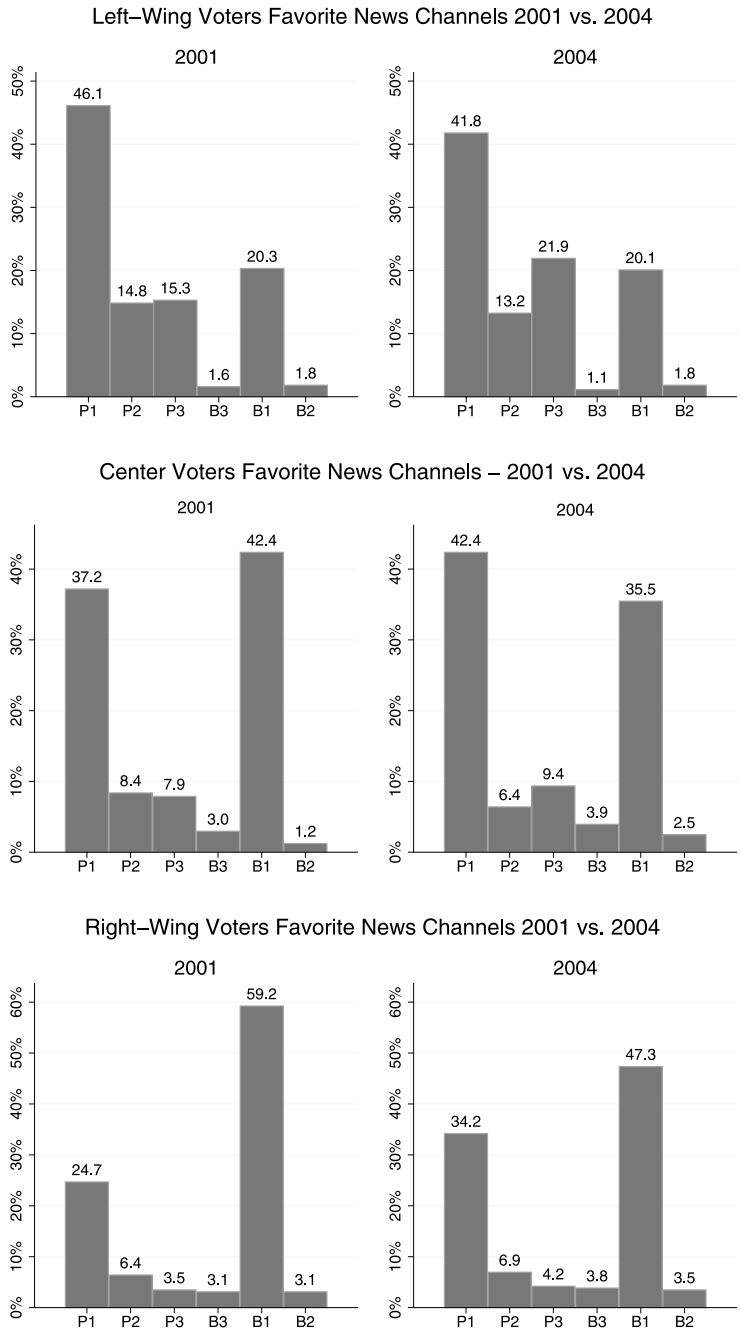

FIGURE 4. Favorite news channel by political ID (2001–2004). The 2001 data refer to interviews conducted between 18 May and 15 June 2001, right after the May 13th national elections, and mostly before the Berlusconi's government assumed power. The 2004 interviews were conducted between 3 April and 30 June 2004, several years into the Berlusconi government term.

TABLE 4. Favorite news channel by political ideology (2001 versus 2004).

	Dependent Variable: Favorite News Channel					
	Private Channels	B1	B2	B3	P2	P3
	(1)	(2)	(3)	(4)	(5)	(6)
Political Ideology	0.708***	0.641***	0.529**	0.537***	−0.100	−0.347***
(right leaning)	[0.059]	[0.064]	[0.207]	[0.184]	[0.098]	[0.105]
2004*Political Ideology	−0.173***	−0.223***	−0.135	−0.070	−0.060	−0.223*
	[0.061]	[0.071]	[0.231]	[0.201]	[0.116]	[0.123]
Observations	2756	2756	2756	2756	2756	2756

Notes: Multinomial logit regressions. Column (1) base outcome: Public channels. Other columns base outcome: P1 (Channel 1). The following controls and their respective interaction with the 2004 dummy are included: gender, education, age, occupational status, social class, church attendance, index of political knowledge, TV exposure, regional fixed effects. Robust standard errors clustered by individuals in brackets. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

first column of Table 4, as voter ideology moves to the right, viewers are more likely to watch private channels, relative to public channels, prior to Berlusconi coming to power. More interestingly, however, is the coefficient on the interaction between voter ideology and 2004, during which Berlusconi controls the public network. As shown, right-wing viewers, relative to left-wing viewers, are more likely to watch public channels, relative to private channels, after Berlusconi assumes power.

We next extend the analysis to investigate potential heterogeneity within the public and private networks. In particular, the final five columns of Table 4 presents results from a multinomial logit choice model in which channel P1, which has the largest viewership of the public channels in both periods and whose control shifted from the center-left to the center-right, is the omitted category. Thus, these results can be interpreted as relative to P1. As shown, right-wing voters were much more likely to watch any of the private channels relative to channel P1 prior to Berlusconi taking control of the public channels. Within the public channels, left-wing voters were more likely to watch P3 than P1 even prior to Berlusconi taking control. Most interestingly, however, is the interaction between viewer ideology and Berlusconi controlling the public channels. As shown, the ideological gap between B1 and P1 shrinks, but remains positive, after Berlusconi takes control of P1. The ideological gap between P1 and P3, however, increases as P1 becomes less of a substitute for P3 among left-leaning viewers. Taken together, these results are consistent with the content analysis, which demonstrated that channel P1 was a less-extreme version of P3 when under center-left control but was a less-extreme version of the Mediaset channels when under center-right control.

6.2. Offset Measures

Taken together, the previous results provide significant evidence that viewers responded to the changes in content by shifting to channels with ideological content similar to their own ideology. Importantly, however, both the content analysis and this revealed

preference analysis suggest that the ideology of channel P1, the public channel controlled by the center-right in 2004, remained to the left of the private channels even after the change in control. These results, combined with the shifting of right-wing viewers to channel P1 and the shifting of left-wing viewers to P3, suggests that the ideological exposure of some viewers actually moved to the *left* following the shift in public control and content to the *right*. This behavioral response and the associated unanticipated effect of exposure moving to the left may offset, partially or even fully, the direct effect of moving ideological content to the right following the change in partisan control of the public media.

To explore this issue more formally, we define expected ideological consumption for voter v at time t as follows:

$$E[C_{v,t}] = \sum_{s=0}^{S} \Pr(v \text{ chooses } s \text{ at time } t) \times \Pr(s \text{ reports } R \text{ at time } t). \quad (15)$$

Thus, holding viewership probabilities fixed, increases in right-leaning content are associated with increases in expected ideological consumption. In order to motivate our offset measure, we next define the actual change in ideological consumption (δ) and the change in ideological consumption had viewers not switched ($\delta_{\text{no switch}}$) as follows:

$$\delta = E[C_{v,2004}] - E[C_{v,2001}],$$
$$\delta_{\text{no switch}} = E[C_{v,2004}^{\text{no switch}}] - E[C_{v,2001}],$$

where $E[C_{v,2004}^{\text{no switch}}]$ uses 2004 station ideology but 2001 choice probabilities. That is,

$$E[C_{v,2004}^{\text{no switch}}]$$
$$= \sum_{s=0}^{S} \Pr(v \text{ chooses } s \text{ at time } t = 2001) \times \Pr(s \text{ reports } R \text{ at time } t = 2004). \quad (16)$$

Finally, percentage offset, which is defined by the fraction of the potential change in ideological consumption that is offset by consumer behavioral responses, is given as follows:

$$O_v = \frac{\delta_{\text{no switch}} - \delta}{\delta_{\text{no switch}}}. \quad (17)$$

To interpret this percent offset measure, consider two extreme cases. First, if there is no behavioral response to changes in station ideology, then $E[C_{v,2004}] = E[C_{v,2004}^{\text{no switch}}]$ and therefore $\delta_{\text{no switch}} = \delta$. Thus, in this case with no behavioral response we have that $O_v = 0$. On the other hand, if the behavioral response is complete in the sense that ideological exposure does not change, then $E[C_{v,2004}] = E[C_{v,2001}]$ and therefore $\delta = 0$. Thus, in this case we have that $O_v = 1$.

In terms of measuring $E[C_{v,t}]$, we use 2001 and 2004 predicted probabilities from the multinomial logit in order to estimate viewership probabilities for each channel for voters of differing ideologies. Also, using the fact that

$$\Pr(s \text{ reports } R) = \Phi[(\beta i_s - \alpha)/\sqrt{\omega}\sigma_q] = \lambda_s/\beta$$

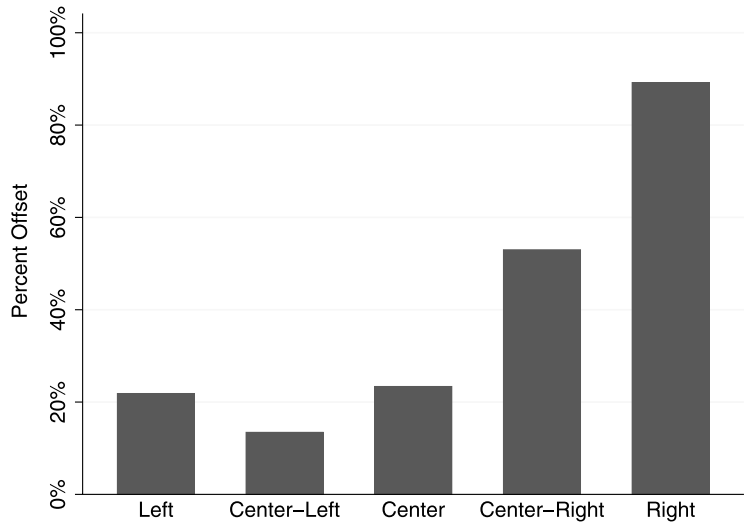

FIGURE 5. Percentage offset by political ideology.

in the theoretical model previously outlined, we can estimate reporting probabilities up to a scale by the channel-specific coefficients from the multinomial logit.[16]

Figure 5 provides the results from this analysis separately by viewer ideology. As shown, the offset is sizable for left-wing viewers, reflecting the shift from P1 to P3 for many of these viewers. While significant, the offset is incomplete since many left-wing viewers continued to watch P1 in 2004 and were hence exposed to a more right-leaning coverage. The percent offset, by contrast, is small for center-left voters. This reflects the fact that fewer of these viewers shifted from P1 to P3. Comparing center-left to center, however, the percent offset increases, reflecting the fact that more of these viewers were watching B1 prior to Berlusconi taking power and switched to P1 in 2004, when Berlusconi was in power. For center-right and right-wing voters, the effects associated with the shift from B1 to P1 are very significant. For the extreme right, this shift almost completely offset the change in content on channel P1. In addition to the shifting from B1 to P1, this large offset also reflects the fact that relatively few of these viewers were watching P1 prior to Berlusconi coming to power and thus the direct effect of moving content to the right was relatively small.

6.3. Additional Evidence on Switching

We next provide five additional pieces of evidence on patterns of news consumption and their relation to political ideology. The first analysis uses information from additional survey questions regarding how often viewers watch each of the six channels. For each channel, possible responses include never or almost never, rarely, fairly often,

16. This scaling parameter β disappears when computing our percentage offset measures given by O_v.

TABLE 5. Channel consumption by political ideology (2001 versus 2004).

	Dependent Variable: Frequency of Watching each Channel					
	B1	B2	B3	P1	P2	P3
	(1)	(2)	(3)	(4)	(5)	(6)
Political Ideology	0.323***	0.208***	0.266***	−0.195***	−0.203***	−0.272***
(right leaning)	[0.027]	[0.026]	[0.026]	[0.027]	[0.026]	[0.026]
2004*Political Ideology	−0.026	0.035	0.010	0.096***	0.053	0.006
	[0.030]	[0.030]	[0.030]	[0.032]	[0.033]	[0.030]
Observations	2750	2755	2751	2748	2751	2753

Notes: Ordered probit regressions based upon reported frequency of watching each Channel (never or almost never, rarely, fairly often, or very often). The following controls and their respective interaction with the 2004 dummy are included: gender, education, age, occupational status, social class, church attendance, index of political knowledge, TV exposure, regional fixed effects. Robust standard errors clustered by individuals in brackets. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

and very often. We did not focus on this measure in our baseline analysis since the question is not focused on news programming specifically and thus incorporates both news and non-news consumption. Under the assumption that non-news consumption is unaffected by changes in the political majority, however, we would expect to see patterns using these measures that are similar to those in our baseline analysis of favorite news program. As shown in Table 5, the results from an ordered Probit model demonstrate that movements to the right in viewer ideology are associated with a statistically significant increase in viewership of P1 when Berlusconi was in power in 2004, relative to 2001. For the other channels, by contrast, we find no statistically significant differences in consumption between 2001 and 2004 for viewers of differing political ideologies. Taken together, these results using overall consumption of channels is consistent with the baseline analysis of favorite news program, which demonstrated that right-leaning viewers substituted towards P1 and left-leaning viewers substituted away from P1 following the shift in majority from the left to the right.

Second, we investigate measures of second choices in news programming. While our baseline analysis focused on favorites, or first choices, the survey also included responses on second choices for 2,660 out of the 2,756 observations. Using both pieces of information, we consider first and second choices as a bundle of information consumed by viewers and conduct of multinomial logit analysis of the choice of this bundle. Since some combinations of first and second choices, especially those involving the smaller Mediaset channels B2 and B3, were quite rare, we combine the three Mediaset channels into one (B) for the purposes of this analysis. For consistency with our baseline analysis, we choose P1 as the first choice in the omitted category. For the second choice, we choose private channels (B) since this was the most popular among the possible second choices to P1. As shown in Table 6, relative to this (P1, B) bundle, we find that right-leaning viewers were less likely to consume the bundles (B, P1) and (B, P2) when Berlusconi was in power in 2004. Thus, while many right-leaning viewers reduced their consumption of Mediaset channels as a first choice after Berlusconi came to power, many of these switched to Mediaset in terms of their

TABLE 6. Favorite bundle of news channels by political ideology (2001 versus 2004).

	Dependent Variable: Favorite Bundle of News Channels											
	P1, P2	P1, P3	P2, P1	P2, P3	P2, B	P3, P1	P3, P2	P3, B	B, P1	B, P2	B, P3	B, B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Political Ideology	−0.318***	−0.680***	−0.603***	−0.892***	−0.001	−0.840***	−0.980***	−0.082	0.379***	0.291***	0.147	0.545***
(right leaning)	[0.102]	[0.134]	[0.158]	[0.234]	[0.148]	[0.151]	[0.219]	[0.203]	[0.087]	[0.101]	[0.142]	[0.106]
2004*Political Ideology	−0.150	−0.039	0.009	−0.178	−0.107	0.045	−0.341	−0.781***	−0.327**	−0.376***	−0.110	−0.253**
	[0.131]	[0.178]	[0.225]	[0.349]	[0.198]	[0.202]	[0.313]	[0.253]	[0.129]	[0.143]	[0.192]	[0.121]
Observations	2480	2480	2480	2480	2480	2480	2480	2480	2480	2480	2480	2480

Multinomial logit analysis of first and second choice bundles. Base outcome is the bundle (P1,B), where B refers to a Berlusconi channel. The following controls and their respective interaction with the 2004 dummy are included: gender, education, age, occupational status, social class, church attendance, index of political knowledge, TV exposure. Robust standard errors clustered by individuals in brackets. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

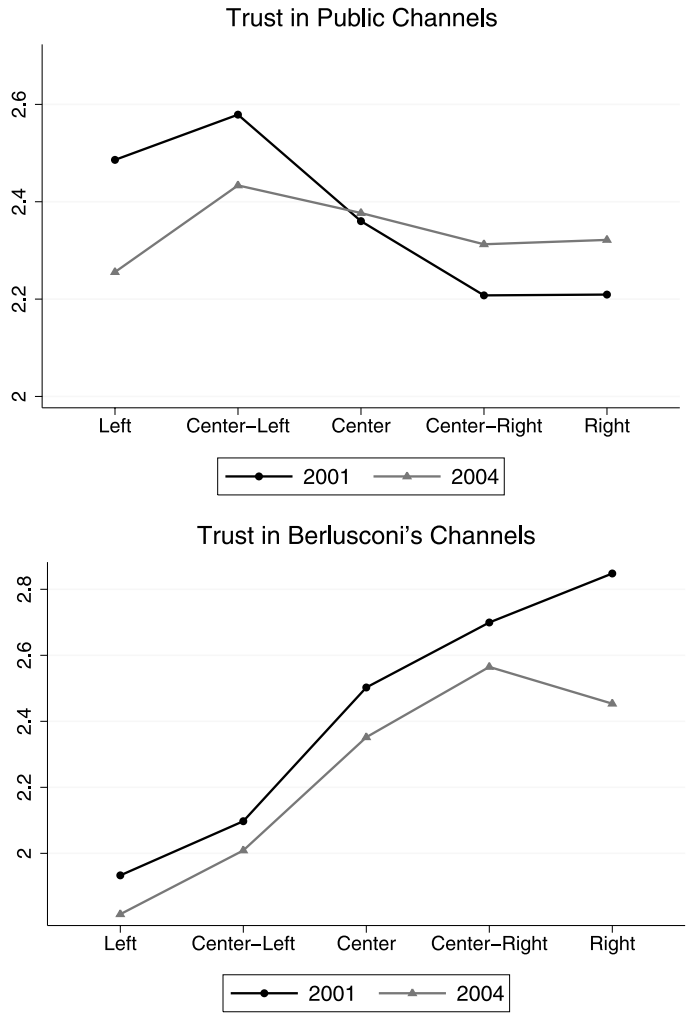

FIGURE 6. Trust in public and Berlusconi's channels by political ID (2001–2004).

second choice. We also find that right-leaning viewers were more likely to consume the bundle (P1, B) than to watch two Mediaset channels (B, B) in 2004. Finally, the negative coefficient on the key measure 2004* Political Ideology for the bundle (P3, B) is consistent with left-leaning viewers switching to this bundle, relative to the bundle (P1, B), after Berlusconi came to power. These viewers may prefer to have access to a variety of views across the political spectrum and to also have a mix of both public and private news.

Third, we analyze questions in the survey regarding media credibility and trust in the media. In particular, we investigate the relationship between political ideology in 2001 and trust in public and private television in both 2001 and 2004. As shown in the top panel of Figure 6, trust in public television is higher prior to Berlusconi coming

TABLE 7. Trust in public and Berlusconi's TV (2001 versus 2004)

	Dependent variable: Self-Reported Level of Trust (1–4)		
	Trust Public	Trust Berlusconi	Trust Public – Trust Berlusconi
	(1)	(2)	(3)
Political Ideology (right leaning)	−0.125***	0.229***	−0.355***
	[0.016]	[0.017]	[0.021]
2004*Political Ideology	0.102***	−0.032	0.135***
	[0.021]	[0.021]	[0.026]
Observations	2721	2701	2701
R-squared	0.069	0.183	0.177

Notes: OLS regressions. The following controls and their respective interaction with the 2004 dummy are included: gender, education, age, occupational status, social class, church attendance, index of political knowledge, TV exposure, regional fixed effects. Robust standard errors clustered by individuals in brackets. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

to power than in 2004 among left-of-center voters. For centrist viewers, trust is public television is similar under both governments. For right-of-center voters, by contrast, trust in public television is higher when Berlusconi is in power in 2004. These patterns are consistent with the content analysis, which documented a shift to the right in public news content under Berlusconi, and with the analysis of favorite news program, which documented an increase in public viewership among right-leaning viewers following the change in government. As shown in the bottom panel, overall trust in Berlusconi's channels fell after Berlusconi took power. The relationship between ideology and trust in Berlusconi's channels, however, was relatively stable during these two periods, with trust increasing as ideology moves to the right. If anything, the documented decline in trust was strongest among right-leaning voters.

To test for the statistical significance of these results, Table 7 provides results from a regression of trust on political ideology in which the coefficient is allowed to vary between 2001 and 2004. As shown in the first column, trust in the public channels is decreasing in ideology prior to Berlusconi coming to power but this effect disappears in 2004, a period in which there was little or no relationship between trust in the media and political ideology. As shown in the second column, the interaction between political ideology and trust in the private channels is positive under both center-left and center-right governments. Finally, the third column demonstrates that trust in public, relative to private, increased significantly for right-leaning viewers, relative to left-leaning viewers. Taken together, these results on trust help to explain why viewers of differing ideology switched their choice of favorite channel after Berlusconi won the election and hence provide evidence on a potential mechanism underlying the baseline results.

Fourth, we use data on aggregate viewership. These are available from AUDITEL, the research company responsible for television audience measurement in Italy, on a monthly basis between 2001 and 2007, and report the average daily number of viewers

TABLE 8. Aggregate ratings of news programs by channel.

Dependent Variable: Ratings for Prime-Time News Programs	
B**I**	0.295***
	[0.005]
B2	0.077***
	[0.005]
B3	0.057***
	[0.005]
P**I**	0.341***
	[0.005]
P2	0.113***
	[0.005]
P3	0.117***
	[0.005]
B1*Berlusconi_Gov	0.005
	[0.005]
B2*Berlusconi_Gov	−0.007
	[0.005]
B3*Berlusconi_Gov	0.006
	[0.005]
P**I** *Berlusconi_Gov	−0.019***
	[0.005]
P2*Berlusconi_Gov	0.005
	[0.005]
P3*Berlusconi_Gov	0.010**
	[0.005]
Observations	492

Notes: Auditel monthly market shares over 2001–2007. GLS estimates assuming autocorrelation (AR1) within channel*time period (before, during and after Berlusconi's government) group. Standard errors in brackets. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

for each national news program.[17] For the purposes of our analysis, we compute the news market shares by dividing the average number of viewers of each news program in a given month by the average number of viewers across all news programs in that month.[18] Our baseline analysis of favorite news program suggests that viewership of the left-leaning public channel (P3) should increase when Berlusconi is in power and that viewership of Mediaset channels should decrease. We have no clear prediction with respect to the main public channel (P1) since left-leaning viewers are less likely to watch and right-leaning viewers are more likely to watch when Berlusconi is in power. As shown in Table 8, we do find support for the first prediction as viewership of P3 increases in a statistically significant manner when Berlusconi is in power. We do not find support, however, for the second prediction, since viewership of the Mediaset

17. Esteves-Sorenson (2009) uses micro-level AUDITEL data to document significant inertia in television viewing in Italy.

18. The original data also included market shares but calculated over the total number of TV viewers (of both news and non-news programs). These do not correspond to shares of news viewers since news programs are broadcast at different times. Since changes in the non-news offerings on other stations may affect these shares, we create our own shares based upon the total number of viewers of news programs.

TABLE 9. Consumption of newspapers by political ideology (2001 versus 2004).

	Dependent Variable:		
	Overall consumption	*La Repubblica*	Newspaper ideology (right leaning)
	(1)	(2)	(3)
Political Ideology	−0.063	−0.740***	0.305***
(right leaning)	[0.061]	[0.105]	[0.036]
2004*Political Ideology	0.06	0.111	−0.022
	[0.062]	[0.118]	[0.035]
Observations	2754	1909	760

Notes: Columns (1) and (2) represents coefficients from logit regressions. Column (3) represents an OLS regression in which newspaper ideology is the dependent variable. The following controls and their respective interaction with the 2004 dummy are included: gender, education, age, occupational status, social class, church attendance, index of political knowledge, TV exposure, regional fixed effects. Robust standard errors clustered by individuals in brackets. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

channels B1–B3 does not decrease when Berlusconi is in power. There are several possible interpretations for this discrepancy between these results and our baseline analysis of favorite news program. First, as documented in Table 6, many right-leaning viewers may have continued to watch Mediaset as a second choice when Berlusconi was in power in 2004 even though they switched to P1 in terms of a favorite, or first choice. In this case, overall viewership of Berlusconi's channel may not decline. Second, it could be that there were other changes when Berlusconi was in power. Given the use of individual-level panel data, our baseline analysis of first choices allows us to hold everything other than station ideology, such as viewer ideology, constant. This test based upon aggregate data, by contrast, is valid only if nothing other than station ideology changed during this period. If viewers tended to become more conservative, for example, when Berlusconi was in power, this could explain why we do not detect a decrease in Mediaset viewership in the aggregate data.

Finally, we investigate a variety of issues involving readership of newspapers, a key alternative source of information for voters. The first issue relates to substitution between television and newspapers. In particular, if these media sources are substitutes, then left-leaning voters may be more likely to access the newspaper for information after the movement of the main public channel (P1) to the right. To investigate this hypothesis, we use responses to a binary survey question on whether or not individuals report that they usually read the newspaper. As shown in Table 9, we find no evidence of such substitution as the coefficient on the interaction between 2001 ideology and the year 2004 dummy, which indicates the Berlusconi-led government, is statistically insignificant. We also investigate readership of *La Repubblica*, a key critic of Berlusconi, based upon whether respondents list this paper as their favorite among newspapers. Again, if television and newspapers are substitutes, then we would expect readership of *La Repubblica* to increase among left-leaning individuals when the main public channel (P1) is controlled by the right. While we do find that left-leaning voters are more likely to read this paper in general, we find no evidence of any change in this relationship between these two time periods. Finally, we examine a more

comprehensive set of newspapers, which we code according to the ideology of their political leanings (left, center-left, center, center-right, and right).[19] As shown, we again find a strong correlation between newspaper ideology and reader ideology but, unlike our analyses of television consumption, no change in this relationship between these two time periods. Taken together, this analysis of newspaper consumption provides no evidence of substitution between the newspaper and television markets.

7. Conclusion

This paper investigates partisan control of the media in the context of Berlusconi's Italy. We find that a shift in control of the public media from the center-left coalition to the center-right coalition led to a shift in ideological content, as expressed in speaking time devoted to politicians from different parties, from the left to the right. We also find that viewers responded to these changes. Most importantly, many viewers changed their choice of favorite news program in response. Right-wing viewers switched to public television, which moved to the right despite remaining to the left of private television in terms of ideological content. Some left-wing viewers, by contrast, abandoned the majority-controlled channel P1 and switched to the left-leaning channel P3. This switching partially offset the change in ideology of the public stations, and the ideological consumption of news thus did not move as far to the right as it would have in the absence of these viewer responses. Taken together, these results demonstrate that partisan control of the media does lead to biased coverage but that viewers are sufficiently sophisticated that they respond to these changes and thereby offset, at least in part, the direct effect of the manipulation of the news by the majority party. Furthermore, since viewers' capacity to respond to media bias is limited by the number of independent outlets in the market, our results suggest another way through which increased competition in the media industry can enhance welfare and make media capture less effective.

Given our focus on the Italian media, a key question involves the generalizability of our results. Our finding that consumers switch to like-minded outlets in the face of changes in control of the media will only apply to situations in which consumers have access to a variety of outlets. In US newspaper markets, for example, consumers often have no alternatives to the local monopoly newspaper. With the advent of the internet, however, consumers have access to much greater choice of media outlets across the ideological spectrum. A related issue involves the structure of Italian television, in which public television is controlled by the majority party and private television is controlled by the leader of the center-right coalition. While seemingly unique, this situation is in fact quite common across countries, with the rule, rather than the exception, being government control and private ownership by families closely linked to politics (Djankov et al. 2003). Thus, while our empirical results are derived

19. We defined the political leanings of each newspaper based upon whether: (a) it is or has been formally affiliated with one political party, or (b) whether the newspaper is owned by Berlusconi or by his family members. For newspapers not affiliated with a party or owned by Berlusconi, we use information regarding their well-known tone in coverage of the Berlusconi government over the years.

specifically from Italian data, the lessons to be learned from these findings are more general.

Supporting Information

Additional Supporting Information may be found in the online version of this article:

Appendix S1. Appendix: verbatim survey questions (pdf file)

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