Televised Debates and Emotionality in Politics: Evidence from C-SPAN*

Gloria Gennaro† Elliott Ash‡

February 26, 2022

Abstract

We study the effect of televised broadcasts of floor debates on the rhetorical choices of U.S. Congress Members, focusing on a measure of emotionality constructed using computational linguistics methods. First, we show in a differences-in-differences analysis that the introduction of C-SPAN broadcasts in 1979 increased emotionality in the House relative to the Senate, where televised floor debates were not introduced until later. Second, we use exogenous variation in C-SPAN channel positioning as an instrument for C-SPAN viewership by Congressional district, and show that House Members from districts with higher C-SPAN viewership speak with more emotionality in floor debates. Contra accountability models of transparency, however, C-SPAN has no effect on measures of legislative effort on behalf of constituents. We then compare the effects of direct transparency via C-SPAN to that of mediated transparency via local news coverage of Congress. News coverage has the opposite effect of C-SPAN, increasing legislative effort but with no effect on emotional rhetoric. These results highlight the importance of audience and mediation in the political impacts of higher transparency.

Key Words: Political Transparency, Political Rhetoric, U.S. Congress, C-SPAN

*We wish to acknowledge helpful feedback from Michael Bailey, Steven J. Davis, Justin Grimmer, Massimo Morelli and various discussants and seminar participants at the Women in Political Methodology Seminar Series, Using Text as Data in Policy Analysis Workshop, and Monash-Warwick-Zurich Text-as-Data Workshop. A special thanks to Matteo Pinna for excellent research assistance.

†ETH Zurich, Immigration Policy Lab. email: gloria.gennaro@gess.ethz.ch.

‡ETH Zurich, Center for Law and Economics. email: ashe@ethz.ch.

1 Introduction

Politics and television seem inextricably entwined in the U.S. political economy (Lang and Lang, 2018). Yet television is a relatively new invention, and it was just fifty years ago that Congressional floor speeches began broadcasting live on the cable television network C-SPAN. While the effect of television on voters has been studied in different contexts (e.g. DellaVigna and Kaplan, 2007; Lenz and Lawson, 2011), little attention has been given to the effect of television, or to C-SPAN specifically, on politicians and their actions in Congress.

What has been the effect on politicians of televising floor speeches in Congress? C-SPAN (Cable-Satellite Public Affairs Network) is a cable and satellite television network broadcasting the floor debates of U.S. Congress and related content on Congressional activities. The organization was founded in 1975 as a nonprofit public service. Four years later in 1979, the network began broadcasting the proceedings of the House of Representatives on the C-SPAN1 cable channel. C-SPAN2 started transmitting from the Senate in 1986.

We ask whether, by opening a direct and unmediated window on legislators' activity, C-SPAN has had a distinct effect on legislators' behavior compared to other transparency mechanisms, such as newspapers. In standard political agency models, increased transparency improves accountability and disciplines politicians to exert more effort in representing their constituency (e.g. Ferejohn, 1986). Yet a more recent generation of models have pointed to potential political distortions that can be amplified by greater transparency (Stasavage, 2007; Fox and Van Weelden, 2012; Ash et al., 2017; Fehrler and Hughes, 2018; Gradwohl and Feddersen, 2018; Maskin and Tirole, 2019). In particular, when voters observe the deliberation process, rather than its policy outcomes, politicians have incentives to forego actions that would maximize policy utility and use the opportunity to appeal to the electorate instead (Prat, 2005).

In this context, politicians may have strong incentives to use emotional speech that affects voters' evaluations of candidates and policy issues (Webster and Albertson, 2022). To the extent that voters are persuaded by emotional appeals, politicians may use more emotional

rhetoric in Congress when C-SPAN viewership in their electoral districts is higher. Because C-SPAN increases transparency on the deliberation process more than on its outcomes, it might affect rhetoric more than it affects concrete results.

We look at the effect of C-SPAN on politicians' use of emotional rhetoric in Congress, applying two different identification strategies to a dataset of politicians' characteristics, rhetorical choices (Gennaro and Ash, 2021), and effort in Congress (Snyder and Strömberg, 2010). We first document the effect of the introduction of C-SPAN1 in the U.S. House of Representatives in 1979, in a differences-in-differences design. Using the U.S. Senate as a control group, where television broadcasts did not start until seven years later in 1986, we show that the introduction of C-SPAN increased emotionality in the House. Supporting analysis suggests that the effect comes both by increasing emotionality for incumbent Congressmen, and by selecting for newly elected Congressmen with a higher baseline level of emotionality.

We then explore the effect of C-SPAN on contemporary politics. Our second approach compares the use of emotional rhetoric by representatives of Congressional districts with different C-SPAN viewership. We produce causal estimates by instrumenting for C-SPAN1 viewership at the district level using the exogenous variation in C-SPAN1 channel positioning. Because televisions start at channel 2 and people surf upward until finding something they want to watch, C-SPAN1 viewership increases when it has a lower channel position. We validate the instrument for this purpose, including documenting a strong first stage and providing evidence for exogenous positioning. In reduced-form and two-stage-least-squares regressions, we show that exogenously higher C-SPAN viewership in a constituency increases emotionality of speeches by the respective House Member. That result is robust to a number of identification checks and specification checks.

We further compare the effects of transparency achieved through C-SPAN versus transparency achieved through newspapers. To this purpose, we adopt the measure from Snyder and Strömberg (2010) on congruence between congressional districts and local media markets. In that paper, the authors show that congruence exogenously increases media reporting about local politicians who, in turn, exert more effort in their legislative activity. While we confirm that newspapers affect measures of effort, we find no effect on emotional rhetoric. On the other hand, we find no effect of C-SPAN on most concrete measures of effort. These re-

sults suggest that not all forms of transparency are equivalent. When compared to mediated transparency, C-SPAN's unmediated coverage on the legislative process increases emotional rhetoric with no contemporaneous increase in effort on behalf of constituents.

This paper contributes to several strands of the literature on accountability, televised politics, and the electoral use of emotions. First, these results add to the literature on how public officials respond to greater transparency on their actions and communications. Consistently with the mixed theoretical results, the results from empirical studies also present a mixed picture on how transparency influences the behavior of politicians and public officials. One of the closest papers to ours is again Snyder and Strömberg (2010), who find that higher newspaper coverage improves the effort of House Members on a number of margins. Ash et al. (2017) use Snyder and Stromberg's newspaper coverage treatment but show that it also increases divisiveness of speech rhetoric. We complement these papers by looking at televised speeches (rather than newspaper coverage) and assessing effects on emotionality (rather than effort measures and partisanship).[1]

Second, insights from this paper enrich our understanding of the deep and multifaceted effects of television on voters and politicians. A large literature has documented how television affects political knowledge (Prior, 2006; Barabas and Jerit, 2009), participation (Gentzkow, 2006; Sørensen, 2019), polarization (Durante and Knight, 2012; Campante and Hojman, 2013), and vote choice (DellaVigna et al., 2016; Peisakhin and Rozenas, 2018). However, relatively little is known about the effects of television on politicians. Notable exceptions are works by Clinton and Enamorado (2014) and Arceneaux et al. (2016) who observe that Members of Congress take more conservative positions in roll call votes in response to Fox News in their home district. Our work differs significantly from these papers because C-SPAN broadcasts are unfiltered by journalists. Thus we estimate the effect of transparency separately from the confounding effect of news-network ideology.

Third, this work contributes to the growing literature that investigates the use of rhetorical strategies in politics. It has been shown that rhetorical choices respond to changes in the

[1]There are a handful of additional related papers looking at transparency in the bureaucracy rather than legislators. Lim et al. (2015) show that higher newspaper coverage of judges increases sentencing harshness when judges are elected. Hansen et al. (2018) show that higher transparency increases conformity in central bank committee discussions.

composition of the electorate, as politicians appeal to different sets of voters (Spirling, 2016; Lin and Osnabrügge, 2018; Bischof and Senninger, 2018; Gennaro et al., 2019). In particular, emotionality is increasingly attracting the attention of researchers (Webster and Albertson, 2022). Osnabruegge et al. (2021) show that U.K. parliamentarians use more emotive rhetoric in high-profile debates. Boussalis et al. (2021) find that politicians are rewarded for displaying emotional expressions according to gendered-based expectations. Emotional speech is also more likely to be reported by traditional and new media (Bennett, 2016; Brady et al., 2017). Our results complement this literature showing how politicians resort to emotionality in response to increased transparency due to televised debates.

2 Background

Against the backdrop of a large theoretical literature underlining the consequences of transparency, relatively little is known about its empirical effects on politicians' behavior. There is even less work comparing the distinctive effects of transparency through different media technologies. This section reviews some of that literature to situate our paper's empirical analysis and contribution.

Theory. A rich theoretical literature has explored the ways that transparency can influence the choices of politicians. In the standard political agency models, transparency affects politicians' behavior through stronger electoral accountability (e.g. Ashworth, 2012). To the extent that transparency reduces the cost of monitoring politicians, classical principal-agent models predict that transparency should increase voters' ability to hold politicians accountable, ultimately leading to more effort on behalf of constituents (Ferejohn, 1986). Correspondingly, higher transparency – and the associated expectation of greater accountability – could influence the types of candidates who run for office (e.g. Downs, 1957). Politicians who have a lower cost of effort for constituents would be more likely to run under higher transparency.

More recently, a number of theoretical approaches have highlighted the limitations of the pure accountability model by showing that the welfare effects of transparency may be context-dependent. For example, in the model by Prat (2005), transparency is beneficial when

it allows voters to observe the outputs of politicians' actions. However, transparency on the actions themselves – i.e., on the legislative process – can create distortions. In particular, transparency on actions can introduce incentives for politicians to conform to the a priori preferred action, rather than to use private information (see also Stasavage, 2007). Similarly, the model in Ash et al. (2017) highlights that transparency can increase the signaling value of taking divisive policy positions. In Patty (2016), transparency increases the incentives to obfuscate public debate by obstructing already approved policies.

Evidence. The best evidence on the accountability process is Snyder and Strömberg (2010). That paper shows that politicians indeed respond to more newspaper coverage in their home districts. Consistent with accountability models, legislators increase legislative effort and performance on a number of margins, particularly in activities that bring direct benefits to the constituency. Similarly, Gentzkow et al. (2011) find that more newspaper coverage leads to higher political knowledge and voter participation, which are necessary conditions for accountability. For television (as opposed to newspapers), however, there is not much evidence for an accountability effect. This difference could be explained by television having less of a focus on political news (e.g. Gentzkow, 2006; Sørensen, 2019).

Empirical evidence on the potential costs of transparency includes Ash et al. (2017), who show that in districts with higher news coverage, the associated House Member uses more divisive, partisan rhetoric. Hansen et al. (2018) shows in the context of a central bank committee that higher transparency increases conformity in discussions. In Benesch et al. (2018), higher transparency on Swiss parliament actually increased party conformity. Finally, Harden and Kirkland (2021) find that transparency laws in U.S. states had no effect on legislative outcomes such as productivity, polarization, and delay.

Emotional Rhetoric. While we assess a number of outcomes, the empirical focus of this paper is on emotional rhetoric. There is substantial evidence that eliciting emotions affects voters' political preferences and behavior, including political participation, vigilance, and information acquisition (e.g. Sullivan and Masters, 1988; Marcus and MacKuen, 1993; Marcus et al., 2000; Brader, 2005; Valentino et al., 2011). Emotional framing can inform voters' opinions on policy issues (Gross, 2008; Brader et al., 2008; Renshon et al., 2015), can be used

strategically to target specific subgroups in the wider audience of voters (Gault and Sabini, 2000; Loewen et al., 2017), and can serve to communicate major consensual values (Jerit, 2004). Thus, political persuasion of voters likely entails emotive language.

The case of C-SPAN. There are two main models for how higher transparency due to C-SPAN would influence legislative behavior. On the one hand, C-SPAN could increase accountability and improve legislator performance on behalf of constituents, as in Ferejohn (1986) or Snyder and Strömberg (2010). Alternatively, C-SPAN might introduce the "wrong" kind of transparency by providing information on the policy-making process rather than on outcomes (Prat, 2005), or otherwise amplifying pressures for politicians to pander or posture (Fox, 2006; Stasavage, 2007; Patty, 2016; Ash et al., 2017).

Our empirical analysis is guided by two questions. First, what is the audience for C-SPAN? Second, does C-SPAN provide information on policy inputs or policy outputs?

The first pivotal dimension of transparency is the audience. That is, we must ask *who* is getting more access on a politician's actions. That audience might be other politicians, other public officials like inspectors or bureaucrats, lobbyists, policy experts, campaign donors, advocates, journalists, or voters. When looking at the impacts of transparency on actions or rhetoric, the associated audience will make a big difference.

C-SPAN is a basic cable network, accessible by tens of millions of subscribers since the 1980s. C-SPAN's core programming is live coverage of the U.S. House and Senate, with C-SPAN1 covering the House and C-SPAN2 covering the Senate. When the House or Senate are not in session, C-SPAN channels broadcast other public affairs programming and recordings of previous events. According to a 2013 survey, 24% of Americans with cable or satellite subscriptions — almost 50 million adults — reported watching C-SPAN at least once a week in that year, up from 20% in 2009.[2]

C-SPAN establishes a direct communication line between politicians and voters. This changes the composition of the audience for floor speeches, which is no longer reserved to fellow Members of Congress, government actors, and political journalists. While voters could always learn about speech content indirectly through news media reports about the speeches,

[2]See `https://www.adweek.com/tvnewser/c-span-47-million-watch-us-every-week/172237/`.

it was only after the introduction of C-SPAN that voters could directly and easily observe the speeches of their congressional representatives. With the change of audience, congressional speeches became a device for appealing to voters directly through the television. In particular, if voters respond to emotionality more positively than the traditional pre-television audience, then politicians might respond to increased television exposure of speeches with increased emotionality in their speeches.

Second, C-SPAN provides programming on both policy inputs and policy outputs. In terms of outputs, they report on roll call votes and the outcomes of those votes in terms of enacted bills. In terms of inputs, they show the floor debates about legislation. The latter takes up more time, by construction.

This focus on inputs is amplified by the lack of mediation (unlike newspapers, where journalists focus on newsworthy content). C-SPAN offers complete coverage on the congressional debates, without content editing nor selective coverage. This choice delivers lengthy floor discussions that are generally disregarded by other news sources, and an editorial focus that privileges the decision-making process over its results.

Based on the discussion above, the transparency achieved through C-SPAN differs significantly from transparency achieved through newspapers. In the case of C-SPAN, the extensive coverage of the political process limits focus on outcomes, coupled with the substantial change in audience tilt the balance of incentives in favor of emotive rather than deliberative rhetoric. In the case of newspapers, the mediated nature of communication strikes the balance in favor of effort.

3 Data

We draw from registry data and other relevant studies to compile two rich datasets of elected representatives' rhetoric features, legislative effort, personal and district characteristics. The first dataset covers all speeches delivered in the Senate and the House around the first introduction of C-SPAN (1974-1985). The second dataset covers all speeches delivered in the House of Representatives between 1998 and 2014, as well as measures of legislative effort between 1998 and 2004. The paragraphs below provide additional detail.

C-SPAN channel position. We have information on local channel positions for C-SPAN1 and C-SPAN2 from Nielsen. The data include information about the area served by each cable system at the zip-code level between 1998 and 2004. Adapting the approach from Galletta and Ash (2020), which aggregates the data by county, we aggregate the data by Congressional election district. Specifically, we take the district-level average channel positions across zip codes, weighting zip codes by population size. To better isolate cross-sectional (rather than time-varying) variation in the channel position, we produce a time-invariant channel *Position* by Congressional district by averaging over the available years 1998-2004. To assist interpretation of coefficients, we standardize the channel position by subtracting the mean and dividing by the standard deviation.

C-SPAN Viewership. Next, we have zipcode-level viewership of C-SPAN1, also provided by Nielsen. *Viewership* is measured as the average share of television-watching time in a zip code tuned into C-SPAN1. In our regressions, we use viewership from 2004, aggregated by election district in the same way as channel positions. For interpretability, we again standardize viewership to mean zero and standard deviation one.

Congruence. We obtain a district-level measure of transparency based on newspaper reporting from Snyder and Strömberg (2010). In particular, *Congruence* measures the geographical overlap between newspaper markets and U.S. congressional districts. In their paper, they demonstrate that higher congruence corresponds to exogenously higher newspaper coverage of the local Member of Congress. We adapt the congruence measure to our analysis by replicating the same aggregation rules that we use for C-SPAN – i.e., we produce a time-invariant congruence measure by Congressional district by averaging over the years 1998-2004. We standardize the congruence measure by subtracting the mean and dividing by the standard deviation.

Emotionality. The measure of *Emotionality* in congressional floor speeches comes from Gennaro and Ash (2021). This approach uses word embedding, a tool from natural language processing which represents semantic dimensions in language as geometric dimensions in a vector space. The method transforms words to vectors, where similar words tend to

co-locate and directions in the space (dimensions) correspond to semantically meaningful concepts (Collobert and Weston, 2008; Mikolov et al., 2013; Pennington et al., 2014). In brief, the method works by taking validated word lists for emotion and reason and constructing the poles as the average vectors for these semantically coherent word groups. The relative emotionality of a word or a document is the proximity to the emotion pole, relative to the reason pole. Gennaro and Ash (2021) compute scores for 6 million floor speeches reported in the *U.S. Congressional Record* for the years 1858 through 2014 and extensively validate those scores. We standardize the emotionality measure by subtracting the mean and dividing by the standard deviation.

Legislator Behavior and Characteristics. We obtain measures of legislators' behavior form Snyder and Strömberg (2010), for the period 1998-2004. In particular, we borrow their measures of party loyalty, effort, and committee membership. *Party Loyalty* is defined at the politician-session level as the percentage of roll call votes where the representative votes with the party majority. *Effort* is measured as the number of witness appearances before a congressional hearing (*Witnesses*), or the number of appearances before the Appropriations or Ways and Means committees, which have a considerable direct influence over spending, taxes, and allocation of funds (*Budget Witnesses*). Committee membership distinguishes between participation in *Constituency-oriented* committees and *Policy-oriented* committees.

We combined these data with additional detailed information about U.S. House Members and Senators from Gennaro and Ash (2021). This dataset includes personal characteristics such as demographics and variables related to the political career. As a measure of partisanship of voting for each Congress Member and year, we include DW-NOMINATE scores. We derive politician's *Extremism* as the square of the session-level DW-NOMINATE score.

Other text measures. We collect a number of other measurements from the text for use in the analysis from Gennaro and Ash (2021). In particular, we collect information on speech topics (obtained with latent dirichlet allocation or LDA, see e.g. Blei 2012). For ease of interpretation, we inspected the individual topics and aggregated them into eleven larger categories. Further, we have measures of readability by speech: average number of words per sentence, and characters per word.

4 Effect of C-SPAN's Introduction in the House

This section investigates the effect of television on emotionality in Congress with a differences-in-differences design. We exploit the staggered timing in the introduction of C-SPAN in the House (1979) and in the Senate (1986). We ask whether House members increased emotionality relative to their colleagues in the Senate in the period after they where exposed to television. We then compare the within-member incentive effects for incumbent politicians to the across-member selection effects of new versus incumbent politicians.

We estimate the following event-study model:

$$Y_{ijt} = \alpha + \sum_{m=-5}^{6} \beta_m H_j \times L_{1979+m} + H_j + \tau_t + \epsilon_{ijt} \tag{1}$$

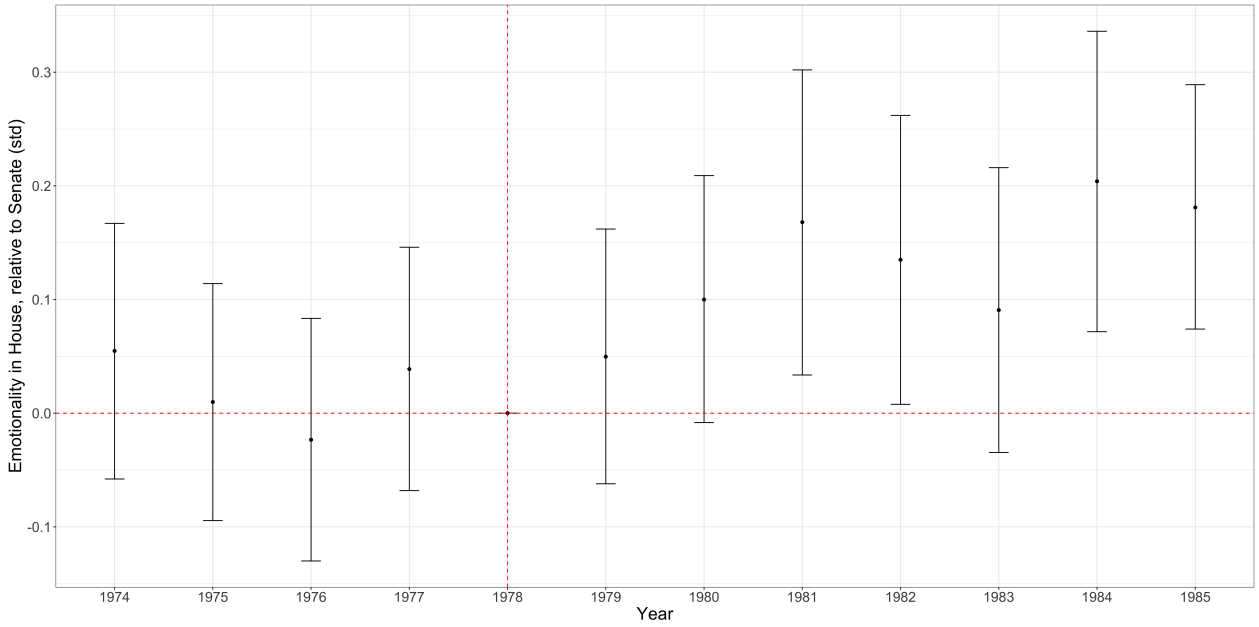
where Y_{ijt} is emotionality in speech i, chamber j, year t. H_j is a dummy equal to one if the speech is in the House, zero in the Senate. L_{1979+m} are dummies for leads and lags around 1979, the year C-SPAN was introduced in the House. The year 1978 is the left-out category. τ_t are year fixed effects, capturing Senate averages for the leads and lags. Standard errors are clustered at the speaker level.

Figure 1 reports the coefficient estimates and 95% confidence intervals from equation (1). In years preceding C-SPAN1, there is no effect, suggesting that the House and the Senate were on parallel trends in emotionality. In the years after, however, and especially starting in 1981, a difference between the chambers opens up and becomes statistically significant. The introduction of televised debates increased emotionality in the House of Representatives.

Supporting differences-in-differences regression results are reported in Appendix Table A.1. The estimated coefficient suggests that the introduction of C-SPAN increased the use of emotionality by 7 to 10% of a standard deviation in the House relative to the Senate. Appendix Table A.2 further clarifies that the introduction of C-SPAN did not affect ideology or extremism as expressed in roll-call votes. C-SPAN did appear to shrink the length of speeches, but it did not systematically shift other rhetorical choices such as sentiment, word length, or sentence length.

Next, Appendix Figures A.1 and A.2 show that the effect of the introduction of C-SPAN

Figure 1: Emotionality and C-SPAN1 Introduction



Difference-in-Differences estimates of the effect of C-SPAN on Emotionality (equation 1). The horizontal axis indicates Years around the first introduction of C-SPAN1 in the House of Representatives (1979); the vertical axis reports the difference in emotionality between the House and the Senate. Vertical lines give 95% confidence intervals.

on emotionality is mostly driven by the election of new representatives who use more emotive rhetoric on average, while representative who were elected before the introduction of C-SPAN only marginally adapted their rhetoric to the new context.

5 C-SPAN Viewership and Emotionality

While the introduction of C-SPAN1 seems to drive a diverging emotive trend in the House relative to the Senate, this effect may be confounded by other contemporaneous changes affecting the House. The introduction of television may have effects on speeches beyond its effect on greater transparency to voters. For example, it could be that the presence of cameras affects rhetoric directly, regardless of whether voters are watching.

As an alternative approach to identify the effect of television exposure on emotionality, we use an instrument for local viewership of C-SPAN1 by congressional district. This section outlines this second identification strategy and reports the associated results.

C-SPAN channel position as an instrument for viewership. Our second identification strategy is instrumental variables. We instrument for local viewership of C-SPAN1 by congressional district using the channel position. As first introduced in Martin and Yurukoglu (2017) for cable news network, variation in cable channel positioning significantly shifts viewership because viewers tend to start at the bottom of the lineup and surf upward until finding something to watch.

Further, due to the arbitrary and localized process of selecting channel positions, those positions are exogenous to relevant district and politician characteristics. The lineup positions assigned to each channel depends on the time in which the national media producer joined the local cable system. New channels are most of the time positioned sequentially, and further, when networks are dropped then newly open positions can be filled. Therefore, the numerical order of the channels varies depending on the cable system considered. Once set at the introduction of the channel into a cable system, the positioning rarely changes over time.

We adapt the channel position instrument approach to the case of C-SPAN and U.S.

Congress. As discussed in more detail in Section 3, we calculate average C-SPAN channel positions and viewership by Congressional District using data starting in 1998. We then estimate causal effects using cross-sectional variation in the channel position within the same state and same year. That is, we compare outcomes for House Members from the same state in the same year, but differing in the average channel position of C-SPAN1 in their home district. The emotionality analysis includes all speeches pronounced by Democratic or Republican House Members, between 1998 and 2014. Senators are not a part of this analysis because they are elected at the state level, and hence we cannot exploit variation of the instrument across locally contingent areas. The main summary statistics for all variables included in this analysis are reported in Appendix Table A.17.

First stage. We begin with the first stage effect of C-SPAN channel position on C-SPAN viewership. While channel position has been used as an instrument for cable news viewership (Martin and Yurukoglu, 2017), it has not been used to analyze C-SPAN. It is not obvious that the first stage should hold, given that C-SPAN is a public broadcaster with relatively low viewership. Formally, we estimate:

$$V_{js} = \alpha + \psi Z_{js} + \tau_{st} + X'_{ijst}\beta + \epsilon_{ijst} \tag{2}$$

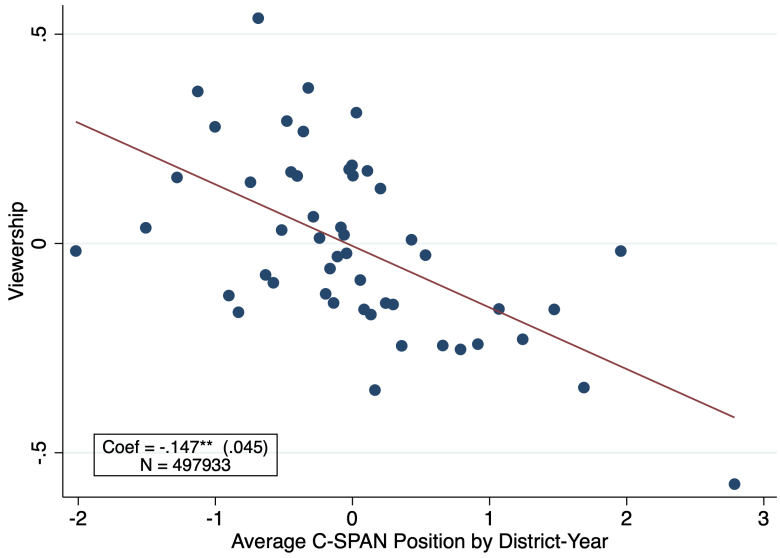
where V_{js} is C-SPAN viewership in district j and state s, Z_{js} is the C-SPAN channel position number in district j, τ_{st} is a state-year fixed effect, and X'_{ijst} includes additional covariates to be enumerated below. Standard errors are clustered by House member.[3]

The first stage has a causal interpretation under conditional exogeneity of the channel position Z_{js} with regard to viewership V_{js}. In that case, the estimate $\hat{\psi}$ gives the counterfactual prediction for how much viewership changes (in standard deviations) in response to a one-standard-deviation increase in the channel position. Given that a lower channel position makes a network easier to watch, we expect $\hat{\psi} < 0$.

Figure 2 shows a binned scatter plot for the relationship between viewership and the C-SPAN1 channel position in the associated electoral district, residualized on state-year fixed effects. As the channel position increases, viewership of CSPAN in the district decreases with

[3]Standard errors are similar when clustering by district.

Figure 2: First Stage: Viewership and C-SPAN1 Channel Position



Binned scatter plot of C-SPAN1 viewership and C-SPAN1 channel position. The horizontal axis reports the average C-SPAN1 channel position in the speaker's district-year (standardized); the vertical axis reports the average viewership in the speaker's district (standardized). State-year fixed effects absorbed.

$\hat{\psi} = -0.147$. These estimates are reported in more detail in Table 1, Columns 5 through 8. Additional first-stage specifications are shown in Appendix Table A.3. In the 2SLS regressions below, we will report Kleinbergen-Paap cluster-robust first-stage F-statistics and they are consistently above 10.

Balance Tests. The main threat to identification is that the instrument is endogenous with speech emotionality. It could be that emotionality across Representatives correlates with other unobserved local characteristics that are endogenous with the instrument. To address this possibility, we test the balance of the channel position across a number of district characteristics, as well as average demographic characteristics of the members of Congress elected in those districts.

Appendix Table A.7 reports the main balance checks, where we iteratively regress the instrument on each local covariate. We see that, consistent with an exogenous channel position, the coefficients on almost all covariates are statistically insignificant. A handful of covariates are significant at the 5 percent level, as one would expect due to chance. However,

we include all those controls in the main regression specification (e.g. Table 2), individually and interacted with time trends, and results do not change. Further, none of these variables are selected when we run lasso with emotionality as the outcome.

To complement these checks more synthetically, we run a single linear regression with district-level characteristics and state fixed effects as covariates with emotionality as the outcome. We use the learned coefficients to form a predicted value that summarizes the variation in emotionality due to pre-existing observable economic and demographic characteristics. When we regress this predicted value of emotionality on C-SPAN channel position, the estimate is very small in magnitude and not statistically significant ($\hat{\beta} = 0.003$, $\hat{se} = 0.006$). Thus, the component of local observables that is linearly related to emotionality is linearly unrelated to the instrument, providing additional support for the exogeneity assumption in our 2SLS regressions.

Reduced-form effect of channel position on emotionality. Next, we estimate the reduced form model, regressing emotionality on the exogenous instrument:

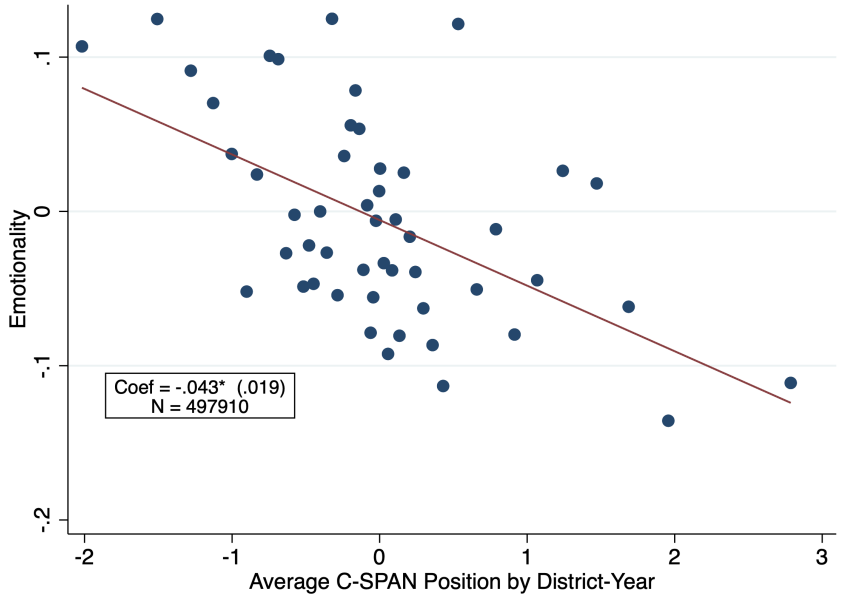
$$Y_{ijst} = \alpha + \phi Z_{js} + \tau_{st} + X'_{ijst}\beta + \epsilon_{ijst} \tag{3}$$

where the emotion outcome Y_{ijst} is for speech i, district j, state s, time t. The other items are the same as with the first stage. Again, standard errors are clustered by member.

Under conditional exogeneity of the channel position Z_{js} with regard to speech emotionality Y_{ijst}, $\hat{\phi}$ estimates the change in emotionality (in standard deviations) due to a one-standard-deviation increase in the channel position. Based on the differences-in-differences estimates from Section 4, we expect higher C-SPAN viewership to increase emotionality. Given the negative first stage, then, we also expect a negative reduced-form estimate, $\hat{\phi} < 0$.

To visualize the reduced-form relationship, Figure 3 shows a binned scatter plot for the relationship between emotionality in speeches and the C-SPAN1 channel position in the associated speaker's electoral district, with both residualized on state-year fixed effects. As the district's channel position increases, speeches pronounced by the respective Member of Congress display lower emotionality ($\hat{\phi} = -0.049$). Combined with the negative first stage, we thus have some initial evidence for a causal effect of C-SPAN viewership increasing

Figure 3: Reduced Form: Emotionality and C-SPAN1 Channel Position



Binned scatter plot of emotionality and channel position. The horizontal axis is the average C-SPAN1 channel position in the speaker's district-year (standardized); the vertical axis is the average emotionality score by bin (standardized). State-year fixed effects absorbed.

emotionality.

The visual reduced-form relationship is confirmed by regression estimates reported in columns 1 to 4 of Table 1. A simple regression of emotionality on C-SPAN1 channel position and state-year fixed effects shows a negative relationship, similar to the binscatter. A one-standard-deviation decrease in the channel position corresponds to a .05-standard-deviation increase in emotionality. The estimated coefficient is robust in magnitude and significance to adding district controls for population and demographics (Column 2) or education and income (Column 3). Adding member-level covariates for gender, race, religion, age, and party (Column 4) shrinks the coefficients but only slightly, meaning that selection for observable member characteristics does not significantly explain the C-SPAN effect. See Appendix Table A.4 fpr additional specifications of the reduced-form.

Two stage least squares specification. Next, we estimate the two-stage-least-square specification. We regress emotionality of a speech on C-SPAN1 viewership in the speaker's

Table 1: Reduced Form and First Stage: Emotionality, Viewership and C-SPAN1 position

	Reduced Form DV: Emotionality				First Stage DV: Viewership			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Position	-0.043**	-0.045**	-0.051***	-0.042***	-0.147***	-0.124***	-0.144***	-0.154***
	[0.019]	[0.018]	[0.018]	[0.016]	[0.045]	[0.039]	[0.036]	[0.036]
State-Year	✓	✓	✓	✓	✓	✓	✓	✓
Urban		✓	✓	✓		✓	✓	✓
Income-Educ			✓	✓			✓	✓
Individual				✓				✓
Mean DV	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Observations	497910	497910	497910	497910	497910	497910	497910	497910

Notes. Columns 1 to 4 show the OLS regression of the emotionality score in a given speech (standardized) on the average C-SPAN1 channel position in the speaker's district (standardized). Columns 5 to 8 show the OLS regression of C-SPAN viewership on the average C-SPAN1 channel position in the speaker's district (standardized). The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives between 1998 and 2014. All columns include State-year fixed effects. *Urban* indicates the inclusion of controls for population (log), density (log), the share of urban population, of Hispanic, Asian, black and white population, of women, and of working age population. *Income-Educ* includes the share of college educated, high-school dropouts, food stamp recipients, and median household income (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native), and controls for age and age squared. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 2: 2SLS: Emotionality and C-SPAN1 viewership

	(1) OLS	(2) 2SLS	(3) 2SLS	(4) 2SLS	(5) 2SLS	(6) 2SLS	(7) 2SLS	(8) 2SLS	(9) 2SLS
Viewership	0.024	0.289**	0.366**	0.351***	0.274**	0.262***	0.163***	0.163***	0.152**
	[0.015]	[0.143]	[0.164]	[0.135]	[0.108]	[0.091]	[0.057]	[0.056]	[0.068]
State-Year	✓	✓	✓	✓	✓	✓	✓	✓	✓
Urban			✓	✓	✓	✓	✓	✓	✓
Income-Educ				✓	✓	✓	✓	✓	✓
Individual					✓	✓	✓	✓	✓
Speech						✓	✓	✓	✓
Topics							✓	✓	✓
Interacted								✓	
Lasso									✓
KP F-stat		10.480	10.111	15.954	17.940	17.909	18.169	18.174	9.262
Mean DV	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Observations	497910	497910	497910	497910	497910	497910	497910	497910	497910

Notes. Each column shows the regression of the emotionality score in a given speech (standardized) on the C-SPAN1 viewership in the speaker's district (standardized). Column 1 reports the OLS estimates; columns 2 to 9 report 2SLS estimates, where viewership is instrumented with CSPAN1 channel position in the same district (standardized). The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014. All columns include state-year fixed effects. *Urban* indicates the inclusion of controls for population (log), density (log), the share of urban population, of Hispanic, Asian, black and white population, of women, and of working age population. *Income-Educ* includes the share of college educated, high-school dropouts, food stamp recipients, and median household income (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. *Speech* indicates controls for speech length (log), word length (log), sentence length (log). *Topics* indicates topic fixed effects. *Interacted* indicates that *Urban* and *Income-Educ* controls are interacted with time trends. *Lasso* indicates the inclusion of controls selected with the post-double selection procedure, i.e. speech length (log), word length (log), speaker's gender, party and age. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

home district:

$$Y_{ijst} = \alpha + \rho \hat{V}_{js} + \tau_{st} + X'_{ijst}\beta + \epsilon_{ijst} \tag{4}$$

where viewership $\hat{V}_{js}$ is instrumented by the channel position in the congressional district, as shown in the first stage equation 2. To assist interpretability, the outcome, the endogenous treatment variable, and the instrument are all standardized. Standard errors are clustered by speaker. The estimate $\hat{\rho}$ gives the local average treatment effect of higher viewership on emotionality due to exogenous shifts in the channel position.

The 2SLS estimates are reported in Table 2. Column 1 reports the simple OLS estimates, with state-year fixed effects. The correlation between C-SPAN viewership and emotionality is positive, yet small in magnitude and not statistically significant. Columns 2 to 9 report

the 2SLS estimates. In the baseline regressions of emotionality on viewership and state-year fixed effects (Column 2), population controls (Column 3), or education/income controls (Column 4), we see a positive and significant estimate. A one standard-deviation increase in viewership corresponds to a 0.33 to 0.42 standard-deviation increase in emotionality. As with the reduced form (Table A.4), adding the mediator covariates shrink the coefficient magnitude but the estimate remains positive and significant. Meanwhile, there is a strong and growing first stage F-statistic.

Notably, the OLS estimates for emotionality and viewership are negatively biased – they underestimate the effect of C-SPAN on House Member emotionality. There could be many reasons for such a bias. For instance, it could be that districts with more experienced Congressmen tend to watch C-SPAN more because the politician is more popular, yet more experienced Congressmen are less emotive. Further, it could be due to a local average treatment effect where the districts that respond to the channel position also have Congressmen that are more sensitive in their rhetorical choices to television visibility.

While there are multiple valid explanations behind the negative bias in the OLS, we highlight that this is consistent with standard political accountability models. In the OLS estimates, C-SPAN viewership captures latent constituency characteristics, such as interest in politics. Politically interested constituencies not only watch C-SPAN more, but they are also more likely to hold their representatives accountable for their policy decisions. These factors should lead to positive selection and a disciplining effect on politicians. To the extent that emotionality is used as a substitute to effort in achieving political persuasion, we would expect that higher constituency political interest correlates with lower use of emotionality. Emotionality hence increases when C-SPAN viewership is driven by conditions that are exogenous to local political interest such as, indeed, the channel position.

Robustness Checks. In the Appendix, we provide further supporting evidence on the exogeneity of the instrument by performing two placebo analyses. First, in Appendix Figure A.3 and Appendix Table A.5, we show that there is no effect when regressing emotionality in the two decades before the introduction of C-SPAN1 on C-SPAN1 channel position. The resulting reduced-form estimate is positive (flipped sign) and not statistically significant. This

means that the instrument is not selected with pre-existing trends in the use of emotional rhetoric across electoral districts. Second, we run the reduced form specification using the channel position for C-SPAN2 (rather than C-SPAN1) as the instrument. As C-SPAN2 broadcasts floor debates from the Senate, we should expect no effect on emotionality for House members. Estimates reported in Appendix Table A.6 show that there is indeed no effect of C-SPAN2 on emotionality in the House.

Then, we provide two further specification checks. First, we replicate the analysis using congressional districts as the unit of analysis, collapsing all our variables as averages at the district-year level. Appendix Figure A.5 and Appendix Table A.8 show that results are substantially unchanged. Second, given the skewed distribution of the C-SPAN channel positions and viewership, we apply the inverse hyperbolic sine transformation to both variables are replicate the main results in Appendix Figure A.6 and Table A.9. Third, Appendix Figure A.4 replicates the main result, dropping observations from each state and each year; results are not driven by any specific state or year.

Other outcomes. To further elaborate on the instrumental-variables results, we estimate the same specification with a number of additional outcomes.

First, we assess effects on other dimensions of language besides emotionality. In particular, linguistic sophistication may be affected by the need to address a new public (Benoit et al., 2019). For instance, Spirling (2016) has shown that enfranchisement led elected politicians to use simpler language in the UK parliament, with the intent of addressing the masses. Correspondingly, we test whether C-SPAN has a broader effect on language. Appendix Table A.13 shows that television exposure has no effect on sentiment, speech length, and average word length (a measure of linguistic complexity). However, more visibility does increase the number of speeches given and the average length of sentences within speeches. The effect on number of speeches is perhaps not surprising, as higher C-SPAN viewership would increase the electoral returns to floor speaking time.

Next, we look at the effects on the topics of speeches, as learned by the LDA topic model. In our 2SLS analysis, we saw that part of the C-SPAN effect on emotionality is due to shifts in speech topics. Unpacking this shift, Appendix Table A.14 shows that more C-SPAN view-

ership decreases the number of speeches dedicated to commemorating colleagues (Tribute), while it increases the probability that a politician talks about nationalistic topics (National Narrative), such as the American history and heritage, and party politics. These results have an intuitive interpretation: that C-SPAN increases the weight that House Members put on voters as a potential audience, rather than other House Member colleagues.[4]

Finally, we look for selection effects of C-SPAN on the type of politician elected. While it seems to increase the probability of electing more left-wing and more educated politicians (Appendix Table A.15), there is no effect on other demographic variables such as age, gender, race, or religion (Appendix Table A.16).

6 Direct versus Mediated Transparency on Politicians

In Section 2, we made a distinction between direct transparency – that is, increasing direct access of voters to politician activities – and mediated transparency – that is, increased access to politician activities via journalists. In this section, we compare the effect of C-SPAN – an increase in direct transparency – to higher local newspaper coverage – an increase in mediated transparency. To examine the latter, we draw on Snyder and Strömberg (2010), which showed that congruence between media markets and electoral districts exogenously increases the newspaper coverage of the local Member of Congress. The local representative, in turn, exerts more effort in promoting the interests of her constituency. In this sense, newspaper coverage achieves the positive effects of monitoring as laid out in classical political accountability models. We show that newspaper coverage primarily affects effort, while C-SPAN primarily affects rhetoric.

Media-Market Congruence and Emotionality. First, we ask if more newspaper coverage, measured as congruence, pushes the local representative to use more emotionality in Congress. To do that, we estimate the reduced form model (equation 5) while substituting the C-SPAN channel position with Snyder and Strömberg's (2010) measure of Congruence, described in Section 3. As shown in Appendix Figure A.7 and Appendix Table A.10, there

[4]Appendix Table A.14 Panel 2 reports heterogeneous effects of C-SPAN on emotionality by topic. The effects are broadly distributed with no clear patterns.

is no effect. Unlike the direct transparency from C-SPAN, the mediated transparency from local news coverage does not change emotionality of House Members. Appendix Table A.12 shows that media market congruence does not systematically affect the topics discussed in Congress.

C-SPAN, Congruence, and Politicians' Behavior. Next we explore the effects of both newspaper coverage and C-SPAN on the behavior of politicians. As done in Snyder and Strömberg (2010), we look at party loyalty, effort, and committee choices. We estimate the following equation, at the politician-session level:

$$Y_{ijst} = \alpha + \phi T_{jst} + \tau_{st} + X'_{ijst}\beta + \epsilon_{ijst} \tag{5}$$

where Y_{ijst} is the outcome for representative i, in district j, state s, and congress session t; T_{js} is either C-SPAN channel *Position* or *Congruence* in district j state s; τ_{st} is a state-year fixed effect, and X'_{ijst} includes additional covariates to be enumerated below. Standard errors are clustered by House member.

Table 3 reports the results for the full set of outcome variables and treatment variables. Panel 1 looks at the number of representatives' *Witnesses* in front of Congress committees, a measure of effort, and at the alignment of representatives' roll call votes with party leadership, a direct measure of *Party Loyalty*. Both measures are described in Section 3. Congruence has a positive effect on effort, as shown by by the significant positive effect on the number of Witnesses. Meanwhile, we find no effect of C-SPAN on effort. Congruence negatively affects party loyalty. Here again we find no effect of C-SPAN on party loyalty.

In Panel 2, we report results for committee membership and specifically at the representatives' participation in committees oriented towards appropriating funds for their constituency rather than broader policy-oriented committees. Congruence has a positive effect on participation in *Constituency-Oriented* committees, while a negative one on *Policy-Oriented* committees. In this case, C-SPAN has no effect on participation on policy-oriented committees, but it does have an effect on constituency-oriented ones. Because this is the reduced-form, a negative coefficient means that higher C-SPAN viewership increases attendance on constituency-oriented committees.

Table 3: Politicians' Behavior under Congruence and C-SPAN

Panel 1: Party Loyalty

	Witnesses				Roll Call Votes			
	T = Congruence		T = C-SPAN		T = Congruence		T = C-SPAN	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
T	0.140**	0.165**	-0.013	-0.020	-0.264***	-0.265***	0.027	0.011
	[0.066]	[0.077]	[0.049]	[0.050]	[0.056]	[0.063]	[0.056]	[0.052]
Obs	1331	1331	1331	1331	1331	1331	1331	1331

Panel 2: Committee membership

	Constituency-Oriented				Policy-Oriented			
	T = Congruence		T = C-SPAN		T = Congruence		T = C-SPAN	
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
T	0.261***	0.208***	-0.112**	-0.112**	-0.128**	-0.130**	0.058	0.048
	[0.065]	[0.071]	[0.054]	[0.051]	[0.059]	[0.066]	[0.056]	[0.053]
Obs	1323	1323	1323	1323	1331	1331	1331	1331
State-Year	✓	✓	✓	✓	✓	✓	✓	✓
Individual		✓		✓		✓		✓

Notes. Each entry corresponds to a separated OLS regression of the dependent variable (standardized) on transparency (T). $T = Congruence$ indicates that transparency is $Congruence$, $T = C - SPAN$ indicates that transparency is the C-SPAN channel position (standardized). The dependent variables are *Party Loyalty*, *Witnesses*, *Distribution Committee*, *Policy Committee*. The sample is composed of all Democrat and Republican Members of the House of Representatives, between 1998 and 2014 in Columns 1 to 4. The sample is restricted to 1998 to 2004 in all other columns. All columns include State-year fixed effects. *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table A.11 further looks at the effect of congruence and C-SPAN on political extremism. We find a negative effect of congruence on political extremism, consistent with an alignment to the relatively moderate median constituent. We find instead no effect of C-SPAN.

This analysis refines the message in Snyder and Strömberg (2010) that higher transparency increases politicians' effort to represent constituency interests. While that does occur for newspaper coverage, transparency achieved through C-SPAN does not have the same effect in disciplining politicians. This difference is likely due to the differences in the audiences for the two treatments. C-SPAN gives direct access to voters to the policy-making process. Media congruence gives indirect transparency, mediated by politics journalists who have a greater understanding of and focus on policy outcomes. This evidence is consistent with the argument by Prat (2005) that increased direct access on the policy-making process could be the "wrong kind" of transparency. Rather than increasing accountability for good policy decisions that benefit constituents, televising debates encourages politicians to engage in more emotive rhetoric directed at pandering to or posturing for constituents.

7 Conclusion

Television is an emotional medium. In turn, we find that increased visibility of Congress Members via television is associated with more emotional rhetoric. The effect holds for two identification strategies and includes both a selection effect and an incentive effect. Further, we compare direct transparency through televised debates to mediated transparency through news coverage, and the effects are different. While C-SPAN increases emotionality of rhetoric, newspaper coverage increases legislative effort on behalf of constituents.

This work adds to the literature on media coverage and political accountability (Gentzkow, 2006; Snyder and Strömberg, 2010; Strömberg, 2015). We show that transparency through direct television broadcasts affects rhetorical choices. To the extent that emotionality increases polarization, this could be another channel for TV to increase divisiveness in politics.

This paper invites future work in a number of directions. The use of channel position as an instrument for C-SPAN is novel and could be used for other research questions about the

effect of televised debates, for example about local knowledge of politics. Further, television exposure might have an interaction effect with the electoral cycle. These are promising areas for future analysis.

References

Arceneaux, K., Johnson, M., Lindstädt, R., and Vander Wielen, R. J. (2016). The influence of news media on political elites: Investigating strategic responsiveness in congress. *American Journal of Political Science*, 60(1):5–29.

Ash, E., Morelli, M., and Van Weelden, R. (2017). Elections and divisiveness: Theory and evidence. *The Journal of Politics*, 79(4):1268–1285.

Ashworth, S. (2012). Electoral accountability: Recent theoretical and empirical work. *Annual Review of Political Science*, 15(1):183–201.

Barabas, J. and Jerit, J. (2009). Estimating the causal effects of media coverage on policy-specific knowledge. *American Journal of Political Science*, 53(1):73–89.

Benesch, C., Bütler, M., and Hofer, K. E. (2018). Transparency in parliamentary voting. *Journal of Public Economics*, 163:60–76.

Bennett, W. L. (2016). *News: The politics of illusion*. University of Chicago Press.

Benoit, K., Munger, K., and Spirling, A. (2019). Measuring and explaining political sophistication through textual complexity. *American Journal of Political Science*, 63(2):491–508.

Bischof, D. and Senninger, R. (2018). Simple politics for the people? complexity in campaign messages and political knowledge. *European Journal of Political Research*, 57(2):473–495.

Blei, D. M. (2012). Probabilistic topic models. *Communications of the ACM*, 55(4):77–84.

Boussalis, C., Coan, T. G., Holman, M. R., and Müller, S. (2021). Gender, candidate emotional expression, and voter reactions during televised debates. *American Political Science Review*, 115(4):1242–1257.

Brader, T. (2005). Striking a responsive chord: How political ads motivate and persuade voters by appealing to emotions. *American Journal of Political Science*, 49(2):388–405.

Brader, T., Valentino, N. A., and Suhay, E. (2008). What triggers public opposition to immigration? anxiety, group cues, and immigration threat. *American Journal of Political Science*, 52(4):959–978.

Brady, W. J., Wills, J. A., Jost, J. T., Tucker, J. A., and Van Bavel, J. J. (2017). Emotion shapes the diffusion of moralized content in social networks. *Proceedings of the National Academy of Sciences*, 114(28):7313–7318.

Campante, F. R. and Hojman, D. A. (2013). Media and polarization: Evidence from the introduction of broadcast TV in the United States. *Journal of Public Economics*, 100:79–92.

Clinton, J. D. and Enamorado, T. (2014). The national news media's effect on congress: How fox news affected elites in congress. *The Journal of Politics*, 76(4):928–943.

Collobert, R. and Weston, J. (2008). A unified architecture for natural language processing: Deep neural networks with multitask learning. In *Proceedings of the 25th international conference on Machine learning*, pages 160–167.

DellaVigna, S. and Kaplan, E. (2007). The fox news effect: Media bias and voting. *The Quarterly Journal of Economics*, 122(3):1187–1234.

DellaVigna, S., List, J. A., Malmendier, U., and Rao, G. (2016). Voting to tell others. *The Review of Economic Studies*, 84(1):143–181.

Downs, A. (1957). *An Economic Theory of Democracy*. Harper, New York.

Durante, R. and Knight, B. (2012). Partisan control, media bias, and viewer responses: Evidence from berlusconis italy. *Journal of the European Economic Association*, 10(3):451–481.

Fehrler, S. and Hughes, N. (2018). How transparency kills information aggregation: theory and experiment. *American Economic Journal: Microeconomics*, 10(1):181–209.

Ferejohn, J. (1986). Incumbent performance and electoral control. *Public Choice*, 50(1-3):5–25.

Fox, J. (2006). World separation of religion and state into the 21st century. *Comparative Political Studies*, 39(5):537–569.

Fox, J. and Van Weelden, R. (2012). Costly transparency. *Journal of Public Economics*, 96(1-2):142–150.

Galletta, S. and Ash, E. (2020). How cable news reshaped local government. *Available at SSRN 3370908*.

Gault, B. A. and Sabini, J. (2000). The roles of empathy, anger, and gender in predicting attitudes toward punitive, reparative, and preventative public policies. *Cognition & Emotion*, 14(4):495–520.

Gennaro, G. and Ash, E. (2021). Emotion and reason in political language. *Economic Journal*.

Gennaro, G., Lecce, G., and Morelli, M. (2019). Intertemporal evidence on the strategy of populism.

Gentzkow, M. (2006). Television and voter turnout. *The Quarterly Journal of Economics*, 121(3):931–972.

Gentzkow, M., Shapiro, J. M., and Sinkinson, M. (2011). The effect of newspaper entry and exit on electoral politics. *American Economic Review*, 101(7):2980–3018.

Gradwohl, R. and Feddersen, T. (2018). Persuasion and transparency. *The Journal of Politics*, 80(3):903–915.

Gross, K. (2008). Framing persuasive appeals: Episodic and thematic framing, emotional response, and policy opinion. *Political Psychology*, 29(2):169–192.

Hansen, S., McMahon, M., and Prat, A. (2018). Transparency and deliberation within the fomc: a computational linguistics approach. *The Quarterly Journal of Economics*, 133(2):801–870.

Harden, J. J. and Kirkland, J. H. (2021). does transparency inhibit political compromise? *American Journal of Political Science*, 65(2):493–509.

Jerit, J. (2004). Survival of the fittest: Rhetoric during the course of an election campaign. *Political Psychology*, 25(4):563–575.

Lang, K. and Lang, G. E. (2018). *Television and politics*. Routledge.

Lenz, G. S. and Lawson, C. (2011). Looking the part: Television leads less informed citizens to vote based on candidates' appearance. *American Journal of Political Science*, 55(3):574–589.

Lim, C. S., Snyder, J. M., and Strömberg, D. (2015). The judge, the politician, and the press: newspaper coverage and criminal sentencing across electoral systems. *American Economic Journal: Applied Economics*, 7(4):103–35.

Lin, N. and Osnabrügge, M. (2018). Making comprehensible speeches when your constituents need it. *Research & Politics*, 5(3):2053168018795598.

Loewen, P. J., Cochrane, C., and Arsenault, G. (2017). Empathy and political preferences.

Marcus, G. E. and MacKuen, M. B. (1993). Anxiety, enthusiasm, and the vote: The emotional underpinnings of learning and involvement during presidential campaigns. *American Political Science Review*, 87(3):672–685.

Marcus, G. E., Neuman, W. R., and MacKuen, M. (2000). *Affective intelligence and political judgment*. University of Chicago Press.

Martin, G. J. and Yurukoglu, A. (2017). Bias in cable news: Persuasion and polarization. *American Economic Review*, 107(9):2565–99.

Maskin, E. and Tirole, J. (2019). Pandering and pork-barrel politics. *Journal of Public Economics*, 176:79–93.

Mikolov, T., Sutskever, I., Chen, K., Corrado, G., and Dean, J. (2013). Distributed representations of words and phrases and their compositionality. *arXiv preprint arXiv:1310.4546*.

Osnabruegge, M., Hobolt, S., and Rodon, T. (2021). Playing to the gallery: Emotive rhetoric in parliaments. *American Political Science Review*, pages 1–15.

Patty, J. W. (2016). Signaling through obstruction. *American Journal of Political Science*, 60(1):175–189.

Peisakhin, L. and Rozenas, A. (2018). Electoral effects of biased media: Russian television in ukraine. *American journal of political science*, 62(3):535–550.

Pennington, J., Socher, R., and Manning, C. D. (2014). Glove: Global vectors for word representation. In *Proceedings of the 2014 conference on empirical methods in natural language processing (EMNLP)*, pages 1532–1543.

Prat, A. (2005). The wrong kind of transparency. *American economic review*, 95(3):862–877.

Prior, M. (2006). The incumbent in the living room: The rise of television and the incumbency advantage in us house elections. *The journal of Politics*, 68(3):657–673.

Renshon, J., Lee, J. J., and Tingley, D. (2015). Physiological arousal and political beliefs. *Political Psychology*, 36(5):569–585.

Snyder, J. M. and Strömberg, D. (2010). Press coverage and political accountability. *Journal of political Economy*, 118(2):355–408.

Sørensen, R. J. (2019). The impact of state television on voter turnout. *British Journal of Political Science*, 49(1):257–278.

Spirling, A. (2016). Democratization and linguistic complexity: The effect of franchise extension on parliamentary discourse, 1832–1915. *The Journal of Politics*, 78(1):120–136.

Stasavage, D. (2007). Polarization and publicity: rethinking the benefits of deliberative democracy. *The Journal of Politics*, 69(1):59–72.

Strömberg, D. (2015). Media and politics. *Annual Review of Economics*, 7(1):173–205.

Sullivan, D. G. and Masters, R. D. (1988). Happy warriors: Leaders' facial displays, viewers' emotions, and political support. *American Journal of Political Science*, pages 345–368.

Valentino, N. A., Brader, T., Groenendyk, E. W., Gregorowicz, K., and Hutchings, V. L. (2011). Election night's alright for fighting: The role of emotions in political participation. *The Journal of Politics*, 73(1):156–170.

Webster, S. and Albertson, B. (2022). Emotion and politics: Noncognitive psychological biases in public opinion. *Annual Review of Political Science*, 25:19.1—-19.18.

Emotion and Reason in Political Language

Supporting Information

Table of Contents

A Additional Difference-in-Differences results

A.1 Difference-in-Differences Regression

Table A.1 reports the results of a simple difference-in-differences model. In particular, we estimate

$$Y_{ijt} = \alpha + \beta_m H_j \times Post_{jt} + H_j + Post_{jt} + \tau_t + \epsilon_{ijt} \tag{6}$$

where $Post_{jt}$ is a dummy equal to 1 for speeches pronounced during or after 1979, and all other variables are described in Equation 1. Standard errors are clustered by speaker.

Table A.1: Difference-in-Differences

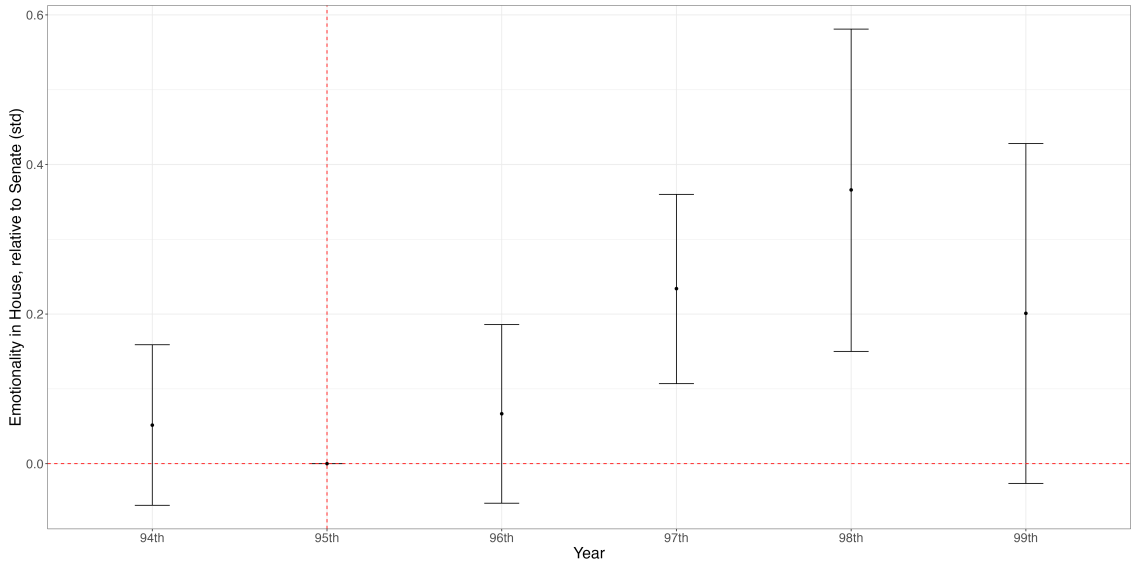
	1977-1981		1975-1983		1973-1985	
	(1)	(2)	(3)	(4)	(5)	(6)
House	0.103***	0.072***	0.096***	0.061***	0.105***	0.065***
	[0.029]	[0.022]	[0.020]	[0.017]	[0.018]	[0.015]
House × Post	0.069*	0.075**	0.084***	0.092***	0.101***	0.104***
	[0.040]	[0.029]	[0.031]	[0.025]	[0.027]	[0.022]
Year FE	✓	✓	✓	✓	✓	✓
Individual		✓		✓		✓
Mean DV	-0.17	-0.17	-0.16	-0.16	-0.14	-0.14
Observations	390631	390631	689579	689579	892694	892694
R2	0.01	0.02	0.01	0.01	0.01	0.02

Notes. Each column shows the regression of emotionality on indicator variables for the House of Representatives, the period after C-SPAN, and their interaction. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1977 and 1981 in columns 1-2, 1975 and 1983 in columns 3-4, and 1973 and 1985 in columns 5-6. All columns include year fixed effects. *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

A.2 Selection versus Incentives in C-SPAN Introduction

The C-SPAN effect on emotionality could come from two sources. For one, it may be driven by Members of Congress changing their behaviour in response to the introduction of C-SPAN. Alternatively, it could be due to the selection of more emotive members as a consequence of the new environment. To disentangle these two effects, we use an alternative

Figure A.1: Emotionality and C-SPAN1 Introduction: Selection Effect



Difference -in-Differences estimates of the effect of C-SPAN on Emotionality (equation 7). The horizontal axis indicates Congresses around the first introduction of C-SPAN1 in the House of Representatives (during the 96th Congress); the vertical axis reports the difference in emotionality between the House and the Senate. Vertical lines give 95% confidence intervals.

difference-in-differences model to get at the selection channel based on member starting year.

In particular, the first post-CSPAN1 election occurred in 1980. Hence, the 97th Congress taking office in 1981 is the first one containing new politicians that ran and won under the new information environment. To get at the selection effect, we compare House Members first elected in a given year to Senators first elected in the same year.[5] Formally, we estimate:

$$Y_{ijt} = \alpha + \sum_{m=-3}^{2} \beta_m H_j \times C_{97th+m} + H_j + \sum_{m=-3}^{2} C_{97th+m} + \tau_t + \epsilon_{ijt} \tag{7}$$

where now C_{97th+m} are dummies for leads and lags in the politician's first Congress session, relative to the 97th Congress. The 95th Congress is the left-out category.

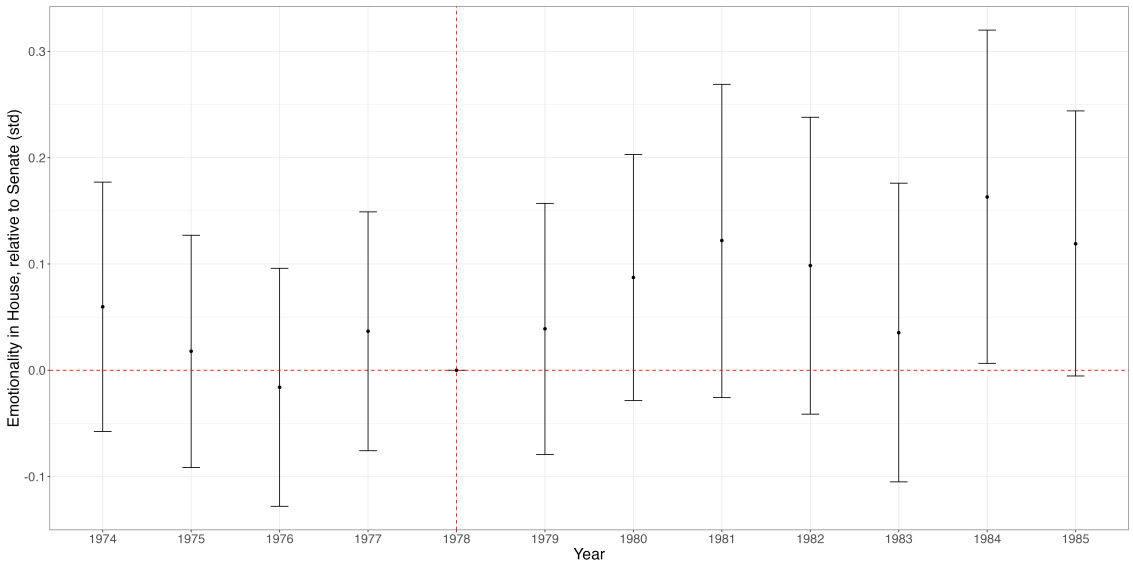
The selection results are reported in Figure A.1. For representatives first joining in the pre-CSPAN Congresses (96th and before), there is no difference between the House and the Senate, consistent with parallel trends in starting year. However, House Members who are

[5]We only include people whose tenure start in the year after the election, i.e. those who have been elected in the general congressional election. We exclude cases of special elections.

first elected after C-SPAN1 was introduced (in the 97th Congress) use significantly more emotionality than Senators first elected in that same election cycle.

Meanwhile, to look for an incentive effect that changes the emotionality of incumbent politicians, Appendix Figure A.2 shows the first event-study specification from equation 1 but limited to the sub-sample of Congress Members elected in 1978 or earlier. While we still get positive coefficients, they are noisier and not all significant.

Figure A.2: Emotionality and C-SPAN1 – For politicians elected before 1980



Difference -in-Differences estimates of the effect of C-SPAN on Emotionality (equation 1). Th sample includes all Republican and Democrats elected for the first time 1970, 1972, 1974, 1976, 1978. The horizontal axis indicates Years around the first introduction of C-SPAN1 in the House of Representatives (1979); the vertical axis reports the difference in emotionality between the House and the Senate. Vertical lines are 95% confidence intervals.

Overall, this analysis suggests that C-SPAN increased emotionality through both selection and incentive effects. First, it selected for more emotive Congressmen. Second, the incumbents became more emotive.

A.3 Effect on Other Outcomes

Table A.2 reports the difference-in-differences estimates for the effect of C-SPAN on additional outcome variables. While the House and Senate differ in some rhetorical aspects, these are mostly not systematically affected by the introduction of C-SPAN in the House.

The exception is speech length. With the introduction of C-SPAN, speeches become shorter.

Table A.2: Effect of C-SPAN Introduction on Other Outcomes

	(1) DW-NOM	(2) Extremism	(3) Sentiment	(4) Speech Length	(5) Word Length	(6) Sentence Length
House	0.161	-0.001	0.166***	0.233***	0.039**	0.170***
	[0.127]	[0.013]	[0.030]	[0.025]	[0.017]	[0.021]
House × Post	-0.114	0.022	0.035	-0.073**	0.015	-0.025
	[0.174]	[0.017]	[0.039]	[0.034]	[0.025]	[0.030]
Year FE	✓	✓	✓	✓	✓	✓
Mean DV	-0.05	0.13	-0.01	-0.04	-0.00	-0.02
Observations	388568	388568	390665	390665	390665	390665
R2	0.01	0.01	0.01	0.01	0.00	0.01

Notes. Each column shows the regression of a different dependent variable on indicator variables for the House of Representatives, the period after C-SPAN, and their interaction. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1977 and 1981. All columns include year fixed effects. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

B Robustness on the IV

B.1 First stage

Table A.3: First Stage Effect of C-SPAN1 Channel Position on Viewership

Viewership	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Position	-0.146***	-0.126***	-0.141***	-0.153***	-0.152***	-0.153***	-0.153***	-0.143***
	[0.046]	[0.041]	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]	[0.047]
State-Year	✓	✓	✓	✓	✓	✓	✓	✓
Urban		✓	✓	✓	✓	✓	✓	✓
Income-Educ			✓	✓	✓	✓	✓	✓
Individual				✓	✓	✓	✓	✓
Speech					✓	✓	✓	✓
Topics						✓	✓	✓
Interacted							✓	
Lasso								✓
Mean DV	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Observations	497933	497933	497933	497933	497933	497933	497933	497933

Notes. Each column shows the first stage that corrsepond to the 2-stage-least-squares specifications in Table 2. The endogenous variable, i.e. Viewership, is regressed on the instrument, i.e. C-SPAN1 channel position in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014. All columns include State-year fixed effects. *Urban* indicates the inclusion of controls for population (log), density (log), the share of urban population, of Hispanic, Asian, black and white population, of women, and of working age population. *Income-Educ* includes the share of college educated, high-school dropouts, food stamp recipients, and median household income (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. *Speech* indicates controls for speech length (log), word length (log), sentence length (log). *Topics* indicates topic fixed effects. *Interacted* indicates that *Urban* and *Income-Educ* controls are interacted with time trends. *Lasso* indicates the inclusion of controls selected with the post-double selection procedure, i.e. speech length (log), word length (log), speaker's gender, party and age. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

B.2 Reduced form

Table A.4: Reduced Form: Emotionality and C-SPAN1 position

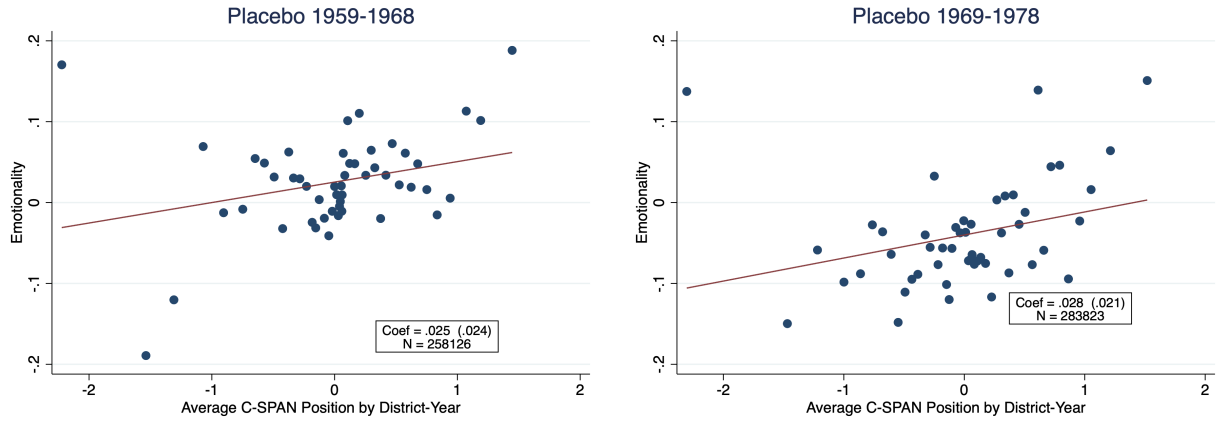
Emotionality	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Position	-0.043**	-0.045**	-0.051***	-0.042***	-0.040***	-0.025***	-0.025***	-0.022***
	[0.019]	[0.018]	[0.018]	[0.016]	[0.013]	[0.008]	[0.008]	[0.008]
State-Year	✓	✓	✓	✓	✓	✓	✓	✓
Urban		✓	✓	✓	✓	✓	✓	✓
Income-Educ			✓	✓	✓	✓	✓	✓
Individual				✓	✓	✓	✓	✓
Speech					✓	✓	✓	✓
Topics						✓	✓	✓
Interacted							✓	
Lasso								✓
Mean DV	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Observations	497910	497910	497910	497910	497910	497910	497910	497910

Notes. Each column shows the OLS regression of the emotionality score in a given speech (standardized) on the average C-SPAN1 channel position in the speaker's district (standardized). The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives between 1998 and 2014. All columns include State-year fixed effects. *Urban* indicates the inclusion of controls for population (log), density (log), the share of urban population, of Hispanic, Asian, black and white population, of women, and of working age population. *Income-Educ* includes the share of college educated, high-school dropouts, food stamp recipients, and median household income (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native), and controls for age and age squared. *Speech* indicates controls for speech length (log), word length (log), and sentence length (log). *Topics* indicates topic fixed effects. *Interacted* indicates that *Urban* and *Income-Educ* controls are interacted with time trends. *Lasso* indicates the inclusion of controls selected with the post-double selection procedure: speech length (log), word length (log), speaker's gender, party, and age. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

B.3 Pre-CSPAN Placebo for IV Analysis

In this section, we report a placebo analysis that adds confidence in the exogeneity of the instrument. In particular, we regress emotionality in the two decades before the introduction of C-SPAN, on C-SPAN channel position. A non-significant association indicates that C-SPAN channel position does not depend on pre-CSPAN emotionality levels. Figure A.3 plots the main associations. Table A.5 reports the estimates when including different sets of controls.

Figure A.3: Placebo: Reduced Form Effect on Pre-CSPAN Emotionality



Binned scatter plot of emotionality in two decades before the introduction of C-SPAN1 (1959-1968 and 1969-1978), and C-SPAN1 channel position. The horizontal axis reports the average C-SPAN1 channel position in the speaker's district-year; the vertical axis reports the average emotionality score by bin.

Table A.5: Placebo: Reduced-Form Effect on Pre-CSPAN Emotionality

	1959-1968				1969-1978			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Position	0.025	0.013	0.016	0.015	0.028	0.019	0.019	0.015
	[0.024]	[0.012]	[0.013]	[0.010]	[0.021]	[0.013]	[0.013]	[0.012]
State-Year	✓	✓	✓	✓	✓	✓	✓	✓
Topics		✓	✓	✓		✓	✓	✓
Speech			✓	✓			✓	✓
Individual				✓				✓
Observations	258126	258126	258126	258126	283823	283823	283823	283823
R-squared	0.02	0.40	0.42	0.42	0.03	0.35	0.38	0.38

Notes. Each column shows the OLS regression of the standardized emotionality score in a given speech on the average C-SPAN1 channel position in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1959-1968 and 1969-1978 . All columns include State-year fixed effects. Columns 2-4 and 6-8 also include topic fixed effects. *Speech* indicates the inclusion of controls for speech length (log), word length (log), sentence length (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

B.4 CSPAN2 IV Placebo

In this section, we report an additional placebo analysis. We regress emotionality for House representatives, on C-SPAN2 channel position, i.e. the channel that transmits from the Senate. Results reported in Table A.6 show that there is no causal effect of C-SPAN2 on emotionality in the House.

Table A.6: Emotionality and C-SPAN2 position: Placebo

Emotionality	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C-SPAN2 Position	-0.025	-0.022	-0.023	-0.014	-0.012	-0.003	-0.003	-0.007
	[0.020]	[0.018]	[0.018]	[0.016]	[0.013]	[0.009]	[0.009]	[0.009]
State-Year	✓	✓	✓	✓	✓	✓	✓	✓
Urban		✓	✓	✓	✓	✓	✓	✓
Income-Educ			✓	✓	✓	✓	✓	✓
Individual				✓	✓	✓	✓	✓
Speech					✓	✓	✓	✓
Topics						✓	✓	✓
Interacted							✓	
Lasso								✓
Mean DV	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Observations	497910	497910	497910	497910	497910	497910	497910	497910
r2	0.04	0.05	0.06	0.07	0.21	0.51	0.51	0.50

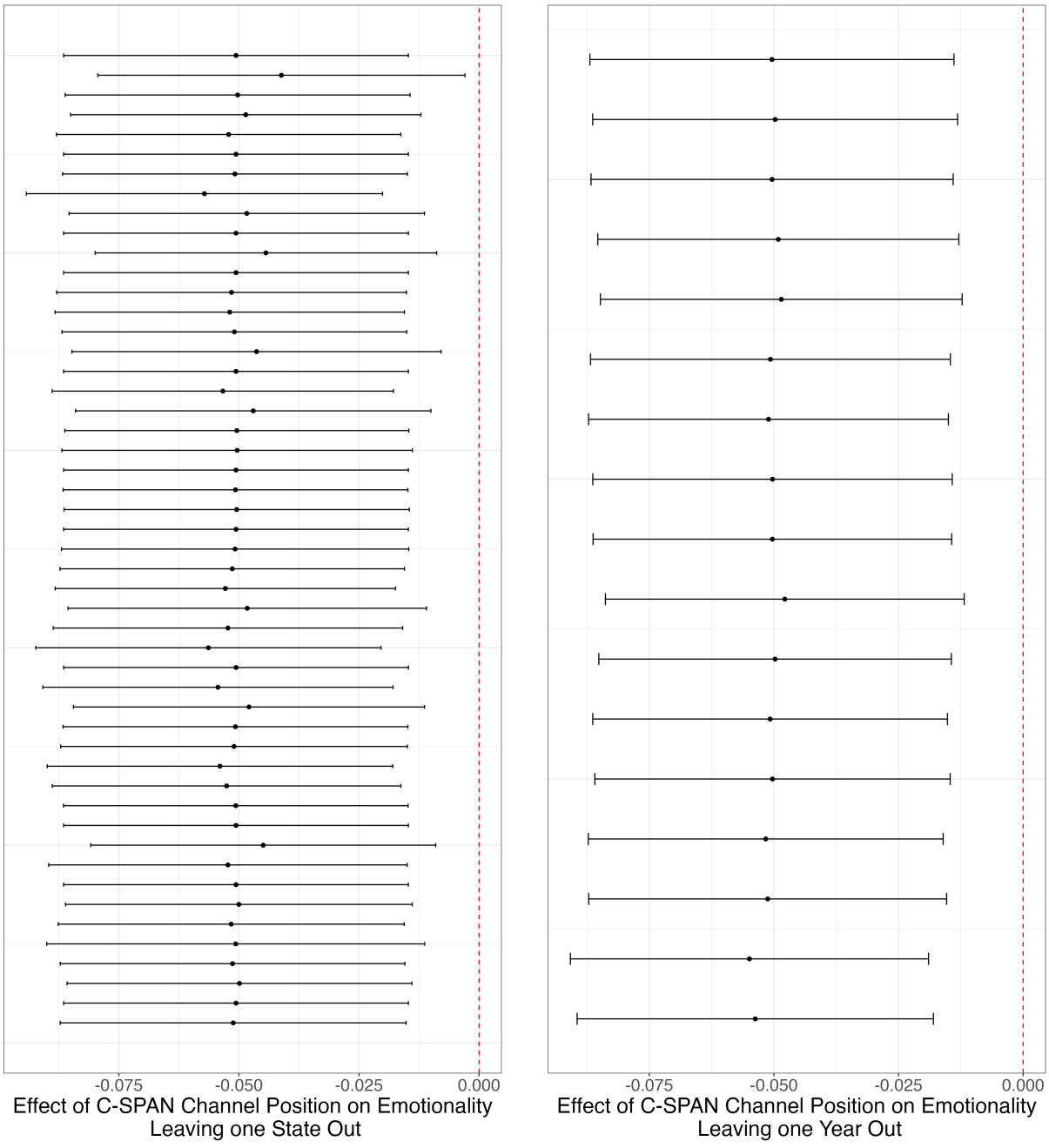
Notes. Each column shows placebo specifications, i.e. the OLS regression of the standardized emotionality score in a given speech on the average C-SPAN2 channel position in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014. All columns include State-year fixed effects. *Urban* indicates the inclusion of controls for population (log), density (log), the share of urban population, of Hispanic, Asian, black and white population, of women, and of working age population. *Income-Educ* includes the share of college educated, high-school dropouts, food stamp recipients, and median household income (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. *Speech* indicates controls for speech length (log), word length (log), sentence length (log). *Topics* indicates topic fixed effects. *Interacted* indicates that *Urban* and *Income-Educ* controls are interacted with time trends. *Lasso* indicates the inclusion of controls selected with the post-double selection procedure, i.e. speech length (log), word length (log), speaker's gender, party and age. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

B.5 Sample Perturbation Checks

Figure A.4 reports the main estimates as in Column 3 of Table 1, while dropping either one state (left panel) or one year (right panel) for each estimate. Results are stable across

estimates, suggesting that there is no specific state or year driving the results.

Figure A.4: Leave-one-out: Emotionality and C-SPAN1 Channel Position, dropping one State and Year at a time



Regression of emotionality on C-SPAN1 channel position, leaving one group of observation out. Observations are dropped by State (on the left) and by Year (on the right)

B.6 Instrument Balance

Table A.7 reports the results of a balance check of the instrument on several pre-CSPAN characteristics.

Table A.7: Instrument Balance: District Level

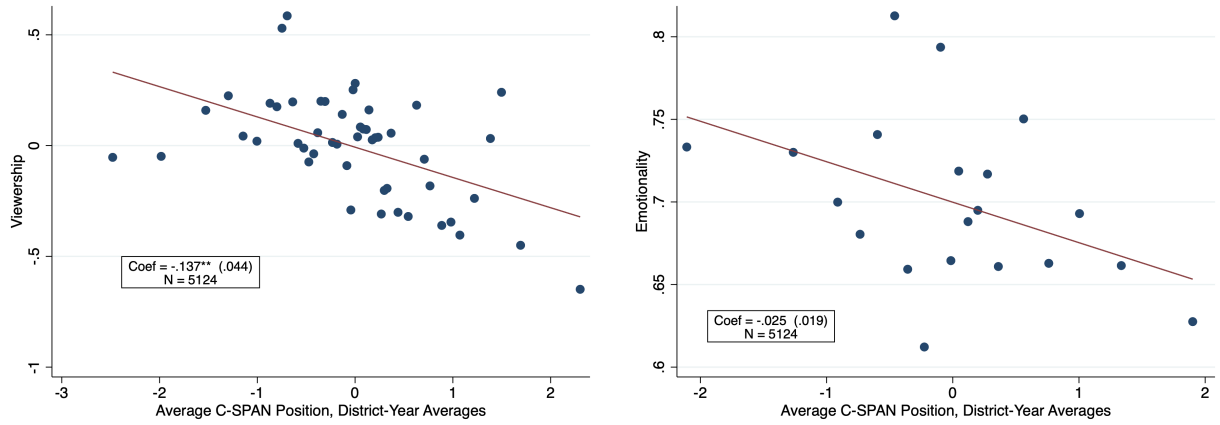
District characteristics	Beta	SE	P-val
Population (log)	.0023174	.0039791	.5636432
Population Density (log)	-.0412946	.0175262	.0235847
Urban Population (%)	.0163487	.0060866	.0105671
High-school dropouts (%)	.0029727	.0015733	.0662852
College educated (%)	-.0025891	.0017008	.1360005
Hispanic (%)	-.0013745	.0028178	.6284187
Black (%)	.0029052	.0016949	.0944507
Asian (%)	.0015466	.0013693	.2655983
White (%)	.0031286	.001968	.119968
Female (%)	.0002497	.000304	.4164899
Working Age (%)	.0006442	.0007216	.3774519
Median household income (log)	-.000427	.0026643	.8734978
Median individual income (log)	.0124381	.0073441	.0983129
Use of Food Stamps (%)	-.0028099	.0011765	.0218659
Members of Congress			
Female (avg)	-.0010767	.0176275	.9516075
Catholic (avg)	-.0213454	.0195973	.2827504
Jewish (avg)	-.024581	.0119651	.0466825
Republican (avg)	.0108889	.0184832	.5591754
Black (avg)	.0143469	.0144245	.3260513
Hispanic (avg)	-.0037714	.0114603	.7438538
Asian (avg)	-.0059457	.0076853	.4438069
Native (avg)	.0005841	.0006427	.3690323
Age (avg)	.1703656	.3810444	.6572749

Notes. Each Beta is the estimated coefficient of a separate OLS regression of the indicated variable on the instrument, i.e. the average C-SPAN1 channel position in the speaker's district, and all remaining variables as controls. The sample is composed of all electoral districts in the main sample. All regressions include State fixed effects. Standard errors are clustered at the State level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

B.7 District-level Specification

This section reproduces the main results, at the electoral district level. All variables are collapsed as district-level averages. Figure A.5 reports the main plots of the first stage and reduced form. Table A.8 reports the reduced form results.

Figure A.5: Reduced Form: Emotionality and C-SPAN1 Channel Position, District-Level Specification



Binned scatter plot of viewership on C-SPAN1 channel position, on the right (first stage), and emotionality on C-SPAN1 channel position, on the left (reduced form). The horizontal axis reports the average C-SPAN1 channel position in the speaker's district-year.

Table A.8: Emotionality and C-SPAN1: District Level

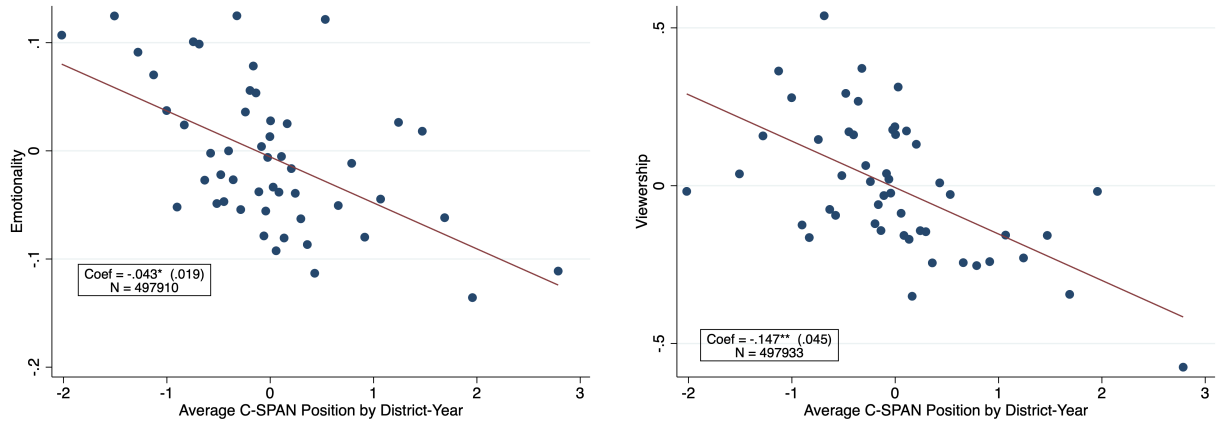
	Reduced Form				2sls			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Position	-0.018	-0.016	-0.019	-0.026*				
	[0.017]	[0.015]	[0.015]	[0.015]				
Viewership					0.119	0.102	0.135	0.201
					[0.119]	[0.092]	[0.106]	[0.122]
State	✓	✓	✓	✓	✓	✓	✓	✓
Year	✓	✓	✓	✓	✓	✓	✓	✓
Individual		✓	✓	✓		✓	✓	✓
Urban			✓	✓			✓	✓
Income-Educ				✓				✓
KP F-stat					7.639	10.464	10.644	11.480
Mean DV	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Observations	5124	5124	5124	5124	5124	5124	5124	5124
R-squared	0.09	0.16	0.16	0.17	-0.05	0.05	0.03	-0.02

Notes. Each column shows the OLS regression of the standardized emotionality score in a given speech on the average C-SPAN1 channel position in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1959-1968 and 1969-1978 . All columns include State-year fixed effects. Columns 2-4 and 6-8 also include topic fixed effects. *Speech* indicates the inclusion of controls for speech length (log), word length (log), sentence length (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

B.8 Main results with i.h.s. transformation

In this section, we test the robustness of our results to the presence of outliers. In particular, we replicate the same results after applying an inverse hyperbolic sine transformation to the C-SPAN Channel Position and C-SPAN Viewership variables. Figure A.6 reproduces the main plots of the first stage and reduced form specifications. Table A.9 reports the reduced form results. All results are unchanged.

Figure A.6: Reduced Form and First Stage Effect with i.h.s. Transformation



On the left: binned scatter plot of emotionality and channel position. The horizontal axis is the average C-SPAN1 channel position in the speaker's district-year (standardized, i.h.s.); the vertical axis is the average emotionality score by bin (standardized). On the right: binned scatter plot of C-SPAN1 viewership and C-SPAN1 channel position. The horizontal axis reports the average C-SPAN1 channel position in the speaker's district-year (standardized, i.h.s.); the vertical axis reports the average viewership in the speaker's district (standardized). State-year fixed effects absorbed.

Table A.9: Reduced Form: Emotionality and C-SPAN1 position (i.h.s.)

Emotionality	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Position	-0.046**	-0.044**	-0.050***	-0.041**	-0.038***	-0.024***	-0.024***	-0.022**
	[0.019]	[0.018]	[0.019]	[0.017]	[0.013]	[0.009]	[0.009]	[0.009]
State-Year	✓	✓	✓	✓	✓	✓	✓	✓
Urban		✓	✓	✓	✓	✓	✓	✓
Income-Educ			✓	✓	✓	✓	✓	✓
Individual				✓	✓	✓	✓	✓
Speech					✓	✓	✓	✓
Topics						✓	✓	✓
Interacted							✓	
Lasso								✓
Mean DV	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Observations	497910	497910	497910	497910	497910	497910	497910	497910

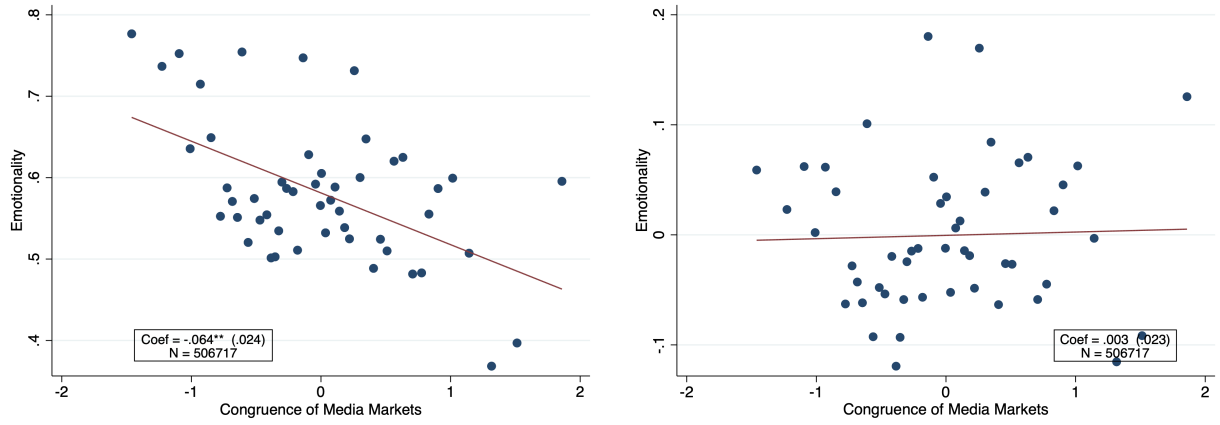
Notes. Each column shows the OLS regression of the emotionality score in a given speech (standardized), on the average C-SPAN1 channel position in the speaker's district (standardized, i.h.s.). The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives between 1998 and 2014. All columns include State-year fixed effects. *Urban* indicates the inclusion of controls for population (log), density (log), the share of urban population, of Hispanic, Asian, black and white population, of women, and of working age population. *Income-Educ* includes the share of college educated, high-school dropouts, food stamp recipients, and median household income (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native), and controls for age and age squared. *Speech* indicates controls for speech length (log), word length (log), and sentence length (log). *Topics* indicates topic fixed effects. *Interacted* indicates that *Urban* and *Income-Educ* controls are interacted with time trends. *Lasso* indicates the inclusion of controls selected with the post-double selection procedure: speech length (log), word length (log), speaker's gender, party, and age. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

C Effects of Media-Market Congruence

C.1 Emotionality

This section documents the effect of media-market congruence on emotionality. Figure A.7 reports the regression of emotionality on congruence. The plot on the left-hand side includes state-year fixed effects. The plot on the right-hand side adds district-level controls for population composition and urbanization. Table A.10 reports the regression results for emotionality on congruence, including the same sets of controls as in our main specification in Table A.4. Across specifications, we find no effect of congruence on emotionality.

Figure A.7: Emotionality and Congruence



Binned scatter plot of Emotionality on Congruence. The horizontal axis reports Congruence between the media market and the electoral district in the speaker's district-year (standardized); the vertical axis reports the average emotionality score by bin (standardized). The left panel includes State-Year fixed effects. The right panel also includes district-level controls.

Table A.10: Emotionality and Congruence

Emotionality	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Congruence	0.000	0.009	0.024	0.019	0.016	0.016	0.000
	[0.027]	[0.028]	[0.026]	[0.020]	[0.013]	[0.013]	[0.009]
State-Year	✓	✓	✓	✓	✓	✓	✓
Urban	✓	✓	✓	✓	✓	✓	✓
Income-Educ		✓	✓	✓	✓	✓	✓
Individual			✓	✓	✓	✓	✓
Speech				✓	✓	✓	✓
Topics					✓	✓	✓
Interacted						✓	
Lasso							✓
Mean DV -0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	
Observations	506717	506717	506717	506717	485145	485145	485145

Notes. Each column shows the OLS regression of the emotionality score in a given speech (standardized) on the average Congruence in the speaker's district (standardized). The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014. All columns include State-year fixed effects. *Urban* indicates the inclusion of controls for population (log), density (log), the share of urban population, of Hispanic, Asian, black and white population, of women, and of working age population. *Income-Educ* includes the share of college educated, high-school dropouts, food stamp recipients, and median household income (log). *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. *Speech* indicates controls for speech length (log), word length (log), sentence length (log). *Topics* indicates topic fixed effects. *Interacted* indicates that *Urban* and *Income-Educ* controls are interacted with time trends. *Lasso* indicates the inclusion of controls selected with the post-double selection procedure, i.e. speech length (log), word length (log), speaker's gender, party and age. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

C.2 Political Extremism

Table A.11 reports the effect of congruence and C-SPAN on political extremism of the member of Congress. Extremism is measured as the DW-NOMINATE score (dimension 1) squared. This measure is used by Snyder and Strömberg (2010) as a measure of party loyalty.

Table A.11: Political Extremism under Congruence and C-SPAN

	T = Congruence		T = C-SPAN	
Extremism	(1)	(2)	(3)	(4)
T	-0.143***	-0.116**	0.053	0.021
	[0.051]	[0.058]	[0.040]	[0.035]
Obs	2934	2934	2850	2850

Notes. Each entry corresponds to a separated OLS regression of the dependent variable (standardized) on transparency (T). $T = Congruence$ indicates that transparency is $Congruence$, $T = C - SPAN$ indicates that transparency is the C-SPAN channel position (standardized). The dependent variables is *Extremism*. The sample is composed of all Democrat and Republican Members of the House of Representatives, between 1998 and 2014 in Columns 1 to 4. The sample is restricted to 1998 to 2004 in all other columns. All columns include State-year fixed effects. *Individual* includes dummy variables for speaker's gender, religion (Catholic, Jewish), party, race (Black, Hispanic, Asian, Native) and control for age and age squared. Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

C.3 Congruence and Topics

Table A.12 reports the effect of media market congruence on the selection of topics discussed in Congress. There is no clear pattern related to topic selection.

Table A.12: Congruence and Topics

	(1) Economic Policy	(2) Fiscal Policy	(3) Foreign Policy	(4) Gover nance	(5) Immi graiton	(6) Monetary Policy	(7) National Narrative	(8) Party Politics	(9) Social Issues	(10) Tribute
Position	0.011**	0.006	-0.005	0.000	-0.005**	0.000	0.000	0.001	0.001	-0.008
	[0.005]	[0.005]	[0.006]	[0.002]	[0.002]	[0.000]	[0.003]	[0.001]	[0.008]	[0.006]
Mean DV	0.11	0.06	0.09	0.04	0.01	0.00	0.07	0.04	0.16	0.12
Observations	485160	485160	485160	485160	485160	485160	485160	485160	485160	485160
R-squared	0.02	0.02	0.03	0.02	0.02	0.01	0.02	0.01	0.02	0.03

Notes. Each column shows the OLS regression of the speech topic on Congruence in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014 . All columns include State-year fixed effects, Urban controls and Income-Educ Controls (as in Table A.4). Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

D Other Outcomes

This section reports additional results on the effect of C-SPAN on language used in Congress. Table A.13 reports the estimates of OLS regression of different linguistic features on C-SPAN position. TableA.14 reports the effect of C-SPAN position on the prevalence of topics (panel 1) as well as on the use of emotionality by topic (Panel 2). Tables A.15 and A.16 report the effect of C-SPAN on political selection, looking at ideology and demographics.

Table A.13: C-SPAN1 and Other Speech Characteristics

	(1) Sentiment	(2) Speech Length	(3) Word Length	(4) Sentence Length	(5) Number of Speeches
Position	-0.006	-0.016	-0.013	-0.032**	-0.061**
	[0.012]	[0.016]	[0.010]	[0.015]	[0.031]
State-Year	✓	✓	✓	✓	✓
Urban	✓	✓	✓	✓	✓
Income-Educ	✓	✓	✓	✓	✓
Observations	497933	497933	497933	497933	497933
R-squared	0.03	0.04	0.02	0.03	0.36

Notes. Each column shows the OLS regression of the speech characteristic on the average C-SPAN1 channel position in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014. All columns include State-year fixed effects, Urban controls and Income-Educ Controls (as in Table A.4). Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table A.14: C-SPAN1 and Topics

	(1) Economic Policy	(2) Fiscal Policy	(3) Foreign Policy	(4) Gover nance	(5) Immi graiton	(6) Monetary Policy	(7) National Narrative	(8) Party Politics	(9) Social Issues	(10) Tribute
Panel 1: Topic Probability										
Position	0.003	0.003	-0.001	0.001	0.001	0.000	-0.006***	-0.004***	-0.000	0.009**
	[0.003]	[0.003]	[0.003]	[0.001]	[0.001]	[0.000]	[0.002]	[0.001]	[0.004]	[0.005]
Mean DV	0.11	0.06	0.09	0.04	0.01	0.00	0.07	0.04	0.16	0.12
Obs	476553	476553	476553	476553	476553	476553	476553	476553	476553	476553
R-squared	0.02	0.02	0.03	0.02	0.02	0.00	0.02	0.01	0.02	0.03
Panel 2: Emotionality by Topic										
Position	-0.078***	-0.006	-0.076***	-0.034	0.009	-0.090**	-0.008	-0.067***	-0.042**	-0.082***
	[0.021]	[0.029]	[0.025]	[0.023]	[0.035]	[0.046]	[0.016]	[0.021]	[0.021]	[0.018]
Mean DV	0.70	0.83	1.02	0.50	0.87	0.67	1.93	0.84	0.91	0.02
Obs	50158	29852	42484	18098	4310	1741	31013	18529	77857	55746
R-squared	0.11	0.16	0.12	0.13	0.32	0.39	0.10	0.12	0.08	0.08

Notes. In the panel Topic Probability, each column shows the OLS regression of the speech topic on the average C-SPAN1 channel position in the speaker's district. In the panel Emotionality, each column shows the OLS regression of emotionality on the average C-SPAN1 channel position in the speaker's district, for speeches that belong to the same topic. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014 . All columns include State-year fixed effects, Urban controls and Income-Educ Controls (as in Table A.4). Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table A.15: C-SPAN1 and Selection of Politician Types (1)

	(1) Democrat	(2) DW Nom 1	(3) Extremism	(4) Tenure Start Year	(5) Age	(6) Education
Position	-0.045*	0.109**	0.010	-0.276	0.006	-0.064**
	[0.024]	[0.049]	[0.006]	[0.574]	[0.498]	[0.027]
Observations	497933	495611	495611	497933	497933	461398
R-squared	0.48	0.56	0.40	0.43	0.29	0.26

Notes. Each column shows the OLS regression of the speaker's ideology and other characteristics on the average C-SPAN1 channel position in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014 . All columns include State-year fixed effects, Urban controls and Income-Educ Controls (as in Table A.4). Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table A.16: C-SPAN1 and Selection of Politician Types (2)

	(1) Female	(2) Black	(3) Asian	(4) Hispanic	(5) Native	(6) White	(7) Catholic	(8) Jewish
ivvar	-0.024	0.009	-0.003	-0.005	0.000*	-0.002	-0.039	-0.016
	[0.018]	[0.014]	[0.005]	[0.005]	[0.000]	[0.015]	[0.025]	[0.015]
Observations	497933	497933	497933	497933	497933	497933	497933	497933
R-squared	0.30	0.57	0.10	0.36	0.73	0.52	0.34	0.19

Notes. Each column shows the OLS regression of the speaker's demographic characteristic on the average C-SPAN1 channel position in the speaker's district. The sample is composed of all speeches pronounced by Democrat and Republican Members of the House of Representatives, between 1998 and 2014 . All columns include State-year fixed effects, Urban controls and Income-Educ Controls (as in Table A.4). Standard errors are clustered at the politician level. *,**, *** denote significance at the 10%, 5%, and 1% levels, respectively.

E Summary Statistics

Table A.17: Summary Statistics: IV variables

	Count	Mean	SD	Min	Max
Main Variables					
Standardized values of score	497910	0.575	1.141	-2.799	4.574
C-SPAN1 Share 2004	497910	0.086	0.061	0.000	0.525
C-SPAN1 Share 1998-2004	497910	33.509	10.281	6.073	76.937
Speech Variables					
Speech Length	497910	96.004	170.343	1	10289
Avg Word Length	497910	5.666	0.705	2.000	15.000
Avg Sentence Length	497910	16.581	8.136	1.000	277.500
Individual Variables					
Female	497910	0.125	0.330	0	1
Catholic	497910	0.294	0.456	0	1
Jewish	497910	0.069	0.254	0	1
Republican	497910	0.510	0.500	0	1
Black	497910	0.107	0.309	0	1
Hispanic	497910	0.025	0.155	0	1
Asian	497910	0.008	0.092	0	1
Native	497910	0.002	0.042	0	1
Age	497910	57.801	10.062	27	91
District Variables					
Population	497910	638668.553	87402.803	395349	1030361
Population Density	497910	1443.789	3013.071	19.156	33783.345
% Urban	497910	0.712	0.288	0.000	1.000
% Hispanic	497910	0.149	0.145	0.008	0.822
% Black	497910	0.141	0.158	0.004	0.838
% Asian	497910	0.045	0.051	0.003	0.412
% White	497910	0.716	0.178	0.099	0.970
% Female	497910	0.509	0.009	0.484	0.553
% Working Age Population	497910	0.641	0.025	0.574	0.769
% High-School Dropouts	497910	0.147	0.061	0.036	0.500
% College Graduates	497910	0.281	0.101	0.071	0.656
Median Households Income	497910	56563.065	15533.456	25655.431	113044.365
(mean) med value	497910	235083.189	145072.067	68893.325	869927.488
% Households on Food Stamps	497910	0.114	0.054	0.021	0.448

Notes. Main summary statistics for all variables included in the IV analysis.