From Couch to Poll: Political Responsiveness and the Geographic Scope of Information[†]

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Research has shown that the type of information conveyed by media shapes the political process. However, these studies have not isolated the relative effect of local versus national content while holding the quantity of information constant, leaving the relative importance of these types of information underexplored. We document this relative importance in the context of Canada, where competition in television markets was suppressed until 1958—Canadians received either public (national) or private (local) content, but not both. We find that local media increases voter turnout and enhances electoral competition, thereby strengthening re-election incentives of incumbents. In contrast, national content has the opposite effect, underscoring the relevance of local information to voters. A text analysis of Parliamentary debates supports these results: politicians in local television districts exhibit greater responsiveness and accountability to constituents than their counterparts in national television districts. These findings demonstrate that the geographic scope of media content explains the direction of change in the behavior of voters and politicians.

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1 Introduction

Mass media can provide valuable information about politics. An informed electorate is more engaged in the political process, more likely to vote and better able to hold politicians accountable (Strömberg, 2015). Mass media can also function as a source of entertainment, and voter disengagement will result if the entertainment content of new media crowds out the informational content of existing media (Gentzkow, 2006). But not all information is relevant to voters, and comparing the balance of information and entertainment across different types of media does not provide an answer to an important yet poorly understood question: what is the relevant type of information to voters that drives the political impact of media content?

In this paper, we trace out the political effects of media as it relates to the relevance of information. We do so in the context of Canada, where the regulatory environment in which television emerged provides the ideal empirical setting: Canadian television developed as a dual system of public and private broadcasters, but a "one-station policy" prevented the expansion of both broadcasters into the same market. Voters had no choice, receiving either public or private television but never both. And yet content varied across these broadcasters: private stations aired a steady diet of local information because it was cheap to produce, whereas public stations aired informational content reflective of the nation as a whole. In this ideal setting, we know *who* adopts *what* type of information, so we can (i) compare the turnout of voters who receive the same new media type—television—but have no choice over available content—local or national information—and (ii) compare the response of politicians elected by these voters who possess different types of information.

This novel context allows us to document the relevance of information in terms of its geographic scope—i.e., the region or area to which the information pertains, ranging from local to national news. On the one hand, local news is relatable and touches on issues close to home, which could evoke a broader interest in politics and increase voter responsiveness. On the other hand, because most hot-button issues in a general election are national in scope, national news may be the key source of information driving voter responsiveness. The relative contribution of local and national informational content to the political process remains underexplored, as the widespread availability of both local and national news programming makes it "impossible to study [the relative] effects on the general population." (Oberholzer-Gee and Waldfogel, 2009, p. 2120)

Using archival records of television transmitter installations, we trace the roll out of television across the entire landscape of Canada, and link our spatial estimates of television signal strength to newly digitized federal electoral district maps. Combining these data with measures of voter responsiveness, and crucially a new measure of political responsiveness, we follow a step-by-step causal chain of media's impact on the general population, and highlight what constitutes politically relevant information by comparing local television viewers to national television viewers.

Our analysis demonstrates that the geographic scope of information explains the direction of change in the behavior of voters and politicians. We find that local informational content increases voter turnout and the responsiveness of politicians, whereas exposure to national content has the opposite effect. Programming records show that the quantity of information is constant across public and private stations, underscoring local content as the primary driver of media's positive political effects. An analysis of the

Canadian Election Study further supports this argument: respondents in local television districts attend political meetings and rallies, contact public officials and discuss politics with others more often than their counterparts in national television districts.

These contrasting effects highlight the importance of geographic scope in determining whether media effectively informs voters and holds politicians accountable or not. Importantly, all our estimates stem from the political relevance of local versus national information, rather than an effect specific to television, as media type is held constant throughout the analysis. Nevertheless, our findings give nuance to the long-held view that the introduction of television necessarily led to a sharp decline in political participation (Gentzkow, 2006).

To make headway on the mechanism, we link voter responsiveness to electoral competition, documenting that the increased responsiveness in local television districts heightens the competitiveness of a district's subsequent election—an effect that is absent in national television districts. We argue that politicians become more responsive to voter needs because of the improved re-election incentives they face in competitive elections. A text analysis of speeches from the House of Commons supports this argument with evidence that politicians are responsive to the interests of their constituents only in local television districts. Parliamentary voting records further indicate that these same politicians are more willing to dissent from the voting behavior of their party, suggesting that responsive politicians are also more accountable to their constituents. All of these results are robust to a specification that leverages within-incumbent variation, ruling out voter selection of new politicians as a first-order explanation of our findings. We conclude that the geographic scope of information influences the direction of change in voter responsiveness and consequently electoral competition, where heightened competition incentivizes politicians to act accountable rather than be held accountable through selection.

As with any long-run shift in media access, the arrival of television permanently changed how Canadians consumed information thereafter. Television went to air in September 1952, and in just two years 75 percent of the population lived within range of a television signal (Peers, 1979). By 1958, more than 90 percent of the population had access to television (Cole, 2002). The intent of the one-station policy was to facilitate this rapid expansion of the public-private network outwards across space, prioritizing the introduction of television to new markets before allowing competition within a single market.

This setting allows us to center our analysis on the *relative effect* of a local-versus-national information treatment—a unique aspect of our study made possible by the rapid expansion of both public and private broadcasters within a one-station policy environment. But the proper identification of this relative effect requires that we tackle two empirical challenges. The first challenge results from a district's selection into public or private television, where the decision to do so might correlate with the difference in informational content across broadcasters. The second challenge results from the non-random expansion of the television network: factors that determine the timing and location of television transmitter installations (e.g., population density) may correlate with our political outcomes of interest. In other words, the timing of an electoral district's exposure to television is likely non-random, and neither two-way fixed effects nor pre-treatment parallel trends are sufficient to guarantee an unbiased estimate of our treatment effect.

We address the selection into public or private television by controlling for electoral district characteristics, which we flexibly allow to vary across election cycles. We confirm that the selection into public or private television is balanced across key determinants of treatment, conditional on a district receiving television. Our main findings are also insensitive to a series of subsamples that exclude major cities, capital cities, and districts with high population density. Altogether, these findings support our interpretation that the treatment effect of interest is not a by-product of selection.

We account for the non-random timing of a district's exposure to television with a measure of expected signal strength. Based on the insights of Borusyak and Hull (2023), we develop a measure of expected signal strength by permuting the timing of transmitter installations in a given year, while conditioning on the correct number of active transmitters and their sampling probability. The result is a new network of signal strength that closely, but not exactly, matches the distribution of actual signal strength. We generate 500 placebo networks and calculate the average value of a district's non-randomness in television exposure—its expected signal strength—and include this as a control variable in our model. The intuition of this solution is straightforward: the variation that we rely on in a regression is the difference between the observed and counterfactual network—signal strength above or below what is expected—and thus an outcome of chance.

Our analysis highlights the differential impact of public and private television content on the political landscape, where the key distinction in content across these broadcasters is the geographic scope of information. As a validation exercise, we also consider four alternative interpretations of our findings. First, the percentage of airtime devoted to entertainment content might differ across public and private television stations, inhibiting our ability to separate the geographic scope of information from the quantity of information. Second, public and private television viewers may substitute away from newspapers at different rates, posing an additional challenge if newspaper readers tend to be more engaged ex-ante. Third, many private television stations emerged from pre-existing radio stations, so the effect we estimate may as well be attributed to radio content, or the selection into radio stations, rather than television content per se. Fourth, the political bias of broadcasters may be heterogeneous and selectively undermine different groups of voters. In all instances, we find no evidence in support of these alternative interpretations.

Our results shed new light on the value of local information in a democracy, and contribute to a large literature documenting mass media's impact on voters.[1] In particular, we build on the seminal work of Gentzkow (2006), who documents a negative effect of television on voter turnout in U.S. elections. Ellingsen and Hernæs (2018) document a similar effect for cable television in Norway, and both studies suggest that the entertainment content on television displaced the relative quantity of local political information across other media formats. While we can corroborate this negative effect for Canada, our setting reveals heterogeneity in voter responsiveness to the local or national scope of information.

If we look to studies of newspaper entry and exit, we can account for this heterogeneity with im-

[1]For example, television tends to reduce voter turnout (Gentzkow, 2006; Althaus and Trautman, 2008; Campante and Hojman, 2013; Ellingsen and Hernæs, 2018; Angelucci et al., 2023) and shape the political allegiance of voters (DellaVigna and Kaplan, 2007; Enikolopov et al., 2011; Martin and Yurukoglu, 2017; Durante et al., 2019; Ash et al., 2022). The Internet similarly has depressive effects on voter responsiveness (Falck et al., 2014; Gavazza et al., 2019), although the evidence is mixed depending on the context (Miner, 2015; Campante et al., 2018; Donati, 2023), and in some instances can elicit responsiveness in the form of protests (Fergusson and Molina, 2019; Enikolopov et al., 2020; Manacorda and Tesei, 2020; Amorim et al., 2022; Enikolopov et al., 2023). A large literature also documents the positive impact of media content on political engagement, particularly among newspapers and radio (Strömberg, 2004b; Snyder and Strömberg, 2010; Gentzkow et al., 2011; Drago et al., 2014; Wang, 2023). This large body of research is supported theoretically by the notion that media matters because it transmits information to voters (Strömberg, 2004a; Chiang and Knight, 2011; Prat and Strömberg, 2013; Abramson and Montero, 2023).

proved voter responsiveness in markets with local newspapers (Gentzkow et al., 2011; Drago et al., 2014). But again the estimates of these studies stem from the quantity of information rather than the relevance of different information types to voters. Snyder and Strömberg (2010) is one of the only studies to vary the relevance of information to voters in the analysis, estimating the intensity of local newspaper coverage in a congressional district, but the relative importance of national newspapers can only be inferred from these findings.

Perhaps the closest paper to ours is Oberholzer-Gee and Waldfogel (2009), who document a positive effect of local news on voter responsiveness, based on a comparison of Hispanic and non-Hispanic television viewers, all of whom live in a U.S. metropolitan area with Spanish-language local television news.[2] Oberholzer-Gee and Waldfogel's (2009) focus on Spanish-speaking Americans points to a mechanism where the cost of information acquisition is reduced among Hispanic television viewers, rather than it being a local news effect specific to the relevance of information.

We build on these positive local news effects with a context that offers two important advantages. First, the one-station policy accounts for a television viewer's non-random choice of content that may otherwise bias our estimates. Second, the rapid and joint expansion of a public-private television network allows for a direct comparison of local and national news treatments relative to a control group, and our new data and context allow us to estimate this relative effect for the entire population. The key insight we can draw from our context is that the geographic scope of information can reconcile the positive and negative impacts of television documented elsewhere (Gentzkow, 2006; Oberholzer-Gee and Waldfogel, 2009).

We also build on a strand of literature that connects the engagement effects of media content to political accountability. The theoretical mechanism linking voters and politicians is responsiveness, where voters exposed to relevant political information can better perceive the competence of an incumbent politician (Strömberg, 2015). Voter responsiveness translates into increased accountability through two channels: the improved re-election incentives of an incumbent politician (Besley and Burgess, 2002; Snyder and Strömberg, 2010; Drago et al., 2014) and the selection of a new politician when voters perceive the incumbent to be lacking in quality and effort (Ferraz and Finan, 2008; Snyder and Strömberg, 2010; Larreguy et al., 2020).[3] It is through these channels that increased engagement leads to better policy outcomes (Besley and Burgess, 2002; Strömberg, 2004b; Snyder and Strömberg, 2010; Lim et al., 2015). Our contribution to this literature is evidence of how the geographic scope of information shapes the behavior of politicians. We identify different re-election incentives based on the local or national content of information, which we show consistently explain different patterns of behavior among elected politicians. Altogether, the set of findings highlight the relevance of local information to voters and how that translates into political accountability.

We also make a methodological contribution, based on a novel solution to the non-randomness of

[2]Durante et al. (2019) and Bursztyn et al. (2023) also exploit within-television content variation to study the content effects of media, although neither focus on the geographic scope of information. Durante et al. (2019) compare differences in political outcomes across public television districts following the staggered introduction of private entertainment television. Bursztyn et al. (2023) compare adopted beliefs about the COVID-19 pandemic across viewers of different television programs, and develop an instrumental variable strategy to address the problem of a viewer's non-random choice over content.

[3]These re-election incentives may not be sustained without dynamic monitoring (Bobonis et al., 2016), and incumbents may use social media to secure their position among core supporters, rather than responding to re-election incentives (Bessone et al., 2022). A separate literature speaks to the link between voter responsiveness and political protests, where increased accountability results through a different mechanism. See Zhuravskaya et al. (2020) for a review.

television transmitter installations. In most studies where the treatment is a measure of signal strength across space, for either television or radio, a common solution is to control for free-space signal strength (Olken, 2009; Enikolopov et al., 2011; Yanagizawa-Drott, 2014; DellaVigna et al., 2014; Adena et al., 2015; Bursztyn and Cantoni, 2016; Wang, 2021, among others). Yet in free space, where line-of-sight propagation implies no topographical variations, signals decay at the inverse rate of distance squared, which is unlikely to be the appropriate distance elasticity in our context, since television transmitters are often located on top of a mountain or hill—i.e., regions with a different topography than free space. Even if the timing of a *transmitter's* installation is conditionally random with the free-space approach, districts located near large economic centers are more likely to be treated than districts on the periphery, suggesting that the timing of a *district's* exposure may still be non-random. Our approach takes the actual topography of the Canadian landscape into consideration, including the spatial distribution of the television network, giving us a control for the non-randomness of a television signal that is based on a more realistic counterfactual topography (Borusyak and Hull, 2023). Although we show that both estimation strategies yield similar results, we find that some key determinants of treatment are only balanced when adjusting the estimates with our measure of expected signal strength, which underscores the contribution of our identification strategy.

2 Historical Background

The empirical analysis draws on two key aspects of the regulatory environment in which Canadian television emerged: (i) a dual system of public and private broadcasters and (ii) a one-station policy that prevented the expansion of both public and private television into the same market. In this section, we provide context and background for this regulatory environment, describing the conditions that predate the arrival of television, and how those conditions shaped the arrival and expansion of the television network thereafter. We then highlight how the different objectives of the public and private broadcasters led the private broadcasters to adopt relatively more local informational content.

2.1 The Broadcasting Years Before Television (1936-1951)

The *Broadcasting Act* received royal assent in Parliament on 23 June 1936, making it the outline of radio broadcasting policy in Canada. Among other things, the *Act* cemented the dual system of public and private broadcasting with the creation of Canada's public broadcaster—the Canadian Broadcasting Corporation (CBC).[4] The *Act* also established the CBC as the regulator of the broadcasting system, with privately owned radio stations deemed affiliates of the public network.[5] This institutional arrangement remained in place until 1958.

In the years preceding the *Act*, radio was characterized by the forces of the free market, which ushered in American content at an alarming rate, at least in the eyes of the political elite (Filion, 1996). The creation of the CBC was the government's response to this commercialization of the airwaves and

[4]Previous to the creation of the CBC, the Canadian Radio Broadcasting Commission (CRBC) was established as a public entity in radio broadcasting. However, the CRBC was short-lived because of Depression-era funding issues, and because the CRBC was criticized for not being at arm's length from the incumbent government (Armstrong, 2010).

[5]Despite the official status as a CBC-affiliate, private radio stations still maintained considerable autonomy over content provision. Indeed, the CBC "imposed little control on its affiliates." (Filion, 1996, p. 455)

the dominance of American radio content in Canada. Still a young nation at the time, the adolescence of Canadian culture was a concern of policymakers who feared that the country's increasing economic integration with the US would inevitably lead to an adoption of American culture, rather than the maturation of a unique Canadian cultural identity (Armstrong, 2010).[6] This concern led the government to view the airwaves as public domain, and while private broadcasters may co-exist within this domain, the government's intent was to have the CBC—a public entity—oversee and enforce a system that reflects Canadian values and supports made-in-Canada content (Weir, 1965).

While the CBC was initially seen as a "triumph of culture over commerce," it soon fell short of its goal to weaken the nation's dependence on American radio content (Rutherford, 1990, p.18). Prerecorded American content remained extremely popular in Canada, airing on both public and private radio stations, all the while household radio ownership jumped to 75 percent by 1941 and over 90 percent by 1949 (Rutherford, 1990). The overall Americanization of the Canadian airwaves generated skepticism around mass media and its accompanying spread of American culture—would Canadian culture be defined by the likes of Hollywood? The political elite remained fearful that Canada was on a path of assimilation with its southern neighbour, and that Canada must break this cultural dependence and forge its own identity.

The Massey Commission (1949-1951) The Canadian cultural vacuum that stoked these fears of American influence put concern over cultural identity back into the government's spotlight. The Royal Commission on National Development in the Arts, Letters and Sciences—commonly known as the Massey Commission after its chair, Vincent Massey—was formed in 1949 to investigate the state of the country's cultural identity. The Massey Commission was tasked with nothing less than redefining the trajectory of Canadian cultural development.[7]

The Massey Commission released its report on 1 June 1951, where the issue of how Canada should regulate its television network occupied considerable space within the report. Two major narratives emerged from the report that defined the regulation of television in the years to come: a warning against permanent dependence on American culture, and the need for a state-sponsored approach to cultural development (Rutherford, 1990). Then Prime Minister Louis St. Laurent and his Liberal government embraced the recommendations of the Massey Commission, adopting the report as a blueprint for the inauguration and regulation of television in Canada.

2.2 The Arrival and Expansion of the Television Network (1952-1958)

Canadian television signed on in Montreal on 6 September 1952 and two days later in Toronto on 8 September 1952. On the recommendation of the Massey Commission, these two public stations were established to get a hold on television broadcasting before any private station was granted a broadcasting

[6] The concern of American influence over Canadian culture was not new in 1936. The Royal Commission on Radio Broadcasting ("The Aird Commission") was previously tasked with assessing how radio broadcasting could best meet the needs of Canadian listeners while satisfying the interests of the nation. The first formal appeal for a public broadcaster was made in the Aird Commission's 1929 report.

[7] The scope of the Massey Commission report was unprecedented at the time, and is still considered a landmark document in Canadian history. To inform the report, the commissioners visited all 10 provinces, holding over 100 public hearings in 16 cities, hearing from over 1,200 citizens and receiving 462 briefs on different topics. It is estimated that the commissioners travelled more than 16,000 kilometers over the course of the two-year study (Canada Council).

license. On 8 December 1952, member of Parliament and Minister of National Revenue, J. J. McCann, spoke to the House of Commons on the government's adopted policy, echoing the sentiment of the Massey Commission and the direction of broadcasting policy:

> "*The government believes [television] should be so developed in Canada that it is capable of providing a sensible pattern of programming for Canadian homes with at least a good portion of Canadian content reflecting Canadian ideas and creative abilities of our own people and life in all parts of Canada. [. . .] In addition the government will now be ready to receive applications for licences for private stations to serve areas not now served or to be served by publicly-owned facilities already announced. [. . .] The objective will be to make national television service available to as many Canadians as possible through co-operation between private and public enterprise. [. . .] Since the objective will be to extend services as widely throughout Canada as is practicable, no two stations will be licensed at the present to serve the same area. [. . .] It is desirable to have one station in as many areas as possible before there are two in any one area.*" (Bird, 1988, p. 241)

The One-Station Policy and Rapid Network Expansion The development of the one-station policy was a response to a set of problems defined by the size of Canada and its proximity to the US. The first problem was cost: the Canadian territory is vast in size and sparsely populated, implying that a significant number of television transmitters were needed to service the entire nation (Fowler and Smythe, 1957).[8] The high cost to service a small market put a limit on the profitability of expansion, and thus worked against the government's objective to extend the national television service to all Canadians. As a solution, the one-station policy facilitated a network expansion of public and private broadcasters across space, rather than a network concentration in large and profitable markets. The second problem was timing: regulators believed a rapid expansion of the television network was necessary to avoid any reliance on the extensive American programming that was already available for import at a lower cost than producing new Canadian entertainment content (Rutherford, 1990). To avoid permanent dependence on American programming, as the Massey Commission warned, an expeditious development of a nationwide network was believed to be essential for self-sufficiency.

The one-station policy served its intended purpose and led to a rapid and nationwide expansion: in just 2 years, television reached 75 percent of Canadian households (Peers, 1979), and by 1958, approximately 90 percent of Canadians had access to television (Cole, 2002). A full coast-to-coast network was established by 1958, at the time making it the largest television network in the world in terms of geographic coverage. In just 6 years, a nationwide service was established, made up of 55 television transmitter and rebroadcasting towers—12 public and 43 private. Not only was this expansion rapid, but so was take up: by March 1958, more than 3 million television receivers were in use (DBS, 1959), and the average household watched 4 hours and 45 minutes of television daily, making it the dominant form of home entertainment and news consumption (DBS, 1961).

[8] For example, the market that a single Chicago television station could reach in 1957 was approximately the same size as the nationwide market that all 38 Canadian television stations serviced at the time (Fowler and Smythe, 1957).

2.3 Broadcasting Objectives and Content Differences

Public and private broadcasting face different objectives. As a form of mass communication, public broadcasting is "designed to serve its audience as citizens rather than as consumers; it sees its viewers and listeners as a public, a *demos*, rather than a market." (Rowland, 2013, p. 8) Whereas an unregulated private broadcaster is motivated by profit; it sees its viewers and listeners as a market. These different objectives impact what gets covered as news and how it is presented to its viewers.

Public Television Content As Canada's public broadcaster, the CBC's objective was always cultural: to express and promote a Canadian consciousness and identity through entertainment and news that appeals to all Canadians. The recommendations of the Massey Commission were in direct support of this objective, emphasizing the importance of national-level content that would foster a Canadian identity in the face of other cultural influences—particularly the United States.

The CBC was also tasked with the costly production of the national television service. By 1958, the CBC produced the majority of content that went to air on public television stations, with the remainder of content adopted from international or non-CBC domestic sources (Fowler and Smythe, 1957). National service content was produced in a few major centers and disseminated to all stations across the country. This centralized approach to content production made financial sense, given the significant costs imposed on the CBC as the producer of the entire national program service (Rutherford, 1990). But this centralized approach also limited the production of regional and local content. While this was not really an issue since the mandate of the CBC was to speak to all Canadians, it nevertheless tipped the scale of content production towards national issues. For example, the CBC's daily newscast, introduced in 1953, was a prime time news bulletin on national and international affairs aired by stations across the country. It was not until the end of the 1950s that public stations introduced regular news bulletins to serve the needs of local communities, such as CBC Toronto's *Metro News* and CBC Montreal's *Edition Métropolitain* (Rutherford, 1990).

Private Television Content The objective of private broadcasters in Canada is caught somewhere between public service and profit maximization. The airwaves are public domain, and the licensing of a private television station is predicated on its service of the public interest. Until 1958, in the interest of public service, private television stations were mandated to air at least 10 and a half hours of the CBC's national program service (Fowler and Smythe, 1957). At the same time, private television stations were also given considerable autonomy in content provision. American television entertainment was popular in Canada, so it comes as no surprise that, motivated by profit, private stations added a significant amount of American entertainment to their programming schedules (Rutherford, 1990). To offset the cost of importing this content, private television stations also delivered a steady diet of local news and local live programming because local informational content was cheap to produce and soon proved to be popular among the communities that private stations serviced (Fowler and Smythe, 1957). In this way, the profit motive of private broadcasters incentivized the production of local informational content and the adoption of American entertainment content beyond any public service requirements.

The Geographic Scope of Canadian Television Content Table 1 gives substance to this narrative with the quantification of local and national informational content across private and public stations. Column 1 indicates that private broadcasters devoted 30.8 percent of airtime to informational content, meaning 69.2 percent of airtime is devoted to entertainment content. The public broadcaster divides its airtime in a nearly equivalent way, with 30.1 percent of airtime devoted to informational content and 69.9 percent devoted to entertainment content. For a daily program schedule of 7:00 a.m. to 12:00 a.m., the difference in airtime devoted to informational content is only 7 minutes a day on average (column 2).[9] This implies that informational and entertainment content are balanced across public and private stations, allowing us to hold constant the crowding out effect of entertainment content that is well documented in other context (Gentzkow, 2006; Ellingsen and Hernæs, 2018; Durante et al., 2019, among others).

Yet the total hours of informational content mask considerable heterogeneity in the geographic scope of this content. Across all viewing hours, private stations aired more than five times the amount of local informational content than public stations (column 3), and only one-third of the national content aired on public stations (column 4). These figures highlight the contrasting objectives of public and private stations regarding the geographic scope of their daily content: private stations broadcast approximately 2 hours and 20 minutes more local content a day, with public stations allocating the same additional time to national content given the equivalence of total informational content. Both the historical record and these figures clearly demonstrate that the key distinction between private and public television lies in the greater emphasis on local content in private television programming.

3 Data

In this section, we describe the main variables used throughout the empirical analysis. Section D in the Appendix provides additional details about data construction and sources.

Structure Throughout the analysis, our spatial unit of observation is a federal electoral district. We collect and digitize four sets of district maps for our extended sample period of 1935-1968, due to the redrawing of electoral districts in 1947, 1952 and 1966. We crosswalk these digitized maps using the procedure outlined in Eckert et al. (2020), giving us a consistent spatial unit of observation over the entire sample period.

We use the 1952 distribution of electoral districts as our reference map, the same year television arrives, and re-aggregate the other reporting maps to the 1952 distribution in the crosswalk. There are 265 electoral districts in the 1952 redistribution, to which we can match signal strength data for all but two districts. Our baseline sample runs from the establishment of the CBC to the end of the one-station policy (1935-1958), a time period that includes 7 general elections, implying a total of 1,841 observations for the 263 districts. Voter turnout data is occasionally missing for some districts in the historical record, so our final sample consists of 1,795 district-election-year observations (97.5 percent of possible observations). Missing district characteristics further reduces our sample to 1,764 observations when covariates are included in a specification (95.8 percent of possible observations).[10]

[9] Private stations broadcast an additional 0.8 hours of informational content a week, which translates to 7 minutes a day on average.

[10] In the 1935-1968 extended sample, we add data for 4 additional general elections, implying a total of 2,893 observations

Television Signal Strength We gather archival records of television transmitter installations from *Library and Archives Canada*. The complete set of records come from three different collections. With these archival records, we piece together all of the needed information for the complete set of transmitter installations between 1952 and 1968—i.e., the station call sign, latitude-longitude coordinates and opening date; whether a station is publicly or privately owned; and transmitter features such as height and service power.

To obtain an accurate estimate of television signal strength at the district level, we follow a two-step procedure of estimation and aggregation. First, we use the Irregular Terrain Model (ITM) to estimate the attenuation of signal strength across space, based on the location, height and power of television transmitters across the landscape of Canada.[11] ITM estimates take into account the elevation profile between sender and receiver to adjust each estimate for any topographic interruption of a signal. See Figure A.1 as an example of the ITM output.

Second, we aggregate these signal strength estimates to our unit of observation. We start by aggregating our ITM estimates to the smallest available statistical area in Canada: the census subdivision (CSD). We use the 1951 CSD map, which is comprised of 4,987 non-overlapping units. We match 1951 census population data to these CSDs to use as weights when aggregating from CSDs to electoral districts. This procedure guarantees that even in large electoral districts we obtain accurate estimates of the signal strength received by the electorate, as densely populated CSDs are up-weighted in the aggregation, while sparsely populated CSDs are down-weighted. By design, this aggregation strategy overcomes the problem of aggregating by geographic unit, where such units tend to vary considerably in size and population, especially in a large country like Canada. Our final measure is an estimate of television signal strength at the electoral district level, which varies across time in accordance with the building of new television transmitters over our sample period.[12]

The level of signal strength indicates whether the people residing in a district can watch television without noise. At baseline, we apply a minimum threshold for a district's average signal strength of 50 dbμV/m.[13] With this transformation, signal strength increases continuously for values greater than 50 dbμV/m and is set to zero otherwise.[14]

Voter Responsiveness Our measure of responsiveness is voter turnout. We source data from Election Canada's Report of the Chief Electoral Officer for each federal election between 1935 (18th general election) and 1968 (28th general election), although for most of the analysis we truncate our panel at 1958 (24th general election)—the last year the one-station policy was in effect. For every election, Election

for the 263 districts. We match voter turnout data for 2,832 observations (97.9 percent of possible observations), or 2,764 observations (95.5 percent of possible observations) for specifications that include the full set of covariates.

[11] We use CloudRF to make these estimates, a cloud-based service for modeling radio propagation.

[12] Although the one-station policy guarantees that no two stations service the same market, electoral districts do not necessarily align with television markets. We address this in Section 5, where we drop the 15 districts in our sample where our measures of *average* public and private signal strength are both non-zero, and we find that, if anything, this peculiarity of our data only adds noise to our estimates.

[13] dbμV/m captures the field strength of an electromagnetic signal, expressed in decibels relative to one microvolt per meter. Our threshold of 50 dbμV/m is based on the Government of Canada's minimum requirement of 47 dbμV/m for a Grade B service contour, which by definition is a signal level the Government of Canada deems "to be adequate, in the absence of man-made noise or interference from other stations, to provide a picture which the median observer would classify as of satisfactory quality." (ISED, 2016, p. 12)

[14] In Section 5, we show that all conclusions are robust to different cut-off thresholds.

Canada's Report summarizes results by electoral districts, including the total votes cast, the size of the electorate and population. We calculate voter turnout as the ratio of votes cast relative to the size of the electorate.

Canada is a parliamentary democracy, making federal elections the appropriate jurisdiction for our study because local *and* national news coverage may be relevant to voters in this context.[15] While the act of voting is local in a Canadian federal election, the implication of a vote is national, and national media coverage bridges this gap by informing voters about the larger stakes of their local choice. At the same time, local news may be most relevant to voters because it can link the coverage of national issues to local contexts, or highlight constituency-specific issues and profile the candidates running for local office. A well-informed voter is thus an individual who is discerning of both the local candidates of their district and the political party they wish to see form the federal government. In contrast, local and provincial elections are not suitable contexts to study the relevance of information in terms of its geographic scope, as these contests receive minimal or no coverage in national news. Consequently, the quantity of relevant political information would be unevenly distributed between local and national television stations in the case of a local or provincial election.

Political Responsiveness We develop an index of political responsiveness that is constructed from various measures of how an elected politician speaks in Parliament. These measures are derived from the universe of speeches given by members of Parliament (MP) in the House of Commons (Beelen et al., 2017). In particular, we calculate the localness of a speech using the Canadian Geographical Names Database, which lists all populated places in Canada and includes their latitude and longitude coordinates (CGNDB, 2021). We build an algorithm that identifies any populated place mentioned in a speech, and then calculate the distance between that place and the district of an MP who mentions the populated place. With this approach, we can determine if the place mentioned in a speech is within the boundaries of the district an MP represents or not.

We use this algorithm to develop three related measures of political responsiveness. Our first measure, *speech locality*, is the fraction of total speeches given by an MP in an electoral cycle where they mention a populated place within their own district, conditional on mentioning any populated place. This is an extensive measure of speech localness. The second measure, *place locality*, is a measure where the numerator is the number of populated places mentioned within the MP's district, relative to the total number of populated places mentioned in that speech, and averaged across all speeches during an electoral cycle. This is an intensive measure of speech localness. Our third measure, *mention local*, is an indicator equal to one if an MP ever mentions a populated place within their district over the election cycle, and zero otherwise. In all instances, these measures uniquely define an electoral district for a given electoral cycle, and thus exhibit the same variation as the rest of our data. The localness of a speech is also increasing in all three measures, capturing an MP's willingness to speak on behalf of the constituents they represent—our proxy for the responsiveness of an elected politician.

To construct the index, we rely on the procedure outlined in Anderson (2008), where each variable is standardized to mean-zero with a variance of one, thus ensuring each variable is measured on the same

[15]Canadians vote for a candidate running in their local district, and the candidate with the most votes receives a seat in the House of Commons as a member of Parliament. The political party with the most seats forms the federal government, and its party leader becomes the prime minister.

scale. We combine these by summing the standardized variables, weighting each variable by the inverse of the covariance matrix of the standardized outcomes. The use of this index addresses concerns of multiple hypothesis testing and aggregate changes in an MP's behavior that individual variables cannot completely capture. In Appendix A, we also document our main findings using the individual measures of responsiveness.

Political Accountability This measure of political accountability is based on the actions of a politician. We obtain roll-call voting records for every vote held in Parliament for our sample period, sourced from Godbout and Høyland (2017), and construct the index based on two related measures. We define a vote to be against the party line if an MP votes contrary to the majority of their party in a given round of voting. For our first measure, we aggregate each occurrence of dissent for each MP across electoral cycles, giving us a proxy measure of political accountability that varies by electoral district and election year. Because this outcome variable includes many zeros, we use the inverse hyperbolic sine transformation. For our second measure, we define an indicator variable equal to one if an MP votes against their party at any point over the election cycle. We construct a standardized index in the same way as described above, giving us our index of dissent—a measure of party disloyalty that captures a politician's willingness to vote on behalf of their constituents (Snyder and Strömberg, 2010).

Vote Shares and Party Affiliation We construct various outcomes using data that we scraped from the Parliament of Canada's Parlinfo website. For every district in each general election, we collect a complete list of candidates running for office, their party affiliation and the number of votes cast. From these data, we calculate various outcomes: vote shares by political party, vote shares across the left-right political spectrum, and incumbent win margins.

District Characteristics We collect various district-level characteristics as control variables for the empirical analysis. For each characteristic, we locate data observed as close to the 1935 start date of our sample and interact these "initial conditions" with year fixed effects. We obtain 1931 population data at the electoral district level from the Election Canada's 1935 Report of the Chief Electoral Officer, which comes from the 1931 decennial census. We calculate the area of each electoral district in ArcGIS, and construct a measure of population density as the ratio of population to area in squared kilometers. We obtain information on average earnings, age, literacy rates and urbanization rates from the 1911 census, which is available at the CSD level.[16]

Newspaper Circulation We piece together daily newspaper circulation rates from various editions of the *Canada Year Book*.[17] Daily circulation rates are available as a time series of national averages and as a panel for 42 cities, although some cities are missing for a few of the reported years.[18] To convert the

[16]The 1911 census is the last available digitized version of the decennial census. We use the CSD location of enumerated individuals in the 1911 census to aggregate up to the electoral district level.

[17]We do this using every edition of the *Year Book* from 1950 to 1960. The *Canada Year Book* was published every year from Confederation until 2013. The *Book* was presented in an almanac style, and includes detailed data on every major area of *Statistics Canada's* expertise.

[18]From 1945-1948, data is reported for cities with 20,000 inhabitants or more, whereas the threshold is increased to at least 30,000 inhabitants from 1949 and on; hence, some cities are not observable after 1948.

national circulation rates to per capita rates, we use annual population data from *Statistics Canada*. We collect city-level population data from the *Year Book*, which is available for the years 1941, 1951 and 1961. We interpolate these data to have a balanced city-level panel of population data for all years between 1945-1958, which we use to convert the city-level circulation rates of daily newspapers into per capita terms.

4 Empirical Design

We are interested in how the geographic scope of information shapes the political process. Our hypothesis is that local news is more relevant to voters than national news, and this difference in relevance can explain the positive and negative impacts of media on voter and political responsiveness. With our empirical design, we test this hypothesis by comparing outcomes across local and national television districts, but we do so in a way that addresses two key empirical challenges. One empirical challenge arises from the selection into public or private television and the informational content its viewers receive. The other empirical challenge arises from the non-random expansion of the television network: factors that determine the location and timing of television transmitter installations may correlate with our political outcomes of interest.

A comparison of public and private television districts is prone to bias if any unobservable factor determines both the adoption of local informational content and the political responsiveness of voters. We address this potential selection problem by exploiting a unique feature of the Canadian television network: the one-station policy. We also show that a district's selection into local television is uncorrelated with initial characteristics, conditional on receiving television and its expected signal strength.

To address the non-random expansion of the television network, we develop a novel solution based on the insights of Borusyak and Hull (2023). The authors show that even if a treatment is conditionally random, it may still be biased if the *timing* of exposure to treatment is non-random. Our solution is to control for a time-varying measure of expected signal strength, which recenters the observed television network around simulated counterfactual networks that might as well have been realized. This yields an unbiased estimator of the expansion of the television network.

4.1 Two-Way Fixed-Effects Framework

We begin by motivating our empirical design with a standard two-way fixed-effects (TWFE) specification commonly used to study the effects of television on voter responsiveness. In this model, electoral districts receive a continuous treatment across different election years:

$$Y_{d,t} = \alpha_d + \alpha_t + \beta\, signal_{d,t} + \Phi\left(\boldsymbol{X_d} \times t\right) + \epsilon_{d,t}. \tag{1}$$

Here, $Y_{d,t}$ denotes a political outcome of interest in electoral district d for election-year t, and the treatment variable, $signal_{d,t}$, is a measure of television signal strength in district d for election-year t.[19]

[19]We prefer a continuous measure of $signal_{d,t}$ because expected signal strength is measured along the same continuum, and its inclusion in a regression implies that actual signal strength is identified from variation above or below the expected value—a quasi-random source of variation. Discretizing both measures of signal strength necessarily reduces the identifying source of variation, although we show that our results are robust to using an indicator in place of the continuous measure with

The vector $\boldsymbol{X_d}$ includes initial conditions of each district d that are interacted with an election-year fixed effect, thereby absorbing any unobserved variation that correlates with the arrival of television and these initial conditions.[20] District fixed effects (α_d) capture time-invariant characteristics of an electoral district, and election-year fixed effects (α_t) capture any variation common to all districts for each election cycle. To account for serial dependence, standard errors are clustered at the district level.

The parameter of interest, β, captures the causal effect of television's arrival on a political outcome of interest. The fixed effects included in equation (1) imply that β is identified from variation in signal strength within each district over time—relative to other districts in the same election year—if the parallel trends assumption holds, and treatment effects are homogeneous over time and across districts (De Chaisemartin and D'Haultfœuille, 2020; Goodman-Bacon, 2021). Yet even if treatment is conditionally random, the estimate $\hat{\beta}$ may be biased if the *timing* of exposure to treatment is non-random (Borusyak and Hull, 2023). In our context, the timing matters because *any* district near an economic or population center of the country is more likely to be treated earlier than a district on the periphery.[21] An unbiased estimator of β would thus require the strong assumption that "central" districts do not differ from "peripheral" districts in any relevant, time-varying unobservable way (e.g., political discontent, civic mindedness or non-voting political activities).

4.2 Expected Signal Strength

To overcome this endogeneity problem and establish unbiasedness, we recenter our estimate of actual signal strength with a novel measure of expected signal strength, that in effect purges the non-random timing of television exposure. We construct expected signal strength based on the insights of Borusyak and Hull (2023), who propose a general solution to a scenario like ours, where the treatment combines a non-random source of variation with an exogenous shock. We provide a detailed discussion of this approach in Appendix B, although the intuition is straightforward: the observed distribution of television signal strength is an outcome of the underlying data-generating process, which can be modeled and used to draw counterfactual distributions in such a way that they might as well have occurred—i.e., each permutation is one realization of the underlying data-generating process. By permuting the television network many times, we can construct an average of the counterfactual realizations for each electoral district—i.e., a district's expected signal strength.

By design, expected signal strength is a summary measure that captures a district's non-random exposure to television. For example, we model a data-generating process where transmitters located in Toronto and Montreal receive a high probability of activation in each permutation of the network. The key insight of Borusyak and Hull (2023) is that we can construct an expected treatment based on these permutations, where in this example the expected treatment is a measure of any district's non-random exposure to the realized treatment of Toronto and Montreal. In a regression, including *expected*

an event-study design. See Appendix A.

[20]In our study, these district-level characteristics include population density, earnings, age, literacy rates and urbanization rates. For example, if the arrival of television is correlated with population density, then the vector of covariates $\boldsymbol{X_d}$ together with the district fixed effects capture this potential unobserved selection.

[21]For example, Montreal and Toronto were the first two cities to receive television because they are the largest cities in terms of population, and both are economic centers of the country. Nearby districts then receive television earlier than expected because of their proximity to Toronto and Montreal.

signal strength as a control variable recenters an estimate of *actual* signal strength, effectively purging the non-random—and thus biased—component of our treatment effect. More intuitively, this approach works because the variation that we rely on is the difference between the observed and counterfactual network—signal strength above or below what is expected—and thus an outcome of chance.

Modeling Expected Signal Strength The set of transmitters that receive activation in a simulation are modeled as a function of (i) cross-sectional variation—i.e., each transmitter's sampling probability and a random shock to that probability—and (ii) temporal variation—i.e., how many transmitters are actually active in a given year.

We generate the cross-sectional probability of sampling transmitter s as $(\bar{t} - t_s)/(\bar{t} - \underline{t})$, where $\underline{t}$ and $\bar{t}$ respectively denote the first and last year of all observed transmitter installations, while t_s denotes the commencement year that the station transmitter s becomes operational.[22] This probability linearly decays as a function of a station's commencement year, where early transmitters receive a high probability of activation and late transmitters a low probability.[23]

To introduce temporal variation, we activate the correct number of transmitters for a given year, choosing transmitters with the highest cross-sectional probability in each permutation. Let $(1/a_t)$ be the probability any station is sampled in year t, where a_t be the correct number of activated transmitters for that year. This formulation implies that the probability of a station being activated is decreasing in years where many transmitters are activated. The combined cross-sectional and temporal probability implies that station s is sampled in each permutation of year t as follows:

$$\mathrm{Pr} = \frac{\bar{t} - t_s}{\bar{t} - \underline{t}} + \frac{1}{a_t} + \epsilon_s. \tag{2}$$

In our simulation we permute the television network 500 times, drawing a distribution of expected signal strength based on equation (2) each time. The inclusion of a normally distributed shock ϵ guarantees a non-deterministic distribution of active transmitters in each permutation of the network.[24] We derive our final measure of expected signal strength by averaging across all permutations at the electoral district level.[25] With this measure of expected signal strength at our disposal, which effectively captures each district's non-randomness in television exposure, we can recenter our regression estimates to correct for the aforementioned omitted variable bias. In a regression model, we can control for expected signal strength and estimate the effect of actual signal strength, which implies that we identify the effect of television from variation in signal strength above or below what was expected.

[22] In our data, $\underline{t} = 1952$ and $\bar{t} = 1968$. We rely on the complete set of transmitter installations throughout this time period as our set of potential activation locations.

[23] For example, Toronto is one of two stations with a 1952 commencement date, and this early activation of the Toronto transmitter is expected, since the city offers the most densely populated Canadian market. Our approach captures this expectation by assigning this transmitter a cross-sectional activation probability of 1 in any permutation of the network. Whereas the city of Timmins, approximately 700 kilometers north of Toronto, did not receive television until 1957 due to its remoteness and small size. We assign a cross-sectional probability of 0.69 to Timmins in any permutation of the network, which aligns with our expectation that television should be available in Toronto with a greater probability than Timmins in any given year.

[24] For this measure of expected signal strength, ϵ is drawn from a normal distribution with a mean of zero and a standard deviation equal to the standard deviation of the sampling probability in equation (2).

[25] More precisely, for each permutation, we aggregate the distribution of simulated signal strength to CSDs, exactly as described in Section 3 for actual signal strength, and use CSD-level population data as weights to aggregate from CSDs to electoral districts.

4.3 Identification Strategy

The object of interest is to isolate the geographic scope of information and its impact on political engagement and accountability. Our identification strategy compares districts that receive local television to districts that receive national television. Conditional on receiving any television, a full set of fixed effects, and expected signal strength, we isolate variation in the geographic scope of information.

Our main estimating equation augments the two-way fixed-effects model (1) as follows:

$$Y_{d,t} = \alpha_d + \alpha_t + \beta^{loc}\left(signal_{d,t} \times local_{d,t}\right) + \beta signal_{d,t} + \gamma local_{d,t} + f(\mu_{d,t}) + \Phi(\boldsymbol{X_d} \times t) + \epsilon_{d,t}. \quad (3)$$

Model (3) extends the approach taken in previous research in two important ways. First, by interacting signal strength with an indicator for local television treatment ($signal_{d,t} \times local_{d,t}$), we compare districts treated with local news to districts treated with national news, thereby isolating variation in the geographic scope of information, rather than variation in television reception. Second, the inclusion of $\mu_{d,t}$ and its interaction with $local_{d,t}$ recenters our estimate of β^{loc} such that we estimate our parameter of interest from variation above or below the expected signal strength.[26] Our identifying assumption is that a district's selection into local treatment is random, conditional on a district having received television and its expected signal strength.[27]

Selection into Local Treatment Throughout the analysis, we define private television districts as local television districts because, on average, private stations air more than 5 times the amount of local informational content each week (Table 1). However, if private stations selectively enter more dense and urban districts, we may confound our estimate with unobservable selection that determines both the adoption of private television and the political responsiveness of voters. For example, private stations might target underserved markets or highly politicized markets. In either case, the selection into the local treatment would correlate with unobserved and time-dependent factors of a district. Yet the historical record suggests that the large fixed cost associated with a new station meant that private television stations were commonly built on the infrastructure of pre-existing private radio stations (Fowler and Smythe, 1957). For this reason, the expansion of private television is unlikely correlated with the political characteristics of a district.[28]

In addition, our data also allows us to test for (i) selection into receiving television and (ii) selection into receiving a local treatment (Figure 1). We estimate model (3) in the cross-section, regressing initial conditions of each district d on television signal strength (left panel) and its interaction with the local treatment indicator (right panel).[29] While selection into *receiving television* is largely balanced, both urbanization and population density are predictors of the overall network expansion. In estimating equation (3), the inclusion of these initial conditions interacted with a year fixed effect adjusts for any remaining concerns about selection. In contrast, none of the initial conditions predict selection into the *local treatment* once we control for television reception and expected signal strength. Our coefficient of

[26]By design, this variation is an outcome of chance—a testable and necessary assumption of this strategy that we bring to the data. In Appendix B, we show that $\mu_{d,t}$ satisfies the necessary assumptions outlined in Borusyak and Hull (2023).

[27]In Appendix C, we provide evidence in support of the parallel trends and homogeneous treatment effects assumptions.

[28]The rapid expansion of the Canadian radio network began in the 1930s (Rutherford, 1990). Any selection into a private radio market likely occurred before our sample period, and thus is captured by a district's fixed effect.

[29]All reported estimates are conditional on expected signal strength and provincial fixed effects.

interest, β^{loc}, is identified from this source of variation, which further supports a causal interpretation of our estimates. Our main outcome variables—voter responsiveness, political responsiveness and political accountability—are similarly balanced across local and national television districts in the pre-treatment period.

Overall, our tests of selection confirm the historical record and provide no evidence that selection into local treatment invalidates our identification strategy. Instead, these findings support our identifying assumption that a district's selection into local treatment is random, conditional on receiving television and its expected signal strength.

5 Voter and Political Responsiveness

In this section, we present our main empirical findings. As motivation, we begin with a simple comparison of local and national television districts, looking at changes in responsiveness among voters and politicians. Figure 2 plots these outcomes in first differences at the district level against television signal strength, conditional on receiving any television. The left plot documents changes in turnout (i.e., voter responsiveness) and the right plot documents changes in speech localness (i.e., political responsiveness).

Our main argument is already evident in these raw data: the political effects of media vary with the geographic scope of information. Indeed, these plots show that the observed positive change in outcomes is confined to private television districts, which supports our argument that the local informational content aired on private stations is more relevant to voters than the national content aired on public stations.

Main Empirical Findings Table 2 presents estimates of equation (3) for our two main outcomes: voter responsiveness (columns 1-3) and political responsiveness (columns 4-6). These data vary over time by election cycles, which for our sample period of 1935-1958 implies 4 pre-treatment election cycles and 3 post-treatment election cycles for the earliest adopters of television.

The estimates in columns (1) and (4) forgo the local television interaction term and thus reflect the average treatment effect of television in Canada. In line with previous research, we find an unambiguous negative effect of television on voter responsiveness. The mean value of signal strength among treated districts is 84.5 dbμV/m, which implies a 4.5 percentage point decrease in voter turnout, or a 6.3 percent decrease in turnout from the 1949 general election.

In the remaining columns, we report model estimates that include the local interaction term of interest. In column (2), we observe that the negative effect of television on voter turnout is concentrated among public television viewers with national news. Whereas those who receive local news respond positively with a relative increase voter turnout (0.052, s.e. 0.023). Reassuringly, the point estimate in column (3) is largely unchanged when flexibly controlling for the initial conditions of each district (0.058, s.e. 0.024). Figure 3 plots the event study for our model and documents an absence of any concerning pre-trends, with or without our full set of covariates. In all instances, districts that receive television, compared to districts that do not, exhibit similar dynamics in the pre-treatment period, with voters becoming more or less responsive in the post-treatment period.

Are these voter engagement effects of media content linked to the responsiveness of politicians?

Strömberg (2015, p. 177) argues, "what issues are covered [by the media] matter for voter information," emphasizing that voters are more responsive to the perceived quality of a politician when the media covers issues that are relevant to them. Whether this makes politicians more responsive to voter needs is an empirical question. Our data on how politicians speak in Parliament provide a novel opportunity to study this theoretical link between the responsiveness of voters and politicians.

Consistent with this link, we document patterns of responsiveness among politicians that mirrors that of voters. In column (6) we show that elected representatives are 0.014 standard deviations more likely to mention their constituents in Parliament if their voters receive local news, relative to voters who receive national news. In contrast, politicians are less responsive to voter needs in national television districts with declining turnout. The magnitude of these estimates are also similar to those plotted in Figure A.3, which reports our findings for the individual outcomes that make up this index. Overall, these contrasting effects highlight the importance of geographic scope in media content, pointing to local content as the most relevant source of news to voters and consequently politicians.

5.1 Robustness

In this section, we summarize a variety of additional tests used to verify the robustness of our main empirical findings

Influential Districts The selection of public and private stations into electoral districts is a key concern for interpretation if the market characteristics that attract one station type also correlate with political outcomes. We begin by showing that our results are not sensitive to any individual electoral districts. To do this, we consecutively drop each district from our sample, one at a time, and re-estimate equation (3). In Figure A.4, we plot a histogram of the complete set of these estimates—each relative to the full sample estimate—to highlight the stability of our findings. The majority of the mass is centered around 1, where a value of 1 implies the same estimate in the subsample as in the full sample. Some estimates deviate from 1, but never by much more than a few percentage points. We conclude that no influential districts are driving our results.

More broadly, it may be that certain types of cities attract one station type over another. For example, the government secured public stations in Toronto and Montreal before any private station was granted a broadcasting license—a decision that was based on the size and profitability of these markets. Although we document the balancedness of the local television treatment in Figure 1, we explore this concern further by cutting our sample in a variety of ways, dropping electoral districts with high population density, and districts associated with major or capital cities. Figure A.5 documents the subsample estimates, which we assess relative to the size of the full sample estimates. The estimates remain stable across all cuts of the data, with the decreasing number of electoral districts, and thus observations, only impacting the precision of estimation.[30]

Data Generating Process of Expected Signal Strength In Appendix B, we discuss how we model the underlying data generating process. We acknowledge that modeling this process offers many degrees

[30] We similarly find that dropping French-language stations results in nearly identical point estimates to our baseline findings reported in Table 2.

of freedom, so we explore 23 alternative ways to simulate the distribution of expected signal strength and report our findings in Appendix B.1.1. We test two necessary assumptions of our expected treatment approach, as outlined in Borusyak and Hull (2023), and report our findings in Appendix B.1.2. We show that the data-generating process modeled in equation (2) and various alternatives all satisfy the necessary assumptions of our expected treatment. Importantly, controlling for any one of these alternative measures of expected signal strength yields a remarkably stable and similar estimate to the baseline treatment effect, as shown in Figure B.3.

Parallel Trends We also address concerns related to the parallel trends assumption in Appendix C, including methodologies proposed by Goodman-Bacon (2021) and Sun and Abraham (2021). We show that parallel trends holds for a standard trimmed event-study plot, as well as a plot that includes the never-treated, indicating that our findings are robust to different treatment-control comparisons. We also decompose treatment cohorts to be certain that the staggered introduction of television did not put negative weights on cohort treatment effects (De Chaisemartin and D'Haultfœuille, 2020; Borusyak et al., 2024), which in principle could flip the sign of an estimate if the treatment effect grows over time (Goodman-Bacon, 2021).

Alternative Identification Strategy We also document the robustness of our findings when controlling for the conventional free-space measure of signal strength. A free-space signal is the signal loss across space in an environment free of any topographical variations, meaning actual and free-space signal strength only differ due to cross-sectional variations in topography, since both signal strength estimates rely on the same transmitter features (Olken, 2009). Table A.1 reports the free-space model estimates, as well as the two-way fixed effects model without identification, and the expected signal strength model for comparability. Estimates of the interaction term in the free-space and expected signal strength models are qualitatively similar across all specifications, which supports our main findings. Yet the magnitude of the effects are larger in free-space model, and its standard errors are roughly double the size, so the free-space estimates sometimes lose significance at conventional levels. In Figure B.1, we show that the free-space model does not balance population density in the cross section, unlike the expected signal strength model, which is a potential explanation for these across-specification differences.

Extended Panel Additional estimates indicate that our findings are not specific to the time period of our analysis. We replicate our baseline estimates for voter and political responsiveness in columns (1) and (4) of Table A.2, while columns (2) and (5) report model estimates for a 1935-1968 panel that includes four additional election cycles. The one-station policy was only in place until 1958, so the clean separation of local and national content is no longer possible in the extended sample years, and yet the insensitivity of the estimates to this extended panel highlight the robustness of our main findings. In columns (3) and (6) we report model estimates for the 1935-1958 panel, but exclude any observation from the sample after the initial treatment. The overall stability of these estimates provide further support that our baseline estimates are not affected by heterogeneous treatment effects that grow over time.

Dual Treated Districts Although the one-station policy guarantees that no two stations service the same market, electoral districts do not necessarily align with television markets. There are 15 districts in our sample where our measures of *average* public and private signal strength are both non-zero, even if these districts receive public and private television in non-overlapping space. These districts potentially contaminate the clean separation of public and private television that the one-station policy otherwise guarantees. We drop these contaminated districts from our sample to be certain our results do not hinge on their presence, and report our findings in Table A.3. Columns (1) and (3) report our full-sample estimates from Table 2, while columns (2) and (4) report the equivalent estimates for the reduced sample. Across all estimates, the coefficients are slightly larger in magnitude when excluding dual treated districts, suggesting that the presence of these 15 districts in our full sample, if anything, introduce measurement error and bias our estimates toward zero.

Signal Strength Threshold Another concern relates to the Government of Canada's minimum signal strength requirements of a television station, as noted in Section 3 (ISED, 2016). For our baseline measure, we set a minimum threshold for television signal strength of 50 dbμV/m based on these requirements. While in practice a lower signal strength will result in service interruptions, our measure of signal strength is a district average, meaning that districts with large unpopulated areas will necessarily reduce the district average, even if the populated regions receive a signal without interruption. This suggests that we may be assigning treatment districts as control districts at baseline. Figure A.6 documents the stability of the model coefficients, where the minimum threshold is increasing 5 dbμV/m at a time over a range of 25 to 75 dbμV/m.[31]

Voter Responsiveness Here, we provide additional evidence that local informational content is linked to voter responsiveness. We rely on all survey questions categorized as "Group Electoral Activities" in the 1974 *Canadian Election Study*. For each activity, four similar questions are asked of a survey respondent that we aggregate into a standardized index, based on the method of Anderson (2008). These data are cross-sectional and observed after the one-station policy ended, so we adjust the design of this analysis. We instead use cross-sectional variation in 1969 signal strength estimates, and construct an indicator $local_d$ that denotes private (local) television districts.[32] Figure A.7 plots the point estimates associated with $local_d$—all of which are conditional on an indicator for expected private (local) signal strength, a full set of control variables, as well as ethnicity and province fixed effects. These findings indicate that respondents in local television districts more often attend political meetings and rallies, contact public officials, and discuss politics with others. These findings should be interpreted with some caution since the limitations of these data require that we forego our identification strategy. Nevertheless, these robust estimates support our main findings—all of which point to increased responsiveness among individuals exposed to local news.

[31] At higher thresholds, the number of treated districts necessarily is decreasing. For example, a threshold of 75 dbμV/m results in a 38 percent decrease in the number of treated private districts relative to our baseline threshold of 50 dbμV/m.

[32] We define $local_d$ equal to one if district d satisfies two conditions in 1969: private television signal strength is at least 50 dbμV/m and public television signal strength is strictly less than 50 dbμV/m.

6 Alternative Interpretations

In our analysis, we document a differential impact of public and private television on the responsiveness of voters and politicians. In Table 1, we document a predominance of local news on private stations, and so we interpret our findings as a consequence of the geographic scope of information.

In this section we consider four alternative interpretations to our main finding. First, the crowding effect of entertainment content may be greater in public television districts. Second, television viewers may substitute from newspapers at different rates, with newspaper readers being more politically engaged ex-ante. Third, many private television stations emerged from pre-existing radio stations, so the effect we estimate may as well be attributed to radio content or selection into radio stations, rather than television content per se. Fourth, the political bias of broadcasters may vary and selectively undermine some groups of voters.

Entertainment Content The balance between informational and entertainment content shapes the political impact of media (Campante et al., 2022). The percentage of airtime devoted to entertainment could explain our findings if public television stations aired relatively more entertainment content than private stations. To the contrary, Table 1 verifies that private and public stations balance informational and entertainment content across all viewing hours. Private stations devote 30.8 percent of airtime to informational content and 69.2 percent of airtime to entertainment, whereas public stations devote 30.1 percent to informational content and 69.9 percent to entertainment. The near equivalence of the time devoted to entertainment content further supports our view that public and private stations differ primarily in the geographic scope of their content.

Substitution Effect An alternative explanation for our findings is that the substitution of newspapers with television may have been stronger in public television districts. A stronger substitution effect in public television districts should disproportionately decrease voter responsiveness, given the evidence that newspapers tend to elicit more engagement than television (Strömberg, 2004b; Gentzkow, 2006; Gentzkow et al., 2011). Indeed, the rapid expansion and uptake of television speaks to its success at the expense of other legacy media.

We take this concern to the data, using daily and weekly newspaper circulation rates for 42 Canadian cities between 1945 and 1958. We treat these data as outcomes in our baseline model (3), measured either as the number of newspapers in a district or the per capita circulation. The estimand $\widehat{\beta}^{loc}$ captures the possibility of a differential substitution effect in local and national news districts. To the contrary, Table 3 documents an absence of a differential substitution effect across news districts.[33]

Local Media Monopolies Private television stations were commonly licensed to private radio station owners (Peers, 1979), and built up from the infrastructure of a pre-existing radio station (Fowler and Smythe, 1957).[34] Local information monopolies that exist in private television markets, but not public

[33] The substitution effect for television reception is measured imprecisely, with a t-statistic of 1.52 for the column 3 estimate. This may be due to the relatively short time period, or the extensive set of fixed effects. To the contrary, the substitution effect for per capita circulations is a much more precise zero, with a t-statistic of 0.38 for the column 6 estimate

[34] For example, the first private television station, CKSO-TV Sudbury, was initially owned by James Cooper, George Miller and Bill Plaunt, the owners of the Sudbury Star newspaper and the CKSO Sunday radio station. Many other private television

television markets, may broadcast identical content on television and radio. This could be an issue for interpretation of our main findings: the geographic scope of information remains the key source of content variation in our analysis, but the effect we estimate may as well be attributed to pre-existing radio content, rather than television content.

We test this alternative interpretation using data on the universe of radio and television station owners for our sample period (Fowler and Smythe, 1957). We add to equation (3) a triple interaction of $signal_{d,t} \times local_{d,t} \times radio_d$, where $radio_d$ is equal to one if a private television station owner is also a local radio station owner. If the pre-existing content differences of these radio stations can explain our results, then our estimate of the triple-interaction term would absorb the entire treatment effect of interest—i.e., the local interaction term $signal_{d,t} \times local_{d,t}$. We report these findings in Table 4, where the triple interaction coefficient is a precisely estimated zero. This suggests there is no differential effect among private television stations that may be part of a local media monopoly, where similar content may be aired on radio and television.

Political Bias of Content An extensive literature underscores how biased media content can shape electoral outcomes.[35] In the Canadian context, the CBC has been criticized for taking a center-left position for as long as the public broadcaster has existed (Rutherford, 1990).[36] If this were true, one explanation for our findings could be that the public broadcaster hollowed out support for the Conservative party. If the affected voters chose apathy over swing voting, then political bias—rather than informational content—could explain why voter turnout falls in public districts. With this in mind, we test for (i) differences in vote shares across party lines and (ii) differences in vote shares across the political spectrum. Throughout we use our baseline model (3) to estimate the differential impact of local and national news content on these outcomes.

Table 5 reports these estimates. In columns (1) and (2), we respectively consider vote shares for the Liberal party and Conservative party—Canada's two major political parties—and find no differential impact on vote shares across these two major parties.[37] Columns (3) and (4) similarly document no differential impact in how people vote across the political spectrum.[38] Altogether, this suggests that it is the geographic scope of informational content that matters, rather than any perceived political bias of television viewers.

station owners, in the earliest years at least, held local information monopolies in the same city they purchased a television broadcast license (Peers, 1979).

[35]For example, the political bias of media impacts how people vote (DellaVigna and Kaplan, 2007; Enikolopov et al., 2011; Chiang and Knight, 2011; Martin and Yurukoglu, 2017; Durante et al., 2019; Ash et al., 2022), and polarizes the electorate through the reinforcement of prior beliefs (Bernhardt et al., 2008; Chan and Suen, 2008).

[36]This claim is untested, hotly debated and still held today. For example, on 27 June 2017, Peter Mansbridge, the chief correspondent for CBC News from 1988-2017, addressed this issue on air during an episode of *The National*, CBC's flagship nightly news program.

[37]We direct our focus to the Liberal and Conservative party because they are the only two parties to hold the Prime Minister's office in Canadian history.

[38]Table A.5 in the Appendix documents our classification of left- and right-leaning parties.

7 Mechanisms

Our findings thus far bring to light the positive effects of local news, relative to national news, on voter and political responsiveness. To interpret these findings, we draw insight from a class of models where increased voter responsiveness connects the engagement effects of relevant media content to the increased accountability of politicians (Strömberg, 2015). We have shown that the geographic scope of media content determines the relevance of information to voters, which we link to electoral competition in the analysis that follows. We then consider the response of an incumbent politician to close elections, documenting that the improved incentive to act accountable explains the accountability-enhancing effects of local news, rather than it being an outcome of voters selecting a new candidate.

7.1 Local News and Electoral Competition

Here, we consider incumbent win margins to study electoral competition and the re-election incentives that politicians face. To do this, we use vote shares from the 1953 and 1957 elections, since the majority of the television network expansion occurred between these two elections. We address Canada's multi-party system by creating two artificial parties in each district. The winning party of a district in the 1953 election designates the incumbent, and their win margin is calculated as the difference in vote shares with the largest opposition party. If the incumbent's party is re-elected, the same calculation is made for the 1957 election. If not, then we calculate the difference between the unseated incumbent's vote share and the winning candidate's vote share in 1957.[39] Based on these calculations, the average difference in 1953 vote shares was 18.9 percent, which drops to 12.0 percent in the 1957 election—a 6.9 percentage point increase in competitiveness.

Table A.4 reports estimates of the incumbency advantage, based on our main specification (3) with the win margin of an incumbent as the outcome variable. The incumbency advantage is increasing on average among all television districts (column 1), but that this effect is exclusive to national television districts (columns 2 and 3). To the contrary, the advantage is decreasing in local television districts, where higher rates of turnout lead to more competitive elections. A plausible explanation for this finding is the impact of local news on the name recognition of an incumbent's challengers. An important factor driving the political advantage of an incumbent is their name recognition among the electorate (Dal Bó et al., 2009; Jankowski and Müller, 2021). Although our estimates cannot speak to this directly, our findings are consistent with the idea that local news programming may weaken this effect by giving local challengers more prominent coverage than they could ever expect from a national outlet.

We complement this evidence with a regression discontinuity design (RDD), where we split our sample based on three types of 1957 electoral districts: districts without television (78), public television districts with national news (77) and private television districts with local news (101). By doing so we mirror the empirical design of our main specification, and estimate the RDDs in the same subsamples that equation (3) uses to identify the geographic scope of information.

[39] In contrast to a two-party system, where the vote share of one party is sufficient to estimate the effect of interest, we require two pieces of information per district: vote shares of the incumbent and the largest opposition. That said, our estimated effect is not a "party effect," since the incumbent party differs across districts. For example, in the 1953 election year, we assigned 169 districts to the Liberal party, 48 districts to the Conservative party, 23 to the Cooperative Commonwealth Federation party, and the remaining 21 districts to five other parties.

Figure 4 presents the RDD plots for each subsample. In districts without television reception (left panel), there is a clear incumbency advantage: the 1953 incumbent party has a significantly higher chance of re-election in 1957 than the opposition. The incumbency advantage is similarly present in districts with national television (middle panel). Yet this advantage disappears in districts with local news (right panel), and this pattern holds whether we include a linear or quadratic polynomial.

The absence of an incumbency advantage in districts with local news demonstrates that television has the capacity to increase electoral competition. The change in competitiveness that is exclusive to local television districts speaks to the relevance of its content—e.g., it highlights the competence or failures of an incumbent MP, or increases the visibility of their challengers. This also suggests that it is the increased turnout among local television viewers that explains the 6.9 percentage point increase in competitiveness that we document across *all* districts for this time period. Moreover, newspapers and radio were widespread throughout all districts with and without television in 1957, and yet the absence of a discontinuity in local television districts suggests that our findings are driven by content differences across public and private television stations, rather than being an effect of media type.

7.2 Incentive Effects of Local News and Political Accountability

Electoral competition can strengthen political accountability in two ways: a member of Parliament (MP) can choose to act accountable in the face of competitive elections, or they can be held accountable when voters go to the poll. We make a distinction between these two channels by augmenting our estimating equation to include MP $\times$ district fixed effects, thereby restricting variation to the same politician and district over time. If accountability results from voters selecting a new MP, then we expect a null result for a within-MP comparison, since we are in effect comparing behavioral changes of the same politician before and after the arrival of television. Conversely, the point estimate should only exhibit a slight change with the inclusion of MP fixed effects if accountability results from a change in behavior of the incumbent MP.

We report these findings in Table 6. Odd column estimates reflect our main specification, while even column estimates include MP $\times$ district fixed effects. A comparison of the local interaction term in columns (1) and (2) suggests that political responsiveness is not driven by selection, but instead by an MP responding to the incentive effects of a close election.

This measure of responsiveness reflects a politician's willingness to speak on behalf of the constituents they represent, and yet this change in speech only has meaning if it also affects policy. To this end, we more directly assess accountability based on our measure of an MP's willingness to vote against their own party. This accountability measure is the best measure of an MP's willingness to act on behalf of their constituents without the full text of parliamentary motions and the policy implication of each motion (Snyder and Strömberg, 2010). In column (3), we report estimates of our baseline specification using this accountability measure as an outcome. Consistent with our findings on responsiveness, the estimates indicate that politicians also act on behalf of their constituents if they represent a local television district. Comparing columns (3) and (4), the coefficient of interest exhibits only a slight change, suggesting again that accountability results from an elected politician changing their behavior in response to improved re-election incentives.

8 Concluding Remarks

Understanding the role of media as an information technology is of the utmost importance in a democracy. Whether the political effects of media content are positive or negative can depend on the medium, as the balance between information and entertainment tends to vary across different types of media. This well-documented observation is an extensive margin concern of media exposure, whereas our focus on the geographic scope of information is an intensive margin consideration of what defines relevant information to voters.

We find that the geographic scope of information in media explains the direction of change in the behavior of voters and politicians. In particular, we find that local information drives the positive effects of media in the political sphere, particularly in a parliamentary democracy like Canada where the federal legislature if made up of locally elected representatives. We link the positive engagement effects of local news to electoral competition, and show that the improved re-election incentives from a close election impact the behavior of incumbent politicians, who in turn become more responsive and accountable to the needs of their constituents. In contrast, we document the exact opposite among national television viewers, following the same step-by-step causal chain of media's impact on voters and politicians. The key insight from our analysis is that the geographic scope of information resolves the contradictory effects of television documented in prior studies.

Our interest in Canada is, in part, motivated by the absence of such evidence for the country, but more importantly the Canadian context provides a novel policy environment to parse out the relative effect of local and national informational content on the population. While a few other papers have documented the positive effect of local news on the political process, we are not aware of a study that can simultaneously show the political consequences of a national news treatment. Simply put, the uniqueness of our setting enables us to estimate the *relative* effect of local news. Despite this unique policy environment, the expansion of television in Canada followed an otherwise similar pattern as it did elsewhere in the world. Our analysis reveals that the average effect of television across all districts is in line the United States and elsewhere (Gentzkow, 2006; Ellingsen and Hernæs, 2018), suggesting that our results are externally valid as well.

We conclude that the societal effects of local news (González-Torres, 2023; Mastrorocco and Ornaghi, 2024, among others) extends into the political sphere. We view our results as a cautionary tale, particularly in this era when national news has come to dominate most media outlets at the expense of local news (George and Waldfogel, 2006; Martin and McCrain, 2019). On the other hand, we believe that the positive accountability effects of local information provide insight for the contemporary world of social media, where there is an opportunity to push back against the growing presence of national news. With legacy media, accountability often comes in the form of an editorial, where an informed journalist may speak out against a politician on behalf of the people. Whereas the low barrier to entry of social media gives a previously unheard voice to the people, and this voice can amplify the accountability effects of local information because a would-be voter can now speak directly to a politician on social media in a way that was never possible before.

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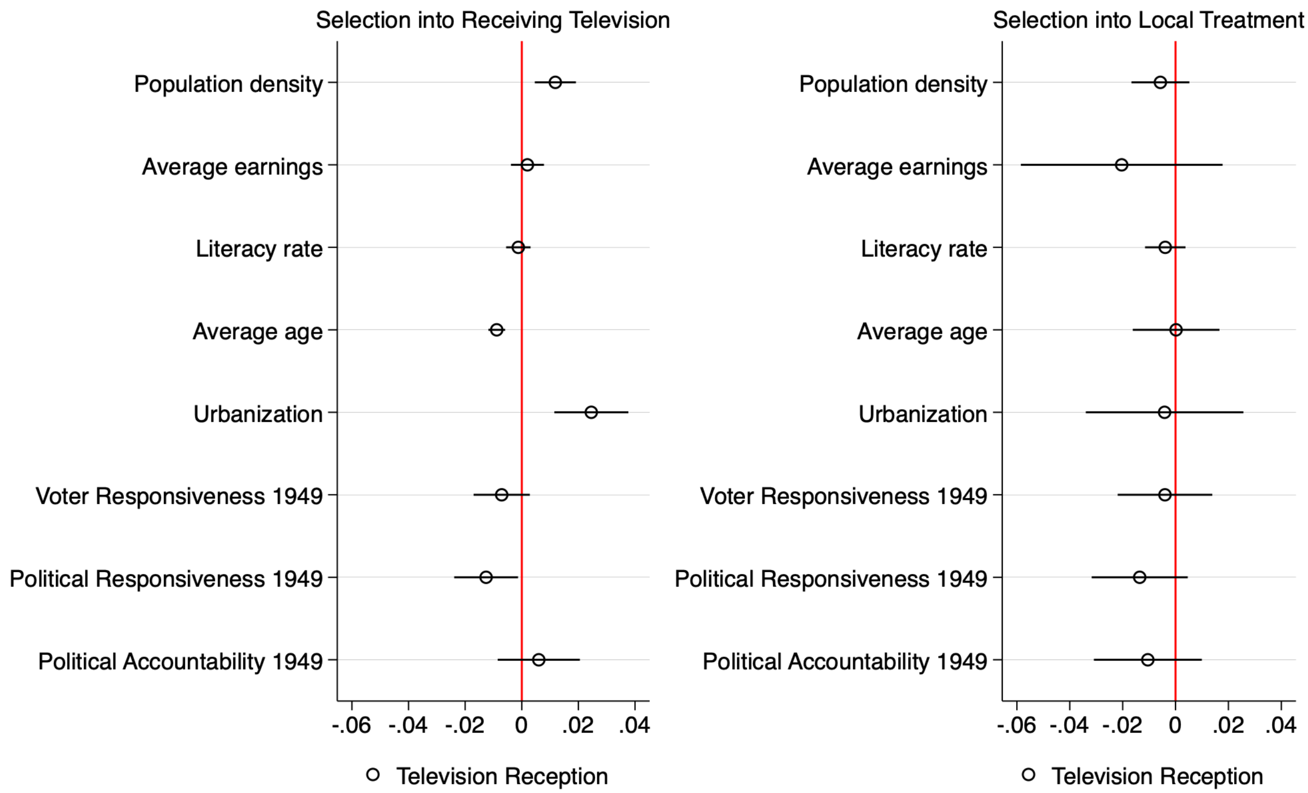
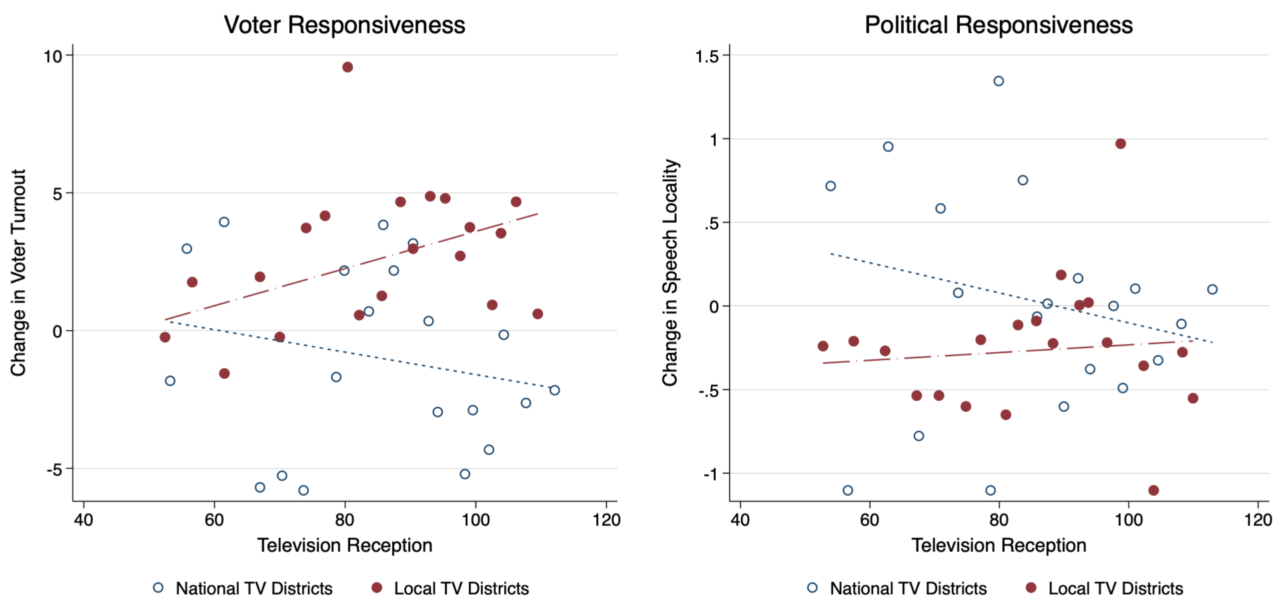
Figure 1: Selection into Treatment



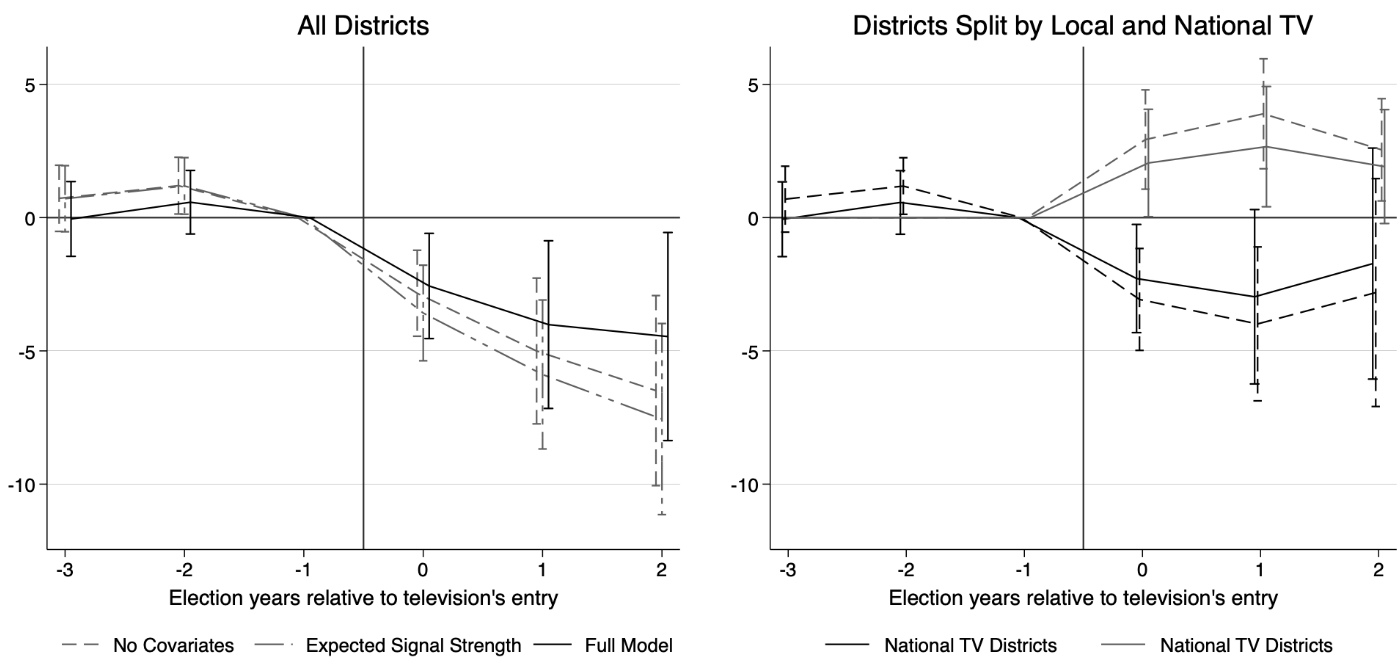
Notes: Observations are at the electoral district level. All outcome variables are standardized, and regressed on $signal_{d,1953}$ and $signal_{d,1953} \times local_{d,1953}$, including province fixed effects and expected signal strength. The left panel plots coefficient estimates for $signal_{d,1953}$ (selection into receiving television), while the right panel plots estimates for $signal_{d,1953} \times local_{d,1953}$ (selection into local treatment). The right panel estimates are conditional on receiving television, and thus reflects the balance of covariates and pre-treatment outcomes between local (private) and national (public) television districts. Intervals reflect 95% confidence.

Figure 2: Changes in Voter and Political Responsiveness



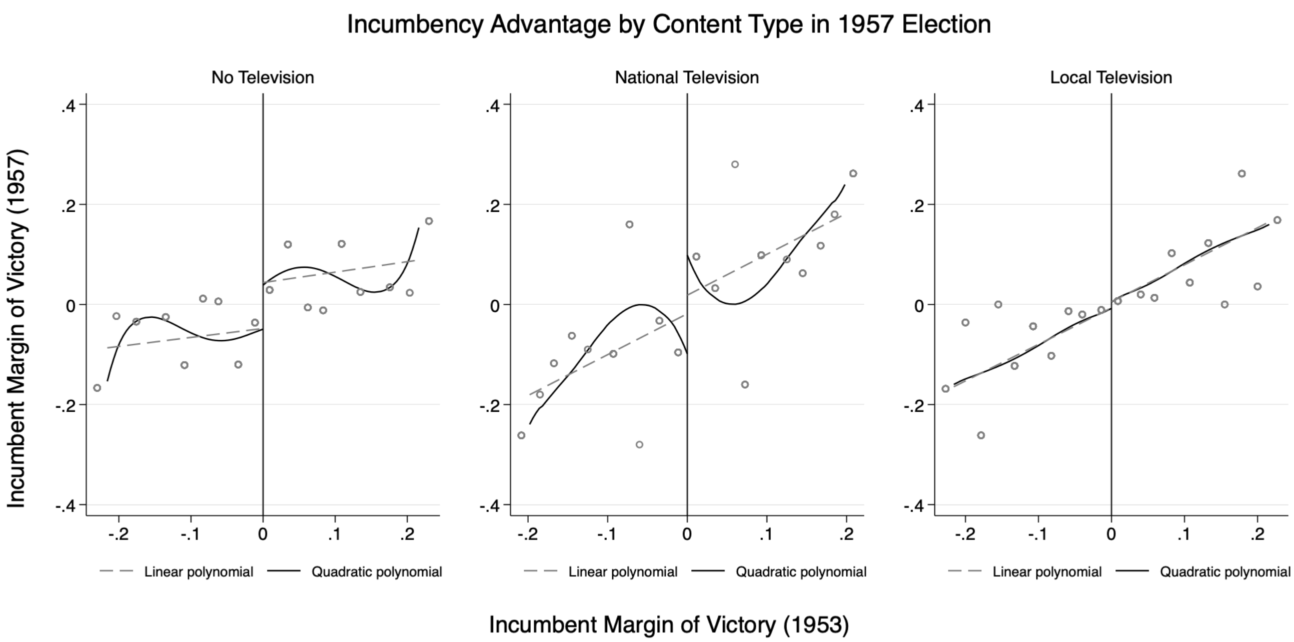
Notes: Observations are at the electoral district level. The outcome variables include voter turnout or speech locality, as labeled, plotted in first differences across the 1953 and 1949 election years. The figure plots the within-district change in these outcome variables against the signal strength for local (private) and national (public) television districts, conditional on a district receiving any television.

Figure 3: Parallel Trends in Voter Responsiveness



Notes: Observations are at the electoral district level. The outcome is voter turnout, and the event study estimates use the arrival of television as the treatment. The left panel plots the population effect of television for three separate specifications. "No Covariates" refer to a specification without covariates nor expected signal strength. "Expected Signal Strength" refers to a specification that controls for expected signal strength, and the "Full Model" estimates account for all covariates and expected signal strength. The right panel splits the treatment between local (private) and national (public) television districts, documenting the differential effect of television content on voter turnout. Dashed lines refer to the "Expected Signal Strength" specification and solid lines to the "Full Model." Intervals reflect 95% confidence.

Figure 4: Incumbency Effects Across Television Districts



Notes: Observations are at the electoral district level. The sample is split based on three types of 1957 electoral districts: districts without television (78), districts with national television (77) and districts with local television (101). The figure plots the incumbent margin of victory in 1957 against the 1953 margin of victory in a regression discontinuity design setting. The incumbent is defined as the district winner in 1953, and their 1953 margin of victory reflects the difference in vote shares with the largest opposition party. A similar calculation is made for 1957 if the incumbent is re-elected, otherwise we calculate the difference between the unseated incumbent's vote share and the winning candidate's vote share in 1957.

Table 1: Content Difference Across Private and Public Stations

	% of Airtime Information	Weekly Hours: Total Information	Local Information	National Information
Private Television	30.8%	36.7	25.5	11.2
Public Television	30.1%	35.8	4.9	31.0
Private/Public Ratio	-	1.03	5.20	0.36

Notes: The percentage of airtime devoted to informational content for the week of January 15-21, 1956 for all English-language television stations in operation at the time (Fowler and Smythe, 1957, p. 91 & p.122). Weekly hours are calculated based on a daily programming schedule of 7:00 a.m. to 12:00 a.m. The reported hours of local and national informational content sum up to total hours of informational content.

Table 2: Television's Impact on Voter and Political Responsiveness

	Voter Responsiveness			Political Responsiveness		
	(1)	(2)	(3)	(4)	(5)	(6)
Signal Strength × Local		0.052**	0.058**		0.012**	0.014**
		(0.023)	(0.024)		(0.005)	(0.005)
Signal Strength	-0.054***	-0.053***	-0.042***	-0.001	-0.004**	-0.005**
	(0.010)	(0.012)	(0.013)	(0.002)	(0.002)	(0.002)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	No	No	Yes
R Squared	0.699	0.703	0.713	0.531	0.534	0.543
Observations	1,795	1,795	1,764	1,674	1,674	1,646

Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958). Outcomes include *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout—and *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Television's Impact on Newspaper Circulation

	Number of Newspapers			Per Capita Circulation		
	(1)	(2)	(3)	(4)	(5)	(6)
Signal Strength × Local	0.063	-0.549	-0.486	0.002	-0.055	-0.046
	(0.098)	(0.623)	(0.609)	(0.057)	(0.111)	(0.132)
Signal Strength	0.033	0.615	0.648	0.026	0.005	0.026
	(0.077)	(0.430)	(0.425)	(0.038)	(0.052)	(0.068)
Frequency	Daily	Weekly	Combined	Daily	Weekly	Combined
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R Squared	0.943	0.774	0.880	0.950	0.825	0.917
Observations	501	500	500	501	496	496

Notes: Equation (3) estimates, based on a panel of 42 cities across election-years (1945-1958). Outcomes include *Number of Newspapers*—the total volume of newspapers in circulation—and *Per Capita Circulation*—the total volume of newspapers in circulation per capita. Circulation is measured in terms of daily newspapers, weekly newspapers and the combined circulation of both. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Television Content or Radio Content?

	Voter Responsiveness		Political Responsiveness	
	(1)	(2)	(3)	(4)
Signal Strength × Local × TV-Radio Owner	0.006	-0.021	0.004	0.006
	(0.047)	(0.049)	(0.010)	(0.010)
Signal Strength × Local	0.051**	0.064**	0.010*	0.012*
	(0.025)	(0.026)	(0.006)	(0.006)
Signal Strength	-0.053***	-0.042***	-0.004*	-0.005**
	(0.012)	(0.013)	(0.002)	(0.002)
Local × TV-Radio Owner	-0.295	1.727	-0.526	-0.679
	(3.560)	(3.704)	(0.845)	(0.818)
District FE	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes
R Squared	0.703	0.713	0.534	0.544
Observations	1,795	1,764	1,674	1,646

Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958). Outcomes include *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout—and *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. *TV-Radio Owner* denotes if a private television station was purchased by the owner of a private radio station or not. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: The Political Bias of Media Content

	Liberal Vote Share	Conservative Vote Share	Left Vote Share	Right Vote Share
	(1)	(2)	(3)	(4)
Signal Strength × Local	-0.011	0.058	0.031	-0.009
	(0.045)	(0.053)	(0.053)	(0.054)
Signal Strength	-0.009	-0.029	-0.023	0.028
	(0.024)	(0.024)	(0.024)	(0.028)
District FE	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes
R Squared	0.784	0.757	0.765	0.769
Observations	1,764	1,764	1,764	1,764

Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958). The outcomes *Liberal Vote Shares* and *Conservative Vote Shares* respectively denote the share of votes cast for the Liberal Party and the Conservative Party. The outcomes *Left Vote Shares* and *Right Vote Shares* respectively denote the share of votes cast for all left-leaning and right-leaning political parties. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Politician Incentive and Selection Effects

	Political Responsiveness		Political Accountability	
	(1)	(2)	(3)	(4)
Signal Strength × Local	0.014**	0.018**	0.011**	0.019*
	(0.005)	(0.008)	(0.006)	(0.010)
Signal Strength	-0.005**	-0.002	-0.006**	-0.007
	(0.002)	(0.002)	(0.003)	(0.005)
District FE	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes
MP × Distric FE	No	Yes	No	Yes
Covariates	Yes	Yes	Yes	Yes
R Squared	0.543	0.738	0.412	0.570
Observations	1,646	1,145	1,509	979

Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958). Outcomes include *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament—and *Political Accountability*—a measure of a politician's willing to vote on behalf of their constituents in Parliament. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

For Online Publication: Appendix
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This appendix provides additional evidence in support of our main hypothesis that the geographic scope of information explains the direction of change in the behavior of voters and politicians. In Appendix A we document several additional robustness checks. We then summarize the proposed method of Borusyak and Hull (2023) in Appendix B, and show that alternative ways of modeling expected signal strength lead to the same conclusions and point estimates as our baseline. In Appendix C, we provide evidence in favor of the parallel trends assumption and evidence against treatment effect heterogeneity biasing our results. Finally, Appendix D describes the data and sources.

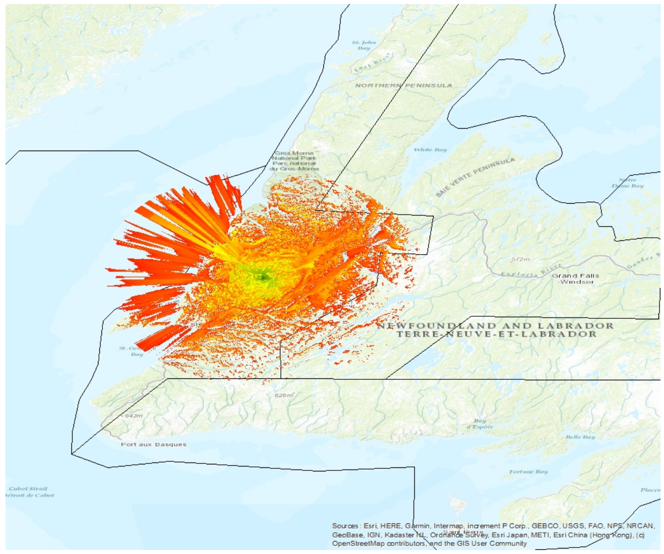
A Additional Empirical Evidence

In this section, we provide figures and tables that are supplementary to our main findings, including various robustness checks. We conclude that our estimates are robust to various alternative specifications and subsamples.

Appendix Figures

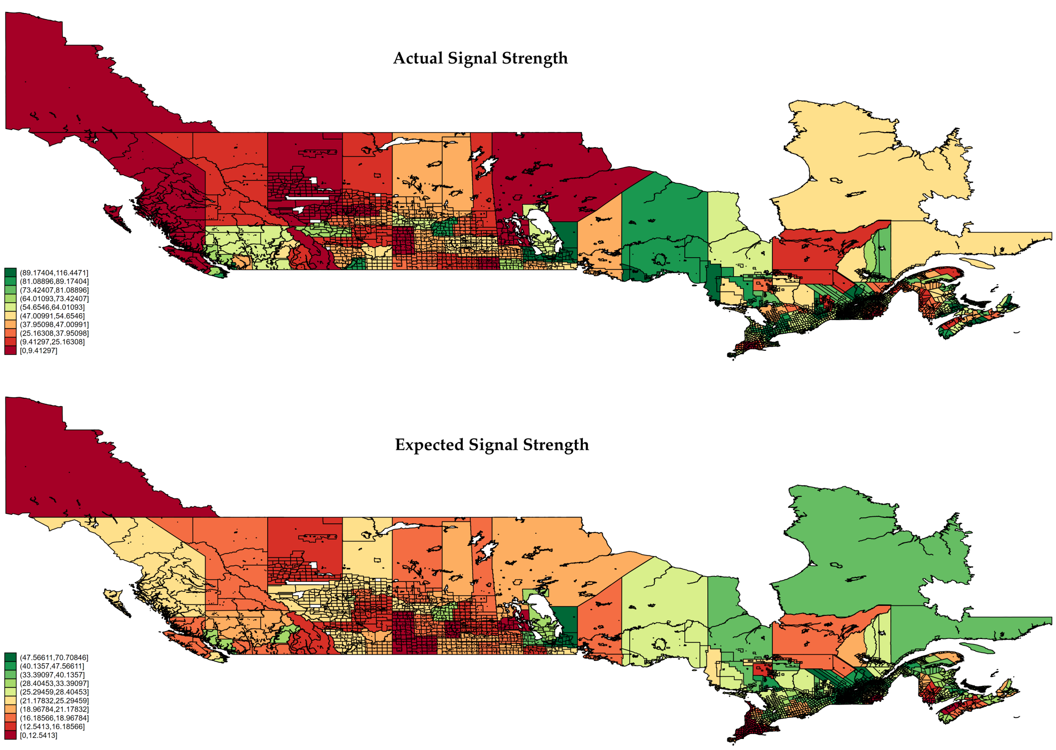
Appendix Tables

Figure A.1: Example ITM Signal Strength Estimate



Notes: Irregular Terrain Model estimate for CBYT station, Corner Brook, Newfoundland. Green colors represent the strongest signal strength, with an attenuation is strength as the color gradient transitions to red. Black lines represent electoral district boundaries, with CBYT located in the Humber–St George electoral district.

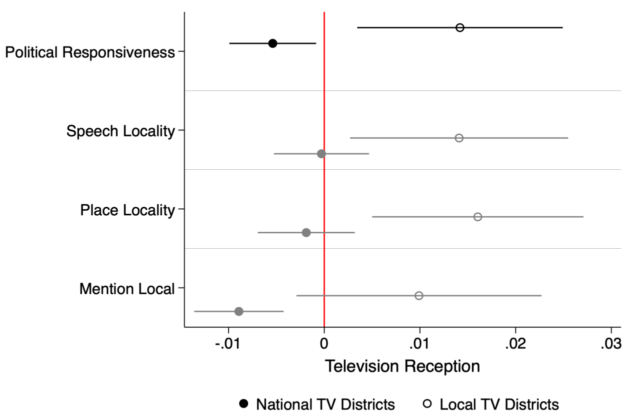
Figure A.2: Example of Actual and Expected Signal Strength Estimates by Electoral Districts



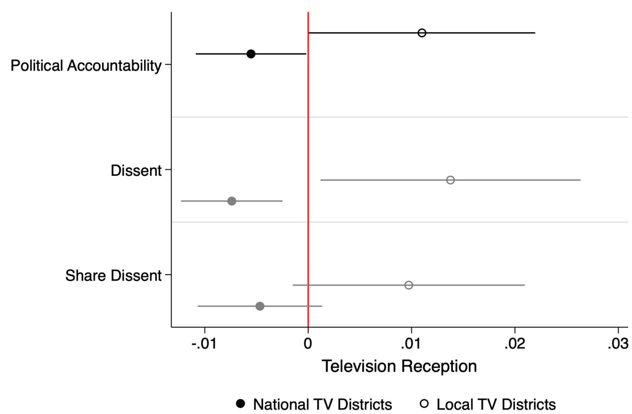
Notes: This figure visualizes actual and expected signal strength at the electoral district level for public television.

Figure A.3: Individual Estimates for the Political Responsiveness and Accountability Indices

(a) Political Responsiveness

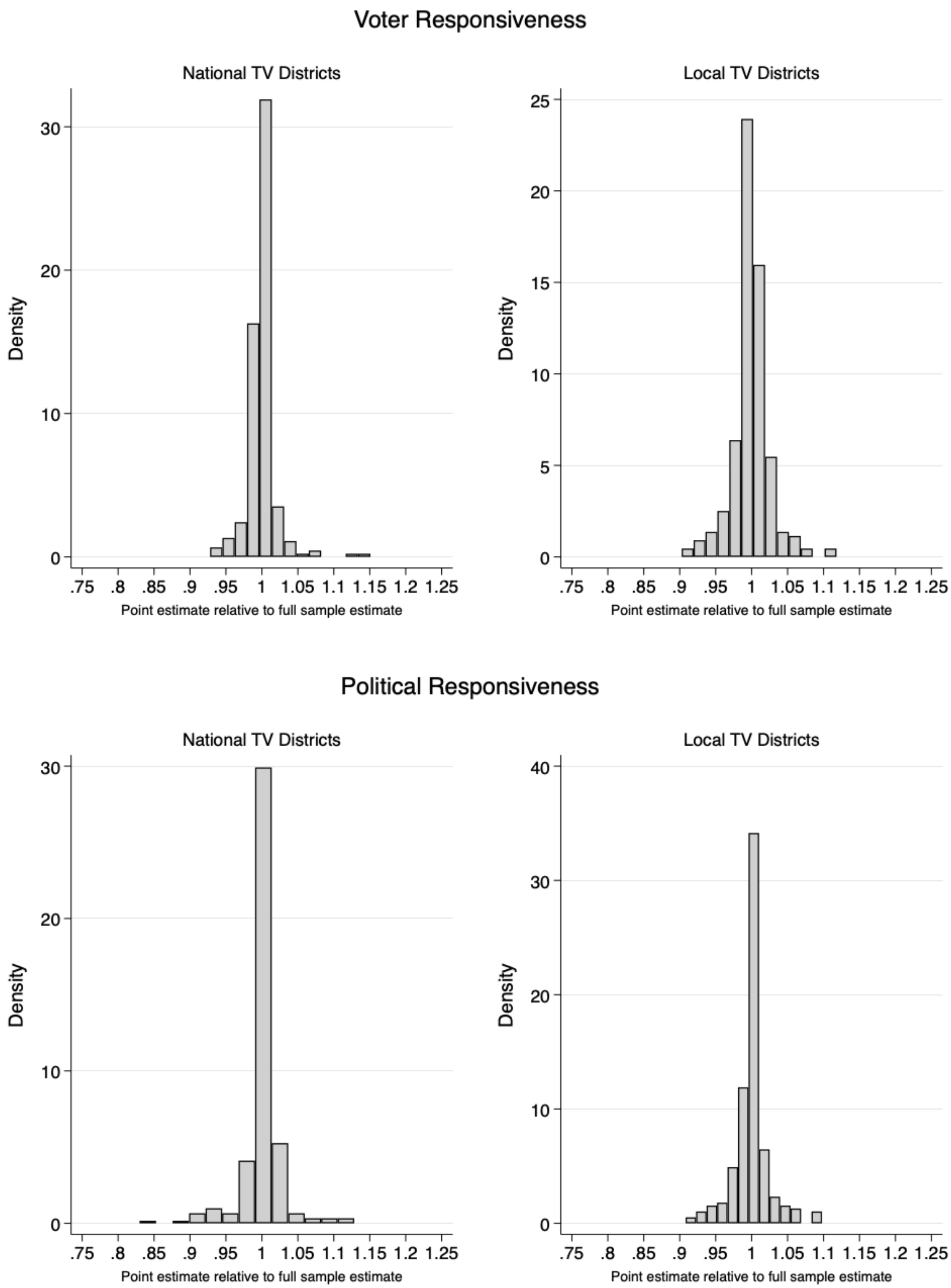


(b) Political Accountability



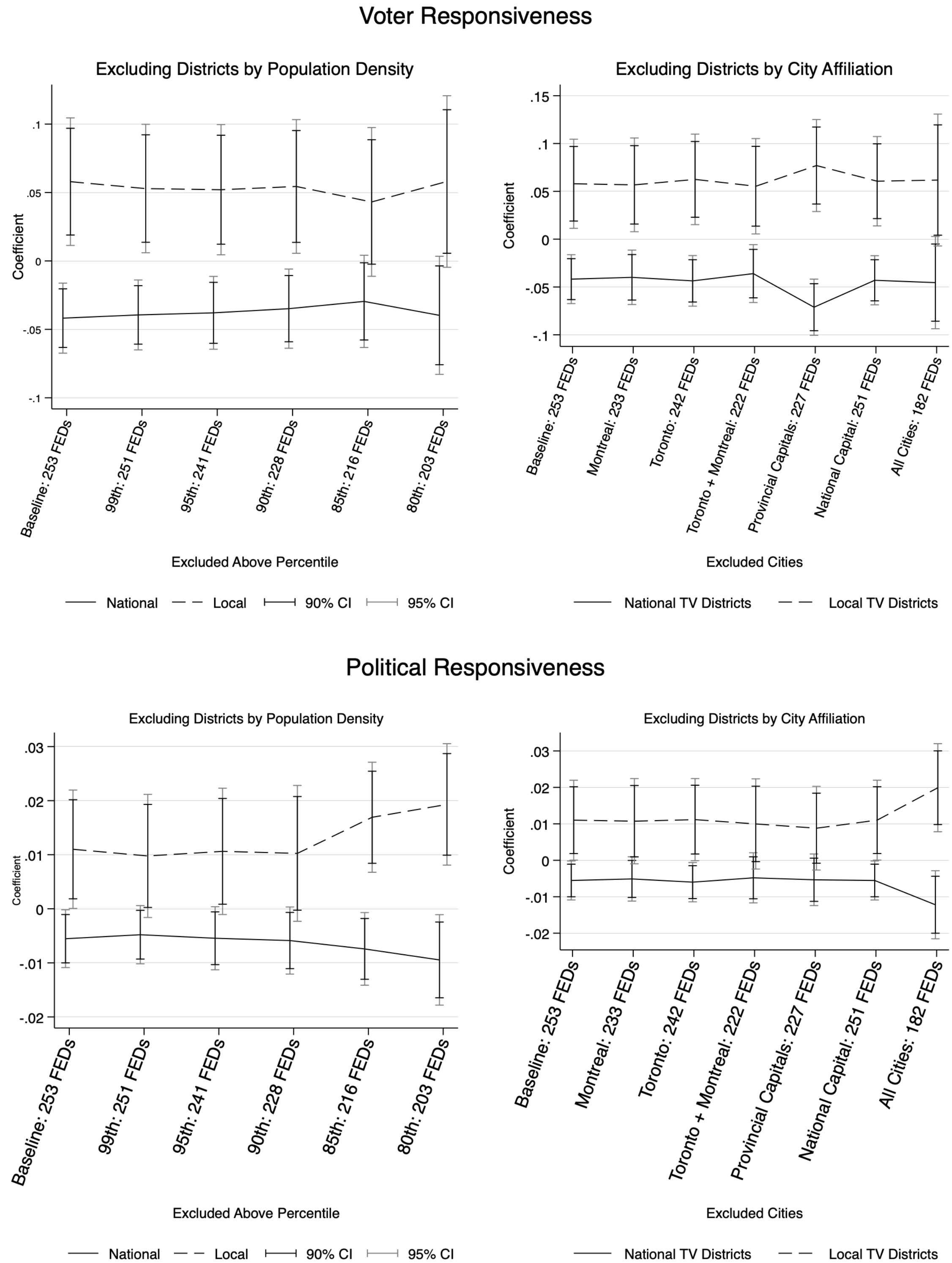
Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958). Outcomes in Panel (a) include the *Political Responsiveness* index and its individual variables, as defined in Section 3. Outcomes in Panel (b) include the *Political Accountability* index and its individual variables, as defined in Section 3. All estimates include electoral district and election-year fixed effects, in addition to the full set of covariates interacted with an election-year fixed effect (i.e., population density, earnings, average age, literacy and urbanization rates). Robust standard errors are clustered at the electoral district level. The p-values associated with estimates of β^{loc} (adjusted for multiple hypothesis testing) are all smaller than 0.05 for the *Political Responsiveness* outcomes, and smaller than 0.10 for the *Political Accountability* outcomes. Intervals reflect 95% confidence.

Figure A.4: Sensitivity Analysis — Excluding Individual Districts



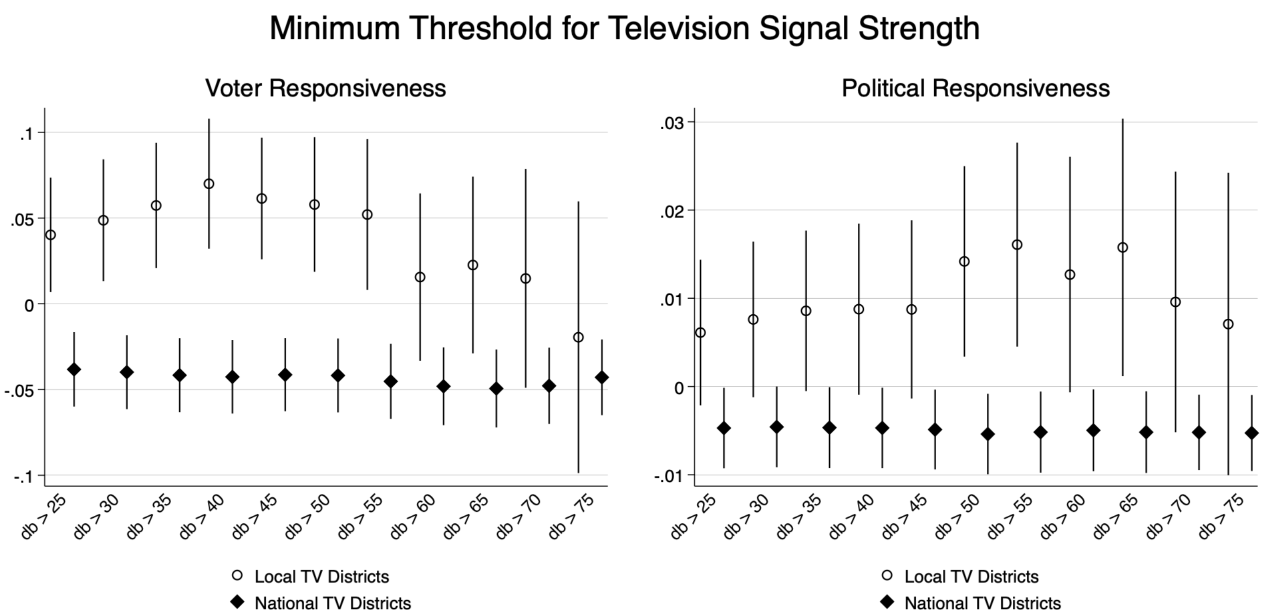
Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958), excluding one electoral district d at a time. We plot each estimate relative to the full sample estimate to highlight the insensitivity of our baseline estimates. A value of 1 thus indicates that the exclusion of district d had no impact on the estimated treatment effect. Outcomes include *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout—and *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. All estimates include electoral district and election-year fixed effects, in addition to the full set of covariates interacted with an election-year fixed effect (i.e., population density, earnings, average age, literacy and urbanization rates). Robust standard errors are clustered at the electoral district level.

Figure A.5: Sensitivity Analysis — Excluding Large and Politically Influential Population Centers



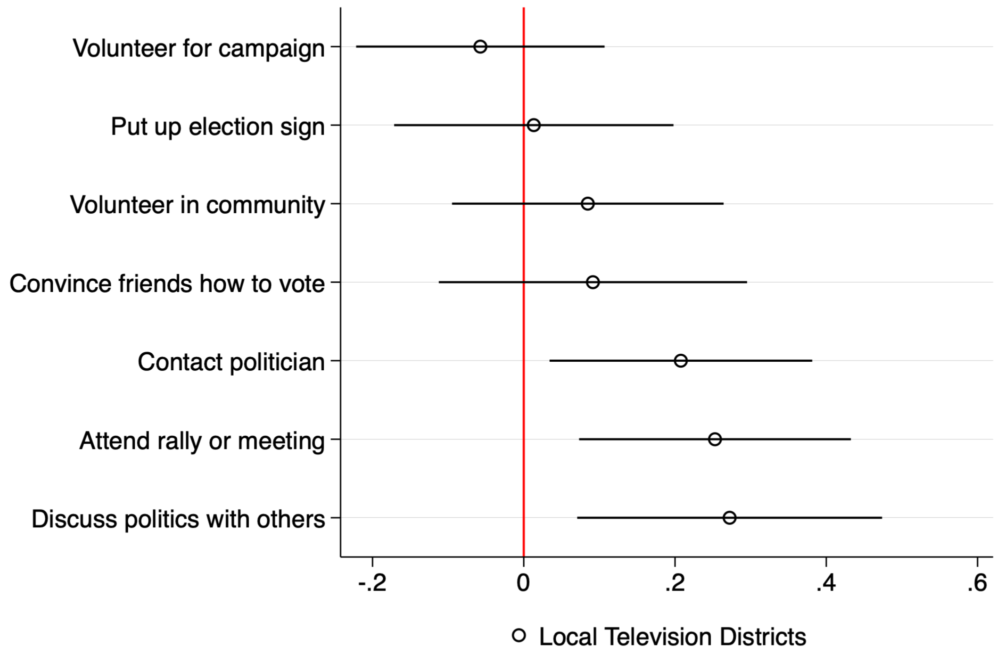
Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958), excluding population dense or politically influential electoral districts. Outcomes include *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout—and *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. In the left panel of each subfigure, we plot estimates from subsamples that exclude the districts above the noted percentile in population density. In the right panel of each subfigure, we plot estimates from subsamples that exclude districts based on city affiliation. All panels include the baseline estimate for reference. Provincial capitals are Victoria, Edmonton, Regina, Winnipeg, Toronto, Quebec City, St. John's, Fredericton, Halifax and Charlottetown. The national capital is Ottawa. Large non-capital cities include Vancouver, Burnaby, Calgary, Hamilton, Windsor, York and Montreal. All estimates include electoral district and election-year fixed effects, and include the full set of covariates interacted with an election-year fixed effect (i.e., population density, earnings, average age, literacy and urbanization rates). Robust standard errors are clustered at the electoral district level. Light grey intervals reflect 95% confidence, while darker intervals reflect 90% confidence.

Figure A.6: Sensitivity Analysis — Varying the Minimum Threshold for Television Signal Strength



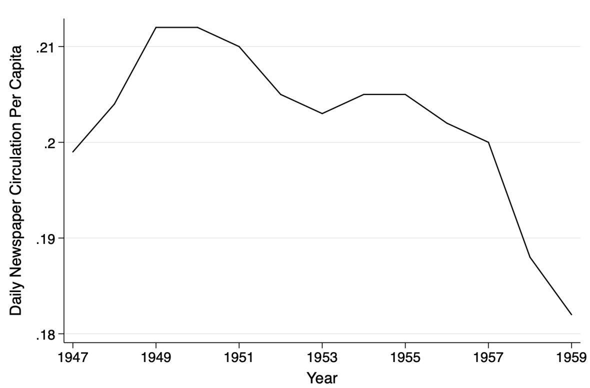
Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958), adjusting the minimum threshold for television signal strength between 25 and 75 dbμV/m. Outcomes include *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout—and *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. All estimates include electoral district and election-year fixed effects, in addition to the full set of covariates interacted with an election-year fixed effect (i.e., population density, earnings, average age, literacy and urbanization rates). Robust standard errors are clustered at the electoral district level. Intervals reflect 95% confidence.

Figure A.7: Survey Evidence — Local Television and Non-Voting Political Activities



Notes: Results are based on survey questions categorized as "Group Electoral Activities" in the 1974 *Canadian Election Study*. For each political activity listed on the y-axis, the same "how often" question is asked of a respondent in four different context: (i) the last federal election, (ii) federal elections in general, (iii) provincial elections in general and (iv) local elections in general. Answers are based on a 4-point scale from "never" to "often." These context questions are combined into a standardized index for a given activity, based on the method in Anderson (2008). The figure plots point estimates of β from $y_{i(d,p)} = \alpha_p + \beta\ local_d + \gamma\ \mathbf{x}_i + \epsilon_i$, where y denotes the index for each of the non-voting political activities. Each survey respondent i lives in electoral district d, which is located in province p. The variable of interest, $local_d$, is an indicator equal to one if the survey respondent i lives in district d that exclusively receives private (local) television, based on signal strength estimates for 1969 (our final year of data). All estimates are conditional on an indicator for expected private (local) signal strength, income, years of school, age and age squared, ethnicity fixed effects and province fixed effects. Robust standard errors are clustered at the district level. Intervals reflect 95% confidence.

Figure A.8: Daily Newspaper Circulation for Canada (1945-1958)



Notes: Observations are at the country level for this time series of daily newspaper circulation rates between 1945-1958. Circulation rates are adjusted for population and reported in per capita terms.

Table A.1: Robustness — Different Identification Strategies

	Two-Way FE		Free-Space Signal		Expected Signal	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: ***Voter Responsiveness***						
Signal Strength × Local	0.038*	0.042**	0.066	0.048	0.052**	0.058**
	(0.019)	(0.020)	(0.056)	(0.058)	(0.023)	(0.024)
Signal Strength	-0.043***	-0.031***	-0.050***	-0.042***	-0.053***	-0.042***
	(0.007)	(0.008)	(0.007)	(0.009)	(0.012)	(0.013)
Panel B: ***Political Responsiveness***						
Signal Strength × Local	0.005	0.007	0.024**	0.022*	0.012**	0.014**
	(0.004)	(0.005)	(0.012)	(0.011)	(0.005)	(0.005)
Signal Strength	-0.002*	-0.002	-0.002	-0.002	-0.004**	-0.005**
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	Yes	No	Yes	No	Yes
R Squared	0.381	0.408	0.382	0.408	0.387	0.412
Observations	1,526	1,509	1,526	1,509	1,526	1,509

Notes: Equation (3) estimates with permutations, based on a panel of electoral districts across election-years (1935-1958). The two-way fixed effects specification is the no-identification specification that foregoes expected signal strength (columns 1 and 2). The free-space model estimates are conditional on free-space signal strength instead of expected signal strength (columns 3 and 4). The expected signal strength estimates are a replication of our baseline estimates for comparability (columns 5 and 6). The outcomes in Panel A is *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout. The outcome in Panel B is *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.2: Robustness — Long and Short Panel Estimates

	Voter Responsiveness			Political Responsiveness		
	(1)	(2)	(3)	(4)	(5)	(6)
Signal Strength × Local	0.058**	0.055***	0.067**	0.014***	0.009**	0.017**
	(0.024)	(0.019)	(0.030)	(0.005)	(0.004)	(0.007)
Signal Strength	-0.042***	-0.046***	-0.058***	-0.005**	-0.004**	-0.003
	(0.013)	(0.010)	(0.017)	(0.002)	(0.002)	(0.004)
Years in Sample	1935-1958	1935-1968	1935-1958	1935-1958	1935-1968	1935-1958
First Treatment Only	No	No	Yes	No	No	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
R Squared	0.713	0.711	0.697	0.537	0.495	0.541
Observations	1,764	2,764	1,489	1,646	2,534	1,401

Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (panel years noted in table). Outcomes include *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout—and *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. Columns (1) and (4) report the baseline estimates. Columns (2) and (5) report estimates with an extended panel that includes elections in 1962, 1963, 1965, and 1968 (post-one-station policy). Columns (3) and (6) only estimate the average treatment effect for the first treatment period—any observation from this district is excluded from the sample after treatment occurs. These subsample point estimates are thus not affected by heterogeneous treatment effects that grow over time. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3: Robustness — Drop Dual Treated Districts

	Voter Responsiveness		**Political Responsiveness**	
	(1)	(2)	(3)	(4)
Signal Strength × Local	0.058**	0.066***	0.014**	0.015***
	(0.024)	(0.024)	(0.005)	(0.006)
Signal Strength	-0.042***	-0.043***	-0.005**	-0.006**
	(0.013)	(0.013)	(0.002)	(0.002)
District FE	Yes	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes
R Squared	0.713	0.718	0.543	0.548
Observations	1,764	1,660	1,646	1,549

Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (panel years noted in table). Outcomes include *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout—and *Political Responsiveness*—a measure of a politician's willingness to speak on behalf of their constituents in Parliament. There are 15 districts in our sample where our measures of local private and national public signal strength are both non-zero, even though these districts receive public and private television in non-overlapping space. These districts potentially contaminate the clean separation that the one-station policy otherwise guarantees. Columns (1) and (3) report our baseline estimates for comparison, while columns (2) and (4) report estimates from the subsample that excludes these contaminated districts. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.4: Television's Impact on Electoral Competition

	Incumbent's Win Margin		
	(1)	(2)	(3)
Signal Strength × Local		-0.002**	-0.003**
		(0.001)	(0.001)
Signal Strength	0.001**	0.002***	0.002***
	(0.000)	(0.000)	(0.000)
District FE	Yes	Yes	Yes
Election-Year FE	Yes	Yes	Yes
Covariates	No	No	Yes
R Squared	0.314	0.325	0.374
Observations	1,794	1,794	1,763

Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (1935-1958). The outcome variable *Incumbent Win Margin* measures the incumbent's vote share relative to the opposite. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Robust standard errors are clustered at the electoral district level, as shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: Political Parties in Parlinfo Database by Left-Right Assignment

Political Spectrum	Political Party Name in Parlinfo
Left-Leaning	Liberal Party of Canada, New Democratic Party, Green Party of Canada, Progressive, Co-operative Commonwealth Federation, Independent Liberal, Liberal Progressive, Labour, Liberal Labour Party, Unionist (Liberal), Independent Progressive, Labor-Progressive Party, Nationalist Liberal, Independent Co-operative Commonwealth Federation, Bloc Québécois, Patrons of Industry, Independent Labour, United Farmers of Alberta, United Farmers of Ontario, United Farmers of Ontario-Labour, United Farmers, United Reform Movement, Unity, Labor-Progressive Party, Bloc populaire canadien, New Party, Rhinoceros Party, Rhinoceros Party of Canada, Marxist-Leninist Party of Canada, Canadian Action Party, Marijuana Party, Natural Law Party of Canada, Party for the Commonwealth of Canada, Union Populaire, Animal Protection Party of Canada, Communist Party of Canada, Independent Liberal Progressive, Liberal Labour Progressive, Liberal Protectionist, National Labour, National Unity, Opposition-Labour, Progressive Canadian Party, United Farmers-Labour, Radical Chrétien, Socialist, United Reform, Opposition, Farmer, Farmer Labour, Labour Farmer, Non-Partisan League, National Liberal Progressive, National Party of Canada, Parti Ouvrier Canadien, Protectionist, Trades Union, United Progressive, Verdun, Socialist Labour, Canadian Labour, Christian Liberal, Farmer-United Labour, National Socialist, Ouvrier Indépendant, Strength in Democracy, Animal Alliance, Environment Voters Party of Canada, First Peoples National Party of Canada, Ouvrier indépendent, Progressive Workers Movement, Work Less Party
Right-Leaning	Progressive Conservative Party, Conservative (1867-1942), Conservative Party of Canada, Social Credit Party of Canada, Liberal-Conservative, Conservative Party of Canada, Social Credit Party of Canada, Reform Party of Canada, Canadian Reform Conservative Alliance, Independent Conservative, Nationalist Conservative, Independent Progressive Conservative, New Democracy, Ralliement des créditistes, Unionist, McCarthyite, Nationalist, Reconstruction Party, Independent Reconstruction Party, Confederation of Regions Western Party, Social Credit Party of Canada, Libertarian Party of Canada, Abolitionist Party of Canada, Canadian Party, Candidate of the Electors, Conservative-Labour, Independent Nationalist, People's Party of Canada, People's Party of Canada, Union of Electors, National Liberal and Conservative Party (1921), Reform, Protestant Protective Association, Unité nationale, National Government, Parti Nationaliste du Québec, Candidat libéral des électeurs, Christian Heritage Party of Canada, Independent Social Credit, Maverick Party, Social Credit-National Unity, Democratic Advancement Party of Canada, Liberal Conservative Coalition, New Capitalist Party, Newfoundland and Labrador First Party, Prohibitionist, Technocrat, Free Party Canada, Canada Party, Western Block Party, Canadian Nationalist Party, National Citizens Alliance of Canada, Parti pour l'Indépendance du Québec

Notes: In this table we document our assignment of political parties across the left-right political spectrum. Each party name noted in the table is the exact name as listed in the Parlinfo database, and is affiliated with at least one politician in our data.

B Modeling Expected Signal Strength

Our empirical design is based on a comparison of outcomes across local and national television districts. This comparison presents two key empirical challenges. The first empirical challenge arises from the selection into public or private television and the informational content its viewers receive. The second empirical challenge arises from the non-random expansion of the television network: factors that determine the location and timing of television transmitter installations (e.g., population density) may correlate with our political outcomes of interest.

In this appendix, we focus on the second empirical challenge and adopt a solution from Borusyak and Hull (2023) to address the non-random expansion of the television network. The authors show that even if a treatment is conditionally random, it may still be biased if the *timing* of exposure to treatment is non-random. Our solution is to control for a time-varying measure of expected signal strength, which recenters the observed television network around simulated counterfactual networks that might as well have been realized. This yields an unbiased estimator of the expansion of the television network.

Omitted Variable Bias (OVB) Example Toronto and Montreal are the first two cities to receive television because they are the largest markets in the country. Nearby districts then receive television earlier than expected because of their proximity to either city. This suggests that *any* district near an economic or population center of the country is more likely to be treated earlier than a district on the periphery. In this instance, an estimate of our two-way fixed effects model will fail to identify our parameter of interest, unless we make the strong assumption that "central" districts do not differ from "peripheral" districts in any relevant, time-varying way. Such an assumption is equivalent to assuming that districts are homogeneous with respect to political discontent, civic mindedness or any other non-electoral political activity.

Stylized Model Assume model $y_i = \beta x_i + \varepsilon_i$, where the realized treatment, $x_i = f_i(g_s, w_i)$, combines variation in shocks g_s due to installation of television transmitter s with pre-determined variables w_i according to $f(\cdot)$, a known formula to the researcher. Borusyak and Hull (2023) show that (i) if shocks to g are exogenous to ε, given predetermined variables w, and (ii) the conditional distribution $G(g|w)$ is known, then a candidate expected treatment variable can be defined to solve the OVB problem.

Result Expected treatment $\mu_i = E\left[f_i(g_s, w_i)|w_i\right]$ is the sole confounder of the realized treatment, x_i. With this stylized model, we can show this result by looking at the correlation of model residuals with the realized treatment:

$$E\left[\frac{1}{N}\sum_i x_i\varepsilon_i\right] = E\left[\frac{1}{N}\sum_i E\left[f_i(g_s, w_i)\varepsilon_i|w_i\right]\right] \tag{B.1}$$

$$= E\left[\frac{1}{N}\sum_i \mu_i E\left[\varepsilon_i|w_i\right]\right] \tag{B.2}$$

$$= E\left[\frac{1}{N}\sum_i \mu_i\varepsilon_i\right] \tag{B.3}$$

The OVB problem is solved by recentering the treatment variable around its expected treatment, $\tilde{x}_i = x_i - \mu_i$, which is uncorrelated with residuals ε_i by construction. In practice, this equates to adding expected treatment as a control variable to the stylized model, thus providing an unbiased and consistent estimate of β. For our purposes, the realized treatment (x_i) is television signal strength at the electoral district level ($signal_{d,t}$), and the expected treatment (μ_i) is expected signal strength ($\mu_{d,t}$)—i.e., the non-random exposure of a district to realized treatment.

B.1 Criteria for a Valid Measure of Expected Signal Strength

To compute expected treatment, it is necessary to know the underlying data-generating process of our realized treatment. In our setting, function $f(\cdot)$, which combines the pre-determined variables with the underlying distribution of shocks to g, is the Irregular Terrain Model—the radio propagation model we use to estimate the attenuation of signal strength across space (see Section 3 for more details). While the underlying distribution of shocks g is exogenous, it is also unknown and has to be modeled.

Modeling the distribution of these shocks amounts to modeling the timing of activation for the complete network of television transmitters. We do this by assigning every television transmitter a probability of being activated in year t, and construct an average value based on 500 permutations of this process for each year. As this procedure allows us many degrees of freedom, we restrict ourselves to the following criteria:

(1) In each simulation, transmitters with an early realized activation date receive a higher probability of activation than transmitters activated later on.

(2) The measure of expected signal strength that is constructed from the 500 permutations should be correlated with the model residuals, as in equation (B.3). In other words, the residuals from a simple OLS regression,

$$Y_{d,t} = \alpha_d + \alpha_t + \beta signal_{d,t} + \epsilon_{d,t},$$

should be correlated with $\mu_{d,t}$.

(3) Expected signal strength $\mu_{d,t}$ should capture all of the predictive variation of the initial treatment on any observable pre-determinant of treatment (e.g., a district's initial population density in 1931). In other words, the point estimate δ from this example equation,

$$Pop_{d,1931} = \delta signal_{d,1953} + \gamma \mu_{d,1953} + \epsilon_d,$$

should be statistically no different from zero.

B.1.1 Alternative Shock Distributions

In this subsection, we describe 23 shock distributions that satisfy criteria (1) in Section B.1, which we use as alternatives to the shock distribution described in Section 4.2 of the paper. Table B.1 summarizes this information. The first column of the table denotes an identifier for the alternative shock distribution, ranging from 1-23. The activation process involves multiple steps for alternatives 2, 5, 14 and 15, so the second column outlines the order of these steps. The third column defines the modeled probability

Table B.1: Alternative Shock Distributions

Alt.	Step	Probability of Transmitter Activation	Activation Rank	Randomness	Selection Criteria
1		$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)} + \frac{1}{\#\ towers\ activated_t}$	Months	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
2	i	LPM: $activated_t = f(Population,\ TransmittersActivated)_t$	-	$Active \sim Binomial(1, \hat{activated_t})$	Active = 1
	ii			$g \sim Normal(\hat{activated_t}, sd(\hat{activated_t}))$	Highest g
3		$\Pr = \frac{\#\ towers\ active_t}{\#towers}$	-	$Active \sim Binomial(1, \Pr)$	Active=1
4		$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}$	Months	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
5	i	$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}$	Months	$Active \sim Binomial(1, \Pr)$	Active = 1
	ii			$g \sim Normal(\Pr, sd(\Pr))$	Highest g
6		$\Pr = 1 - \frac{Year-min(Year)}{max(Year)-min(Year)}$	Years	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
7		$\Pr = \frac{1}{Duration}$	Year	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
8		Lasso: $activated_t = f(Population,\ TransmittersActivated,\ Lat,\ Lon)_t$	-	$g \sim Normal(\hat{activated_t}, sd(\hat{activated_t}))$	Highest g
9		Lasso: $activated_t = f(Population,\ TransmittersActivated,\ Lat,\ Lon)_t$	-	$activated_t \sim Binomial(1, \hat{activated_t})$	Active = 1
10		$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}$	Months	$g \sim Normal(\Pr, 2 * sd(\Pr))$	Highest g
11		$\Pr = \frac{\#\ towers\ active_t}{\#towers}$	-	$g \sim Normal(\Pr, 1)$	Highest g
12		$\Pr = 1 - \frac{Year-min(Year)}{max(Year)-min(Year)} + \frac{1}{\#\ towers\ activated_t}$	Years	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
13		$\Pr = 1 - \frac{Dist(Toronto)-min(Dist(Toronto))}{max(Dist(Toronto))-min(Dist(Toronto))}$	Distance	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
14	i	$\Pr = 1 - \frac{Dist(Toronto)-min(Dist(Toronto))}{max(Dist(Toronto))-min(Dist(Toronto))}$	Distance	$activated_t \sim Binomial(1, \Pr)$	Active = 1
	ii	$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}$	Months	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
15	i	$\Pr = 1 - \frac{Dist(Toronto)-min(Dist(Toronto))}{max(Dist(Toronto))-min(Dist(Toronto))}$	Distance	$g \sim Normal(\Pr, sd(\Pr))$	
	ii	$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}$	Months	$g \sim Normal(\Pr, sd(\Pr))$	
	iii			randomly select step i) or ii)	Highest g
16		$\Pr = 1 - \frac{Pop.-min(Pop.)}{max(Pop.)-min(Pop.)}$	Population	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
17		$\Pr = 1 - \frac{Rank(Pop.)-min(Rank(Pop.))}{max(Rank(Pop.))-min(Rank(Pop.))}$	Ranked Population	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
18		$\Pr = \frac{1}{Rank(Pop.)}$	Ranked Population	$g \sim Normal(\Pr, sd(\Pr))$	Highest g
19		$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}$	Months	$g \sim Normal(\Pr, sd(\sqrt{\Pr}))$	Highest g
20		$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}$	Months	$g \sim Normal(\Pr, sd(\Pr^2))$	Highest g
21		$\Pr = \left(1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)}\right) \times \left(1 - \frac{1}{\#\ towers\ activated_t}\right)$	Months	$g \sim Normal(\Pr, sd(\Pr)$	Highest g
22		-	Years	$g \sim Normal\left(Year, 1 - \frac{1}{\#\ towers\ activated_t}\right)$	Highest g
23		$\Pr = 1 - \frac{Dur.-min(Dur.)}{max(Dur.)-min(Dur.)} + \frac{1}{\#\ towers\ activated_t}$	Months	$g \sim Normal(\Pr, sd(\Pr))$	Highest g w/ no overlap

that transmitter j is activated in year t, with each being an alternative to the assumed probability in equation (2) from Section 4.2 of the paper. The fourth column describes how we rank the activation of the transmitters in our data—e.g., we take the approach of ranking transmitters by year of activation in Section 4.2. The fifth column describes how we transform each probability into a shock. Here, we either draw shocks from a normal or binomial distribution, using the probabilities calculated in the third column. The final column defines how we select the s number of transmitters active in year t. The "Highest g" criteria indicates that we sort across shock realizations g, selecting the s highest realizations until s is equal to the number of transmitters active in year t. "Active = 1" denotes that we simply select which ever transmitter has a shock realization of one. If there is a multi-step approach we first apply the selection method in step i), then step ii), and so forth.

As an example, consider the sampling probability for the Toronto and Montreal transmitters, based on alternative 1. Here, we rank the activation of transmitters by months, for our complete set of installations that ranges over 204 months. The Toronto and Montreal transmitters were both installed in September 1952—the first two transmitters built. Based on the formula for alternative 1, we assign the probability of activating either transmitter as $\Pr = 1 - \frac{0-0}{204-0} + 1/2 = 1.5$, where both the duration and minimum duration are 0, while the maximum duration is 204 for our sample of transmitters. Only two transmitters were activated in 1952, so $s = 2$ here. We truncate probabilities to one for any value greater than one. Here, we assume a random shock according to the distribution $g \sim Normal(\mathrm{Pr}, sd(\mathrm{Pr}))$, which guarantees a non-deterministic distribution of active transmitters in each permutation. We repeat this randomization process 500 times for every post-treatment year of our sample—i.e., separately for 1952, 1953, 1954, 1955, 1956, 1957, and 1958. We derive our final measure of expected signal strength by averaging across all permutations at the census subdivision (CSD) level, exactly as described in Section 3, and use CSD-level population data as weights to aggregate from CSDs to electoral districts. The result is $\mu^A_{d,t}$, an average measure of expected signal strength for district d in year t, based on alternative A.

In most alternatives, we model the probability of a transmitter being activated as a concave function of duration (alt 1), years (alt 6), distance (alt 13), or population, although we depart from this functional form in some specifications. In alternative 3 and 11, we assign every transmitter the same probability of being activated, calculated as a fraction of transmitters activated in year t. In alternative 2, we use a linear probability model to obtain predicted values of the probability of activation. In alternatives 8 and 9, we use a lasso model selection algorithm. To increase concavity and assign transmitters activated late a low probability, we calculate the probability as $1/_{\text{Duration since first opened}}$ in alternative 7, $1/_{\text{Population rank}}$ in alternative 17, and take the squared probability as an input in alternative 20. We do the opposite and decrease concavity, and assign later opened transmitters a higher probability in alternative 19, where we take the square-root of the calculated probability. In alternative 23, we model the same underlying probability as in alternative 1, but require that no selected television transmitter serves the same market. That is, if a transmitter with the third highest shock value serves a market that is already served by the transmitter with the second highest shock value, we skip this tower and proceed to the next highest shock value until the number of selected transmitters equals the true number in year t.

B.1.2 Evaluating the Alternative Shock Distributions

In this subsection, we evaluate the 23 alternative shock methods based on criteria (2) and (3), as described in Section B.1. We also evaluate free-space signal strength and our main measure of expected signal strength used throughout the main body of the paper, based on these two criteria. Alternatives ($\mu^A_{d,t}$) that satisfy *both* criteria are then used in place of $\mu_{d,t}$ in our main equation (3) to obtain unbiased estimates of our treatment effect (β). Finally, we use the set of alternatives that satisfy both criteria to assess the stability of our estimated treatment effect, and obtain an upper and lower bound on television's impact on voter turnout based on these valid alternatives.

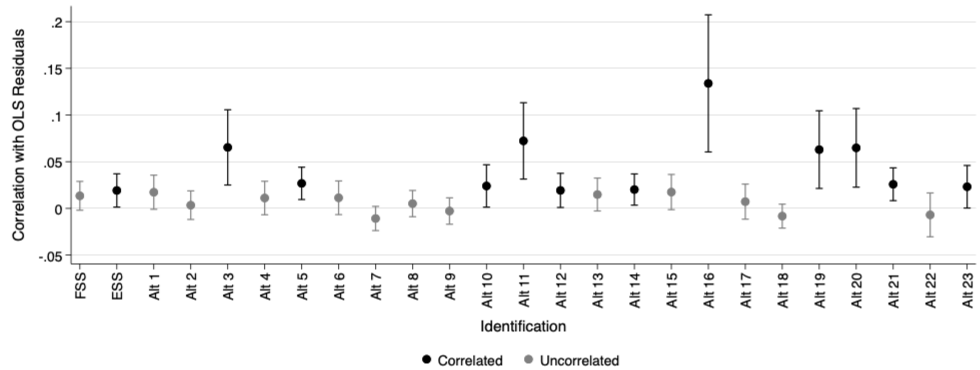
Criteria 2: Correlation of Expected Signal Strength with Residuals We begin by testing which alternative measures of expected signal strength correlate with the residuals from the following OLS regression:

$$Y_{d,t} = \alpha_d + \alpha_t + \beta signal_{d,t} + \epsilon_{d,t}.$$

For each alternative A, we separately regress the predicted residuals on expected signal strength:

$$\hat{\epsilon}_{d,t} = \alpha_d + \alpha_t + \eta^A \mu^A_{d,t},$$

Figure B.1: Correlation of Expected Signal Strength with Residuals



Notes: This figure reports regression estimates of the residuals from the simple OLS on the free-space method (FSS), our expected signal strength in the paper (ESS), and the 23 alternatives from Table B.1. Colors denote whether the point estimate is significantly different from zero at the 5% level.

and plot the obtained coefficients $\hat{\eta}^A$ in Figure B.1.

We begin by showing that free-space signal strength (FSS) is uncorrelated with the OLS residuals, and thus does not satisfy criteria (2). To the contrary, our main measure of expected signal strength (ESS) is correlated with the OLS residuals and satisfies the necessary criteria. Moreover, 11 of the proposed alternatives satisfy criteria (2) at the 5 percent level, as indicated by the point estimates color-coded black in Figure B.1. The estimated correlation is especially large for alternative 16, where the probability of a tower being activated is based solely on population. Here the channel is clear: actual signal strength is highlight correlated with population density, since transmitters were strategically built in the vicinity of large population centers. Hence, we can create an expected network that explicitly models population density that is, almost by construction, correlated with the residuals.

Criteria 3: Correlation of Signal Strength with Population Density Next, we test which alternative measures of expected signal strength satisfy the conditional exogeneity of actual signal strength with respect to initial population density—a primary determinant of the timing of treatment (Figure 1). In Figure B.2, we plot the point estimates β^A from the regression:

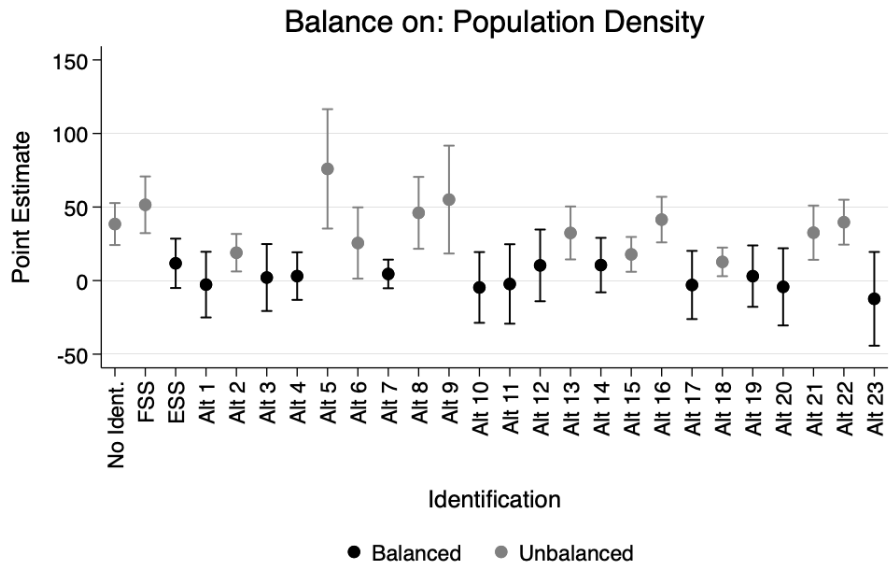
$$Pop_{d,1931} = \beta^A signal_{d,1953} + \eta^A \mu^A_{d,1953} + \epsilon_d.$$

By design, this specification is a test of whether recentering a regression estimate of *actual* signal strength around an expected signal strength alternative A balances our sample in the cross-section.

We begin by noting that neither the two-way fixed effect (no-ident) specification nor the free-space control variable (FSS) balance our treatment design, yet our main measure of expected signal strength (ESS) does. Moreover, 12 of the proposed alternatives balance population density at the 5 percent level and thus satisfy criteria (3), as indicated by the point estimates color-coded black in Figure B.2.

Stability of the Treatment Effect Here, we use the set of alternatives that satisfy both criteria to assess the stability of our estimated treatment effect, and obtain an upper and lower bound on television's

Figure B.2: Correlation of Signal Strength with Population Density in 1931



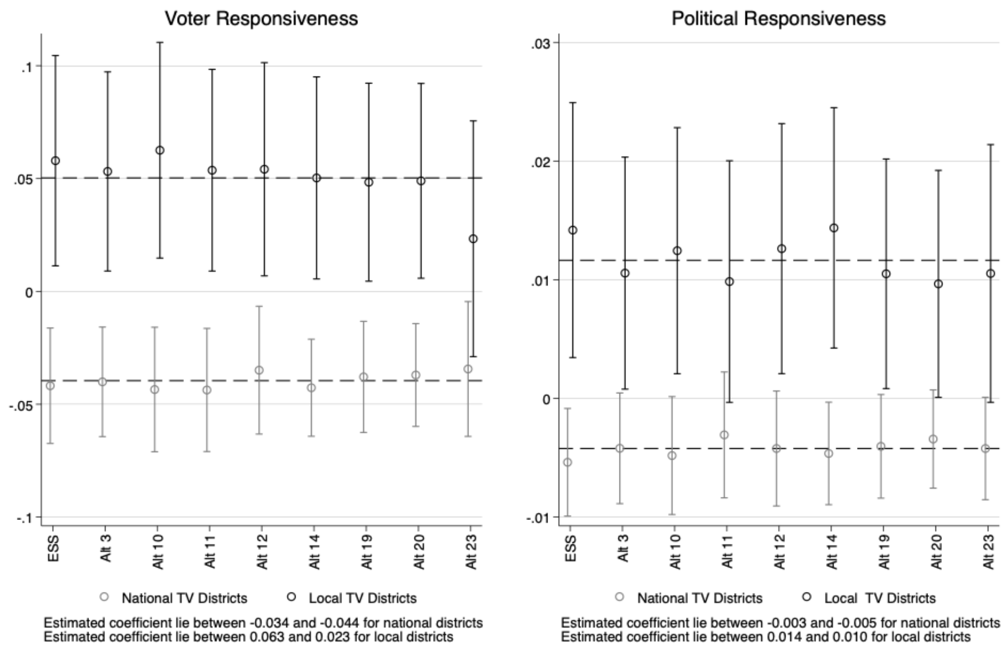
Notes: This figure reports regression estimates from the regression $Pop_{d,1931} = \beta^A signal_{d,1953} + \eta^A \mu^A_{d,1953} + \epsilon_d$, using the 23 alternatives from Table B.1. Colors denote whether the point estimate is not statistically different from zero at the 5% level.

impact on voter and political responsiveness, based on these valid alternatives. In particular, alternatives 3, 10, 11, 12, 14, 19, 20, 23 satisfy criteria (2) and (3) from Section B.1, and thus yield unbiased and consistent estimates of our treatment effect. Moreover, all point estimates for the private (local) television interaction term are significantly different from their public television counterparts.

The point estimates in both panels of Figure B.3 are remarkably stable and show a clear difference between private and public stations, despite the assumed differences in the modeled shock distribution. For example, at baseline we model the shock distribution of expected signal strength as a concave function of a transmitter's duration, and similarly do so for alternatives 12, 19 and 20. Whereas alternative 14 is modeled as a function of distance to Toronto, and alternatives 3 and 11 are simply random. Plugging these probabilities into a normal or binomial distribution similarly does not alter the point estimate. For voter responsiveness, estimates of β consistently lie within the interval $[-0.044, -0.034]$ and are significantly different from β^{Loc} in each instance, which is consistently estimated to lie within the interval $[0.023, 0.063]$. A similar pattern holds for political responsiveness.

Concluding Remarks We believe that the evidence in this section provides (i) strong support for our research design and (ii) a clear indication that our estimates are not sensitive to changes in modeling signal strength. We adopt the approach of Borusyak and Hull (2023) in our own context, laying out a set of criteria that a candidate measure of expected signal strength must satisfy for a valid research design. We show that our preferred measure of expected signal strength not only satisfies these criteria, but that many of the alternatives do as well. Importantly, we benchmark our preferred measure against all the alternative measures that satisfy these criteria, and show that the estimated treatment effect that each alternative yields is remarkably similar to our preferred measure. This body of evidence, and the

Figure B.3: Identified β and β^{Loc} on Signal Strength



Notes: This figure reports regression estimates from our baseline regression, based on the alternatives shock distributions described in Table B.1. We benchmark these estimates against ESS, our main measure of expected signal strength. The left panel plots the 8 alternatives that satisfy the necessary criteria (2) and (3), as described in Section B.1. The dashed line indicates the average point estimate across these specified alternatives.

absence of pre-trends that we document in Appendix C, provide strong support for our research design.

C Alternative Event-Study Designs and Parallel Trends

Our main estimating equation (3) is a two-way fixed effects model with an interaction term for the local television treatment of interest. In Appendix B, we document how the estimated treatment effect is conditionally random, after adjusting an estimate for its expected treatment effect. Yet the timing of this treatment varies across electoral districts, which could affect the interpretation of our coefficient of interest—most notably in terms of treatment effect heterogeneity, and whether the parallel trends assumption holds.[40]

Our coefficient of interest (β^{loc}) captures the effect of receiving local television relative to national television, conditional on receiving any television. Documenting parallel trends of this interaction term is not straightforward. First, a comparison between "ever local" and "never local" districts fails to account for the *conditional on receiving television* aspect of our identifying assumption. Second, a comparison between "ever local" and "ever television" fails to account for the time dimension of our panel. Instead, our identifying assumption requires that we compare the local television treatment to the national television treatment in the same election year. Thus, without an established rule on how to construct an event-study graph with an interaction model like ours, we proceed by comparing local television districts to national television districts in the same "lag," relative to all district values prior to receiving television.

Figure C.1 plots this event study, where the overall negative engagement effects of television are driven by the national content of the public broadcaster, with a significantly different and positive impact of local content in private television districts. Importantly, the figure provides evidence of parallel trends in a context that mirrors our main estimating equation.

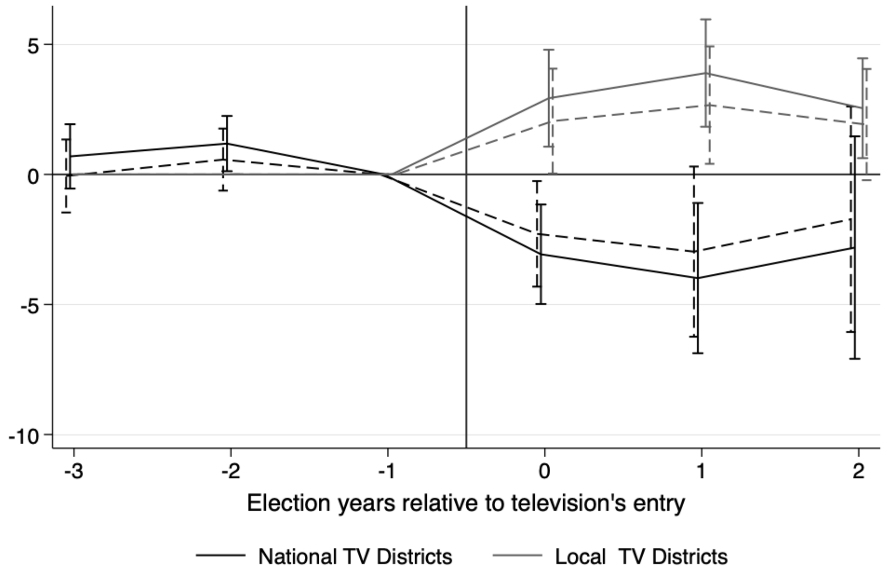
In what follows, we focus on the *average* effect of Canadian television on voter responsiveness, which we relate to a well-established set of findings that emphasize the negative impact of television on voter responsiveness in the United States (Gentzkow, 2006) and elsewhere (Ellingsen and Hernæs, 2018; Campante et al., 2022, among others). We find that the negative engagement effects of television can be replicated in the Canadian context and is robust to alternative event-study methodologies proposed by Goodman-Bacon (2021) and Sun and Abraham (2021)—both of which account for treatment effect heterogeneity. The empirical findings also conform with our expectations: the expansion and adoption of television was almost immediate in Canada, as discussed in Section 2, and so there is little reason to believe that our treatment effect should be growing over time. Somewhere between 75 percent Peers (1979) and 90 percent (Cole, 2002) of Canadians had access to television by our second observed treatment period—the 1957 federal election. Nevertheless, we proceed to show that the assumptions of parallel trends and homogeneous treatment effects hold in our context.[41]

Motivating Evidence of Parallel Trends We plot our main event study in Panel (a) of Figure C.2. Here, we rely on a standard trimmed event-study plot, without and with covariates. In Panel (b), we reproduce

[40]These concerns reflect the burgeoning literature on the interpretability of two-way fixed effects models and event-study designs. The main insights that we have in mind here come from De Chaisemartin and D'Haultfœuille (2020); Goodman-Bacon (2021); Sun and Abraham (2021); Borusyak et al. (2024) and more.

[41]Throughout this section, we discretize our treatment variable to equal one for signal strength values greater than 50 dbμV/m.

Figure C.1: Event-Study Plot



Notes: Event study of model (3) with election-year t-1 as the omitted year, based on a panel of electoral districts across election-years (1935-1958). Treatment is a discrete variable equal to one if television signal strength is greater than 50 dbμV/m. The outcome is *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout. Dashed lines reflect estimates conditional on model covariates. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Intervals reflect 95% confidence.

this plot but add the never-treated from the trimmed sample as a comparison group in the last period before treatment.

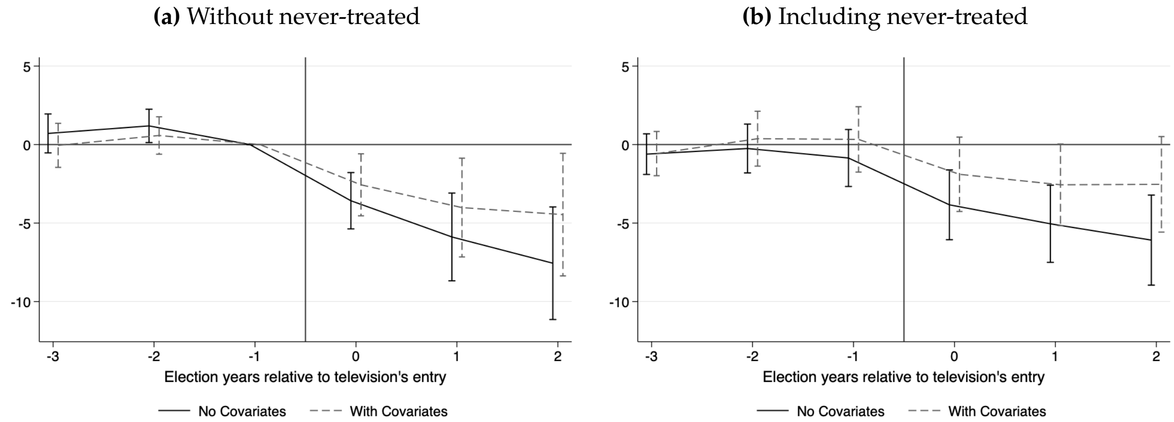
The inclusion of the never-treated serves two purposes. First, it enables more efficient estimation of the leads and lags by reducing the size of our estimated standard errors. Second, it alters the composition of the control groups and thus allows us to gauge the effect of different treatment-control comparisons. While panel (a) only compares early- to late-treated districts, the right panel adds the comparison of early-control and late-control. If the inclusion of the never-treated significantly changes either the leads or lags, then it would provide evidence of treatment effect heterogeneity across groups (Sun and Abraham, 2021). The absence of any meaningful change in estimates across panel (a) and (b) provides evidence in favor our empirical design.

C.1 Decomposition of Treatment Cohorts

Our panel of electoral districts includes three potential treatment cohorts, based on the timing of Canadian federal elections: 1953, 1957 or 1958. This implies districts receive treatment at different times and that the same district may serve as a control district and a treated district in our difference-in-differences framework, depending on the timing of treatment. Recent research shows that, in a similar framework to ours, the staggered introduction of treatment can put negative weights on cohort treatment effects (De Chaisemartin and D'Haultfœuille, 2020; Borusyak et al., 2024). In principle, this could switch the sign of the estimate if the treatment effect grows over time (Goodman-Bacon, 2021).

We thus proceed by decomposing our estimate into cohort treatment effects, as suggested by Goodman-

Figure C.2: Event-Study Plots



Notes: Event study estimates based on a panel of electoral districts across election-years (1935-1958). Treatment is a discrete variable equal to one if television signal strength is greater than 50 dbμV/m. The outcome is *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout. Panel (a) excludes electoral districts that never receive television in our sample, while Panel (b) includes them at period $t-1$. Both figures provide evidence in favor of parallel trends and support our research design. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Intervals reflect 95% confidence.

Bacon (2021), to assess the weights associated with each treatment comparison. Panel (a) of Figure C.3 plots our findings from this decomposition, where we color-code cohort treatment effects relative to never-treated districts in grey, and early-treated versus late-treated cohort comparisons in black. The dashed horizontal line represents the average treatment effect on the treated (-2.046, s.e. 0.537), which we estimate using the Goodman-Bacon (2021) decomposition.

The largest weights are for the 1953 cohort—the earliest treatment cohort. We estimate a treatment effect of -3.122 for the 1953 cohort relative to the never-treated, and -2.510 relative to the 1957 cohort—the second treatment cohort. In total, these two treatment effects make up 65 percent of the variation in the average treatment on the treated. If we abstract from early-late comparisons and focus only on comparison of the treated versus never-treated, we find a slightly smaller coefficient of -1.768. In this instance, the 1953 cohort weights make up 71 percent of estimated treatment effect alone, indicating a valid research design.

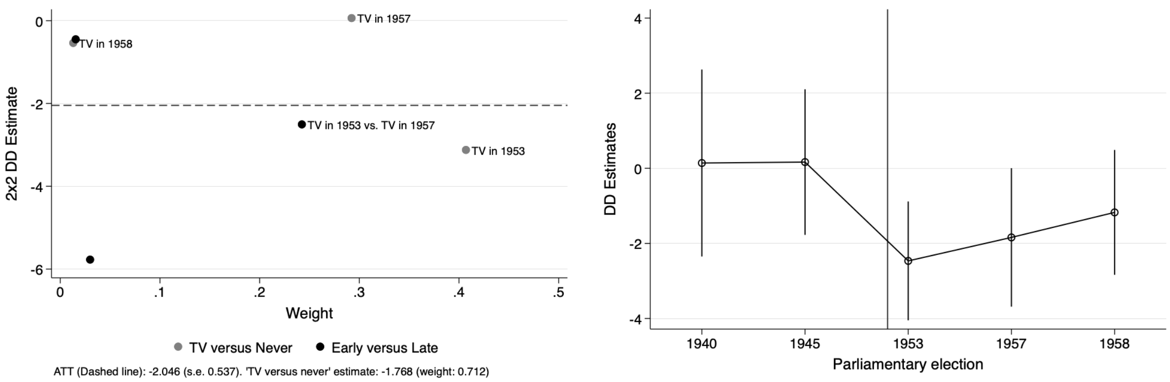
In Panel (b) of Figure C.3, we make a similar point in a different way. We abstract from multiple treatment periods—focusing on the 1953 treatment cohort—in a simple difference-in-differences setting, where we document near-perfect evidence of parallel trends prior to television's arrival, and a dynamic effect similar to our event-study estimates in Figure C.2.

Next, we compare Sun and Abraham's (2021) interaction weighted (IW) estimator to our traditional trimming estimator without and with our baseline set of covariates. The IW estimator accounts for treatment effect heterogeneity by weighting treatment cohort effects by their sample shares. Thus, comparing these estimates to the traditional trimming estimator allows us to draw inference about treatment effect homogeneity (Sun and Abraham, 2021, Proposition 4, Equation 19). Figure C.4 plots an event study, and includes estimates from (i) Sun and Abraham's (2021) IW estimator, (ii) a trimming estimator without covariates and (iii) a trimming estimator with covariates. All three estimators produce no evidence of a concerning pre-trend, suggesting that in terms of our outcome—voter turnout—electoral districts ex-

Figure C.3: Goodman-Bacon Decomposition

(a) Decomposition

(b) Pre-trends for 1953 treatment cohort



Notes: Treatment is a discrete variable equal to one if television signal strength is greater than 50 dbμV/m. The outcome is *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout. Panel (a) subfigure reports the Goodman-Bacon (2021) decomposition weights and point estimates associated to the three treatment groups 1953, 1957, and 1958. Panel (b) figure plots the leads and lags for the 1953 treatment cohort compared to the never treated units. The dashed horizontal line represents the average treatment effect on the treated (-2.046, s.e. 0.537), which we estimate using the Goodman-Bacon (2021) decomposition. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Intervals reflect 95% confidence.

hibit parallel trends prior to treatment. All estimators also estimate the same immediate treatment effect when television is introduced (period 0). This is especially true when comparing the IW estimator to the trimming estimator with controls, where we observe almost no difference in treatment effects over time.

In summary, we believe that our research design is valid. The IW estimator provides no evidence of treatment effect heterogeneity across time, and the weighted average of cohort treatment effects that we estimate at baseline is largely derived from the early adopters of television. Negative weights are also unlikely to affect our estimator for two reasons: the rapid expansion and uptake of television suggests there is little reason to believe that our treatment effect should be growing over time, and this intuition is validated by the decomposition of our estimate into weights, where our treatment effect is mainly derived from a clean comparison of the treated to the never-treated cohort (Goodman-Bacon, 2021).

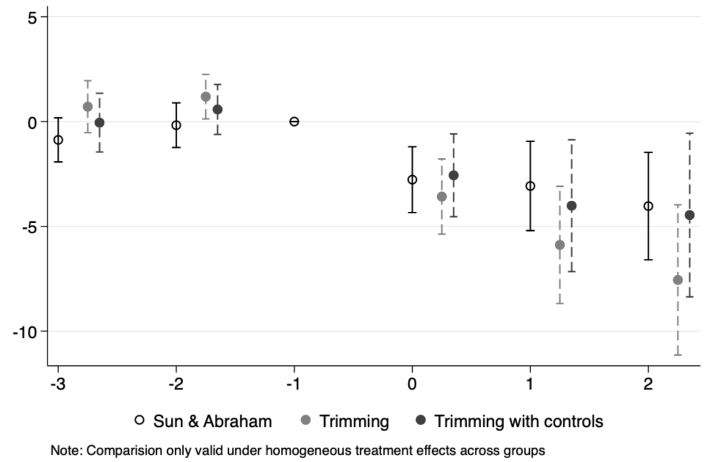
C.2 Extended Panel Event-Study Design

Our sample period is defined by the one-station policy that remained in effect between 1952-1958, with federal elections—and thus treatment cohorts—occurring in 1953, 1957 and 1958.[42] At the time of the 1953 election, 98 out of 263 electoral districts receive treatment (i.e., television). By the 1957 election, 83 additional districts are treated and finally 6 more in 1958. Yet, the need to truncate the data in 1958 implies that the last lag of our event-study specification is only estimated from the first 98 electoral districts.

In this section, we extend our panel to 1968, which includes four additional election years: 1962, 1963, 1965 and 1968. We fix each district to its 1958 treatment status, thus allowing us to observe *all* cohorts for three lags after treatment—something that is not possible for the 1957 and 1958 treatment cohorts in our baseline sample. We can thus increase the precision of our estimates with this sample extension.

[42] Refer to Section 2 for details of the policy.

Figure C.4: Event Study with Sun and Abraham's (2021) IW Estimator



Notes: Sun and Abraham's (2021) interaction weighted (IW) estimator, based on a panel of electoral districts across election-years (1935-1958). Treatment is a discrete variable equal to one if television signal strength is greater than 50 dbμV/m. The outcome is *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout. The plot is a comparison of the trimming estimator without and with our baseline set of covariates. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Intervals reflect 95% confidence.

Panel (a) of Figure C.5 plots an event study for this extended panel with added precision in the pre- and post-period estimates, relative to Figure C.2. In panel (b), we again observe no differential pre-trends prior to treatment and a significant post-treatment fall in voter turnout after the arrival of television.

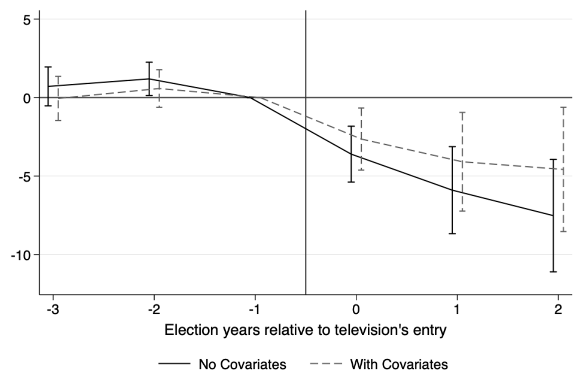
The extended panel also allows us to trace the effects of the one-station policy to later elections. Here, we consider two alternative but related estimation strategies: (i) hold the 1958 treatment status fixed ("one-station policy treatment") and (ii) use the complete set of treatments after 1958, despite the fact that any subsequent transmitter installations were the by-product of endogenous market forces between 1959-1968. In Panel (a) of Figure C.6, we compare strategies (i) to (ii), noting that when including the full set of treatments in (ii), the point estimates remain remarkably stable over time within a range of -0.037 and -0.030, and are precisely estimated. This result suggests that the one-station policy continued to affect turnout in later elections in a similar way. Moreover, the fraction of never-treated observations decrease to only 12 percent in (ii), as a significant fraction of the never-treated in (i) become not-yet-treated observations instead. Altogether, this provides evidence against heterogeneous treatment effects across cohorts.

Finally, in panel (b) of Figure C.6, we report the point estimates separately by public and private television to test whether a crowding out is indeed affecting the estimates in Figure C.6. Again, the point estimates of the one-station policy is lower, yet remain significant over time. Especially the impact of private TV remains stable in a range 0.040-0.046.

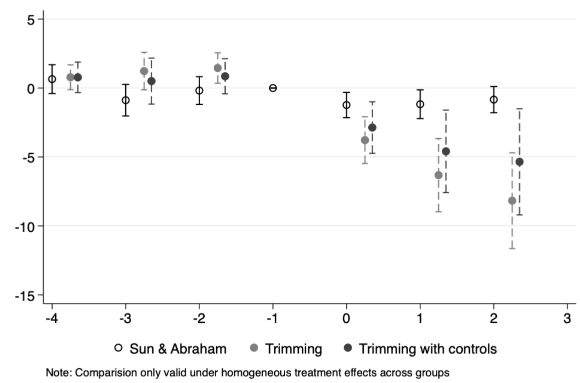
Concluding Remarks The evidence we present in this section supports the necessary assumptions of our research design, including an absence of differential trends and heterogeneous treatment effects. We also believe that our ability to replicate the negative engagement effects of television that have been documented elsewhere is further validation of our empirical design in the Canadian context.

Figure C.5: Extended Panel Analysis

(a) Baseline Event-Study Design



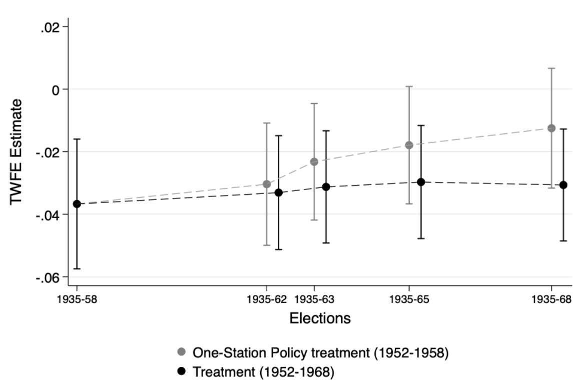
(b) Sun and Abraham's (2021) IW-Estimator Design



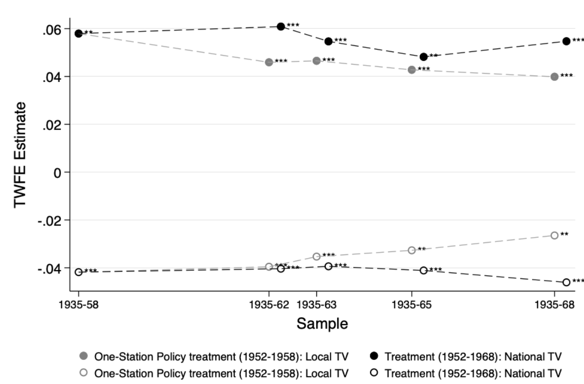
Notes: Sun and Abraham's (2021) interaction weighted (IW) estimator, based on a panel of electoral districts across election-years (1935-1968). Treatment is a discrete variable equal to one if television signal strength is greater than 50 dbμV/m. The outcome is *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout. Panel (a) is a replication of the baseline event study estimator. Panel (b) plots a comparison of the trimming estimator without and with our baseline set of covariates. Importantly, we fix treatment according to the 1958 treatment status, but estimate the reported effects from the extended 1935-1968 panel, thus allowing us to observe three periods before and after treatment for the later treatment cohorts. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Intervals reflect 95% confidence.

Figure C.6: Coefficients in the extended panel

(a) Television Treatment



(b) Public v Private Television Treatment



Notes: Equation (3) estimates, based on a panel of electoral districts across election-years (panel years noted in figure). Treatment is a discrete variable equal to one if television signal strength is greater than 50 dbμV/m. The outcome is *Voter Responsiveness*—the total votes cast relative to the size of the electorate, or voter turnout. Panel (a) reports estimates from our main specification with covariates, based on the two alternative estimation strategies. Panel (b) plots the equivalent estimates for national (public) television and local (private) television. Covariates include pre-treatment measures of population density, earnings, age, literacy and urbanization, all interacted with election-year fixed effects. Intervals reflect 95% confidence.

D Data Description and Sources

Federal electoral district maps: We digitized federal electoral district (FED) maps for all years relevant to our extended sample period, 1935-1968. Over this sample period, FED boundaries were redrawn three times, so we collected and digitized the following set of FED boundaries:

- The Representation Order of 1933-1947
- The Representation Order of 1947-1952
- The Representation Order of 1952-1966
- The Representation Order of 1966-1976

For each Representation Order, we digitize FED boundaries from scanned maps using ArcGIS. We crosswalk these maps using the procedure outlined in Eckert et al. (2020), thus giving us a consistent spatial unit of observation for the sample period. We use the 1952 distribution as our "reference map" because this is the same year television arrives, and all other distributions as our "reporting maps," which we re-aggregate to the reference map.
Source: Scanned maps of the 1933 Representation Order were acquired from two sources, the University of Toronto's *Map and Data Library* and the University of Alberta's *Digital Repository and Data Services*. Scanned maps of the 1947 Representation Order are from Western University's *Map and Data Centre* as well as University of Alberta's *Digital Repository and Data Services*. Scanned maps for both the 1952 and 1966 Representation Orders were acquired directly from *Library and Archives Canada*.

Television Signal Strength: We require a variety of information on television transmitters before we can estimate signal strength. In addition to the installation date of a transmitter, we require information on the height and service power of each transmitter, as well as their latitude and longitude coordinates. We piece these data together from three archival documents located at *Library and Archives Canada*.

1. *List of Television Stations in Canada*: This set of records was produced by the Stations Relations division of the CBC and is the starting point of our data. It documents basic information about every television transmitter installed between 1952-1969, including station call signs, public or private ownership, service power of the transmitter and its opening date, among other details. This gives us information on all 323 transmitters and rebroadcasters installed by 1969.

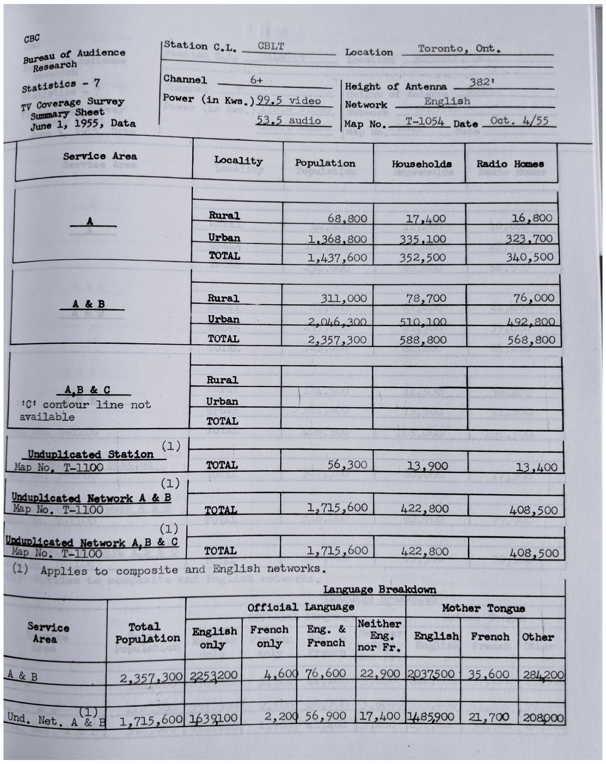
2. *Television Coverage in Canada*: This set of records was produced by the Statistics Division of the Bureau of Audience Research at the CBC, and includes additional details for television transmitters, including antenna height, channel number and network information. Panel (a) of Figure D.1 provides an example from this set of records for CBLT Toronto.

3. *List of Broadcasting Stations in Canada*: This set of records was produced by the Canadian Radio-Television Commission, and includes information on latitude and longitude coordinates for radio broadcast stations, among other details. Especially in the early days of television, radio and television signals were broadcast from the same transmitters, allowing us to deduce the location coordinates for each television station. Panel (b) of Figure D.1 provides an example from this set of

records, where CBC station CBL (radio) was broadcast from the same transmitter as CBC station CBLT (television).

Figure D.1: Example Archival Records

(a) CBLT Transmitter Details



CBC
Bureau of Audience Research
Statistics - 7
TV Coverage Survey
Summary Sheet
June 1, 1955, Data

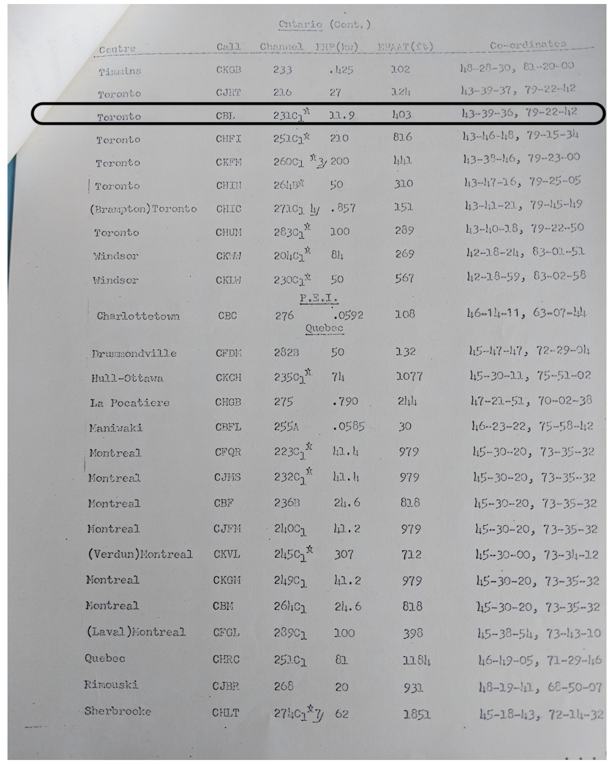
Station C.L. CBLT Location Toronto, Ont.
Channel 6+ Height of Antenna 382'
Power (in Kws.) 99.5 video Network English
53.5 audio Map No. T-1054 Date Oct. 4/55

Service Area	Locality	Population	Households	Radio Homes
A	Rural	68,800	17,400	16,800
	Urban	1,368,800	335,100	323,700
	TOTAL	1,437,600	352,500	340,500
A & B	Rural	311,000	78,700	76,000
	Urban	2,046,300	510,100	492,800
	TOTAL	2,357,300	588,800	568,800
A,B & C 'C' contour line not available	Rural			
	Urban			
	TOTAL			
Unduplicated Station (1) Map No. T-1100	TOTAL	56,300	13,900	13,400
Unduplicated Network A & B (1) Map No. T-1100	TOTAL	1,715,600	422,800	408,500
Unduplicated Network A,B & C (1) Map No. T-1100	TOTAL	1,715,600	422,800	408,500

(1) Applies to composite and English networks.

Service Area	Total Population	Language Breakdown: Official Language				Mother Tongue		
		English only	French only	Eng. & French	Neither Eng. nor Fr.	English	French	Other
A & B	2,357,300	2253200	4,600	76,600	22,900	2037500	35,600	284200
Und. Net. A & B (1)	1,715,600	1639100	2,200	56,900	17,400	1485900	21,700	208000

(b) CBLT Transmitter Location



Ontario (Cont.)

Centre	Call	Channel	ERP(kw)	EHAAT(ft)	Co-ordinates
Timmins	CKGB	233	.425	102	48-28-30, 81-20-00
Toronto	CJRT	216	27	124	43-39-37, 79-22-42
Toronto	CBL	$231C_1$*	11.9	403	43-39-36, 79-22-42
Toronto	CHFI	$251C_1$*	210	816	43-46-48, 79-15-34
Toronto	CKFM	$260C_1$* 3/	200	441	43-38-46, 79-23-00
Toronto	CHIN	264B*	50	310	43-47-16, 79-25-05
(Brampton)Toronto	CHIC	$271C_1$ 4/	.857	151	43-41-21, 79-45-49
Toronto	CHUM	$283C_1$*	100	289	43-40-18, 79-22-50
Windsor	CKWW	$204C_1$*	84	269	42-18-24, 83-01-51
Windsor	CKLW	$230C_1$*	50	567	42-18-59, 83-02-58
P.E.I.					
Charlottetown	CBC	276	.0592	108	46-14-11, 63-07-44
Quebec					
Drummondville	CFDM	282B	50	132	45-47-47, 72-29-04
Hull-Ottawa	CKCH	$235C_1$*	74	1077	45-30-11, 75-51-02
La Pocatiere	CHGB	275	.790	244	47-21-51, 70-02-38
Maniwaki	CBFL	255A	.0585	30	46-23-22, 75-58-42
Montreal	CFQR	$223C_1$*	41.4	979	45-30-20, 73-35-32
Montreal	CJMS	$232C_1$*	41.4	979	45-30-20, 73-35-32
Montreal	CBF	236B	24.6	818	45-30-20, 73-35-32
Montreal	CJFM	$240C_1$	41.2	979	45-30-20, 73-35-32
(Verdun)Montreal	CKVL	$245C_1$*	307	712	45-30-00, 73-34-12
Montreal	CKGM	$249C_1$	41.2	979	45-30-20, 73-35-32
Montreal	CBM	$264C_1$	24.6	818	45-30-20, 73-35-32
(Laval)Montreal	CFGL	$289C_1$	100	398	45-38-54, 73-43-10
Quebec	CHRC	$251C_1$	81	1184	46-49-05, 71-29-46
Rimouski	CJBR	268	20	931	48-19-41, 68-50-07
Sherbrooke	CHLT	$274C_1$* 7/	62	1851	45-18-43, 72-14-32

Notes: These example documents provide insight into how we piece together the necessary information for each television station in our data. Panel (a) includes information for CBLT Toronto, including the service power, antenna height and more. Panel (b) includes information about CBL—the radio station affiliate of CBLT—with latitude and longitude coordinates for the transmitter that broadcast CBL's radio signal and CBLT's television signal. Together with the *List of Television Stations in Canada* document, these two documents provide the information needed to estimate signal strength with the Irregular Terrain Model.

We use the Irregular Terrain Model (ITM) to estimate the attenuation of signal strength across space, based on the timing and location of television transmitter installation. The ITM approach takes into account the elevation profile between a transmitter and its surrounding region, adjusting estimates for any topographic interruption of a signal. Television signal strength is thus an outcome of a transmitter's features, net of topographic interruptions. We use CloudRF to make these ITM estimates, a cloud-based service for modeling signal propagation across space.

Our extended sample runs until 1968, which includes the following election years after television's arrival: 1953, 1957, 1958, 1962, 1963, 1965 and 1968. Based on our ITM estimates and the timing of a transmitter's installation, we can determine the spatial coverage of television signal strength in any given election year. We map these data onto electoral districts using the digitized maps described above to construct an average measure of district signal strength.

Source: The *List of Television Stations in Canada* is available from the Library and Archives Canada as a standalone file, with reference number RG41-B-II-2, Volume number: 590, File number: 236, File part: 1. Whereas both *Television Coverage in Canada* and *List of Broadcasting Stations in Canada* come from a series of textual records titled *Canadian Broadcasting Corporation (C.B.C.)*, with reference number R2551-1-6-E, MG30-E273.

Aggregating Signal Strength to Electoral Districts: An average measure of signal strength can introduce measurement error for large districts with few people living across large swathes of land. Districts of this type are common in a large country like Canada, where outside of major cities the size of a district is quite large. We overcome this aggregation problem using a population-weighted method, where we first aggregate our ITM estimates to the smallest available statistical area in Canada: the census subdivision (CSD). We match 1951 census population data to these CSDs to use as weights when aggregating from CSDs to electoral districts. We successfully match 1951 population data to 92.4 percent of CSDs, and supplant missing values with the last available year, starting with 1941, then 1931 if 1941 is not available, and so on. This procedure guarantees that even in large electoral districts we obtain accurate estimates of the signal strength received by the electorate, as densely populated CSDs are up-weighted in the aggregation, while sparsely populated CSDs are down-weighted. This procedure gives us a measure of television signal strength at the electoral district level, which varies across election years in accordance with the building of new television transmitters over our sample period.

Because television markets do not necessarily overlap with electoral districts, some districts are assigned a value of signal strength well below what any viewer would deem of satisfactory quality, and in some instances simply unwatchable. At baseline, we apply a minimum threshold for a district's average signal strength of 50 dbμV/m. This threshold is based on the Government of Canada's minimum requirement of 47 dbμV/m for a Grade B service contour, which by definition is a signal level the Government of Canada deems "to be adequate, in the absence of man-made noise or interference from other stations, to provide a picture which the median observer would classify as of satisfactory quality." (ISED, 2016, p. 12) With this transformation, signal strength increases continuously for values greater than 50 dbμV/m and is set to zero otherwise.
Source: The harmonized decennial census population data we match to CSDs are at `https://borealisdata.ca/file.xhtml?fileId=277432&version=2.10`.

Voter Responsiveness: We calculate voter responsiveness as the ratio of total votes cast in electoral district relative to the size of the electorate, for every district d in election year t. In other words, this is a measure of voter turnout. We do not include by-elections.
Source: Election Canada's Report of the Chief Electoral Officer, Table 5, Summary of General Election Results by Electoral District.

Political Party Vote Shares: We calculate party vote shares as the votes cast for a given party divided by all votes cast, for each electoral district d in election year t. In our analysis, we report results based on two different shares:

1. Liberal party vote share.
2. Conservative party vote share.

Source: Information on candidates, party affiliation and total votes was scraped from Parliament of Canada's Parlinfo website, https://lop.parl.ca/sites/ParlInfo/default/en_CA/.

Vote Shares for Politically Left and Right Parties: We calculate the share of votes for left-leaning and right-leaning political parties as a fraction of all votes cast, for each electoral district d in election year t. We assign political parties as "left" or "right" through a variety of methods. Institutional knowledge of the Canadian political system makes the assignment of some parties non-controversial, particularly the parties that receive most of the votes; e.g., the Liberal party is left-leaning and the Conservative party is right-leaning. For lesser-known fringe parties, we use party websites, and various online sources such as Wikipedia to deduce the political alignment. Any possible measurement error introduced here is assumed to be minimal, since these fringe parties make up a tiny portion of the total votes cast, and typically only have a candidate on the ballot in only a few districts in a given election year.
Source: Information on candidates, party affiliation and total votes was scraped from Parliament of Canada's Parlinfo website, https://lop.parl.ca/sites/ParlInfo/default/en_CA/.

Incumbent Win Margin: We calculate an incumbent's win margin in district d in election year t based on vote shares from the 1953 and 1957 elections. We address Canada's multi-party system by creating two artificial parties in each district. The winning party of a district in the 1953 election designates the incumbent, and their win margin is calculated as the difference in vote shares with the largest opposition party. If the incumbent's party is re-elected, the same calculation is made for the 1957 election. If not, then we calculate the difference between the unseated incumbent's vote share and the winning candidate's vote share in 1957.
Source: Information on candidates, party affiliation and total votes was scraped from Parliament of Canada's Parlinfo website, https://lop.parl.ca/sites/ParlInfo/default/en_CA/.

Political Responsiveness: We develop an index of political responsiveness that is constructed three different measures of how members of Parliament (MP) speak in the House of Commons—Canada's lower house of Parliament. All measures are based on the universe of speeches given by MPs over our sample period, and designed to capture the frequency and intensity of how often politicians speak about the local communities they represent.

Our starting point is the Canadian Geographical Names Database, which includes latitude and longitude coordinates for the populated places, administrative areas, as well as various geographic features. Based on the database variable "Generic Category," we keep only names and coordinates associated with populated places; i.e., we collect the name and location coordinates of all places with permanent human settlements in Canada. We create a "dictionary" of these places, and build an algorithm that identifies any populated place mentioned in a speech. The algorithm then calculates the distance between each mentioned place and the district of the politician who mentions the populated place. By design, this gives us the following information that varies by electoral cycle:

(i) The total number of speeches given by an MP where any populated place is mentioned;

(ii) The total number of speeches given by an MP where a populated place within the district they represent is mentioned.

With this information, we construct two extensive margin measures of speech localness:

(1) *Mention local* is an indicator equal to one if an MP ever mentions a populated place within their district over the election cycle, and zero otherwise. In other words, when (ii) is greater than zero.

(2) *Speech locality* is the fraction of place-based speeches given by a politician in an electoral cycle where they mention a populated place within their own district. In other words, the ratio of (ii) over (i).

With our algorithm, we can also determine the following information that varies at the speech level:

(iii) The number of populated places mentioned in a speech;

(iv) The number of populated places within the MPs district mentioned in a speech.

With this information, we construct an intensive margin measure of speech localness:

(3) *Place locality* is the fraction of populated places mentioned in a speech that fall within a given MP's district, and averaged over all of their speeches mentioning a populated place within an electoral cycle. In other words, the ratio of (iv) over (iii) for a given MP, and averaged over all of their speeches mentioning a populated place within an electoral cycle.

Finally, we take measures (1) through (3) and construct a standardized index following the method of Anderson (2008). In particular, each variable is standardized to mean-zero with a variance of one, thus ensuring each variable is measured on the same scale. We combine these by summing the standardized variables, weighting each variable by the inverse of the covariance matrix of the standardized outcomes.
Source: We obtain the digitized version of House of Common debates from Beelen et al. (2017). The Canadian Geographical Names Database list of populated places is available at `https://natural-resources.canada.ca/earth-sciences/geography/download-geographical-names-data/9245`.

Political Accountability: We construct an index of accountability, based on roll-call voting records for every vote held in Parliament over our sample period. In particular, we develop two related measures of an MP's willingness to vote against their own party (i.e., dissent). For our first measure, *Share Dissent*, we aggregate each occurrence of dissent for each MP that represents district d in election year t. Because this outcome variable includes many zeros, we use the inverse hyperbolic sine transformation. For our second measure, we define an indicator variable equal to one if an MP representing district d votes against their party at any point over the election cycle t. We again aggregate these variables into a standardized index following the method of Anderson (2008).
Source: Roll-call voting records are from Godbout and Høyland (2017).

Population Density: We measure population density as the ratio of an electoral districts total population divided by area. Electoral district population is based on 1931 data from the decennial census.
Source: Election Canada's 1935 Report of the Chief Electoral Officer, Table 5, Summary of General Election Results by Electoral District.

Earnings: We construct a measure of district-level earnings, based on a five percent sample of the 1911 decennial census. The census contains two variables, EARNINGS_AT_CHIEF_OCC and EARNINGS_AT_OTHER_OCC, which are measures of the total amount of money earned by the person being enumerated at their chief occupation and other occupation, respectively. From these, we construct an aggregate measure of total earnings of each enumerated individual in the census, and then calculate the average total earnings at the CSD level, based on census ID variable CCRIUID_CSD_1911. We then intersect our digitized CSD and electoral district maps in ArcGIS to determine the share of area for a CSD that corresponds to an FED, and aggregate our earnings measure up to the electoral district level using the shares as weights. This gives us our final measure of average district-level earnings.
Source: Census of Population, 1911, https://doi.org/10.5683/SP3/MDTWGJ, Borealis, V2.

Average Age: We construct a measure of district-level average age, based on a five percent sample of the 1911 decennial census. The census contains a variable, DERIVED_AGE, which measures the age of the enumerated individual. We calculate the average age at the CSD level, based on census ID variable CCRIUID_CSD_1911. We then intersect our digitized CSD and electoral district maps in ArcGIS to determine the share of area for a CSD that corresponds to an FED, and aggregate our age measure up to the electoral district level using the shares as weights. This gives us our final measure of the average age in a district.
Source: Census of Population, 1911, https://doi.org/10.5683/SP3/MDTWGJ, Borealis, V2.

Literacy Rates: We construct a measure of district-level literacy rates, based on a five percent sample of the 1911 decennial census. The census contains two variables, CAN_READ and CAN_WRITE, which are both indicators equal to 1 if the enumerated individual can read or write, respectively. From these, we construct a literacy variable equal to one if an individual can read or write, and zero otherwise, and then calculate average literacy at the CSD level, based on census ID variable CCRIUID_CSD_1911. This approach yields the percent of literate enumerated individuals. We then intersect our digitized CSD and electoral district maps in ArcGIS to determine the share of area for a CSD that corresponds to an FED, and aggregate our literacy measure up to the electoral district level using the shares as weights. This gives us our final measure of a district's literacy rate.
Source: Census of Population, 1911, https://doi.org/10.5683/SP3/MDTWGJ, Borealis, V2.

Urbanization Rates: We construct a measure of district-level literacy rates, based on a five percent sample of the 1911 decennial census. The census contains a variable, CCRI_URBAN_RURAL_1911, which indicates if the geographic location where an enumerated individual lives is classified as urban or rural. We assign a new variable equal to one if urban, and zero otherwise, and then calculate average urbanization at the CSD level, based on census ID variable CCRIUID_CSD_1911. This approach yields the percent of enumerated individuals living in an urban area. We then intersect our digitized CSD and electoral district maps in ArcGIS to determine the share of area for a CSD that corresponds to an FED, and aggregate our urbanization measure up to the electoral district level using the shares as weights. This gives us our final measure of a district's urbanization rate.
Source: Census of Population, 1911, https://doi.org/10.5683/SP3/MDTWGJ, Borealis, V2.

Major Cities Newspaper Circulation: We use information on daily newspaper circulations from every edition of the *Canada Year Book* from 1945 to 1958. The total circulation of daily and weekly English-language newspapers for 42 major urban centers are reported for different years across these editions, which we piece together into a panel that runs from 1945-1958. A few of the urban centers do not appear in all years, although the majority do. The *Canada Year Books* also report population estimates for the urban centers, based on the most recent decennial census. We collect these population estimates for the census years 1941, 1951 and 1961, and interpolate the data to fill in the gaps for the years between census. Altogether, these data allow us to calculate the total circulation of daily and weekly newspapers, as well as their per capita transformations, for our panel of 42 major urban centers between 1945-1958.
Source: The *Canada Year Books* for the years 1945-1958.

Local and National Content Records: Content information for our sample period is pieced together from the Royal Commission on Broadcasting's 1957 report. Each week is divided into four time segments. General audience hours are Monday-Friday 18:30-21:00 and Saturday-Sunday from 6:00-21:00. Daytime audience hours are Monday-Friday 6:00-16:30. Adult audience hours are Monday-Sunday 21:00-6:00. Children audience hours are Monday-Friday 16:30-18:30. Our calculations are based on a daily programming schedule of 7:00 a.m. to 12:00 a.m., or 119 total hours for a week. We collect the percentage of airtime devoted to entertainment content for different time segments throughout the week, which allow us to infer the percentage of airtime devoted to information-oriented content. From this, we can calculate the total hours devoted to informational and entertainment content in a week: private stations broadcast 36.7 hours of informational content and public stations broadcast 35.8 hours, or 30.8 and 30.1 percent of total airtime respectively. We report these numbers in the first two columns of Table 1. We also collect information on the extent of content that is nationally produced ("network content") and locally produced ("recorded local" plus "local live"), which is separately available for public and private stations. We use the percent of national and local content for each time segment to calculate the hours of locally and nationally produced informational content aired on public and private stations separately. We report these numbers in the last two columns of Table 1.
Source: Canadian Television and Sound Radio Programmes, Appendix XIV, Royal Commission on Broadcasting, 1957. The percentage of airtime devoted to entertainment content is reported in the table on page 91, "Proportions of total time in each time segment devoted to entertainment-type programmes, by class of station." The extent of local and national informational content is reported in the table on page 122, "Percent of entertainment-type and information-orientation-type programming originated as network, recorded local and live local by class of station and audience time segment."

Information and Entertainment Content Records: Content information for our sample period comes from the Royal Commission on Broadcasting's 1957 report. Public television values correspond to the table row labeled "Total CBC Stations" and private television values correspond to the table row labeled "Total Private Stations."
Source: Canadian Television and Sound Radio Programmes, Appendix XIV, Royal Commission on Broadcasting, 1957, page 46, "Canadian television and sound radio stations: entertainment-type and information-orientation-type programmes as percentage of total time on the air, January 15-21, 1956".