

# The Political Legacy of Entertainment TV\*

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## Abstract

We study the political impact of commercial television in Italy exploiting the staggered introduction of Berlusconi's private TV network, Mediaset, in the early 1980s. We find that individuals with early access to Mediaset all-entertainment content were more likely to vote for Berlusconi's party in 1994, when he first ran for office. The effect persists for five elections and is driven by heavy TV viewers, namely the very young and the elderly. Regarding possible mechanisms, we find that individuals exposed to entertainment TV as children were less cognitively sophisticated and civic-minded as adults, and ultimately more vulnerable to Berlusconi's populist rhetoric.

**Keywords:** Entertainment TV, Voting, Cognitive Abilities, Civic Engagement

**JEL codes:** L82, D72, Z13

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# 1 Introduction

There is extensive evidence that exposure to biased news on TV can influence viewers' voting decisions (DellaVigna and Kaplan, 2007; Enikolopov et al., 2011). News programs represent, however, just a fraction of total TV airtime,<sup>1</sup> and other types of content may also influence viewers' attitudes. Indeed, previous research indicates that, by priming particular cultural models, light entertainment shows, soap operas, and advertising can have important and persistent effects on various types of non-political behavior, such as civic engagement, gender attitudes, and consumption choices (Putnam, 2000; Olken, 2009; Jensen and Oster, 2009; Bursztyrn and Cantoni, 2016; La Ferrara et al., 2012).<sup>2</sup> In addition, there is evidence that exposure to television at a young age can influence cognitive skills, though with contrasting effects for educational and entertainment programs (Ennemoser and Schneider, 2007; Kearney and Levine, 2015b; Christakis et al., 2004; Hancox et al., 2005; Zimmerman and Christakis, 2007).

In this paper we show that entertainment TV can also influence political attitudes. We study this question exploiting the staggered expansion of Silvio Berlusconi's commercial TV network, Mediaset, across Italian municipalities in the 1980s. In particular, we compare similar municipalities that were exposed to Mediaset channels before and after 1985, and analyze differences in voting outcomes over the following three decades. Crucially, in the early stages of the diffusion of Mediaset, when some areas had access to the network and others did not, Mediaset channels were entirely devoted to light entertainment and movies; educational content was largely absent, and newscasts were only introduced in 1991, when access to the network was virtually ubiquitous. Hence, this episode provides a unique opportunity to isolate the effect of entertainment TV content. Our empirical analysis exploits unique data on the location and technical characteristics of Mediaset transmitters active in 1985. These transmitters were inherited from a multitude of local TV stations that were progressively incorporated into the network in the early 1980s, more than a decade before Berlusconi entered politics. It is therefore unlikely that their location was directly functional to Berlusconi's later political ambitions. Nonetheless, Mediaset coverage in 1985 may have been correlated with other local characteristics that could have affected electoral outcomes in ways other than through TV. To address this concern, following previous work by Olken (2009), we regress our outcomes of interest on Mediaset signal strength controlling for the hypothetical signal strength in the absence of geomorphological obstacles, for various terrain characteristics, and for electoral district and local labor market fixed effects. Hence, we identify the effect from the residual variation in signal strength due to idiosyncratic geographic factors within narrow areas,

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<sup>1</sup>According to the 2010 CRE Video Consumer Mapping Study, Americans devote only 18.2% of their total watching time to news, compared to 46.8% to entertainment programs and 21.8% to advertising.

<sup>2</sup>For a comprehensive survey of previous work on the social and economic impact of mass media, see DellaVigna and La Ferrara (2016).

which is uncorrelated with both past electoral outcomes and a wide range of municipal characteristics.<sup>3</sup>

We find that municipalities exposed to Mediaset prior to 1985 displayed higher support for Berlusconi’s party, *Forza Italia*, when he first ran for election in 1994, compared to municipalities that were exposed only later on. This effect is non-negligible – about 1 percentage point – and it is precisely estimated and robust across different specifications. In particular, we show that estimates are virtually identical when restricting the sample to progressively smaller municipalities (up to less than 10 thousand inhabitants). Since the political and economic return to covering such small municipalities was negligible, they were likely exposed or non-exposed “by chance” as local TV networks (later incorporated into Mediaset) expanded to cover larger cities.

The effect on voting for *Forza Italia* is also very persistent, lasting until 2008 – five elections and almost twenty-five years after municipalities were differentially exposed to Mediaset, and fifteen years after Berlusconi entered politics. Given that all municipalities were progressively exposed to Mediaset by 1990 and that our coefficient captures only the effect of a few additional years of exposure, the effect on voting behavior is quite remarkable.

Interestingly, when the effect on Berlusconi’s party vanishes, in the 2013 elections, we find that municipalities exposed earlier to Mediaset exhibit higher support for the Five Star Movement (M5S), a new populist party that first ran for election in that year. Despite clear ideological differences, the M5S shares with *Forza Italia* a distinctively populist rhetoric (Jones and Pasquino, 2015). Additional evidence from individual-level surveys confirms that voters exposed to Mediaset earlier on tend to be more receptive to populist messages, rather than adhering to traditional right-wing values. These findings suggest that exposure to entertainment TV made viewers more supportive of populist movements and leaders in general, and not just of Berlusconi or the conservative camp.

To further validate our results and to explore the mechanism(s) through which entertainment TV influenced political preferences, we combine information on early Mediaset access with individual-level data on TV consumption, cognitive abilities, and social attitudes. Reassuringly, we find that the effect of Mediaset is especially pronounced for heavy TV viewers. In particular, the effect is much larger – close to 10 percentage points – for individuals exposed either as children (below age 10) or at older ages (55 and above), precisely the cohorts that watch the most TV.

The mechanisms through which the effect operates are, however, very different for the two groups. For individuals first exposed to Mediaset as children, we find that entertainment TV has a negative impact on cognitive abilities in adulthood, as measured by standardized numeracy and literacy tests. Furthermore, these individuals also exhibit

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<sup>3</sup>A similar approach has been used by Farré and Fasani (2013), DellaVigna et al. (2014), and Yanagizawa-Drott (2014).

significantly lower levels of civic engagement, as measured by interest in politics and participation in voluntary associations. Two pieces of evidence suggest why the effect of entertainment TV on young viewers' cognitive and non-cognitive abilities may have translated into higher support for *Forza Italia*. First, we document that Berlusconi's party was disproportionately popular among less educated and less engaged voters, and was hence well-positioned to benefit from the decline in cognitive skills and civic engagement induced by entertainment TV. Second, based on the analysis of a large corpus of televised interventions by Italian politicians and of party manifestos, we show that, compared to other political leaders, Berlusconi and his party use a language that is more accessible to less sophisticated voters. Both in terms of voter profiles and political language, we find that a similar pattern applies to M5S and its leader Beppe Grillo. Taken together, our findings support the view that exposure to entertainment television, particularly at a young age, can contribute to making individuals cognitively and culturally shallower, and ultimately more vulnerable to populist rhetoric.

Turning to individuals exposed to Mediaset at older ages we find, instead, that the latter developed a strong attachment to the network, making them more likely to watch news programs on Mediaset channels after these were introduced in 1991. The larger support for Berlusconi among these cohorts could therefore be due to exposure to the strong pro-Berlusconi bias of Mediaset newscasts ([Durante and Knight, 2012](#); [Barone et al., 2015](#)).

Our research contributes to the literature on the impact of mass media in three ways. First, we show that non-informative, entertainment TV can have a tangible impact on political preferences, and we explore possible explanations for this effect. In this respect, our findings complement previous contributions on the effect of (biased) news content on voting, namely the work of [DellaVigna and Kaplan \(2007\)](#) on the effect of Fox News on support for Republicans, and of [Enikolopov et al. \(2011\)](#) on the negative impact of the independent Russian channel NTV on support for Putin. In this regard, our work is especially related to [Barone et al. \(2015\)](#), who study the effect of pro-Berlusconi bias in Mediaset news on local elections in one Italian region.

Second, our work relates to previous contributions on the effect of television on cognitive abilities ([Gentzkow and Shapiro, 2008](#)) and civic attitudes ([Putnam, 2000](#); [Olken, 2009](#)). In particular, our results represent an important qualification with respect to these studies in that they isolate the effect of entertainment content on cognitive and non-cognitive outcomes, and explore the broader implications of this effect for political preferences.<sup>4</sup>

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<sup>4</sup>Our results are also in line with extensive evidence from medicine, psychology, and education on the impact of TV on children's cognitive and social skills, which emphasizes the difference between exposure to age-appropriate educational content and entertainment programs, particularly fast-paced and violent content ([Anderson et al., 2001](#); [Christakis et al., 2004](#); [Hancox et al., 2005](#); [Ennemoser and Schneider, 2007](#); [Landhuis et al., 2007](#); [Zimmerman and Christakis, 2007](#); [Kirkorian et al., 2008](#); [Christakis et al.,](#)

Last but not least, our research contributes to a growing literature, and a vast ongoing public debate, on the determinants of support for populist parties around the world (Mughan et al., 2003; Mudde, 2007; Oesch, 2008; Dippel et al., 2015). While popular discontent with the political establishment is likely to have deep socioeconomic roots, our findings suggest that by popularizing certain linguistic codes and cultural models, entertainment television may have contributed to creating a fertile ground for the success of populist leaders.

The remainder of the paper is organized as follows. Section 2 provides background information on the evolution of Italy’s political system and broadcast television industry during the period of interest. Section 3 describes the data used in the empirical analysis. Section 4 discusses the identification strategy. Section 5 presents the main findings, while Section 6 provides additional evidence on mechanisms. Section 7 concludes.

## 2 Background

### 2.1 The rise of commercial TV in Italy

Italian law banned private TV broadcasting until 1976, when private channels were finally allowed to broadcast, although only at the local level.<sup>5</sup> To circumvent this restriction, some business groups established broadcast syndication agreements by which formally independent local stations would simultaneously broadcast the same content across different local markets, mimicking the functioning of a broader network. One such network, *Canale 5*, was launched by Silvio Berlusconi in 1980; the others, *Prima Rete*, *Italia 1*, and *Rete 4*, were controlled respectively by the Rizzoli, Rusconi, and Mondadori publishing groups. Despite a 1981 Constitutional Court decision that deemed syndication agreements illegal, between 1982 and 1984 Berlusconi acquired *Italia 1* and *Rete 4* from his competitors and incorporated the three channels into the Fininvest holding company, which later became Mediaset. In October 1984, district judges from Turin, Rome, and Pescara ordered the confiscation of Mediaset transmitters for operating in violation of the Constitutional Court’s ruling. However, the government of Bettino Craxi – leader of the Italian Socialist Party and Berlusconi’s long-term political sponsor – intervened issuing an emergency decree, later converted into law by Parliament, which removed all restrictions to broadcasting at the national level.

Once assured that its dominant position would not be threatened, Mediaset acquired new transmitters and rapidly expanded its coverage to the entire population. Until then, Mediaset had not systematically built its own transmitters, finding it more convenient

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2013).

<sup>5</sup>This ban was motivated by the argument that the state would better protect and guarantee the impartiality, objectivity, and completeness of television service (ruling 59/1960 by the Constitutional Court).

to use those of the local stations it acquired. According to our data, in 1985 Mediaset operated 1,710 transmitters and could reach about half of the population with a high-quality signal; two years later, the number of transmitters had reached 3,800 and Mediaset signal reached about 87% of the population ([Constitutional Court, 1988](#)). By the end of 1990, Mediaset coverage had reached 98%, comparable to the virtually universal coverage of the state-owned TV corporation, RAI. The RAI-Mediaset duopoly was perpetuated by a new telecommunication law, approved by the Parliament in 1990, which largely confirmed the regulatory framework of the 1985 decree, and limited the possibility of assigning new broadcasting licenses to other operators.<sup>6</sup>

Crucially, the Mediaset programming schedule differed dramatically from that of RAI. Mediaset aired more hours per day, focusing particularly on light entertainment; in contrast, it devoted very little time to educational content, and did not introduce newscasts until 1991. To document these differences, we digitized the daily programming schedules of Mediaset and RAI from the online historical archive of the Italian newspaper *Corriere della Sera*. We selected the first week of each month during the period 1983-1987 – when Mediaset had only partial coverage of the Italian territory – and we classified programs into four categories: entertainment, movies, news and information, and educational content. These four categories account for 98.3 percent of the airtime during the period of interest.

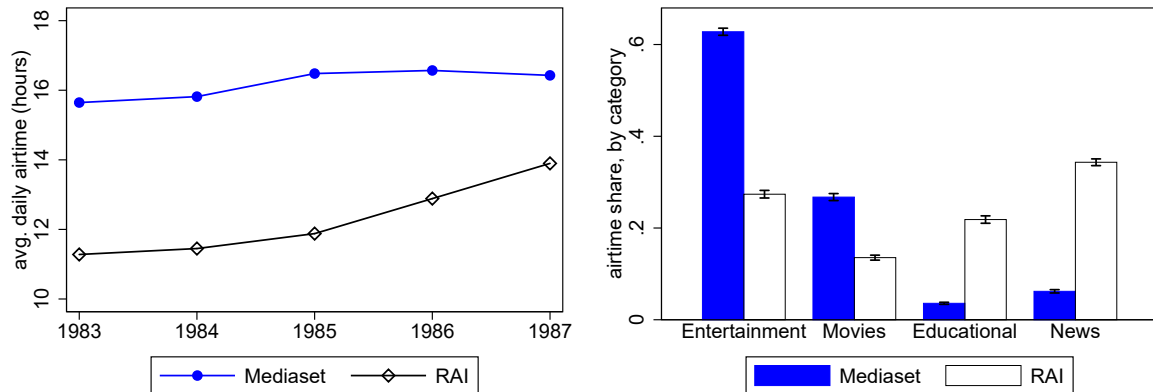
In the left graph of [Figure 1](#), we first look at differences in total airtime per day. From the very beginning, Mediaset channels broadcast from the early morning through late night – about 16 hours per day. This was a major innovation over RAI channels, which traditionally operated only during the central hours of the day – 11 hours per day in 1983 – though there is some convergence over time. We then examine differences in the type of programs featured on Mediaset and RAI; the right graph of [Figure 1](#) compares the share of airtime devoted to each category. Mediaset was almost entirely devoted to light entertainment and movies (63% and 27% of total airtime, respectively), whereas news and educational content was almost absent. By contrast, RAI devoted 34% of its airtime to news and an additional 22% to educational content. In terms of time, each Mediaset channel featured on average about 10 hours per day of entertainment and 4 hours of movies, compared to only 3.5 and 1.5 hours on RAI. Therefore, Mediaset dramatically expanded the offer of entertainment TV shows and movies – relative to information and educational content.

As for the quality of programs, objective measures are available only for movies. Specif-

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<sup>6</sup>In the 1980s, there were only three other channels broadcasting at the national level: TeleMontecarlo, a foreign TV channel that reached the Italian peninsula and, for this reason, aired its TV shows in Italian; Italia 7, which was also owned by Berlusconi; and Odeon TV. However, they attained only very incomplete coverage of the national territory, and a combined share of total audience below 5% ([Constitutional Court, 1988](#)). The number of channels increased considerably only after the transition to digital TV in 2008 ([Barone et al., 2015](#); [Mastrorocco and Minale, Forthcoming](#)).

Figure 1: Total airtime per day and airtime shares for different categories of TV shows, Mediaset vs. RAI 1983-1987



*Note:* The left graph plots the average total airtime per day on Mediaset and RAI channels over the period 1983-1987. The right graph shows the average share of airtime (and associated 90% confidence intervals) devoted to different categories of TV programs on the two networks.

ically, we collected professional critic reviews on all 2,857 movies broadcast on Mediaset and RAI during our sample period (i.e., the first week of each month between 1983 and 1987). Some movies were screened multiple times during this period (up to 4), for a total of 3,327 observations.<sup>7</sup> The online databases Mymovies.it and Filmtv.it provide average critic ratings, on a scale from 2 to 10, for 2,743 and 2,549 movies, respectively. For a subset of 747 primarily U.S. movies, we were also able to identify which movies were rated suitable for general audiences, including children, by the Motion Picture Association of America (MPAA).

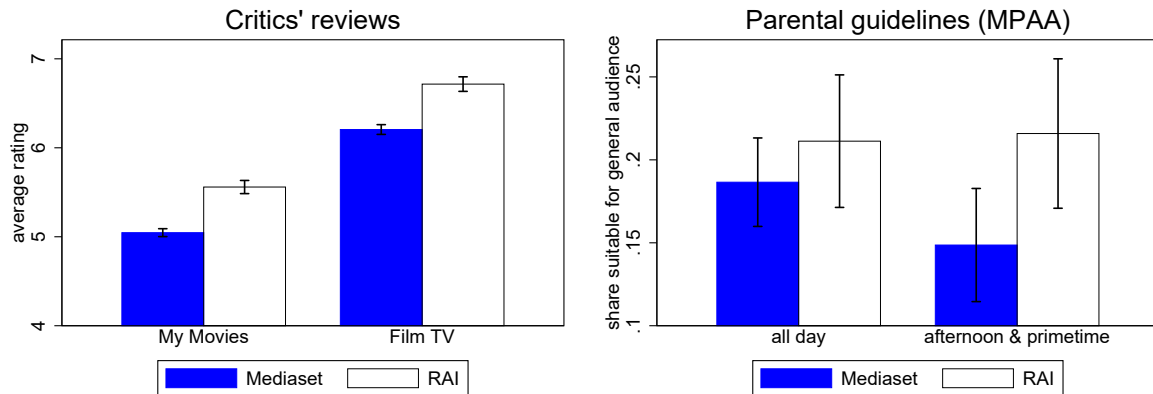
Figure 2 compares critic reviews and MPAA parental guidelines between movies broadcast on Mediaset and RAI, respectively. Mediaset movies receive on average worse critic reviews on both websites, the difference amounting to about a third of a standard deviation in critic ratings (left graph). They are also less suitable for general audiences, although the difference across all movies remains small. However, this difference increases and becomes statistically significant when focusing on movies broadcast in the afternoon and early evening, when children are most likely to be watching TV (right graph).

Taken together, the evidence in Figures 1 and 2 confirms that the advent of Mediaset vastly expanded the amount of content available to TV viewers, with particular regard to light entertainment programs. Additional evidence from movie ratings suggests that, compared to RAI, content on Mediaset was generally of lower quality and less suitable for younger viewers.<sup>8</sup>

<sup>7</sup>For the purposes of evaluating the average quality of programming schedules, we record multiple screenings of the same movie as separate observations.

<sup>8</sup>All differences between Mediaset and RAI movies shown in Figures 1 and 2 are robust to controlling for year, calendar month, and day of the week fixed effect, and to clustering standard errors by date; see Table A1 in Appendix A.

Figure 2: Critics' reviews and parental guidelines for movies broadcast on Mediaset and RAI, 1983-1987



Note: The left graph plots the average critics' ratings received by movies broadcast on Mediaset and RAI over the period 1983-1987. The right graph shows the share of movies suitable for general audiences, including children, according to the Motion Picture Association of America (MPAA). 90% confidence intervals are also shown in the graphs.

## 2.2 The Italian Political Landscape (1994-2013)

According to several of his associates, and by his own account, Berlusconi had no intention of entering politics until 1992-93, when an unprecedented series of corruption scandals led to the dismantlement of the conservative coalition that had governed Italy for over a decade, and to the transition to the so-called Second Republic. In the wake of this political crisis, a temporary technocratic government was instituted and early elections were called for in March 1994. Fearing the electoral victory of the left-wing Democratic Party (PD) – the heir of Italy's Communist Party that had traditionally been critical of Mediaset's dominant position and advocated a general reform of the media industry – Berlusconi decided to run for office. In December 1993, just three months before the elections, he announced the creation of a new political party, *Forza Italia* ("Forward Italy"), which aspired to occupy the political space left by the collapse of traditional center-right parties.<sup>9</sup>

The entry of Berlusconi revolutionized the Italian political landscape. Berlusconi's political message and communication style were very different from what Italian voters were used to. His political platform was rather vague, allowing him to forge alliances with parties as diverse as the post-fascist nationalist *Alleanza Nazionale* ("National Alliance") and the separatist *Lega Nord* ("Northern League"). He used simple language and catchy slogans, easily accessible to ordinary people. He was critical of professional politicians, and portrayed himself as a political outsider, emphasizing his achievements as a businessman. *Forza Italia's* organization also differed radically from that of traditional Italian parties: it was essentially a personalistic party, with a minimal territorial structure and relatively

<sup>9</sup>For simplicity we refer to the "PD" and "*Forza Italia*" throughout, although the names of both parties changed repeatedly over the sample period.

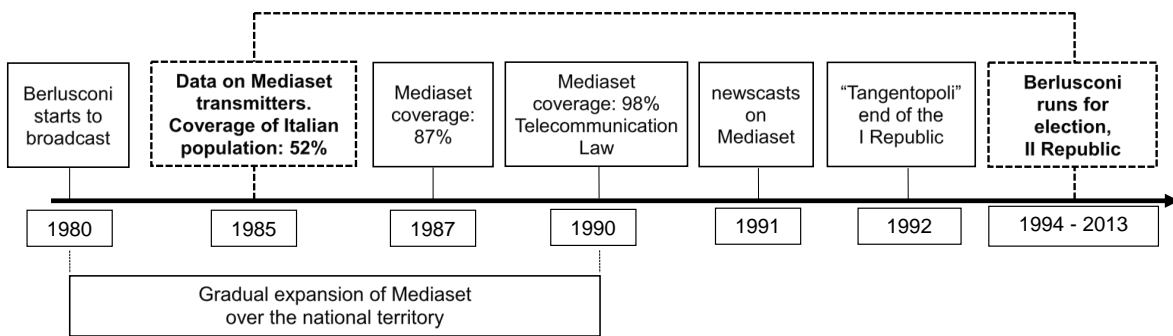


few party members (Hopkin and Paolucci, 1999).

Berlusconi’s innovative style and aggressive campaign proved very successful. The right-wing coalition led by *Forza Italia* won the 1994 elections and Berlusconi became Prime Minister for the first time. Although his first experience in office was short-lived, Berlusconi had become a key player in the Italian political landscape. The right-wing coalition would win the elections again in 2001 and 2008, and would lose by only a narrow margin in 1996 and 2006 against the left, led by the PD. In 2013, both coalitions suffered major losses against the Five-Star Movement (M5S), a new populist party that captured 25.5% of the votes.<sup>10</sup>

Figure 3 summarizes the timing of the events described above and illustrates the intuition behind our empirical approach: relating electoral patterns in and after 1994 with access to Mediaset prior to 1985, when geographical differences in coverage were still considerable.

Figure 3: Timeline of events, 1980-1994



### 3 Data

We obtained from Mediaset detailed information on all the 1,710 transmitters operating in 1985. Specifically, for each transmitter we obtained a technical report indicating the latitude, longitude, altitude, and height of the transmitter’s location, as well as its transmitting power and frequency.<sup>11</sup> We combine this information with a high-resolution GIS map of Italy to compute Mediaset signal strength across Italian municipalities.

Broadcast television signal is transmitted over the air according to the laws of physics for electromagnetic propagation. In the free space, signal strength would decrease with the square of the distance from the transmitter. However, patterns of decay are much more complex due to diffraction caused by mountains and other obstacles. We compute the actual signal loss employing a professional engineer-developed software based on the

<sup>10</sup>Figure A1 in Appendix A shows the vote share obtained by the main parties and coalitions in the Second Republic.

<sup>11</sup>A sample technical report sheet is reported in Appendix A (Figure A2).

Longley-Rice Irregular Terrain Model (ITM). The ITM was originally developed by the US government for frequency-planning purposes and allows to accurately predict signal strength across narrow geographical cells (Phillips et al., 2011).<sup>12</sup>

Following Olken (2009), we compute the signal loss between each Mediaset transmitter and each of Italy’s 8,100 municipalities (*comune*) using the ITM algorithm.<sup>13</sup> For each municipality-transmitter pair, we subtract the signal loss from the transmission power to obtain the predicted signal strength at the receiving location, in decibels (dB). Finally, we compute the predicted signal strength in each municipality as the maximum signal power across all transmitters.

In principle, reception is of high quality for positive values of signal strength (i.e., when signal loss is lower than transmission power) and is imperfect or nil for negative values of signal strength. Olken (2009) provides evidence in this respect for the case of Indonesia using survey data on TV viewership; specifically, he documents that the share of individuals able to watch a given channel is close to zero for values of signal strength around -100 dB, it increases with signal strength, and approaches full coverage when signal strength turns positive.

The left map in Figure 4 reports the distribution of Mediaset signal strength across Italian municipalities in 1985. Signal strength is positive in 29% of Italian municipalities, accounting for half of the population – not surprisingly, Mediaset covered disproportionately large cities. According to the evidence in Olken (2009), this should be the population receiving Mediaset with good signal quality in 1985.

However, the exact relationship between signal strength and the quality of reception may vary across space and time. For instance, Bursztyrn and Cantoni (2016) show that, in 1989, viewers in East Germany attained fairly good reception of Western TV channels even for negative levels of signal strength. Data on the distribution of Mediaset viewers in the early 1980s are unfortunately not available, so we cannot estimate the relationship between signal strength and reception quality for the specific case of Mediaset channels. For this reason, we follow Enikolopov et al. (2011) and exploit continuous variation in signal strength throughout most of the analysis.<sup>14</sup>

To ease the interpretation of the results, we compute our main explanatory variable, *Signal*, by dividing the original signal strength by its standard deviation. We exclude municipalities in the top and bottom 2.5% of the signal distribution, as even large differences in signal strength at either tail of the distribution should have little or no effect on the

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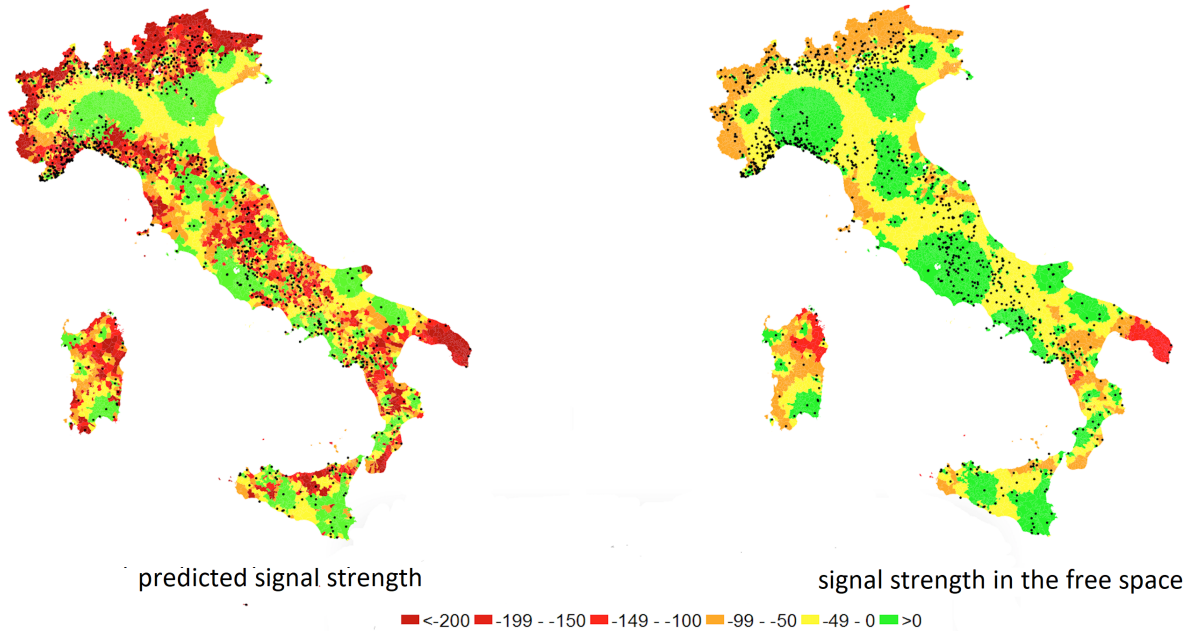
<sup>12</sup>The version used in this paper is described in Hufford (2002), and has been previously used by Olken (2009), Enikolopov et al. (2011), Farré and Fasani (2013), Yanagizawa-Drott (2014), and DellaVigna et al. (2014). We thank Benjamin Olken for kindly sharing the ITM code.

<sup>13</sup>Municipalities represent the lowest administrative units in Italy and are fairly small both in terms of surface (mean of 37.2 km<sup>2</sup>, median of 21.8 km<sup>2</sup>) and population (mean of 7,010 inhabitants, median of 2,296 inhabitants); Table A2 in Appendix A reports summary statistics for our main variables.

<sup>14</sup>The only exception is a robustness analysis, presented in Section 5.2, in which we match neighboring municipalities with positive and negative signal strength, respectively.

quality of reception.

Figure 4: Mediaset signal strength and hypothetical signal strength in the free space in 1985



*Note:* The left map shows Mediaset actual signal strength, in decibels (dB), across municipalities in 1985. The right map shows the hypothetical signal strength in the absence of geomorphological obstacles. The black dots represent the location of transmitters.

The ITM also allows us to compute the hypothetical signal strength in the free space (i.e., assuming the absence of mountains or other obstacles to electromagnetic propagation), which is important for our identification strategy. The distribution of signal strength in the free space is shown in the right map of Figure 4. As for the actual signal strength, we obtain the standardized signal strength in the free space, *SignalFree*, by dividing the original variable by its standard deviation.

Turning to the main outcome of interest, we obtained from the Italian Ministry of Interior municipality-level data on all national elections between 1976 and 2013. Throughout this period elections were held under a proportional electoral system, with the exception of the 1994, 1996, and 2001 elections, which were held under a mixed system with a strong majoritarian component (75% of the seats were assigned in first-past-the-post electoral districts). We focus on voting for the Lower House (*Camera*) because the different electoral system in the Upper House (*Senato*) encouraged the formation of joint lists, often changing across different areas of the country.<sup>15</sup>

<sup>15</sup>For instance, in the 1994 elections *Forza Italia* ran together with the *Lega Nord* in northern regions and with *Alleanza Nazionale* in the south, so it is difficult to isolate the electoral support for each member of the coalition.

## 4 Empirical strategy

Estimating the effect of Mediaset on later electoral outcomes requires that signal strength prior to 1985 is exogenous to voting behavior over the period 1994-2013. Some of the facts discussed in section 2 suggest that this may indeed be the case. First, Mediaset transmitters were inherited from small local stations that were progressively incorporated into the network, hence the exact location and installed power were not chosen by Mediaset. Second, even if Mediaset had targeted local stations in politically strategic areas, the considerable changes that occurred in the Italian political system between the early 1980s and 1994 (i.e., different electoral rules and different parties) would have frustrated any such strategy. Third, Berlusconi decided to enter politics just a few months prior to the 1994 elections, in the wake of political upheavals that were unforeseeable a decade before. For all these reasons, it is unlikely that the geographical expansion of Mediaset prior to 1985 was *intentionally* driven by the later political ambitions of Berlusconi.

However, early Mediaset coverage could still be correlated with other factors that also influence voting behavior (e.g., proximity to large cities). Following [Olken \(2009\)](#), we address this issue by regressing our outcomes of interest, across municipalities, on actual signal strength (*Signal*) as well as on the hypothetical signal strength in the free space (*SignalFree*). The latter variable captures variation in signal strength due to the location and power of transmitters, so the coefficient of *Signal* is identified from variation in diffraction patterns caused by topography.<sup>16</sup>

We further restrict the analysis to variation within electoral districts (EDs) and local labor markets (LLMs). Both EDs and LLMs are very small areas (median area of 527 and 352 square kilometers, respectively) compared to provinces, the administrative unit just above municipalities (median area of 2246 square kilometers). Therefore, our estimates exploit only residual variation across municipalities within narrow geographical areas characterized by similar economic and political conditions.<sup>17</sup>

Finally, topography could influence political and social outcomes in ways other than through signal propagation. For this reason, we control for various geographic characteristics: surface area and its square, average altitude and its square, and average terrain ruggedness. Therefore, we do *not* exploit the very presence of geographical obstacles to signal propagation for the purposes of identification but, rather, their particular *shape* – arguably a milder restriction.

The following equation summarizes our econometric strategy:

$$Vote_m = \beta Signal_m + \gamma SignalFree_m + \delta' X_m + ED_{i(m)} + LLM_{j(m)} + \varepsilon_m, \quad (1)$$

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<sup>16</sup>The same approach is used also by [DellaVigna et al. \(2014\)](#). [Yanagizawa-Drott \(2014\)](#) does not control for signal strength in the free space, but includes instead polynomials in distance from the transmitters.

<sup>17</sup>LLMs are defined by ISTAT on the basis of workers' commuting patterns ([ISTAT, 2011](#)). Figure A3 of Appendix A shows the boundaries of EDs, LLMs, and provinces, respectively.

where  $Vote_m$  is the vote share obtained by a given party (e.g., *Forza Italia*) in municipality  $m$ ;  $Signal_m$  and  $SignalFree_m$  are, respectively, the actual signal strength and the hypothetical signal strength in the free space;  $X_m$  is a vector of control variables, including geographic and socio-economic characteristics;  $ED_{i(m)}$  and  $LLM_{j(m)}$  are, respectively, the fixed effects for the  $i$ -th electoral district and for the  $j$ -th local labor market in which municipality  $m$  is located; and  $\varepsilon_m$  is an error term. We cluster standard errors by electoral district to allow for arbitrary correlation in error terms across municipalities facing the same choice of candidates; however, we discuss the robustness of our results to alternative assumptions about standard errors. Finally, we weight observations by population in 1981, in order to make the estimates representative at the national level.<sup>18</sup>

The main coefficient of interest,  $\beta$ , captures the reduced form effect of (potential) exposure to Mediaset – as opposed to the effect of actual viewership.<sup>19</sup> The main identification assumption is that, conditional on the other covariates in equation (1),  $Signal$  is independent of  $\varepsilon_m$ . Although such an assumption is essentially untestable, we provide an indirect test of conditional independence by looking at the correlation of  $Signal$  with voting patterns in the 1970s and 1980s as well as with other socio-economic conditions that could potentially influence voting behavior.

Table 1 shows the correlation between  $Signal$  and the vote share of the main parties and coalitions in the national elections in 1976, 1979, 1983, 1987, and 1992. We focus on the electoral results of the Italian Communist Party, the center-right coalition *Pentapartito* formed by the Christian Democrats and their allies, and a residual group comprising other (minor) parties. The univariate coefficient of  $Signal$  is generally small and not significantly different from zero (column 2); this is even more the case when controlling for fixed effects and other municipality characteristics (column 3). In addition, in the last three rows we examine the relationship between  $Signal$  and *changes* in parties' vote share between 1979 and 1983, i.e., the elections prior to the diffusion of Mediaset. Again, regardless of the specification, we find no evidence of any significant relationship. These results indicate that Mediaset coverage prior to 1985 is not systematically correlated with pre-existing political preferences, or changes in such preferences.

In Table 2 we explore the correlation between  $Signal$  and other municipality characteristics. Several factors are significantly correlated with  $Signal$  in the univariate regression (column 2). As should be expected, the expansion of Mediaset throughout the Italian territory was not random, targeting, instead, more economically developed areas. However, most of the correlation with these local characteristics is absorbed by the other variables on the right-hand side of equation (1) (column 3). Indeed, the joint variation in  $SignalFree$ , topography, and fixed effects explains between 50% and 90% of the overall

<sup>18</sup>The results on the unweighted observations are generally stronger.

<sup>19</sup>Olken (2009) and Enikolopov et al. (2011), who also have information on the number of viewers, use signal strength as an instrument to estimate the effect of viewership in a two-stage-least-squares framework.

Table 1: Exposure to Mediaset and voting for the main Italian parties, 1976-1992 (balance tests)

| Party, election                         | (1)               | (2)               | (3)       | (4)               | (5)       |
|---|-------------------|-------------------|-----------|-------------------|-----------|
|   | mean              | univariate OLS    |           | FE & controls     |           |
|   |                   | <i>coeff.</i>     | <i>R2</i> | <i>coeff.</i>     | <i>R2</i> |
| Italian Communist Party, 1976           | 33.332<br>(0.137) | 1.773<br>(1.157)  | 0.005     | -0.522<br>(0.574) | 0.806     |
| Pentapartito, 1976                      | 54.95<br>(0.131)  | -0.487<br>(1.068) | 0.005     | 0.229<br>(0.508)  | 0.806     |
| Other parties, 1976                     | 9.027<br>(0.082)  | -1.013<br>(1.047) | 0.007     | 0.263<br>(0.248)  | 0.915     |
| Italian Communist Party, 1979           | 28.966<br>(0.138) | 1.644<br>(1.165)  | 0.002     | -0.646<br>(0.535) | 0.830     |
| Pentapartito, 1979                      | 55.153<br>(0.128) | -0.770<br>(1.105) | 0.001     | 0.386<br>(0.476)  | 0.813     |
| Other parties, 1979                     | 11.672<br>(0.081) | -0.487<br>(1.006) | 0.009     | 0.223<br>(0.236)  | 0.912     |
| Italian Communist Party, 1983           | 28.003<br>(0.138) | 1.502<br>(1.212)  | 0.002     | -0.695<br>(0.559) | 0.829     |
| Pentapartito, 1983                      | 53.607<br>(0.126) | -0.872<br>(1.166) | 0.005     | 0.388<br>(0.483)  | 0.808     |
| Other parties, 1983                     | 12.522<br>(0.082) | -0.285<br>(0.984) | 0.020     | 0.288<br>(0.272)  | 0.902     |
| Italian Communist Party, 1987           | 25.223<br>(0.133) | 0.847<br>(1.140)  | 0.002     | -0.715<br>(0.510) | 0.838     |
| Pentapartito, 1987                      | 54.73<br>(0.128)  | -1.187<br>(1.225) | 0.001     | 0.417<br>(0.458)  | 0.829     |
| Other parties, 1987                     | 15.056<br>(0.088) | 0.681<br>(0.999)  | 0.007     | 0.258<br>(0.262)  | 0.913     |
| Italian Communist Party, 1992           | 15.171<br>(0.105) | 0.410<br>(0.859)  | 0.000     | -0.078<br>(0.365) | 0.862     |
| Pentapartito, 1992                      | 50.586<br>(0.145) | -3.031<br>(1.562) | 0.007     | -0.210<br>(0.409) | 0.891     |
| Other parties, 1992                     | 28.773<br>(0.136) | 2.997<br>(1.454)  | 0.007     | 0.283<br>(0.252)  | 0.942     |
| Italian Communist Party, change 1979-83 | -0.963<br>(0.026) | -0.129<br>(0.140) | 0.000     | -0.033<br>(0.113) | 0.499     |
| Pentapartito, change 1979-83            | -1.54<br>(0.038)  | -0.102<br>(0.224) | 0.018     | -0.004<br>(0.187) | 0.566     |
| Other parties, change 1979-83           | 0.851<br>(0.029)  | 0.199<br>(0.167)  | 0.021     | 0.059<br>(0.147)  | 0.703     |

*Note:* The table explores the relationship between early access to Mediaset and the average vote shares of the main parties and coalitions in each national election between 1976 and 1992, as well as the change in vote shares between the 1979 and the 1983 elections, the last ones prior to the diffusion of Mediaset (last three rows). Column (1) reports the mean of each variable; column (2) reports the coefficient and  $R^2$  of the univariate OLS regression of each variable on Mediaset signal strength in 1985 (*Signal*) controlling for signal strength in the free space (*SignalFree*); column (3) adds ED and LLM fixed effects, surface area and its square, average altitude and its square, and average terrain ruggedness. Means and regressions are weighted by municipality population in 1981, heteroskedasticity-robust standard errors clustered at the electoral district level are reported in parentheses.

variation for most socio-economic characteristics. Once these additional covariates are included in the regression, *Signal* is no longer correlated with labor market conditions, whereas it continues to be correlated with educational attainment and income per capita. For this reason, we include both these variables on the right-hand side of our main regression. Finally, as for political variables, we also verify that early access to Mediaset is not related to changes in basic demographic and economic conditions in the pre-Mediaset years. In this respect, regardless of the specification, we find no significant correlation between *Signal* and changes in population, number of firms, and number of firms' employees between 1971 and 1981.

Table 2: Exposure to Mediaset and municipality characteristics (balance tests)

| Variable:                                       | (1)               | (2)                | (3)            | (4)               | (5)            |
|---|-------------------|--------------------|----------------|-------------------|----------------|
|   | mean              | univariate OLS     |                | FE & controls     |                |
|   |                   | coeff.             | R <sup>2</sup> | coeff.            | R <sup>2</sup> |
| Population, thousands (1981)                    | 6.936<br>(0.579)  | 68.164<br>(63.342) | 0.249          | 8.983<br>(7.446)  | 0.999          |
| Population, thousands (change 1981-2001)        | -0.713<br>(5.258) | -0.963<br>(6.111)  | 0.020          | -0.159<br>(0.653) | 0.994          |
| Log income per capita, thousand euros (1985)    | 1.738<br>(0.024)  | 0.110<br>(0.035)   | 0.039          | 0.025<br>(0.008)  | 0.913          |
| Higher education, percentage (1981)             | 13.183<br>(0.708) | 1.411<br>(0.690)   | 0.144          | 0.723<br>(0.234)  | 0.833          |
| Voluntary associations X 100 inhabitants (1981) | 0.103<br>(0.004)  | -0.001<br>(0.007)  | 0.032          | 0.003<br>(0.004)  | 0.497          |
| Activity rate, percentage (1991)                | 42.258<br>(0.220) | 2.535<br>(0.278)   | 0.047          | 0.137<br>(0.151)  | 0.858          |
| Employment rate, percentage (1991)              | 35.074<br>(0.419) | 3.155<br>(0.564)   | 0.021          | 0.135<br>(0.160)  | 0.953          |
| Unemployment rate, percentage (1991)            | 6.936<br>(0.202)  | -0.855<br>(0.357)  | 0.005          | -0.121<br>(0.173) | 0.791          |
| Firms per 1,000 inhabitants (1981)              | 50.927<br>(1.125) | 0.765<br>(1.256)   | 0.043          | -0.046<br>(0.653) | 0.724          |
| Firms per 1,000 inhabitants (change 1971-81)    | 10.182<br>(0.553) | 0.441<br>(0.838)   | 0.023          | 0.062<br>(0.530)  | 0.570          |
| Firms' employees, thousands (1981)              | 78.1<br>(34.715)  | 27.163<br>(25.878) | 0.195          | 2.594<br>(2.169)  | 0.999          |
| Firms' employees, thousands (change 1971-81)    | 2.717<br>(4.019)  | -1.434<br>(2.883)  | 0.096          | 0.111<br>(0.095)  | 0.998          |

*Note:* The table reports the mean of municipality characteristics (column 1) and their correlation with early exposure to Mediaset (columns 2-3). Specifically, column (2) reports the coefficient and R<sup>2</sup> of the univariate OLS regression of each variable on Mediaset signal strength in 1985 (*Signal*) controlling for signal strength in the free space (*SignalFree*); column (3) adds ED and LLM fixed effects, surface area and its square, average altitude and its square, and average terrain ruggedness. Means and regressions are weighted by municipality population in 1981 (with the exception of mean population and population growth). Heteroskedasticity-robust standard errors clustered at the electoral district level are reported in parentheses.

## 5 Results

This section presents the main results of our empirical analysis. We first estimate the effect of early exposure to Mediaset in 1985 on voting in and after 1994 across municipalities. We then investigate the mechanisms driving this relationship exploiting additional information from several surveys available at the individual level.

### 5.1 Baseline estimates

In Table 3 we examine the effect of Mediaset signal strength in 1985 on voting for *Forza Italia* in 1994 – the first election in which Berlusconi ran for office. In the univariate regression in column (1), *Signal* displays a positive and statistically significant coefficient: a one standard deviation increase in *Signal* is associated with a 2.85 percentage point increase in the vote share of *Forza Italia*.

In columns (2) and (3) we add to the right-hand side the hypothetical signal strength in the free space (*SignalFree*) and the measures of topography. If anything, the coefficient of *Signal* increases slightly, suggesting that our main result holds when we exploit only idiosyncratic variation in signal strength driven by geographic obstacles between the municipality and the transmitter. The point estimate on *Signal* decreases to slightly less than 1 percentage point when including ED and LLM fixed effects (column 4). After controlling for these sets of fixed effects, the coefficient remains virtually unaffected when adding income per capita (in log), schooling levels, and number of eligible voters to the specification (column 5). It is also unaffected when estimating the regression on unweighted observations (column 6) and when capping the top and bottom 2.5% of values of the variable *Signal* rather than trimming the sample (column 7). In all regressions in Table 3, standard errors are clustered by electoral district. However, the coefficient on *Signal* remains equally significant when i) clustering standard errors by local labor market, ii) using two-way clustering by both electoral district and local labor market, and iii) allowing for spatial correlation in error terms applying Conley’s (1999) approach and using different reference distances (see Appendix Table A3).<sup>20</sup>

The baseline estimate in column (5) of Table 3 captures the effect of a few additional years of exposure, because by 1990 virtually all municipalities had access to Mediaset. To provide a better sense of the magnitude, we first approximate coverage in each year by fitting a logistic curve through Mediaset expansion over time, as available from our own data and from the Constitutional Court (1988).<sup>21</sup> Integrating the logistic curve between 1980 and 1990, municipalities reached before and after 1985 were exposed on average for 7 and 4 years, respectively. Assuming that the effect increases linearly with the length

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<sup>20</sup>We implement Conley’s (1999) approach in Stata using the *acreg* ado file coded by Colella et al. (2018), which allows for the use of population weights.

<sup>21</sup>The predicted coverage of Mediaset in each year is shown in Figure A4 of Appendix A.



Table 3: Exposure to Mediaset and voting for *Forza Italia* in 1994

|                                     | (1)                 | (2)               | (3)               | (4)                | (5)                | (6)               | (7)               |
|-------------------------------------|---------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|
|                                     | baseline regression |                   |                   |                    |                    | no weights        | winsor.           |
| <i>Signal</i>                       | 2.853<br>(0.860)    | 3.215<br>(0.705)  | 3.666<br>(0.759)  | 0.901<br>(0.232)   | 0.851<br>(0.234)   | 0.976<br>(0.193)  | 0.729<br>(0.218)  |
| <i>SignalFree</i>                   |                     | -0.289<br>(0.719) | 0.014<br>(0.473)  | -0.668<br>(0.260)  | -0.642<br>(0.254)  | -0.396<br>(0.202) | -0.433<br>(0.234) |
| Area (100s sq. Km)                  |                     |                   | -0.966<br>(0.695) | 0.854<br>(0.380)   | 0.875<br>(0.404)   | 0.540<br>(0.335)  | 0.780<br>(0.408)  |
| Area <sup>2</sup>                   |                     |                   | 0.030<br>(0.054)  | -0.079<br>(0.093)  | -0.069<br>(0.093)  | -0.033<br>(0.084) | -0.043<br>(0.095) |
| Altitude (ths.)                     |                     |                   | -6.244<br>(4.483) | -12.716<br>(1.578) | -10.963<br>(1.625) | -9.675<br>(1.373) | -9.771<br>(1.619) |
| Altitude <sup>2</sup>               |                     |                   | -0.092<br>(3.953) | 7.125<br>(1.269)   | 6.367<br>(1.290)   | 5.259<br>(1.218)  | 5.239<br>(1.256)  |
| Ruggedness                          |                     |                   | 0.007<br>(0.004)  | -0.002<br>(0.001)  | -0.002<br>(0.001)  | -0.002<br>(0.001) | -0.003<br>(0.001) |
| Electorate (ths.)                   |                     |                   |                   |                    | -0.004<br>(0.004)  | 0.003<br>(0.005)  | -0.005<br>(0.004) |
| Log income per capita (ths. Euros)  |                     |                   |                   |                    | 5.109<br>(0.763)   | 4.760<br>(0.614)  | 5.017<br>(0.743)  |
| Education (% high-school + college) |                     |                   |                   |                    | -0.089<br>(0.030)  | -0.108<br>(0.032) | -0.093<br>(0.029) |
| Observations                        | 7,600               | 7,600             | 7,590             | 7,590              | 7,519              | 7,519             | 7,898             |
| Electoral district FE               | NO                  | NO                | NO                | YES                | YES                | YES               | YES               |
| Local labor market FE               | NO                  | NO                | NO                | YES                | YES                | YES               | YES               |
| R-squared                           | 0.051               | 0.051             | 0.109             | 0.919              | 0.921              | 0.765             | 0.920             |

*Note:* The table reports OLS estimates of the effect of early exposure to Mediaset on the vote share of *Forza Italia* in the 1994 elections. The main explanatory variable, *Signal*, is Mediaset signal strength in 1985, *SignalFree* is signal strength in the free space. *Area*, *Altitude*, *Area<sup>2</sup>*, and *Altitude<sup>2</sup>* are the municipality's surface (in squared meters) and average altitude (in thousand meters) and their respective squared terms; *Ruggedness* is the municipality's average terrain ruggedness; *Electorate* is the number of eligible voters in the municipality, in thousands; *Log income per capita* is the logarithm of per capita income in 1985; *Education* is the share of municipality population with at least a high-school diploma. The specifications in columns (4)-(7) also include ED and LLM fixed effects. All regressions except column (6) are weighted by municipality population in 1981. In column (7) we winsorize *Signal* rather than trimming the sample like in the other specifications. Heteroskedasticity-robust standard errors clustered at the electoral district level are reported in parentheses.

of exposure – a non-trivial assumption – the effect-per-year-of-exposure is  $0.85/3=0.28$  percentage points. Projecting such an effect on the average years of exposure across the entire population between 1980 and 1990 (5 and a half years), the voting share of *Forza Italia* would have decreased by  $0.28 \times 5.5 = 1.54$  percentage points in the absence of entertainment TV during the 1980s.

This effect is quite sizable for at least three reasons. First, the effect of differential exposure before 1985 likely fades away with time, so it is indeed remarkable that there are still systematic differences in voting in 1994 (and even later; see below). Second, all municipalities were equally exposed to Mediaset entertainment and biased news content since 1991. Finally, our coefficient captures only the “intention-to-treat” effect, so the average effect across viewers would be even larger.

To gauge the magnitude of the effect in terms of parliamentary representation, we estimate the number of seats that Berlusconi’s coalition would have lost in first-past-the-post districts. Assuming that the effect estimated on the vote share of *Forza Italia* brings an opposite effect on the largest competing coalition, we find that absent entertainment TV the Centre-Right would have lost 18 seats in 1994 (out of 463 for which the two main coalitions competed). Replicating the analysis for the other two elections held under first-past-the-post electoral systems, the effect increases up to 61 seats in 1996 and 40 seats in 2001. To this, we should add the effect on the seats assigned via the proportional ballot, which, however, is hard to gauge due to the complexity of the electoral rule.

## 5.2 Robustness

To exclude that the gap in voting for Berlusconi reflects other (omitted) differences between exposed and non-exposed municipalities, we perform the following robustness checks. First, we restrict the sample to progressively smaller municipalities – up to less than 10,000 inhabitants. The political and economic return to covering such municipalities would be negligible, so they were likely exposed or non-exposed “by chance” as local TV stations that were later incorporated into Mediaset expanded to cover larger towns. The results are presented in Table 4. Column (1) reproduces the baseline estimate on the entire sample (as in column 5 of Table 3); column (2) drops all province capitals (104 cities); and columns (3) to (5) progressively exclude municipalities with more than 100, 50, and 10 thousand inhabitants, respectively. The coefficient is virtually unaffected, even when restricting to very small towns with less than 10 thousand inhabitants; see also the left graph in Figure 5.

Second, we match pairs of neighboring municipalities that share a similar hypothetical signal strength in the free space but were nevertheless differently exposed to Mediaset. Specifically, we compare voting patterns between any two neighboring municipalities,  $i$

Table 4: Exposure to Mediaset and voting for *Forza Italia* in 1994, robustness

|               | (1)              | (2)                         | (3)              | (4)              | (5)                | (6)              | (7)               | (8)                |
|---------------|------------------|-----------------------------|------------------|------------------|--------------------|------------------|-------------------|--------------------|
|               | baseline         | only smaller municipalities |                  |                  | matching neighbors |                  |                   |                    |
|               | estimate         | no prov. cap.               | pop.≤100k        | pop.≤50k         | pop.≤10k           | $\Delta \leq 1$  | $\Delta \leq 0.5$ | $\Delta \leq 0.25$ |
| <i>Signal</i> | 0.851<br>(0.234) | 0.817<br>(0.226)            | 0.763<br>(0.231) | 0.817<br>(0.232) | 0.880<br>(0.219)   | 0.584<br>(0.161) | 0.750<br>(0.188)  | 0.834<br>(0.229)   |
| Observations  | 7,519            | 7,415                       | 7,474            | 7,397            | 6,582              | 4,548            | 3,229             | 2,071              |
| R-squared     | 0.921            | 0.894                       | 0.895            | 0.884            | 0.829              | 0.854            | 0.840             | 0.818              |

*Note:* This table compares the estimated effect of early exposure to Mediaset on the vote share of *Forza Italia* in the 1994 elections within different sub-samples. Column (1) reproduces the baseline regression in column (5) of Table 3. Columns (2) to (5) restrict the sample to progressively smaller municipalities – indicated on top of each column. Columns (6) to (8) include in the sample only pairs of neighboring municipalities such that  $|SignalFree_i - SignalFree_j| < \Delta$  and  $Signal_j < 0 \leq Signal_i$ , for different values of  $\Delta$  – indicated on top of each column. All regressions control on the right-hand side for all municipality-level variables reported in column (5) of Table 3, namely *SignalFree*, *Area*, *Altitude*, *Area*<sup>2</sup>, *Altitude*<sup>2</sup>, *Ruggedness*, *Electorate*, *Log income per capita*, *Education*. Regressions in columns (1) to (5) control in addition for ED and LLM fixed effects; heteroskedasticity-robust standard errors clustered at the electoral district level are reported in parentheses. Regressions in columns (6) to (8) control instead for neighbor-pair fixed effects (each municipality can appear in more than one pair); heteroskedasticity-robust standard errors are clustered at the municipality level.

and  $j$ , such that

$$|SignalFree_i - SignalFree_j| < \Delta \quad \text{and} \quad Signal_j < q \leq 0 \leq Signal_i, \quad (2)$$

for different values of  $\Delta$  and  $q$ .<sup>22</sup> To the extent that negative values of *Signal* entail imperfect or nil reception, as shown by Olken (2009), such comparison approximates in a very intuitive fashion the ideal experiment of exposing to Mediaset only one of two otherwise identical municipalities. The last three columns of Table 4 show the estimated difference in voting for  $q = 0$  and  $\Delta$  lower than 1, 0.5, and 0.25, respectively, controlling for all municipality-level variables as well as for neighbor-pair fixed effects (each municipality can appear in more than one pair). As we reduce the bandwidth, exposed and non-exposed municipalities are indistinguishable in terms of all (observable) characteristics and previous voting behavior.<sup>23</sup> Even within this smaller sub-sample, the coefficient of *Signal* remains positive and statistically significant; indeed, it is virtually identical to the baseline OLS estimate on the total sample.

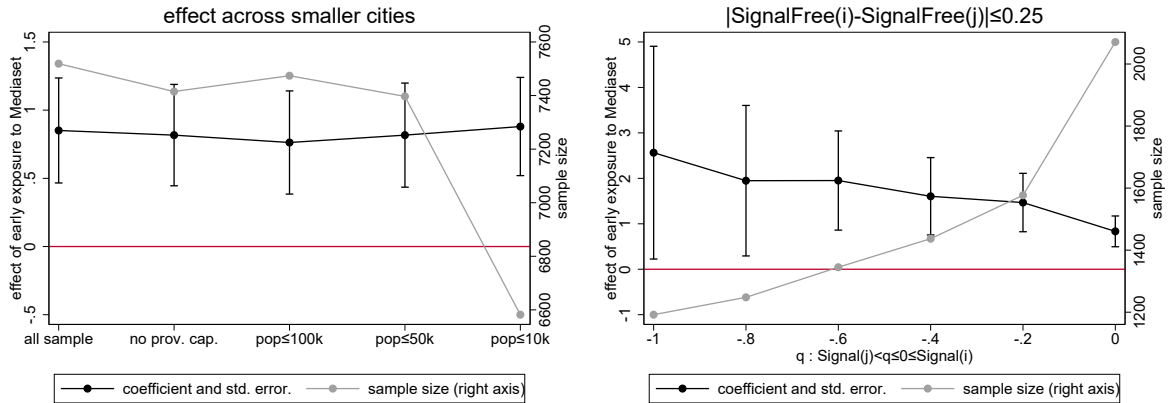
As an additional robustness check, we further restrict the sub-sample to pairs of neighboring municipalities with similar *SignalFree* and in which one municipality has positive signal and the other one has signal below some level  $q < 0$  (see the second condition in equation 2). As we decrease  $q$ , we are comparing exposed municipalities with municipalities experiencing progressively worse reception. The right graph in Figure 5 shows that the gap in voting for Berlusconi remains statistically significant (in spite of the large drop

<sup>22</sup>Since *Signal* and *SignalFree* are measured in terms of standard deviations of the original signal strength and signal strength in the free space, respectively,  $q$  and  $\Delta$  are defined using the same metrics.

<sup>23</sup>The balance tests are reported in Tables A4 and A5 of Appendix A.

in sample size) and it increases in magnitude as we decrease  $q$ .<sup>24</sup> To the extent that the probability of watching Mediaset decreases with signal loss, this evidence is also consistent with the observed differences in voting across matched municipalities being driven by exposure to Mediaset.

Figure 5: Exposure to Mediaset and voting for *Forza Italia* in 1994, robustness



Note: This figure compares the estimated effect of early exposure to Mediaset on the vote share of *Forza Italia* in the 1994 elections within different sub-samples. The left graph shows the coefficient of *Signal* (and associated confidence intervals) from the baseline regression in column (5) of Table 3, when restricting the sample to progressively smaller municipalities – indicated on the horizontal axis. The right graph shows the coefficient of *Signal* (and associated confidence intervals) from the regression in column (8) of Table 4 (i.e., including in the sample only pairs of neighboring municipalities such that  $|SignalFree_i - SignalFree_j| \leq 0.25$  and  $Signal_j < q \leq 0 \leq Signal_i$ ) for different values of  $q$  – indicated on the horizontal axis. Both graphs also show (on the right vertical axis) the sample size in each regression.

Overall, the estimates reported in Table 4 and Figure 5 are virtually identical to the baseline OLS estimates in Table 3. For this reason, in the rest of the paper we only report OLS estimates across all municipalities.

### 5.3 Other parties and elections

In Table 5 we report the results for all elections and parties. Each entry in the table reports the OLS estimated effect of early exposure to Mediaset on the vote share of a party (rows) in a given election (column), using the same specification as in column (5) of Table 3. Though the political landscape changed quite frequently after 1994, we were able to identify six other parties (or blocks of parties) that run for office alongside *Forza Italia* in all or some of the elections: other parties in the center-right coalition; centrist parties; the Democratic Party; other parties in the center-left coalition; extreme left parties; and the M5S (only for 2013).

The positive effect on *Forza Italia* persists for five elections, vanishing only in 2013. Interestingly, in that year municipalities that were exposed to Mediaset earlier on show

<sup>24</sup>The graph considers the most restrictive matching for  $\Delta \leq 0.25$ . The evidence is similar when considering the larger bandwidths,  $\Delta \leq 1$  and  $\Delta \leq 0.50$ , see the Appendix Figure A5.

Table 5: Exposure to Mediaset and voting for main political parties (1994-2013)

| Party ↓ Election →  | 1994              | 1996              | 2001              | 2006              | 2008              | 2013              |
|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Forza Italia        | 0.851<br>(0.234)  | 0.713<br>(0.200)  | 0.832<br>(0.296)  | 0.945<br>(0.281)  | 1.021<br>(0.337)  | 0.198<br>(0.273)  |
| Others centre-right | 0.082<br>(0.361)  | 0.006<br>(0.318)  | -0.121<br>(0.218) | 0.034<br>(0.204)  | -0.194<br>(0.144) | -0.091<br>(0.088) |
| Centrist parties    | -0.183<br>(0.264) | -0.239<br>(0.158) | -0.186<br>(0.197) | -0.002<br>(0.147) | -0.237<br>(0.168) | 0.079<br>(0.136)  |
| Democrat Party      | -0.407<br>(0.376) | -0.473<br>(0.327) | -0.422<br>(0.285) | -0.483<br>(0.372) | -0.644<br>(0.342) | -0.421<br>(0.271) |
| Others centre-left  | -0.183<br>(0.124) | -0.041<br>(0.151) | -0.075<br>(0.196) | -0.265<br>(0.233) | -0.027<br>(0.108) | -0.103<br>(0.094) |
| Extreme left        | -0.322<br>(0.152) | -0.227<br>(0.154) | -0.204<br>(0.160) | -0.212<br>(0.168) | -0.105<br>(0.087) | -0.219<br>(0.088) |
| M5S                 |                   |                   |                   |                   |                   | 0.522<br>(0.243)  |
| Other parties       | 0.027<br>(0.198)  | 0.129<br>(0.092)  | 0.134<br>(0.097)  | 0.003<br>(0.073)  | 0.142<br>(0.177)  | 0.050<br>(0.179)  |
| Invalid ballots     | 0.134<br>(0.128)  | 0.132<br>(0.136)  | 0.043<br>(0.171)  | -0.020<br>(0.049) | 0.044<br>(0.087)  | -0.015<br>(0.069) |
| Turnout             | 0.338<br>(0.334)  | 0.488<br>(0.392)  | 0.369<br>(0.394)  | 0.260<br>(0.256)  | 0.212<br>(0.231)  | 0.512<br>(0.251)  |

*Note:* The table shows the effect of early exposure to Mediaset on the vote share of the main Italian parties (rows) in each of the six elections held between 1994 and 2013 (columns). Each entry in the table reports the estimated coefficient (and standard error) of *Signal* from the baseline regression in column (5) of Table 3. Heteroskedasticity-robust standard errors clustered at the electoral district level in parentheses.

significantly higher support for the newborn M5S – the only party beside *Forza Italia* to display a positive and significant coefficient.<sup>25</sup>

Interestingly, *Forza Italia* and M5S have very different ideological stances. Although the M5S can hardly be located on the traditional right-left axis, it is generally perceived as leaning towards the left of the political spectrum; by contrast, Berlusconi always catered to center-right voters.<sup>26</sup> At the same time, both parties are characterized by a distinctively populist rhetoric; indeed, they are often cited as leading examples of populist European parties (see, e.g. Van Kessel, 2015; Jones and Pasquino, 2015; Verbeek and Zaslove, 2016). A potential reconciliation of the effect on *Forza Italia* and M5S is, thus, that higher support for *Forza Italia* reflects widespread populist attitudes (as opposed to a different ideological stance) among viewers exposed earlier to entertainment TV.

#### 5.4 Entertainment TV, populism, and right-wing values

In Table 6 we explore the effect of exposure to Mediaset on voters’ political preferences using individual-level data from the Italian National Election Study (ITANES), an ongoing survey conducted immediately before and after all Italian national elections since 1972. Each wave covers a representative sample of the Italian population – between 2,000 and 3,000 individuals – and includes detailed information on (self-reported) political preferences, media consumption, and a range of individual characteristics such as age, gender, education, and employment.<sup>27</sup> Crucially, the data also include information on the municipality of residence (1,878 in total), which allows us to assign to each respondent a value of Mediaset signal intensity in 1985. We can thus compare the effect of early exposure to Mediaset on political preferences for different groups of individuals. We include in the sample all individuals interviewed in every wave conducted between 1994 and 2013. All specifications include on the right-hand side the variables *Signal*, *Signal-Free*, all municipality-level control variables in column 5 of Table 3, gender and age of the respondent, and province and year fixed effects. Standard errors are clustered at the municipality level in all regressions.

The dependent variable in column (1) is a dummy for having voted *Forza Italia* in the previous election. The results of the individual-level analysis confirm those at the municipal level. Early exposure to Mediaset has a positive and statistically significant effect on voting for *Forza Italia*. In particular, a one standard deviation increase in pre-1985 signal intensity is associated with an increase in the probability of an individual

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<sup>25</sup>The effect on M5S is unaffected when controlling for access to broadband Internet, which previous research by Campante et al. (2013) shows was positively related with support for the M5S; see Table A6.

<sup>26</sup>Figure A6 of Appendix A shows the ideological stance of *Forza Italia*, the Democratic Party, and the M5S, as perceived by respondents of the Italian National Elections Study (described in the next section). Noticeably, more than one third of respondents are unable to locate the M5S on the left-right axis (as opposed to less than 10% for the other two parties), consistent with the party’s ideological ambiguity.

<sup>27</sup>The ITANES survey is described in detail in Bellucci and Maraffi (2008). It has been used, among others, by Bellucci and Heath (2012), Durante and Knight (2012), and Barone et al. (2016).

voting for *Forza Italia* of almost 3 percentage points – an even larger effect than that estimated across municipalities. This estimate is also very stable when restricting the sample to smaller municipalities, see the first graph in Figure 7.

Table 6: Exposure to Mediaset and Political Attitudes

|                | (1)                               | (2)                              | (3)                                  | (4)                        | (5)  | (6)  | (7)  |
|----------------|-----------------------------------|----------------------------------|--------------------------------------|----------------------------|--|--|--|
|                | Populist attitudes                |                                  |                                      | Right-wing values          |  |  |  |
|                | Voting for<br><i>Forza Italia</i> | “Politics is<br>too complicated” | “Politicians only<br>want your vote” | “Immigrants<br>steal jobs” | “Abortion should<br>be made more<br>difficult” | “Same-sex couples<br>should have<br>same rights” | “Common-law<br>marriages should<br>be recognized by law” |
| <i>Signal</i>  | 0.028<br>(0.012)                  | 0.023<br>(0.015)                 | 0.063<br>(0.023)                     | 0.043<br>(0.019)           | 0.016<br>(0.018)                               | 0.020<br>(0.021)                                 | -0.019<br>(0.022)  |
| Sample average | [0.31]                            | [0.80]                           | [0.70]                               | [0.46]                     | [0.43]   | [0.59]   | [0.77]   |
| Observations   | 10,565                            | 6,388                            | 6,551                                | 7,903                      | 8,756  | 4,784  | 4,213  |
| R-squared      | 0.094                             | 0.049                            | 0.159                                | 0.073                      | 0.110  | 0.110  | 0.101  |

*Note:* The table illustrates the effect of early exposure to Mediaset on individual political preferences, using survey data from various waves of the Italian National Election Study (ITANES) conducted between 1994 and 2013. The dependent variable in column (1) is a dummy equal to 1 for having voted for *Forza Italia* in the previous election; in columns (2) to (7) it is a dummy equal to 1 for individuals agreeing with the statements indicated on top of each column. The sample average of all dependent variables is reported in square brackets. The main explanatory variable, *Signal*, is Mediaset signal strength in 1985. All regressions also include on the right-hand side the following municipal controls: *SignalFree*, *Area*, *Altitude*, *Area*<sup>2</sup>, *Altitude*<sup>2</sup>, *Log income per capita*, *Education* and *Population 1981*; plus province and election year fixed effects, and *Age* and *Gender* of the respondent. Heteroskedasticity-robust standard errors clustered at the municipal level in parentheses.

In the remaining columns of Table 6 we further characterize the effect of early exposure to entertainment TV on political preferences exploiting additional information included in ITANES. Early Mediaset viewers sympathize with typical populist messages, such as “Politics is too complicated”, and “Politicians only want your vote” (columns 2 and 3, respectively). They are also more likely to believe that “Immigrants steal jobs from natives” (column 4). While the latter political stance is common to both populist and right-wing parties, early Mediaset viewers are *not* more likely to support traditional right-wing values: opposition to abortion, same-sex marriages, and common law marriages (columns 5-7).

Overall, the evidence in Table 6 suggests that entertainment TV made viewers more receptive to populist propaganda – rather than more supportive of Berlusconi or, more generally, the conservative camp.

## 6 Mechanisms

We next investigate which categories of viewers were more deeply affected, and through which mechanisms.

### 6.1 Effects by age

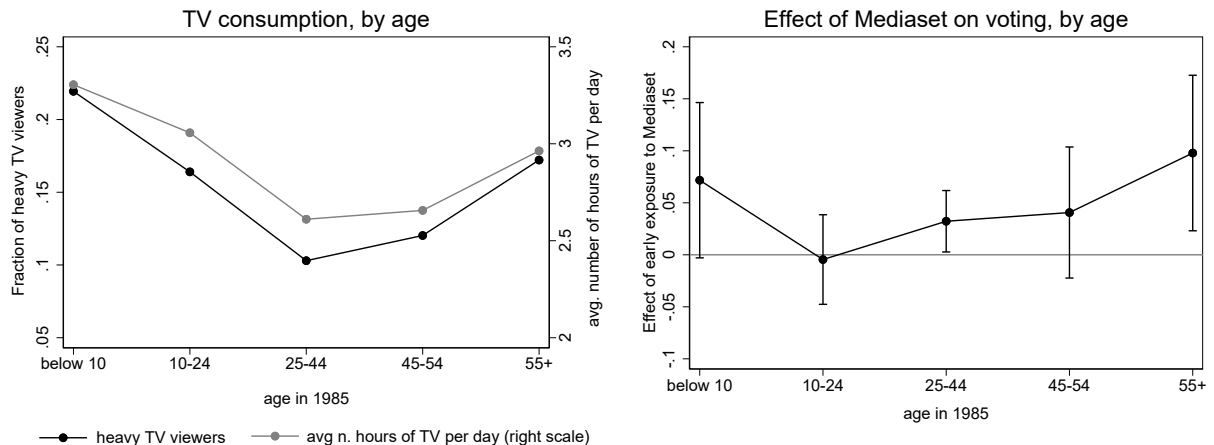
Intuitively, early exposure to Mediaset should have a greater impact on individuals spending more time watching TV. The survey on leisure time use conducted by ISTAT in 1983

contains detailed information on media consumption by a representative sample of the Italian population (ISTAT, 1986). The age profile of TV viewers is U-shaped, with children, youth, and retirees spending more hours watching TV than adults between 25 and 55; see the left graph in Figure 6.<sup>28</sup>

We then classify individuals in the ITANES survey by their age in 1985, using the same age categories as the ISTAT time use survey, and estimate the effect of exposure to Mediaset separately for each age group. The specification is identical to that used in Table 6, i.e., controlling for *SignalFree*, all municipality-level variables included in column (5) of Table 3, province and election fixed effects, and age and gender of the respondent.

The right graph in Figure 6 shows that the effect of Mediaset is larger and statistically significant for individuals exposed in very young or old age – i.e., below 10 and 55 and above, respectively – whereas there is no significant effect on the other age cohorts. This is consistent with children and retirees comprising the highest fraction of heavy TV consumers, defined as those watching at least 5 hours of TV per day. Indeed, TV consumption and Mediaset effects exhibit the same age profile in Figure 6.

Figure 6: TV consumption and effect of early exposure to Mediaset by cohorts



*Note:* The left graph depicts the share of heavy TV viewers (i.e., watching 5 hours or more of TV per day) and the average number of hours of TV per day for the same age groups. The right graph shows OLS estimates (and associated confidence intervals) of the effect of early exposure to Mediaset on the probability of voting for *Forza Italia* by age group, using the same classification as in Table A7. The OLS specification is the same as in column (1) of Table 6.

The results by age group also provide important insights into the extreme persistence of the effect of entertainment TV. Indeed, the average effect of Mediaset on the probability of voting for *Forza Italia* across all individuals – 2.9 percentage points – is entirely driven by the large effect on younger and older cohorts – 7.8 and 9.8 percentage points, respectively. The former group includes individuals below 10 in 1985, who would join the voting population starting in 1994 and who would gradually replace the older cohorts, leaving

<sup>28</sup>The results of the survey are summarized in Appendix Table A7. In the 1980s the retirement age in Italy was between 55 and 60 for most categories of workers.



the overall share of voters influenced by Mediaset largely unchanged. Indeed, these two cohorts account together for about 20 percent of voting population since 1994.<sup>29</sup>

## 6.2 Discussion of potential mechanisms

We explore three possible mechanisms through which entertainment TV may have influenced the political preferences of early Mediaset viewers and their attitudes towards Berlusconi’s party or toward populist parties more generally.

The first possibility is that exposure to entertainment TV may have negatively affected children’s cognitive abilities, making them more vulnerable to populist rhetoric as adults. This hypothesis is consistent with evidence that less educated voters are more likely to support populist parties (Arzheimer, 2009). A large literature in medicine, psychology, education, and, more recently, in economics has investigated the effect of television on children’s cognitive development. While a number of studies indicate that exposure to TV at young ages is associated with attention problems, delayed language development, and lower educational attainment (Christakis et al., 2004; Landhuis et al., 2007; Chonchaiya and Pruksananonda, 2008; Hancox et al., 2005), evidence in this regard is not uncontroversial. For example, a prominent study by Gentzkow and Shapiro (2008) finds that access to television in the U.S. in the 1950s had a positive although moderate effect on children’s standardized test scores. Importantly, the effect of TV seems to vary considerably depending on the type of content. While exposure to age-appropriate educational programs can be beneficial for cognitive development and school attainment, entertainment programs, particularly fast-paced and violent ones, tend to have the opposite effect (Anderson et al., 2001; Ennemoser and Schneider, 2007; Zimmerman and Christakis, 2007; Kirkorian et al., 2008; Christakis et al., 2013; Hernæs et al., 2017; Kearney and Levine, 2015a).<sup>30</sup> Consumption of entertainment TV would be detrimental because it crowds out other more cognitively challenging activities such as reading, studying, or role-playing, as well as media consumption of educational material (Williams, 1985, 1986; Shin, 2004; Hernæs et al., 2017; Khan et al., 2017).

The second hypothesis is that consumption of entertainment TV at early ages may have contributed to making individuals less socially engaged and civic-minded, for example by crowding out more socially engaging collective activities. This argument was popularized by Putnam (2000) in his seminal work on the decline of civic engagement in the United States, and is consistent with evidence from other disciplines of the negative impact of

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<sup>29</sup>Appendix B shows the evolution of the age distribution of voters since 1994 and the implied effects on voting for *Forza Italia* using administrative data provided by the Istituto Cattaneo, an independent research center in Italy.

<sup>30</sup>Comprehensive surveys of the literature on the risks associated with excessive consumption are available from Schmidt and Vandewater (2008) and Anderson and Pempek (2005). Similar evidence of the detrimental effects of early exposure to TV, has motivated the American Association of Pediatrics (2001) to recommend parents to “limit children’s total media time (with entertainment media) to no more than 1 to 2 hours of quality programming per day”.

exposure to television on social skills (Mistry et al., 2007; Christakis et al., 2013) and social capital (Olken, 2009). Putnam also draws an important distinction between informative and non-informative content: while news and educational programs are likely to foster viewers’ civic engagement and political awareness, entertainment TV would have the opposite effect.<sup>31</sup> Less engaged voters, in turn, are more likely to be attracted to populist parties with personalistic leadership than to parties relying on the active participation of their members (Mazzoleni et al., 2003). In light of this argument, and of the marked differences in TV content between Mediaset and public channels documented in Section 2.1, early exposure to Mediaset should have favored populist parties such as *Forza Italia* and the M5S over more traditional mass parties like the PD.

Finally, early Mediaset viewers may have simply been more likely to know who Berlusconi was when he first ran for office, or they may have been more sympathetic towards him out of gratitude for the unprecedented entertainment opportunities offered by his TV channels.

### 6.3 The effect of entertainment TV on cognitive skills and civic attitudes

We investigate empirically the mechanisms described above using psychometric tests from military service records on the universe of Italian conscripts; adult literacy and numeracy tests from the OECD Programme for the International Assessment of Adult Competencies (PIAAC); and political and civic attitudes from ITANES.

With regard to military records, until 2005 military service was compulsory in Italy and all males turning 18 were required to complete a thorough physical and psychological examination assessing their suitability for military service. The psychological test, which was partly based on the Minnesota Multiphasic Personality Inventory (a standardized psychometric test used to elicit individual personality traits, see e.g. Hathaway and McKinley, 1951), produced a measure of “general intelligence” ranging between 1 and 7. Individuals scoring 1 or 2 were deemed unfit for the army and exempted from service. We obtained access to restricted-use data on all conscripts born between 1973 and 1978. These individuals were 7-12 years old in 1985, such that they largely correspond to the first age group in Table A7 and Figure 6. The data also include the municipality of residence – which we use to match respondents with Mediaset signal strength in 1985.<sup>32</sup>

In Table 7 we investigate the effect of early exposure to Mediaset on the general

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<sup>31</sup>More recently, Aarts and Semetko (2003) and Prior (2005) show that watching entertainment TV is correlated with lower political knowledge and participation. The impact of entertainment television on socio-political engagement has also been examined in the literature on political communication (see Delli Carpini, 2012, for a survey of the most relevant contributions).

<sup>32</sup>These data were assembled by Peracchi and Arcaleni (2011) to investigate the evolution of physical characteristics of young Italian men. We are extremely grateful to Peracchi and Arcaleni for sharing their data with us.

intelligence score (columns 1 and 2) and on the probability of being exempted due to receiving a low general intelligence score (columns 3 and 4). The baseline specification in the odd columns replicates that used for the individual-level regressions in Figure 6 (i.e., controlling for age, the baseline set of municipal characteristics, and for province fixed effects).<sup>33</sup> Conscripts exposed to entertainment TV during childhood perform worse on psychometric tests compared to their peers who were not exposed, though the effect is relatively small (column 1). However, the increase in the probability of being exempted is substantial: +0.2 percentage points, or 8 percent of the baseline (column 3). Therefore, early exposure to entertainment TV is particularly detrimental for individuals in the bottom part of the distribution of general intelligence score. Since, in this case, the sample is extremely large, we can also exploit variation within narrower geographical areas, namely local labor markets. When we do so, the estimates increase considerably (even columns). Overall, the evidence in Table 7 suggests that exposure to entertainment TV during childhood increases the probability of receiving very low scores on psychometric tests by 8 to 25 percent over the baseline.

Table 7: Exposure to Mediaset as a child and adult cognitive skills

|                       | (1)                               | (2)               | (3)                              | (4)              |
|-----------------------|-----------------------------------|-------------------|----------------------------------|------------------|
|                       | <i>general intelligence score</i> |                   | <i>exempted (score = 1 or 2)</i> |                  |
| <i>Signal</i>         | -0.023<br>(0.012)                 | -0.045<br>(0.018) | 0.002<br>(0.001)                 | 0.006<br>(0.002) |
| Sample average        | [5.09]                            | [5.09]            | [0.024]                          | [0.024]          |
| Province FE           | YES                               | NO                | YES                              | NO               |
| Local labor market FE | NO                                | YES               | NO                               | YES              |
| Observations          | 1,360,036                         | 1,360,023         | 1,360,036                        | 1,360,023        |
| R-squared             | 0.052                             | 0.059             | 0.034                            | 0.041            |

*Note:* The table illustrates the effect of being exposed to entertainment TV as a child on adult cognitive skills, as measured by psychometric tests partly based on the Minnesota Multiphasic Personality Inventory (Hathaway and McKinley, 1951). The tests were administered to all Italian males at the time of military conscription (i.e., turning 18 or a few years older). The sample includes all conscripts born in the period 1973-1978. The dependent variable in columns (1)-(2) is a “general intelligence” score ranging between 1 and 7; the dependent variable in columns (3)-(4) is a dummy equal to 1 for individuals exempted from service for scoring particularly low (1 or 2). The sample average of all dependent variables is reported in square brackets. The main explanatory variable, *Signal*, is Mediaset signal strength in 1985. All regressions also include on the right-hand side all municipal controls reported in Table 6, province or LLM fixed effects (odd and even columns, respectively), plus *Age*. Heteroskedasticity-robust standard errors clustered at the municipality-age cohort level in parentheses.

We obtain qualitatively similar results using alternative measures of cognitive development available from the OECD-PIAAC survey on adults’ proficiency in literacy and numeracy (see Schleicher, 2008, for a description). In Italy, the survey was conducted in 2012 on a sample of 4,598 individuals, representative of the adult population between 16

<sup>33</sup>In principle, military examination was compulsory upon turning 18. Nevertheless, around 2% of conscripts in our data are one or a few years older than 18.

and 65 years of age. This is a relatively small sample compared to the universe of military conscripts in Table 7. On the other hand, it allows to estimate the effect on individuals – both males and females – exposed to Mediaset at very different ages. In addition, PIAAC scores in literacy and numeracy provide a more standard measure of cognitive skills than military entry tests.

We obtained access to a restricted-use version of the data that includes information on the municipality of residence – which we use to match respondents with Mediaset signal strength in 1985 – as well as age, gender, and other individual characteristics. In columns (1) and (2) of Table 8 we regress the PIAAC scores in numeracy and literacy on Mediaset signal strength in 1985. The specification is identical to that used for the individual-level regressions in Table 6 and Figure 6 (i.e., controlling for age, gender, the baseline set of municipal characteristics, and for province fixed effects). Each row in Table 8 reports the estimated coefficient from a separate regression on the subsample of individuals in a given age group, following the same classification as in Table A7 and Figure 6 (age in 1985 is reported in the first column of the table).<sup>34</sup> We find that adults first exposed to Mediaset at very young ages (i.e., below 10) perform significantly worse both in numeracy and literacy. In particular, a one standard deviation increase in Mediaset signal strength reduces numeracy and literacy test scores by about one fourth and one fifth of a standard deviation, respectively. We find no significant effect on cognitive achievement of individuals exposed at later ages.

Early exposure to Mediaset has a similar effect on civic engagement, as measured by the ITANES survey. Specifically, the dependent variable in column (3) of Table 8 is a dummy for being fairly or very interested in politics, and the dependent variable in column (4) is a dummy for being a member of any voluntary association, including political parties, unions, or cooperatives; these are also the main measures of civic engagement considered by Putnam (2000). The effect is again negative only for individuals that were first exposed during childhood, the magnitude being also similar to the effect on cognitive skills, i.e., about a fifth of a standard deviation.

All individual-level results on cognitive skills and civic engagement in Tables 7 and 8 are unaffected when restricting to smaller municipalities, see Figure 7. In Appendix D we provide additional evidence regarding the effect on civic engagement using census data on the number of voluntary associations in 1981, 1991, and 2001.

Overall, these results suggest that early exposure to entertainment TV led to a decrease in cognitive sophistication and civic engagement, but only for individuals exposed during childhood. This is consistent with extensive evidence in economics, neurosciences, and developmental psychology that early childhood is a critical period for the develop-

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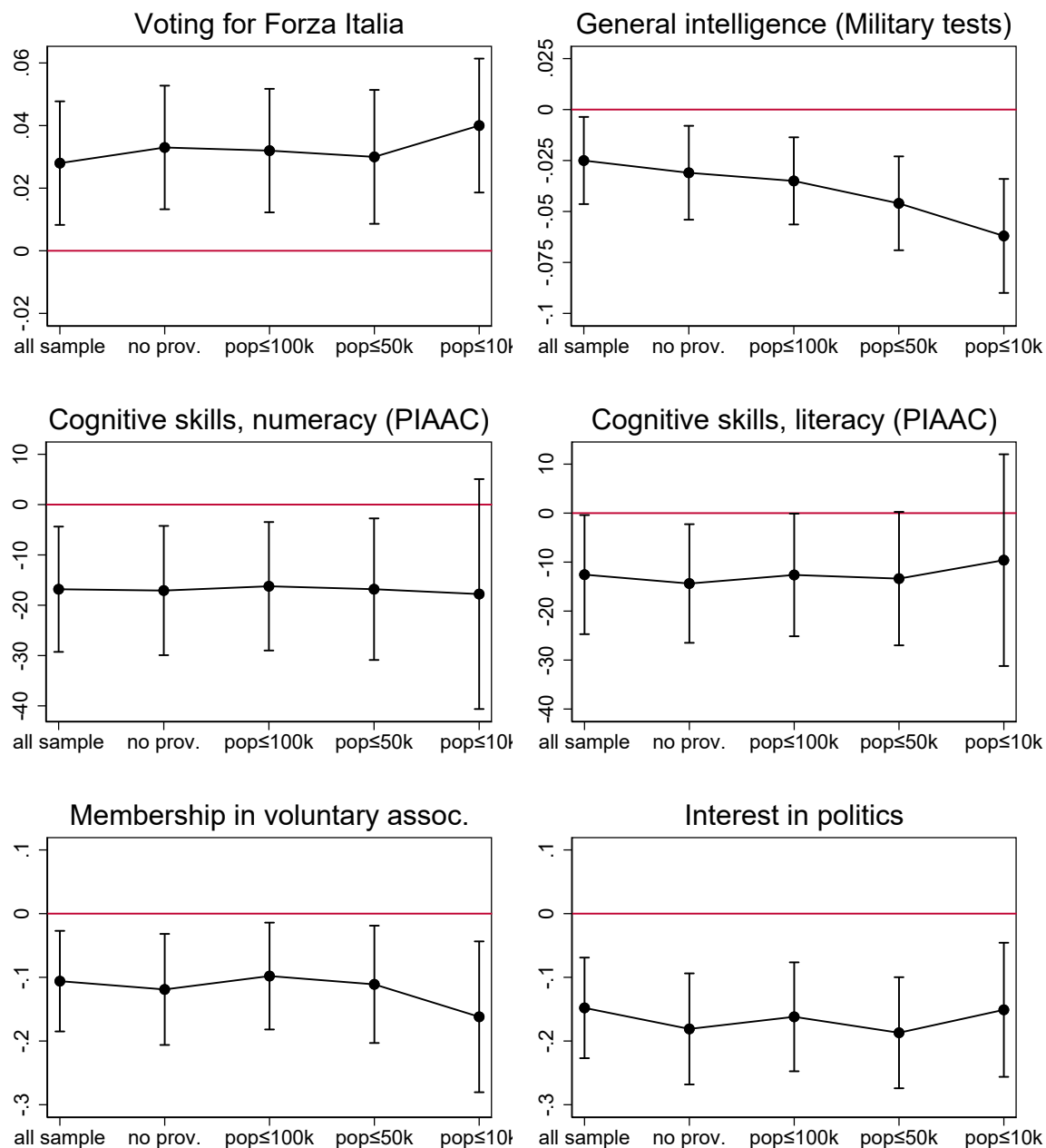
<sup>34</sup>Since the survey was conducted in 2012 on individuals below 65 years of age, the oldest cohort of respondents was born in 1947. This restricts the age categories for PIAAC to individuals who were at most 38 in 1985.

Table 8: Exposure to Mediaset at different ages and adult cognitive skills, civic engagement, and TV news consumption

|                | (1)                | (2)                | (3)                  | (4)                        | (5)               |
|----------------|--------------------|--------------------|----------------------|----------------------------|-------------------|
|                | PIAAC              |                    | ITANES               |                            |                   |
|                | Numeracy score     | Literacy score     | Interest in politics | Membership of associations | News on Mediaset  |
| Below 10       | -16.820<br>(7.570) | -12.560<br>(7.390) | -0.147<br>(0.048)    | -0.105<br>(0.049)          | 0.038<br>(0.064)  |
| Age 10-24      | -2.390<br>(5.570)  | -0.790<br>(5.160)  | 0.008<br>(0.029)     | 0.013<br>(0.031)           | 0.032<br>(0.030)  |
| Age 25-44      | -2.170<br>(6.060)  | -1.920<br>(5.300)  | 0.020<br>(0.018)     | -0.038<br>(0.021)          | 0.006<br>(0.024)  |
| Age 45-54      |                    |                    | 0.010<br>(0.050)     | 0.024<br>(0.049)           | -0.007<br>(0.050) |
| 55 or more     |                    |                    | -0.033<br>(0.053)    | -0.065<br>(0.051)          | 0.170<br>(0.070)  |
| Sample average | [252.9]            | [256.4]            | [0.355]              | [0.355]                    | [0.389]           |

*Note:* The table examines the effect of being exposed to entertainment TV at different ages (rows) on various individual outcomes in adulthood (columns). The age groups follow the same classification as in Table A7 and refer to age in 1985. The sample in columns (1) and (2) includes all respondents to the Italian module of the OECD's Program for the International Assessment of Adults Competencies (PIAAC) survey, conducted in 2012. The dependent variables are the scores obtained in the numeracy (column 1) and literacy (column 2) part of the PIAAC tests. The sample in columns (3) to (5) includes individuals interviewed in the context of the Italian National Election Study (ITANES) surveys conducted between 1994 and 2013. The dependent variables are binary indicators for whether the respondent reported being interested in politics (column 3), participating in any kind of voluntary associations (column 4), and watching news on Mediaset channels (column 5). The sample average of all dependent variables is reported (in square brackets) at the bottom of the table. Each entry reports the estimated coefficient (and corresponding standard error) of *Signal* from a regression including province fixed effects, all municipal controls reported in Table 6, and *Gender* and *Age* of the respondent. The specifications in columns (3) to (5) also control for election year fixed effects. Heteroskedasticity-robust standard errors clustered at the municipal level in parentheses.

Figure 7: Exposure to Mediaset and individual-level outcomes, robustness



*Note:* These graphs show the estimated effect of *Signal* on individual-level outcomes (and associated confidence intervals) when restricting the sample to progressively smaller municipalities – indicated on the horizontal axis.

ment of cognitive skills and personality traits (see, e.g., Heckman, 2006). The similarly large effect of early exposure to Mediaset for the older cohorts (55+ in 1985) seems instead driven by a higher probability of watching Mediaset newscasts after these were introduced in 1991. This result is shown in column (5) of Table 8, where the dependent variable is a dummy for watching news primarily on Mediaset. Early exposure to Mediaset increases the probability of watching Mediaset newscasts after 1991 by 16.6 percentage points among individuals who were 55 or older in 1985. The larger support for *Forza Italia* among these cohorts could therefore be attributed to their exposure to the markedly pro-Berlusconi bias of Mediaset newscasts (documented by Durante and Knight, 2012).

To summarize, the evidence presented thus far confirms that entertainment TV influenced the voting behavior of individuals exposed at very young or older ages. However, the two groups were affected in very different ways: while younger cohorts experienced a decline in cognitive abilities and civic engagement, older cohorts were hooked on Mediaset and later exposed to biased news content on the same channels.

## 6.4 The effect of cognitive skills and civic engagement on voting

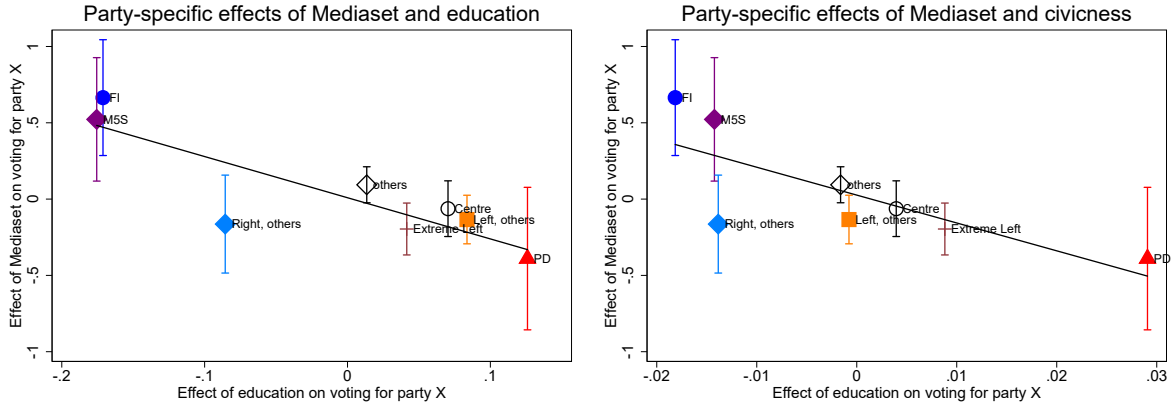
We next examine the implications of a decline in cognitive abilities and civic engagement – potentially favored by exposure to entertainment TV, particularly at a young age – for voting behavior across parties. Intuitively, parties that cater to less educated and less civic-minded voters should benefit from the introduction of Mediaset. Therefore, the effect of entertainment TV on voting for a given party should be inversely related to the effects of cognitive skills and civic engagement on voting for the same party. To test this implication, we re-estimate our baseline equation (1) separately for each party, including both the share of population with higher education (an imperfect proxy for cognitive skills) and the number of voluntary associations per capita on the right-hand side of the equation. Both variables are measured in 1981 (i.e., prior to the expansion of Mediaset). The equation is estimated pooling together all elections and including year fixed effects.

The results are reported in Figure 8, in which we plot the coefficients of *Signal* on voting for each party against the corresponding coefficients for education (left graph) and for the number of voluntary associations (right graph). Both graphs display a strong negative relationship. This indicates that parties that fare worse among more educated and civic-minded voters – namely, *Forza Italia* and M5S – are precisely those that gained the most from the advent of Mediaset, while parties with higher support among these groups – notably the PD – were disadvantaged.<sup>35</sup>

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<sup>35</sup>The estimated coefficients of interest and standard errors are reported in the top panel of Table A8 of Appendix A. In the bottom panel of the table we also interact *Signal* with both education and civic engagement, as the evidence in Figure 8 could alternatively be explained by heterogeneous effects of entertainment TV across municipalities with different levels of education and civic engagement. However, the interaction coefficients are generally non-significant, such that the relationship between the effect of

Figure 8: The effect of exposure to Mediaset, education, and civic engagement on parties’ electoral support



*Note:* The figure illustrates the relationship between the effect of exposure to Mediaset (and associated confidence intervals) and the effects of education and civic engagement, respectively, on support for the main parties of the Second Republic. In particular, the left and right graphs plot the coefficient of *Signal* (vertical axis) against, respectively, the coefficients of schooling levels and civic engagement in 1981 (horizontal axis). The coefficients are obtained from estimating equation (1) separately for each party, pooling together results of all elections and including year fixed effects.

## 6.5 Additional evidence from political discourses

One reason populist leaders may be particularly appealing to less sophisticated voters is because they use a language that is more direct and easier for ordinary citizens to understand (Canovan, 1999; Moffitt and Tormey, 2014).<sup>36</sup>

We test whether Berlusconi’s communication style is indeed more accessible than that of other Italian politicians using text data from two sources: party manifestos and TV debates. Party manifestos are issued by political parties to communicate their electoral platform to voters, and have been widely used to infer parties’ ideological positions (Gabel and Huber, 2000). We obtained from the Manifesto Project Database the electoral manifestos of all main parties running in Italian general elections since 1983, for a total of 34 manifestos (reported in Table A11) and a corpus of almost 650,000 words. We then coded the texts in terms of their language simplicity using the Gulpease Index (GI), which adapts the Flesch-Kincaid Index of readability to the Italian language (Flesch, 1948; Kincaid et al., 1975; Tonelli et al., 2012). In particular, the GI is an inverse function of the average length of sentences and words, and ranges from 0 (minimum readability) to 100 (maximum readability).

While electoral manifestos are widely used in political analyses, other forms of political communication may be more appropriate for our purposes. Specifically, communication

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Mediaset and the effects of education and civic engagement is unaffected when allowing for interaction effects; see Figure A7 in Appendix A.

<sup>36</sup>Some authors have even defined populism as a communication style, a “communication frame that appeals to and identifies with the people and pretends to speak in their name” (Jagers and Walgrave, 2007). For a survey of the most relevant contributions on the political communication of European populist parties see Aalberg et al. (2016).



style in TV appearances may be more relevant for explaining differences in voting between individuals differentially exposed to Mediaset. For this reason, we transcribed a large corpus of televised interventions by the main Italian political leaders during all electoral campaigns of the Second Republic. Appendix E describes the criteria used to select TV appearances, and the final list of interventions used in our analysis (Table A12). The corpus comprises 43 televised interventions by 16 politicians, for a total of over 55 hours of footage and 320,000 spoken words. The main drawback of this alternative source is that we cannot rely on the GI, as the latter heavily depends on punctuation that is partly arbitrary in transcriptions of spoken language. We therefore assessed the simplicity of the language used by each politician based on the share of “simple” words, as defined by De Mauro and Vedovelli (1980), over other (i.e., non-simple) words.

In Table 9 we regress our two linguistic indexes on a dummy equal to one for *Forza Italia*, across all parties and elections over the period 1994-2013. *Forza Italia* and its leader adopt a much simpler communication style than the other parties and leaders. According to the baseline specification (columns 1 and 4), differences amount to half of a standard deviation in the GI and one standard deviation in spoken language simplicity, respectively. These estimates are only slightly affected when controlling for year fixed effects (columns 2 and 5) and for a dummy for right-wing parties (columns 3 and 6). Indeed, ideology does not seem to matter for politicians’ communication style: the coefficient of the dummy for right-wing parties is not statistically significant and small in magnitude. Instead, communication style is most similar between Berlusconi and the populist leader of the M5S; see the additional evidence in Figure A9 of Appendix E. The M5S is also the only other party attracting votes from individuals that were exposed earlier to entertainment TV (Table 5). These last findings dovetail nicely with the results in Table 6 on the relative importance of populist attitudes and ideology for explaining our results.

Overall, this evidence is consistent with the hypothesis that a more accessible communication style may be partly responsible for the greater support of early Mediaset viewers for Berlusconi (and, to a lesser extent, for other populist leaders).

## 6.6 Additional mechanisms

The results presented thus far suggest that early exposure to entertainment TV influenced political preferences through an impoverishment of cognitive skills and civic engagement (for younger cohorts) and through later exposure to biased news (for older cohorts). We next move to our third hypothesis, namely that early Mediaset viewers were more likely to know Berlusconi when he first ran for office and they were more sympathetic towards him.

To investigate this possibility, we exploit additional survey data on Berlusconi’s popularity. We estimate the same baseline specification as in column (1) of Table 6. Our first

Table 9: Readability of party manifestos and communication styles in TV debates

|              | (1)                   | (2)              | (3)              | (4)                             | (5)              | (6)               |
|--------------|-----------------------|------------------|------------------|---------------------------------|------------------|-------------------|
|              | Party manifestos      |                  |                  | TV debates                      |                  |                   |
|              | <i>Gulpease Index</i> |                  |                  | <i>% of commonly used words</i> |                  |                   |
| Forza Italia | 5.962<br>(1.319)      | 5.260<br>(1.593) | 5.212<br>(2.019) | 2.465<br>(0.816)                | 2.319<br>(0.613) | 3.263<br>(0.989)  |
| Right-wing   |                       |                  | 0.065<br>(1.426) |                                 |                  | -1.250<br>(1.158) |
| Observations | 34                    | 34               | 34               | 37                              | 37               | 37                |
| n. of words  | 648,357               | 648,357          | 648,357          | 290,014                         | 290,014          | 290,014           |
| Year FE      | NO                    | YES              | YES              | NO                              | YES              | YES               |
| R-squared    | 0.260                 | 0.467            | 0.467            | 0.261                           | 0.545            | 0.565             |

*Note:* The table shows differences in the communication style of Berlusconi and its party, Forza Italia, compared to the other political leaders and parties in Italy. The dependent variable in columns (1) to (3) is the Gulpease Index, a standard measure of text readability, computed on the electoral manifestos issued by the main Italian parties before all general elections since 1983. The dependent variable in columns (4) to (6) is the share of commonly used words used by the main Italian politicians in relevant TV appearances since 1989 (Appendix E provides additional details). The main explanatory variable is a dummy equal to 1 for the electoral manifestos issued by *Forza Italia* (columns 1-3) and TV appearances of Berlusconi (columns 4-6). Specifications in columns (2)-(3) and (5)-(6) include year fixed effects, and specifications (3) and (6) also include a dummy for right-wing parties and leaders, respectively. Observations are weighted by the number of words in each party manifesto and TV debate, respectively, and the total number of words is reported at the bottom of the table. Heteroskedasticity-robust standard errors are reported in parentheses.

data source is a poll conducted by Italian pollster SWG in 1993 – before Berlusconi even entered politics – in which respondents were asked to identify up to two individuals that “had done most for Italy”. A fairly high share of respondents (13.3%) indicated Berlusconi as one of their choices, but there is no correlation with better access to Mediaset in 1985; see column (1) of Table 10. In the remaining columns of the table, we exploit information about knowledge and perceptions of Berlusconi available from some waves of the ITANES survey. More than 90% of respondents already knew of Berlusconi when he first entered politics in 1994; most importantly, there are no significant differences between areas with earlier or later access to Mediaset. The subsequent waves of the survey include questions about specific qualities (e.g., honesty, sincerity, or statesmanship). We find little evidence that early Mediaset viewers were more likely to evaluate Berlusconi more positively: of the six coefficients in columns (3) to (8), only one is significantly different from zero. The effect on the overall rating of Berlusconi, on a scale between 1 and 10, is also not significantly different from zero (column 9).

These findings seem to exclude that early Mediaset viewers had either better knowledge of Berlusconi or a better opinion about him. Indeed, “name recognition” hardly played any role in the elections after 1994, when Berlusconi became Italy’s best known politician. Also, better opinions about Berlusconi would be hard to reconcile with the positive effect

of early exposure to Mediaset on voting for the M5S, which has traditionally been very critical of Berlusconi’s conduct.

Overall, we conclude that early Mediaset viewers did not idealize Berlusconi’s qualities as either a man or a politician. Rather, they appear to filter such qualities through a different system of values, presumably influenced by their prior exposure to Mediaset. This is also consistent with the fact that they later abandoned Berlusconi, but remained nevertheless receptive to the propaganda of another populist leader.

Table 10: Exposure to Mediaset and opinions about Berlusconi

|                | (1)                           | (2)                      | (3)       | (4)     | (5)      | (6)     | (7)         | (8)       | (9)              |
|----------------|-------------------------------|--------------------------|-----------|---------|----------|---------|-------------|-----------|------------------|
|                | Done most for<br>Italy (1993) | Don’t know<br>him (1994) | Qualified | Honest  | Coherent | Sincere | Trustworthy | Statesman | Rating<br>[1-10] |
| <i>Signal</i>  | 0.075                         | -0.001                   | 0.010     | 0.001   | -0.046   | -0.031  | 0.045       | -0.029    | 0.076            |
|                | (0.068)                       | (0.017)                  | (0.030)   | (0.017) | (0.042)  | (0.042) | (0.026)     | (0.043)   | (0.068)          |
| Sample average | [0.132]                       | [0.094]                  | [0.619]   | [0.352] | [0.626]  | [0.581] | [0.518]     | [0.629]   | [5.37]           |
| Observations   | 519                           | 2,556                    | 4,761     | 7,766   | 2,632    | 2,551   | 4,840       | 2,630     | 13,584           |

*Note:* The table illustrates the effect of early exposure to Mediaset on knowledge and opinions about Berlusconi. The sample used in column (1) includes individuals surveyed in the context of a poll conducted by SWG in 1993. For the remaining columns the sample includes individuals interviewed in the context of the Italian National Election Study (ITANES) surveys conducted between 1994 and 2013. The dependent variable is a dummy for whether the respondent mentioned Berlusconi as one of the public figures who had done most for Italy in 1993 (column 1), a dummy for whether the respondent did not know who Berlusconi was (column 2), a dummy for whether the respondents believed Berlusconi to possess a specific quality (columns 3 to 8), and the overall rating on a 1-10 scale (column 9). The sample average of all dependent variables is reported in square brackets. Each entry reports the estimated coefficient (and corresponding standard error) of *Signal* from a regression including province fixed effects, election year fixed effects, all municipal controls reported in Table 6, and *Gender* and *Age* of the respondent. Heteroskedasticity-robust standard errors clustered at the municipal level in parentheses.

## 7 Conclusion

How does television affect viewers’ political preferences? While much research has focused on the political impact of news content, the possibility that exposure to entertainment programs may also shape political attitudes remains largely unexplored.

We examine this question by studying the consequences of the introduction of commercial television in Italy in the 1980s. We find that areas with early access to light entertainment TV channels prior to 1985 displayed higher vote shares for Berlusconi’s party, *Forza Italia*, in 1994, when he first ran for office. This effect is quite sizable (about 1.5%), it persists over five elections, and is more pronounced for individuals first exposed to entertainment TV at young ages. Regarding possible mechanisms, we show that individuals exposed to entertainment TV as children became both less cognitively sophisticated and less civic-minded as adults, and hence potentially more vulnerable to Berlusconi’s rhetoric. In line with this explanation, the political effect of entertainment TV extends to another party, the Five-Star Movement (M5S), that shares with *Forza Italia* a distinctively populist rhetoric. Indeed, both parties are especially popular among less educated and less civic-minded voters.

Our findings offer the first systematic evidence that exposure to entertainment television influences voting behavior, and suggests that this effect is mediated by deeper cognitive and cultural transformations. Although specific to the Italian case, our analysis provides more general insights into how cultural codes popularized by entertainment media can influence political preferences.

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# Web Appendix – Not for publication

## Appendix A Additional tables and figures

Table A1: Programming schedules, Mediaset vs. RAI 1983-1987

|              | (1)               | (2)                           | (3)              | (4)               | (5)               | (6)                     | (7)               | (8)                  | (9)               |
|--------------|-------------------|-------------------------------|------------------|-------------------|-------------------|-------------------------|-------------------|----------------------|-------------------|
|              | <b>total</b>      | <b>share of total airtime</b> |                  |                   |                   | <b>critics' reviews</b> |                   | <b>MPAA parental</b> |                   |
|              | <b>airtime</b>    | entert.                       | movies           | news              | educat.           | Mymovies                | Filmtv            | all day              | primetime         |
| Mediaset     | 3.896<br>(0.087)  | 0.354<br>(0.005)              | 0.132<br>(0.007) | -0.183<br>(0.005) | -0.281<br>(0.005) | -0.548<br>(0.055)       | -0.538<br>(0.065) | -0.025<br>(0.032)    | -0.070<br>(0.037) |
| Constant     | 12.420<br>(0.138) | 0.123<br>(0.014)              | 0.184<br>(0.013) | 0.238<br>(0.008)  | 0.404<br>(0.008)  | 5.699<br>(0.131)        | 6.652<br>(0.172)  | 0.133<br>(0.076)     | 0.181<br>(0.084)  |
| Observations | 9,512             | 2,378                         | 2,378            | 2,378             | 2,378             | 3,205                   | 2,990             | 863                  | 523               |
| R-squared    | 0.541             | 0.610                         | 0.248            | 0.367             | 0.654             | 0.041                   | 0.035             | 0.026                | 0.058             |

*Note:* This table compares Mediaset and RAI programming schedules during the first week of each month over the period 1983-1987 by the means of OLS regressions on a dummy equal to 1 for Mediaset channels. The dependent variables in columns (1) and (2)-(5) are, respectively, the total airtime per day, in hours, and the share devoted to each type of program on each channel-day (6 channels  $\times$  7 days  $\times$  12 months  $\times$  5 years = 2,378 observations). The dependent variables in columns (6) and (7) are the professional critics' ratings received by movies broadcast on the two networks on the websites Mymovies.it and Filmtv.it. Finally, the dependent variable in the last two columns is a dummy equal to 1 for movies suitable for general audiences, including children, according to the Motion Picture Association of America (MPAA). Column (8) includes all movies broadcast over the period, while column (9) movies broadcast in the afternoon and prime-time hours. All regressions include year, calendar month, and day of the week fixed effects. Standard errors clustered by day are reported in parentheses.

Table A2: Descriptive statistics

|   | unweighted sample |         |         |         | weighted by population in 1981 |        |         |        |
|---|-------------------|---------|---------|---------|--------------------------------|--------|---------|--------|
|   | obs.              | mean    | st.dev. | median  | obs.                           | mean   | st.dev. | median |
| Actual signal strength in 1985                      | 8010              | -55.708 | 124.258 | -32.466 | 7988                           | -6.821 | 104.577 | -0.196 |
| Signal strength in the free space                   | 8010              | -3.163  | 57.542  | -13.684 | 7988                           | 20.727 | 66.415  | 12.101 |
| Signal (standardized signal strength)               | 8010              | -0.388  | 1.000   | -0.230  | 7988                           | 0.010  | 0.830   | 0.014  |
| SignalFree (std. signal strength in the free space) | 8010              | -0.055  | 1.000   | -0.238  | 7988                           | 0.360  | 1.154   | 0.210  |
| Population in 1981 (ths.)                           | 7988              | 7.061   | 45.654  | 2.317   | 7988                           | 302.19 | 684.30  | 24.44  |
| Surface area (100s sq. Km)                          | 8010              | 0.372   | 0.500   | 0.217   | 7988                           | 1.559  | 2.832   | 0.629  |
| Altitude (ths. mt.)                                 | 8010              | 0.352   | 0.291   | 0.288   | 7988                           | 0.180  | 0.210   | 0.112  |
| Ruggedness  | 8000              | 218.50  | 209.44  | 161.80  | 7978                           | 126.99 | 146.67  | 69.75  |
| Electorate in 1994 (ths.)                           | 8010              | 6.04    | 36.05   | 2.07    | 7988                           | 239.01 | 548.47  | 21.80  |
| Log of income per capita                            | 7913              | 1.619   | 0.298   | 1.674   | 7908                           | 1.729  | 0.300   | 1.768  |
| Education, % higher education in 1981               | 7988              | 8.538   | 3.448   | 8.128   | 7988                           | 13.261 | 5.857   | 12.035 |
| Voluntary associations X 100 inhabitants, 1981      | 7584              | 0.099   | 0.134   | 0.056   | 7584                           | 0.103  | 0.085   | 0.087  |

Figure A1: Vote share of the main political parties and coalitions in Italian National Elections (1994-2013)

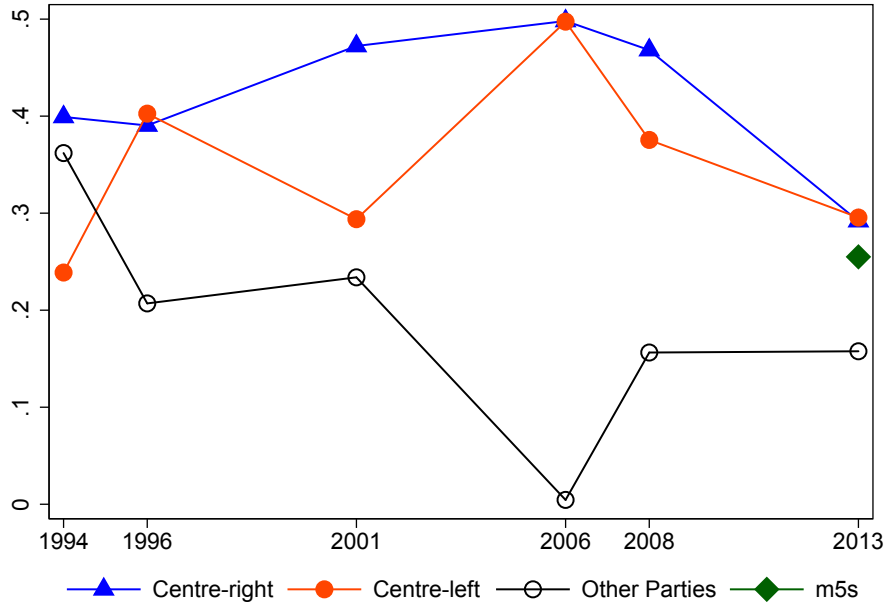


Table A3: Full baseline specification adjusting for spatial correlation in error terms

|               | (1)                | (2)              | (3)              | (4)  | (5)              | (6)              | (7)              | (8)              | (9)              |
|---------------|--------------------|------------------|------------------|--|------------------|------------------|------------------|------------------|------------------|
|               | One-way clustering |                  | 2-way clustering | Spatially-corrected standard errors (Conley, 1999) |                  |                  |                  |                  |                  |
|               | District           | LLM              | Distr. & LLM     | 10km   | 20km             | 30km             | 40km             | 50km             | 60km             |
| <i>Signal</i> | 0.851<br>(0.234)   | 0.851<br>(0.223) | 0.851<br>(0.211) | 0.851<br>(0.197)                                   | 0.851<br>(0.215) | 0.851<br>(0.246) | 0.851<br>(0.245) | 0.851<br>(0.235) | 0.851<br>(0.243) |
| Observations  | 7,519              | 7,519            | 7,495            | 7,482  | 7,482            | 7,482            | 7,482            | 7,482            | 7,482            |

*Note:* This table investigates the robustness of our baseline regression to different assumptions about the correlation of residuals across observations. Column (1) reproduces the baseline regression in column (5) of Table 3, with standard errors clustered by electoral district. Column (2) cluster residuals by local labor markets, while column (3) allows for two-way clustering on both dimensions. Columns (4) to (9) allow for spatial correlation in error terms applying Conley's (1999) approach and using different values of the reference distance.

Figure A2: Example of a technical report sheet for one of the Mediaset transmitters active in 1985

SCHEDA B IMPIANTO PRIVATO  RADIOFONICO  TV

ATTENZIONE Se l'impianto e' di solo collegamento al deve rispondere soltanto ai punti 36,37,38,39,40,41 ed ai punti dal 58 al 68.  
 Per la 'nessa in onda' si risponde soltanto ai punti 36,37,38,39,40,41.  
 Per i ripetitori di programmi esteri o nazionali non va compilata ovviamente la scheda di 'nessa in onda', ma va indicato al punto 67 per il solo primo impianto della catena, la stazione straniera o RAI ricevuta; gli impianti successivi vanno trattati normalmente.

R.F.T.E. SICILIA 36 Denominazione emittente  001 37 N. impianto

GALATI, MAMERTINO, S. JACOPO 38 Indirizzo impianto Tx o nome localita'

Centro abitato  39

HE 40 Provincia GALATI, MAMERTINO Comune

DIREZIONE CENTRALE SERVIZI RADIOELETTRICI  
 31 GEN. 1985  
 DCSR/SEGR/ 106064

114630 42 Longitud. 380127 43 Lat. (antenna) 931 44 Quote s.l.m.

45  46  47  48  Tipologia della ubicazione dell'impianto

63425 50 Portante 63645 51 Portante audiolper TV 41 52 Canale (TV) 53 Tipo offset 54 Posiz. offset (TV)

55 Potenza apparato 56 EL INDUSTRIALE Costruttore apparato 57 Anno costruzione

085 58 Riceve il segnale da: o da: 59 o da: 60

61 Mediante 62 Mediante: 63 Mediante 64 Riceve il segnale da:

511.25 65 Freq. (MHz) 66 Freq. (MHz) 67 Freq. (MHz) 68 Freq. (MHz)

HE 69 Sigla province interessate dal serv. di radiodiff. 70 Tipo di servizio

71 Localita' 1 esclusa deliberatamente dal servizio 72 Prov. 73 Metodo usato

74 Localita' 2 esclusa deliberatamente dal servizio 75 Prov. 76 Metodo usato

77 Localita' 3 esclusa deliberatamente dal servizio 78 Prov. 79 Metodo usato

Figure A3: Electoral districts, local labor markets, and provinces



Figure A4: Estimated expansion of Mediaset coverage, 1980-1990

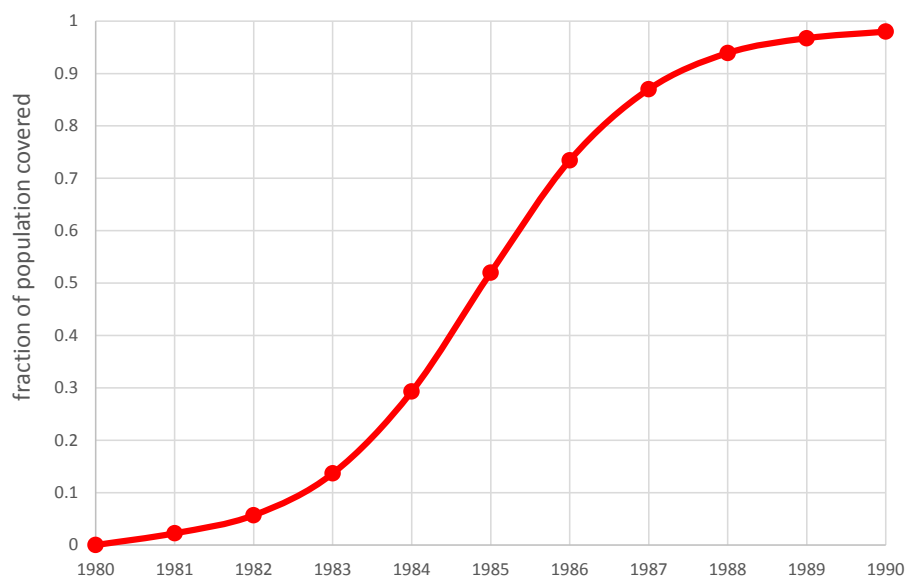


Table A4: Exposure to Mediaset and voting for the main Italian parties, 1976-1992 (balance test, matching estimates)

| Party, election                         | (1)               | (2)                | (3)               | (4)                |
|---|-------------------|--------------------|-------------------|--------------------|
|   | mean              | matching neighbors |                   |                    |
|   |                   | $\Delta \leq 1$    | $\Delta \leq 0.5$ | $\Delta \leq 0.25$ |
| Italian Communist Party, 1976           | 33.332<br>(0.137) | -0.489<br>(0.331)  | -0.362<br>(0.360) | -0.305<br>(0.418)  |
| Pentapartito, 1976                      | 54.95<br>(0.131)  | 0.249<br>(0.324)   | 0.141<br>(0.357)  | 0.043<br>(0.409)   |
| Other parties, 1976                     | 9.027<br>(0.082)  | 0.290<br>(0.108)   | 0.221<br>(0.127)  | 0.229<br>(0.147)   |
| Italian Communist Party, 1979           | 28.966<br>(0.138) | -0.415<br>(0.309)  | -0.386<br>(0.330) | -0.276<br>(0.383)  |
| Pentapartito, 1979                      | 55.153<br>(0.128) | 0.341<br>(0.320)   | 0.318<br>(0.353)  | 0.243<br>(0.404)   |
| Other parties, 1979                     | 11.672<br>(0.081) | 0.053<br>(0.124)   | 0.040<br>(0.148)  | 0.059<br>(0.165)   |
| Italian Communist Party, 1983           | 28.003<br>(0.138) | -0.459<br>(0.321)  | -0.471<br>(0.353) | -0.364<br>(0.402)  |
| Pentapartito, 1983                      | 53.607<br>(0.126) | 0.462<br>(0.328)   | 0.596<br>(0.366)  | 0.490<br>(0.417)   |
| Other parties, 1983                     | 12.522<br>(0.082) | 0.130<br>(0.137)   | 0.025<br>(0.161)  | 0.115<br>(0.197)   |
| Italian Communist Party, 1987           | 25.223<br>(0.133) | -0.674<br>(0.305)  | -0.615<br>(0.335) | -0.470<br>(0.379)  |
| Pentapartito, 1987                      | 54.73<br>(0.128)  | 0.484<br>(0.308)   | 0.497<br>(0.340)  | 0.451<br>(0.386)   |
| Other parties, 1987                     | 15.056<br>(0.088) | 0.173<br>(0.130)   | 0.126<br>(0.142)  | 0.096<br>(0.169)   |
| Italian Communist Party, 1992           | 15.171<br>(0.105) | -0.421<br>(0.231)  | -0.475<br>(0.264) | -0.401<br>(0.316)  |
| Pentapartito, 1992                      | 50.586<br>(0.145) | 0.455<br>(0.287)   | 0.434<br>(0.327)  | 0.571<br>(0.363)   |
| Other parties, 1992                     | 28.773<br>(0.136) | -0.100<br>(0.182)  | -0.023<br>(0.213) | -0.162<br>(0.240)  |
| Italian Communist Party, change 1979-83 | -0.963<br>(0.026) | -0.034<br>(0.152)  | -0.067<br>(0.180) | -0.089<br>(0.191)  |
| Pentapartito, change 1979-83            | -1.54<br>(0.038)  | 0.109<br>(0.173)   | 0.261<br>(0.208)  | 0.247<br>(0.219)   |
| Other parties, change 1979-83           | 0.851<br>(0.029)  | 0.079<br>(0.092)   | -0.015<br>(0.105) | 0.056<br>(0.122)   |

*Note:* The table reports the average vote shares obtained by the main parties and coalitions in each election between 1976 and 1992 (column 1) and their correlation with early exposure to Mediaset (columns 2-4). Specifically, columns (2), (3), and (4) compare vote shares between neighboring municipalities that differ in SignalFree by less than 1, 0.5, and 0.25, respectively, with one municipality having Signal above zero and the other one having Signal below zero. We form a sample of such neighbor-pairs and regress vote shares on Signal, controlling for neighbor-pair fixed effects (since each municipality can appear in more than one pair) and for terrain characteristics. Heteroskedasticity-robust standard errors clustered at the municipality level are reported in parentheses.

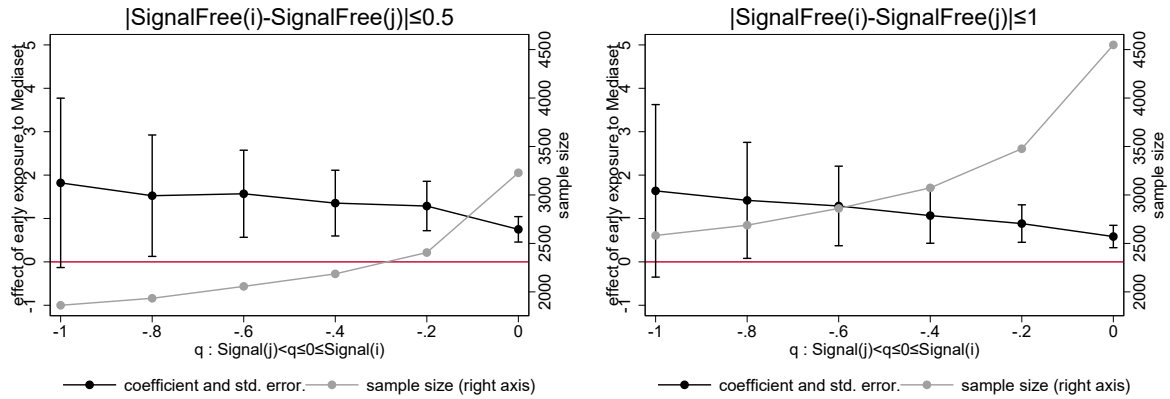
Table A5: Exposure to Mediaset and municipality characteristics (balance tests, matching estimates)

| Variable:                                       | (1)               | (2)                | (3)               | (4)                |
|---|-------------------|--------------------|-------------------|--------------------|
|   | mean              | matching neighbors |                   |                    |
|   |                   | $\Delta \leq 1$    | $\Delta \leq 0.5$ | $\Delta \leq 0.25$ |
| Population, thousands (1981)                    | 6.936<br>(0.579)  | 3.431<br>(1.956)   | 2.789<br>(2.700)  | 1.911<br>(1.686)   |
| Population, thousands (change 1981-2001)        | -0.713<br>(5.258) | -0.045<br>(0.163)  | -0.185<br>(0.232) | -0.182<br>(0.154)  |
| Log income per capita, thousand euros (1985)    | 1.738<br>(0.024)  | 0.008<br>(0.006)   | 0.004<br>(0.007)  | 0.003<br>(0.007)   |
| Higher education, percentage (1981)             | 13.183<br>(0.708) | 0.378<br>(0.131)   | 0.123<br>(0.138)  | 0.011<br>(0.158)   |
| Voluntary associations X 100 inhabitants (1981) | 0.103<br>(0.004)  | 0.002<br>(0.005)   | -0.002<br>(0.006) | -0.002<br>(0.008)  |
| Activity rate, percentage (1991)                | 42.258<br>(0.220) | 0.137<br>(0.114)   | 0.057<br>(0.130)  | 0.081<br>(0.155)   |
| Employment rate, percentage (1991)              | 35.074<br>(0.419) | -0.074<br>(0.112)  | -0.143<br>(0.126) | -0.146<br>(0.148)  |
| Unemployment rate, percentage (1991)            | 6.936<br>(0.202)  | -0.017<br>(0.123)  | -0.050<br>(0.146) | 0.003<br>(0.168)   |
| Firms per 1,000 inhabitants (1981)              | 50.927<br>(1.125) | -1.726<br>(0.605)  | -2.391<br>(0.728) | -1.431<br>(0.927)  |
| Firms per 1,000 inhabitants (change 1971-81)    | 10.182<br>(0.553) | -0.985<br>(0.549)  | -1.230<br>(0.675) | -0.670<br>(0.903)  |
| Firms' employees, thousands (1981)              | 78.1<br>(34.715)  | 1.289<br>(0.747)   | 1.216<br>(1.099)  | 0.778<br>(0.714)   |
| Firms' employees, thousands (change 1971-81)    | 2.717<br>(4.019)  | -0.045<br>(0.086)  | -0.161<br>(0.122) | -0.077<br>(0.081)  |

*Note:* The table reports the mean of municipality characteristics (column 1) and their correlation with early exposure to Mediaset (columns 2-4). Specifically, columns (2), (3), and (4) compare variables between neighboring municipalities that differ in *SignalFree* by less than 1, 0.5, and 0.25, respectively, with one municipality having *Signal* above zero and the other one having *Signal* below zero. We form a sample of such neighbor-pairs and regress each municipality characteristic on *Signal*, controlling for neighbor-pair fixed effects (since each municipality can appear in more than one pair) and for terrain characteristics. Heteroskedasticity-robust standard errors clustered at the municipality level are reported in parentheses.

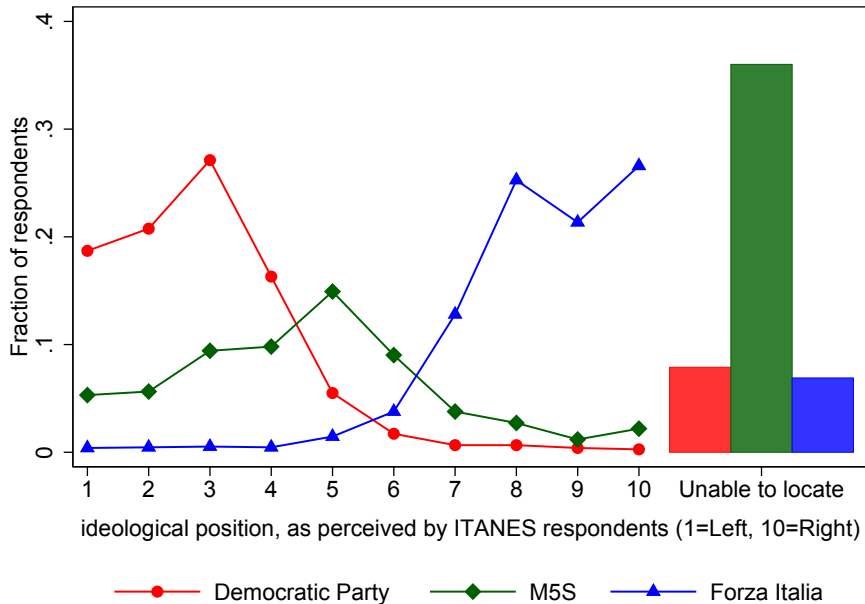


Figure A5: Exposure to Mediaset and voting for *Forza Italia* in 1994, robustness



*Note:* This figure shows the coefficient of *Signal* (and associated confidence intervals) when including in the sample only pairs of neighboring municipalities such that  $|SignalFree_i - SignalFree_j| \leq \Delta$  and  $Signal_j < q \leq 0 \leq Signal_i$ , for different values of  $q$  – indicated on the horizontal axis. The left and right graph show the results for  $\Delta = 0.5$  and  $\Delta = 1$ , respectively. All regressions control on the right-hand side for all municipality-level variables in column (5) of Table 3, namely *SignalFree*, *Area*, *Altitude*, *Area<sup>2</sup>*, *Altitude<sup>2</sup>*, *Ruggedness*, *Electorate*, *Log income per capita*, *Education*, and for neighbor-pair fixed effects (each municipality can appear in more than one pair). Heteroskedasticity-robust standard errors are clustered at the municipality level. Observations are weighted by municipality population in 1981. Both graphs also show (on the right vertical axis) the sample size in each regression.

Figure A6: Perceived ideology of *Forza Italia*, M5S, and Democratic Party



*Note:* The figure reports the perceived ideological stance of *Forza Italia*, the M5S, and the Democratic Party, as reported by respondents of the ITANES survey.

Table A6: Exposure to Mediaset and voting for M5S (robustness to controlling for broadband Internet)

|   | (1)     | (2)              | (3)              |
|---|---------|------------------|------------------|
| <i>Signal</i>                                 | 0.522   | 0.476            | 0.487            |
|   | (0.243) | (0.241)          | (0.241)          |
| Broadband Access<br>(avg 2005-2010)           |         | 0.224<br>(0.050) |                  |
| Years with full access<br>(from 2005 to 2010) |         |                  | 0.078<br>(0.032) |
| Observations                                  | 7,519   | 7,482            | 7,482            |
| R-squared                                     | 0.866   | 0.868            | 0.867            |

*Note:* The table shows the effect of exposure to Mediaset on voting for the M5S controlling for broadband Internet access. In column (2) we control for the average share of households in the municipality with access to broadband Internet (via ADSL) between 2005 and 2010. The measure is defined on an asymmetric 6-point scale ranging from 0 (0%) to 5 (above 95%). In column (3) we control for an alternative measure of broadband access, i.e., the number of years, from 2005 to 2010, during which 95% or more of the households in the municipality had access to Internet; this measure ranges from 0 (no full access in 2010) to 6 (full access in 2005). All regressions also include on the right-hand side *SignalFree*, all municipal controls reported in column (5) of Table 3, ED and LLM fixed effects. Observations are weighted by municipality population in 1981. Standard errors clustered at the electoral district level in parentheses.

Table A7: TV consumption in 1983

|  | Hours of TV per day |           |          | Average<br>num. hours |
|--|---------------------|-----------|----------|-----------------------|
|  | ≤ 2 hours           | 3-4 hours | 5+ hours |                       |
| All sample (51,012 individuals)                                | 0.39                | 0.47      | 0.15     | 2.86                  |
| <i>Panel A: by gender, education, and employment condition</i> |                     |           |          |                       |
| Females  | 0.35                | 0.48      | 0.16     | 2.99                  |
| Males  | 0.42                | 0.45      | 0.12     | 2.72                  |
| High school dropout  | 0.36                | 0.48      | 0.16     | 2.95                  |
| High school or college   | 0.49                | 0.42      | 0.09     | 2.48                  |
| Not employed   | 0.28                | 0.51      | 0.21     | 3.27                  |
| Employed   | 0.50                | 0.43      | 0.08     | 2.43                  |
| <i>Panel B: by age of the respondent</i>                       |                     |           |          |                       |
| Children (below 10)  | 0.27                | 0.51      | 0.22     | 3.30                  |
| Youth (10-24)  | 0.33                | 0.51      | 0.16     | 3.06                  |
| Adults (25-44)   | 0.45                | 0.45      | 0.10     | 2.61                  |
| Pre-retirees (45-54)   | 0.45                | 0.43      | 0.12     | 2.66                  |
| Retirees (55 or above)   | 0.37                | 0.45      | 0.17     | 2.96                  |

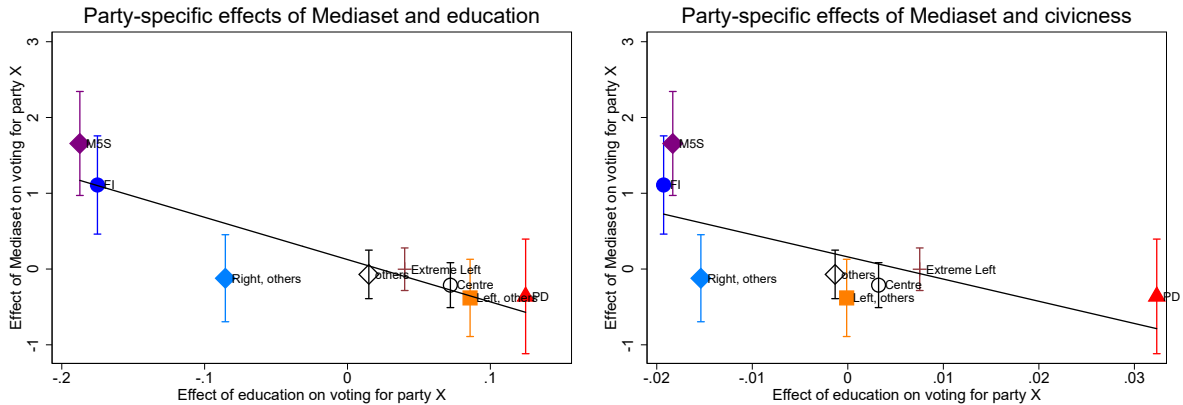
*Note:* The table summarizes information from a survey on the use of time by Italian households conducted by the Italian National Statistical Institute (ISTAT) in 1983, which included a set of questions on media consumption. The first 3 columns report the share of individuals in each group (rows) watching a given number of hours of TV per day. The average number of hours in column (4) is approximated by attributing 1 hour to individuals reporting up to 2, 3.5 hours to those reporting 3 to 4, 5.5 hours to those reporting 5 to 6, and 7 hours to those reporting 6 or more. Source: [ISTAT \(1986\)](#).

Table A8: The effects of Mediaset, education, and social capital on voting

|  | (1)               | (2)               | (3)               | (4)               | (5)               | (6)               | (7)               | (8)               |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  | Forza<br>Italia   | Right,<br>others  | Centre            | Democrat<br>Party | Left,<br>others   | Extreme<br>Left   | M5S               | other<br>parties  |
| <i>Signal</i>                          | 0.672<br>(0.227)  | -0.162<br>(0.192) | -0.065<br>(0.110) | -0.386<br>(0.280) | -0.134<br>(0.095) | -0.202<br>(0.103) | 0.522<br>(0.243)  | 0.086<br>(0.071)  |
| Education                              | -0.174<br>(0.040) | -0.086<br>(0.041) | 0.070<br>(0.014)  | 0.128<br>(0.035)  | 0.084<br>(0.010)  | 0.042<br>(0.013)  | -0.175<br>(0.030) | 0.014<br>(0.014)  |
| Social Capital                         | -1.819<br>(0.669) | -1.392<br>(0.492) | 0.414<br>(0.308)  | 2.904<br>(0.758)  | -0.069<br>(0.244) | 0.862<br>(0.338)  | -1.421<br>(0.594) | -0.167<br>(0.186) |
| R-squared                              | 0.716             | 0.831             | 0.657             | 0.853             | 0.691             | 0.721             | 0.866             | 0.444             |
| Including additional interaction terms |                   |                   |                   |                   |                   |                   |                   |                   |
| <i>Signal</i>                          | 1.134<br>(0.389)  | -0.119<br>(0.344) | -0.210<br>(0.178) | -0.360<br>(0.453) | -0.388<br>(0.305) | -0.023<br>(0.170) | 1.619<br>(0.413)  | -0.082<br>(0.192) |
| Education                              | -0.049<br>(0.036) | 0.001<br>(0.035)  | 0.020<br>(0.017)  | -0.016<br>(0.040) | 0.026<br>(0.026)  | -0.016<br>(0.016) | -0.111<br>(0.040) | 0.018<br>(0.017)  |
| Social Capital                         | -0.249<br>(1.002) | -0.525<br>(0.655) | -0.341<br>(0.442) | 1.071<br>(1.148)  | 0.176<br>(0.438)  | -0.361<br>(0.502) | -1.059<br>(0.824) | 0.086<br>(0.282)  |
| Signal X Education                     | -0.178<br>(0.041) | -0.086<br>(0.042) | 0.072<br>(0.014)  | 0.126<br>(0.035)  | 0.086<br>(0.010)  | 0.041<br>(0.013)  | -0.186<br>(0.030) | 0.015<br>(0.014)  |
| Signal X Social Capital                | -1.927<br>(0.726) | -1.547<br>(0.522) | 0.327<br>(0.329)  | 3.212<br>(0.862)  | 0.002<br>(0.230)  | 0.744<br>(0.353)  | -1.803<br>(0.654) | -0.129<br>(0.171) |
| R-squared                              | 0.716             | 0.831             | 0.657             | 0.853             | 0.691             | 0.721             | 0.867             | 0.444             |
| Observations                           | 45,105            | 45,105            | 45,105            | 45,105            | 45,105            | 45,105            | 7,519             | 45,105            |

*Note:* This table reports OLS estimates of the effect of education, social capital, and early exposure to Mediaset on the vote share of the main Italian parties – reported on top of each column – between 1994 and 2013. *Signal* is Mediaset signal strength in 1985, *Education* is the share of people with secondary or tertiary education, and *Social Capital* is the number of voluntary associations for every 100,000 inhabitants. The regressions in the bottom panel also interact *Signal* with *Education* and *Social Capital*. All regressions pool together the results of all elections between 1994 and 2013, and include on the right-hand side *SignalFree*, *Area*, *Altitude*, *Area*<sup>2</sup>, *Altitude*<sup>2</sup>, *Ruggedness*, *Electorate*, *Log income per capita*, and election, ED and LLM fixed effects. Observations are weighted by municipality population in 1981. Standard errors clustered at the electoral district level are reported in parentheses.

Figure A7: The effects of Mediaset, education, and social capital on voting (accounting for interaction effects)



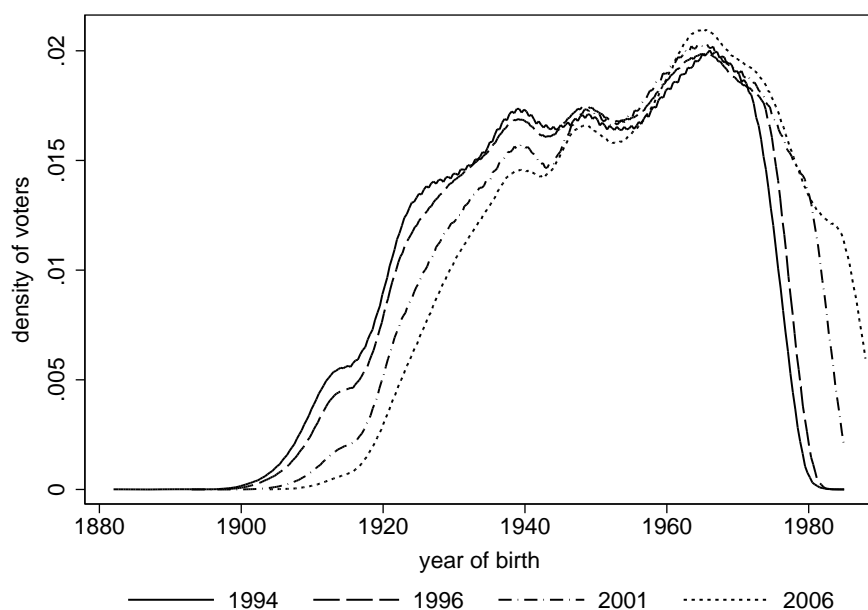
Note: The figure replicates the analysis in Figure 8 after interacting *Signal* with education and civic engagement. In particular, the left and right graphs plot the coefficient of *Signal* (vertical axis) against, respectively, the coefficients of schooling levels and civic engagement in 1981 (horizontal axis). The coefficients are obtained by estimating equation (1) separately for each party, including in addition interactions of *Signal* with education and civic engagement. All specifications pool together results of all elections and include year fixed effects.

## Appendix B Age composition of voting population and persistence of the Mediaset effect

To relate the persistence of the effect of Mediaset to the age composition of the voting population, we use individual data on electoral participation available from administrative records. Specifically, we use data from the Turnout Archive assembled by the ITANES-Cattaneo Institute. The dataset includes individual data on all registered voters for a representative sample of 100 ballot stations over the period 1994-2006 (which includes four national elections). Each station includes on average 550 voters, until 1998, and 800 voters, after 1998, for a total of 55,000 and 80,000 individuals respectively. The longitudinal dimension of the data makes it possible to follow the same electors over time. Crucially, the dataset also includes information about each individual's personal characteristics - including age, gender, education, and profession - which allows us to follow the evolution of electoral participation for different socio-demographic groups. Figure A8 shows the age distribution of the electorate in each election between 1994 and 2006.

Using these data, we explore the relationship between the persistence of the effect of Mediaset and the size of the two most affected groups, namely younger and older viewers. Indeed, while the average effect of Mediaset on the probability of voting for *Forza Italia* across all individuals is 2.9 percentage points, it is 7.8 percentage points for younger viewers (aged 10 or less in 1985), and 9.8 percentage points for older viewers (aged 55 or more in 1985). One possible explanation for the persistence of the effect over two decades is that younger cohorts, who joined the voting population in or after 1994, progressively replaced the older ones who were gradually exiting, thus leaving the overall

Figure A8: Age distribution of voters in national elections, 1994-2006



share of voters affected by Mediaset largely unaffected. Weighting the estimated effect of Mediaset for each of these age groups by their relative size in the voting population, in Table A9 we compute the implied effect of Mediaset in each election between 1994 and 2006. The table shows that, together, young and old viewers account for roughly 20 percent of total voters in 1994. This share is very stable in subsequent elections, as the increase in the number of young treated individuals almost exactly compensates for the reduction in the number of old treated ones. This back-of-the-envelope calculation indicates that the extreme persistence of the effect of Mediaset is largely consistent with the fact that the youngest and oldest cohorts, who spent more time watching TV in 1985, were more influenced by Mediaset content.

Table A9: Distribution of voting population and implied effect of Mediaset by age group and election (1994-2006)

|  | 1994  | 1996  | 2001  | 2006  |
|--|-------|-------|-------|-------|
| share of voters 55 or older in 1985 (born on or before 1930) | 0.208 | 0.182 | 0.123 | 0.082 |
| share of voters below 10 in 1985 (born after 1975)           | 0.029 | 0.052 | 0.125 | 0.141 |
| share of voters below 10 or 55 or older in 1985              | 0.237 | 0.234 | 0.248 | 0.224 |
| implied effect of Mediaset on voting for Forza Italia        | 0.023 | 0.022 | 0.022 | 0.019 |

*Note:* The table reports the distribution of voting population and the implied effect of Mediaset on voting for *Forza Italia* by age group for each election held between 1994 and 2006. The implied effect of Mediaset (last row) is computed by multiplying the share of younger and older voters (first two rows) by the coefficients estimated for such age groups (reported in the left graph of Figure 6).

## Appendix C Data on adult literacy and numeracy test scores

Data on adult cognitive skills are available from the OECD Program for the International Assessment of Adult Competencies (PIAAC). PIAAC surveys were conducted in 32 countries over two rounds between 2008 and 2016 (a third round is currently ongoing). In each country, 5,000 individuals, representative of the adult population between 16 and 65 years, were interviewed with the aim of assessing their level of literacy and numeracy skills, as well as their ability to solve problems in technology-rich environments. Tests were conducted in each country's national language, but were standardized to allow for cross-national comparison. Prior to the actual assessment, the interviewer would administer a background questionnaire, which would usually take between 30 and 45 minutes. Depending on the respondents computer skills, the assessment could be performed either in computer-based or paper-based format, and would on average take about 50 minutes. In the computer-based version, the literacy and numeracy assessments had an adaptive design, i.e., respondents were directed to more or less difficult blocks of questions based on their performance in the previous ones, so that the final score would take into account both the number of correct answers and the difficulty of the items answered. Overall score in the literacy and numeracy tests ranges between 0 and 500. For ease of interpretation, the score maps into six proficiency levels (from 0 to 5), each of which is described in terms of the types of tasks adults can successfully complete (OECD, 2013; Clair, 2014). The PIAAC literacy tests ask respondents to answer questions about texts that are drawn from a broad range of real life settings, including occupational, personal, community and education contexts. The numeracy tests ask respondents to answer questions about quantities and numbers, dimensions and shapes, patterns, relations, and changes. For our analysis we use data from the assessments conducted in Italy in 2012 on a sample of 4,598 individuals representative at the national level. We obtained access to a restricted-use version of the data that includes information on respondents' personal characteristics (i.e., age, gender, educational attainment, marital status) and on their municipality of residence, which allows us to assign to each respondent a level of Mediaset signal strength as of 1985.

## Appendix D Exposure to Mediaset and voluntary associations across municipalities.

In Table A10 we investigate the relationship between exposure to Mediaset prior to 1985 and the evolution of civic engagement between 1981 and 2001 across municipalities, as measured by the number of civic associations. This is one of the measures of civic engagement used by Putnam (2000), and the only available at the municipal level since the 1980s.

In particular, we compute the number of civic associations per capita in 1981, 1991 and 2001 from the national census. Reassuringly, signal strength in 1985 is not correlated with the number of voluntarily associations in 1981, i.e. before the expansion of Mediaset (column 1). The relation between the two variables becomes negative and statistically significant after the introduction of Mediaset (columns 2 and 3). In column (4) we pool observations for all census years and interact *Signal* with a dummy for the period after exposure; we also include municipality fixed effects, thus exploiting only differential changes over time within the same municipality. The coefficient of the interaction term suggests that civic engagement declines in exposed municipalities, relative to other municipalities, in the period after exposure.

These results corroborate the individual-level evidence presented in column (4) of Table 8. The estimated effects are also quantitatively comparable: a one standard deviation increase in *Signal* is associated with a fifth of a standard deviation decline in civic engagement at the individual level, and a third of a standard deviation decline across municipalities.

Table A10: Exposure to Mediaset and voluntary associations across municipalities

|                             | (1)     | (2)     | (3)     | (4)          | (5)       |
|-----------------------------|---------|---------|---------|--------------|-----------|
|                             | 1981    | 1991    | 2001    | diff-in-diff | 1981-2001 |
| <i>Signal</i>               | 0.000   | -0.019  | -0.021  |              |           |
|                             | (0.004) | (0.008) | (0.009) |              |           |
| Post-1985                   |         |         |         | 0.223        |           |
|                             |         |         |         | (0.005)      |           |
| Signal X Post-1985          |         |         |         | -0.035       | -0.035    |
|                             |         |         |         | (0.007)      | (0.007)   |
| Observations                | 7,519   | 7,503   | 7,503   | 22,768       | 22,768    |
| Municipality-level controls | YES     | YES     | YES     | NO           | NO        |
| Municipality FE             | NO      | NO      | NO      | YES          | YES       |
| Year FE                     | NO      | NO      | NO      | NO           | YES       |
| R-squared                   | 0.514   | 0.531   | 0.736   | 0.549        | 0.788     |

*Note:* The table reports OLS estimates of the effect of early exposure to Mediaset on civic engagement across Italian municipalities. The dependent variable in columns (1)-(3) is the number of voluntary associations per capita in 1981, 1991, and 2001, respectively; in column (4), we pool all observations over the entire period. *Signal* is Mediaset signal strength in 1985, the regressions in columns (1)-(3) also control for *SignalFree*, *Area*, *Altitude*, *Area<sup>2</sup>*, *Altitude<sup>2</sup>*, *Ruggedness*, *Log income per capita*, *Education*, and *Population*, whereas the regression in column (4) includes municipality fixed effects. Regressions are weighted by municipality population in 1981. Heteroskedasticity-robust standard errors are clustered at the electoral district level in columns (1)-(3) and at the municipality level in column (4).

## Appendix E Data on politician language

We compare the rhetoric of Italian politicians and parties by computing indexes of language simplicity on two types of text data: party manifestos and televised leaders' interventions.

Party manifestos are issued by political parties to communicate their electoral platform to voters, and have been widely used to infer parties' ideological position (Gabel and Huber, 2000). We obtained from the Manifesto Project Database the electoral manifestos of all main parties running in Italian general elections since 1983. In particular, we select all manifestos issued by parties before an election in which they reached at least 5% of the votes. Table A11 reports the full list of parties and years included in our corpus. Our final sample covers 34 electoral programs from 11 different parties over the period 1983-2013, for a total of roughly 650,000 words.

We code language simplicity using the Gulpease Index, which adapts the Flesch-Kincaid index to the specific case of Italian language (Tonelli et al., 2012). The Flesch-Kincaid Index assesses readability based on the average number of syllables per word and the average number of words per sentence (Flesch, 1948; Kincaid et al., 1975). Longer sentences are more likely to be complex, as more subordinate clauses and more prepositional phrases mean more mental work for the reader. So the longer a sentence, the harder it is to read. The same is true for words. The index ranges from 0 (lowest readability)



to 100 (maximum readability). The main difference between the Flesch-Kincaid and the Gulpease Index used for the analysis of Italian text is that the latter takes into account the length of a word in characters rather than in syllables, which is more appropriate for the case of Italian ([Lucisano and Piemontese, 1988](#)).

Turning to our second source of text data, we transcribed 43 televised interventions and electoral debates involving 16 political leaders over the period 1989-2013. For the last years of the First Republic (1989-1993), we transcribed all appearances by major political leaders that we could find available in a digitized format (3 in total). For the following years, we include appearances by the main political leaders of the Second Republic during the three months preceding each election. The vast majority of interventions come from “Porta a Porta”, the most popular political talk show in Italy, which started broadcasting in January 1996. Table [A12](#) reports the politicians appearing in each intervention, the party they belonged to, the date and the name of the show, and an indicator for whether politicians were debating with each other or not. The final corpus comprises over 55 hours of footage and nearly 320,000 words.

When analyzing these text data, we can not use the Gulpease Index or other variations of the Flesch-Kincaid because they are very sensitive to the choice of punctuation, which is rather arbitrary when transcribing spoken language. For this reason, we compute the ratio between the number of “simple” words, as defined by the Basic Vocabulary of Italian (BVI), over the number of other words as an alternative measure of language simplicity. The BVI, originally compiled by [De Mauro and Vedovelli \(1980\)](#), defines a set of 6,690 high-frequency and high-availability “simple” words that “are certainly known to the generality of those who have attended school at least until the eighth grade” ([De Mauro and Vedovelli, 1980](#)). Operationally, words are included in the BVI based on their frequency in a large corpus of written and spoken Italian as well as on their dispersion (i.e., the number of different texts in which they appear). Therefore, the BVI provides a comprehensive picture of both written and spoken language. The share of high-frequency general-service words is commonly used by linguists to measure language complexity (see [Laufer and Nation \(1995\)](#) and [Read \(2000\)](#) for a comprehensive survey).

Table A11: Available transcripts of Party Manifestos 1983-2013

| Party                        | Party Initials | Years                                    |
|------------------------------|----------------|--|
| Democratic Party             | PD             | 1992, 1994, 1996, 2001, 2006, 2008, 2013 |
| Forza Italia                 | FI             | 1994, 1996, 2001, 2006, 2008, 2013       |
| Communist Refoundation Party | RC             | 1992, 1994, 1996, 2001                   |
| Christian Democrats          | DC             | 1983, 1987, 1992                         |
| Italian Communist Party      | PCI            | 1983, 1987                               |
| Italian Socialist Party      | PSI            | 1983, 1987, 1992                         |
| Lega Nord                    | LN             | 1994, 1996, 2008                         |
| Italian Popular Party        | PPI            | 1994, 1996                               |
| National Alliance            | AN             | 1994, 1996                               |
| The Daisy                    | DL             | 2001                                     |
| Five Star Movement           | M5S            | 2008                                     |

*Note:* the table reports the list of all available party manifestos between 1983 and 2013, for parties obtaining at least 5% of vote in the corresponding election. The data are used for the text analysis in Section 6.5.

Figure A9: Language simplicity in TV debates, 2013

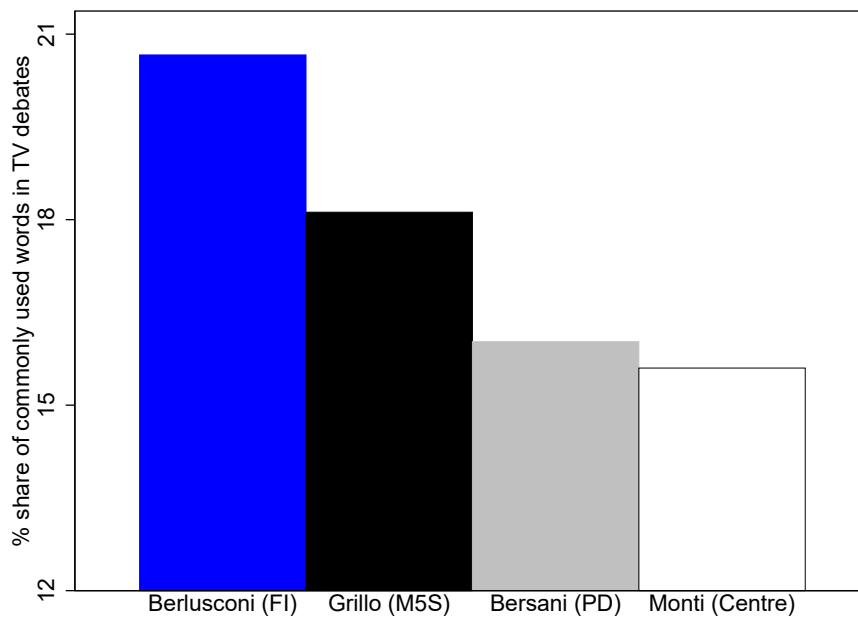


Table A12: Available transcripts of TV debates, 1989-2013

| Politician(s)        | Party Initials | Month    | Year | Program          | Debate |
|----------------------|----------------|----------|------|------------------|--------|
| Craxi                | PSI            | May      | 1989 | Mixer            | No     |
| Andreotti            | DC             | January  | 1993 | Mixer            | No     |
| De Mita              | DC             | February | 1993 | Mixer            | No     |
| Berlusconi           | FI             | January  | 1994 | Mixer            | No     |
| Berlusconi, Occhetto | FI, PD         | February | 1994 | Braccio di Ferro | Yes    |
| Berlusconi, Prodi    | FI, PD         | April    | 1996 | Testa a Testa    | Yes    |
| D'Alema              | PD             | February | 1996 | Porta a Porta    | No     |
| Berlusconi           | FI             | May      | 2001 | Porta a Porta    | No     |
| Fassino, Fini        | PD, AN         | May      | 2001 | Porta a Porta    | Yes    |
| Rutelli              | DL             | May      | 2001 | Porta a Porta    | No     |
| Berlusconi           | FI             | March    | 2006 | Porta a Porta    | No     |
| D'Alema, Fini        | PD, AN         | March    | 2006 | Porta a Porta    | Yes    |
| Prodi                | PD             | March    | 2006 | Porta a Porta    | No     |
| Berlusconi, Prodi    | FI, PD         | April    | 2006 | Porta a Porta    | Yes    |
| Berlusconi, Fassino  | FI, PD         | June     | 2006 | Porta a Porta    | Yes    |
| Fini, Rutelli        | AN, DL         | June     | 2006 | Porta a Porta    | Yes    |
| Berlusconi           | FI             | February | 2008 | Porta a Porta    | No     |
| Casini               | PPI            | February | 2008 | Porta a Porta    | No     |
| D'Alema              | PD             | February | 2008 | Porta a Porta    | No     |
| Veltroni             | PD             | February | 2008 | Porta a Porta    | No     |
| Berlusconi           | FI             | March    | 2008 | Porta a Porta    | No     |
| Bertinotti           | RC             | March    | 2008 | Porta a Porta    | No     |
| Bertinotti, Casini   | RC, PPI        | March    | 2008 | Porta a Porta    | Yes    |
| Casini               | PPI            | March    | 2008 | Porta a Porta    | No     |
| Berlusconi           | FI             | April    | 2008 | Porta a Porta    | No     |
| Casini               | PPI            | April    | 2008 | Porta a Porta    | No     |
| Fini                 | AN             | April    | 2008 | Porta a Porta    | No     |
| Veltroni             | PD             | April    | 2008 | Porta a Porta    | No     |
| Berlusconi           | FI             | January  | 2013 | Porta a Porta    | No     |
| Bersani              | PD             | January  | 2013 | Porta a Porta    | No     |
| Monti                | SC             | January  | 2013 | Porta a Porta    | No     |
| Berlusconi           | FI             | February | 2013 | Porta a Porta    | No     |
| Bersani              | PD             | February | 2013 | Porta a Porta    | No     |
| Monti                | SC             | February | 2013 | Porta a Porta    | No     |
| Grillo               | M5S            | May      | 2013 | Porta a Porta    | No     |

*Note:* the table reports the list of televised interventions by top Italian politicians, carried out between 1989 and 2013, used for the text analysis in Section 6.5. For each intervention we report: the name of the politician(s) that delivered the speech, the party affiliation, the month, year and hosting program, and an indicator for whether the intervention was in the context of a debate with another politician or not. The party initials refer to the following parties: PSI (Italian Socialist Party); DC (Christian Democrats); FI (Forza Italia); PD (Democratic Party); AN (National Alliance); DL (The Daisy); PPI (Italian Popular Party); RC (Communist Refoundation Party); SC (Civic Choice); M5S (Five Star Movement).