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ABSTRACT

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Looking at TV news viewership in Italy during the COVID-19 pandemic, we investigate whether demand for national and local news depends on national or local events. Exploiting the fact that epidemiological developments display a great deal of variation among the different regions, we find that demand for both national news and, more surprisingly, local news responds to the national epidemiological developments rather than to the local ones. This implies that local politicians have a further incentive to take preventive action.

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1. Introduction

The coronavirus crisis has been defined also as a communication crisis (Gollust, Nagler and Franklin Fowler, 2020) and the role of information is considered central to support pandemic response (Van Bavel et al., 2020). In the new and fast-changing environment of the pandemic, communication plays a crucial role, as the population is asked to fundamentally alter its day-to-day behavior to comply with social distancing and other measures like hand washing or mask wearing. There are already several studies, reviewed later on, showing how news media affected people's behavior during the pandemic, with some finding evidence of an effect on the spread of the virus and on mortality.

Information supply about the pandemic ranges from media reporting accurate and evidence-based information to outlets spreading conspiracy theories or sensational fake news (World Health Organization, 2020[1]). Studying people's demand for professional information during the pandemic is then essential to understand what type of information spreads, with important implication for public health and policy.

We study demand for national and local prime time TV news by Italian citizens during the pandemic using high-quality data on television usage akin to PeopleMeters. Italy was the first country with a free press that was severely affected by the virus. In addition, as in other markets like the US, TV is still the dominant mass medium and prime time TV news are by large the main source of information for Italian citizens (Agcom 2018a). We study how consumption of local and national news changed with the development of the pandemic and, in particular, we analyze whether attention for local and national news depends on local or national epidemiological developments. This in a context like Italy where COVID-19 affected the country in a very uneven way. For instance, Lombardia, where half of the overall deaths in the period under consideration occurred, was severely affected, with 7.5% of the population having contracted the virus as of July 2020, while Sicily was barely touched, with only 0.3% of the population infected (ISTAT, 2020).

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[1] WHO has recently underlined that "The 2019-nCoV outbreak and response has been accompanied by a massive 'infodemic' - an over-abundance of information – some accurate and some not – that makes it hard for people to find trustworthy sources and reliable guidance when they need it".

National and local facts and policies interact differently with local and national TV news (Martin and McCrain, 2019). It is reasonable to assume that demand for national news should depend on topical national (and international) events, while relevant local events should drive demand for local news. For example, a national election should trigger more viewers of national news, while a regional or mayoral election should affect more strongly viewership for local news. In the specific case of public health issues, it has been noticed how, "[b]ecause many public health issues (e.g., an infectious disease outbreak, a water supply toxin, or access to grocery stores) are local in reach, local news has an opportunity to speak to community health concerns more directly than can national outlets" (Gollust et al., 2019).

A reasonable hypothesis would then be that viewership of national news will depend on epidemiological developments at the national level, while viewership of local news will be more strongly related to local conditions. What we find instead is that both national and local TV news viewership is not responsive to local conditions, but to conditions outside of the region[2]. In the conclusions, we discuss possible reasons for this and its implications, for instance for incentives faced by local politicians to take preventive action. Besley and Dray (2020) study the role of free media in explaining the government response to the pandemic. They show how countries with free media are more responsive to epidemiological developments: they more likely to impose a lockdown as the death toll from COVID-19 increases and see greater reductions in mobility during a lockdown in response to rises in deaths. They explain these results with the fact that citizens of free-media countries are better informed, and this affects compliance and the decision to lock down. We show how demand for information is also responsive to the seriousness of the pandemic and in the conclusions develop the implications for the political economy of the response.

This paper contributes to the literature on information and COVID. Several studies have investigated the effect of FOX news in the US on behavior. Ash et al. (2020) show how in localities with higher Fox News viewership people were less likely to stay at home and to consume goods like cleaning products, hand sanitizers, and masks. Simonov at al. (2020) also show the negative effect of Fox News on social distancing, while Bursztyn et al. (2020) study how exposure to Fox News shows with a different coverage of the coronavirus affect behavior

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[2] In a similar vein, Delmastro and Zamariola (2020) find that feelings of anxiety and depression between Italian population were spread in the whole country and were not correlated with local epidemiological developments.

and downstream health outcomes. In the context of Brazil, Ajzenman, Cavalcanti and Da Mata (2020) use news coverage and social media data to show the negative effect of speeches by Bolsonaro against social isolation measures on social distancing in municipalities with a majority of supporters for the President. Interestingly, they present suggestive evidence that the effect is driven by municipalities with at least one local TV broadcaster. Watanabe and Yabu (2020) show that three quarters of the decrease in outings in Tokyo are the result of "information updating on the part of citizens through government announcements and the daily release of the number of infections" and only one quarter is due to legally binding measures, thus once again underlining the importance of information. These studies investigate the impact of news on behavior during the pandemic and thus underline the importance of studying demand for news, but they do not study how demand for news changed during the pandemic.

More generally, our study also contributes to the literature on consumers' demand for media, reviewed for instance in Berry and Waldfogel (2016). What happens in our context is the combination of a change in the outside option and a shift in tastes. The change in the outside option is due to the restrictions on activities outside home imposed by the lockdown and should affect demand for media in general, so that more people watch TV during the lockdown as they cannot go to the gym or to the pub. This clearly affects the absolute number, but less so the share of TV viewers watching news. The shift in tastes happens if, for instance, during the pandemic people derive higher utility from news programs compared to entertainment programs, for instance because they want to be informed about the latest epidemiological and policy developments. The shift could also have been in the opposite direction if, for instance, due to the anxiety induced by the grim reporting of death and contagion statistics, people chose to isolate themselves and, therefore, reduce their exposure to news.

Within news programs, there can be a differential change in demand for local compared to national news. Local news is particularly relevant to understand the local conditions, and thus, for instance, evaluate the risks associated with going to the grocery store. National news is more relevant to understand international and nation-wide developments, for instance related to government policy to contain the virus (e.g. when lockdown is going to be lifted, when non-essential economic activities can resume and so on). We document these changes and investigate their relationship with epidemiological developments at the national

and local level, thus contributing to our understanding of consumer demand for news during a pandemic.

The rest of the paper is organized as follows. The next section briefly describes the main stylized facts about news consumption in Italy and the main developments of the pandemic. The following section presents the data sources. In section 4, we provide descriptive statistics and the main results. The last section concludes, discussing some implications of our findings.

2. News consumption and COVID-19 in Italy

The Italian news landscape is historically dominated by the presence of major TV channels. As pointed out by Italian news regulator "Television is confirmed as the medium with the greatest informative value, both for access frequency and for perceived importance and reliability" (Agcom, 2018a). More than 90% of all Italian population get access to news by TV news (Internet 70%, Radio 66% and Newspapers 60%), and nearly half consider it as the main source of news (Internet 26%, Newspaper 17% and Radio 8%). The Covid-19 pandemic has reinforced the role of TV (and online outlets) as the main source of national and local news, while newspapers and radio lost significant audience (Agcom, 2020b).

More specifically, prime time (at 8 PM) national TV news is widely regarded by Italians as the most important daily time to get access to news and information. In particular, TG1 of RAI (the Italian public broadcaster) and TG5 of Mediaset (the main commercial broadcaster in Italy) are by large the two most viewed TV news, especially at peak time, reaching an average daily audience of 4 millions people each (in 2019, 4.7 millions for TG1 and 3.9 millions for TG5; Agcom 2020a). TGLa7 of Cairo Communication (an Italian independent news group) complements the national news offer at prime time with TV news that reach a much smaller audience of more educated people (Agcom, 2019).[3]

With regards to local news, TGR, the regional TV news of the Italian public broadcaster (RAI), is by large the main source of news for local facts in Italy (Agcom, 2018b) and, because of this, we will use "regional news" as synonym of local news. In every region, a dedicated

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[3] There are other four national TV news programs (i.e. TG2 and TG3 of RAI, and TG4 and Studio Aperto of Mediaset), which however are not broadcasted at prime time and reach a lower viewership.

newsroom produces and broadcasts three TV daily news programs (at 2 PM, 7:30 PM, and 00:10 AM), of which the prime time one reaches more than 2 million Italians (2.3 in 2019) and is the third TV news in terms of viewership after TG1 and TG5.

By focusing on prime-time TV news it is possible to observe the evolution of (local and national) news viewership at a regular, fixed, peak time, i.e. holding the quantitative news supply constant. Comparing TV news viewership before and during Covid-19 pandemic, it is possible to better understand the effect of the latter in news attention.

Regarding Covid-19 in Italy, the Government declared a six-month state of emergency on January 31, 2020, namely the same day the first two cases, a couple of Chinese tourists, where confirmed in Rome (see Appendix for a detailed chronology and a timeline of Covid-19 events and public policies in Italy). The contagion spread more heavily and rapidly in the northern regions, with the first cases of community transmission reported in Lombardia and Veneto in February and the imposition of a localised lockdown in the outbreak areas. Between March 8 and 9, the whole country went into lockdown. National lockdown measures were extended twice and, finally, ended up on May 3, 2020, so that since the day after a so-called "phase 2" started nationwide. The plan allowed the immediate re-opening of non-essential industries, which had been closed during the lockdown period, and construction sites, while bars, restaurants and other activities (e.g. hairdressers, gyms, cinemas and theatres) reopened later (late May and June) as well as movements across regions (June 3).

An important aspect to underline about the epidemiological developments in Italy is that different areas have been affected in very different ways, with a clear North-South gradient. Lombardia alone, with one sixth of the Italian population, has had almost 50% of deaths and 40% of infected. Sicily, with a population that is half that of Lombardia, accounted for 0.9% of deaths and 1.3% of infected (ISTAT, 2020).

3. Data Sources and Descriptive Statistics

Television viewership data have been provided by Auditel which is the audience measurement organization providing quantitative data on TV audience attention in Italy (similar to Barb in the UK and Nielsen in the US). It should be noted that "[o]ne defining characteristic of the audience measurement industry is that, although a number of different

firms provide statistical representations of media audiences, only one firm tends to dominate the distribution of comprehensive audience data for each media technology" (Napoli, 2003). In this regard, Auditel is the only producer of audience data for the Italian TV market. It is a Joint Industry Committee (JIC), a reciprocal-control organization that brings together all TV market players, namely (national and local) broadcasters, advertisers, media agencies and media buyers. Since 1984, Auditel performs the task of measuring and releasing the data depicting the entire digital, satellite, live and on-demand Italian TV offer on all platforms and devices, 24 hours a day, minute by minute. Nowadays data are provided by a panel of 16,100 households (sampled to represent the entire Italian population) distributed on all the 20 Italian regions. The panel households are equipped with a meter which measures the TV viewing of the household members, and any possible guests, minute by minute and every day. The meter monitors TV consumption on traditional TV, Smart TV, PC, Game console, and other devices.

We have constructed a panel with daily data for each of the 20 Italian regions, going from January 1, 2019 until July 27, 2020. In our main analysis, we use as dependent variable the percent share of the prime-time national (8:00-8:30 PM) and regional (7:30-8:00 PM) TV news, that is the share of TV viewers that are watching the news in the corresponding time slots. We also have data on the absolute number of viewers, but this may be affected by the fact that during lockdown people end up watching more TV due to a lack of alternatives (e.g. closure of bars, limitation of interpersonal contacts). Looking at the share better isolates the increased interest in the news rather than in TV in general.

Looking at Table 1, we can see that national news (TGN, i.e. the cumulative share of the three national prime time news: TG1, TG5 and TG7) have in general a high share, 47.7% on average, and that this share increased significantly from 46.9% in the pre-COVID period (before January 31, 2020, when the first two cases were reported in Italy) to 49.5% in the post-COVID period. For regional news the jump was stronger, going from 12.3% to 15.3%. In absolute numbers, national news is watched over the whole period by around 10.5 million people per day, while regional news by 2.6 million, out of a total population of around 60 million. The changes between the pre- and post-COVID periods correspond to an additional 2 million viewers for national news and almost 1 million more viewers for regional news.

For Covid-19 statistics, we use the official data released every day at 6 PM by the National Department of Civil Protection (Dipartimento della Protezione Civile). An important feature of these data is that they correspond to those that have been disseminated by the news outlets in the corresponding days, thus influencing the perceptions of Italian citizens about the epidemiological developments. At times these data have been subsequently revised, but we use them as they were reported.

As the main explanatory variables, we use the number of new positives and the number of currently positives in any given day. Both measures capture the current intensity of the infection, albeit with a different time horizon, as the variable currently positives is the sum of new positives in the past, minus those who recovered or died. In Table 1, we can see that the number of new positives is on average 1.38 thousand per day over the COVID period and the number of currently positives nationwide is on average 41.3 thousand. We also report the number of deaths, that we use in robustness checks as an alternative measure of the seriousness of the pandemic. Nationwide, there are on average 197 COVID-related deaths per day in the 178 days of the COVID period we consider.

Figure 1 shows in panel A the daily number of new Covid-19 cases in thousand units (right axis) and the 7-day moving average of the share of the national news (TGN) and, in panel B, local news (TGR) at prime-time in Italy (left axis), while panel C and D report similar plots with the total number of currently positives. It is evident how the time period we consider includes both the growing phase of the infection, with a peak in March for new positives and in April for currently positive, as well as the descending phase. The four plots show an upward trend of the share of national and local news when the sanitary conditions worsened and a downward trend when, thanks to the lockdown, the situation improved.

As mentioned, we have a panel with the 20 Italian regions. The epidemiological developments have been very different, with a North-South gradient. As mentioned, Lombardia has been by far the hardest hit region, but also other Northern regions like Piemonte, Veneto and Emilia-Romagna have suffered heavily. In our data, these regions, with over 4 million inhabitants each, have an average of over 100 new positives per day, while in Southern regions like Campania and Sicilia, with over 5 million inhabitants each, the number is below 30 (see Table 2). There is some heterogeneity also regarding the share of national news. Excluding Valle d'Aosta and Trentino-Alto Adige, where there are consistent linguistic

minorities and the share of national news is just above 30%, in the rest of the country the average daily share in the pre-COVID period ranges between 43% and 57%. For regional news (provided also in the languages of the linguistic minorities) the range is wider, going from 6% in Campania to 26% in Friuli-Venezia Giulia.

In what follows we analyze the relationship between news viewership and epidemiological conditions in a regression framework.

4. Results

Our general specification is the following:

$$y_{it} = \alpha_i + \sum_{j=1}^{6} \gamma_j D\_day_{j,t} + \delta_1 D\_holiday_t + \beta_1 C_{it} + \beta_2 \bar{C}_{it} + \varepsilon_{it},$$

Where y_{it} is the TV share (either for national or regional news) observed in region i in day t. We also include a region fixed effect, α_i, to capture all regional characteristics (e.g. age structure, presence of linguistic minorities) that can be considered invariant in the time period we consider. The regression also includes six dummies for the day of the week, $D\_day_{j,t}$, and national holiday dummies, $D\_holiday_t$, to capture time variation due, for instance, to availability of alternative TV programs that may be aired on specific days of the week or to different family schedules during holidays. The coefficients of interests are β_1 and β_2, capturing the relationship between TV share in the region and the COVID-19 developments in that region, C_{it}, and in other Italian regions, $\bar{C}_{it}$, respectively. In all regressions we use robust standard errors.

In Table 3, we present the effect for national news (first three columns) and regional news (last three columns). First, we assess the effect of new positives and total currently positives separately, then in columns (3) and (6) together in the same regression. In all instances, it appears that what drives up the engagement of TV viewers with news is not the local development of the pandemic, but rather the development in the rest of the country. This is true for both national and local news. Indeed, the impact of local positives has often a negative sign and is never significant, while the impact of positives in other regions is consistently positive and significant at 1% level. The coefficients are larger for local news,

indicating a stronger impact on them, in particular if we consider the much lower base for local news compared to national ones.

This result is robust to a series of different specifications reported in Table 4. First, in columns 1 and 2, we exclude Lombardia, the most affected region accounting for half of overall deaths and 40% of positives. Of course, we keep including cases happening in Lombardia in the variables "new positives in other regions" and "total currently positives in other regions" for the remaining 19 regions. Qualitatively the results remain the same, with larger coefficients for the variables capturing epidemiological developments in other regions, albeit total currently positives in other regions becomes insignificant for national news.

Next, in columns 3 and 4, we estimate a model in first differences, in which we regress the first difference in the share of national or regional news on a regional fixed effect (thus allowing for a region-specific trend), the day and holiday dummies and the first difference in new positives and currently positives. Notice that the change in currently positives is the sum of the inflow due to new positives and the outflows due to deaths and recoveries. Again, there is no significant impact of the local epidemiological developments, while what happens in the other regions affects how interest by TV viewers for the news develops. In this case, the coefficient for the change in the number of currently positive in other regions for national news is negative, but not significant at the 5% level. In columns 5 and 6, we smooth out both the share of TV viewers watching the news and the numbers of people affected by COVID by taking a 7-days moving average. Again, results are robust to this specification.

In the next robustness check, reported in columns 7 and 8, we delve deeper into the geographical dimension, by distinguishing between neighboring and non-neighboring regions. The idea is that people may be particularly sensitive to what is going on in the regions close by, as the virus could easily spread from there, while they may pay less attention to what is going on further away. We define two regions as neighboring if they have a common border. Some regions like Emilia-Romagna or Lazio have common borders with six other regions, while Sardinia with none. Sicily is also an island, but being only 3 km away from Calabria, we consider the two regions as neighboring. What emerges is that the share of TV viewers watching the news responds in a significant way to the epidemiological developments in non-neighboring regions rather than to the local ones, in which local means within the region or in the neighboring regions. This confirms the lack of importance of proximity for

the impact of the pandemic on the interest for national and local news. Finally, in columns 9 and 10, we use as measure of the epidemiological situation the number of deaths due to COVID-19, as officially reported by the Government on a daily basis during the period under consideration. Once again, for both types of news, interest is not triggered by local events, but rather by what is happening nationally, a result that appears to be robust to a series of different specifications. In the next section, we discuss possible reasons and implications.

5. Conclusions

While it seems natural that attention towards national news is triggered by national events, our finding that this is the case also for local news is more surprising. One could argue that epidemics spread and, therefore, people could rightly consider epidemiological developments outside of their own region as highly relevant for what will eventually happen. As a response, they may follow local news more intensively to monitor whether this is indeed going on. This can explain why local news share responds to what happens nationally, but it still remains surprising that it does not respond to what happens locally.

This finding has implications for the incentive faced by local politicians. If in absence of local spread of the virus people were not paying attention to local news, then they would not be informed of – and therefore also less likely to reward – effort exerted by local policy makers to prevent the pandemic. Moreover, the fact that people increase attention to local news in response to national development also help avoid the possible accusation of overreaction in case of strong local policy measures successfully avoiding the pandemic, as this may indicate that people are likely to take the national epidemiological developments as counterfactual. These two mechanisms suggest that local politicians would be rewarded for their effort, even if the local epidemiological situation was not threatening.

Drago, Nannicini and Sobbrio (2014) have indeed shown the impact of local news on local politics in the Italian context, showing how entry and exit of local newspapers affect the reelection probability of the incumbent mayor and the efficiency of the municipal government. We can notice how in mid-September regional election took place in some regions and the incumbent governor of Campania was reelected with 69.5% of votes

(compared to 41.2% in 2015).[4] Campania was one of the regions where in the period under consideration the spread of the virus was very limited. This notwithstanding, the governor was very vocal and active in the media, sometimes posing as a "sheriff".[5] In Campania, the share of viewers of national and regional news increased considerably, making voters more aware of local policy interventions and, possibly, making it salient what the counterfactual was. This is an anecdote but can illustrate the possible implications of our findings about incentives faced by politicians seeking reelection.

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[4] The governor of Veneto was reelected with an unprecedented 76.8% of votes (compared to 50.1% five years earlier). Veneto was, together with Lombardia, one of the places were the infection appeared first in Italy, but the subsequent developments were much better than in neighboring Lombardia and this was widely attributed to swifter and better policies by the local government. The governor of Lombardia was not up for re-election.

[5] https://www.dailymail.co.uk/news/article-8143383/Italian-politicians-threaten-flamethrowers-enforce-coronavirus-lockdown.html

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Table 1: Summary Statistics, national data

Daily data on prime-time TV news and Covid-19 cases, *before* Covid-19 vs. *from* Covid-19

Variable	Overall sample		Pre-covid	Post-covid	Difference	t-test
	Obs	Mean (SD)	Mean (SD)	Mean (SD)	Diff. (SD)	t (prob.)
Share of National News *	572	47.73 (2.67)	46.92 (2.01)	49.53 (3.05)	2.60 (0.21)	12.09 (0.0000)
Share of Regional News **	573	13.21 (1.96)	12.26 (0.82)	15.31 (2.13)	3.04 (0.12)	24.61 (0.0000)
Viewers of National News (1,000)	572	10,492 (2,263)	9,856 (1,602)	11,898 (2,817)	2,041 (185.8)	10.98 (0.0000)
Viewers of Regional News (1,000)	573	2,619 (789)	2,315 (399.5)	3,293 (998.5)	977 (58.45)	16.72 (0.0000)
New positives (1,000)	573			1.38 (1.72)		
Total currently positive (1,000)	573			41.28 (37.63)		
New deaths	572			197.23 (247.8)		

Notes: For TGN, there is one observation less since the audience for May 27, 2019 is missing for one channel (TG7). The table reports the number of observations, the mean and standard deviation (in brackets) for the overall sample; the mean and standard deviation (in brackets) for the sample before and from January 31, 2020; the difference in means and standard deviation (in brackets) between the two subsamples pre-post covid; the t-test for difference in means and the probability that $Pr(|T| > |t|)$ under the null assumption that the difference in means is different from zero.

* National News is the sum of the three main National News of 8:00-8:30 PM (TG1+TG5+TG7)

** Regional News is the share of the Regional News of 7:30-8:00 PM (TG3 Regional)

Table 2: Summary Statistics, regional data
Daily data on prime-time TV news and Covid-19 cases, averages *before* Covid-19 vs. *from* Covid-19

Region	Share of National News *		Share of Regional News **		New positives	Total currently positive (1,000)	New deaths	Population (millions)
	Pre-covid	Post-covid	Pre-covid	Post-covid	Post-covid	Post-covid	Post-covid	1 Jan 2020
Valle d'Aosta	31.0	38.6	25.2	37.9	7	0.1	0.8	0.1
Piemonte	44.3	47.4	14.6	19.6	178	5.2	23.2	4.3
Liguria	45.9	49.4	16.6	23.1	57	1.2	8.8	1.5
Lombardia	45.0	45.6	12.2	15.5	539	16.3	94.4	10.1
Trentino-Alto Adige	33.3	33.6	19.7	21.9	41	0.9	3.9	1.1
Veneto	47.0	49.2	15.1	16.8	111	3.2	11.6	4.9
Friuli-Venezia Giulia	44.9	46.7	25.6	31.8	19	0.4	1.9	1.2
Emilia-Romagna	43.1	42.8	11.5	13.7	166	4.4	24.1	4.5
Toscana	52.1	54.5	15.1	19.1	59	1.9	6.4	3.7
Marche	49.8	52.2	17.3	19.5	38	1.4	5.5	1.5
Umbria	54.0	57.7	13.9	18.5	8	0.2	0.4	0.9
Lazio	49.1	54.3	12.5	15.4	48	1.9	4.8	5.9
Abruzzo	44.1	47.4	9.5	12.1	19	0.7	2.6	1.3
Molise	56.6	52.7	18.5	25.9	3	0.1	0.1	0.3
Campania	47.6	51.8	5.8	9.7	28	1.0	2.4	5.8
Basilicata	51.7	54.8	14.0	16.9	3	0.1	0.2	0.6
Puglia	49.0	52.7	6.7	8.7	26	1.0	3.1	4.0
Calabria	52.3	56.4	10.0	13.3	7	0.3	0.5	1.9
Sicilia	49.1	51.4	7.1	7.7	20	0.8	1.6	5.0
Sardegna	48.5	48.4	13.3	15.6	8	0.3	0.8	1.6
Average	46.9	49.4	14.2	18.1	69	2.1	9.9	3.0

Notes: For TGN, there is one observation less since the audience for May 27, 2019 is missing for one channel (TG7). The table reports the mean for the sample before and after January 31, 2020. The average gives equal weight to all regions.
* National News is the sum of the three main National News of 8:00-8:30 PM (TG1+TG5+TG7)
** Regional News is the share of the Regional News of 7:30-8:00 PM (TG3 Regional)

Table 3: Determinants of the share of TV News at prime-time

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	National News			Regional News		
New positives in the region (1,000)	-0.421		0.847	-0.924		-1.006
	(0.908)		(0.670)	(1.506)		(0.768)
New positives in other regions (1,000)	1.308**		0.856**	1.850**		0.979**
	(0.177)		(0.102)	(0.265)		(0.190)
Total currently positive in the region (1,000)		-0.0579	-0.0832		-0.0297	-0.00123
		(0.0425)	(0.0432)		(0.0715)	(0.0632)
Total currently positive in other regions (1,000)		0.0514**	0.0258*		0.0779**	0.0488**
		(0.00954)	(0.00974)		(0.0119)	(0.0103)
Baseline (average share pre-COVID)		46.9			14.2	
Observations	11,440	11,440	11,400	11,460	11,460	11,440
R2 within	0.10	0.09	0.11	0.19	0.20	0.23
R2 between	0.03	0.02	0.02	0.01	0.02	0.02
R2 overall	0.04	0.04	0.05	0.08	0.08	0.09

Notes: Results come from Fixed-Effects panel regressions which include DVs for day of week and national holiday. Robust standard errors in parentheses.

** $p<0.01$, * $p<0.05$

Table 4: Robustness checks

Share of ⇒	(1) Excluding Lombardia	(2)	(3) First Differences	(4)	(5) Moving Average 7	(6)	(7) Geographical Distance	(8)	(9) Deaths	(10)
	National news	Regional news	National news	Regional news	National news	Regional news	National news	Regional news	National news	Regional news
New positives in the region	-2.002 (1.383)	-2.598 (2.256)	0.459 (0.445)	-0.238 (0.567)	0.911 (0.754)	-1.235 (0.940)	1.628 (1.014)	0.553 (0.892)		
New positives in other (neighboring, for col. 7-8) regions	0.950** (0.120)	1.033** (0.229)	0.943** (0.178)	0.324** (0.106)	0.882** (0.106)	1.042** (0.200)	0.561 (0.364)	0.291 (0.309)		
New positives in non-neighboring regions							0.892** (0.126)	1.083** (0.227)		
Total currently positives in the region	-0.0450 (0.176)	-0.198 (0.244)	0.0901 (0.138)	-0.172 (0.110)	-0.0844 (0.0437)	0.00553 (0.0611)	-0.0305 (0.0601)	-0.00916 (0.0948)		
Total currently positives in other (neighboring, for col. 7-8) regions	0.0243 (0.0130)	0.0549** (0.0133)	-0.0396 (0.0195)	0.0602** (0.0242)	0.0248* (0.00972)	0.0470** (0.0102)	0.00431 (0.0211)	0.0549 (0.0330)		
Total currently positives in non-neighboring regions							0.0287* (0.0111)	0.0474** (0.0114)		
New deaths in the region									0.0192 (3.31)	0.938 (4.85)
New deaths in other regions									0.00862** (0.00116)	0.0127** (0.00171)
N	10,868	10,887	11,400	11,440	11,460	11,460	11,440	11,460	11,420	11,440
R2 within	0.11	0.23	0.03	0.01	0.22	0.39	0.09	0.19	0.09	0.19
Dependent variable:	Share		First Difference Share		Share MA7		Share		Share	
Explantory variables in:	Levels (1,000)		First difference (1,000)		MA7 (1,000)		Levels (1,000)		Levels	

Notes: Results come from Fixed-Effects panel regressions which include DVs for day of week and national holiday. Robust standard errors in parentheses.
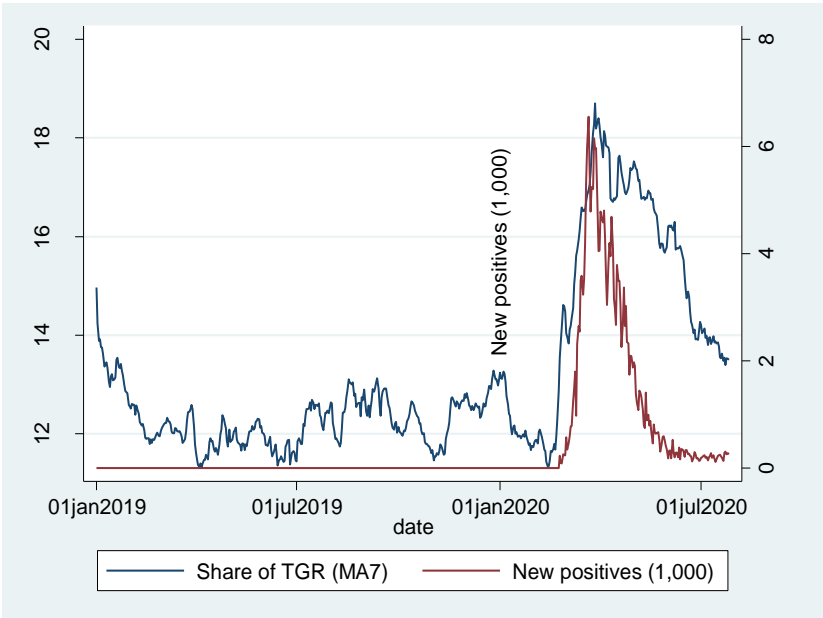** p<0.01, * p<0.05

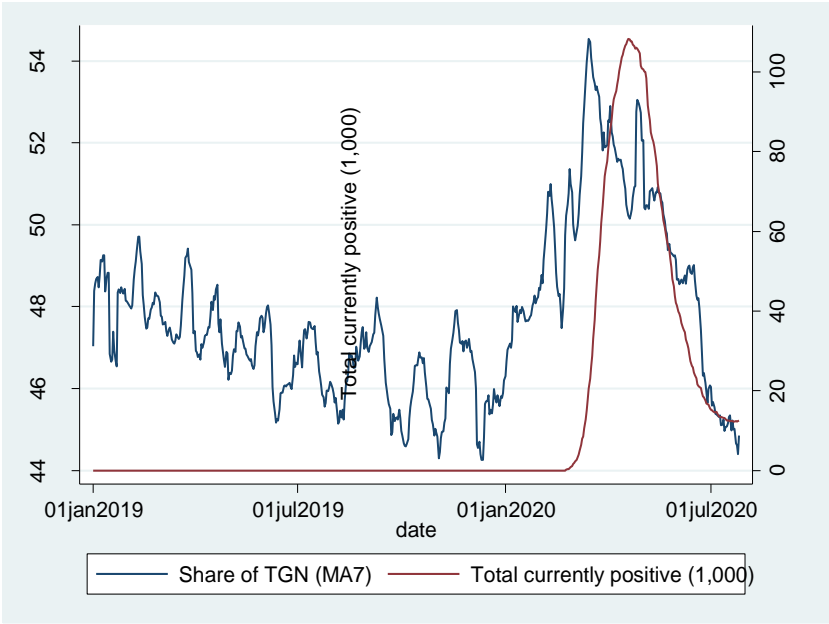# Figure 1: Share of National and Regional News and COVID Developments

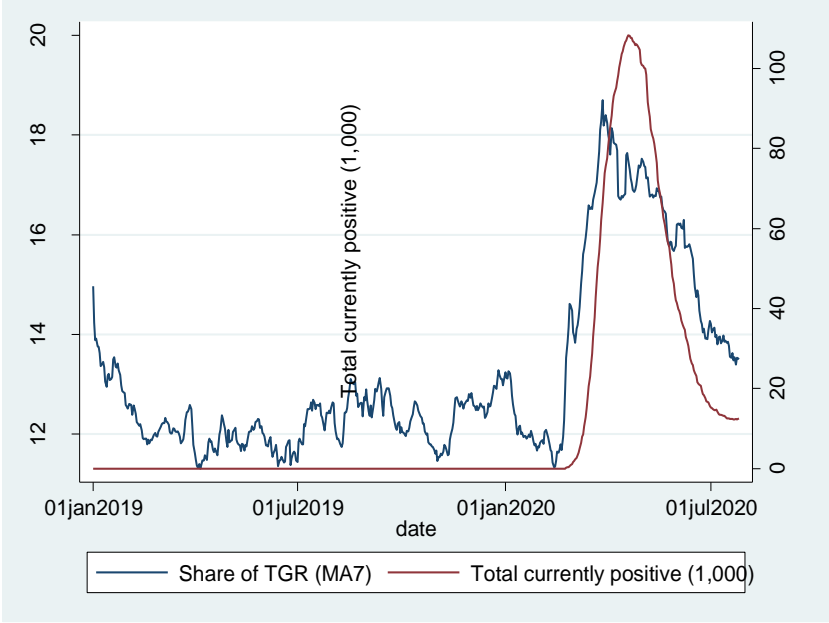Panel A: New Covid positives (1,000) and 7-day moving average of the share of National News
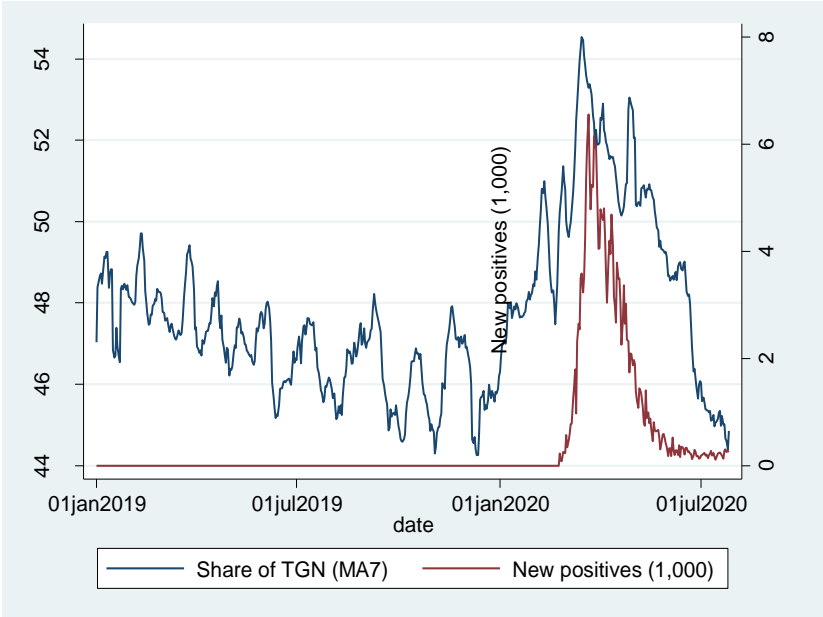
Panel B: New Covid positives (1,000) and 7-day moving average of the share of Regional News

Panel C: Currently Covid positives (1,000) and 7-day moving average of the share of National News

Panel D: Currently Covid positives (1,000) and 7-day moving average of the share of Regional News

Appendix - Detailed chronology of COVID-19 events and policy responses in Italy

The Government of Italy declared a six-month long state of emergency to respond to the COVID-19 outbreak on January 31, 2020, after blocking air traffic from China the day before. Cases of contagion in the northern regions of the country rose more rapidly than in the rest of the country, which led to a series of national and local government measures being implemented concurrently. In the most affected region, Lombardia, the government suspended most public activities, including economic and educational ones, in ten villages in Lombardia, with similar measures being adopted in one village in Veneto region the following day. On February 23, further tightening of restrictions in these villages were applied, including a prohibition to access or leave the area or hold any type of meeting for the following fourteen days.

On the same day, several regions in the North of Italy suspended upcoming public events, and closed schools and museums, until Sunday, March 1 for Lombardia, Veneto, Friuli-Venezia Giulia, and Emilia Romagna, and February 29 for Piemonte, with the provision that the deadline might change as the "epidemiological scenarios" developed.

On February 24, other northern regions adopted similar isolation measures, such as Liguria and the Province of Trento, followed by the central region of Marche (announcing a preliminary deadline for March 4). On March 1, the Government issued a decree suspending public events and closing schools until March 8 in Lombardia, Veneto and Emilia Romagna and in some provinces of Marche and Liguria. On March 4, the closure of schools was extended to the whole country until March 15.

On March 8, the government implemented a total lockdown and banned individual movements with an exception for work or health reasons or for necessity (e.g. purchasing of food and medicines) in the whole of Lombardia and in selected provinces in Emilia Romagna, Veneto, Marche and Piemonte, for a total of 14 provinces in the North of the country. The following day the government extended these measures to the whole country. These restrictions were announced to remain in place until April 3. On March 11th, the government also ordered the closure of most retail shops until March 25, with the exception of grocery shops and pharmacies. This included restaurants, bars, and most personal services (e.g. hairdressers).

On March 22, the government announced that the originally scheduled end date for the closure of commercial activities (March 11) was extended to April 3, and further suspended commercial and industrial activities, and prohibited individual movements outside the town of domicile, with an exception of work or health reasons or for absolute necessity.

On April 1, the government extended a total lockdown to the whole country until 13 April, and on April 10 it was prolonged until May 3.

On April 26, the government announced a starter plan for the so-called "phase 2", that would start from 4 May. Due to the "Phase 2", movements across regions would still be forbidden, while the ones between municipalities would be allowed only for work and health reasons, as well as for visits to relatives. Re-opening of manufacturing industries and construction sites are allowed too.

On May 13, the government announced schools would remain closed until September.

On May 16, the Prime Minister announced the Government plan for the easing of restrictions. Due to the plan, most businesses could reopen, and free movement was granted to all citizens within their Region; inter-regional travel was not permitted, unless it is for absolute necessity.
Swimming pools, gyms and then theatres and cinemas could also reopen.

On June 3, the government allowed unrestricted travel to and from EU countries and between Italy's regions. The inter-regional and foreign travel ban remained in place until after Italy's June 2 Republic Day holiday, avoiding any mass travel over that long-holiday weekend.

ITable A1. Timeline of COVID-19 epidemic and policy responses in Italy

Date	Event
30-Jan-20	Italy closes flights from China
31-Jan-20	First two cases of COVID-19 diagnosed in Rome
31-Jan-20	Government declares state of emergency
21-Feb-20	First cases of community transmission reported in Lombardia and Veneto; first COVID-19 death (in Vo', Veneto)
21-Feb-20	Most public activities suspended in outbreak areas in Lombardia and (the following day) in Veneto
23-Feb-20	Complete lockdown of outbreak areas in Lombardia and Veneto
24-Feb-20	Schools closed in Lombardia, Veneto, Friuli-Venezia Giulia, Emilia Romagna and (on the following days) Liguria and Marche
4-Mar-20	Schools closure extended to the whole country, announced until March 15
8-Mar-20	Lockdown ("stay at home" measures) declared for Lombardia and 14 Provinces in Veneto, Emilia Romagna, Piemonte and Marche
9-Mar-20	Lockdown ("stay at home" measures) extended to the whole country until April 3rd; schools closure extended to the whole country, announced until April 3rd
11-Mar-20	Government ordered closure of most retail stores (exceptions included groceries and pharmacies), restaurants and bars, as well as most personal services until March 25th
19-Mar-20	Italy surpasses China as the country with the most reported COVID-19 deaths
22-Mar-20	Government suspended all non-essential economic activities until April 3rd. It also prohibited individual movements outside people's town of domicile (with the exception of work- and health-related reasons or in case of absolute urgency). All these measures are put in place until April 3
1-Apr-20	Lockdown extended to the whole country until April 13
10-Apr-20	Lockdown extended to the whole country until May 3
26-Apr-20	Government announced a starter plan for the so-called "phase 2", that would start from May 4

4- May-20	"Phase 2" started: movements across regions would still be forbidden, while the ones between municipalities would be allowed only for work and health reasons, as well as for visits to relatives. Re-opening of manufacturing industries and construction sites
13-May-20	Government announced schools would remain closed until September
16-May-20	The Prime Minister announced the Government plan for the easing of restrictions. Due to the plan, most businesses could reopen, and free movement was granted to all citizens within their Region; movement across Regions was still banned for non-essential motives.
3-Jun-20	Government allows travels to and from Italy and between the country's regions