Does partisan grassroots mobilization matter in the digital age?

Daniel Bischof *University of Zurich*
Thomas Kurer *University of Zurich*

June 10, 2020

Abstract

Political parties have long thrived on systematic grassroots mobilization of support. But does traditional partisan bottom-up mobilization still matter in an interconnected digital age turning the world into a 'global village'? We address this question by studying the impact of the populist Movimento Cinque Stelle (M5S) on the rejection of the 2016 constitutional referendum in Italy. The movement's unusual practice to coordinate activities on a public event platform provides a unique opportunity to collect the complete event history of a modern political party. We merge this data consisting of over 200'000 geo-coded meetings by 1'000 local chapters with referendum results and individual panel data. Relying on regression, matching, and instrumental variable models, we find a small but consistent effect of M5S activity on the referendum outcome. Our findings demonstrate the continued relevance of bottom-up mobilization and highlight direct democratic means as an influential channel for populist movements.

word count abstract = 150;
full manuscript (*excluding abstract*)= 11'015 with numbers.

Correspondence: bischof@ipz.uzh.ch; phone: +41(0)446345850; Ambizione Grant Holder. kurer@ipz.uzh.ch; phone: +41(0)446345838; Senior Researcher. We thank Reto Bürgisser, Francesco Colombo, Elias Dinas, Sarah Engler, Florian Foos, Hanno Hilbig, Herbert Kitschelt, Hanspeter Kriesi, Giorgio Malet, Tabea Palmtag, Nils Redeker, Tobias Rommel, Roman Senninger, Zeynep Somer-Topcu, Resul Umit, Vicente Valentim, Valerio Vignoli, and conference participants at EPSA 2019, APSA 2019, and SVPW 2020 for helpful comments. Ista Zahn provided valuable help during the web-scraping process. We thank Théoda Woeffray and Sebastian Weber for excellent research assistance (municipality-level data collection). We also thank Ruben Durante and Francesco Sobbrio for sharing their data on UGS stations in Italy. Thomas acknowledges support from a Berggruen-Weatherhead postdoctoral fellowship at Harvard University. Daniel acknowledges funding from the Swiss National Science Foundation (SNF Ambizione Grant, NO. 179938). Finally, we thank Alexandra Elbakyan.

1 Introduction

Does traditional partisan bottom-up mobilization matter in an age of ubiquitous digital communication? Historical and anecdotal evidence ascribes an important role to political grassroots organization. From the fascist movements in the 1920/30s (Kirchheimer 1966; Panebianco 1988; Scarrow 1996; Selb and Munzert 2018) to the perfectly democratic mass parties of the post-war period (e.g. Katz and Mair 1994), many key political actors of the 20th century are understood to have hugely benefited from systematic bottom-up mobilization. Yet, with the advancement of mass communication accompanied by a decline in membership and organizational strength of political parties, scholars attribute ever less persuasive power to grassroots organization (Klapper 1960; Mair and van Biezen 2001; Mair 2006). The development of broadband internet and the widespread use of social media has reinforced this development to an extent that has been understood by some as the final nail in the coffin of already foundering party organization, collective action and social capital more generally (Bauernschuster, Falck, and Woessmann 2014; Campante, Durante, and Sobbrio 2018).

To examine the contemporary relevance of partisan grassroots mobilization in the 21st century, we turn to the Italian Movimento Cinque Stelle (M5S) – a populist party that developed from a scattered anti-corruption movement into a key political player in Italy. While all political actors need to adapt their mobilization strategies to the new reality of pervasive digital communication, populist parties are particularly interesting cases to study the question at hand. On the one hand, they have been seen as main beneficiaries of the increasing importance of online communication and social media. Their simple messages and overall campaign strategies are well designed for online campaigns (Bischof and Senninger 2018). Donald Trump's perfection of "govern[ing] by tweet" (Gessen 2017) is a case in point. On the other hand, the populist discourse centers on the juxtaposition of an idealized ordinary people against a corrupt elite (Mudde 2004; Caramani 2017). As a consequence, populist mobilization thrives on explicit "proximity to the people" (Müller 2017) also in the literal sense evidenced by rallies, marches and demonstrations. During his run to become the Democratic Presidential Candidate, Bernie Sanders' successful mass mobilization building on the explicit call to form a grassroots movement against "Big Money" provides an example from the same context.

We offer theory and evidence that reconcile these seemingly conflicting perspectives. We argue that successful partisan mobilization in the digital age makes use of online communication as a

powerful tool to understand, voice and mobilize *local* interests and grievances. However, importantly, these grievances need to be activated on the ground in order to result in actual political influence and electoral impact. On both sides of the Atlantic, political parties in general, and populist movements in particular, rely on the internet to encourage grassroots activity by giving members considerable autonomy about the agendas of local party chapters. In turn, voters' diverse local grievances are mobilized under a single umbrella organization, which facilitates political impact that reaches far beyond the primal source of locally rooted dissatisfaction.

Importantly for our purposes, the M5S has heavily relied on digital communication tools (e.g. Bordignon and Ceccarini 2013; Campante, Durante, and Sobbrio 2018). The charismatic founder of the movement, Beppe Grillo, actively encouraged potential supporters to coordinate their local activities on an public online platform. This feature of the movement's organizational structure allows for uniquely transparent insights into the genesis and mobilization strategy of a modern political party. We were able to collect the entire universe of M5S meetings from the first day of its existence, resulting in a geo-coded dataset with more than 200'000 meetings organized by more than 1'000 local chapters with an average number of 134 members in 896 different locations in Italy. We map individual locations into political entities to create a novel dataset that provides daily information on M5S activity in each and every of Italy's 8000 municipalities between July 2005 and December 2018. While previous studies had to rely on subjective reports of interactions with a party or roughly proxied indicators of campaign activity, our data is equivalent to a complete and locally disaggregated event history of M5S activity and thereby helps overcome a key obstacle to studying the questions at hand.

More specifically, we focus on the role of the M5S in the rejection of the 2016 Italian constitutional referendum, which led to the resignation of the then-Prime Minister Matteo Renzi. We combine our unusually rich event data with actual referendum results on the municipality level as well as individual-level panel data. Using regression, matching and instrumental variable models along with placebo tests, we find consistent evidence that exposure to *local* M5S grassroots activity indeed had a significant albeit small effect on the referendum result. On average, Italian municipalities with an active M5S chapter had half a percentage point higher no-vote shares – the position M5S mobilized upon. On the individual level, we find that exposure to M5S activity increases the probability of voting No by about seven percentage points. Further examining underlying mechanisms, high levels of

spatial disaggregation allow demonstrating the highly local nature of partisan activity. The effect is mainly driven by activating local party sympathizers to seek more information on the referendum and eventually vote No. Conversely, we do not find any evidence of a mobilization of out-partisans or people who usually do not take part in politics.

This paper makes three important contributions on the political impact of partisan mobilization in the digital age. First, we present uniquely rich data on the genesis of a major political party, which provides a rare opportunity to study the political impact of partisan mobilization without resorting to coarse proxies for party activity. Second, based on a broad array of estimation strategies, we present plausibly causal evidence for the continued relevance of traditional bottom-up mobilization in the digital age. Moreover, high levels of spatial and temporal disaggregation of our data allow not only demonstrating *that* bottom-up mobilization still matters but also tracing *how* grassroots activity translates into tangible political outcomes. Finally, we contribute to the rapidly growing literature on the ascent of populist forces. While most observers agree on populists' considerable impact on the political discourse, issue salience and traditional patterns of party competition, we show that populist mobilization also more directly affects the political landscape by changing electoral outcomes. All in all, our findings highlight the continued relevance of local grassroots politics despite the ever-growing attention to digital mass communication, social media and the diffusion of political conflict.

2 What we know about the effects of grassroots activities

The question of whether parties' grassroots activities (still) matter has been at the heart of much research on political behavior (Jacobson 2015). Specifically research on political parties and their organizations ascribe an important role to their organizational capabilities through which parties are thought to mobilize activists and influence political outcomes in their favor (Kirchheimer 1966; Panebianco 1988; Scarrow 1996).

Yet, already the early developments in mass media such as the radio brought along doubt that parties and their grassroots can affect politics (Farrell and Webb 2000; Scarrow 2000). Back in the 1940s, Klapper (1960) emphasized that campaigns, the media and thereby also parties may only have minimal effects on the public and its preferences. For one because people tend to select into

information aligned with their preferences; for another because of an arguably negligible role of local grassroots in light of ubiquitous information on campaigns and parties accessible via the mass media. This early observation was indeed followed by an enormous decline of party membership and activity at least since the 1970s (Mair and van Biezen 2001; Webb, Farrell, and Holliday 2002).

With the rise of the internet, the necessity for and usefulness of traditional party politics and party meetings has been perceived as even less relevant than before. The internet is thought to ease access to information for the public and to simplify sharing campaign contents for political parties. From this perspective, neither the public nor political parties are reliant upon an active party base and traditional party meetings in order to inform and mobilize supporters (Campante, Durante, and Sobbrio 2018; Bauernschuster, Falck, and Woessmann 2014; Schaub and Morisi 2020). Consequently, some have argued that the rising importance of digital communication and social media lowers the bar for the emergence of new political actors and hence provide an advantage to challenger parties (Campante, Durante, and Sobbrio 2018; Schaub and Morisi 2020). The major reasoning for this being that challengers can circumvent media gatekeepers via the internet and speak to voters *directly* (Schaub and Morisi 2020: 4). Populist parties in particular are understood to benefit from the internet as their simple messages and overall campaign strategies are well designed for online campaigns (Bischof and Senninger 2018).

Still, other strands of research cast doubt on the minimal effects hypothesis and show that the conditions under which campaigning and grassroots activities take place is crucial for its success (see e.g. Gelman and King 1993; Iyengar and Simon 2000; Selb and Munzert 2018). Many factors affect if grassroots activity might matter – such as technical advantages, capabilities to detect persuadable voters (Kalla and Broockman 2018), scandals (Hirano 2012), or simple monetary advantages by some parties (Jacobson 1978). This led to ever more research investigating the causal effects of specific campaign strategies via field experiments showing that party's campaigns do matter and specifically increase turnout (Gerber and Green 2000; Gerber, Green, and Larimer 2008; Pons 2018). Furthermore, recent research has questioned the idea that the internet is used as a politically relevant informational resource and instead suggested that it primarily serves entertainment purposes (Falck, Gold, and Heblich 2014). Therefore, it remains an open question if grassroots activities on the ground still matter in the digital age or whether parties can successfully mobilize citizens by predominantly

relying on the world wide web.

3 The case: M5S, MeetUp and Italy's 2016 constitutional referendum

Much in contrast to its current position as a key player in government, M5S started out as a scattered anti-corruption and anti-establishment movement (Bordignon and Ceccarini 2013; Mosca 2014; Conti and Memoli 2015). At the movement's infancy, communication between the de-facto leader Grillo and his sympathizers was heavily concentrated on Grillo's personal blog. As interest in the movement grew, Grillo felt overwhelmed by the amount of traffic on his blog and, thus, suggested that his followers should organize themselves *independently* on "MeetUp", that is a public online platform to host in-person events (Grillo 2005). MeetUp groups rapidly became a major organizational resource, which squared nicely with the movement's conception of politics as bottom-up democracy (Bordignon and Ceccarini 2013). While the online platform served as an organizational tool, the actual events took place in public spaces, restaurants or private homes, thereby creating lively interaction between online and offline communication and different forms of exposure to political content. In 2013, La Repubblica, a major Italian newspaper, concluded bluntly that M5S would not exist today if it had not been for MeetUp (Luna 2013).

Which political outcome should we study in order to examine the effectiveness of M5S party activity? Just like many other populist or anti-establishment parties, the M5S had and still has a complicated relationship to political power. For long, the movement outrightly rejected participation in elections due to its denouncing of rampant corruption and a strong dislike for the political elite (Kriesi 2014). Election results thus provide a rather noisy indicator of the movement's mobilization capacity. However, much in contrast to the ambiguous position towards representative democracy, the M5S has shown strong and unambiguous support for more direct means of democratic participation in general and referendums in particular – as it is common amongst populist parties (Canovan 1999; Mudde 2004).

Due to the particular relevance of plebiscites for populists and the grassroots movements character of M5S, we focus on direct-democratic political contestation rather than on more ambiguous election campaigns. Specifically, we study the outcome of the 2016 constitutional referendum. Then-Prime Minister Renzi *(Partito Democratico)* in late 2015 proposed a major political reform for the state

of Italy. The reform sought to amend 47 articles of the Italian Constitution in an attempt to redesign the institutional architecture of the Republic (Ceccarini and Bordignon 2017). Yet, Renzi himself personalised the vote from the very start of the referendum campaign by equating a 'yes' to the reform with support for his premiership (Ceccarini and Bordignon 2017: 289). This personalization of the vote created a strong opposition versus government dynamic (Di Mauro and Memoli 2018). Indeed the entire parliamentary opposition mobilized against the referendum with M5S taking a leading role. The referendum was held on 4 December 2016 and brought Renzi a spectacular defeat with only 40.9% support, leading to his resignation as prime minister. Supporters of the M5S showed the highest party discipline and cohesion with almost unanimous rejection of the referendum (Pasquino and Valbruzzi 2017).

To illustrate how M5S organized its activities via MeetUp during the 2016 constitutional referendum, take as an example a MeetUp group in Pontinia, a small municipality in the province of Rome. The local chapter ("Grilli in Movimento per Pontinia") has been founded in 2012, organized a total of 193 public events since and currently has 115 members. The group was born as a *"meeting point for all those who join or sympathize with the 5 Star Movement in the area of Pontinia"* and its self-description highlights ideological independence (*"neither left nor right, but ideas"*) and the desire for *"democratic confrontation outside of association and partisan ties"*. A typical event during the campaign period before the 2016 referendum would take place on a Saturday morning outdoor at the Piazza Indipendenza with the aim to *"[...] spread the reasons for the NO to the constitutional referendum on December 4. Take part with us in the infopoint banquets, you know the reasons for the NO. Activist help us spread the leaflets [...]"*. Beyond the organizer, who according to his MeetUp profile has never been member of a party but always "followed politics as a critical observer", the event had five confirmed attendees from among the group's members.[1]

4 How M5S grassroots activity matters

As the example above outlines, M5S grassroots activity spreads across the entire spectrum of party activities: People are holding meetings to deliberate; they are sharing campaign materials such as leaflets; and meetings allow participants to engage with M5S member and politicians. Both theoretical

[1]Quotes were translated from Italian. For original formulations and full information on the quoted examples, see group link and event link, respectively.

as well as empirical research on party mobilization suggests that grassroots activities do matter for voters (Panebianco 1988; Mair 2009; André and Depauw 2016; Fisher, Cutts, and Fieldhouse 2011). Thus, overall this leads us to expect that M5S grassroots activities seek to inform citizens about the referendum, and to mobilize locals to vote against it.

At the same time, some of the above-discussed research suggests that traditional partisan grassroots activity hardly matter anymore in the digital age (Campante, Durante, and Sobbrio 2018; Schaub and Morisi 2020). Instead, citizens' preferences are shaped via the internet; making each community and its grievances globally accessible. From this perspective we have little reason to expect that local grassroots activities can sway voters such that they significantly impact tangible political outcomes like the 2016 referendum result.

Our main argument adds an important layer to these seemingly conflicting perspectives. We argue that online communication is an important tool to connect and voice local grievances and interests, which are then mobilized by traditional on-the-ground activity. Only through the internet was the M5S able to grow from a movement into a full-fledged party organization. Thereby the M5S used an *online* tool – Meetup – to organize local chapters *offline*. These local chapters then not only provide activities and information for locals but also provide social capital for the M5S organization. Through its bottom-up engagement with local interests and problems the M5S learns about localities and their problems.

At the same time, the organization fully lives up to the populist idea to listen to the "simple people" and represent their interests (Canovan 1999: 5; Mudde 1999). On top of that, the bottom-up organizational structure of M5S adds even more value to this perspective. In contrast to classical mass parties, M5S leaves the organization of events to locals who independently organize events and their agendas. These grievances might often remain somewhat implicit and their precise focal point varies between localities. However, a strongly personalized national referendum that would decide about the future of the Prime Minister, i.e. the epitome of the central government, certainly provides a gratifying target for dissatisfied voters.

Thus, overall, the grassroots activities by M5S can be understood as a credible engagement by a political party in the social belongings of a locality. This credible engagement in local matters seems impossible to achieve via online communication only – which almost by definition is driven by a more

top down approach. Thus, we suggest that a main reason why previous research finds that political parties, especially those thriving on a populist discourse, benefit from the internet is the potential to provide decentralized means of communication, which allow voters to voice local grievances and, hence, parties to adequately respond to community interests.

Such an umbrella organization consisting of more of less autonomous local branches is by no means unique to the case at hand. Just like the M5S, most political parties but also broader political movements consist of a large number of smaller, regional units. The Black Lives Matter Global Network, for example, provides interested local groups the option to officially register as a chapter on their website to organize and build collective impact.

5 Data

To test whether M5S' grassroots activities mattered for the outcome of the 2016 referendum, we collected *complete* data on all activities organized by any of the more than 1000 local M5S chapters across the country. We then combine these geocoded event data with the actual referendum results for all 7994 Italian municipalities as well as with a detailed individual panel study on the 2016 referendum.

5.1 The M5S MeetUp data

To retrieve full information about all events organized by M5S, we webscraped the complete set of events organized by each and every group identified as relevant for the question at hand. We followed a multi-step procedure to obtain the universe of relevant groups (see Appendix A.1 for details), resulting in a cumulative total of N = 1'044 local M5S chapters across the country (as of December 3, 2018).

For each of these groups, we first retrieved full group-level meta data.[2] In a second step, we scraped the full event history of every group. This provides us with a total of N = 217'218 events between 2005 and 2018 organized by all of the 1'044 groups.

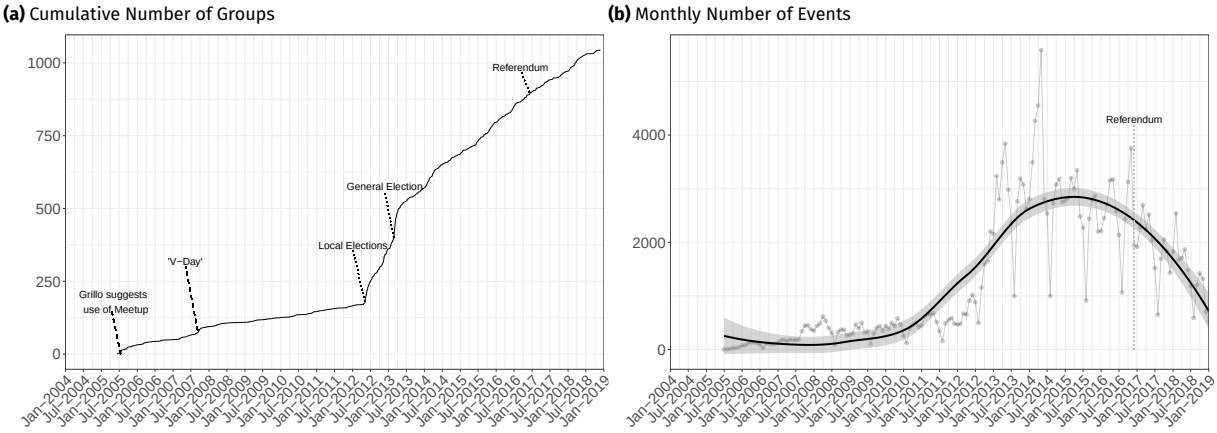
For every single event, we have the following information: *event ID, event description, event title, event creation date, event date/time, RSVP count, waitlist count, event URL*. For about one third of

[2]The meta data contain: *group URL, group ID, group creation date, group name, group location, group latitude, group longitude, group state, group country.*

the events, we even have the precise venue, e.g. "Piazza Bellini" or "Osteria della Fontana" (*venue ID, venue name, venue latitude, venue longitude, venue address, venue city, venue state, venue ZIP, venue country*). In cases where no precise venue is given, we impute event location with the precise location of the group, which is always known.

To give a first impression about the sheer amount of activities conducted by each M5S group, Figure 1 shows the cumulative number of unique groups on the left hand-side and the corresponding monthly number of events on the right hand-side. Immediately after Grillo's call to organize on

Figure 1: M5S mobilization across time, 2005-2018



MeetUp, the first groups started to emerge.[3] The spread of local groups continued gradually, with a marked increase and acceleration of activity starting after the local elections in 2012. Panel (b) demonstrates that the number of events evolved in tandem and also rises sharply from 2012 onward. At the peak of M5S activity in the years between 2012 and 2016, the monthly number of events amounts to about 3000 on average, i.e. an impressive one hundred events *per day* scattered across the country. The seasonal pattern within years demonstrate the face validity of our data: activity consistently drops during summer holidays in August. M5S activity on MeetUp starts to decrease from late 2017 onwards when Grillo eventually decided to reduce reliance on MeetUp and move supporters to an internal platform called Rousseau in order to "put order in the uncontrolled ocean of meet ups".[4]

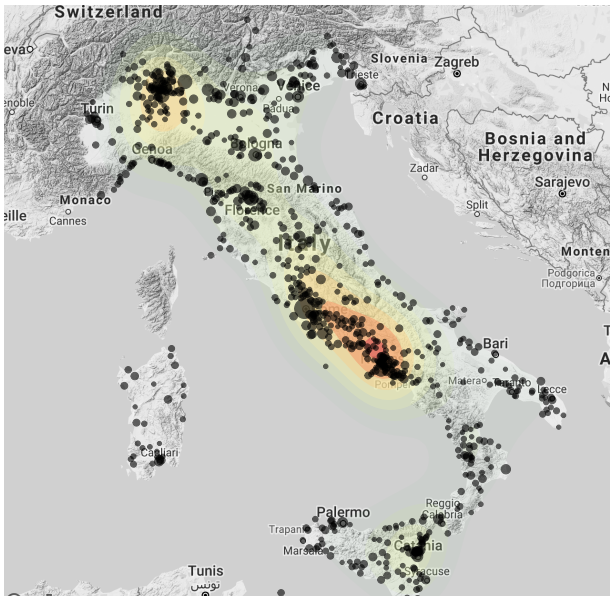
After retrieving all information on M5S grassroots activities we use reverse geo-coding techniques to aggregate exact event locations into politically relevant boundaries, i.e. municipalities ("*comuni*").

[3] One chapter in Milan has used MeetUp before and might have served as source of inspiration.
[4] Quoted from Il Fatto Quotidiano.

The original dataset on the event level is thus transformed into a time-varying municipality-level dataset of political grassroots activity. Figure 2 visualizes this procedure. The "heatmap" on the

Figure 2: M5S mobilization until 2016, heatmap & per municipality

(a) M5S mobilization, heatmap



(b) M5S exposure per municipality (*comune*)

Note: On the left: heatmap and geo-location of all M5S events. On the right: map of Italian municipalities. Red municipalities are exposed to M5S meetings, blue municipalities did not experience any M5S events until 2016.

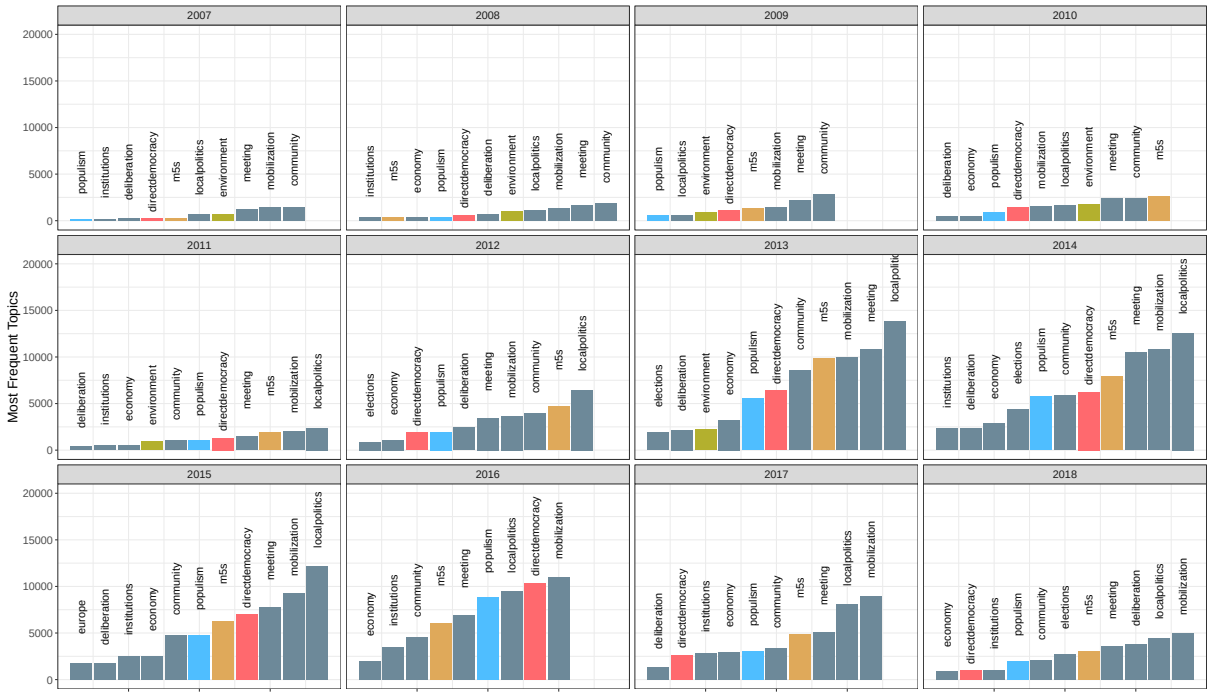
left reports each M5S event and its precise geographical location. Using these geo-locations and a shapefile of Italian municipalities in 2016, we then evaluated in which municipality each event took place. On the right hand of Figure 2 we report the result of this matching exercise. As of 2016 there were 7'998 comuni in Italy, out of which 667 were exposed to M5S mobilization. The remaining 7331 municipalities were not exposed to any M5S events. Even though M5S mobilization is unsurprisingly visible in urban, highly populated municipalities – such as Rome, Milan, Florence and Naples – more provincial areas and more rural municipalities also experience a large number M5S events, especially in Northern Italy, Sardinia and Sicily.

Since each of our more than 200'000 events features a more or less detailed description of the issues to be discussed, our data allows for a description of the content-wise aim of M5S meetings. A direct classification of single events into topics, e.g. classifying an event as an event about environmental politics or an event about the constitutional referendum, is not feasible because the descriptions are not always informative and often rather short. However, the overall corpus of text consisting of the pooled content of all the descriptions still allows for an informative illustration of

some of the movement's recurring key topics and how they have evolved over time.

Figure 3 shows the result of a simple text analysis of these descriptions. After some pre-processing

Figure 3: M5S topics over time



Note: 300 topfeatures in event descriptions re-classified into broader topics, see Table A.1 in Appendix A.2.

of the text (removing html keys, removing stopwords, tokenization, etc.), we retrieved the 300 most frequent features by year. For the sake of simpler visualization, we manually categorized these topfeatures into broader topics (Appendix A.2). First of all, the absolute number of text across years reflects the overall activity of M5S meetup groups already discussed above.[5] In terms of content, unsurprisingly, some of the movement's core issues such as community, deliberation, direct democracy, localization of economic structures and, especially in earlier years, environmental protection feature prominently. Perhaps most importantly for our purposes, the direct democracy topic is highly present across most years, and dominating the M5S grassroots agenda in 2016 (mentioned over 10'000 times). This supports our point of departure that the M5S mobilized very actively and vocally against the constitutional reform. In fact, a further sub-analysis of the various terms related to direct democracy demonstrates the overwhelming importance of the referendum topic in the year 2016 (see Appendix Figure A.1).

[5]We drop 2005 and 2006 for brevity. Topfeatures are very similar to 2007 but on even lower levels of absolute numbers.

5.2 Operationalization: Local M5S activity

From this unusually rich dataset on M5S activity we create our main explanatory variable – exposure to M5S mobilization in each of the 7'998 Italian municipalities. Since the raw number of events and participants are heavily right-skewed we calculate the *per eligible voter number of M5S event participants in a municipality*. We approximate participation by the number of people who responded positively to the public invitation to an event (RSPVs) and log-transform numerator due to right-skewed distributions of both activity and population.[6] Since we have precise information on the appointed date and time of every single event, we can vary the aggregation of events over time_t depending on the specific requirements of the various models. For example, we will be able compare effects of M5S mobilization during the height of the campaign (between Renzi's speech on January 20 and the referendum on December 4, 2016) to long-term effects of cumulative M5S activity since the first day of a local chapter's existence. Finally, not to draw conclusions purely driven by the specification we choose, we also provide tests based on a simple binary measure – active local chapter during the referendum campaign=1; 0=otherwise – and a measure based on the number of events only, i.e. not weighted by participants (see Appendix Tables A.2 and A.5).

6 Results

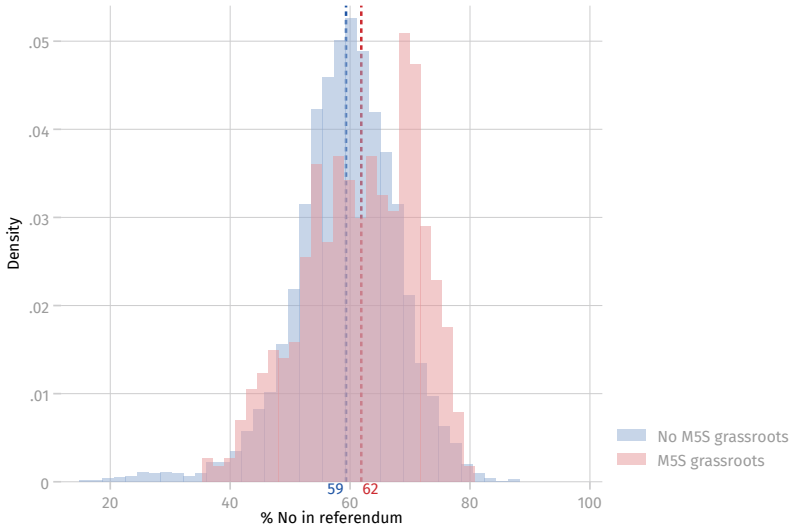
6.1 Municipality level – official electoral data

For the municipality-level analysis, we collected official register data on the 2016 referendum outcome (*number of yes votes, number of no votes, number of invalid votes*), turnout (*number of voters, number of constituents*). Before delving into more complex estimations, our first part of the analyses relies on a simple t-test between municipalities exposed to M5S mobilization and those that were unexposed. Figure 4 plots a histogram across all municipalities. Municipalities in blue were unexposed to M5S mobilization, municipalities in red were exposed. It becomes immediately visible that municipalities with an active M5S chapter were more likely to vote against the referendum: on average these

[6] Formally, our explanatory variable is defined as follows:

$$\text{M5S}_{m,t} = \log\left(\frac{\sum(\text{number of events}_{m,t} \times \text{number of rsvps})_{m,t}}{\text{number of eligible voters}_{m,t}} + 1\right)$$

Figure 4: Bivariate comparison between municipalities without and with M5S grassroots mobilization



Note: The difference between the two distributions is statistically significant. The dashed lines report the mean for each distribution.

municipalities were 3 percentage points more likely to vote No in the referendum.

Of course, other factors such as economic well-being or previous voting patterns might as well explain this difference. Thus, we also collected several covariates (*income per capita, share unemployed, share university degree, share primary education and lower, share foreigners, population density*) for each of the 7'998 municipalities in 2016[7] to control for potential confounders affecting the referendum result along with M5S mobilization – e.g. economic and structural differences across municipalities. Furthermore, we control for voting patterns in the last federal elections in 2013 – the first election bringing M5S parliamentarians into the bi-cameral institutions. We include the percentage of population voting for M5S, the Partito Democratico (PD) and turnout of each municipality at the 2013 federal elections.[8]

To formally test whether M5S grassroots mobilization predicts No votes in the 2016 referendum, we then estimate OLS models of the following form:

$$y_m = \gamma \text{M5S}_m + \beta X_m + \alpha_p + \epsilon_m \quad (1)$$

[7]The data stem from various sources: election data from Governo italiano Ministero dell'Interno; unemployment, foreigners from ISTAT; taxable income from Departemento della Finanze; education from Census data.

[8]To be more precise we control for the percentage of the population voting for M5S in the chamber of deputies only. The reason to not control for the senate lay in the fact that only voters older than 25 are allowed to vote for it. Notice, however, that our findings remain robust when controlling for votes in the senate and chamber of deputies

where γ indicates the coefficient of interest showing the effect of M5S exposure on the amount of No votes y in each municipality$_m$; α_p are province fixed effects controlling away any time-invariant province characteristics and X the set of municipality-level control variables outlined above. Since the referendum is a single cross-section we cannot use municipality-level fixed effects nor cluster our standard errors on the municipality. Instead we cluster our standard errors on the province-level – the next higher administrative level – to get hold of any province specific correlations within the error term structure.[9]

Table 1 shows the results of the cross-sectional analysis on the municipality-level.[10] Again, we

Table 1: OLS estimates (*municipality*), does M5S grassroots mobilization predict referendum No-vote share?

	% No in referendum							
	Binary				Continuous			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
M5S activity (0,1)	2.54	0.85	0.63	0.50				
	(1.11)	(0.35)	(0.19)	(0.16)				
M5S activity (cont.)					1.08	0.34	0.20	0.16
					(0.39)	(0.13)	(0.08)	(0.07)
M5S vote share 2013 (%)			0.25	0.21			0.25	0.21
			(0.05)	(0.04)			(0.05)	(0.04)
Constant	59.32	59.45	76.24	89.35	59.33	59.46	76.26	89.36
	(0.66)	(0.03)	(2.06)	(4.37)	(0.66)	(0.02)	(2.06)	(4.38)
Province FE		✓	✓	✓		✓	✓	✓
Controls			✓	✓			✓	✓
Entropy balanced				✓				✓
Obs	7994	7994	7804	7804	7994	7994	7804	7804
Provinces	110	110	110	110	110	110	110	110
adj.R^2	0.01	0.55	0.71	0.87	0.01	0.55	0.71	0.87
adj.R^2 (within)	0.01	0.00	0.34	0.52	0.01	0.00	0.34	0.52
RMSE	8.72	5.86	4.69	3.26	8.72	5.86	4.69	3.27

Note: Clustered standard errors by province in parentheses. Controls omitted from table: PD: % votes 2013, % turnout 2013, income per cap, % unemployed, % university degree, % low education, % foreigners, population density. Same variables used for matching.

first rely on a simple binary comparison between exposed and unexposed municipalities in models (1)-(4). The first model reporting a 2.54 percentage point increase of No votes in M5S municipalities can thereby be understood as a formal test of the comparisons we drew in Figure 4. Subsequently we then introduce province fixed effects in model (2) and our set of controls in model (3). While the difference of M5S exposure remains statistically significant, the size of the effect shrinks considerably to 0.63

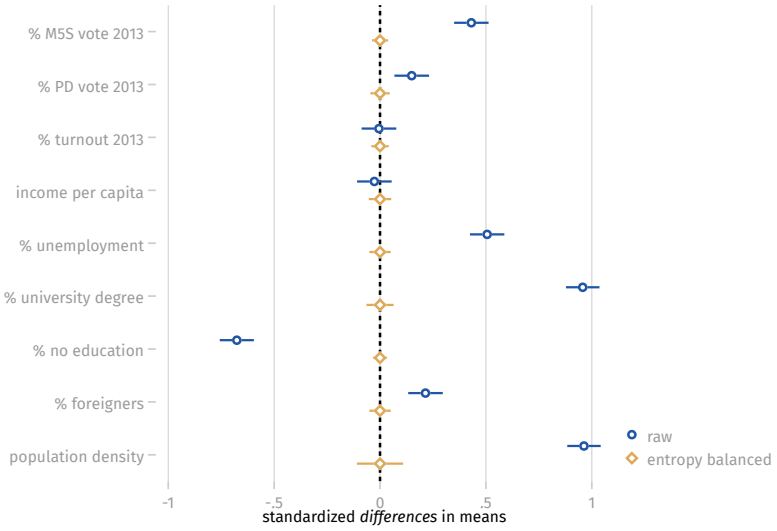
[9] Notice, however, that from a methodological point of view there is no reason to cluster our standard errors (Abadie et al. 2017). Not clustering results in far smaller standard errors and does not change the take-aways from our analyses.

[10] In four municipalities nobody participated in the referendum according to the official data. Thus, we analyze the results for 7994 municipalities.

percentage points. This means that after controlling for socio-economic and voting characteristics of each municipality, municipalities with active M5S chapters are only half a percentage point more likely to vote against the referendum. Using the continuous measure as outlined above results in similar conclusions. Models (5) - (7) report the effect of the continuous measure. Again we find a significant but small effect of M5S mobilization. The magnitude of the effect squares with a current wave of research reporting little or no effect from campaigning activities even in most likely scenarios (Kalla and Broockman 2018; Selb and Munzert 2018).

Of course M5S mobilization is not randomly assigned, meaning that municipalities experiencing M5S mobilization might vary on several factors, which might explain the actual differences between both mobilization during and voting against the referendum. To address this concern, we use entropy balancing to match unexposed with exposed municipalities (Hainmueller 2012).[11] We visualize the outcome of this procedure in Figure 5. For the raw data we find significant differences between

Figure 5: Balance statistics regional data, raw and after entropy balancing



municipality exposed to M5S activities and those that were unexposed. However, as can be seen by the orange point estimates in Figure 5, with entropy balancing we are able to retrieve full balance in all observed covariates between exposed and unexposed municipalities. Models (4) and (8) rely on the weights stemming from entropy balancing and re-estimate our models. We again find significant

[11] We also used nearest neighbor matching. However, we only achieve balance and have enough power to estimate our models with a caliper of 1 or larger. Even in this model 2/3 of the cases are dropped from the analysis. Notice, however, that the results are virtually the same as the once we report here from entropy balancing.

differences between exposed and unexposed municipalities which are similar in size to the unmatched OLS results.

Robustness and causality

We conducted several additional tests to examine robustness and causality of the presented results. First, given that M5S mobilization is less common for most rural and more isolated provinces the immediate question is if and how the M5S effects vary across provinces. Our main results already control for population density, but the findings might still be driven by a few more urbanized provinces. To address this concern, we used a jackknife test that drops each province once and re-estimate our models (Appendix A.3.2). Each of these 110 models reports a significant effect and the pooled effect of this test is similar in size as the results reported here.

Second, questions of reversed causality and omitted variable bias still linger. Our matching approach is based upon the idea that we observe all key characteristics driving M5S mobilization. However, some unobserved factors like local norms or specific traditions of political contestation might drive both local M5S activity and opposition to the referendum (common cause). Although the individual panel analysis below partly addresses these concerns, we also attempt to deal with these methodologically challenging problems on the regional level. To do so, we first estimate a set of placebo models. Since we have such rich information also about M5S mobilization *after* the 2016 referendum, we can use this information to estimate whether *future* M5S mobilization affects the *past* 2016 referendum results. The idea behind this placebo test is that we should not expect any effects of future mobilization on past political results – specifically for municipalities that have not yet experienced any M5S mobilization. If this was the case we would have strong reason to assume that other factors than M5S grassroots activity drive our findings. Appendix A.3.3 reports the findings of these placebo models. Reassuringly, we do not find any significant effects of *future* M5S mobilization on the 2016 referendum results.

In addition, we propose an instrumental variable (IV) design to support a causal interpretation of our result. Here, we restrict ourselves to a brief, intuitive summary of the instrument but we provide a very detailed description of our approach in the Appendix A.3.4. In essence, we leverage the fact that M5S mobilization was predominantly organized via the web. Therefore, access to the internet became

a necessary condition to be informed about and able to participate in M5S events.[12] Importantly, broadband access is to a certain extent quasi-randomly assigned in Italy because access to ADSL internet depends heavily on the pre-existing telecommunication infrastructure (Campante, Durante, and Sobbrio 2018; Schaub and Morisi 2020). It hinges on a municipality's distance to the closest urban group stage (UGS, the technical term being "higher-order telecommunication exchange"). Thus, distance to the closest UGS can be considered a good proxy for the investment required to connect a municipality to ADSL and hence a source of variation for the availability of high-speed internet.

We can leverage this fact as quasi-random variation to the earlier success of local M5S mobilization. More specifically, we use the rich information we gathered for each M5S group to estimate the first day a M5S group came into existence in each Italian municipality. This variable is predictive of M5S mobilization during the 2016 referendum campaign; meaning that M5S groups, which came into existence earlier, are more likely to mobilize more successfully today – even though the original topics and intentions of M5S's early days are no longer relevant for most groups we study during the referendum. We then interact this historical information with the distance of each municipality to the UGS. The intuition behind this interaction is that the timing when M5S first mobilized in a given municipality is to some extent contingent on the amount of broadband internet access provided in a given municipality. Appendix A.3.4 reports the findings of this instrumental variable approach along with crucial tests of the instruments' first stage, tests of the instruments' independence and an extensive discussion of the exclusion restriction. Consistent with our previous results, we find a significant and positive effect of M5S mobilization on 'No' votes in the referendum.

6.2 Individual level – the ITANES panel

We complement our municipality-level results with an analysis of individual-level panel data. This approach comes at the cost of measurement error regarding the referendum outcome but instead allows examining within-municipality and within-subject effects of M5S grassroots mobilization. We rely on the ITANES Referendum Panel (2016). The Italian National Election Study carries out large sample surveys for all major elections and referendums in Italy since the 1970s. While the location of

[12] From today's perspective this might appear as a negligible impediment but it certainly was a considerable issue when M5S started mobilizing from 2005 onwards. According to official data from the OECD and the Italian communication ministry, only about every third Italian household had access to broadband internet at the time and although mobile internet had already existed it was far from being commercialized.

each respondent enables us to match respondents to the actual exposure to M5S mobilization within their municipalities, the panel structure guarantees that we can estimate within-person changes on voting against the referendum. In total, the ITANES panel 2016 collected data on 3'050 respondents in two waves – one approximately half a year before the referendum, one directly afterwards. Besides the usual socio-demographic and socio-economic information, the panel asks respondents about their intention to vote (pre wave) and their actual vote (post wave) in the referendum and it includes further information about the political preferences of each respondent – past vote choice, political interest, or left-right self placement. Moreover, the panel structure facilitates the combination of the 2016 waves with earlier post-election waves. Thus, we can measure several covariates – such as voting or political interest – long before Renzi had ever introduced the idea of a referendum, which hedges against post-treatment (or here better: post-exposure) bias (Montgomery, Nyhan, and Torres 2018). Taken together, the ITANES data enables a rigorous analysis of the impact of M5S mobilization on within-person changes of preferences about the referendum.

Using the data as outlined above based on two wave ITANES referendum panel, we first estimate a series of fixed effect OLS regression models of the following form:

$$y_{imt} = \gamma \text{M5S}_{mt} + \beta X_{it} + \tau_t + \lambda_m + \epsilon_{imt} \tag{2}$$

where again γ indicates the coefficient of interest showing the effect of M5S exposure on opposing the referendum for each respondent$_i$ nested into municipality$_m$ and two survey waves$_t$. The M5S campaign variable is operationalized analogously to the previous version; but re-defined such that the amount of M5S grassroots activity is matched with the survey timing. τ_t and λ_m are fixed effects for municipalities and survey waves respectively; X_{it} a set of individual-level control variables outlined above. Thus, we now only leverage the variation of M5S exposure within municipalities. This means that we factually model the change within each respondent on her/his referendum voting. We use multi-way clustering by respondent-ID – each respondent is observed in two waves – and by municipality (exposure assignment) (Colin Cameron, Gelbach, and Miller 2011).[13]

Table 2 reports the main findings of these model specifications based on the ITANES data. More specifically in models (1) - (3) we use municipality and wave fixed effects, then we subsequently add our

[13] Clustering by municipality only results in virtually identical standard errors.

Table 2: OLS estimates (*individual*), does M5S grassroots mobilization predict individual referendum voting?

	Vote: 'No' in referendum					
	(1)	(2)	(3)	(4)	(5)	(6)
M5S activity (cont.)	0.08	0.08	0.07	0.07	0.06	0.06
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
M5S voter in 2013 (0,1)			0.07		0.12	
			(0.03)		(0.04)	
Constant	0.39	0.94	0.79	0.39	0.64	0.43
	(0.02)	(0.07)	(0.10)	(0.02)	(0.13)	(0.02)
Wave FE	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓		✓	
Socio-economic controls		✓	✓		✓	
Political controls			✓		✓	
Individual FE				✓		✓
Entropy balanced					✓	✓
Obs	5254	5206	4070	5166	3971	3920
Municipalities	1016	1006	856	1012	848	847
adj.R^2	0.17	0.25	0.30	0.51	0.31	0.57
adj.R^2 (within)	0.00	0.09	0.14	0.00	0.07	0.00
RMSE	0.45	0.43	0.42	0.35	0.41	0.33

Note: Clustered standard errors by individual×municipality in parentheses. Controls omitted from table: economy retrospective (1-5), unemployed (0,1), female (0,1), age (18-88), education (1-7), religiosity (0,1), PD voter in 2013 (0,1), political interest (1-4), talk politics (1-6), explicitly no left-right self-placement (0,1), politics too complex (1-4), internal efficacy (1-4). For entropy balancing we use only variables asked in the 2013 post election study as outlined in Figure 6.

set of control variables reported in the note of the table. The findings of these individual level models correspond nicely with our municipality level analyses. Again we find a statistically significant effect of M5S grassroots mobilization: a one standard deviation increase in M5S mobilization corresponds with a 7 percentage point increase in voting against the referendum.

In model (4) we then replace the municipality fixed effect with an individual level fixed effect.[14] This is the most conservative model we estimate throughout the paper since it only leverages the variation in M5S grassroots mobilization and voting against the referendum *within* each respondent. Even in this model we still find a 7 percentage point increase in voting against the referendum.

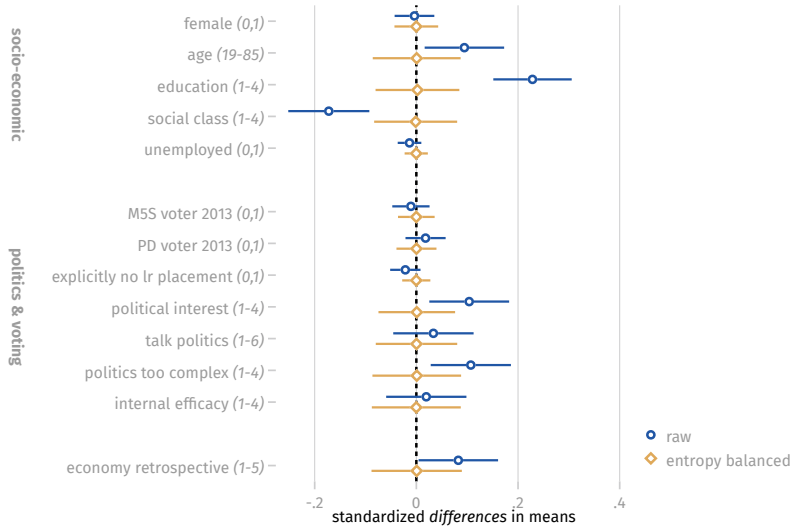
In model (5) and (6) we again apply entropy balancing. We match respondents *only* on pretreatment covariates in order not to introduce posttreatment bias.[15] In Figure 6 we then plot the differences

[14] This also means that we cannot introduce any individual level controls as this are all time invariant and, thus, drop out of the equation.

[15] A causal interpretation of our panel-data findings relies on the *parallel trends assumption*; namely, that we can observe parallel trends in referendum voting between the respondents that do not experience M5S grassroots mobilization and respondents which do so. Given that the 2016 referendum is a single event and respondents also are exposed to M5S grassroots mobilization on the referendum before the first wave of the ITANES panel we cannot directly test this assumption by comparing pretreatment trends in the outcome as it is usually done. Yet, what we can do is to leverage the information we can retrieve from respondents who were already interviewed in the 2013 post election study.

in these covariates for respondents exposed to M5S grassroots mobilization and those that remained unexposed. Reassuringly, we do not find any meaningful differences for respondent's vote choice in

Figure 6: Balance statistics individual level, raw and after entropy balancing



2013, refusal to place themselves on the left-right scale[16], internal efficacy or even political interest. At the same time, the Figure clearly shows that differences do exist between exposed and unexposed respondents, for instance in education. To address this issue, we again rely on entropy balancing. After balancing we do not observe any differences between respondents exposed to M5S mobilization and those that did not experience M5S grassroots activities in their municipalities. Model (5) and (6) then re-estimate models (3) and (4) respectively by relying on the matching weights from entropy balancing. Again we find an positive effect of M5S grassroots activity on voting in the referendum, statistically significant on conventional levels (p-value=0.027).

A major difference between our individual level and regional findings is the magnitude of the effect. Overall, we find substantially larger effects for the individual level analyses. The main reason for this difference is that the ITANES panel perfectly reflects the actual referendum outcome, but that many voters changed their minds about their vote in between the two waves. In the first wave *only* 33% of the voters suggest that they want to vote against the referendum, while 54% suggest to have done so in the post referendum wave. According to polls taken early in the referendum campaign

[16] Refusing to place themselves on this scale is one of the strongest predictors of M5S voting. Therefore, the ITANES panel explicitly asks respondents if they do not see themselves placed at all in the left-right general space, with 16% of respondents using this option.

and discussed elsewhere in detail (Ceccarini and Bordignon 2017: 293), this change reflects the actual shift in opinion during the referendum campaign well. This also means that the individual effects are comparably small again, since an average effect of 7 percentage points only explains a small amount of the total increase of No voting. Overall, this suggests that while M5S grassroots mobilization has an effect on the referendum outcome, this effect appears to be small.

7 Mechanisms

The above analyses demonstrate a consistently positive and plausibly causal effect of M5S activity on the No-vote share in the 2016 constitutional referendum in Italy. This final section attempts to provide a better understanding of how *exactly* M5S activity shapes political outcomes. More specifically, we provide additional analyses that examine (a) the spatial contagion (or lack thereof) of M5S activity, (b) whether exposure to M5S activity is related to differential information seeking behavior, (c) whether the increase in the No-vote share is primarily due to the activation of in-partisans and (d) how M5S activity has impinged on overall levels of participation in the referendum.

How local are effects of M5S activity?

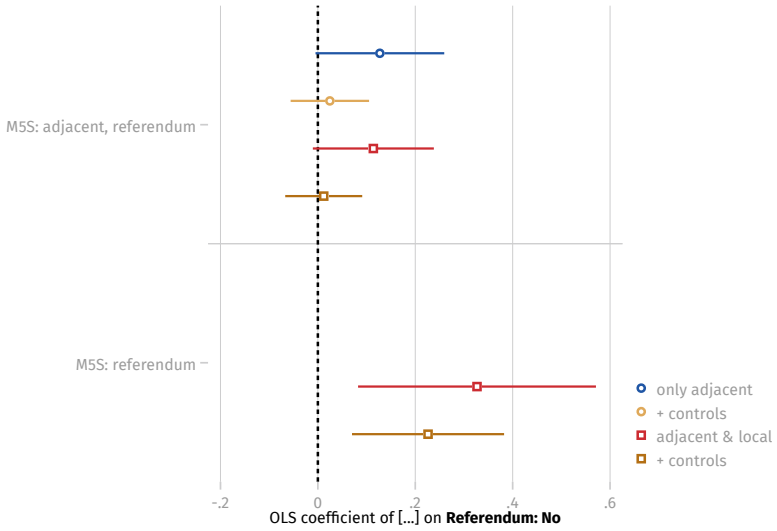
A fundamental theoretical and empirical question emerging from our main result is whether the effects we report are tied to M5S activities *within* a municipality or subject to spillover patterns to adjacent municipalities. In more technical terms, we based our analyses upon the *stable unit-treatment value assumption (SUTVA)*, meaning that there are no spillover effects from M5S activity in nearby municipalities. But beyond question of research design, this is also a theoretically relevant question. We argue that *local* grassroots organized *online* matter in the digital era. By necessity this means that we should not find large spillover effects to adjacent municipalities. Otherwise, our results would imply a *de-localized*, general effect by the internet. It would mean that the internet can mobilize voters across the board independent of local party organizations' presence.

Thanks to our unusually rich data, we can *directly* assess spillover effects and, hence, the SUTVA assumption, by calculating the total amount of M5S activity in all adjacent municipalities for formally unexposed municipalities. To give an example, the municipality Giardinello near Palermo on Sicily did not experience any M5S mobilization within its boundaries according to our data. But adjacent

municipalities experienced a total of 57 M5S events during the referendum campaign. Using this information instead of the within-municipality exposure, we re-ran our models for (a) all municipalities and (b) only municipalities which *never* experienced M5S mobilization themselves (Appendix Table A.6).

Figure 7 reports the key take aways from this analysis. It becomes strikingly visible that we do

Figure 7: How local M5S grassroots organization matters and adjacent M5S activity does not



not find *any* significant effect by adjacent M5S mobilization. Specifically if we include our set of controls, the adjacent effect is estimated as a clear null effect. In turn, our main findings based upon local M5S activities remains unaffected by controlling for adjacent mobilization. We interpret this as strong evidence suggesting that M5S can mobilize locals to vote against the referendum and that this mobilization heavily relies on *direct, local* grassroots instead of universal trends driven by the internet.

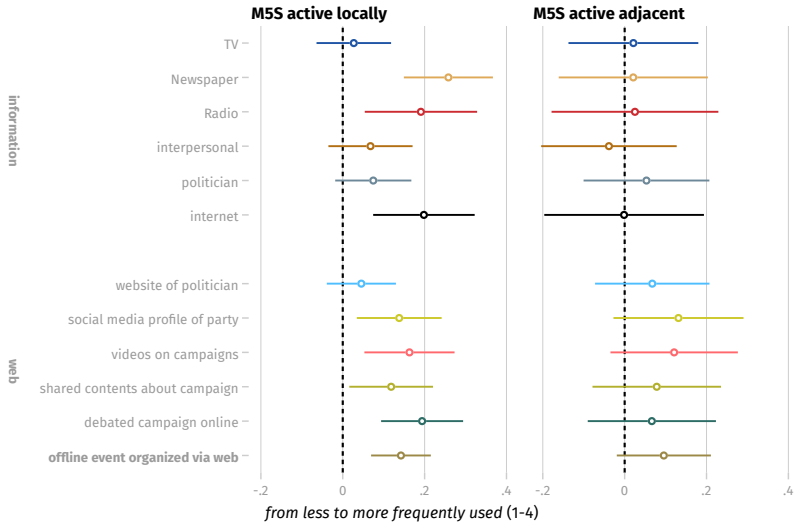
Does exposure to M5S activity result in differential information seeking behavior?

But how *exactly* does M5S grassroots activity affect voters' opinion? As outlined in the theoretical section we have strong reason to assume that on the one hand M5S activities should inform citizens about the referendum. On the other hand, our theory suggested that it should preliminary affect respondents which can be cued by M5S' materials and elite cues. Building on the previous spillover analysis, we propose a conservative test by comparing respondents' information seeking behavior in

municipalities with M5S grassroots activity compared to voters in unexposed but adjacent municipalities. This analysis relies on the post referendum wave only, which contains a rich set of questions about information seeking of each respondent during the referendum campaign.

Figure 8 reports the findings from these estimations across *all* questions contained in the ITANES panel about respondents' information seeking behavior.

Figure 8: How local M5S grassroots organization predict voter engagement



Note: Reported are OLS coefficients surrounded by 95% confidence intervals. All models rely on the entropy balancing outlined in the text.

First, we again find no significant spillover effects. With few exceptions, most estimates for adjacent municipalities are close to zero. In contrast, we find that respondents living in municipalities with M5S grassroots activity are significantly more likely to retrieve information about the referendum and they do so on- and offline. This effect becomes even more striking if we keep in mind that we again match on pretreatment covariates, which also include political interest, how often respondents talk about politics and how complex they perceive politics to be.[17] In some sense, this suggests that we do not observe any difference in information seeking prior to respondents being exposed to M5S mobilization on the referendum. Second, we find that respondents in M5S municipalities are more likely to use the internet to get information about the referendum. Most interestingly, they are more likely to use it to attend offline events organized via the web – such as the M5S Meetup events. This

[17] Using the raw sample of respondents results in very similar findings. In fact, point estimates decrease across the board. Yet, we do not find any significant effects on internet usage for information seeking.

suggests that M5S grassroots activities increased people's interest in politics and particular brought them to actively seek information about the referendum.

Activation of in-partisans or persuasion of out-partisans?

Another aspect of the underlying mechanism discussed in the theoretical section is that voters should be likely to follow elite cues of parties they are close to. In line with much of the traditional campaigning literature, we would expect that voters who already feel close to the aims of the movement are particularly prone to respond to their activities. We test this by interacting the M5S exposure variable with respondents' reported voting after the 2013 Italian federal election (Table A.7 in the Appendix). Theoretically we should then find a significant interaction between M5S voters and being exposed to more M5S grassroots activity. This is indeed what we find. There is a significant interaction effect for M5S votes but no effect whatsoever for supporters of other parties, e.g. the PD who supported the referendum or voters close to the "Il Popolo della Libertà" (PdL) who just as the M5S recommended the No vote. This additional analysis hence adds nuance to our main finding by demonstrating that M5S grassroots mobilization does matter but mostly for voters which are already aligned by the party and can then be successfully cued by it.

Mobilization of inactive voters?

Finally, we aim to get some traction at the underlying patterns of mobilization by the means of an auxiliary analysis of turnout effects. Different possible channels of increasing no-vote shares have clear observable implications with respect to participation rates in the referendum. While the previous section has emphasized that the M5S primarily mobilized in-partisans, another straightforward way of how M5S grassroots campaigning leads to higher No-vote shares in the referendum outcome is by successfully mobilizing inactive voters. Such a successful mobilization story implies higher turnout rates. Alternatively, de-mobilization of (former) proponents is the most plausible mechanism in a situation where higher no-vote shares go hand in hand with lower turnout rates in locations with M5S activity. Their campaign might upset and de-mobilize (weak) proponents by making them unsure about the true benefits of the constitutional reform (successful irritation). Negative campaigns in particular have been shown to result in lower turnout because of their adverse effects on voters'

political efficacy (Ansolabehere et al. 1994). Finally, ambiguous turnout effects might suggest a combination of both channels.

We have re-run our entire analysis on both the regional- and individual-level with regard to participation in the referendum rather than regarding its outcome. Much in contrast to the robust impact on the No-vote share, the effects of M5S exposure on turnout are somewhat inconclusive and do not allow for a clear-cut interpretation of the underlying mobilization story. The results of the regional analysis appear model-dependent and difficult to interpret jointly (Appendix Figure A.9). The individual-level analysis suggests a weak positive effect on turnout (Appendix Figure A.10). As there remains some empirical ambiguity, we would not feel confident to interpret the findings as clear evidence in favor of either channel. The additional evidence most likely suggests a combination of successful mobilization of already activated in-partisans and, to a lesser extent, successful irritation of initial proponents of the referendum.

8 Conclusion

This article has demonstrated the continued relevance of traditional partisan grassroots organization and bottom-up mobilization of potential supporters even in an era where presidents are able to channel and direct the political discourse via a series of twitter posts. Drawing on unique data from Italy, we show that the political on-the-ground activities of the Movimento Cinque Stelle, a major challenger party that has rapidly risen to power, led to noticeable differences in the outcome of a constitutional referendum in 2016.

Rather than replacing traditional means of political contestation, we argue that digital communication and social media is a crucial complementary tool to mobilize voters and change political outcomes in a party's favor. Online communication allows political parties in general – and populist challengers in particular – to understand, voice and mobilize *local* grievances. A key to success is the successful mobilization of such diverse, locally rooted grievances under a single umbrella organization. Importantly, these grievances need to be activated on the ground in order to result in actual political influence and electoral impact. Combined successfully, online communication and offline mobilization present a powerful tandem with the potential to disrupt traditional patterns of party competition.

The M5S's populist bottom-up approach to politics and its reliance on the internet to organize its base make it a likely case to find evidence for an impact of grassroots mobilization on tangible political outcomes like a national referendum. The generalizability of the finding certainly depends on various contextual factors, which might provide fruitful avenues for future research. Potentially important context conditions include (a) whether the party at hand is an established organization or a newish label with lots of grassroots enthusiasm, (b) whether the campaign involves a simple binary choice or a more complex configuration of party competition, or (c) whether a choice takes place in a situation characterized by widespread dissatisfaction with the political system, where many citizens may have the inclination to stay home unless they receive a specific inducement to participate.

However, while the M5S can certainly be seen as a prolific pioneer in exploiting an online-offline campaigning tandem, its successful application is by no means confined to the borders of Italy. Donald Trump's recent calls to "liberate" certain U.S. states amid stay-at-home orders during the Corona crisis has immediately been followed by real-life mobilization of angry demonstrators. The German right-wing populist party AfD and the now closely aligned PEGIDA movement have relied on facebook and youtube to share and organize local grievances. Also, the Black Lives Matter movement successfully combines online coordination of independent local chapters with powerful marches and demonstrations on the ground. Just as the 1992 Los Angeles riots have created marked shifts at the polls (Enos, Kaufman, and Sands 2019), the grassroots movements of our time are likely to remain a major source shaping – and sometimes changing – the course of contemporary political contestation.

References

Abadie, Alberto, Susan Athey, Guido Imbens, and Jeffrey Wooldridge. 2017. "When Should You Adjust Standard Errors for Clustering?" NBER Working Paper No. 24003, https://www.nber.org/papers/w24003.

André, Audrey, and Sam Depauw. 2016. "The electoral impact of grassroots activity in the 2012 local elections in Flanders." *Acta Politica* 51 (2): 131–152.

Ansolabehere, Stephen, Shanto Iyengar, Adam Simon, and Nicholas Valentino. 1994. "Does Attack Advertising Demobilize the Electorate?" *The American Political Science Review* 88 (4): 829–838.

Bauernschuster, Stefan, Oliver Falck, and Ludger Woessmann. 2014. "Surfing alone? The internet and social capital: Evidence from an unforeseeable technological mistake." *Journal of Public Economics* 117: 73–89.

Bischof, Daniel, and Roman Senninger. 2018. "Simple Politics for the People? Complexity in Campaign Messages and Political Knowledge." *European Journal of Political Research* 57 (2): 473–495.

Bordignon, Fabio, and Luigi Ceccarini. 2013. "Five Stars and a Cricket. Beppe Grillo Shakes Italian Politics." *South European Society and Politics* 18 (4): 427–449.

Campante, Filipe, Ruben Durante, and Francesco Sobbrio. 2018. "Politics 2.0: The Multifaceted Effect of Broadband Internet on Political Participation." *Journal of the European Economic Association* 16 (4): 1094–1136.

Canovan, Margaret. 1999. "Trust the People! Populism and the Two Faces of Democracy." *Political Studies* 47 (1): 2–16.

Caramani, Daniele. 2017. "Will vs. Reason: The Populist and Technocratic Forms of Political Representation and Their Critique to Party Government." *American Political Science Review* 111 (01): 54–67.

Ceccarini, Luigi, and Fabio Bordignon. 2017. "Referendum on Renzi: The 2016 Vote on the Italian Constitutional Revision." *South European Society and Politics* 22 (3): 281–302.

Colin Cameron, A., Jonah B. Gelbach, and Douglas L. Miller. 2011. "Robust inference with multiway clustering." *Journal of Business and Economic Statistics* 29 (2): 238–249.

Conti, Nicolò, and Vincenzo Memoli. 2015. "The Emergence of a New Party in the Italian Party System: Rise and Fortunes of the Five Star Movement." *West European Politics* 38 (3): 516–534.

Di Mauro, Danilo, and Vincenzo Memoli. 2018. "Targeting the government in the referendum: the aborted 2016 Italian constitutional reform." *Italian Political Science Review / Rivista Italiana di Scienza Politica* 48 (2): 133–154.

Enos, Ryan D., Aaron R. Kaufman, and Melissa L. Sands. 2019. "Can Violent Protest Change Local Policy Support? Evidence from the Aftermath of the 1992 Los Angeles Riot." *American Political Science Review* 113 (4): 1012–1028.

Falck, Oliver, Robert Gold, and Stephan Heblich. 2014. "E-lections: Voting behavior and the internet." *American Economic Review* 104 (7): 2238–2265.

Farrell, David M., and Paul Webb. 2000. "Political parties as campaign organizations." In *Parties without Partisans: Political Change in Advanced Industrial Democracies*, ed. Russell J. Dalton, and Martin P. Wattenberg. Oxford: Oxford University Press pp. 102–125.

Fisher, Justin, David Cutts, and Edward Fieldhouse. 2011. "The electoral effectiveness of constituency campaigning in the 2010 British general election: The 'triumph' of Labour?" *Electoral Studies* 30 (4): 816–828.

Gelman, Andrew, and Gary King. 1993. "Why Are American Presidential Election Campaign Polls So Variable When Votes Are So Predictable?" *British Journal of Political Science* 23 (4): 409–451.

Gerber, Alan S., and Donald P. Green. 2000. "The Effects of Canvassing, Telephone Calls, and Direct Mail on Voter Turnout: A Field Experiment." *American Political Science Review* 94 (3): 653–663.

Gerber, Alan S., Donald P. Green, and Christopher W. Larimer. 2008. "Social pressure and voter turnout: Evidence from a large-scale field experiment." *American Political Science Review* 102 (1): 33–48.

Gessen, Masha. 2017. "How Trump Governs by Tweet: Start with Outrage, Then Escalate." *The New Yorker* . Library Catalog: www.newyorker.com.

Grillo, Beppe. 2005. "Incontriamoci: MeetUp." Il blog di Beppe Grillo.

Hainmueller, Jens. 2012. "Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies." *Political Analysis* 20 (1): 25–46.

Hirano, Shigeo. 2012. "What Happens to Incumbents in Scandals?" *Quarterly Journal of Political Science* 7 (4): 447–456.

Iyengar, Shanto, and Adam F. Simon. 2000. "New Perspectives and Evidence on Political Communication and Campaign Effects." *Annual Review of Psychology* 51 (1): 149–169.

Jacobson, Gary C. 1978. "The Effects of Campaign Spending in Congressional Elections." *American Political Science Review* 72 (2): 469–491.

Jacobson, Gary C. 2015. "How Do Campaigns Matter?" *Annual Review of Political Science* 18 (1): 31–47.

Kalla, Joshua L., and David E. Broockman. 2018. "The Minimal Persuasive Effects of Campaign Contact in General Elections: Evidence from 49 Field Experiments." *American Political Science Review* 112 (1): 148–166.

Katz, Richard S., and Peter Mair. 1994. *How parties organize: change and adaptation in party organizations in Western democracies*. Vol. 528 Sage.

Kearney, Melissa S., and Phillip B Levine. 2015. "Media influences on social outcomes: The impact of MTV's 16 and pregnant on teen childbearing." *American Economic Review* 105 (12): 3597–3632.

Kirchheimer, Otto. 1966. "The Transformation of Western European Party Systems." In *Political Parties and Political Development*, ed. Joseph Lapalombara, and Myron Weiner. New Jersey: Princeton University Press pp. 177–200.

Klapper, Joseph. 1960. *The Effects of Mass Communication*. Glencoe, IL: Free Press.

Kriesi, Hanspeter. 2014. "The Populist Challenge." *West European Politics* 37 (2): 361–378.

Luna, Riccardo. 2013. "5Stelle, la rivoluzione politica di Meetup." *La Repubblica* March 5, 2013.

Mair, Peter. 2006. "Ruling the void: The hollowing of western democracy." *New Left Review* 42: 25–51.

Mair, Peter. 2009. "Representative versus responsible government." MPIfG Working Paper: http://edoc.vifapol.de/opus/volltexte/2010/2121/pdf/wp09_8.pdf.

Mair, Peter, and Ingrid van Biezen. 2001. "Party Membership in Twenty European Democracies, 1980-2000." *Party Politics* 7 (1): 5–21.

Montgomery, Jacob M., Brendan Nyhan, and Michelle Torres. 2018. "How Conditioning on Posttreatment Variables Can Ruin Your Experiment and What to Do about It." *American Journal of Political Science* 62 (3): 760–775.

Mosca, Lorenzo. 2014. "The Five Star Movement: Exception or Vanguard in Europe?" *The International Spectator* 49 (1): 36–52.

Mudde, Cas. 1999. "The Single-Issue Party Thesis: Extreme Right Parties and the Immigration Issue." *West European Politics* 22 (3): 182–197.

Mudde, Cas. 2004. "The populist zeitgeist." *Government and opposition* 39 (4): 541–563.

Müller, Jan-Werner. 2017. *What is populism?* London: Penguin Books.

Panebianco, Angelo. 1988. *Political Parties: Organization and Power*. Cambridge: Cambridge University Press.

Pasquino, Gianfranco, and Marco Valbruzzi. 2017. "Italy says no: the 2016 constitutional referendum and its consequences." *Journal of Modern Italian Studies* 22 (2): 145–162.

Pons, Vincent. 2018. "Will a Five-Minute Discussion Change Your Mind? A Countrywide Experiment on Voter Choice in France." *American Economic Review* 108 (6): 1322–1363.

Scarrow, Susan E. 1996. *Parties and Their Members - Organizing for Victory in Britain and Germany*. Cambridge: Cambridge University Press.

Scarrow, Susan E. 2000. "Parties without members? Party organization in a changing electoral environment." In *Parties without Partisans Political Change in Advanced Industrial Democracies*, ed. Russell J. Dalton, and Martin P. Wittenberg. Oxford: Oxford University Press pp. 79–101.

Schaub, Max, and Davide Morisi. 2020. "Voter mobilisation in the echo chamber: Broadband internet and the rise of populism in Europe." *European Journal of Political Research* p. (forthcoming).

Selb, Peter, and Simon Munzert. 2018. "Examining a Most Likely Case for Strong Campaign Effects: Hitler's Speeches and the Rise of the Nazi Party, 1927–1933." *American Political Science Review* 112 (4): 1050–1066.

Webb, Paul, David Farrell, and Ian Holliday. 2002. *Political Parties in Advanced Industrial Democracies*. New York: Oxford University Press.

A Appendix:

Does partisan grassroots mobilization matter in the digital age?

Contents

A.1 M5S groups on MeetUp

We applied the following multi-step procedure to arrive at the universe of M5S groups on MeetUp.

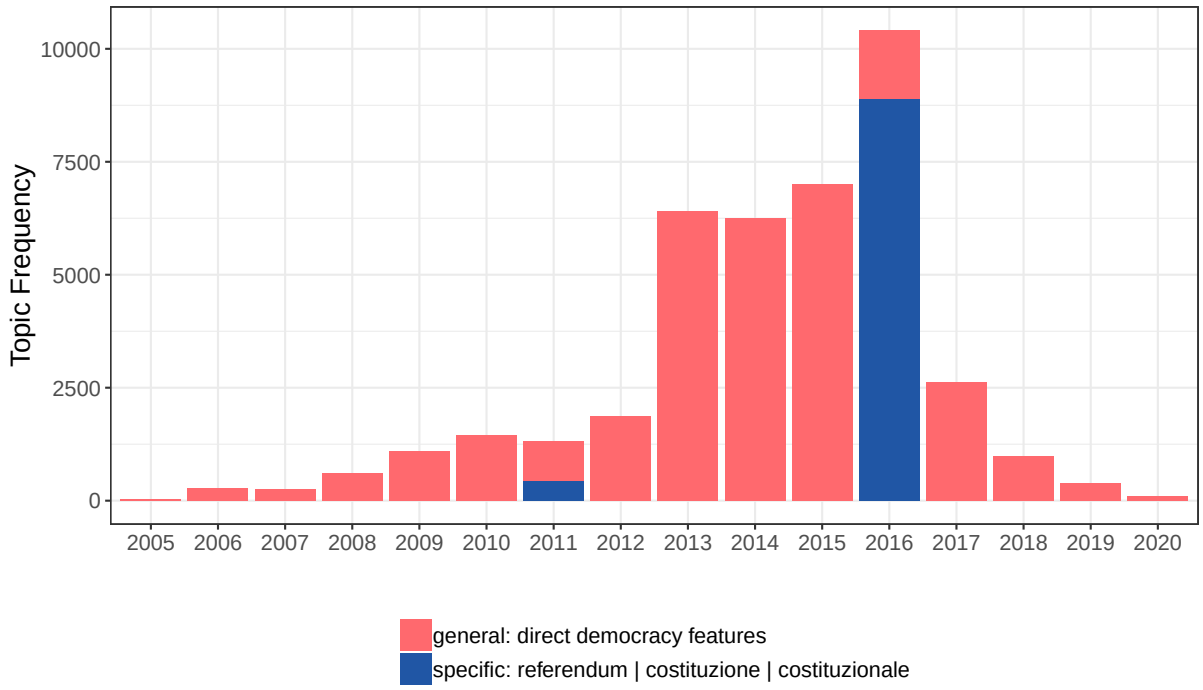
1. Collect all MeetUp groups that self-selected into the top-level categories "Amici di Beppe Grillo" (N = 129) or "Movimento 5 Stelle" (N = 961).
2. Full-text search in MeetUp. Keywords: "movimento 5 stelle" (N = 1124) and "beppe grillo" (N = 500)
3. Delete duplicates resulting from dual approach (resulting N = 1177)
4. Drop false positives that do not have any of the keywords in either their URL, group name or group description: "m5s", "movimento", "stelle", "grilli", "grillo" or "attivisti". For example, these are groups concerned with local politics without explicit reference to M5S but still using the tag "Movimento 5 Stelle" to attract members. We exclude these groups, in total 30. (resulting N = 1147)
5. For the presented analysis, we also exclude all true positives that operate outside of Italy. (resulting N = 1044)

A.2 Classification of topics

Table A.1: Grouping of 300 topfeatures (excl. generic terms not removed by pre-processing)

topic	terms	total nr of terms
localpolitics	comunale, comune, consiglio, locale, regionale, territorio	74707
mobilization	appuntamento, attivisti, attivita, banchetti, banchetto, centro, citta, gazebo, manifestazione, numerosi, piazza, portavoce, sala, sede	67580
meeting	evento, incontro, riunione	58726
m5s	5_stelle, beppe_grillo, m5s, movimento, movimento_5_stelle	50061
community	amici, associazione, comitato, conoscere, coordinamento, gruppi, gruppo, insieme, organizzazione, pubblica, rete	44494
populism	cittadini, no, politica	36126
directdemocracy	campagna, costituzionale, costituzione, firme, iniziative, lista, mozione, partecipare, partecipazione, proposta, proposte, referendum	31696
economy	lavori, lavoro	17618
deliberation	aggiornamento, argomenti, discussione, futuro, idee, informazione, portare, presentazione, sapere, seduta	17252
institutions	commissione, italia, legge, nazionale, presidente	13355
elections	candidati, elettorale, elezioni	10419
environment	acqua, ambiente, rifiuti, terra	7621
europe	euro	1730

Figure A.1: Relevance of Referendum within Direct Democracy Feature



A.3 Robustness: municipality level

A.3.1 Unweighted results (events instead of participants)

Table A.2: OLS estimates (*municipality*), does M5S grassroots mobilization *(events only)* predict referendum No-vote share?

	% No in referendum			
	(1)	(2)	(3)	(4)
M5S activity (cont., unweighted)	1.56	0.49	0.26	0.21
	(0.70)	(0.22)	(0.12)	(0.11)
M5S vote share 2013 (%)			0.25	0.21
			(0.05)	(0.04)
Constant	59.37	59.47	76.29	89.49
	(0.66)	(0.02)	(2.06)	(4.36)
Province FE		✓	✓	✓
Controls			✓	✓
Obs	7994	7994	7804	7804
Provinces	110	110	110	110
adj.R^2	0.00	0.55	0.71	0.87
adj.R^2 (within)	0.00	0.00	0.34	0.52
RMSE	8.73	5.86	4.69	3.27

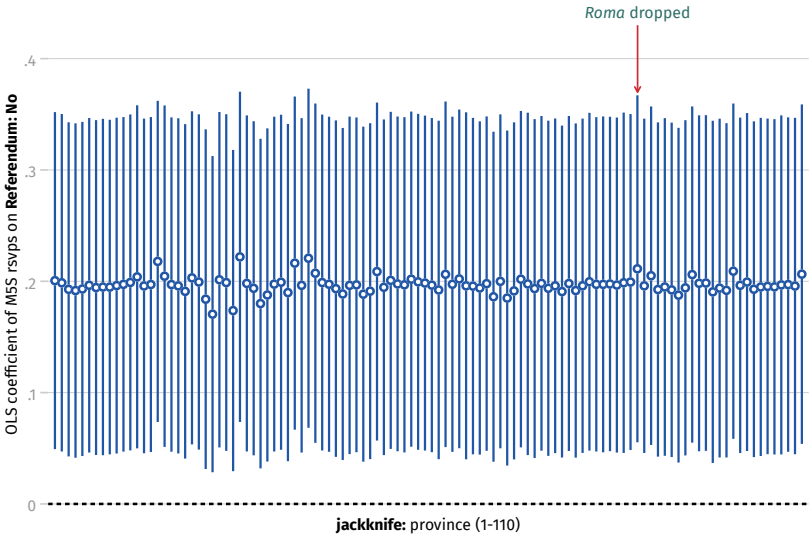
Note: Clustered standard errors by province in parentheses. Controls omitted from table: PD: % votes 2013, % turnout 2013, income per cap, % unemployed, % university degree, % low education, % foreigners, population density. Same variables used for matching, history omitted from matching.

A.3.2 Jackknife provinces

Given that M5S mobilization is less common in more rural and smaller provinces the immediate question is if and how the M5S effects vary across areas which are more or less urbanized. To address this concern we control for population density in all our models. Yet, it might still be the case that our findings are driven by particular provinces or regions. For instance, entire provinces might be more or less urbanized and still vary on several other factors. To further address this concern, we drop each province from our estimation and re-estimate our models.

Figure A.2 estimates such a jackknife test and reports each iterations of the process. Each coefficient represents a model in which one province out of total 110 provinces is dropped. The results are reassuring. Not not only is the pooled jackknife test significant but each iteration of the test returns positive and significant coefficients, which are very similar in size to the estimates we report in the main body of the text.

Figure A.2: Jackknifing municipalities by province

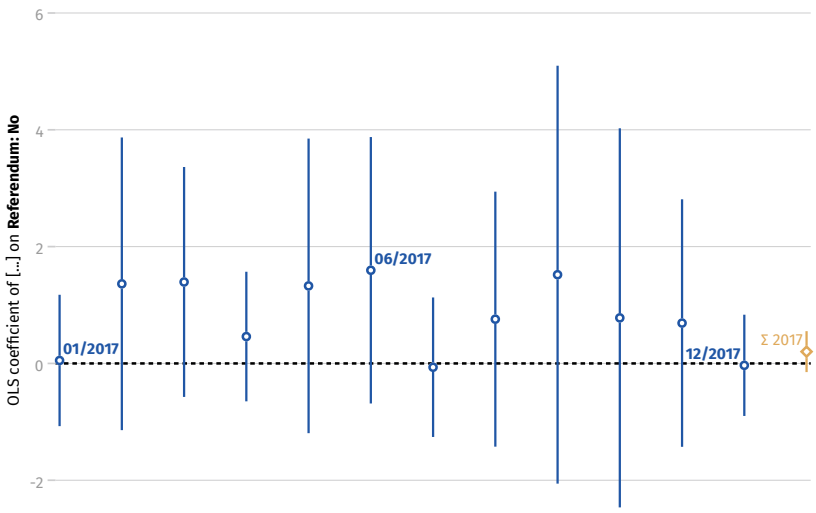


A.3.3 Placebo tests

Our matching approach is based upon the idea that we observe all key characteristics driving M5S mobilization. However, some unobserved factors like local norms or specific traditions of political contestation might drive both local M5S activity and opposition to the referendum (common cause). One way to shed some light on these methodologically challenging problems are placebo models. Since we have rich information also about M5S mobilization *after* the 2016 referendum, we can use this information to estimate whether *future* M5S mobilization affects the *past* 2016 referendum results. The idea behind this placebo test is that we should not expect any effects of future mobilization on past political results – specifically for municipalities that have not yet experienced any M5S mobilization. If this was the case we would have strong reasons to assume that other factors than M5S grassroots activity drive our findings.

To conduct these tests we collected all events organized by M5S *in the year after* the 2016 referendum. We then placed these events into the referendum period, and re-estimated our models for all municipalities which had not experienced any M5S events during the referendum campaign. Figure A.3 reports the findings from these models. Each coefficient stands for a one month period after the referendum; while the last coefficient shows the pooled effect for all events taking place in the year 2017. Coefficients are surrounded by 95 % confidence intervals. In total 107 "new" municipalities experience M5S events. As expected, local M5S activity in 2017 is not predictive of the 2016 No-vote share, which in turn lends credence to a causal interpretation of our positive and significant main effect.

Figure A.3: Placebo effect of M5S events on No-vote share

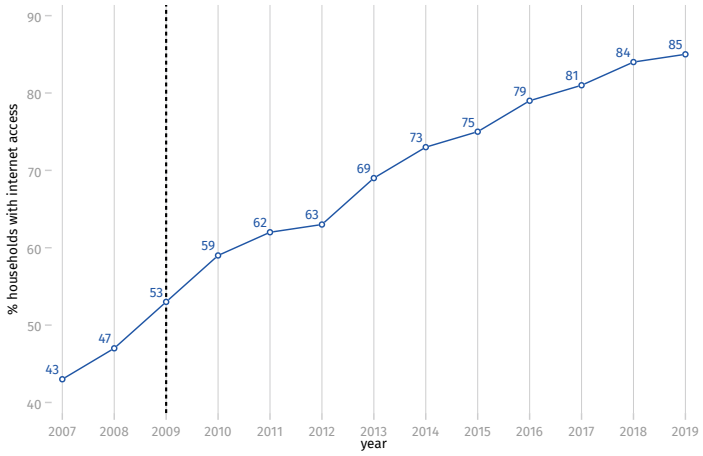


A.3.4 Instrumental variable

Our instrumental variable approach leverages the fact that M5S mobilization was predominantly coordinated online. As discussed, Beppe Grillo actively called upon his supporters to use the web in general and the the Meetup platform in particular, as a tool of collective organization. Thus, access to the internet became a necessary condition to be informed about and able to participate in M5S events. From today's perspective this might appear as a negligible impediment but it certainly was a considerable issue when M5S started mobilizing from 2005 onwards. According to official data from the OECD and the Italian communication ministry, only about every third Italian household had access to broadband internet at the time and although mobile internet had already existed it was far from being commercialized.

Even in 2009, the year M5S started to break through, this share had risen to only about 50% as reported in Figure A.4.

Figure A.4: Internet penetration in Italy, 2007-2019

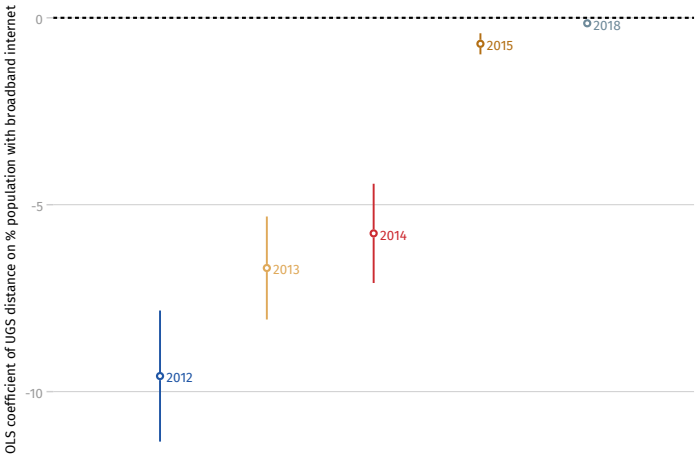


Important for our purpose, broadband access is to a certain extent quasi-randomly assigned in Italy (Campante, Durante, and Sobbrio 2018; Schaub and Morisi 2020). Internet access has been provided via ADSL technology, which has been introduced in 1999 by the operator along with the telecommunication ministry. ADSL is usually provided via copper telephone wires; which means that access to it depends heavily on a household's geographical position in the pre-existing telecommunication infrastructure of a given country. Two components of the pre-existing telecommunication infrastructure determine ADSL access for end users: (a) geographical distance between the end user and the closest communication exchange (CE), and (b) geographical distance between the end user and the closest urban group stage (UGS, the technical term being "higher-order telecommunication exchange"). While the first has been unproblematic for most Italian house-

holds, distance to UGS has strongly determined ADSL access.

Indeed, in Figure A.5 we report the correlation between broadband internet access and UGS distance. The larger the distance to the closest urban group stage, the smaller the percentage of the population with broadband internet access. This relationship weakens over time: The correlation decreases over the years for which we have data on broadband internet access. All of this means that, especially during its infancy, M5S success of mobilization was clearly dependent on (hampered by) potential supporters' (lack of) access to the internet.

Figure A.5: OLS estimates, how broadband access in Italy depends on distance to UGS, (2012-2015, 2018)



Note: Reported are OLS coefficients surrounded by 95% whiskers. All models use province fixed effects, standard errors clustered by province. ADSL information until 2015 stems from Schaub and Morisi's (2020) excellent replication materials; we web-scraped the 2018 data ourselves. 2012-2015 report % households with adsl broadband access, 2018 report access to "next generation" internet (30 Mbit/s).

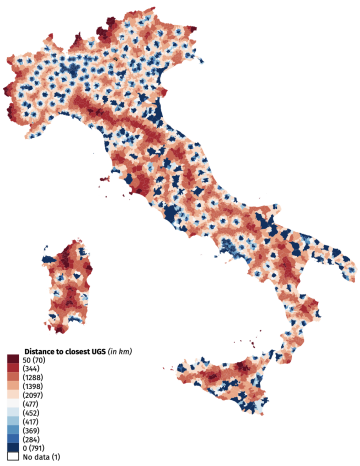
Distance to the closest UGS can thus be considered a good proxy for the investment required to connect a municipality to ADSL and hence a source of variation for the availability of high-speed internet. The map in Figure A.7a reports the geographical distance for each municipality to the next UGS in kilometers.

There is large variation across Italy in terms of distance to the next UGS at the time ADSL was introduced. As a consequence, this resulted in some municipalities having a higher probability to get broadband internet access at the time M5S started to mobilize than others.

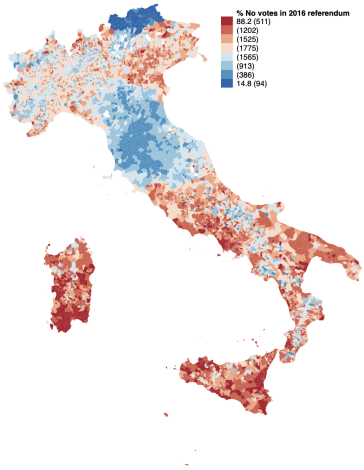
The dependence on proximity to a pre-existing UGS adds quasi-random variation to the availability of fast internet. We leverage this fact in an instrumental variable design akin to previous research exploiting historical roots of TV consumption (e.g. Kearney and Levine 2015). More specifically, we use the rich information we gathered for each M5S group to estimate the first day a M5S group came into existence in each Italian municipality. This variable is predictive of M5S mobilization during the 2016 referendum campaign; meaning that M5S

Figure A.6: Map of UGS distance and 2016 referendum Nos

(a) UGS distance of Italian municipalities



(b) Map of referendum No-vote share



groups, which came into existence earlier, are more likely to mobilize more successfully today – even though the original topics and intentions of M5S's early days are no longer relevant for most groups we study during the referendum. We then interact this historical information with the distance of each municipality to the UGS. The intuition behind this interaction is that the timing when M5S first mobilized in a given municipality is to some extent contingent on the amount of broadband internet access provided in a given municipality.[18]

More formally we estimate a two-stage instrumental variable model based on our municipality-level cross-sectional data of the following form:

$$y_m = \gamma \widehat{\text{M5S}_m} + \beta \text{population in 2001}_m + \alpha_p + \epsilon_m \tag{3}$$

$$\widehat{\text{M5S}_m} = \psi \text{M5S history}_m \times \text{Distance UGS}_m + \beta \text{population in 2001}_m + \alpha_p + \epsilon_{m'} \tag{4}$$

where subscript $_m$ indicates again municipalities and α_p province fixed effects. In the first stage we introduce the interaction as outlined above M5S history $\times$ Distance UGS to predict the amount of M5S mobilization during the referendum. Since UGS assignment in the telecommunication infrastructure depends to some extent on population size at the time we control for the population size of each municipality in both stages. We refrain from using the same set of controls as outlined above since they essentially turn into post-treatment variables

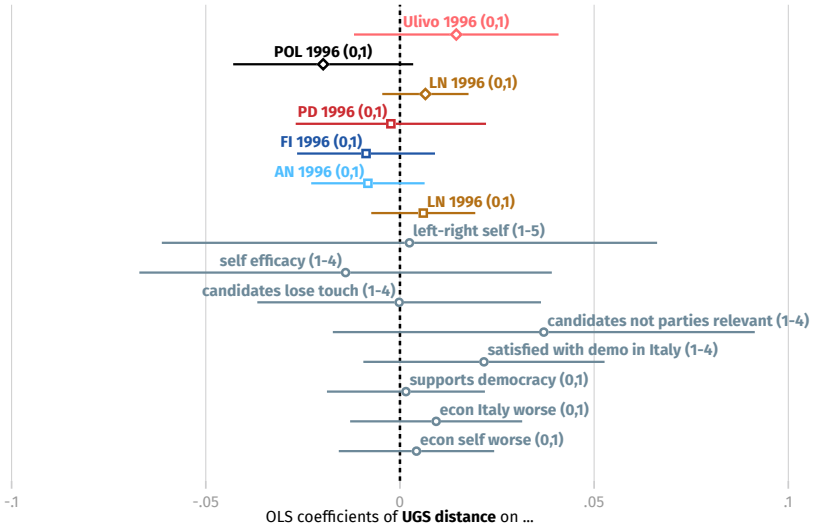
[18] Arguably, one might use both components of the interaction as stand-alone instrumental variables. However, at least with respect to the historical information, we are concerned that the exclusion restriction does not hold: even though thematically there is no clear link between the topics of the earlier organization and today's M5S groups, other common causes might drive the past organization, today's organization as well as voting 'No' in the referendum – e.g. anti-government sentiment. Such concerns appear less pressing in the case of the infrastructure instrument, which is why Table A.4 below also reports results for distance to UGS separately, i.e. not interacted with the history of local M5S groups.

given the more historical perspective of our IV approach. Yet, as we outline below, our findings remain robust when introducing our set of municipality level controls.

Independence and exclusion restriction The first crucial aspect of any instrumental variable design is the *independence* of the instrument. Transferred to our design, a violation of independence would mean that municipalities further away from a UGS station are also different on other pre-treatment characteristics which could cause the rise and mobilization of M5S. For instance, one might argue that the Italian telecommunication structure was subject to political biases, since ministers might have tried to deliver better phone connectivity to supportive or electorally pivotal regions. This appears highly unlikely in our case. First, as outlined above, the telecommunication infrastructure was already in place long before Italian administrations thought about providing internet to its population.

Second, and more strikingly, we are able to empirically assess the validity of this assumption. We use the 1996 ITANES election study (i.e. pre-ADSL allocation) to examine if municipalities further away from UGS stations are any different with respect to relevant political factors such as voting preferences, left-right placement, populist attitudes and their support for democracy more generally. The coefficients presented in Figure A.8 show that we do not find any significant difference due to a municipality's distance to the UGS for any of the mentioned variables.

Figure A.8: Testing independence of UGS distance, ITANES 1996



Note: The coefficient plots are point estimates from several OLS regressions surrounded by 95% confidence intervals. The first four voting estimates are list votes; the following three party votes.

Furthermore, we use the same variables to estimate further placebo tests. In so doing, we use the instru-

mental variable specification discussed above and each of the variables reported in the coefficient plot as our outcomes. Table A.3 reports the findings of these placebo tests. Again, we do not find any significant effect of the instrument on any of these pre-treatment outcomes suggesting that there is no obvious reason why the independence of our instrument would be violated. Clearly, the telecommunication infrastructure was not developed independently from population size. Thus, in all instrumental variable models, we control for population size in 2001.

While we can successfully test and show the independence of our instrument, it is not possible to directly test the exclusion restriction. The exclusion restriction in our case is as follows: We have to believe that municipalities closer to an UGS station in 2001 show more M5S mobilization during the referendum only because broadband internet was available at the time the local M5S chapter was started. We do not see how the exclusion restriction would be violated; we do not have reason to assume that distance to UGS stations in 2001 drives factors which then affect whether or not people will vote against the referendum in 2016.

Instrumental variable results Table A.4 reports the results of our 2SLS approach. All models have a strong first stage, indicated by F-stats of 30 and above reported at the bottom of Table A.4. Conventionally, a F-stat of 10 or more is the threshold employed to differentiate a weak from a strong instrument. This confirms the validity of our instrumental variable approach.

With regard to the estimates, the first column again reports the most conservative finding from the municipality-level analysis to ease up comparison to the IV specifications. The following three models report different specifications of the interactive instrument discussed above; the last three columns rely *only* on distance to the UGS as a direct instrument (without interaction).

Using our instrumental variable design clearly provides further support for the key findings of our analysis. Again we find a significant and positive effect of M5S mobilization on 'No' votes in the referendum. Interestingly, using the interactive instrument, the size of this effect is quite comparable; only if we rely on distance to the UGS as a single instrument do we find larger coefficients – as it is very common for instrumental variable models. The key reason for the stability in the size of the coefficient is that the time since the first M5S event is a strong predictor of M5S mobilization during the campaign for the 2016 referendum.

Table A.3: Instrumental variable estimates, placebo for various outcomes in ITANES 1996

	(1) Ulivo (0,1)	(2) POL (0,1)	(3) LN (0,1)	(4) PD 1996 (0,1)	(5) FI 1996 (0,1)	(6) AN 1996 (0,1)	(7) LN 1996 (0,1)	(8) left-right self (1-5)	(9) self efficacy (1-4)	(10) candidates lose touch (1-4)	(11) candidates relevant (1-4)	(12) satisfied with demo in Italy (1-4)	(13) supports democracy (0,1)	(14) economy Italy worse (0,1)	(15) economy family worse (0,1)
M5S activity (cont.)	-0.016	0.018	-0.006	0.001	0.015	-0.001	-0.002	0.000	-0.014	-0.009	-0.039	-0.011	0.002	-0.009	0.001
	(0.012)	(0.011)	(0.005)	(0.011)	(0.008)	(0.007)	(0.007)	(0.030)	(0.025)	(0.018)	(0.026)	(0.015)	(0.010)	(0.010)	(0.010)
pop_{2001}	0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Province FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	1844	1844	1844	1933	1933	1933	1933	2134	2290	2293	2281	2311	2344	2303	2338
adj.R^2	-0.017	-0.015	-0.010	-0.015	-0.015	-0.015	-0.012	-0.013	-0.011	-0.013	-0.011	-0.012	-0.012	-0.012	-0.013
RMSE	0.488	0.475	0.228	0.442	0.381	0.346	0.264	1.348	1.107	0.865	1.158	0.727	0.421	0.493	0.476
F-Stat.	126.480	126.480	126.480	123.279	123.279	123.279	123.279	130.743	131.786	131.946	135.279	132.218	134.117	136.190	133.957

Note: clustered standard errors by province in parentheses. F-Statistic=Kleibergen-Paap.

Table A.4: IV estimates (*municipality*), does M5S grassroots mobilization causally affect referendum results?

	OLS	IV: **Hist × UGS**	IV: **log(Hist × UGS)**	IV: **log(Hist × UGS)**	IV: **UGS**	IV: **log(UGS)**	IV: **log(UGS)**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
M5S activity (cont.)	0.258	0.384	0.439	0.509	3.151	1.658	2.001
	(0.089)	(0.173)	(0.163)	(0.111)	(1.619)	(0.779)	(0.539)
Population in 2001		-0.000	-0.000	0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	80.507						
	(1.630)						
Province FE	✓	✓	✓	✓	✓	✓	✓
controls	✓						
post-treatment controls				✓			✓
Obs	7803	7819	7819	7688	7819	7819	7688
$N_{province}$	110	107	107	107	107	107	107
$RMSE$	5.230	5.858	5.858	5.305	6.119	5.915	5.391
F-Stat		41.358	43.303	46.718	31.509	36.540	38.972

Note: clustered standard errors by province in parentheses. F-Statistic=Kleibergen-Paap.

A.4 Robustness: individual level

A.4.1 Unweighted results (events instead of participants)

Table A.5: OLS estimates (*individual*), does M5S grassroots mobilization *(events only)* predict voting 'No' in referendum?

	Vote 'No' in referendum			
	(1)	(2)	(3)	(4)
M5S activity (cont., unweighted)	0.12	0.14	0.12	0.12
	(0.04)	(0.04)	(0.04)	(0.04)
M5S voter in 2013 (0,1)			0.11	
			(0.04)	
Constant	0.40	0.92	0.76	0.41
	(0.01)	(0.06)	(0.10)	(0.01)
Wave FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	
Socio-economic controls		✓	✓	
Political controls			✓	
Individual FE				✓
Obs	5254	5206	3609	5166
Municipalities	1016	1006	774	1012
adj.R^2	0.18	0.26	0.31	0.51
adj.R^2 (within)	0.00	0.09	0.13	0.00
RMSE	0.45	0.43	0.41	0.35

Note: Clustered standard errors by individual × municipality in parentheses. Controls omitted from table: unemployed (0,1), female (0,1), age (18-88), education (1-7), religiosity (0,1), political interest (1-4), PD voter in 2013 (0,1), left-right (1-10).

A.5 Mechanisms

A.5.1 Adjacent municipalities

Table A.6: OLS estimates (*municipality*), are neighbors affected by M5S mobilization?

	% No in referendum					
	full sample (1-2)		no "self-exposure" (3-4)		full sample (5-6)	
	(1)	(2)	(3)	(4)	(5)	(6)
M5S adjacent activity (cont.)	0.13	0.03	0.12	0.02	0.11	0.02
	(0.07)	(0.04)	(0.06)	(0.04)	(0.06)	(0.04)
M5S vote share 2013 (%)		0.24		0.25		0.25
		(0.05)		(0.05)		(0.05)
M5S activity (cont.)					0.33	0.20
					(0.12)	(0.08)
Constant	59.16	75.62	59.36	76.38	59.31	76.28
	(0.09)	(2.12)	(0.09)	(2.07)	(0.10)	(2.06)
Province FE	✓	✓	✓	✓	✓	✓
Controls		✓		✓		✓
Obs	7370	7183	7994	7804	7994	7804
Provinces	110	110	110	110	110	110
adj.R^2	0.53	0.69	0.55	0.71	0.55	0.71
adj.R^2 (within)	0.00	0.33	0.00	0.34	0.00	0.34
RMSE	5.95	4.80	5.86	4.69	5.86	4.69

Note: Clustered standard errors by province in parentheses. Controls omitted from table: PD: % votes 2013, % turnout 2013, income per cap, % unemployed, % university degree, % low education, % foreigners, population density. Same variables used for matching, history omitted from matching.

A.5.2 Activation of in-partisans

Table A.7: OLS estimates (*individual*), does the effect of M5S grassroots mobilization interact with previous voting? Yes.

	Vote: 'No' in referendum		
	M5S	PD	PDL
	(1)	(2)	(3)
M5S activity (cont.)	0.06	0.08	0.07
	(0.03)	(0.03)	(0.03)
M5S voter in 2013 (0,1)	0.06		
	(0.04)		
M5S voter in 2013 (0,1)		0.11	0.11
		(0.03)	(0.03)
M5S voter in 2013 (0,1) × M5S activity	**0.05**		
	(0.02)		
PD voter in 2013 (0,1)		-0.07	
		(0.04)	
PD voter in 2013 (0,1) × M5S activity		**-0.02**	
		(0.03)	
PdL voter in 2013 (0,1)			0.15
			(0.06)
PdL voter in 2013 (0,1) × M5S activity			**-0.01**
			(0.03)
Constant	0.77	0.75	0.76
	(0.10)	(0.10)	(0.10)
Wave FE	✓	✓	✓
Municipality FE	✓	✓	✓
Socio-economic controls	✓	✓	✓
Political controls	✓	✓	✓
Obs	4070	4070	4070
Municipalities	856	856	856
adj.R^2	0.31	0.31	0.31
adj.R^2 (within)	0.15	0.15	0.15
RMSE	0.41	0.42	0.42

Note: Clustered standard errors by individual × municipality in parentheses. Controls omitted from table: economy retrospective (1-5), unemployed (0,1), female (0,1), age (18-88), education (1-7), religiosity (0,1), PD voter in 2013 (0,1), political interest (1-4), talk politics (1-6), explicitly no left-right self-placement (0,1), politics too complex (1-4), internal efficacy (1-4). For entropy balancing we use only variables asked in the 2013 post election study as outlined in Figure 6.

A.5.3 Mobilization of inactive voters

Figure A.9: Effect of M5S events on 'Yes' and turnout on municipality level

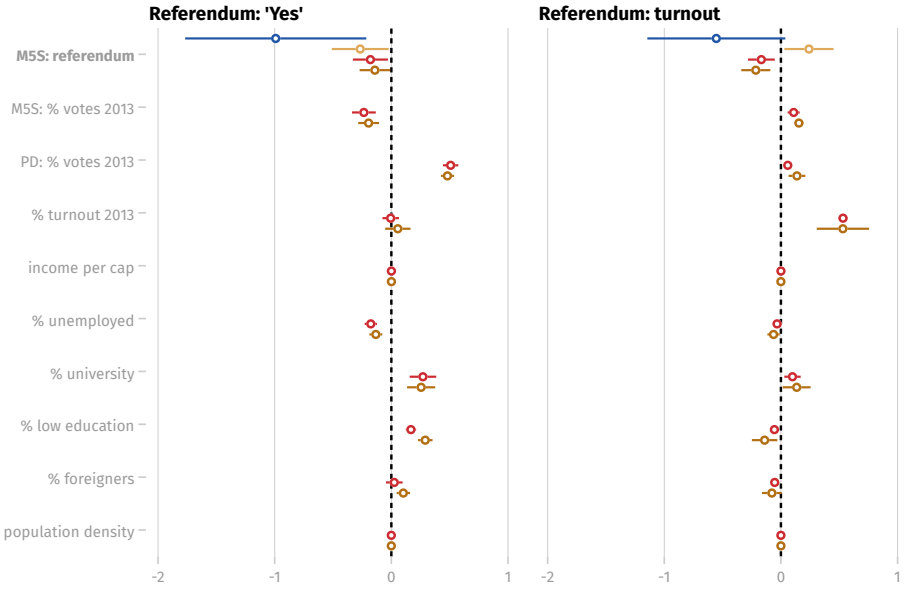


Figure A.10: Effect of M5S events on individual voting on 'Yes' and turnout in referendum