Francesco Bailo

The citizen-user and the crowd-mediated politics of the Five Star Movement

Faculty of Arts and Social Sciences

The University of Sydney

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This is to certify that to the best of my knowledge, the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes.

I certify that the intellectual content of this thesis is the product of my own work and that all the assistance received in preparing this thesis and sources have been acknowledged.

Francesco Bailo

ABSTRACT

This thesis described the trajectory of the Italy's Five Star Movement (M5S, 2005-2014) from the perspective of the citizens who, as Internet users, participated in in the political enterprise. Citizen-users, enabled and empowered by Internet and mobile technologies, shaped and sustained the identity and evolution of the movement that became the M5S. The case study selected for this research, the M5S, is exceptional due to the magnitude of its success; but its features (Internet-centered and fluid ideology) are becoming more common among political organisations in Western democracies. The goal of the thesis is to assess the impact of the Internet on the political process, through its connecting, mobilising, organising, and to characterise the shape of political talk among citizens. This is achieved by applying quantitative methods, including network analysis and natural language processing, on 10 years of user-generated data collected mainly from four sources: the blog of the Movement's founder, the M5S official forum, Facebook and Meetup.com. The thesis finds that the online discussion fora fostered diversity without fragmentation, and contributed on at least one occasion to shape the policy agenda of the M5S. Furthermore, the meetups of the Movement maintained their capacity to attract and mobilise users, and their territorial distribution clearly correlate with local results of the M5S in two elections, suggesting a positive impact of Internet-enabled mobilisation. Finally, given the votes received in the 2013 general election, the political communication generated over the Internet offset the low attention dedicated by TV news broadcast to the Movement during the electoral campaign. As Internet and mobile technologies are routinised, it is easy to see how their importance in political organisation and deliberation will grow. By studying the application of ICTs in the case of the M5S, this thesis offers insights into their use in practice, as well as pointing to possible democratic risks if online deliberation is non controlled to guarantee its fairness and openness but instead steered by the leadership, turning a deliberating community of citizen-users into a noisy crowd.

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Colophon

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A package to replicate the analysis that appears in this thesis is available at dx.doi.org/10.7910/DVN/NN0TSC.

Quoi qu'il en soit, à l'instant qu'un peuple se donne des représentants, il n'est plus libre ; il n'est plus.

JEAN-JACQUES ROUSSEAU

Molte piccole cose,
fatte da molta piccola gente,
in molti piccoli luoghi,
possono cambiare la faccia della terra.

AMICI DI BEPPE GRILLO DI CARCARE

There is a fine line between social networking and wasting your fucking life.

ANDY BOROWITZ

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Chapter 1

Introduction

What this thesis is about   The focus of this thesis is the citizen-user. The *citizen-user* is a politically conscious citizen empowered by continuous and ubiquitous access to Internet-enabled Information and Communication Technologies (ICTs). The worldwide massification of access to Internet services has defined the rise of the citizen-user not only because it has placed the *user* at the centre of an informational and communicational sphere but also because the empowerment of millions *as Internet users* has uplifted their expectations *as citizens* and increased by contrast their sense of political disempowerment. This thesis taps into the digital traces left behind by hundred of thousands of Internet users to analyse their actions and interactions in the context of the political enterprise of the Five Star Movement (M5S) over a period of almost 10 years, from 2005 to 2014. It measures the impact not only of the combined effect of technological empowerment and sense of political disempowerment on political mobilisation and organisation but also on the output of any political system: deliberation.

Why Italy, why the M5S   The last ten years have seen in Italy the acceleration in the diffusion of the Internet access towards saturation levels in parallel with an exceptional growth of resentment against political institutions. Together with a sense of empowerment derived from the control of sophisticated communication and information technologies, which are designed to place the user at the centre,

citizens developed a sense of political disempowerment derived from the perception of a dysfunctional system, incapable of delivering because it was corrupted by inefficiencies and (at worst) particular interests. The identity of the movement that became the M5S was shaped—and would be unimaginable without—these twin sentiments that crystallised in the figure of the *citizen-user*. Technological empowerment fostered the self-confidence of citizens who gained the perception of being able to access via the Internet unlimited sources of information and knowledge. Political institutions, which had worked to reinforce legitimacy by projecting their expertise and monopolistic access to technical information and knowledge, were seen as delegitimised not only because of their poor standards of behaviour but also because they were replaceable in their functions by citizens who could tap into the expertise and knowledge available online to produce fair and wise policy solutions. If these trends are emerging or becoming consolidated in multiple political systems—democratic and authoritarian—and sometimes contributing to the emergence of new political actors, it is in Italy, with the M5S, that they have shown their full potential by shaking the foundations of political institutions and representative democracy.

Political participation My work adds to the rich field of political participation, and more specifically Internet-enabled participation, by providing a detailed and longitudinal description of a movement that, at least in a first analysis, seemed to have converted into practice all the most optimistic arguments about the political disruptiveness of the Internet. Referencing two of the most popular works (and most optimistic in terms of the user's empowerment) on the social effects of the Internet, these are the most stunning features apparently displayed by the Movement: its capacity to organise on a massive scale without any formal organisation (Shirky, 2008) and to replace effectively a public sphere dominated by a 'hub-and-spoke architecture with unidirectional links' with a public sphere of dense intersecting connections among peers, a 'networked public sphere' (Benkler, 2006, Chapter 7). Meetup did not only improve efficiency in how people

organise, it dramatically enhanced people's capability to organise: if mobilisation in the past mainly occurred because political interest was coupled with existing personal connections (family, friends, coworkers) to the organisation (Diani & Lodi, 1989, see for example) Internet-based mobilisation does not require them anymore.

Party and social movement politics But the experience of the M5S is not only an interesting case for the field of political participation. The very existence of a political actor such as the M5S and its electoral relevance in the Italian and European context (since the 2014 election, the M5S has been the 11th largest national party in the European Parliament) put under stress the common understanding developed over the last decades of what parties and social movements are. Arguably, the Movement is compatible with minimal definitions of both *party*, (a 'political group identified by an official label that presents at elections, and is capable of placing through elections [...] candidates for public office' (Sartori, 1976, p. 63), and *social movement*, a social process 'involved in conflictual relations with clearly identified opponents; [...] linked by dense informal networks; share[ing] a distinct collective identity' (Della Porta & Diani, 2006). But it clearly defies the practice of both, since it systematically participates in every electoral competition without any sign of *normalisation*, as the Movement remains at the time of writing without a formal organisation or a comprehensive political agenda.

Computational social science Finally, this thesis puts into practice a few of the most recent quantitative methods for the analysis of human-generated behavioural and textual data to produce quantitative results that are comparable to other results. That is, the contribution of this thesis is not only an inferential one, based on the analysis of primary and secondary data sources but also a *descriptive* contribution. The challenge in describing and statistically modelling Internet data is not only volume. The very same technological advancements that had brought the ICTs to the masses and made computing ubiquitous had

slashed the cost of computing power such that a researcher sitting in front of a desktop computer can comfortably compute statistics from millions of records. The challenge is not even a lack of methodological options. As people and their technologies had started to produce (and record) an enormous amount of digital traces, physicists, computer scientists, mathematicians and statisticians have been flocking to the domains of social sciences, producing a large literature of quantitative methods to approach (and make sense of) the new data and creating a new sub-discipline: computational social science. The real challenge is a lack of benchmarks. The problem with new methods applied to new data is that researchers do not really know which results to expect. This thesis contributes to the endeavour of computational social science by providing statistics and analytics of social interactions over different but common online platforms (specifically a blog, a forum, Facebook, and Meetup). In so doing, it provides useful benchmarks for future research. Questions that computational social science projects have not been able to satisfactorily answer for lack of data from multiple sources, for example, are: In observing the network of a discussion among thousands of users, what is the difference in *centrality* measures among users that we should expect in normal circumstances? And in an online forum for political discussion what is the percentage of threads that we should expect to go unnoticed, receiving no or very few comments? If this research alone cannot determine what is, in quantitative terms, the 'normality' for online political talk, it can contribute to the field by adding valuable observations which can then be referenced to by other researches.

What does the Internet change for political participation? The core argument of this thesis is that the impact of ICTs on political participation is dual. A *direct consequence* of the spread of ICTs is that politics—in which I include socialising, mobilising, organising, debating and deliberating with political goals—starts to take place on (and consequentially to be mediated by) Internet services. Not surprisingly, the relative importance of Internet-mediated politics grows along

with the importance that the Internet has among citizens. But the migration towards the Internet introduces important changes to politics. As I observe and analyse throughout the thesis, the boundaries of political participation blur and ought to be redefined. Because of social media services and because of their role in projecting a user's identity, politics is not defined any more by only a precise set of activities happening in time and space (a rally, a meeting, but also a discussion around the kitchen table). Politics is nowadays also a meme that trickles through the ties of social media's networks, and political participation is also pressing the like button below somebody's post. In the face of a dense literature downplaying the political consequentiality of light forms of political participation, or 'click-activism', I argue the opposite. The Internet has opened up options for very low-intensity, 'tiny' (Margetts, John, & Hale, 2015), forms of political engagement that are consequential because they are forms of mass political expression happening on an unprecedented scale. Almost two million Facebook users publicly liked the page of Beppe Grillo, a very simple political action but still taken by enough people to vote a party into Parliament. Also, the Internet revolutionises how and how often users may be exposed to politics by easing access to political information and communication and by bringing political contents through algorithmically determined filtering and recommendation systems to users who are not directly searching for them, something that every Facebook user is very familiar with.

But I also point to an important *indirect consequence* of the diffusion of ICTs on participation, which is particularly salient for the M5S but not totally absent in other instances: the daily use of efficient Internet services raises the expectation of what politics, intended as a *service* to citizens, should offer (and is not offering). The difference is made striking by the fact that as Internet technologies deliver with incredible efficiency, the old technologies of politics dramatically underperform and especially so by the standards set by the ICTs. As a consequence, citizens already critical towards the political system (Norris, 1999a) now have not only a way to communicate and eventually organise on a massive scale their

dissent but also to identify the standards of efficiency that politics should aspire to.

What does the Internet change for political organisation? The impact that the Internet has on the capacity of people to organise effectively to reach political goals has the potential to alter profoundly the party system and representative institutions in Western democracies. In this thesis, by observing the trajectory of the M5S, I point to the fact that the Movement by (more or less) successfully outsourcing to the Internet critical functions such as socialising, mobilising, debating, organising, voting, funding and selecting candidates, has not only created a new type of political organisation but has done so by leveraging virtually no pre-existing resources, financial or organisational. Even by acknowledging the exceptional character of the Italian context, which twice in the span of two decades has seen an outsider attracting most of the popular vote, this seems to support the idea the Internet under the right circumstances might indeed enable organising extremely consequential collective action without organisation (Shirky, 2008). Even if, as I note in the following chapters, organisation does emerge *in practice* in the form of hierarchies—in which key individuals assume the authority to take binding decisions, make rules, certify members, groups and candidates and set the agenda—it appears that organisation is most of the time imperceptible and when it emerges it does so in a very light, selective (although not always predictable) way.

What does the Internet change for political deliberation? Political deliberation, intended as the full spectrum, from 'everyday' small talk to formal procedural decision making, is changed by the Internet insofar as it has changed the influence that different social components might exercise on the debate. There is no arguing that the Internet multiplies the fora of debate by creating as many 'deliberative enclaves' (Sunstein, 2001) as demanded by users. The question is whether and when these fora have an impact on the political process. The thesis explores the discussion Forum of the M5S by leveraging network analysis and

quantitative and qualitative text analysis to understand how users take part in the discussion and whether it is possible to identify any instance of a discussion that succeeded in influencing the debate at the national level. A number of studies have been proposed which for the most part identified a low tendency of users to engage with the diversity and instead to favour interactions with like-minded. There are different potential reasons for this (many have worried about its social and political consequences) and *homophily* is not necessarily a consequence of users' choices; as the number of ties connecting users to their networks increases social networking services need to deploy algorithmic filters to select which content to show to the user. But there are also reasons that could justify the opposite behaviour: users, especially if they perceive that they have the capacity of influencing the debate, might try to reach out to those who held a different view to persuading them. In this thesis I use statistical models for network data to formally test when and if homophily occurs.

The other debated question of those studying online forms of deliberation is their relevance and consequentiality. Does online deliberation matter? The main challenge in actually measuring the relevance of any discussion forum is that of course no discussion takes place in only one forum and multiple channels of influence are usually open. But the probability of missing from the analysis relevant sources of influence decreases as we move from items debated on mainstream media to 'fringe' items. In the thesis, I identify one of these peripheral discussions taking place in the Forum of the M5S—the debate on introducing some form of guaranteed minimum income—and track its evolution and framing in terms of the topics raised in the discussion within the Movement. I measure also the presence of the topic within the national discussion by measuring how often the item is touched upon in the media and in Parliament before and after it gained relevance within the Movement.

Citizen-users, communities and crowds As citizen-users turn politically active online, they either aggregate into communities or crowds. Communities emerge

when users are aware of others and invested in maintaining relations among members while crowds simply need users' copresence. Crowds would seem a more *natural* environment for citizen-users concerned in maintaining their individuality and seeking a *personal* (instead of *collective*) experience but, as I show in this thesis, communities do emerge from citizen-users' interactions. What determines the emergence of cohesive communities instead of inarticulate (and messy) crowds is a crucial question for the future of political participation, organisation and consequentially democratic (because participated) deliberation. The political relevance of multitudes derives first from their capacity to synchronise and act in a coordinated fashion. Only communities can independently sustain political coordination and raise a political voice. Crowds can be noisy but they also tend to be voiceless. Through empirical observation, in this thesis I reflect on the fact that if neither communities nor crowds are necessarily consequences of online political participation, only communities can be democratic and enhance the individual political voice of the citizen-user.

Thesis outline   This thesis is an attempt to understand the potential of the massification of Internet technologies on political organisations and deliberation processes by using the case of the M5S. The analysis describes the case of the M5S on three levels—organisation, participation and deliberation—based on the behavioural and textual traces left by Internet-users. Chapter 2 sets the ground of the scholarly discussion on the evolution of politics, the role of citizen and online participation with a particular attention to the themes of globalisation, inequality, populism and the crises of politics. Chapter 3 tackles the methodological and ethical challenges of working with digital data generated on unprecedented scales by Internet users by reviewing the most recent development in the fields of network and textual analysis. Chapter 4 introduces the political enterprise of Beppe Grillo and the M5S, from the creation of the blog to the participation in national elections, and contextualises it in the Italian political experience of the last decades and against the changes in the media landscape. It provides a

descriptive analysis of participation in the Movement and its organisation, by combining original Internet data with survey data, and an inferential analysis on the effect of the Internet on elections by comparing the activity of militants at the provincial level with online (Facebook) and offline (Meetup) participation with the electoral outcomes. Chapter 5 and chapter 6 focus on political deliberation. In chapter 5, I describe the evolution of the debate on the different websites pertaining to the Movement and map the interactions among users in three selected debates mainly with the interest of understanding when and if users with different opinions engage with each other. In chapter 6, I introduce the method of explicit semantic analysis and apply it to the analysis of the debate unfolding around the issue of the introduction of a guaranteed minimum income in the Forum. Chapter 7 concludes the thesis by discussing the impacts at the level of organisation, participation and deliberation observed in the data collected from the political experience of the M5S and postulating what should be ascribed to the exceptionality of the M5S and what instead is a lasting contribution of the massification of ICTs that has the potential to influence political process behind the context that produced the M5S.

Chapter 2

Literature review

1. THE INTERNET AND THE TRANSFORMATION OF CITIZEN

This chapter provides an introduction to themes that have emerged in the areas of *politics*, *citizen* and *political participation*. This is a review of works which explore relevant thematic issues around the vectors of change, the intersection of politics and society and the interface between the two—citizenship, over the last two decades. It is the argument of this thesis that changes taking place on different levels, in society and technology, are all reflected in the emergence of a citizen-user, who exploits empowering Internet technologies to overturn political disempowerment.

Political scientists have mostly focused on social and economic causes to justify the crisis of representative democracy, which especially manifested into a more critical attitudes of citizens towards elected institutions. I argue that the technological aspects, by which I mean to the effects of the Internet revolution combined with a mobile revolution that made possible a personalisation of access to ICTs, are not only relevant because they provide new tools to debate, participate and organise politically but also because they permeate citizens' expectations of the political system. In this sense, the daily use of technologies changes citizens, the demands citizens direct towards politics and what citizens expect from politics. Citizens are more critical and more demanding also because of the shining success

of the Internet revolution but its direct effects on political behaviours are not sufficiently explored in the political science literature. I propose to tap into the literature developed in other fields, sociology and philosophy of information, and to apply relevant concepts formulated there to interpret changes to the role of citizen.

Political participation and deliberation worldwide have seen the emergence and consolidation of a new attitude of citizens that is not only more critical and distrustful towards politics in general but also bolder in radically contesting political (but also scientific and technical) elites by pointing and *linking* to alternative versions of facts, figures and readings of 'reality'. This new attitude does not only justify the delegitimisation of political authority based on charges of corruption, incompetence or inefficiency, it also contests the monopoly of political authority over information, knowledge and ultimately truth. Whether or not this tendency was present before the widespread diffusion of Internet access, it is the practice with Internet technologies (the same technologies that changed the popular meaning of words such as *search* and *share*) that enable citizens to express it on a massive scale. The literature addressing the crisis of politics and the emergence of new forms—which are more radical, more critical and definitely angrier—of contestation has so far not fully appreciated the effects of the shift from a citizen that might critically engage the ruling class to an Internet-empowered citizens who believes instead they have access to the resources to replace it.

The remainder of the chapter is divided in four sections. In the next section, I review the literature on politics based on three themes. To characterise the anti-systemic opposition (and rage) towards the political establishment that has been taking shape in the last two decades, I review research on *social movements* (and specifically anti-globalisation movements) and *populism*, which many argue are important in characterising the political enterprise of the M5S and offer an answer, which I suggest is partial, to *why the M5S came about*. This research highlight important ingredients that have sustained the growth of the Movement and contributed to the emergence of similar claims in other political contexts, with

the consequence of either creating new political actors or transforming existing ones. Nevertheless although they do stress the importance of the massification of ICTs as communicational and organisational tools, they do not substantiate the impact on individual behaviours and expectations resulting from a continuous exposure to these technologies and their profound integration with our daily routines. If the first two themes have a more transnational flavour, the last is more contextualised and offers a review of the existing answer to the question of *Why did M5S emerge in Italy in the late 2000s*. Research interested in the impact of the transformation of the relation between *media and politics* in Italy, focuses on the pluralisation of media and changes in media consumption patterns to explain the success of the M5S. It is this body of research that provides a relevant indication of changes at the individual level that have important consequences at the collective and political level. The discussion around media and politics also provides an historical perspective by introducing research that treats the electoral success of the M5S in 2013 as a second instance (the first being Berlusconi's Forza Italia in 1994) in less than twenty years after a new political actor capitalised on the collapse of established parties.

In the third section, on the changing role of *citizen*, I shift the attention from the societal level to the individual level. This section describes what has changed for individuals in Western societies because of the processes of globalisation and the Internet and mobile revolutions. It also reflects on extensive research delineating a progressively more critical attitude of citizens towards political institutions and elites. In this section I criticise a focus—-which I consider too narrow—on economic globalisation as a determinant in the rise of new inequalities and discontents and I propose to expand it to also include the impact of technological revolutions that have changed citizens' self-reflexivity and societal interactivity.

In the fourth section of the chapter, on *participation*, I delineate the debate on political participation and deliberation of the last two decades. If the Internet and its impact in the area of participation has comprehensibly attracted major attention, the section still roots its discourse in the pre-Internet works by Putnam

(*Bowling alone*) and Habermas (*The theory of communicative action. Reason and the rationalization of society* and *The Structural Transformation of the Public Sphere*) because of the exceptional influence they had in framing the debate. In the section, I follow the debate that contributed to shape a concept that I apply throughout the thesis: 'everyday political talk' from Mansbridge (1999).

In the fifth section of the chapter, I introduce the literature treating the M5S. The chapter provide a review of the most relevant definitions proposed to frame the trajectory of the Movement and define its character. I also justify why the case of the M5S is interesting in a comparative context because it expresses elements that are also evident in political actors of other countries.

2. POLITICS

2.1. Social movements

In order to understand why the M5S did happen with the creation of Grillo's blog in 2005 and the foundation of the Movement in 2009, it is useful to frame it as an instance of the broad anti-globalisation movement that was initiated by the 1999 WTO protests taking place in Seattle. This legacy, which is threefold—ideological, organisational and technological—is not sufficiently stressed in the literature describing the emergence of the M5S. To assess the importance of this legacy, I quickly summarise the traits on these three levels of the anti-globalisation movement emerging from the 'battle of Seattle' (J. Smith, 2001; Kahn & Kellner, 2004) and for Italy and Europe two years later with the 'battle of Genoa' (Davies, 2008).

Ideologically, the anti-WTO protests offered an organised response to the multiple crises (economical, political, environmental, human rights) that were perceived from the West to be shattering societies across the world and opened a new and extremely broad contestation front. Similar to Genoa, protesters in Seattle included labor organisations, consumer groups, environmental, human right and global justice movements (Bennett & Segerberg, 2013, p. 29). The

intellectual underpin of the protest was provided by books such as Naomi Klein's *No logo* (published in 2000), Michael Hardt and Antonio Negri's *Empire* (2000) and Joseph Stiglitz's *Globalization and its discontents* (2002). Although from very different perspectives—Stiglitz was a Nobel prize recipient for economics, former economic adviser in the Clinton administration and former chief economist of the World Bank; while Negri, a Marxist sociologist and former militant in extra-parliamentary left-wing movements—these books were all in tune in the description of a neoliberal world order unaccountable to the people because of the shift of the foci of power from local parliaments and governments to international organisations and corporations.

Although the movement of movements that emerged in 1999 received support from left-wing parties (and yet about 20% of protesters in Genoa in 2001 and later at the European Social Forum in Florence the following year refused to collocate themselves on the left-to-right political spectrum, see Della Porta & Diani, 2006, p. 71), it challenged a core assumption which had guided the foreign policy of the Left since the end of the Second World War: internationalisation in the form of transferring power to supranational entities. To understand the repositioning of social forces within Western democracies afar from parties' positions, it is helpful to apply a model of a bi-dimensional ideological space as proposed by Grande and Kriesi (2012, p. 22) and later by Inglehart and Norris (2016). Globalisation added a new *cultural* dimension, along a traditional *economic* dimension, to the ideological space of Western democracies defined by the position on international integration. Protesters on the streets of Seattle and Genoa had different motives to oppose current globalisation trends (because of the democratic deficit but also because of protectionist considerations) and different political and economic proposals to govern them, but they did agree in opposing them on cultural grounds: 'to democratize and incorporate values other than profit making into global economic institutions' (J. Smith, 2001, p. 528). If a direct link between the movement of Seattle and the M5S is attested by the involvement of numerous MPs in environmental, social and humanitarian movements (Mosca, 2015) who

marched in Genoa in 2001, a much broader influence emerges by analysing the rhetoric of Grillo and that of his Movement. Supranational, financial and anti-democratic institutions are a recurrent target in both contexts; WTO and the IMF in Seattle and Genoa, the ECB and the 'Europe of banks' on Grillo's blog.

But the ideological influence of the movement of Seattle on the M5S does not stop at the anti-globalisation rhetoric. Technology is central in both movements: as organisational and epistemological tool (to spread and shape information) but crucially also in defining the identity of the two movements (Kahn & Kellner, 2004; Natale & Ballatore, 2014). Internet and mobile devices empowered people (Rainie & Wellman, 2012) at a time when social, economic, environmental and political dynamics seemed to contribute to create new anxieties (Young, 2007; Inglehart & Norris, 2016; Mishra, 2016). In Italy and in most of the European countries two classes were penalised the most by the economic downturn that started to bite in the early 2000s: the youth (Tanveer Choudhry, Marelli, & Signorelli, 2012) that not withstanding being the most qualified in history experienced level of unemployment never seen before and those in the public or private sector not covered by the safety nets provided by permanent contracts, either because self-employed or because hired with flexible contracts that started to be created in the late 1990s. The social distress (see Morlino & Piana, 2014) that followed the economic downturn intersected with a crisis of political participation that especially in Italy was directed towards political parties and international agencies, such as the International Monetary Fund, the World Trade Organisation and later the European Central Bank. The percentage of Italians expressing trust for the European Commission dropped from 63% in 1997 to 36% in 2015 (European Commission, 2012, 2015).

In both Seattle and Genoa the organisation of the events was largely decentralised with disperse organisations networking loosely to create a shared protest platform to be used to promote specific issues; from human rights to the environment, from international trade to military interventionism, from global to local conflicts. The Internet did play for the first time a role in the setup of the protests,

facilitating the coordination among different and some time distant organisations (J. Smith, 2001; Kahn & Kellner, 2004), but also in the construction by protesters of their own media description of the events via publishing platforms such as Indymedia (founded in 1999, see Kidd, 2013).

It has of course been noted that the dramatic increased in the capacity to process, communicate and store information over the Internet has been a fundamental driving force in the globalisation of finance and the production of goods and services as much as in shaping opposition to that driving force. As ordinary and generally young people moved on the Internet, via home desktop computers first and mobile devices later, so did the creation, organisation and communication of dissents. The use of the Internet, because of its decentralised and horizontal geography, immediately assumed also a symbolic relevance. As opposed to a political order that was perceived as delegitimated, corrupt, unaccountable and inaccesible, the Internet appeared to be a place of absolute freedom of expression and an unrestricted repository of knowledge and information. The Internet did non only allow to easily create online communities (which mimicked a public space only insofar as members adopted publicly recognisable usernames) where to unfold political talk but also to substantiate, legitimate and distribute alternative interpretations of politically relevant occurrences by selecting and connecting to a multitude of bits of information made available by the Internet's own diversity.

Wikipedia (launched in 2001) was the most iconic instance of a new form of massive collaboration project made possible by the Internet. It was also a symbol of a how the production of knowledge, once the monopoly of institutions of professional experts, could be decentralised and diffused to thousands of peer-contributors without losing authority or accuracy (Shirky, 2008; Reagle, 2010; Bennett, Segerberg, & Walker, 2014). As hyperlinks facilitated the composition of alternative descriptions of reality bypassing traditional source of information and knowledge, the success of Wikipedia played into the argument of those opposing mainstream interpretations and beliefs; it demonstrated that a self-reviewed

crowd could compete with and potentially unseat the experts. The concept of crowd-production of knowledge and information has always been a foundational ideal for the M5S (see for example the YouTube video published in the early years of the Movement 'Prometeus - La Rivoluzione dei media', 2007).

The construction of the M5S—of its identity, its ideology and its tactics of networked, geographically diffuse mobilisation and participation—in the inception years between the first blog post in 2005 and the foundation of the Movement in 2009, can be ascribed to the same long wave of the anti-globalisation, anti-corporate, social justice and crucially 'real democracy' protest initiated by the anti-WTO marches in Seattle in 1999. This long 'cycle of contention' (Tarrow, 2011) includes the Internet-mediated protests of the late 2000s and early 2010s: the Iranian Green Movement (2009), the Arab Spring (2010), 15-M Movement (2011), Occupy (2011) and the Gezi Park protests (2013) (Golkar, 2011; Khondker, 2011; Morell, 2012; Lotan et al., 2011; Hardt & Negri, 2011, see). Although these movements grew out of very different social backgrounds, they all had in common a strong pro-democracy trait and, of course, the Internet.

Many have recognised that in these protests the Internet is 'not a mere "tool" that is external to the organizational and cultural structure of these movements. Instead, it has become increasingly clear that communication is a form of organization, and the form of communication strongly interacts with the form of organization' (Tufekci, 2014b). But the case of the M5S also signals the importance of the Internet within these movements because of its identitarian character: the Interent does not only shape as it expands the *capabilities* of the crowd but also provides an identity to the movement because it offers a form of redemption from political disempowerment. And it is *identity* the core claim of these movements, which have—using Tilly's categorisation for social movement (Tilly, 2004)—very weak (if any) *standing* and *program* claims. In the words of (Tufekci, 2014b) 'the widespread use of digital tools facilitates capabilities in some domains, such as organization, logistics, and publicity, while simultaneously engendering hindrances to movement impacts on other domains, including those related to policy and

electoral spheres' (Tufekci, 2014b). But again the case of the M5S reveals itself as a special case, because, although it did emerge (as did other other movements) with large rallies organised via the Internet and featuring very similar style and demands, it also succeeded in sustaining its momentum.

2.2. Populism

The goal of this section is to provide a possible answer to the questions of what is populism and whether it matters in understanding the M5S.

A minimal definition of populism is provided by Albertazzi and McDonnell (2008):

> an ideology which pits a virtuous and homogeneous people against a set of elites and dangerous 'others' who are together depicted as depriving (or attempting to deprive) the sovereign people of their rights, values, prosperity, identity and voice.

The duality *us/them* is rightly identified by many as one of the most defining feature of the populist discourse. Nevertheless others point also to the fact that '[w]hether dimension or style rather than ideology or form of mobilization, populism is so elastic and indeterminate as to discourage all attempts at a rigorous definition' (Taguieff, 1995, p. 25). Taguieff proposes two 'poles of the populist rhetoric:' the *protest populism* and the *identitarian/national populism*). If some of the traits of the identitarian populism seem apt to frame the description of the M5S (a direct and personal 'appeal to the *people*'; an interclass 'appeal to the *entire* people', thus bypassing class distinctions; and the call for a discontinuing event, a '*rupture*'), it is the protest populism that fits almost perfectly with the rhetoric of the M5S. In the definition of protest populism, Taguieff identified as foundational an anti-establishment trait: 'this type of populism can be described as hyper-democratism, idealizing the image of active citizens distrustful of systems of representation presumably threatening to deprive them of their

power or initiative.' Protest populism leverages on the tools of direct democracy such as referendum and citizens' initiatives to bridge the gap between the state and the ordinary citizens. Moreover, it features *anti-intellectualism* and *hyper-personalisation*.

Given this battery of traits defining populism presented above, it is comprehensible that the populist character of the M5S is stressed by many. Tronconi (2015a) identifies four elements that are usually used to place the M5S within the populist tradition. First, the essential 'juxtaposition between the establishment, conceived as corrupt, quarrelsome, selfinterested and ultimately unable to offer solutions for the problems of the country and the people, who on the contrary are considered as fundamentally hard-working, honest and virtuous.'. Second, the presence of a charismatic leader (Beppe Grillo) entertaining a special relationship with 'the people'. Third, a communicative style that tends to break with traditional rules and etiquette. But in parallel to self-evident populist traits, Tronconi mentions also other characteristics of the M5S, such as the presence of 'post-materialistic values' at the core of its policy platform and the importance of the Internet as tool for democratic and horizontal participation and individual expression.

To solve this apparent contradiction between a populist style and horizontal forms of internal participation, Gerbaudo proposes the concept of *Populism 2.0* (Gerbaudo, 2015). For Gerbaudo, the continuity between traditional forms of populism and Internet-mediated populism is on two levels. First, populism directly appeals to the *common people*, citizens, without any class distinction and this, in the Internet age, easily translate to 'generic interent users'. Second, as already noted, forms of *protest populism* invest substantially in appeals to direct democracy and the Internet does in fact provide a platform to exercise it as in a always-on plebiscitarian system. The question is consequentially how users in practice exercise direct democracy and how really distributed power is across the network. Because it is easy to immagine what could go wrong. In the words of Fuchs (2008):

A plebiscitary system is a political system in which ruling parties or charismatic leaders decide on which issues referenda should be taken and how the questions for such plebiscites are formulated; citizens then vote directly on these issues. The main criticism of this concept is that it is prone to manipulation and that a plebiscitary system can easily turn into totalitarianism. (p. 226)

2.3. Political and media crises

Within the Italian context, the success of the M5S is generally interpreted as the product of the overlapping crisis of two systems: the party system and the media system. The crisis in the party system (Bull, 2012), which in some sense is mapped by the 1992 system meltdown, created the opportunity for political entrepreneurs and outsiders to gain ground in the national political competition at the expenses of other parties (which this time did not disappear but were significantly lessened). The crisis in the media system (Mancini, 2013), which saw the decline of the importance of the TV as source of legitimacy for political actors and the reconfiguration of consumption habits in favour of less standardisation and higher levels of personalisability, was caused by the massification of Internet access but also by the multiplication of TV channels (on air and via satellite). This shifted power from producers and editors of content to consumers, which turned from passive to active (and critical) consumers.

Given the Italian contexts, the period (1994-2013) in which Silvio Berlusconi was both a primary political figure (chief of the executive for more than eight years or leader of the opposition when not in office) and owner of the largest private media group; and given the role of television in shaping his political trajectory (Ginsborg, 2004; Hallin & Mancini, 2004), the development of the two crises were not perceived as independent since the two systems were indeed very *inter*dependent, with access to broadcasting media perceived as indispensable for political visibility and electoral success (D'Arma, 2015). It is no coincidence that mainstream media and parties were the first two targets of the Movement's

campaigning perceived as two faces of the same discredited elite.

Virtually no observer denies the importance of the media in Italian politics (and symmetrically of politics in the media) in the period following the dissolution of the Italian Communist Party in 1991 and the Christian Democracy three years later. A referendum held in 1993 in the wake of major judicial investigations ('Mani pulite') shifted the electoral system from proportional to semi-majoritarian[1] (J. Newell, 2010) with the introduction of a minimum of 4% of the national vote for a party to be represented in Parliament. A stronger national competition for parties but also the simplification of the political stage towards bipolarity and two party coalitions increased the importance of television (Mancini, 2013), which parties could either access and so survive or miss and therefore disappear. On 23 March 1994, the first American-style face-to-face debate of the two contenders to the government's premiership in the history of the Republic was aired.

And yet the link between the development of new media consumption capabilities among Italians (with the appropriation of a more critical role in navigating—and for the first time *creating*—media content) and the widespread discontent towards the political establishment and the party system is not explored in the literature.

The early 1990s were crucial in the history of the Italian republic and tranformative for the Italian party system. In 1991, less than two years after the fall of the Berlin Wall and a few months before the disappearance of the Soviet Union and the end of the Cold War, the Italian Communist Party (PCI)—one of the largest in NATO countries—dissolved after the party's leader announced a new policy of disengagement from communism and a new name, the Democratic Party of the Left (PDS) (J. Newell, 2010). The Christian Democracy (DC), also affected by the 'ideological thaw' (Valbruzzi, 2013) following the end of the Cold

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[1]The electoral law introduced after the 1993 referendum was more precisely an hybrid system, or a 'mixed-member majoritarian' system. Although, it did not reduce substantially the number of parties competing in each election, it resulted in the formation of pre-electoral party coalitions (see D'Alimonte, 2001).

War but in addition engulfed by corruption scandals and by the emergence of systematic collusion with the Mafia in the deep South[2] dissolved in January 1994, few months before the general election won by the coalition led by Berlusconi.

If there is substantial agreement in the literature that a historical and political phase characterised by the ideological opposition between the two main parties (PCI and DC) ended in the years between 1991 and 1992, there is no agreement on what followed. The conceptualisation of a *transitional* phase was initially proposed but later (with reason) challenged because nearly two decades of supposed transition did not transform to any clear and stable regime of 'majoritarian democracy' of two competing party coalitions (J. L. Newell, 2009; Bull, 2012) as initially hypothesised. The election of 2013, with its tri-polar outcome, clearly pushed further away any bipolar configuration of the Italian political system.

In the election of 2013, the levels of electoral volatility, or the proportion of voters changing party in comparison to the previous election, reached an historical high, even surpassing the previous record registered with the election of 1994 (see Figure 2.1). Because of their revolutionary traits, a number of observers have suggested that the election of 2013 might in fact have meant the end of that Second Republic, which supposedly commenced in the early 1990s (see D'Alimonte, 2013).

The indication of a closure of a cycle started with the election of 1994 and the majoritarian, bipolar party system is also suggested by the extremely high level of uncertainty in the electorate preceding the election. The election of 2013 is referred to as a 'critical election' by Campus, Ceccarini, and Vaccari (2015). The campaign of 2013 was more intensively followed than the campaigns of both 2006 and 2008 and the use of new media for political information significantly increased (Ceccarini & Diamanti, 2013). Two reasons are generally indicated as triggering a strong feeling of resentment towards the general state of affairs and more specifically the political class: on one side the economic crisis and

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[2]The trial against the Christian Democrat Giulio Andreotti, three times Prime Minister, accused of having been associated with the Mafia started in Palermo in 1993.
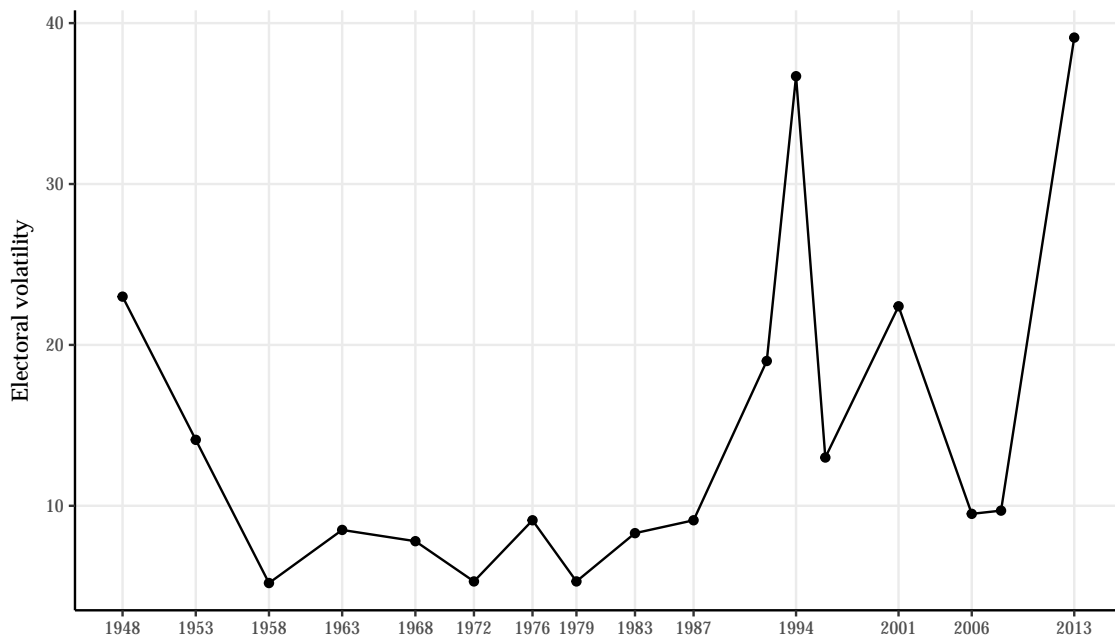
Figure 2.1: *Electoral volatility in general elections (D'Alimonte, 2013)*

the so-called 'austerity measures' put in place by the incumbent government of Mario Monti (also a candidate in the election), on the other a series of corruption scandals that touched both the centre-left and the centre-right coalitions (Ceccarini & Diamanti, 2013).

3. CITIZEN

3.1. Inequality, globalisation and citizenry

Changes in the productive structure of Western economies have propelled rising economic inequality in Western democracies with consequent social grievances of those who saw their relative income decreasing. Piketty, author of the bestelling book *Capital in the Twenty-First century* 2014, provides national accounting data from Western democracies covering more than a century to support the theory that, because of a lack of effective redistribution policies, income inequality has been growing since the 1950s and benefitting those with inherited wealth over those who depend only on wages to grow their wealth. And this because the

return on the accumulated private wealth has been systematically higher in Western economies than the growth of the national income which is redistributed through wages.

Although Piketty's conclusions and accounting methodology are not uncontested among economists (see for example Rodrik, 2014), they do concur with the general opinion among social scientists that structural elements of world and national economies have deepened traditional social divisions and created new ones (for an analysis of the political causes of economic inequality in the US see Hacker & Pierson, 2010). If economic inequality is probably the most relevant symptom (and certainly the easiest to measure), it is globalisation and its processes operating on different layers (governance, finance, trade, culture, media and migration) that are identified as the paramount cause impacting almost every aspect of society.

Contributing to one of the earliest analyses on the social impacts of globalisation, Bauman (1998) stresses the polarising tone of globalisation within society: 'rather than homogenizing the human condition, the technological annulment of temporal/spatial distances tends to polarize it.' (p. 18). According to Bauman, only the 'mobile elites' benefit from the new freedoms offered by globalising trends and tend to segregate from the rest of the population, purposely isolating themselves in emerging extraterritorial spaces. The others, those who 'stay put' in a locality, find the fruits of globalisation constantly on the move out of reach. They also perceive their capacity to influence social processes heavily diminished because they found that power has moved and dephysicalised.

> Public spaces—agoras and forums in their various manifestations, places where agendas are set, private affairs are made public, opinions are formed, tested and confirmed, judgements are put together and verdicts are passed—such spaces followed the elite in cutting lose their local anchors; they are first to deterritorialize and move far beyond the reach of the merely 'wetware' communicative capacity of any locality and its residents (Bauman, 1998, p. 24).

Bauman identifies also a cultural disjuncture between the elites (the 'globals') and the rest. A new 'hybrid culture', transnational and delocalised, is forged by the elites on the move but owned by the 'globals' alone. It is a culture that allows the elites to move comfortably as 'tourists' to operate everywhere without interpreters, to avoid the feeling of 'homelessness' without being really at home anywhere. But again those who are strained at home, the 'locals', do not participate in the construction of 'new hybrid identities' and the response to 'the deregulation, dissipation of communal networks and forceful individualization of destiny' (p. 100) is by necessity a retrenchment in and revaluation of old identities.

The same idea of a bipolarisation of society between 'winners' and 'losers' of the globalisation processes is at the core of the influential volume edited by Kriesi et al. (2008) which studies the impacts of globalisation in a number of European countries. The authors identify three mechanisms through which globalisation affects society. First, globalisation increases 'economic competition' among countries. This puts pressure at the national level on the regulatory framework that used to contractually protect workers but also on the capacity of government to tax firms (which are now transnational in scope). Second, globalisation increases 'cultural diversity'. This results in increasing both the sense of threat on an identity level perceived by the local population and the competition for access to the welfare state, which was already stressed by the reduction in the state's income redistribution capacity. Third, and in line with what raised by Bauman (1998), globalisation increases 'political competition' with a multiplication of centers of sovereignty, thus reducing the capacity of state to solve problems and of citizens to influence decisions.

Increase in inequality has been observed to have caused backlash against the forces of globalisation. In their analysis, Grande and Kriesi (2012) suggests the emergence of popular grievances (and their political exploitation) on especially two dimensions: in opposition to political competition and towards the reappropriation of national sovereignty and in opposition to trasnational

economic competition and towards a stronger intervention by the state in the economy. More recently Inglehart and Norris (2016) theorised and empirically prove that as consequence of globalisation processes, the 'classic economic Left-Right cleavage in party competition is overlaid today by a new Cultural cleavage dividing Populists from Cosmopolitan Liberalism' (p. 3).

Observing the stress caused by globalisation to traditional cultural and economic relations, Young (2007) formulated the concept of 'vertigo' since 'insecurities in economic position and status, coupled with feelings of deprivation in both these spheres, engender widespread feelings of resentment both in those looking up the class structure and those peering down' (p. 12) but which also results into scapegoating. In other words, Young points to the coupling of economic anxieties with the perception of weakening of traditional identities ('ontological insecurity') which causes a sense of 'bitterness' and 'powerlessness'.

As the financial crisis of 2008 hit the periphery of the Euro area, with heavy social consequences especially for Southern European countries such as Greece, Spain and Portugal (Lapavitsas, 2012), the anti-globalisation sentiment—which had been fuelling social discontent since the late 1990s—was promptly incorporated (Fominaya, 2015) in the anti-austerity movements, which assembled throughout the continent on a platform of democracy and social justice (Glasius & Pleyers, 2013; Della Porta, 2014; Castells, 2015). *Inequality* was at the center of the anti-globalisation, anti-austerity—and in more than one instance *anti-establishment*—protest that spread as the contraction of the economy and of welfare services had real consequences for the weaker segment of societies. *Democracy* was the solution offered by the anti-austerity movements. The 15-M movement in Spain followed the organisation of a platform called '¡Democracia Real YA!' (*Real democracy Now!*). To undemocratic decisions taken by financial and transnational institutions (e.g. the FMI, the EU commission, the ECB) the anti-austerity movements opposed the people, victims of the economic consequences but also victims as *citizens*, since they were deprived of the possibility to participate in those decisions.

Gerbaudo convincingly argues that central to the claims of the anti-austerity movements of Spain and Greece was the 'notion of citizenship', which they demanded to be 'recuperated and expanded in order to address rising economic inequality' (2017, p. 38). Referencing Balibar (1988), Gerbaudo points to an inherent contradiction in the discourse on citizenship, simultaneously intended both as empowering the state and the individual. In the words of Balibar, citizenship 'is bound to the existence of a state and therefore to the principle of public sovereignty' and on the other 'is bound to the acknowledged exercise of an individual "capacity" to participate in political decisions' (Balibar, 1988, p. 723; as cited in Gerbaudo, 2017, pp. 38-39). It is not clear how movements, claiming on one side more participatory democracy in the name of citizenship and on the other a more decisive state in protecting citizenship from above, would address this contradiction in practice. But according to Gerbaudo (2017), *citizenship* has replaced, in the anti-austerity movements of Spain and Greece, the notion of *class* to shape the identitarian and aggregating discourse. In the discourse of the M5S it is also possible to note attempts to overcome traditional class rhetoric, which according to the Movement pertained to the politics of the old party system, by deploying the image of a polity of equal *citizens*, directly participating and entitled to strong welfare protections (e.g. the 'citizen's income').

The role that citizenship played in the M5S has still to be fully explored by the literature, but it is fundamental in its interplay with the other identitarian concept: the Internet. Indeed, the construction of the identity of the M5S passes through the two ideas of *Internet* and *citizen*. In their political manifesto *We are at war: For a new politics*, Casaleggio and Grillo (2011) writes: 'The Internet redefines the relations between citizen and State, citizens become the State'. (as translated by Tronconi, 2015b, p. 4). MPs of the M5S declined their title of 'Honorables' or 'Senators', which by law is acquired by members of the Lower and Higher Chamber of Parliament respectively, opting instead for the simple title of 'citizen'. In so doing, they marked a separation between the citizens and the elite and their pompous title but they also contributed to draw the border of a common identity,
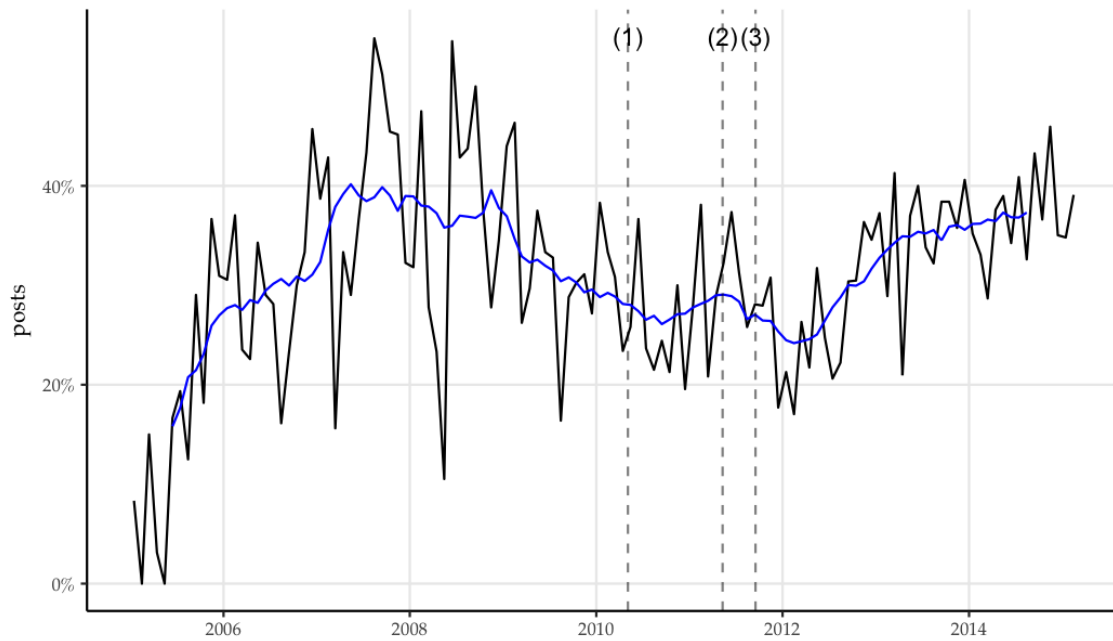
(1): Anti-austerity protests begins in Greece; (2) anti-austerity protests begins in Spain; (3) Occupy Wall Street begins in the US.

Figure 2.2: *Grillo's posts mentioning 'citizen' or 'citizenship'.*

which could cut through traditional political and social classes. Moreover, the flagship policy proposal of the M5S during the XVII Legislature (elected in 2013), was the provision for a GMI aptly rebranded as 'citizen's income'.

It is useful to see the M5S in the light of other anti-austerity movements of Southern Europe, since Italy shared many characteristics with those countries, relative to the economy and the demographics, but also in terms of political traditions. But the discourse on citizenship of the M5S started few years before the financial and economic crisis that triggered the emergence of anti-austerity Movement. Indeed, Beppe Grillo's attention to the role of citizen and citizenship—especially in the sense of citizenship as right to direct participation—preceded the anti-austerity protests (see Figure 2.2).

In fact, I argue, that the analysis of the idea of citizenry within the Five Star Movement (M5S) is important also as contribution to understanding the wave of protests that started in the late 2000s and continued in the early 2010s. But it must

also be seen in light of the emergence of a new idea of Internet-connected and Internet-empowered individual. The idea of citizenship is not only instrumental for claiming economic, social and political rights but also as for cementing a common identity. Similarly, the idea of the Internet is intended as social platform to organise and broadcast collective demands and as a tool to construct a common identity through repeated interactions via social networking services.

3.2. Infosphere, onlife and networked individual

As globalisation is observed by many to have an impact on people so is technology. A new reality of continuous connectivity and streaming of communication and information has been taking shape. If the scale of change for individuals and for social interactions is not contested, questions are still pending on the quality of change.

The ICT revolution introduced the masses to a new class of informational and communicational capabilities. *Abundance* has been one of the early feature of such a revolution with social consequences that have been explored in the literature. Dahlgren (2009) observes that the explosion in the number of channels of information, or their pluralisation, has the effect of creating heterogeneous audiences. Individuals have now more possibilities than ever of cultivating special and 'niche' interests, and this feeds into processes of individualisation of society, which sees on one side the progressive weakening of social (collective) institutions and on the other the rise of the importance of media (ubiquitous in their different forms—TV, newspapers, magazine and off course the Internet—in our lives) as alternative socialising forces. Moreover, not only individuals are more intensively connected trough different media, but also information is more accessible thanks to the incessant process of digitalisation of texts, sounds and images (still and in motion).

In light of the abundance and ubiquity of our access to the informational sphere, Floridi (2014) postulates the concepts of *infosphere* and the emergence of a new form of identity at the intersection of a our online and offline worlds—

which thanks to mobile technologies are permanently synchronised and virtually indiscernible: the *onlife*.

The infosphere is the space populated by informational entities and by their relations (processes, programs, interactions). Because the physical reality around us is subjected to an aggressive process of digitalisation and our identities, or better projections from them, are constantly digitised and updated (pictures, conversations, statuses), according to Floridi, the infosphere will eventually become what we consider the *Reality* since we will spend most of our existences in it.

The concept of *onlife* derives from an informational understanding of our identity and ICTs, which by design mediate information, as 'powerful technologies of the self' (Floridi, 2014, p. 69). As progressively we blur the distinction between technologically and non-technologically mediated projection of ourself, we create a new experience of our self, the onlife, which 'does not respect boundaries between different online and offline environments' (p. 74).

Of course, technologies also mediate our relation with others and society. In this sense, Rainie and Wellman (2012) recognise the emergence and characteristics of what they call the *networked operating system*.

> A different social order has emerged around social networks that are more diverse and less overlapping than those previous groups. The *networked operating system* gives people new ways to solve problems and meet social needs (Rainie & Wellman, 2012, p. 9).

This new social order is the result of two parallel developments: the ICTs revolution and the mobile revolution, which bring easy and cheap communication interfaces to the masses and to every spatial and temporal corner of their lives.

The *networked individual*, the actor of the emerging new social configuration, manoeuvres between different *ego*-networks according to personal needs and interests. That is, for the actor each network is modular and independent and the actor's ties to the networks can be switched on or off depending on the

circumstances. By depicting the geography of social relations as a succession of dense clusters of ties separated by large regions crossed by sporadic connections, the social researcher generally assumes that ties are not all functionally equivalent. Rainie and Wellman (2012) point to two kind of ties: *bonding ties* that keep the clusters together through 'trust, efficiency, and solidarity' (2012, p. 49) and *bridging ties* that are usually less navigated and transmit information in and out the cluster.

The concept of bonding and bridging ties closely related to the concept of tie *strength*, which has a long tradition in the social network analysis literature and is generally defined as 'combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie' (Granovetter, 1973, p. 1362). Thus a dense cluster of relations such as a family is populated by individuals linked by *strong* ties, while *weak* ties are assume to link family members to the rest of the world. In the literature weak ties are assumed to be crucial in terms of informational exchange between clusters and in general for social cohesion. Indeed Putnam stresses the important social capital function of bonding networks in 'bring[ing] together people of different sorts' (Putnam, 2000; as cited in Norris, 2002b, p. 3).

Referring to a recurrent question of communication research, in a new *'information and media ecology'*—which is 'denser, broader, and deeper' (Rainie & Wellman, 2012, p. 226) but also less hierarchical, more personalised, and more multimedial—does the actor confuse the medium with the message (McLuhan, 1964)? Does the medium (being instant messaging, video chat, anonymous posting or face-to-face conversation) effect the participants in such a significant way that it is in fact possible to argue for a remodulation of the participants' *self* when switching among different media? In other words, do we present different *selfs* to the same person when we move from offline to online interaction?

Traditionally the literature had been inclined to treat online presence and behaviour as something walled off from 'normal' life, a 'second self' (Turkle, 1984; Utz, 2010, see also). But in recent years, along with a consolidation of a tendency

towards a *continuous* online presence, that argumentation has been eroding. Indeed, the research presented by Rainie and Wellman points significantly in the other direction: it 'shows that people's online and offline interactions are almost always integrated' (2012, p. 126).

While facing the networked individual, encircled by a multitude of active ties—but by even more *dormant* ties ready to be activated—a fundamental question concerns the motivation behind participation and non-participation in networks. The question is especially relevant in the case of political discussions. Rainie and Wellman (2012) offer a convincing reason for participation. It could be generally assume that people would tie with a particular network because of individual benefits resulting from being connected. But it is also possible to argue that a strong motivation could reside in a *sense of belonging* from being part of a coherent community and in a *sense of empowerment* from acting effectively as part of a community.

The sociological and philosophical literature that describes the impact of ICTs technologies on societies and individuals is important to contextualise the rise of the M5S and more generally to understand how politics, from organisation to participation, has changed. As noted, Grillo and the M5S not only leveraged ICTs as resource (organisational and communicational) but also used the disruptive change brought by the Internet technologies as a powerful metaphor for the reorganisation of society. The political enterprise of the M5S has its roots in the infosphere, in the belief that users of Internet services are able not just to connect and debate but also to crowd-source expertise and policy solutions better than any expert. Sitting at center of their networks, and with the tools to savvily navigate them, users feel they have total access to the digital knowledge of the infosphere. Users feel they can outsmart traditional decision making and problem solving.

4. PARTICIPATION

4.1. Evolution of political participation

The definition of political participation has been evolving together with the transformations of industrialised societies. The literature seems to agree that traditional forms of mobilisation (such as parties, unions, or other *hierarchical* forms of association) have been eroded in the last decades, but there is not a univocal agreement on whether to consider a new repertoire of citizen actions as political participation.

Arguments pointing to an erosion—or for others reconfiguration—of political participation are grounded in figures on electoral turnout and civic engagement in general. Probably the most referenced study detailing the decline in civic participation to the American society during the last decades of the 20$^{\text{th}}$ century is Putnam's *Bowling alone* (2000). Putnam's argument, which is not limited to political participation, warns against people's disengagement from forms of collective life towards a more individualistic existence, and consequentially against the erosion of what he helped to popularised as *social capital* (Putnam, 1993). Boggs also expresses concerns towards what he describes as a *decline of the public sphere* (1997).

Data pointing to similar trends of disengagement from political participation are also identified in European democracies. Mair and van Biezen in two different studies (2001, 2012) describe a steady decline between 1980 and 2009 in party membership in all European democracies and across all the political spectrum (with the notable exceptions of Spain and Greece that democratised only in the 1970s) (see also Dassonneville, Hooghe, & Vanhoutte, 2012).

The factual decline in traditional forms of participation necessarily opens questions about what caused it. According to Norris (2002a, p. 118) there may be causes on both the *supply* side and the *demand* side. On the supply side, post-industrialism can explain change in cultural norms and values with post-

industrial individuals refraining from using traditional channels of participation. On the demand side, social modernisation theorists argue that direct televised communication made mass party membership redundant.

But does political participation only consist of turnout and membership? A strong argument in favor of adapting the definition to embrace emerging forms of participation is advanced by Dalton (2008) based on survey data collected in the United States in 2005. According to Dalton, different generations envision different forms of 'citizenship norms'. A concept of participation as 'citizen duties' such as voting, reporting a crime or serving in the military are more entrenched among older generations. Contrastingly, younger generations perceive this traditional repertoire as relatively less important compared with new forms of direct and personalised engagement such as being active in politics and in voluntary groups (Dalton, 2008, p. 83; see also Inglehart, 1997; Micheletti, 2003; Bennett & Segerberg, 2013). This reconfiguration of social norms might result in new challenges for state institutions from 'citizen-initiated and policy-oriented forms of political participation' (Dalton, 1996; as cited in Norris, 2002a, p. 24) urging traditional political agencies to transform in order to capture them.

4.2. Evolving contours of political agencies

A significant trend identified by the literature on parties and social movements is that the distinction between parties and non-party political organisations has been progressively fading. Chadwick (2007, p. 284) argues this has occurred because all political agencies 'borrow from each other's typical organizational and mobilisation repertoires'. A relevant question is then whether both agencies have been converging because of the same socio-political ecology or whether their evolutions proceeded in parallel but mainly propelled by different causes.

In the case of political parties, of their three core functions—governing, organising, and campaigning for elections (Key, 1942/1958; see also Sartori, 1976; Lawson, 1980)—it is especially the organisational part that is put under stress by the weakening of traditional forms of political participation (Norris, 2002a, p. 103).

In other words, it is the party's role in linking citizen claims with government actions that is perceived as progressively less effective. Indeed this might have encouraged parties to embrace new repertoires of engagement and towards more 'hybrid' and less hierarchical forms of organisation and mobilisation (Chadwick, 2007).

Arguably non-party organisations responded to similar societal transformations (social capital endowment, communication technologies and organisational modes) which seems to imply 'changes in the modes of human interaction and engagement in collectivities' (Flanagin, Stohl, & Bimber, 2006, p. 49). Indeed membership based social organisations also experienced processes of hybridisation by opening to different forms of participation such as new project-oriented volunteers (Bimber, 2003, p. 144).

The impact of Internet-mediated communication on political agencies has been investigated since mid-1990s (see Myers, 1994) but the interest in online social interactions dates back to mid-1980s (see Meyrowitz, 1985). The literature provides strong evidence that, until recently, parties and non-party organisations have been responding very differently to the advent of the Internet, with the formers embracing and incorporating it more slowly and mostly using it as a broadcasting medium (On the use of the Internet by paries in the Italian and European context see Vaccari, 2008; Vergeer, Hermans, & Sams, 2013; Fraia & Missaglia, 2014). An earlier project by Gibson, Nixon, and Ward (2003) similarly concluded that parties did not enthusiastically embraced platforms for online participation and instead mostly conceived their Internet footprint as an *informational resource* for interested voters. As the authors argue 'innovation in the form of interactive campaigning is much less well developed and where interactivity does occur it is controlled by the parties rather than the voters' (p. 235). An explanation for this hesitancy is offered by J Stromer-Galley (2000), who theorises that parties and candidates might restrain from adopting horizontal 'two-way human interaction' instead of traditional 'one-way, top-down' communication for fear of losing control of the message and 'ambiguity of the campaign communica-

tion'. I argue that Stromer-Galley's theory is still relevant today not only because it points to the exceptionality of the M5S vis-à-vis other parties (the M5S built its public image around the notion of radical and continuous two-way interaction) but also because it raises interesting questions on the Movement such as how does it control its message and avoid ambiguity?

The first categorisation of social communities in terms of their online activity was proposed by Virnoche and Marx (1997) and based on the geographic distribution of the communities' members. They distinguish between a *community network*, where both a 'virtual' and 'geographic space' are continuously shared by members; a *virtual extension* where the virtual presence compensate for an 'intermittent' physical co-presence; and a purely *virtual community* with no 'shared geographic space' (Virnoche & Marx, 1997, p. 87).

The literature on the adoption of ICTs by political agencies—interestingly both for parties and social movements—seems to agree with the fact that different types of agencies, moved by different strategic goals, will adopt ICTs differently. Four different driving goals are identified as possibly shaping how ICTs are used by parties: 'vote maximising', 'office maximising', 'policy seeking' and 'intra-party democracy' (Römmele, 2003, p. 14). Accordingly 'while some parties are expected to emphasize the participatory aspects of the new technology, others will focus on the possibilities for top-down information dissemination and broad monitoring of public opinion' (Römmele, 2003, p. 8).

It is also possible to conceptualise a selective impact of ICTs on social movements depending on their 'resource mobilisation strategies', which can focus alternatively on 'professional' or 'participatory resources', and on the characteristics of their population of interest (Diani, 2000).

For Diani, who applies Virnoche and Marx categorisation (1997), the first type of strategy, which does not require investment in building a strong identity but quick and cost-effective fundraising, will result in 'the conversion of dispersed communities of sympathizers into virtual communities with a slightly higher degree of interaction' (2000, p. 393). Conversely, grassroots organisations, which

depend on a strong shared identity, will create online *community networks* on existing physical interactions (Diani, 2000; see also Virnoche & Marx, 1997; Wellman et al., 1996).

But as the boundaries of the online and offline political engagement have been blurring, is the geographic presence still relevant for political actors? In this sense, it is interesting to analyse the political enterprise of the M5S in which strong virtual and geographic communities coexist. In investigating both the *online* and *onsite* communities, this thesis presents data on about 1600 meetups linked to the M5S, which are geographically defined, and about 2000 Facebook pages with a local scope, comparing their effects on local election results.

4.3. Emerging forms of online participation

A recurrent line of reasoning in the literature on online participation until the mid-2000s was that '[s]ustained collective action is unlikely to originate from purely virtual ties if they are not sustained by previous interaction' (Diani, 2000, p. 394). If virtual-*only*—or virtual-*mainly*—communities were theorised (see Virnoche & Marx, 1997), online participation was regarded as 'especially suited to maintaining intermediate-strength ties between people who cannot see each other frequently' (Wellman et al., 1996, p. 231) mainly because that was how ICTs were used in practice before the 'surge in "organizing without organisation"' (Karpf, 2012, p. 3; see also Shirky, 2008).

MoveOn.org, an Internet-based political participatory platform independent of any conventional form of organisation, is identified in the literature as the prototype of the new form of political participation (Chadwick, 2007; Karpf, 2012). According to Chadwick *MoveOn.org* defies all traditional categorisation of political agencies. A 'hybrid mobilisation movement blend[s] repertoires typically associated with all three organizational types—parties, interest groups, and social movements' (2007, p. 283).

For Bennet and Segerberg a *logic of collective action* is replaced by a *logic of connective action* because 'digital media do change the dynamics of the action: these

networks operate through the organizational processes of social media, and their logic does not require strong organizational control or the symbolic construction of a united "we"' (2013, p. 28). The significance of these new forms of agencies is attested by the interest showed by the literature for analogues platforms across different countries such as *¡Democracia real YA!* in Spain (Chadwick, 2013), *GetUp!* in Australia (Vromen & Coleman, 2011), *Put People First* and *38 Degrees* in the UK and *OccupyWallStreet* in the US (Bennett & Segerberg, 2013).

Bennet and Segerberg identify significant differences among these emerging platforms, which can be either *organisationally enabled* if they are supported by a network of traditional organisations or *crowd-enabled* if 'playing the role of virtual political organizations to coordinate the actions of people operating in geographically scattered face-to-face settings' (2013, p. 22). Also, participation occurs and spreads across different platforms, technologies and historical events (from Cairo to Madrid, from New York to Istanbul) in a process of continuous emulation and adaptation (see Beissinger, 2007; Burgess & Green, 2009).

The evolution of political agencies and new forms of participation also conduces to reshape the rationale behind participation at the individual level. In this sense, two interpretative narratives are proposed in the literature, focusing alternatively on technological changes and societal changes. Bimber et al. propose a causal argument where ICTs affect individual choice of public action (or inaction) because 'the boundaries between private and public domains are porous and easily crossed', thus transforming (possibly without the full awareness of the participants) 'private discourse into public discourse, without any specific or centrally organized goal of public goods production' (2005, p. 378 see also Benkler, 2006). Alternatively, Bang (2005) argues that the weakening of political solidarity among 'ordinary' citizens, where collective identities are replaced with project identities, is evidence of a new selectively active citizen who pursues well defined and (usually) local goals through 'small' tactics and strategic communication.

The Internet and mobile revolutions, bringing continuous connectivity to the masses, might have eroded the difference between online political engagement

and offline. In terms of political consequentiality, the main limit that the literature sees in online forms of participation is that it does not emerge from strong, personal links of social relations (see for example Gladwell, 2010). This assumes that online social interactions are not recurrent interactions: that is, 'not sustained by previous interaction' (Diani, 2000, p. 394). But if this was true in the early days of online social connectivity, is not anymore: indeed, it is possible and extremely common for users to track behaviour of friends across platforms. Consequentially, weak and strong (that is, recurrent) social relations are symmetrically replicated online. Vromen, Xenos, and Loader (2015) noted the importance of online networks of friends in delivering political content, generating political talk and engagement.

4.4. Instrumental deliberation and dialogic deliberation

In political science the scope of the definition of *deliberation* is contested and debated along the *cultural vs rational* divide. A narrow definition sees deliberation only as a formal set of preconditions and rules (Cohen, 1989/1997) used by 'reasonable and rational agent[s]' with well defined 'plans' and 'ends' (Rawls, 1997, p. 93) to make decisions. A looser definition discerns instead between *instrumental deliberation*, which takes place 'among politicians or representatives within formal settings' and *dialogical deliberation*, which takes place 'among citizens within the informal public sphere' (Habermas, 2005, p. 388 and J. Kim and Kim, 2008).

By recognising *dialogical deliberation* as an institution of a *deliberative system* (Mansbridge, 1999), which encompasses both formal and informal deliberative procedures, Habermas moves forward from the normative claims for *strong democracy* (Barber, 1984) and convincingly argues why what happens in the informal public sphere also matters for public decision making. Habermas postulates a functional—but not hierarchical—division of labour between a *weak public* and a *strong public* (Fraser, 1990) respectively responsible for society's 'opinion-formation' and 'will-formation'. Accordingly the 'criteria for judging deliberation thus fall along a continuum that may not break at the binding/nonbinding dis-

tinction' (Mansbridge, 1999, p. 227). In other words, according to Habermas' conceptualisation of deliberation, a debate might be *deliberative* whether it takes place on an Internet discussion or in a parliamentary assembly (Mansbridge, 1999).

Chadwick (2012) recognises and characterises the importance of the distinction between two different contributions to the literature on deliberation: the approach of the 'participatory democrats' and the approach of the 'liberal individualists'. Chadwick stresses how the latter see deliberation as predetermined by the interests of the participants while the former argue that 'we discover legitimate solutions to political problems only by engaging in sustained, reflective discourse' (2012, p. 46). That is, dialogic deliberation would allow to define an '*interpretive community* with shared values' which is a precondition for a functioning democracy (J. Kim & Kim, 2008, p. 62).

'Participatory democrats', by decoupling deliberation from teleological rationality, provide my research with a substantive conceptualisation for political online interactions that, as they argue, are a form of meaningful *deliberation*. Indirectly this redefinition helps also to conceptualise differences within the repertoire of political engagement; among actions that are merely motivated by the appeal of a strong communitarian identity (e.g. marching around flags) and actions justified by a communicative aspiration.

4.5. Communicative action

In his *Theory of communicative action* (1981/1984), Habermas focuses on the different sets of rules that regulate behaviours within the *strong public sphere* and the *weak public sphere*, which he sees respectively as the domains of *strategic* actions and *communicative* actions. Strategic—and coherent—actions implied a knowledgeable actor with a clear understanding of the issue and a well defined set of goals. But

there are contexts of action that do not primarily serve the carrying

out of communicatively harmonized plans of action (that is, the pur-
posive activities of the participants) but make communication possible
and stabilize it—for instance, chatting, conversing, and arguing—in
general conversation that becomes an end in itself. (Habermas, 1981/
1984, p. 327)

Habermas' distinction between *strategic* and *communicative* actions is not really
contested in the literature on political participation, yet what seems contested
is the practical relevance of the distinction: in times of 'project identities' (Bang,
2005), political participation is mostly *strategic* communication. Indeed *collective* or
connective actions (Bennett & Segerberg, 2012) alike would probably be categorised
as *strategic actions* by Habermas since in those settings success is not 'mutual
understanding' but is defined by 'achieving individual goals' (Bohman & Rehg,
2011). But, I argue, by researching political discourse, theorists of strategic
behaviours run the risk of having (possibly) important non-strategic motivations—
such as understanding complex realities—slipping below their radar.

Indeed, the importance of a nonpurposive and informal political conversation
(J. Kim & Kim, 2008) in shaping public ideas, and in knitting society together, is
justified because citizenship is primarily a *shared experience* (S. Coleman, 2012)
that 'arises out of acting and speaking together' (Arendt, 1958, p. 198). Focusing
on rationality and purposefulness as a necessary condition for deliberation, will
necessarily limit our understanding on how society makes public decisions. But
it will also not contribute to answer a fundamental question: how complex and
open societies avoid being constantly torn apart by differences.

Looking at the entire dialogic experience of the political discourse—at 'how
people think and talk about politics' (Gamson, 1992, p. xi), and not only at the
final steps of decision making, improves our understanding of how we reach
political consciousness on any issue. Indeed, before being rational and purposive,
'*[p]olitical thought is representative*. [People] form an opinion by considering a given
issue from different viewpoints, by making present to my mind the standpoints
of those who are absent, that is, [they] represent them' (Arendt, 1967, p. 115). In

practical terms that means that people need iterative political discussions, and others' feedbacks and inputs, to make sense of what they know, to shape their understanding on complicated political issues, and to reach an opinion.

4.6.   Everyday political talk

According to Mansbridge, everyday talk produces collective decisions 'the way a market produces collective results, through the combined and interactive effects of relatively isolated individual actions' (1999, p. 212). Thus informal talk that happens to occur in the kitchen, online or in the corridors of parliament might all contribute without any coordination to shape meanings, understandings and ideas, which then permeate the institutional public decision making process.

Still claiming everyday informal talk to be properly 'political' is open to dispute and possibly problematic: what is *not* a political talk? Mansbridge, who is not confortable within Habermas' strict definition of political as what concerns exclusively the 'state', defines 'political' broadly as 'that which the public ought to discuss' (Mansbridge, 1999, p. 214). That is, it is political whatever is discussed publicly.

The concept of *everyday political talk* is valuable in describing a society of *networked individuals* (Rainie & Wellman, 2012) who selectively engage in public discussions displaying multiple interests and identities. Still in the age of online public mass communication, Mansbridge's definition needs to be restrained, to avoid labeling as political everything that is discussed online (including hobbies, TV series and sports). The subject of everyday political talk needs to be not only *important* for the discussants, but also have broad and deep implications for the life of many. Clearly discussion boundaries are necessarily contested and need to be kept open to iterative contestation by participants, with an example being feminist activists' successful battle against a rigid separation between public and private spheres that 'render[s] power relations within the household as "natural" and immune from political regulation' (McAfee, 2011; Fraser, 1990, see also).

4.7. Online deliberation

The massification of Internet communication, and its application to political talk, immediately raises questions on the parallel between face-to-face and computer-mediated communication. Current computer-mediated technologies are biased towards a *text-based* and *asynchronous* conversation with significant implications for interaction (Castells, 1996/2010; Dahlberg, 2001a; Rainie & Wellman, 2012). Whether the differences outweigh the similarities—and consequentially—whether deliberation theories and concepts are applicable to online deliberation, has been debated since the early 1990s.

Scholars who stressed the differences between offline and online political discussion moved to described opportunities and threats of the latter. Price (2012) provides a review of the most important. Among the threats imposed by online political conversation are *superficiality* (Fishkin, 2000; Putnam, 2000); *social masking* and impersonality (Kiesler, Siegel, & McGuire, 1984); and *hyper-selectivity*, which discourages engaging with different opinions (Sunstein, 2001). On the other side, opportunities are: *reduced social dominance* since 'online discussions are generally much more egalitarian than face-to-face encounters' (Price, 2012, p. 130 and Dubrovsky, Kiesler, and Sethna, 1991; Walther, 1995; Hollingshead, 1996; S. Coleman and Price, 2012); *openness* in terms of more exchange (Rains, 2005) and more new ideas (Gallupe, DeSanctis, & Dickson, 1988; Dennis, 1996); *greater honesty and self-disclosure* (Tidwell & Walther, 2002; Bargh, McKenna, & Fitzsimons, 2002); *ease in handling disagreements* (Jennifer Stromer-Galley, 2003); and finally *the advantage of writing* (Dahlberg, 2001a; Price, 2012).

At a macrolevel Coleman and Price (2012) focus on online deliberation in terms of its potentiality of transforming *political distance* within society. They note that *technologies of political communication* might 'expand or limit distance and reach between people involved in the authoritative allocation of values' (2012, p. 26). Online participation could have important consequences in terms of 'long-term community building', since it offers more channels to share knowledge

and personal experiences (Burgess & Green, 2009; S. Coleman & Price, 2012); in terms of collective action and civic participation, since coordination costs have disappeared, with the emergence of *citizen networks* as new public actors; and in terms of an greater involvement of government beneficiaries into governance by developing forms of *coproduction* (Ostrom, 1999; S. Coleman, 2012; see also Bennett & Segerberg, 2013).

If online deliberation is largely recognised to significantly augment political *freedom*, it will not necessarily improve political *equality* (Norris, 1999b; Diani, 2000; Albrecht, 2006; S. Coleman & Price, 2012). The literature rightly points to open questions concerning how the *distribution of power* will be affected. In particular, will the importance of political intermediaries such as parties be affected by active and networked citizens? How would citizen voluntary activism play out against the expertise of professionals such as journalists, public servants, policy analysts or scientists? How and through which transmission would online activism impact real policy making? (Chadwick, 2012). And probably most intriguingly, are we moving away from a 'mass audiences' to a more partisan, segmented and polarised system (S. Coleman & Price, 2012, p. 39; see also Sunstein, 2001, 2002)?

How diversity of opinions plays out in the online conversation has dominated the scholarly debate and attracted attention also out of academic circles, with arguments and empirical results pointing in both directions (Dahlberg, 2007): towards homophily (Fisher, Margolis, & Resnick, 1996; Hill & Hughes, 1998; Selnow, 1998; Graham, 1999; Wilhelm, 1999; McKenna & Bargh, 2000; Sunstein, 2001; Harmon, 2004; Wojcieszak, 2010) or heterogeneity (Jennifer Stromer-Galley, 2003; Balkin, 2004; Weinberger, 2004; Horrigan, Garrett, & Resnick, 2004; Shah, Cho, Eveland, & Kwak, 2005; Min, 2007; S. Coleman & Price, 2012).

What the literature agrees on is that the Internet potentially allows a plurality of voices to surface, especially if compared to traditional broadcasting media. Also the Internet allows a much more decentralised control on filtering content in or out. Online communication does improve access to the debate but it also

provides users with extremely effective tools to personalise it. The result might be the constitution of 'community of interest' that not only act to isolate themselves form the rest of the debate, but that also might favor internal homogenisation (Dahlberg, 2001b, p. 618). These assumptions will be tested in this research. By focusing on selected debates within the onliven the particular trajectory of the Movement significantly diverse, I assess whether homophily is in fact a recurrent feature of online political talk.

Social media services potentially allow exposure to a much broader spectrum of opinions. A number of studies have explored whether exposure, via Internet-mediated social ties (either *strong* or *weak*) to political opinions that might conflict with the subject's opinions, plays a significant depolarising role. With two experiments, Messing and Westwood (2014) have demonstrated that, on social media, 'social endorsement'—that is, approval of Internet content by someone who is known by the subject—is a stronger predictor for the selection of a news article than the political alignment of the source of the article. The authors suggests that 'social endorsements change the calculus and the heuristics that people utilize to select news in the context of social media' and consequentially because of the diversity of the user base of social media services, they conclude that 'social media should be expected to increase users' exposure to a variety of news and politically diverse information'. Similar results are found by Barberá (2014). By analysing Twitter interactions among millions of users in three countries, Barberá concludes that, first, users are connected to politically diverse networks and, second, that diversity contributes to 'political moderation'. Moreover, recent studies have also concluded that ideological homophily when it emerges is not necessarily 'symmetric'. By analysing the interactions of liberals and conservatives Twitter users, the study of Colleoni, Rozza, and Arvidsson (2014) and the study of Barberá, Jost, Nagler, Tucker, and Bonneau (2015) both concluded that differences do emerge in the behaviours of the two groups. According to Barberá et al., the importance of ideological segregation in online settings is possibly 'overestimated': even if people do tend to interact with like-minded they are not

sealed off from contacts with people holding different opinions.

But does homophily and 'enclave deliberation', necessarily exacerbate polarisation of opinions? Few arguments point indeed to the quite unintuitive possibility that deliberation also among like-minded might result in *depolarisation*. Sunstein argues that in like-minded group two factors might work against polarisation: lack of a strong sense of common identity among participants and presence of opposing subgroups within the group (2002, p. 180).

The debate on diversity is not only on empirical grounds but also on normative grounds; indeed it is contested whether heterogeneity of positions should be always considered valuable *per se*, or that heterogeneity might sometimes discourage change to the *status quo* by marginalising minority voices. Dahlberg (2007) defines the concept of *discourse* drawing it from post-Marxist discourse theory. For him discourse is intended 'as socially contingent systems of meaning, which form the identities of subjects and objects', and which are shaped by the contraposition with what is left 'outside' to it (2007, p. 835). The discourse is always the result of temporary hegemony and exclusion. According to Dahlberg then *difference* in not 'a threat to the formation of public opinion and social stability' (2007, p. 832) but on the contrary 'intra-discursive' contestation and 'inter-discursive' contestation by multiple 'counter-discourses' are a necessary condition for a truly democratic Habermasian public sphere.

In this sense, according to Fraser (1995), participants in the public sphere are not 'peers' but instead are defined by society's structural inequalities; consequentially a *single* public sphere can not fairly represent the multitude of different social instances. Vulnerable subordinated groups (i.e. women, gay, ethnic or political minorities) necessitate protection from the hegemony of the majority and consideration as 'subaltern *counterpublics*'. In other words she contends 'that in stratified societies arrangements that promote contestation among a plurality of competing publics better promote the ideal of participatory parity than does a single, comprehensive, overarching public' (Fraser, 1995, p. 291).

In the words of Laclau, 'the fragmentation of social identities and proliferation—

in a computerized civilization—of new forms of social mediation, gives democracy its specific fragility, but also its inherent political possibilities' (2000, p. 143 cited in Dahlberg, 2007, p. 836). By reframing the fragmentation debate, Dahlberg shifts the focus on three important questions: does the Internet facilitate the emergence of counter-discourses? How effectively is the dominant discourse contested? And most importantly, which one of the two possible effects of online activism is more significant: contestation of the *status quo* or 'non-engagement' with the difference (Dahlberg, 2007, p. 841)?

In this sense, particularly relevant for the debate counterpublics and online deliberation is the case of the M5S in which 'fringe positions', involving conspiracy and alternative economic theories, have found hospitality and in few cases have been sustained for years. In fact, this non-prejudicial hospitality typical of open Internet communities—in which every theory, no matter how unsubstantiated is given space—might have played a very positive role in sustaining the mobilisation of the M5S and at the time of writing still plays an important role in the identity of the Movement. For example, in this thesis, I offer the analysis of the debate for the introduction of a form of guaranteed income for all citizens, which in 2013 became an official proposal of the Movement. As I note, the debate was initiated as a form of contentestation towards the predominant economic dogma of the European Central Bank. As the debate progressed, Beppe Grillo took interest in it and fuelled it by hosting on his blog a post of a self-declared 'counter-economist'.

5. THE CASE OF THE M5S

5.1. What is it the M5S?

Both research and analysis targeting the M5S have mostly highlighted the departure from a traditional party form on at least four dimensions. First, the Movement rejects traditional left and right categories and electoral data has indeed confirmed that it is able to attract voters out of parties representing the entire political spectrum (extremes included) (Ceccarini & Bordignon, 2016). Second,

the Movement takes a radically different organisational shape, which is less hierarchically defined (no official leadership, head of local sections, headquarters) (Lanzone, 2015) and more plastic, adaptable to events and circumstances. Third, the Movement voices a radical opposition to traditional forms of political representation and is instead in favour of more extensive use of direct participation via referendum, citizen's initiative and the Internet, used as a forum for 'permanent participation' (Hartleb, 2013). Fourth, for the Movement, the Internet is not only an operational tool - to inform, organise and participate - but also a *symbol* representing the essence of democracy: freedom of expression, transparency, equality.

In parallel to the intellectual excitement for the *political innovations* represented by a Movement whose success took almost every political commentator by surprise, it is also largely recognised that the Movement is anchored to the trajectory of the Italian political and party system and that its style and vocabulary are not new in the Italian or European contexts. The rhetoric adopted by its founder (and owner of the brand) is referred to as *populist* (Passarelli, 2015) because of his recurrent juxtaposition of 'we, the righteous people' against 'them, the corrupt elite'. But is also been noted that, the label of populism is more often used by journalists and only cautiously by scholars which see some limitations to the definition (Mancini, 2015). The Movement is collocated in the tradition of *catch-all anti-system parties* (Diamanti, 2014; Valbruzzi, 2013; Bordignon & Ceccarini, 2015). In this line of reasoning, the M5S is only one of the last occurrences of anti-establishment (Hopkin, 2015) and personalistic parties (Ceccarini & Bordignon, 2016)—other parties being Forza Italia (in 1994), the Northern League, Italy of Values—and the success of the Movement derives from a crisis of political representation fuelled by pervasive perception of widespread corruption and economic stagnation. Nevertheless, as the support for the M5S has, at the time of writing, consolidated between 25 and 30% of the electorate, it is progressively more difficult to consider the Movement only in light of its anti-systemic propulsion (which I do not contest). This research wants to cast

light on the content of the debate within the Movement, which as I observe has a high practical value (*what* needs to be done), because the Movement has also—and necessarily given its electoral support—demonstrated to be propositive political actor.

Others have advanced new *ad hoc* definitions for the Movement. According to Urbinati (2013), the M5S is a 'light party' because of the absence of any bureaucratic and organisational infrastructure. For Sartori (2012), the Movement is instead a step forward. If almost all parties have became 'lighter' in the last two decades, because of television and the primacy of media communication over mass organisation, the M5S has pushed this trend to the extreme, turning into a 'liquid party'. Referring to Bauman's notion of 'liquidity', Sartori notes that if parties have progressively lost all of their weight as organisations, the M5S— which has even lost the name 'party'—is also characterised in an unprecedented way by the volatility of its policy platforms (it run in the election of 2013 with only a few pages program) and by a total uncertainty regarding its internal decision-making, where Grillo has of course a primal influence but which only selectively exercises. In the same line of reasoning, Mancini (2015) defines the M5S a 'post-party' because of its 'post-bureaucratic' form. For Mancini, the M5S is in fact the ideal type of Bimber's 'post-bureaucratic' organisation (see Bimber, 2003); thanks to the Internet the Movement can make available online a large amount of information (decisions but also documents and data) and maintain a continuous debate among interested users.

Agreement on a more comprehensive definiton charactering the M5S (clearly not only an Internet movement but neither a party in the traditional sense), which is inclusive of its different features, ought to be found by a holistic analysis of its political manifestations, both taking place *offline* in terms of the Movement's lasting political effects and *online* in terms of the consequences that the Internet crowd might have on the choices of the Movement. The definition should not only stress the transience of the M5S towards more traditional party forms, that is, outlining it as a 'movement party' (Ceccarini & Bordignon, 2016) but also as

a 'hybrid actor', mixing 'resistance and adjustment to the system' (Bordignon & Ceccarini, 2015).

5.2. What the M5S representes for political participation

The development of the M5S as a political actor has crystallised under the influence of significant trends over the last two decades. On one side, it is clearly a protest movement, with characteristics that linked it back to movements that are generally placed under the broad umbrella of anti-globalisation protest. But in its rhetoric and style, we also find populistic traits that we do not necessarily associate with any anti-globalisation movements, most notably the presence of a charismatic (and some would say authoritarian) leadership. It can be argued that what connects these two faces might be the emergence of a new cultural dimension in the political alignment of citizens, which is the product of globalisation.

The challenge in framing the M5S as political actor is that it is also an Internet party and thus the foci of political activity are exceptionally dispersed, distributed across websites and Internet services. If important themes have been developed in the literature to understand and describe emerging forms of participation and the social and political background that contributed in shaping them, what is missing is a comprehensive and longitudinal analysis of one of these new Internet-mediated actors from the perspective of the citizen-user. The analysis that I propose in the thesis tries to offer this contribution and mostly through the observation of user-generated data.

The M5S is an exceptional case study, both for its political and electoral trajectory and for its total adoption of the Internet as core infrastructure for every activity. The problem with the corpus of analysis focused on the M5S is that is too narrowly focused on the Italian case and consequentially misses important characteristics that transcend the Italian case. The specific Italian situation, a crisis and an important electoral vacuum, facilitated the coalescence of features present everywhere in Western democracies into one subject. The fact that so many definitions and framings have been proposed for the M5S, borrowed from

the Italian political traditions as well as from analysis developed from other contexts, points to a case that is multifaceted as well as relevant beyond Italy.

Chapter 3

Methods and challenges for a new kind of data

Not everything that can be counted counts.
Not everything that counts can be counted.

WILLIAM BRUCE CAMERON

Networks are the data structure of the 21st Century.

MARC SMITH

Sociology has to account for chaos and normality together.

HARRISON WHITE

In this chapter, I offer a general discussion on the quantitative data and methods that I use in the thesis. I first delineate the development of what has been called 'computational social science', an interdiscipline that brings methods (and scientists) from the natural and mathematical sciences into domains traditionally of the exclusive interest of the social sciences. Second, I present a general view of

what I deem are the defining features of the data generated from the digitalisation of lives, things and processes and their criticalities, including some reflection on the ethical questions that must be addressed when manipulating digital traces published, not always consciously by people. In the final sections, I introduce developments, potential and limits of two of the analytical toolboxes that I extensively use in the thesis—network analysis and quantitative text analysis (i.e. Natural Language Processing)—and delineate how I apply them in the thesis.

1. COMPUTATIONAL SOCIAL SCIENCE

1.1. Complexity and modelling

Computational social science is an emerging phenomenon more than a consolidated discipline or inter-discipline. Although departments and research centres of computational social science have been created and graduate programs have been developed, there is no strong consensus on its limits or on what its methodological approach should look like. What seams clear is that the focus of computational social science is the collection and analysis of data on a large scale applied to social science investigations.

The emergence of computational social science was made possible by two factors: sophisticated methods for data analysis developed in the fields of mathematics, physics, computer science and statistics and the explosion of human-generated digital data. There is no doubt that although the domain of the data and the research questions postulated by the computational social science pertain to the domains of the social sciences, the contribution of social scientists to its development has been limited for reasons that I have already detailed at the beginning of this chapter.

One of the most direct and influential contributions to computational social science comes from the *science of complexity*, which is rooted in mathematics, and its application in the late 1990s to social networks by physicists such as Watts and Strogatz (1998) and Barabási and Albert (1999) who published two highly

influential articles for the field of social network analysis and computational social science. Notably, the two articles mention no work conducted in social network analysis by sociologists with the exception of the work by Milgram (1967) and the work published by Wasserman and Faust (1994) (a statistician and a mathematical sociologist). This—along with some resentment in the community of *social* social network analysts (see Freeman, 2011)—signalled a powerful dissociation with a corpus of work previously conducted on social networks and towards a more quantitative and mathematically-driven approach to the data.

The paradigm espoused by the science of complexity is one that envisioned physical reality as made of interconnected bits forming a *complex system*. In this sense, the complexity of the system derives from the observation that the behaviour of the system as a whole is extremely difficult to understand, model and predict—if not impossible—from the observation of its individual components. Different systems on very different levels have been conceptualised as complex: ecosystems, the brain, the world wide web, and of course social networks. Because interconnectedness of its components is a defining property of each complex system, the common language of the scientists of complexity is quite naturally the language of *networks*.

Computer scientist Melanie Mitchell (2009) defines a complex system as 'a system in which large networks of components with no central control and simple rules of operation give rise to complex collective behaviour, sophisticated information processing, and adaptation via learning or evolution'. This definition introduces two critical features of complex systems, the presence of 'nontrivial *emergent* and *self-organizing* behaviours' (Mitchell, 2009, p. 13). The idea of *emergence* is foundational to the discipline and identifies a property through which from a very simple set of rules complex and hard-to-predict behaviours do emerge. In this sense the science of complexity has developed from the observation—initially treated as a curiosity by the scientific community but which then bloomed to challenge the foundations of the scientific method—that a '[s]eemingly random behaviour can emerge from deterministic systems' (Mitchell,

2009, p. 38). The idea of *self-organisation* postulates instead that the system does not require an internal or external 'controller or leader' to organise and direct its components.

A *complex system*, which as we have seen is *complex* not because its individual components are complex (in fact, they are simple and behave simply) but because of the complexity of the behaviour that *emerges* from their dynamic interactions, is particularly apt to be mathematically modelled because only a few (but precise) rules are sufficient to accurately describe the entire functioning of the system. And if a complex system can effectively be described through a simple model, its dynamic behaviour can, in effect, be synthetically replicated by computational simulations based on the same model. *Simulation* is the crucial epistemological approach of the science of complexity (and is also what helped attract most of the criticism of this science, which was accused of being 'fact-free': see Horgan, 1995 as cited in Mitchell, 2009). Indeed the development of the *sciences* of complexity, such as the extremely productive field of agent-based modelling, to cite one of the most well-known applications of the ideas of complexity within the domain of the social sciences, was only made possible by the availability of computers and consequently accelerated as computers became cheaper and powerful.

1.2.   Understand and predict

As illustrated in the previous section, the condition for the emergence of computational social sciences in the early 2000s and the growing interest that it attracted in the late 2000s was the copresence of the massive amount of digital data describing human activities and the computational methods that could be applied to mine those data. Two influential papers, published respectively in 2009 and 2012 in the form of manifestos, are helpful to understand computational social science and to provide a loose definition of its data, methods and aspirations.

The first paper (Lazer et al., 2009) published in *Science* by 15 academics from US universities with backgrounds in sociology, political science, physics and computer science, points to the potential of aggregating this new kind of data 'into

comprehensive pictures of both individual and group behaviour, [transforming] our understanding of our lives, organisations, and societies'. The paper described the new kind of data and the different technological advancements that are contributing to producing it—on a very different scale than in the past. The authors cite new technologies that are producing transactional data, such as emails, badges, mobile phones, and the Internet as a source of expressive and relational data. Accordingly, these new data offer unprecedented insights into the lives of individuals and societies and the potential for the identification of *patterns of individual and group behaviours* to 'predict' these behaviours. But the authors do not offer a clear definition of the discipline and point only to the observation that 'a computational social science is emerging that leverages the capacity to collect and analyze data with an unprecedented breadth and depth and scale'; the same capacity 'to collect and analyze massive amounts of data [which] has transformed such fields as biology and physics'. Arguably, it is to these disciplines that aspiring computational social scientists should look, for both methods and inspiration. Indeed, the authors indicate that the way forward is, at least partially, to overcome the obstacles imposed on traditional social research:

> what does existing sociological network theory, built mostly on a foundation of one-time 'snapshot' data, typically with only dozens of people, tell us about massively longitudinal data sets of millions of people, including location, financial transactions, and communications? These vast, emerging data sets on how people interact surely offer qualitatively new perspectives on collective human behaviour, but our current paradigms may not be receptive.

The second paper (Conte et al., 2012), published instead by 14 researchers (mostly physicists) from European universities, set the same two premises for the emergence of a computational social science: new data and new methods. 'First, ICT produces a flood of data. These data represent traces of almost all

kind of activities of individuals enabling an entirely new scientific approach for social analysis. Second, the development of computer capacities makes it possible to handle the data deluge and to invent models that reflect the diversity and complexity of the society'. But the analogy with the perspective presented in the paper published by Lazer et al. (2009) continues also in terms of the appeal to overcome the limitations imposed by a traditional approach to the social enquiry. Conte et al. (2012) note that '[t]heories grow slowly, impeded by entrenched assumptions and lack of data. The large-scale, founding constructs that should drive our understanding of society are debated and misunderstood. In social sciences, there is no consensus on the general mechanisms that underlie phenomena like institutions, norm compliance and enforcement, reputation, trust, etc.' In this sense, the authors recognise the exceptional contribution in addressing the unresolved questions of the social sciences that can come from this new kind of data and from 'the role of computation in inspiring, formalising and implementing the core scientific concepts, principles, and ideas of computational social science'. The observation of human-generated data on an unprecedented scale can finally help social scientists find rules, 'uncover the laws of the society', and produce 'predictive and explanatory models' that accurately describe 'the complexity of social and behavioural systems' with the objective of 'efficiently and effectively identify optimal paths for our society'.

1.3. Domain and methods

The natural domain of the computational social sciences extends over all those human behaviours, activities and dynamics, that generate digital data or that more generally can be described by data that is machine-readable and granular. The attention of computational social science practitioners is dedicated to *new* data, in the sense of data that were generated by human activities that—although not necessarily new—were digitally recorded or coded to an unprecedented level of granularity. The Internet and social media sites have been the major source of data for computational social science because of the ease of access.

But other sources have also been created and tapped (see Jungherr, 2015, pp. 29-30). Interest has been dedicated for example to the study of non-verbal communication, interactions, economic flows, migrations, civil wars with data generated 'mining reality', that is, capturing dynamic location data of people and things from phones, remote sensing or other gadgets to draw extremely accurate and dynamic maps of social networks (see Eagle & Pentland, 2006; Christia et al., 2015). New datasets (or databanks) with exceptionally detailed information on countries and societies have been created by mashing statistical data, archaeological data and importantly data coded by experts. Among the many examples of expert-coded datasets, there are the Militarised interstate dispute data (Palmer, D'Orazio, Kenwick, & Lane, 2015) and Seshat, a databank aggregating detailed information on social and political organisations in societies throughout history. Finally, growing interest has been attracted by the digitalisation of historical records such as books, documents produced by state institutions such as parliamentary documents, and newspapers.

The methods of computational social science are effectively summarised by Cioffi-Revilla (2010):

- Automated information extraction (including Natural Language Processing (NLP))

- Social network analysis

- Geospatial analysis (through the use of geographic information systems)

- Complexity modeling

- Social simulations models (including agent-based modelling)

1.4.   A different kind of complexity

A possible definition for computational social science is 'integrated, interdisciplinary pursuit of social inquiry with emphasis on information processing and

through the medium of advanced computation' (Cioffi-Revilla, 2010). Proponents of the formalisation of a discipline around the data and methods of the computational social science have been setting extremely ambitious goals. By means of computation, information that used to be inaccessible—because it did not exist or was not in a machine-readable format—has the potential of becoming knowledge, understanding of rules regulating the human endeavours. New information (which is large and granular) combined with sophisticated quantitative methods and unprecedented computer power will purportedly allow unveiling of the mechanisms, laws, patterns that move people and societies.

The social sciences have failed to do this because they missed the data (not the methods, which were in most cases already available). But because they have been focusing on methods and perspectives shaped by data that were limited in scale and static, they now need to rethink their approach to overcoming the limits that those methods and perspectives impose (Lazer et al., 2009). The non-computational social sciences do not reason in terms of mathematical models but mostly through descriptive contextualisation and interpretation of individual instances of phenomena of interest. But because new data is available, which is granular, large in scale and dynamic, the attention must move from the detailed description of the micro to the modelling of the macro, the only level of analysis that will allow the observation of laws governing individuals and their aggregates.

The ideas that shaped the development of the science of complexity—and which permeate the computational social science—such as the idea of emergence or the idea of self-organisation are clearly immensely fascinating for political scientists observing the development of new forms of Internet-mediated political organisations. Nevertheless, a critical assumption for the study of a complex system is that the system can be reduced to a simple set of rules that govern its complex dynamics. And this assumption must induce some perplexity in any attempt to apply it to human endeavours. For example, whether or not processes of political engagement and participation are determined by rules or laws (see Conte et al., 2012) and whether (if they are) these rules are simple enough to be

described mathematically is clearly highly debatable.

But the problem is also lexical. The debate within the computational social science, necessarily an interdisciplinary enterprise, has been so far dominated by the methods more than by the subject of investigation (people and societies). This has allowed some vocabularies to be applied acritically to totally different fields of investigation. For example, the idea of *contagion* is very popular in social network analysis. Contagion is the mechanical transfer of some attribute through exposure. In the context of networks, in which individuals are precisely related to one another, contagion is a powerful idea. But if in epidemiology the contagion of an organism can be estimated probabilistically based on precise pre-existing conditions, to talk about contagion from exposure to political ideas assumes that the researcher is in fact in the position of understanding, given sufficient information on dynamics and relations, what determines the political opinion of any individual at any time. But clearly, if the classification of any individual as infected or non-infected is objectively provable, the classification of an individual based on her political opinion is clearly very much *subjective* and *contextual*: a left-right spectrum would be risible if applied to the population of rural Afganistan.

2. A new kind of data

2.1. Size and complexity

With the digitalisation of social activities (from phone calls to tweets, from bus trips to page views), a process that has touched virtually every aspect of our lives, social scientists discovered that the problem of data scarcity (when data was expensive) had been replaced with a problem of data abundance. In fact, social scientists came late to this realisation and, as I describe in the next section, scientists from other disciplines, such as computer science and physics, moved first onto the new data. The reason for this delay is mostly explained by two features that characterise this new kind of data: their *size* and their *complexity*.

The *size* of the new data is larger, much larger, than anything used before in the social sciences. Before the massive process of digitalisation of human artefacts, interactions and behaviours—n, the number of observations used in the analysis, was usually in the range of a few hundred and only exceptionally included thousands of observations. Since size is usually elevated as the defining feature of the new data, they are commonly referred to as 'Big Data'. Among the many definitions of Big Data, one of the most popular is that of the United States *National Science Foundation*: 'The phrase "big data" refers to data that challenge existing methods due to size, complexity, or rate of availability' (National Science Foundation, 2014). This definition is interesting because it also identifies additional challenges derived from working with this kind of data.

Size is probably the easiest of the obstacles to overcome. Thanks to the massification of personal computers and the ubiquity of microchips, the capabilities of a laptop are sufficient to open and manipulate very large datasets. For example, a dataset with two variables and one million observations can be stored using only 16MB of memory. The second feature characterising the new data is instead much more difficult to overcome and is the *structure* (or lack thereof) and consequent *complexity* of the data. Because of their generative process and rate of accumulation, the new data can be extremely complicated to read. For example, the entire 'dump' of the Italian version of Wikipedia, which I use to conduct a semantic analysis of tens of thousands of posts and comments, has a size of 2.2GB and can be easily downloaded and stored in few minutes. But access to the information contained in the data requires knowledge of the data schema and format (which define how the data is structured in the data file) and of parsing techniques to retrieve information from millions of lines. In addition, the new data challenge established approaches of social scientists to data because of their multidimensionality. Traditionally, quantitative methods applied by social scientists implied data in two dimensions: observations and variables. But the shape in which new data is stored is generally optimised to increase computational speed and not to facilitate human reasoning and understanding

of the information contained in the data. And this requires reshaping of the data before the analysis or the application of quantitative methods that can deal with multidimensional shapes, such as network analysis.

To increase the complexity and readability of this new kind of data, although new data are *digital* and by definition machine-readable (with virtually no exception), they are not necessarily structured so as to facilitate targeted information retrieval. For example, the archive of a newspaper can be digitised and made accessible to Internet users but, even assuming that the digitised pages are text-searchable (which required them to be processed with an optical character recognition algorithm), crucial information such as titles, dates and authors of articles might not be easily parsed from the document and required the formulation of complex search patterns. Another example is the data contained in HTML documents, the file format for webpages. HTML documents are by definition structured to be read by browsers but the information visualised by the browser is not. In this thesis, I use web data produced by the users of the blog of the founder of the M5S but in order to extract the information of interest and store it, such as the content of postings (including comments), their date of publication and the name of the author, I had to specify the search patterns that identify the corresponding part of the document.

2.2. Expressive, transactional and relational data

The growing universe of sensors and devices generated a stream of data that can be divided into three broad categories: machine-generated data, nature-generated data and human-generated data. Although social scientists might also have an interest in nature-generated data, it is clear that the main interest for the social sciences lies in data that are the (direct or indirect) product of human activities. It is possible to identify at least three types of human-generated digital data. The human-generated data that are richest in meaning are what I refer to as *expressive data*. Examples of expressive data are texts (such as posts, comments and tweets), pictures, videos and audio recordings (such as podcasts) but also (although

intrinsically less *meaningful*) the actions of liking or sharing somebody else's content. Expressive data are consciously produced by users with the primary intention of being consumed in their format by other users.

The second type of data is *transactional data* (Manovich, 2012), which are much 'thinner' in terms of meaning but still of extreme interest to the social scientists, especially in aggregate form. Classic examples of transactional data are logs of phone calls, web searches and also public transport trips. Transactional data are not produced by users to be consumed by other users but are rather traces left behind (consciously or not) as a consequence of some action.

The final type of data is *relational data*. This type of data shares some commonality with the transactional data in the sense that they can be intended as traces left behind—again, consciously or not—by users as result of some action but they differ because importantly they allow the inference of some sort of relation—even though it might be difficult or impossible to *qualify* the value of the relation—among individuals. boyd and Crawford (2012) refer to relational data as *networked data* and propose a further distinction. They define *articulated network* data as data that 'result from people specifying their contacts through technical mechanisms like email or cell phone address books, instant messaging buddy lists, "Friends" lists on social network sites, and "Follower" lists on other social media genres'. *Behavioural network* data is instead data that is generated from the purposeful communicative interaction between at least a pair of users. Importantly, although the dataset accessible to the researcher might not include the content of the communication, some sort of content or message must be exchanged by the users. Behavioural network data—which might be directed or undirected but must identify at least a pair or users involved in the exchange—are for example data on phone calls, emails, and the large family of messages exchanged among users taking place on webpages or within social networking platforms.

The definition of three types of data (expressive, transactional and relational) is important more to understand the purpose of the data for the researcher than

to frame why and how the data were actually generated. In other words, the three typologies are not exclusive and it is easy to imagine that the same data could be assigned to more than one typology. For example, in the thesis, I use data obtained from Meetup.com on events organised by the M5S. The data include the venue of the event, the date, the topic and crucially the list of users who registered for the event. Although I mainly use them as transactional data, to quantify spatially and longitudinally the mobilisation of the M5S, it is certainly possible to also use them as relational data if we assume that those users by participating in the same onsite event entertained some sort of relation. Another example, which is implicit in the definitions of the different data typologies, involve data on comments that users might post *in reply to* somebody's else posting. These data are clearly both expressive and relational but the adoption of one or the other typology has an implication for the class of analysis that will be conducted.

2.3. Objectivity, interpretation and aggregation

The acutest critique towards this new kind of data concerns the claim of *objectivity* (boyd & Crawford, 2012). Boyd and Crawford raise an important issue when they question the objectivity claims of Big Data practitioners. They rightly point to the fact that a social researcher always *interprets* the data, independently by the scale of the dataset or by the precision of the sensor that captured the data. Also, the fact that data need to be cleansed before use through subjective choices (deciding what to keep or what to discard) invalidates by definition any objectivity claim (boyd & Crawford, 2012, p. 667; see also Mahrt & Scharkow, 2013). In respect to interpretation, another challenge for the social researcher is to estimate how *representative* are users in terms of the population of interest but also how representative are the observed communicative exchanges if compared to the entire flow of communication between people, which certainly takes place on multiple platforms (e.g forums, Twitter, Facebook), on multiple media (e.g. Internet, SMS, phone, face-to-face) (Tufekci & Wilson, 2012; Tufekci, 2014a) and in multiple contexts (i.e. public and private). Indeed, '[m]ethodologically,

single-platform studies can be akin to looking for our keys under the light. [...] Sometimes, the only way to study people is to study people' (Tufekci, 2014a, pp. 5-6).

A related problem is the availability bias. Most of the research on online communication concentrated on a single medium: Twitter. According to the already cited paper by Tufekci (2014a) about half of the papers presented in 2013 at the International Conference on Web and Social Media (ICWSM) were solely based on Twitter data. The reasons for the popularity of Twitter are twofold: first, the large majority of content published on Twitter, including information on users (e.g. location, description, friends) is public and, second, Twitter offers an easy programmatic access to its data with very few (and mostly negligible from a research standpoint) limitations. But, as a matter of fact, Twitter has not only a fraction of the user base of Facebook but also less users than other social media services such as Instagram, Pinterest and Linkedin. Recognising that in the case of the M5S the activity of users is distributed across multiple services and websites, this thesis is not based on user data collected from a single source but from multiple sources, some of which although popular are not sufficiently studied (e.g. commenting sections) because of the inherent difficulty of parsing data from HTML pages (see Table 3.1 for details on sources and data collection techniques).

The claim of objectivity is also problematic because when a researcher harvests the Internet for user-generated data (expressive, transactional or relational), he or she is rarely in a position to be able to assume absolute completeness and validity of the data. In other words, the objectivity of methods and results are invalidated because a bias is introduced by the non-random absence of bits of information. For example, data used in this research include the postings (i.e. blog posts and comments) published on beppegrillo.it between 2005 (dates of the first post) and 2015. But nothing guarantees that all comments ever published in response to Grillo's own postings are actually present on the website at the time of the data harvesting in their original form; they might have been removed or edited

by the administrators of the website or by their respective authors. If a service such as the *Wayback machine*[1] of the Internet Archive allows the appearance of popular webpages to be controlled (between October 2000 and November 2016, beppegrillo.it was saved 1,913 times by the Wayback machine), it is impossible to do so when the comments published are in the millions. The issue of completeness and validity clearly applies also to all data generated within social networking services such as Facebook, Twitter and Meetup. But a researcher should also reflect on the fact that most user activity might actually be inaccessible because it takes place in private sections of the service (see Margetts et al., 2015, p. 225), because a service artificially restricts the amount of information it is willing to share through its APIs or simply because of errors generated somewhere in the pipeline that requests and transfers the data from the data provider to the researcher's database. In this sense, the biggest challenge for the digital data researcher is that if on one side it is possible to reasonably assume that the data are only partially complete, on the other it is not possible to quantify (or qualify) how much is actually missing.

Another potential fallacy of the observer of online social interactions is to assume that *behavioural* networks, that is, those networks derived from traces left by the use of communication technologies, might correspond to *personal* networks (boyd & Crawford, 2012; on 'hyperlink interpretability' see Park & Thelwall, 2005; Freelon, 2014). Clearly, the interpretation of the value or meaning attached by each user to his or her online actions is highly problematic, and measuring the frequency of each connection, or the strength of the tie, does not necessarily facilitate its interpretability (boyd & Crawford, 2012). Indeed, frequency does not translate into importance when communication has no cost.

Boyd and Crawford (2012, p. 666) seem to link the vulnerabilities of Big Data analysis to a more general critique raised by Latour (2010) towards the tendency of the social sciences to consciously move in the direction of a *quantification* of the discipline; or in his own words 'to drown individual contributions into statistical

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[1]https://archive.org/web/

means' (2010, p. 153). Yet Latour is not against quantification *per-se*—in fact, he is quite enthusiastic about the opportunities of following digital social traces (2010). What he criticises is the *type* of quantification that focuses on the aggregate level (that is, society) instead of searching for a quantitative evaluation of the individual.

> The situation of the natural sciences, where individual variations remain inaccessible to any direct inquiry and are far too numerous to record, is in no way the same as for the social sciences. For human societies, there is no reason to limit quantification to only some of the ways of doing statistics. (Latour, 2010, p. 152)

2.4. Ethical considerations

The collection and use of this new kind of data bring new ethical considerations into play (see boyd & Crawford, 2012). The first question concerns clearly who or what should be treated as the *owner* of the data produced by users on proprietary platforms such as Facebook but also on websites published under a creative common licence (such as beppegrillo.it at the time of my data collection). Is it the *platform*, which provided software and computing resources, or the *user*, who actually created the information based on his or her persona, that owns the data? There are few doubts that in the majority of cases, from a legal perspective, it is the platform that owns the content with the agreement of the user (who clearly must agree to the policies of the platform in order to use it). But from a research ethics perspective, it is clearly the person behind the user that must be safeguarded by the researcher. In other words, the fact that some research practices are respectful of policies established by the legal owner of the data (e.g. a corporation, a not-for-profit foundation, a private individual) does not make them ethical towards those persons who are actually described by data. In fact, from a research perspective, it is probably more correct to consider the person behind the data as the actual owner of the data and the platform as a

lawful administrator, as hospitals are of data produced through examinations of patients.

Additionally, when dealing with data generated by Internet users, at least three classes of issues that should generate reflection by the researcher might arise. First, the concepts of *public* and *private* implying that, contrary to private data, public data, which is defined by the fact that is publicly available online (that is, non-password protected), can be stored and publicly discussed without explicit consent from data producers, must be reconsidered. Second, although users acknowledge that every interaction they perform on platforms such as Facebook, Twitter, Meetup and Disqus (responsible for the commenting system on the Forum of the M5S) is recorded, they also know that each action can be edited or deleted, this implies that even assuming that a user knows what is public and what is private, every public action must be considered only as *temporarily public*. Third, *aggregating* data produced by different users, at different times or on different websites can provide a high level of detail—much higher than possibly realised by those who created the data in the first place.

These issues generated a number of ethically relevant consequences. First, online postings should not be considered as public as, for example, readers' letters published by a newspaper. In my opinion, they are public in the sense that they are relevant to specific research interests, but not necessarily a public representation of the person behind the user. Indeed, if platforms allow users to delete at any time their postings, a researcher should not apply a different standard and ask users to be accountable for what they posted at the time of data collection. Moreover, exchanges taking place online are usually intended as a reaction to something or somebody (I reply to somebody, I link something); even if they are published on a publicly accessible section of the Internet—something that in theory active users should acknowledge—the researcher should probably recognise that for those involved these interactions might, in fact, represent not a series of statements to the world but intimate exchanges among visible participants.

Second, by aggregating data from different sources and from different times, the researcher necessarily breaches whatever 'agreement to publicity' is implied in any individual action by the user. That is, even assuming that a user might have implicitly accepted the scrutiny of his or her (published) actions being scrutinised by anyone, it is much harder to argue that the same user has also implicitly accepted the tracking of his or her behaviours across platforms and across time. A number of studies have pointed to the possible unforeseen and grave consequences of data aggregation. For example, Sarigol, Garcia, and Schweitzer (2014) shows that by aggregating the complete relational data of users of a social networking site, it was possible to infer the sexual orientation of those who decided not to disclose it by comparing their position in the friendship network with the position of those who decided to reveal their sexual orientation.

In this thesis, I respond to these issues by refraining from singling out postings or any other interaction, in other words to link any individual record to a specific user, with the only exception being the case of users who can be clearly linked to persons of public relevance (e.g. member of the leadership of the Movement, politicians, journalists, academics). In fact, data are mostly presented in aggregated form and individual users are never mentioned. In my research, I do aggregate data from different sources and I do track the behaviour of users across time. But again, results are always presented in aggregate form—that is, I always describe the crowd of users and not single users—and in fact, no user's name is ever mentioned or information data that could point to an identification provided.

2.5. What data is used in the thesis and how

In the previous section, I highlighted important issues and potential fallacies that must be addressed when reading Internet-generated data. Indeed, because of these issues, the data that I use in this research are all susceptible to being misused. In this section, I present how I address them in my approach to data analysis. The sources of data will be presented in more detail later, but it is

still important to briefly mention them here. Most of the analysis is conducted on data from two sources: Grillo's blog and the Forum of the M5S. Data from these sources are treated in depth as transactional, relational and expressive data in order to quantify trends and model relations among users and discussion topics. Data from Meetup.com are treated exclusively as transactional as I am interested in understanding the mobilisation of the M5S in quantitative terms. Data from public Facebook pages pertaining to the Movement are treated as transactional and expressive (but only limitedly and to validate insights from other data sources). Data from newspapers and from the parliamentary archives are treated as transactional data since I am interested only in the frequency of occurrences.

Assumption of incompleteness and use of multiple sources As previously noted, I always assume that no dataset is complete and then absolutely objective in representing a picture of the phenomena I describe. In all the data I present, bits are missing because they have been deleted or because I cannot access them (see Ruths & Pfeffer, 2014). Sometimes I know what is missing (e.g. because a group of M5S militants on Meetup.com has explicitly opted to protect information from disclosure to non-members) and sometimes I do not (e.g. in the case of deleted comments of Facebook posts). In my research, I confronted two types of missing digital data: traces such as postings and likes that were removed or altered individually by the author or by the page administrator and traces that were removed or made inaccessible en bloc.

I argue that especially since the number of postings in the data is so large and so diverse, they can be considered to be fairly representative of a multifaceted debate that I assumed occurred within the Movement in the period under analysis.

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[2]Since mid-2012 the Forum has been using Disqus as commenting system, which offers an API.

[3]SPARQL is a query language to request linked data in a Resource Description Framework (RDF) format. The web sites of the Chamber of Deputies and the Senate of the Italian Parliament both provide SPARQL endpoints to access their RDF data.

source	collection	data	transactional	relational	expressive
beppegrillo.it	web scraping	posts	ts		top, sem
beppegrillo.it	web scraping	comments	ts		
beppegrillo.it/ listeciviche/ forum	web scraping and API requests[2]	comments	ts	net	top, sem
facebook.com	API requests	posts	ts		top, sem
facebook.com	API requests	comments	ts		
facebook.com	API requests	likes	ts		
meetup.com	API requests	groups	ts, geo		
meetup.com	API requests	members	ts, geo		
meetup.com	API requests	events	ts, geo		
change.com	API requests	signatures	ts		
repubblica.it	web scraping	news articles	ts		top, sem
corriere.it	web scraping	news articles	ts		top, sem
camera.it	SPARQL requests[3]	documents	ts		top, sem
senato.it	SPARQL requests	documents	ts		top, sem

ts*: timeseries analysis;* net*: network analysis;* top*: topic analysis;* sem*: semantic analysis;* geo*: geographic analysis.*

Table 3.1: *Sources of original primary data used in the thesis and their application*

Evidence does not suggest that postings challenging the view of the leadership of the Movement or of Beppe Grillo himself might have systematically being deleted: in fact, there is an abundance of them in the data I collected. This motivated me to ignore the first type of missing data.

More problematic were the limitations imposed by privacy settings on Meetup.com and by Meetup users who cancelled their registration, thus deleting en bloc all their traces (registration date and participation in events). This information cannot be treated as marginal or random because the decision of a group to fence information off or of a user to abandon the platform might be motivated by relevant political considerations and—crucially—not being randomly distributed in the population. To address the problem of data completeness, I compare insights and patterns derived from the analysis of multiple sources and from secondary data such as surveys, polls and news media analysis.

Contextualisation Most of the digital data used in this research are *thin*, that is, although they are collected on a very large scale they individually provide only tiny bits of information. The most characteristic examples, to which the literature as described in the previous chapter has dedicated considerable attention, are the 'tiny acts of political participation' (Margetts et al., 2015) such as likes and retweets that literally require only a click. These traces contain a very limited amount of information: who liked what (and sometimes when). By aggregating these *thin* traces, the researcher can gain interesting insights but only if the emerging pattern is properly contextualised and triangulated with environmental knowledge. Indeed only contextualisation can help in dealing with the absolute lack of information on the meaning that each user attached to the action.

For example, it is clear that the action of registering a member for one of 'meetups' linked to the M5S might have different meanings and motivations depending on whether it happens in 2005 (when the Movement took its first steps) or in March 2013 just after the success in the general election. Margetts et al. (2015) have experimentally determined that personality and social information

(that is, information on what other people are doing) play a role in shaping the trajectory of online political engagement and different people will engage for different reasons at different times. Consequently, although a registration that takes place in the early days is accounted as qualitatively identical to a later registration, only contextualisation will provide different meanings for (and insight into) the two acts.

The context for the analysis of any particular bit of information in the data can be provided by secondary data but also by other primary data. In my research, I leverage expressive data such as postings to contextualise thinner data. For example, I often refer to the analysis of Grillo's blogposts—both analysed individually and in aggregate through topic modelling techniques—to provide a context for the different phases of the political enterprise of the M5S. In this sense, contextualisation plays a crucial role in Chapter 6 in which I assess the impact of the discussion on the Forum of the M5S relative to the broader national debate on a selected issue. By itself, the attention dedicated on the Forum to the issue does not indicate whether the interest is dependent or not on the attention dedicated to the same issue on a national level (i.e. by the media and by Parliament) and only contextualisation can assess the direction of the vector of influence.

Variations of focal length   Digital data is tight in terms of meaning but rich in terms of granularity. Each data point from a digital dataset provides usually only a very limited amount of information—which in fact is mostly useless without a thick layer of contextual information—but very detailed and precise. Among a huge crowd of users that more often than not is measured in hundred of millions of individuals, we know exactly who is related (or 'friend') to whom although we ignore the actual meaning of the relation. Because of this characteristic, the natural way of using digital data would seem to be at the aggregate level. But although I do conduct analyses of the data at the aggregate level, I also integrate them by varying the focal length of analysis and reducing the angle of view to exclude most of the data. The use of aggregation is in fact particularly problematic

as many have identified an increase in the individualisation of behaviours—in part also driven by the same technologies that are responsible for producing the data. In order to focus on a more limited number of data points and map their interactions, I leveraged two data analysis techniques (which I detail later in this Chapter) that have been largely applied to digital data: text analysis applied to expressive data and network analysis applied to relation data.

3.   NETWORK ANALYSIS

3.1.   A research paradigm, not a theory

Social networks analysis is a structural approach to the study of different social phenomena with applications that range from sociology to psychology, from economics to political science. Simply, the interest of the social network analyst is more focused on the *relations* among social actors—either people or groups of people—than on the individual actors.

A key aspect of adopting a network approach to data is provided by Marin and Wellman (2011, p. 22)

> Social network analysis is neither a theory nor a methodology. Rather, it is a perspective or a paradigm. It takes as its starting point the premise that social life is created primarily and most importantly by relations and the patterns they form. Unlike a theory, social network analysis provides a way of looking at a problem, but it does not predict what we will see. (Marin & Wellman, 2011, p. 22)

Taking social network analysis as a *theory* (e.g. the Earth revolves around the Sun) that mechanistically explains social phenomena instead of an *observational tool* (e.g. the telescope) is particularly troubling when applied to digital *relational* data, which is available on a massive scale and can easily fit whatever model a social network analyst might decide to adopt. That is, the observation of the 'relation' between two users, who happened to have commented on the same

blogpost, per se does not *explain* anything, and neither does the observation that a few users will tend to be responsible for most of the commenting and a few postings will attract most of the comments. These are insights (that is, *patterns*) provided by network analysis but their meaning and relevance strongly depend on theory. When data are digital traces, left behind by users as they click (or tap) around, a *relation* linking two actors must be assumed as neutral and it is generally wrong to read it a priori as social affinity or closeness. Only contextualisation can provide meaning, and only a theory can provide an explanation of why we observe some patterns in the relation among users.

Mathematical research on network properties—to which also social scientists have contributed—has provided *social* network analysis with an extremely diversified set of analytics and modelling techniques, which I summarise in the next section. This necessarily introduces into any data-driven research the issue of 'model dependency'. As correctly pointed out by Ho, Imai, King, and Stuart (2007), '[s]ome researchers surely respond to this diversity of possible models by inadvertently choosing specifications that support their favoured hypotheses' (p. 221). There is no doubt indeed that this is especially problematic when the network analysis is based on data that are big in volume but thin in meaning, as data based on digital traces usually are.

Social network analysis developed based on data collected through direct observation by the researcher or by self-reporting of the actors making up the social network. Relations based on transactional data (e.g. emails, tweets, social media friendship) requires more caution and a stronger role for the theory supporting the analysis for two reasons. First, as already mentioned, we do not know what the relation means for the actors involved and the fact the relation exists does not imply that both the actors involved acknowledge it. Second, if the process of drawing a social network always implies to compress the differences qualifying the relationships among actors—although ties can be weighted, in a network a relation either exists or not—in social networks drawn on digital data the level of compression, by flattening information, happens on a much larger

scale.

3.2. The field and its toolbox

Freeman (2004, p. 3), an influential social network analyst, argues that the field has consolidated around four defining features.

1. Social network analysis is motivated by a structural intuition based on ties linking social actors,

2. It is grounded in systematic empirical data,

3. It draws heavily on graphic imagery, and

4. It relies on the use of mathematical and/or computational models.

That is, with a structural perspective on social interactions, social network analysis models observational data—indeed, a large family of observational data—into visual and mathematical representations. The building blocks of any social network analysis are dual: *nodes* or vertices, which represents the set actors or groups of actors under empirical investigation, and *ties* or edges, which represent the set of relations connecting the same actors. That is, a node is connected to other nodes only via ties.

If social network analysis has been applied in different fields and to support different theories, the focus has always been on *detecting patterns* first to identify defining characteristics of the network under observation and second to compare it to other networks. The methodological effort of practitioners of social network analysis has been concentrated in three areas: *network measures*, *substructure detection* and *network formation*.

Network measures can either be *global*, describing properties and features of the whole network, or *local*, describing individual network components. The ability to measure is essential to describe the network and its parts, nevertheless

what to measure and how do it is not trivial. The number of measures and metrics proposed in the literature is large and growing fast. Although few basic network statistics, which I present here, have been consolidated, the frontier of the body of social network measures is constantly expanded by the need to capture well-known characteristics in new ways or new characteristics as the complexity of the network abstractions increases, such as with multidimensional or dynamics networks.

The most basic measures are those that measures that define the *size* of the networks. Unfortunately, no agreement has emerged on whether to consider the number of ties or the number of nodes as the *n* of the network. Another measure qualifying the size the network that has being proposed is the *diameter* of the network, which captures the longest *shortest path* we can find in a network. In network terminology, a *path* is a series of ties connecting a pair of nodes; if the nodes are not directly connected by a single tie, the path will necessarily touch on other nodes (it is, of course, possible that no path actually exists if the two nodes belong to different *components*.) Of all the paths connecting two nodes, the shortest is the path with the lowest number of ties. The longest shortest path in a network is thus the path connecting the two most distant nodes and provides non-trivial insights into its structure.

Most social networks, independently of their size have been observed to have a *very short* longest shortest path. In a famous experiment, by asking random participants to hand-deliver an envelope only through personal connections, Milgram (1967) found that the median number of intermediaries who connected any two people in the United States was only five. Although the experiment has attracted some criticism (for example, Milgram did not account for the envelopes that never reached their final destination), the so-called *small-world* property identified in the experiment was observed in almost every social network and mathematically modelled in an influential paper by Watts and Strogatz (1998).

If *global* properties of networks shape their overall structure, *local* properties are helpful to describe the role of single components of the network in relation to

other similar components. A large family of metrics tries to capture the centrality of a node relatively to all the other nodes. The most trivial statistics of network centrality are measured in the immediate neighbourhood of a node and is its *degree* or the number of nodes to which a node is directly linked to. If the network is directed, that is, if ties have an origin and a destination, the measure of degree can be expressed in terms of *indegree* and *outdegree*, counting respectively the incoming and outgoing connections to and from each node.

The degree distribution of a network has attracted substantial attention in the literature. A property that has been often observed in social networks—and almost systematically observed in Internet-mediated social networks—is the property of *preferential attachment* (also known as the *Matthew effect*, from the Gospel of Matthew in which the parable of the talents is narrated) prescribing that important nodes will tend to attract more attention than other nodes thus becoming exponentially more important. In a landmark paper, Barabási and Albert (1999) describe the mathematical characteristics of what they call 'scale-free power-law distributions' generated in random networks through preferential attachment. They convincingly argue that preferential attachment is responsible for generating similar scale-free degree distribution in many real networks, including networks of hyperlinks. Barabási and Albert (1999, p. 510) write that

> large networks self-organize into a scale-free state, a feature unpredicted by all existing random network models. To explain the origin of this scale invariance, we show that existing network models fail to incorporate growth and preferential attachment, two key features of real networks.

Long tail (because of their density plot) degree distributions are also found in the Internet-mediated social network data analysed in this research. And they raise interesting questions on social behaviours to which satisfactory answers are yet to be found. If it is not difficult to explain why someone is more likely to comment on to a very popular post (e.g. the post can be interesting or served

to users in a relatively more prominent position). But less obvious is why the volume of the activity of users, measured for example by the number of posted comments, also tends towards a power-law distribution, with the number of users posting n comments varying almost as the negative power of n. In other words, if it is reasonable to assume that different users will have a different level of involvement, it is not clear why the decay is so regular and exponential.

The *degree centrality* determines the 'importance' of a node based on the number of its immediate connections. Nevertheless, degree centrality does not provide any hint on the position of node relative to the broader network. And the relative importance of an actor in a social network usually not only depend on the number of immediate connections. In this sense other measures of node centrality have been proposed (for a detailed description see Newman, 2010, Chapter 7) that capture the importance of the nodes to which a node is connected (*eigenvector centrality*, *Katz centrality* and *PageRank*), the average distance of a node to each other nodes (*closeness centrality*) and the number of shortest paths that transit through each node (*betweenness centrality*), which gives an idea of how important a node is in connecting different regions of the network.

A property commonly found in social networks is the propensity for the friends of someone to also being friends among themselves. The measure that captures this local property of nodes is the *clustering coefficient*, which is the proportion of the connections that are observed in a node's neighbourhood and the number of theoretically possible connections—which of course depends on the number of actual neighbours. It is not difficult to imagine why a network of social relations will tend to have a high cluster coefficient—people are driven together by geographic constraints and by cultural and social commonalities. But Internet-mediated social networks present the user with many fewer constraints (physical distance does not matter) and it is possible to argue that clustering coefficients are less effective as measures of sociality when new social ties are less and less dependent on the structure and reach of already existing ties (see Rainie & Wellman, 2012).

Network substructures are groups of nodes that can for some structural reason be set apart from the rest of the network. The interest of social network analysts in finding *communities* in the network based on precise structural properties cannot be overestimated. But the interest in community detection—possibly the most active subfield in network science if we consider the hundreds of community detection algorithms proposed in the literature (for a review see Fortunato, 2009)—goes well beyond social network analysis and has, in fact, crucial applications in almost every network analysis.

When approaching the problem of partitioning a graph there are two possible solutions. The first solution involves simply separating nodes into *cliques* or *components* based on whether they are connected to others or not. The second solution instead separates nodes into *communities* based on specific structural properties in the connecting patterns. If cliques and components are well-defined concepts in network science (given a network, two network scientists will identify the same cliques and components even if they choose to apply different algorithms) communities are not because no natural definition exists of what a community should be.

Network formation is the process through which the network assumes its observed structure. The understanding of such a process passes through the construction of a theoretical model that is able to replicate the features of interests observed in real networks. Network modelling is a key epistemological approach of network science and has proven to be able to provide fundamental insights into the development of our understanding of naturally occurring networks.

A model is a randomly generated network or a *random graph*. It is clearly possible to calibrate the generative process by modifying its parameters to produce specific outcomes. The most simple version of a random graph is a network generated by specifying only three parameters: the number of ties, the number of nodes and the probability of observing a tie between any pair of nodes. More sophisticated models take into consideration network characteristics and vary the

probability of observing a tie accordingly. The literature has proposed a number of theoretical network models that are invaluable tools for network analysts. Networks are abstract representations and difficult to interpret in the absence of benchmarks for comparison. In this sense, theoretical network models provide the researchers with a large family of randomly generated networks that can be compared with the observed networks.

For example, in the networks connecting users and discussion threads (see Chapter chapter 5) I find that both the indegree and the outdegree distributions of users are long-tailed distributions significantly similar to those generated by the scale-free power-law Barabási and Albert (1999) model or 'preferential attachment' model. Also the model proposed by Newman (2002), based on the observation that some networks do feature assortative mixing tendencies, offers important insight that can help to explain why I often observe in Interner-mediated social networks the emergence of giant components of connected nodes.

Finally, in this research, I apply a family of models called Exponential random graph models (ERGMs) (Lusher, Koskinen, & Robbins, 2013). The intuition behind ERGMs is that every network that we observe is one realisation among all possible realisations given the structure of the network. In its basic formulation, an ERGM defines a set of possible networks and determines the probability of observing each network in the set. Again, intuitively, we might assume that if we observe a social network with n nodes and e ties and define around this network a set of possible network realisations, the probability of randomly drawing from this set a new network with a number of edges similar to e is higher than the probability of drawing a network with a much lower or higher number of edges. This, of course, is a consequence of the crucial assumption that social networks are *not* random but constrained in their formation by some characteristics. In this sense, the probability distribution over the possible network realisations acts as a constraint that allows us to estimate the answer to precise questions on the structure of some observed network. In the words of Newman (2010, p. 570)

the exponential random graph model enables us to answer questions

of the type, 'If I know certain things, A, B, and C, about a network, what is my best estimate of some other thing D?' For instance, if I know the average degree of a vertex in a network, what is my best estimate of the degree distribution? Or the clustering coefficient? The exponential random graph gives a rigorous and principled answer to questions of this kind.

3.3.   Pre-computational network analysis

In this and the next section, I describe the historical trajectory of the development of social network analysis. The interest is not in providing a comprehensive review of contributions and contributors but in listing some of the building blocks on which social network analysis stands today. A significant divide emerged in the late 1990s when a number of natural scientists (especially physicists) added a significant series of contributions to the field based on computational simulations of random graphs.

Network analysis, intended as a representation of 'shape and characteristics of social structures', has been applied as a tool for social inquiry since the 1930s (Carrington & Scott, 2011). The insight that made possible the formulation of a network approach for the description of a group of individuals was that—although relations among people were (and are) intrinsically different—it is difficult to imagine that any two *personal* relations might have the exact same meaning for the people involved, they could be simplified into a binary classification: whether or not there is a relation. By compressing the quality of relations into a dichotomous variable, the abstraction of a social structure represented by points and lines (that is, people and their relations) is possible along with the mathematical representation of the resulting structure.

The first formalisation of the concepts of *sociometry* and *sociogram* was proposed by J. L. Moreno (1934), a sociologist and psychiatrist. Accordingly the 'principal concern [of *socionomy*] is with the intricate interrelations of various groups and their activities and the way in which these activities affect the welfare

of the community' and the 'part of socionomy which deals with the mathematical study of psychological properties of populations, the experimental technique of and the results obtained by application of quantitative methods is called *sociometry*' (p. 10). Moreno introduced the concept of *network* to describe the relations among individuals (but see also Lewin, 1936 as cited in Carrington and Scott, 2011) and its visual representation. One of the many network diagrams drawn by Moreno is reprinted in Figure 3.1. Each node represents a child (circles are girls and triangles are boys) and each directed line the 'attraction' of one towards the other as observed by the researcher. Notably, this kind of visual representation has persisted through the decades and is still largely used (also in this thesis).

The interest behind the representations of relations among individuals as lines and points was the identification of patterns in the social structure and social dynamics, which is fundamentally what still motivates social network analyses. But social researchers, between the 1930s and the 1990s, had to rely on direct observation and crucially interpretation or questionnaires to gather their data (J. L. Moreno, 1934). This clearly puts limits on the size on the social networks that they could analyse but also introduces an element of subjectivity in the analysis: relations are determined and qualify either through an external observer or by a participant. This points to a crucial difference between studies applying social network analysis—and subjective relational data—*before* the ICTs revolution, after which digital traces replaced data based on reported or interpreted information as the only data source.

According to one of the early and most influential social network analysts, sociologist Granovetter (1973), the formalisation of a structural analysis of social networks allow researchers to link 'micro and macro levels of sociological theory'. Indeed, in Granovetter's words it is easy to recognise the same aspirations presented earlier in the chapter of those who, almost 40 years later, will call for the development of a computational social science:

> A fundamental weakness of current sociological theory is that it does
> not relate micro-level interactions to macro-level patterns in any con-
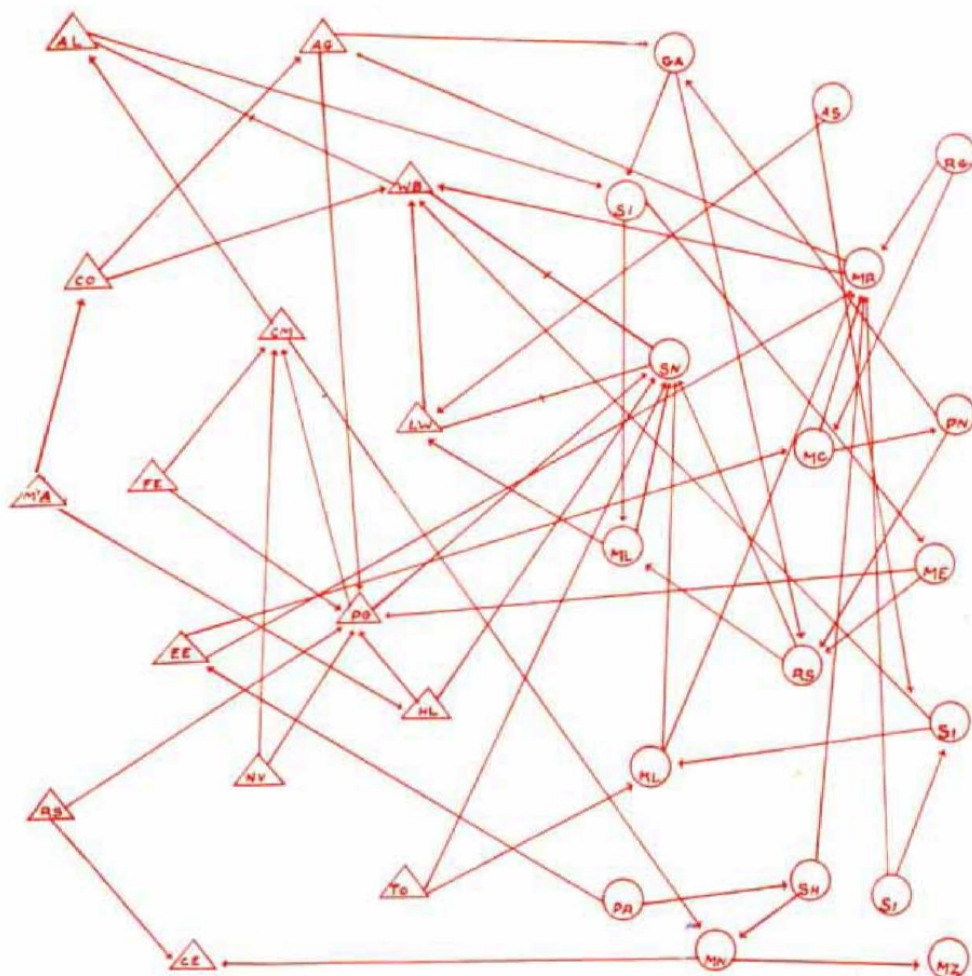
STRUCTURE OF A KINDERGARTEN

15 boys and 18 girls. *Unchosen* 9, RS, NV, FE, MA, TO, AS, RG, SI, PR; Pairs 3, AL-WB, WB-SN, SN-LW; *Stars,* (Centers of Attractions), PG, SN, MR; *Chains* (of relationships), 0; *Triangles,* 0; *Inter-sexual Attractions,* 19.

Figure 3.1: *The representation of relations among children of a kindergarten as a directed network*

(J. L. Moreno, 1934, p. 34).

vincing way. [...] [H]ow interaction in small groups aggregates to form large-scale patterns eludes us in most cases.

I will argue [...] that the analysis of processes in interpersonal networks provides the most fruitful micro-macro bridge. In one way or another, it is through these networks that small-scale interaction becomes translated into large-scale patterns and that these, in turn, feed back into small groups.

Sociometry, the precursor of network analysis, has always been curiously peripheral—invisible, really—in sociological theory. This is partly because it has usually been studied and applied only as a branch of social psychology; it is also because of the inherent complexities of precise network analysis. We have had neither the theory nor the measurement and sampling techniques to move sociometry from the usual small-group level to that of larger structures. (Granovetter, 1973, p. 1360)

The 1970s experienced the emergence and consolidation of a 'networked thinking' applied to different disciplines: sociology but also anthropology, economics, psychology and political science (Freeman, Mitchell, & Ziegler, 1978). The leading sociological journal on social network analysis, *Social Networks*, was created in 1979. As the interest in and volume of applications of social network analysis increased, so did the number of methodological contributions. Social scientists engaged with mathematics to formulate *measures* for important characteristics that they were observing in networks. As network studies were making non-trivial observations on the structural properties of social networks, the need for appropriate measures for this characteristics increased.

The previously cited paper by Granovetter (1973) on the 'strength of weak ties' identified the structural importance of interpersonal relations that can at first appear marginal. This insight, which is counterintuitive, derives from the observations that according to survey respondents, crucial information to find a

new job is more likely obtained from persons with whom we do not have frequent interactions (weak ties). And this is because weak ties are extremely important in conveying *new* information since people with whom we share strong ties will tend to be immersed in the same information as we are. Although Granovetter does not mention it in his paper, the structural property that he observes in weak ties is the property of *betweenness*. The measure of betweenness refers to the number of shortest paths connecting each pair of nodes that transits through a node or a tie. In this sense, a node or a tie can be extremely important if they are essential to connect different regions (or communities) of the network. The first formal approach to measuring the betweenness of a node is proposed by sociologist Freeman (1977).

3.4. Computational network analysis

The publication of two of the most influential papers in network science in the late 1990s by four natural scientists (Watts & Strogatz, 1998; Barabási & Albert, 1999) in *Nature* and *Science* can be symbolically noted as the beginning of a period of sustained attention by computationally inclined natural scientists and computer scientists to social network data and modelling.

Social scientists were clearly not oblivious to computers and their potential for the study of social networks. As early as the late 1950s, J. S. Coleman and MacRae (1960) published a paper titled 'Electronic processing of sociometric data for groups up to 1,000 in size' in which they detailed a computer program they designed to find communities in network data and in the early 1980s the development of general purpose software for network analysis such as UCINET (Freeman, 2004, p. 140) popularised computer modelling and analysis of social networks. But natural scientists brought a different perspective to the field which focused primarily on the mathematical modelling of networks.

A computational approach to network analysis was certainly made possible by the availability of large datasets with granular details on naturally occurring networks against which to test network models. But it was also driven by a math-

ematical interest in unveiling structural characteristics of network abstractions that could be applied to networks occurring in different domains (social, natural, infrastructural) and on a very different scale (movie actors, the power grid, brain neurones). In fact, it was (and still is) the crossdisciplinarity of the network science (or actually its *a*disciplinarity) that fascinates and helps recruit intellectual energies from the natural sciences. And it is not casual that many were physicists by training, who cultivate a disciplinary tendency in reaching encompassing theories, and specifically a *master theory* that could bring under the same set of physical laws micro and macro behaviours. When working on networks, social scientists were generally grounded, even in their structural abstractions of network properties, by the weight of the elusiveness of social interactions. The working material of physicists is instead the lightness and precision of sensor measurements such as the output of sophisticated experimental machinery or the log of transactions taking place on the Internet.

Although a certain scepticism has greeted the incursion of natural scientists into somebody's else field and resentment has grown out of the apparently culpable ignorance of an entire body of research (see Figure 3.2), the positivity of the contribution is difficult to underestimate. The attention dedicated by social scientists to the findings, both theoretical and methodological, presented by natural scientists since the late 1990s clearly demonstrates their relevance.

For example, in addition to the previously cited methodological contributions (i.e. community detection and network formation), two other areas of research have largely benefited from a computational approach and have pressed social scientists to engage with similar data: social homophily (see Adamic & Glance, 2005) and social influence (see Watts & Dodds, 2007).

3.5. Application of network analysis

Network analysis is applied, as detailed in Section 4 of Chapter 5, to the relational data collected from the Forum of the M5S, to map the discussion among users and around threads. As discussed later in more detail, the objective is to analyse
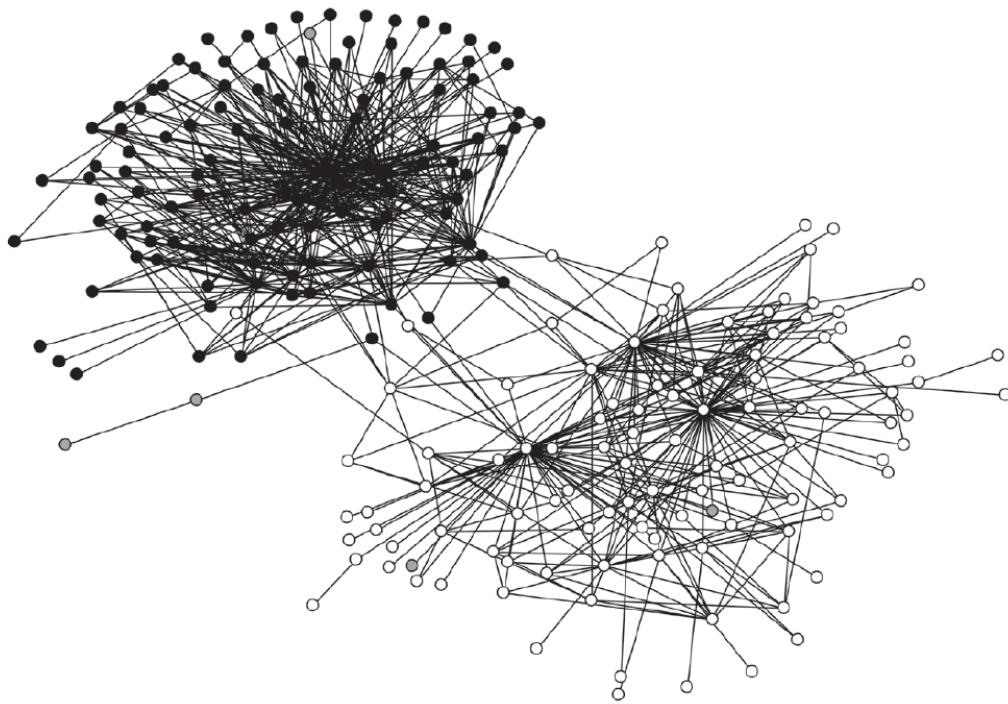
Figure 3.2: *Citation split between 'social networkers' and physicists (Freeman, 2004, p. 116).*

the interactions among users at different scales; at the level of the entire network and at the level of subnetworks developing around specific topics and limited in time.

First, I computed the *network statistics* from different typologies of networks: a bipartite network connecting two types of nodes (users and threads) and a direct network connecting users based on replies to other postings. By drawing a network abstraction from the relations linking users and threads, I compare different realisations of the two typologies of networks, specifically based on data from the fora of the M5S and of the German Pirate Party. Second, by applying exponential random graph models, I analyse effects and relevance of specific networks' features (e.g. the gender of users) in the formation of direct reply networks. The application of network analysis is justified by the size of the data but also by the understanding that participants in an online discussion are inherently influenced by the behaviours of previous users and thus should be treated as relational actors.

4. Quantitative text analysis

4.1. Two kinds of expressive data

Along with network analysis, *text analysis* is another bustling field on the development frontier of computational social science. If network targets *relational* data, text analysis targets users' *expressive data*. Although the number of texts produced and published on the Internet is massive, textual data is not the only expressive data produced by users. With the advent of smart phones, the production of visual data (i.e. pictures and videos) has dramatically increased. But if the quantitative researcher has a number of options to extract meaningful insights from large corpora of texts—which I will briefly detail in this section—*visual data* are almost inaccessible to a purely quantitative analysis.[4] This bias due to practical

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[4]Internet corporations such as Facebook and Google, which are a huge repository of human-generated visual data, have been heavily investing in technologies to retrieve information from

(in)accessibility is, of course, relevant and contributes again to challenge the notion of *data completeness* of computational social science research (see Highfield & Leaver, 2014).

In fact, images are among the most re-shared contents on social media. Social media services centred only around the act of sharing images, such as Instagram (bought by Facebook in 2012) and Snapchat are widely used. Images are highly expressive and much easier to produce than text and especially so in mobility (as of March 2016, 90% of Facebook users were mobile users, see Facebook, 2016). Not surprisingly, Beppe Grillo and the M5S use many images and videos of a different nature on their platforms. Visual content, whether a video of a rally or a cartoon making fun of political opponents, are among the most shared resources on social media networks by the sympathisers of the Movement. They make for immediate 'reading' (to *read* a picture takes only a fraction of a second) and in general are more accessible and entertaining than text. And they are powerful tools to reach those who are only marginally interested in the Movement: as the advertising industry knows well, in a crowded Facebook timeline, a catchy image probably has a higher chance of attracting the attention of a user than a long text.

This is also confirmed by my data: without controlling for the actual content of the post or the time of posting, the median number of comments and likes received by a Facebook post with a picture is respectively 78% and 129% higher than for posts *without* an embedded picture (see Figure 3.3 for the actual distributions).

In conclusion, although images are extremely important personal communicative devices on the Internet—and actually might play a more important role then words—we do not have yet the tools to approach their analysis in quantitative terms. For this reason, in this thesis, I do not carry out a systematic analysis of

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images. *Deep-learning* (see LeCun, Bengio, & Hinton, 2015) is in this sense one of the most promising technologies. Nevertheless, its use as a research tool is not consolidated at the time of writing for mainly two reasons: it is still far from precise and is extremely demanding in terms of computing requirement.
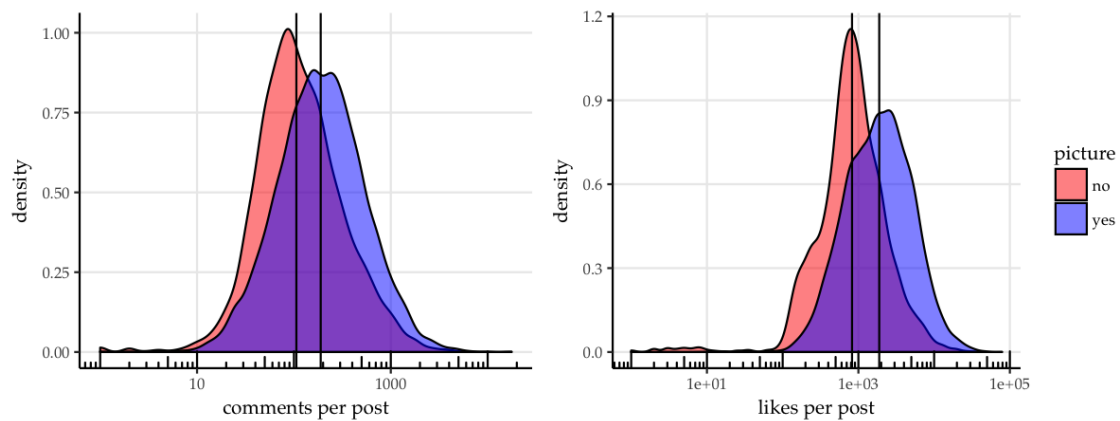
Figure 3.3: *Distribution of comments and likes over 21,041 posts published on Facebook on Beppe Grillo's public page between 2008 and 2015*

images embedded in the postings and focused instead on the textual content. Yet, it is important in recognising the importance of the visual component in the communication of the M5S—the Movement along with a YouTube channel has also a website dedicated to videos, *La cosa channel* (www.la-cosa.it)—to appreciate the unavoidable incompleteness, although I argue extremely meaningful, of an analysis that targets only the textual part of the communication stream.

4.2.   Bag of words

Quantitative text analysis is a mature field and offers to the quantitative researcher a well-established set of methods to code textual documents. The main reason for the ease in quantitatively processing texts to retrieve information and hopefully meaning (as opposed to the extreme difficulty in retrieving information and meaning from images) is that a digital text can only be expressed through a finite and well-defined set of symbols, the letters available on the user's keyboard, which are mostly combined to form tokens (words) from a finite set (the dictionary). In this sense, users have already provided a form of 'coding' by adopting strict linguistic standards.

This has two important consequences for the researcher. First, tokens (that is, words) provide an elementary unit of analysis that is countable—and then

easily quantifiable—without any additional layer of coding. Second, because the meaning of words can be assumed to be independent of those who actually typed them, I can equate tokens that are made of the same letters every time they are produced by people sharing a common language. That is, although certainly the meaning of a word is not totally context independent and different words sometimes have the same spelling (homonyms), any two people talking the same language will necessarily need to adopt the same *dictionary*, in which tokens are almost univocally mapped to words and then to meanings. Of course, the fact that the correspondence of token to meaning is mostly—but not always—a one-to-one relation is the single most relevant limitation of any frequency based approach to text analysis.

The assumption that a token will maintain the same relation to meaning (or meanings) when used multiple times, either by the same user or by more users, is on the basis of the majority of quantitative methods for text analysis. From this assumption derives one of the foundational ideas of most of the methods to retrieve information from text: the *inverted index*. Given a *corpus* of *n documents*, a corpus being everything from a series of tweets to the collection of Shakespeare's plays, information on the content of documents and on the corpus can be represented by a *dictionary* of tokens, each mapped to indices representing the document in which the tokens appear. In this way, the position of the token within a sentence and within a document—something that is clearly important to convey meaning—is sacrificed in favour of a compact representation of information—an unordered 'bag of words'—which can be easily processed by a simple information retrieval algorithm responding to queries such as: which *documents* contain the *token* 'cat'?

A reverse index allows one to assign to each document in a corpus a binary value for each token in the dictionary; a document can either contain a token or not. Although the reverse index is extremely simple in its implementation it is largely applied as a social research tool. For example, a number of studies have used it to retrieve documents from large corpora of news articles (see Boykoff,

2007) or tweets (see O'Connor, Balasubramanyan, Routledge, & Smith, 2010) with the aim of estimating the dynamics of attention dedicated to some topic defined by one or more search terms. In the cited studies, the researcher determined that a newspaper article was about climate change if (and only if) it contained the ordered sequence of tokens `climate change` or `global warming` while a tweet about the 2008 US presidential election if (and only if) contained the tokens `obama` or `mccain`. Incidentally, as in most of the cases with digital content that is proprietary, the two studies did not have direct access to the entire corpora of interest (all articles and all tweets ever published) and had to rely on search engines (respectively owned by Lexis Nexis and Twitter) and their reverse indices to search and extract matching articles and tweets.

Although the reverse index approach is intuitively effective in navigating large corpora, it also has evident limitations due to the fact that the importance of words within a document (in relative or absolute terms) is not assessed. That is an article of 500 words that mentioned `global warming` once is equated to an article of the same length that mentioned the same term more frequently. To address this problem, it is common to adopt a *term frequency* (tf) approach which adds to the inverse index, mapping tokens to documents, information on the frequency of each token in each document. Information on the term frequency is generally displayed in the form of a bidimensional matrix, where every term found in the corpus is represented by a row (or a column), each document of the corpus is represented as a column (or row) and entries of the matrix indicate a value representing the frequency of the each term in each document. The term frequency does not necessarily need to be represented as the number of occurrences of the term. In some cases, especially if documents varies in length, it might be advisable to *weight* the frequency of a term. In this sense, there are different ways to proceed (for a more extensive introduction to the topic see Manning, Raghavan, & Schütze, 2008).

The most elementary approach is to weight a term based on the length of the document that contains it so as to have a relative frequency because intuitively

as we add words to a document, the relative importance of each instance of a particular token decreases. But a second approach is to weight terms based on the number of documents in which they appear within the entire corpus (*document frequency*). This responds to the intuition that terms that appear in only one document are probably *more relevant* in describing that document than terms that appear in every document (then the name of *inverse document frequency* or idf[5]). The resulting weighing formula, which is one of the most popular, is then named *term frequency - inverse document frequency* or tf-idf.

The *term frequency* approach to text analysis has the advantage of reducing each document to a *vector* of frequencies (weighted or not) with a length corresponding to the number of terms in the dictionary of interest. As noted, these vectors are bound together to reproduce the term-document (or document-term) matrix of the corpus. In other words, each document can be represented as a vector (a *document vector*) within a common vector space. This representation allows comparing documents that are mapped into the same vector space by calculating the *dot product* (the sum of the pair multiplication of the two vector entries) of their respective vectors. Two documents with a high number of terms in common will tend to have a high dot product. But the dot products alone will not be able to identify similar documents if they vary considerably in length because 'the relative distributions of terms may be identical in the two documents, but the absolute term frequencies of one may be far larger' (Manning et al., 2008, p. 111). A commonly applied approach is then to normalise for the difference in lengths of two documents by dividing the dot product by the product of the Euclidean lengths of the two vectors[6]. The resulting equation is referred to as the *cosine similarity*.

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[5]Because, as observed by Zipf as early as 1935, the frequency of use of words is nonlinear the common equation to calculate the inverse document frequency weight for a term t is $l \log \frac{N}{df_t}$, where N is the number of documents in the corpus and df_t is the number of documents containing the term t.

[6]The Euclidean length of a vector $\vec{V}$ of N components is calculated with $\sqrt{\sum_{i=1}^{N} \vec{V}_i^2}$

4.3. Topic analysis

Term frequency and the different approaches to weighting allows one to efficiently and effectively compress information of documents and corpus, offering a tool to *find* documents that match a specified pattern of search terms or to *rank* each pair of documents in a corpus according to their (cosine) similarity. But term frequency in itself is not an analytical tool, that is, it does not really allow one to infer from the underlying textual data but is, in fact, an exercise of summary statistics.

An interesting research and analytical problem when confronting a large corpus of documents is to *classify* the documents according to their content. With the massification of Internet technologies and the consequent explosion in the volume of textual data constantly produced by users, the interest in automatic classification of texts cannot be overstated. Especially in the last decade, the NLP literature has produced an enormous number of methods of classifying documents according to topics (and more recently also to sentiments, which possibly has more immediate commercial applications).

In general, the problem of topic classification can be approached in two different ways: through *supervised* or *unsupervised* classification. Supervised classification implies that a random sample of documents is manually classified by the researcher to then train a classification algorithm. Unsupervised classification instead does not involve any manual labelling and generally the only necessary parameter that is required by the classification algorithm is the number of topics to be identified.

Possibly the simplest supervised classification method applies a probabilistic approach. Intuitively, given the term frequency encountered in the training set, we can estimate the probability of finding each term in one of the classes that we have manually defined. For example, if we classify the documents in the training set into two classes (e.g. 'environment' and 'party politics') which we assume to represent the totality of documents in the corpus, we can estimate the probability

of observing a term (e.g. 'pollution') in each of the two classes. That is, again assuming each document can only belong to one of the two classes after the model has been trained each term will be assigned the expected probability to find it in one class (and consequently not in the other). The statistical classification of the corpus will then proceed by assessing the overall probability of each document of belonging to one of the two classes based on the individual probability of the terms that composed it.

The unsupervised approach is especially interesting if we do not know what topics might be contained in the corpus. Classification algorithms will take care of clustering documents into classes or alternatively to assign to each document a probability of its belonging to any of the underlying classes. An example of partially unsupervised classification is the popular latent Dirichlet allocation algorithm (LDA, Blei, Ng, & Jordan, 2003, For a more detailed description on LDA see Section 3.2 in Chapter 5). LDA describes each document by a vector of probabilities, with each entry of the vector corresponding to one of the topics. In this sense, a topic is conceptualised as a distribution of words—that is, as a *function* generating words based on specific probabilities—and the LDA algorithm defines a function for each topic through a series of iterations of the documents of the corpus. In addition, assigning to *each document* a vector of topic-probabilities, LDA also assigns to *each topic* a vector of word-probabilities. And intuitively the words that are most likely to be found in one topic can be used by the researcher to understand the meaning of the topic (if any) and then to label it.

The main limitation of the LDA approach is that *topics* are not semantically defined and they are only probabilistically determined based on the terms that appear in the corpus. In this sense, topics generated by LDA can be totally meaningless. For this reason, I also apply in this thesis an approach to topic analysis that leverages a *dictionary of concepts* that are compared to documents from my data. The *explicit semantic analysis* (Gabrilovich & Markovitch, 2007) I carry out in Chapter 6, assumes the existence of a concept space in which each of the documents under analysis can be located. Indeed, the dictionary of

concepts is a corpus where each document represents a concept. To construct the dictionary I use selected articles of Wikipedia. In this sense, each article represents a concept assuming that—because of the encyclopaedic aspirations of Wikipedia—articles *describe* something. By comparing the term frequency of articles (concepts) with the term frequency of documents, I can obtain for each concept-document pair a weight that can be represented as a *concept matrix* with documents as rows (or columns) and concepts as columns (or rows). The semantic analysis allows me not only to identify the most important concepts (which in this case are meaningful Wikipedia articles) for each document but also to measure, within the concept space, the (cosine) distance separating each pair of documents.

4.4. Application of text analysis

Textual—that is, *expressive*—data is one of the main primary sources of this research. Text analysis is applied throughout the thesis to measure the frequency of use of specific words or set of words. In Sections 4.3 and 5.1 of Chapter 4, I conduct a frequency analysis of news articles to assess the attention dedicated by news outlets to Grillo in 2013, relative to the attention dedicated in 1994 to Berlusconi, based on the occurrence in the articles of their respective names. The analysis was conducted based on results returned by the search engine of the two major Italian newspapers and the weekly frequency of hits normalised for the number of hits returned by searching for the word 'politics'.

In Chapter 5, I code documents based on specific set of terms (or dictionaries) to track the evolution in time, on the Forum and on Grillo's blog, of the four issues (GMI, immigration, common currency and confidence vote after the 2013 general election) that will be the subjects of subsequent network, topic and semantic analysis. Analogously, in Section 3 of Chapter 6, I analyse the evolution of attention for the GMI issue by searching news articles and parliamentary documents against the same dictionary used in Chapter 5. In Chapter 5, I conduct an LDA topic analysis of all the posts published by Beppe Grillo between 2005

and 2015 and of a random selection of 50,000 postings published on the Forum over the same period. In Chapter 6, I conduct a semantic analysis of postings from the blog, the Forum and of parliamentary documents to understand the evolution of the framing of the debate on GMI.

Chapter 4

(Self)organising mobilisation and participation

*Se qui pensiamo che Facebook è la città non
abbiamo capito un cazzo né della città né di
Facebook*

MATTEO ORFINI

*La libertà non è star sopra un albero
non è neanche avere un'opinione
la libertà non è uno spazio libero
libertà è partecipazione*

GIORGIO GABER

In line with a broad European trend and in parallel with the weakening of mass parties, the number of Italians who declare a strong attachment to a specific party has declined from 46% in 1978 to 39% in 2014 (Della Porta, 2015a, p. 91). Nevertheless, this trend did not translate into the recurrent emergence of new strong parties, at least not explicitly linked to the tradition of some previous party, which remain to this day a rare event. After 1948 only two (genuinely) new parties obtained more than 20% of the national vote in a general election,

Berlusconi's Forza Italia in 1994 and Beppe Grillo's M5S in 2013. Similarities between the two political experiences have been identified in the literature and can be summarised in the presence of a charismatic leader (Pasquino, 2014), a political crisis fuelled by economic malaise and political scandals (Giugni & Lazar, 2013) and the expert exploitation of media consumption patterns (D'Arma, 2015). The role of the *new media* in the political enterprise of Beppe Grillo and its interplay with what is usually referred to as the *legacy media* (mainly television and newspapers) is the focus of this chapter.

The literature analysing the rise of the M5S is generally cautious in weighting the net effect of the Internet in the 2013 electoral results. If the Internet has significantly changed the media diet of Italians, Italy still remains a 'TV-centric country' (Norris, 2000) where the large majority of voters (70.9% according to the electoral survey conducted in 2013, see Associazione Itanes, 2013) still looks at television as the primary source of information. In fact, the prevalent view is that the effect of the use of new media in the success of the M5S is mostly *indirect*. According to Diamanti (2014), one of the most distinguished students of Italian politics, Grillo, through his blog posts and Internet videos 'has succeeded [...] in being visible and making news even without being directly present'. In a similar vein D'Arma (2015, p. 109, but see also Cepernich, 2014) writes that 'Grillo the showman has proved highly skilled at gaining indirect visibility on mainstream media, creating media events and using provocative language feeding the media's quest for audience-catching stories.'

And yet the attention dedicated by the legacy media before the election of 2013 to Beppe Grillo and the M5S is significantly lower than the attention dedicated to Berlusconi's Forza Italia in 1994, and even to other major parties in 2013. In other words, based on the archive of the two major Italian newspapers and the air time dedicated to parties and their leadership in the 1994 and 2013 election by the major TV channels, I argue that if the role of the legacy media is as relevant in moving votes towards newcomers as it was in 1994 it is difficult to explain how the M5S scored so well even when receiving so little attention.

Based on the data I present in this chapter, I argue that the advent of new media and their use as political tools has dramatically complicated how political information actually reaches citizens. If broad access to legacy media probably had been a survival issue for parties—evinced by the fact that two laws, in 1993 and 2000, were enacted to guarantee equal access to airtime—the election of 2013 demonstrated that traditional media is now a less relevant explanatory variable for electoral outcomes than argued in the literature.

In this chapter, I provide an introduction to the political trajectory of Beppe Grillo, from his blog to mass mobilisation and the creation of the Five Star Movement (M5S). The interest in this political experience is dual. First, the mobilisation effort of the M5S was unprecedented because of the absence of organisational and financial resources to sustain the campaign and because of the outsourcing of crucial movement and party organisational functions to Internet services (communicating, publishing, mobilising, campaigning, participating and—at least aspirationally—deliberating and governing). Second, the use of Internet services by millions (sympathisers, voters, activists but also opposers, interested citizens and trolls) left behind a vast array of digital traces that can inform the macro analysis of collective behaviours and the micro analysis of individual attitudes towards political participation.

In the first section, I introduce the reader to the enterprise of Grillo and offer an analysis of its historical and political meaning in the Italian context. In the second section I provide an analysis of secondary data on the political identities of the Movement's (online and onsite) activists and voters and then test the association between votes obtained by the M5S, participation through Meetup.com and activities on local Facebook pages linked to the Movement. In the third section I present the evolution and the different components (which I call platforms) of the media system orbiting around Grillo's blog. In the fourth section, I present the data on legacy media attention to parties in 1994 and 2013.

1. Beppe Grillo's political enterprise

January 2005 Beppe Grillo publishes his first post on beppegrillo.it.

June 2005 First meetup is created in Milan.

July 2005 Grillo invites his people to use Meetup to organise onsite meetings.

January 2007 Grillo discusses for the first time the possibility of participating in municipal elections.

September 2007 Grillo organises through his blog the first V-Day in different Italian cities.

January 2008 A page on beppegrillo.it is created to coordinate the organisation of municipal lists for the upcoming elections.

April 2008 The movement participates for the first time in elections with 22 municipal lists 'certified' by the beppegrillo.it.

October 2009 The 'Five Star National Movement' is officially created following the first national meeting of municipal lists early the same year.

March 2010 The M5S competes, for the first time with its symbol and name, in five out of 13 regional elections obtaining about 3.5% of the popular vote.

May 2012 The M5S participates in 20 out of 27 municipal elections organised in major cities, obtaining about 8.9% of the popular vote and winning the mayorship of Parma.

February 2013 The M5S obtains a surprising 25% in the general election, about the same percentage of the party with the most votes, the Democratic party.

May 2014 The M5S obtains 21% of the votes in the election for the European parliament.

1.1. Blog

The origin of the M5S has to be traced back to Beppe Grillo's bursting onto the Italian media landscape in 2005 as an influential blogger and political activist. Before starting his blog (www.beppegrillo.it) in January 2005,[1] Beppe Grillo worked as stand-up comedian on television for about twenty years, up to 1993, then moving to organise his shows in theatres and sport arenas. In December 1993 in an interview with the newspaper *la Repubblica*, days before his very last show was broadcasted on television and 12 years before launching his blog, Grillo declared that he was not just doing 'satire', but 'I do politics, in the sense that I talk about human relations, about the relationship that we all have with the rest of the world' (Fumarola, 1993).

The decision of creating a blog—Grillo never hid his suspicion of towards new technologies and on a few occasions actually smashed a computer on stage with a sledgehammer—followed Grillo's encounter with new media entrepreneur Gianroberto Casaleggio, who approached Grillo in 2004. Casaleggio's character is important in picturing the drivers that resulted in the creation of a new medium of communication from Grillo to the public, a medium that nevertheless only a fraction of the public could access at the time. In 2004 the weight of the Internet in the media diet of Italian was relatively low: only between 9 and 11 percent of Italians used the Internet every day and only about 1 in four at least once a week (Istat, 2014a, 2014c). At the beginning of the same year, Casaleggio had created a consulting company ('Casaleggio Associati') specialised in new media strategies. Grillo's blog was a product of the association between Grillo and Casaleggio, who would both later co-found the M5S. The creation of the blog was in line with the vision of Casaleggio for the future of information described

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[1]Although the domain was registered in 2001 (Italian registry of dot it domains, 2014) the Internet Archive Wayback Machine indicated that the first posting on the site appeared only on 29 January 2005 (Internet Archive, 2015). This is confirmed by the blog's own archive which records the first sign of activity on 16 January 2005 (Grillo, 2005e) and the first proper post on 28 January 2005 (Grillo, 2005c)

in a YouTube video titled 'Prometheus - the media revolution' published by his company in 2007 ('Prometeus - La Rivoluzione dei media', 2007). In the video, which provides a chronological description of future events following the 'media revolution' and the advent of the Internet, is explained *in English* that 'blogs [will] become more influential than the old media [and] the concept of static information, books, articles, images, [will] change and transform into knowledge flow'. This 'revolution' will also change the way contents can be monetised since '[a]dvertisement [will be] chosen by the content creators, by the authors themselves, and become information, comparison, experience'. After creating a blog, Casaleggio and his company would also be in charge of developing all the communication strategies of the movement that would rise out of it. In fact, as detailed in the next section, the blog quickly become a gateway to a wider media system mostly curated by Casaleggio Associati. According to Casaleggio's strategic vision Grillo would have played the role of the 'influencer'—a term often used by Casaleggio—steering the attention of his readership to selected news that he would create or integrate mashing together different news sources; in Casaleggio's own words 'when we access the Net to obtain information, we access an information that usually is integrated by the influencer or created directly by the influencer' (see Orsatti, 2010).

1.2. Meetup

Grillo's activity as blogger quickly acquired a movement dimension by touching ground in cities throughout Italy thanks to the social networking website Meetup. com, which facilitates organising *real-world face-to-face* meetings. The first group, created to debate the issues and topics blogged by Grillo, was established in Milan in June 2005 (only five months after the first blog post), in July Meetup groups were created in other nine major cities and by the end of the year 37 groups had been created across the country (see Figure 4.1).[2] Importantly Meetup

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[2]Data collected through Meetup API (http://api.meetup.com) in March 2015. The groups related to Beppe Grillo and the M5S were identified through an API request of type `/find/groups`

was not spontaneously adopted by blog's readers as a mobilisation tool, but openly advocated by Grillo himself. On 16 July 2005 Grillo posted on his blog:

> I thought about how to give all my blog followers the opportunity to meet to discuss, take the initiative, see each other in person. To *transform a virtual discussion into an opportunity to change*. I discussed with my collaborators and I decided to use MeetUp. MeetUp is a site that allows *organising* in a simple way meetings *among people interested in a topic*. [...] I will *try to meet with the groups around the country* during my tour and every time I participate in an event. I don't promise anything, but I will do my best. Let's try it. (Emphasis of the author, Grillo, 2005h)

Meetup.com was first adopted as political mobilisation tool by the Howard Dean US presidential campaign in 2003 and is identified as one of the key elements in Dean's rise in popularity. According to David Karpf '[t]he Howard Dean presidential campaign was a watershed moment for the Internet and American politics. Throughout 2003, the former Vermont governor's insurgent "Internet candidacy" attracted nationwide attention, fuelled by an outpouring of volunteer support at local Meetups around the country and record-setting online fundraising' 2012, p. 77. The Meetup-mediated mobilisation allowed Dean's campaign to quickly translate political enthusiasm into palpable action on an unprecedented scale but in the end, did not translate into votes. Casaleggio was familiar with Dean's presidential campaign. In a video published by Casaleggio Associati in 2008 and titled 'Gaia - The future of politics' ('Gaia - The future of politics', 2008), the role of Meetup.com in Dean's campaign is described as crucial 'to create a worldwide network of supporters'. It is then reasonable to assume that Casaleggio had an important role in suggesting to the movement the adoption of Meetup.com.

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with the following parameters: `category=13` (for 'Movements and Politics'), `country=IT`, `radius=global`, `text=beppe+grillo`.
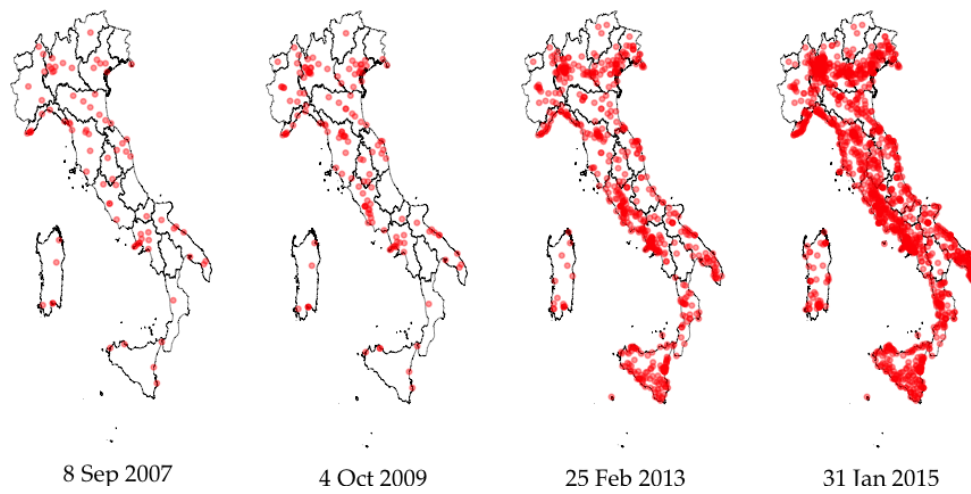
(a) *Meetup groups connected to Beppe Grillo and the M5S*
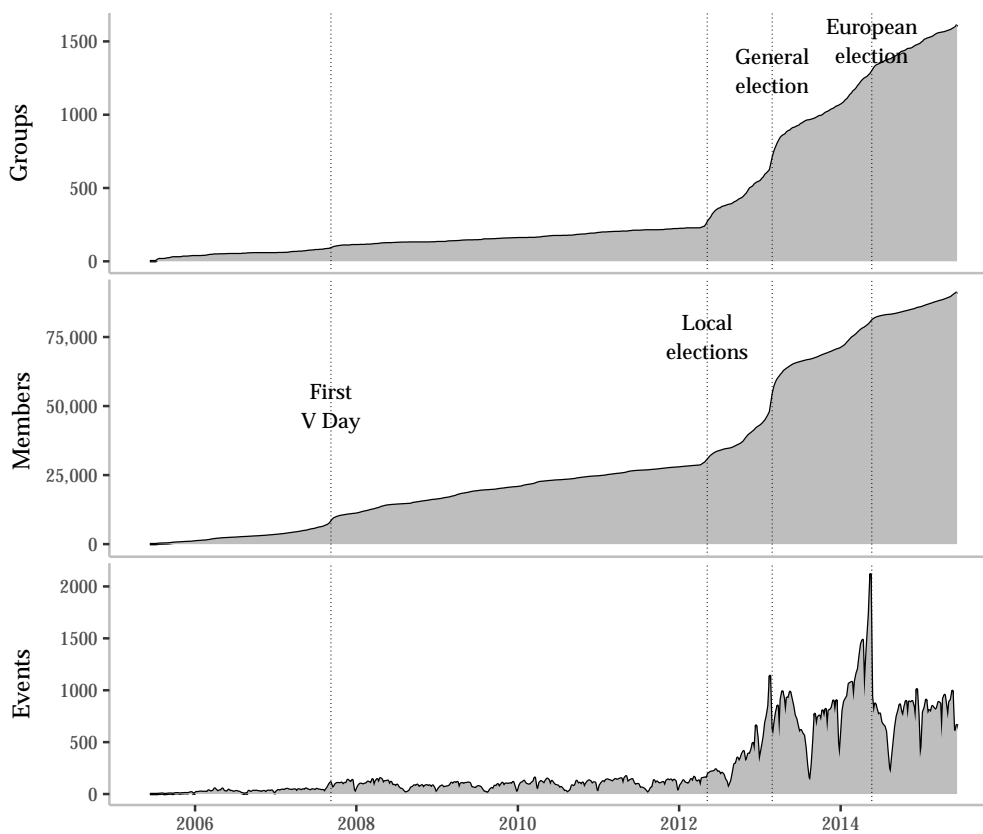
(b) *Cumulated numbers for members and groups and number of weekly events.*

Figure 4.1: *Development of Meetup groups and membership*

In a second blog post published a week later, in the first call to mobilisation, Grillo—acknowledging having received questions on what the groups should do in practice—keeps a vague profile but interestingly also avoids setting scope and purpose limits for the network of local groups then starting to emerge. He writes

> Dear Bloggers [he refers to his readers as 'bloggers'], it has been a week since my post on Meetup. Since then many groups have been created, also out of Italy. [...] I was asked *what* these groups *should* initially *do*. Have fun, stay together and share ideas and proposals for a better world, beginning from [your] own city. And discuss and share, if you believe, my posts (Grillo, 2005i).

The data that is made publicly available by Meetup.com on the groups and members linked to the Beppe Grillo and the M5S allow following in detail the growth in groups, membership and meetings organised across Italy. Importantly Meetup.com public data was collected in June 2015 and includes only groups and members still registered with the service on that date. That is, groups and members that cancelled their profiles from the Meetup.com at any point between 2005 and 2015 are not accounted for.

As evident in Figure 4.1, between 2005 and 2015 the pace of growth of the movement changed significantly after three major public events: the *V-Day* in 2007, the local elections in 2012 and the general election in 2013. To have a sense of the change in the growth rates it is useful to compare the average number of people who registered for the first time with one of the groups linked to Grillo or the M5S every day in the four periods separated by the three events. Based on the data before the *V-Day* an average of 7.8 people registered every day with one of the groups and 11.7 between the *V-Day* and the local elections in 2012. After the local elections of 2012, membership of groups increased dramatically with an average of 57 new people every day—that is, almost five times the growth rate of the previous period—although not linearly, since during 30 days *before* the general election, the growth more than doubled with an average of 125 new

people per day. But it is immediately *after* the unexpected success in the polls when the membership grew faster: in the 30 days after the election 357 people registered on average every day. In the final period between the general election in 2013 and the European Parliament election in 2014, membership grew on average by 76 people per day. In absolute terms, if between July 2005 and May 2012 the movement mobilised 30,000 people, it then took less than 24 months to mobilise an additional 60,000. As of June 2015 91,785 people were registered with M5S-related groups, which is only slightly higher than the figure of 87,656 members officially registered with the Movement (Grillo, 2014).[3]

1.3. V-Day

The *Vaffanculo Day* or *V-Day*—'vaffanculo', literally 'fuck off', was addressed quite indiscriminately to the entire political class—is the first public appearance of Grillo's movement and is symbolically organised on 8 September 2007. On his blog, Grillo explicitly recalls the 'atmosphere' of 8 September 1943 when the Italian government, after abandoning Rome, signed an armistice with the Allies and threw the country into chaos.

> Politics smells the storm that is coming. They are preparing. Italy had its chance to change in 1992. It failed. Lobbies, criminal gangs, mafias have won. The second republic [born out of 1992 corruption scandals] died in the cradle. After mafia bombings every where in Italy and the assassination of Falcone and Borsellino [two anti-Mafia judges] it's all over. [...] Italy is a pressure cooker, and if this time explodes it will bring down everybody. Possibly also the Nation. [...] The V-Day is going to be a day of information and popular participation. (Grillo, 2007d)

Grillo—who was, of course, a show man—would repeatedly use a theatrical

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[3]Becoming member of a Meetup did not require any formal approval or consent while membership to the M5S had to be approved by the staff of the Movement

(but also biblical) tone in his analysis, and posit his movement against a society that was collapsing economically, culturally and morally. The *V-Day* was formally launched to collect signatures for a citizen's initiative proposing to prevent anyone with a criminal record from accessing Parliament, to limit how many times any MP could be reelected and to reintroduce the possibility of expressing a vote of preference on the ballot. The law proposal was short (5 articles) but symbolically targeted towards the political establishment or—to use the terminology popular-ised by an extremely successful book of investigative journalism published the same year— the 'caste' (Rizzo & Stella, 2007). It touched on two crucial themes that would have accompanied the development of the M5S: popular democracy and public morality.

The Internet was the main mobilisation, organisational and informational tool for the *V-Day*. A website ('8 settembre 2007', 2007) allowed registration for the event (and according to the same website 243,190 users did), to obtain logistical information on how to follow the event (online, on TV and in person), to obtain information on the citizens' initiative, to donate and finally to 'share' the event by downloading its logo or—quite interestingly—by embedding with few lines of HTML code the logo (and a link to the beppegrillo.it) into a blog or websites.

The success of the *V-Day* surpassed every expectation—about 350,000 sig-natures were collected—and put the Grillo's anonymous movement on Italy's political map for the first time. As I describe in the next section, it attracted signi-ficant media attention, it signalled the relevance in the public opinion of the issue of criminal records of MPs (in 2012, after more two years of debate, Parliament finally approved a law banning MPs with criminal convictions from office), but also directly triggered the process that would transform a movement into the Five Star Movement and convince its supporters to participate in elections.

1.4. Municipal lists

The first mention of the possibility of participating to elections was mentioned on the blog in January 2007 (Grillo, 2007a) in a post titled '5 stars Municipal-

ities', which incidentally was also the first formalisation of the '5 stars' of the movement—'A star for [renewable] energy, a star for [Internet] connectivity, a star for [public] water, a star for waste management, a star for social services'. Grillo wrote on his blog inviting his followers to 'propose a municipal list in every municipality. [...] Do not permit that a single decision is taken without consulting you'. The tool of municipal (or civic) electoral lists, which are common in Italian local elections, was clearly suggested to stress the neutrality of the lists from any national party. In a later post, Grillo wrote

> Last year I proposed to limit to two the number of electoral mandates, to ban the election of convicts, to allow a citizen to vote for a person and not a party [the same proposals that the movement would put forward in the V-Day]. Proposals that move politics closer to reality. That allow to a change the blood in Parliament. Now I don't believe this anymore. I don't think it is possible to scratch this class, the only true class in Italy, with a referendum or a law proposal. A self-referential corporation that doesn't want to lose any of its privileges. The only possibility is to isolate them, to empty it of any meaning, taking control of local realities. A step at a time. Replacing parties with movements and civic lists. (Grillo, 2007c)

If the idea of directly entering the electoral arena—although only at local level—was first considered by Grillo in January 2007, it is only after the success of the V-Day that the idea turns operational. The V-Day took place on 8 September 2007. On 10 October 2007 Grillo published on his blog the first in a series of posts dedicated to the organisation of municipal lists: 'I spent the last two weeks with lawyers to get something of these civic lists. [...] Civic lists, the virus of *participatory democracy*, are a great possibility to reform, maybe refund, the Nation. I already wrote, and I restate it, that *I don't mean to create political parties*. My commitment in the next months will be to promote through my blog and with a symbol *civic lists* that will have the requirements that I state along with the

commitments that will need to make [emphasis of the author]' (Grillo, 2007b). Grillo outsourced to the militants the responsibility of creating these lists; his role will be to act as guarantor of the movement. In this way, the movement is not required to set up the heavy organisational and bureaucratic infrastructure of a national party, nor to open a headquarters or branches. This was a practical solution since Grillo did not have the resources to do this, as much as a a symbolic one to maintain a clear distance between *we, the people* and *they, the old parties*.

In January 2008 Grillo announced on his blog that a page dedicated to the organisation of the civic lists had been created. The page ('Liste civiche - Per un Nuovo Rinascimento', 2008) allowed to create, certify and search for existing lists. To support the creation of the list, the page provided detailed information on the forms needed, the number of signatures required and where to file the documentation. Once created a list could request a certification from the blog—that is, the *blog* was the certifying agency, not the *Movement*. Interestingly, requirements for the certification, which would have resulted in being listed on the blog, were not the endorsement of a specific program that at the time had not yet been formulated (on the contract to be signed by the candidate there was no mention of any policy to which the candidate would commit) but *only* the absence of criminal convictions and not being a member of any 'party or political movement'.

The local elections of April 2008 took place on the same day as the general election. This contemporaneity played well into the rhetoric of Grillo; since the movement did not compete in the national election, Grillo could again stress the novelty of the enterprise and its distance from the old. 'There is no difference between PD and PDL [the two main parties running in the election]. The election on 13 and 14 April doesn't exist. It's choreography. [...] Not voting for the general election is the response to this regime. It is the last democratic weapon left' (Grillo, 2008). Instead, Grillo invited to people to vote for the lists certified by the blog, indicating the name of Sonia Alfano for President of the Sicilian Region, who would obtain 46,396 votes (1.72%), and Serenetta Monti for Mayor of

Rome, who would obtain more than 40,389 votes (2.64%). In total, the movement presented its lists in 22 municipal elections and 1 regional election, obtaining in the major electoral competitions about 2% of the votes. Only one candidate was elected into office, David Borrelli elected with 4% of the votes to the city council of Treviso (Veneto).

1.5. To the Five Star Movement

In 2009 the movement, which so far had been a loose network of Meetups (131 in January 2009) and Civic Lists kept together by Grillo's certifying agency, gave itself a program, a symbol and finally a name. In January 2009 Grillo wrote on his blog that the movement's objective was 'to arrive at the meeting of 8 March [2009] in Florence with a Program of Reference and an extract in the form of a manifesto: "the Chart of Florence"' (Grillo, 2009a). The program would be developed in five thematic areas 'the Five Stars [...]: *Water, Energy, Development, Environment, Transportation* [emphasis of the author]'. Importantly Grillo explicitly asserted the participatory contribution of the crowd of readers and militants in developing the program, in the same blog post where he mentioned for the first time the intention of formalising the movement's program, beginning with

> In 2006 [this] blog collected your suggestions for a new development model for the Nation through the *'Citizens' Primaries'*. Tens of thousands of people participated. Proposals were summarised in a document that I presented to our former-employee Prodi [Grillo often referred to politicians as 'our employees'], at the time Prime Minister. The document of the 'Citizens' Primaries' is from many points of view still relevant and can be the starting point for a discussion open to the Five Star Municipalities [the Civic Lists]

With this introduction, Grillo seemed to imply that whatever program the movement should adopt in Florence, its political legitimacy would have come

from the multitude of 'tens of thousands' of online commenters who contributed to determining its shape.

The first national meeting of the movement took place in Florence in March 2009 in the presence of Beppe Grillo. According to Grillo's blog, seven meetups and 15 Civic Lists participated to the meeting (Grillo, 2009c). The meeting ratified the Chart of Florence, an agenda with 12 policy proposals for cities' administrators (Grillo still had not considered explicitly the possibility of running in national elections). Eight of the twelve points were related to environmental issues (water, waste management, urban parks, solar panels, public transportation).

The foundation of the 'Five Star National Movement' is announced on the blog in September of the same year (Grillo, 2009b). Grillo justified his decision to create a national movement by citing the unresponsiveness of the political establishment to the proposals developed within the movement and supported by 'hundred of thousands of signatures'.

Two formal reform proposals had been produced by the movement so far; the first, launched during the 2007 *V-Day*, regulating the election to Parliament, and the second, with signatures collected during the second *V-Day* in 2008, to reform the rules regulating news media. The two proposals used the only two institutions of direct democracy designed by the 1948 Italian Constitution: the citizens' legislation initiative ('The people may initiate legislation by proposing a bill [...] signed by at least fifty-thousand voters', 'Constitution of the Italian Republic', 1948, Art. 71) and the abrogative referendum[4] ('A general referendum may be held to repeal, in whole or in part, a law [...] when so requested by five hundred thousand voters', 'Constitution of the Italian Republic', 1948, Art. 74).

It could be argued whether the citizens' initiative defined by the Italian Constitution is truly an instrument of direct democracy—or 'direct legislation' as defined by G. Smith (2009, Chapter 4)—since its output is not binding (while the result of the referendum is): although Parliament must discuss it, it has no obligation to vote it into law. Indeed, if the institution of abrogative referendum has

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[4]A *confirmative* referendum is defined by the Constitution only for constitutional laws.

been used for important deliberations in the history of the Italian republic—most notably in support of divorce in 1974, abortion in 1981 and to oppose production of nuclear energy—the institution of the citizens' initiative has been virtually non-consequential, with only a small fraction of initiatives being converted into law.[5]

For Grillo, *representative democracy*, and especially the institution of parties, had failed citizens. Symbolically the first political battles of his movement were fought with the instruments of *direct democracy*. If the movement had supported electoral lists, it did so only in local elections, where the distance between voters and elected is at a minimum. In the blog post announcing the creation of the M5S, Grillo was careful in stressing, first, that the creation of a national movement was a direct consequence of the inattentiveness towards people's initiatives ('thousands of people' and 'hundreds of thousands of signatures') formulated with the instruments of direct democracy and, second, that he was not creating a party:

> Parties are dead, I don't want to found a 'party', an apparatus, a structure of intermediation, but create a Movement with a program. Those who subscribe to the program can present themselves to voters and ask for their vote. So it happened with Luigi De Magistris and Sonia Alfano [candidates of the party Italy of Values], elected by the Net, voted en mass by the Net, who speak and will speak to their voters, in a direct way, through the Net (Grillo, 2009b).

The founding event of the Movement took place in a theatre in Florence in October 2009. During the event, Grillo presented the symbol of the Movement—which included, possibly an *unicum* for a national political movement, the Internet

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[5]Of the 88 citizens' initiatives in the database of Chamber of Deputies (dati.camera.it) presented between 2008 and 2016, for which their current status was available, no one was listed as 'conclusively approved. The Association Openpolis, which monitors the activity of Parliament, analysing a larger time window concluded that of the 260 citizens' initiatives presented between 1979 and 2014 only three were converted into law (Associazione Openpolis, 2014).'

Figure 4.2: *The first symbol of the M5S ('Logo MoVimento 5 Stelle', 2013).*

address of the blog of the founder—and its program. In the blog post announcing the program of the Movement published a few days later, (Grillo, 2009d), Grillo embedded a 20-minute YouTube video (Grillo, 2009e) from the Florence event in which from the stage he talked the audience through the program, in his own way. As of May 2016, the 20-minute YouTube video was viewed more than 500,000 times, which is quite impressive for a political leader presenting a political program.[6] The program expanded the original themes listed in the 2008 Manifesto—environment, sustainability, local economy—to include, as the first point, major institutional reforms with the objective to fill the gap that, according to the Movement, had been growing between the citizens and the state. Along with proposals to set limits to MPs' mandate and to reduce the redundancies in the state administration, the Movement also aimed at introducing procedures to make legislation more transparent (online video streaming of public meetings happening at every level of the administration, online publications of law proposals months before their approval to allow citizens' comments) and increase citizens' participation by strengthening the institutions of direct democracy (introduction of referenda to propose legislation, make compulsory for Parliament to discuss and vote any citizens' initiative) (Movimento 5 Stelle, 2009b, p. 3).

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[6]For matter of comparison, the most popular video published in the same period by the leader of the Democratic Party (PD) inviting to vote for the PD, notwithstanding the fact that was only 2 minutes long, reached fewer than 90,000 views (Youdem, 2009).

1.6. The electoral trajectory of the M5S

Between its foundation in October 2009 and the general election of 2013, the M5S participated with its symbol and name in every round of local and regional elections. In 2010, the M5S competed in five out of 13 regional elections, obtaining 390,902 votes and the election 4 regional councillors. In electoral terms, because the regions where the M5S competed in 2010 represented about half of the Italian electorate, this was probably the first result that can be projected on a national scale. In the five regions, the M5S obtained 3.5% of the valid votes, which in the general election of 2008 would have made the M5S the sixth most voted party.

In the local elections of 2012, the diffusion of the Movement increased significantly and it participated in 20 out of 27 municipal elections organised in administrative centres in almost every region, obtaining the election of its candidate as Mayor of the city of Parma. Assuming the 20 municipalities were representative of the broader Italian electorate (of which they represented about 13% of the voters in the general election), something that is reasonable since the municipalities were geographically quite homogeneously distributed from North to South, the M5S gained 8.83% of the valid votes cast in the municipalities where the Movement participated (a figure that is in line with opinion polls administered before and after the elections, see Figure 4.17). That is, on a national level in the local elections of 2012, the M5S gained more percentage votes than the third most voted party in the general election of 2008. But it is with the vote in the regional election in Sicily that same year that the movement obtained the most impressive result where the candidate to the presidency of the region obtained 18.17% of the votes.

If the results of the 2012 elections were relevant, collocating in terms of preference the M5S below the two major parties of centre-left and centre-right but above all other parties, what is difficult to explain (and unprecedented) is the growth of the Movement's electoral support between May 2012 and the general election in 2013; between these two dates, the M5S grew from 8.83% to 25.56%.

As observed before (see Figure 4.1), the electoral results of 2012 corresponded to a boost in the creation of new meetups related to the Movement and new memberships. It could then be interesting to observe in detail the variations in the daily number of first-time registrants to Meetup.com who then joined one of the M5S groups. The top panel of Figure 4.3 shows the number of daily new registrations between April 2012 and April 2013. The vertical lines indicate major public events: the dotted lines indicate events related to the activity of Grillo and the M5S, and the dashed lines elections. The blue line indicates the 30 days moving average. Clearly, all electoral events (all relevant successes for the Movement) did cause a sharp and instantaneous increase in new membership; with no exception, on the day after each election the number of members significantly surpassed the average for the period. In cumulative terms (bottom panel), it is interesting to observe that membership increased almost linearly between the events but those electoral events, especially the first and the last, contributed to change the slope of the growth curve.

The increase in membership after the election have been significantly less sustained than the increase in votes. In numerical terms, meetups' membership between the two elections of May 2012 and February 2013 grew by 64%, from 29,748 to 48,954 members on the day of the general election, but votes (estimating national votes based on the 2012 local elections) grew 189%, from 8.83% to 25.56%. But of course, this difference in growth rate between membership and actual voting was necessary for the electoral success of the Movement. The interesting question is whether the expansion in the membership base did contribute in a measurable way to the (more than proportional) growth in electoral support. In other words, is there a positive and statistically significant association between voting for the M5S and the number of members in the same area?

By comparing electoral data from three periods, the regional elections of 2010 (which involved approximately half of the electorate of the general election), the general election of 2013 and the election for the European Parliament in 2014,[7] it

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[7]Since the elections of 2012 were contested on municipal level and involved only around 12%
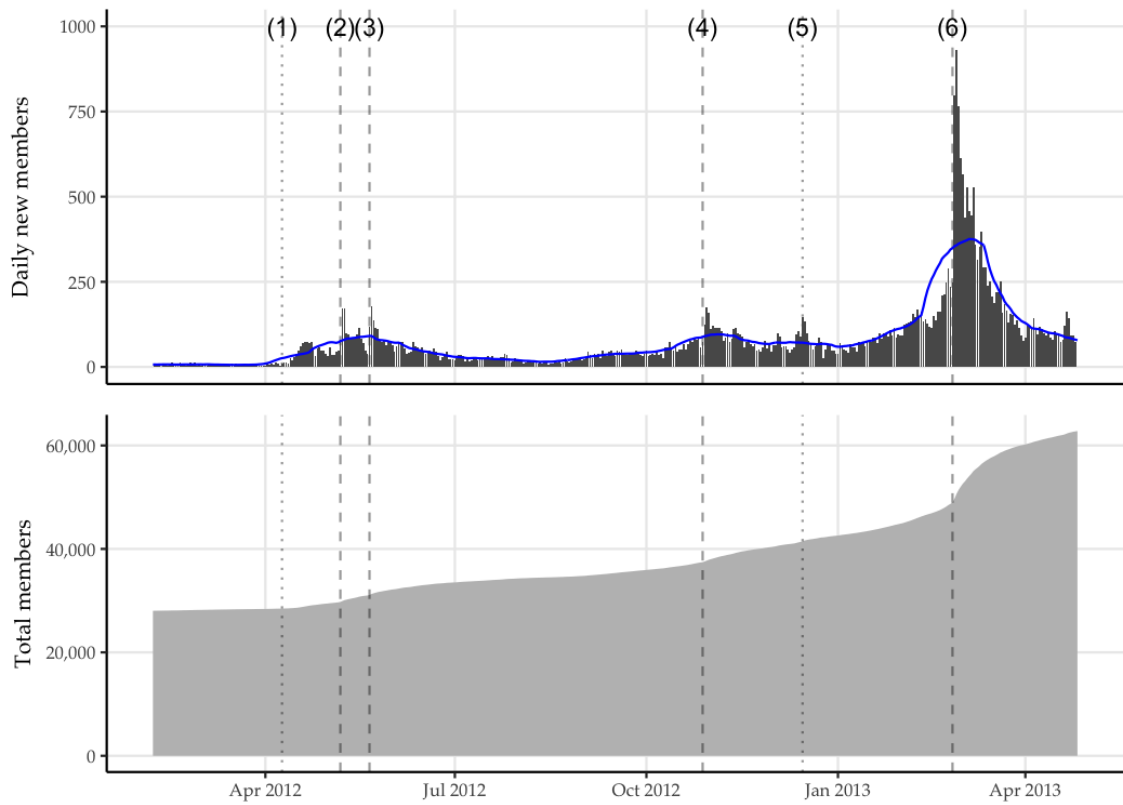
(1) Grillo launches the electoral campaign; (2) First round of Municipal elections; (3) Second round of Municipal elections; (4) Sicilian regional election; (5) M5S's Signature Day; (6) General election

Figure 4.3: *Number of new members registered by date they joined Meetup.com for the first time*

is possible to infer an answer. As the geographical unit of analysis, I have chosen the *provinces*, administrative divisions of second level. A province is in general sufficiently small to allow a person to travel and maintain recurrent (daily or weekly) interactions with other people also living within its limits but sufficiently large to register the presence of at least one meetup of the M5S. In the elections of 2010 the M5S competed in 37 provinces (within five regions), while in the elections of 2013 and 2014 in all the 110 provinces. To test the association I applied a regression model to three log-transformed variables (since the population varies significantly from province to province): the number of votes gained by the M5S, the number of voters in the election and the number of meetups' members who joined before the election.

Results suggest that in fact participation through meetups might have had a significantly positive effect on the number of votes that the M5S eventually obtained in both elections, although with a different level of strength (for the regression tables see Section 1 in the Appendix). And the effect was not negligible. On average, an increase of 10% in membership was associated with an increase of about 1.9% in the number of votes in 2010, 0.7% in 2013 and 0.9% in 2014. For example, in 2010 the median province in terms of memberships had 174 members and cast 12,211 votes for the M5S: in this case the model would predict that the first extra member is associated with approximately 14 extra votes in 2010, 5 extra votes in 2013 and 7 extra votes in 2014. Further research should be conducted to better delineate the relationship between the two variables of interest—membership and votes—by possibly exploring their association with other variables. Nevertheless, even without control variables (with the exception of the size of the province), I argue that the analysis provides significant information on the relationship. It is possible to hypothesise that two set of variables might influence voting for the M5S in a specific area. The first set includes variables describing the activities that the Movement conducted in the

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of the national electorate, they were not considered in testing the association between votes and meetups' memberships.
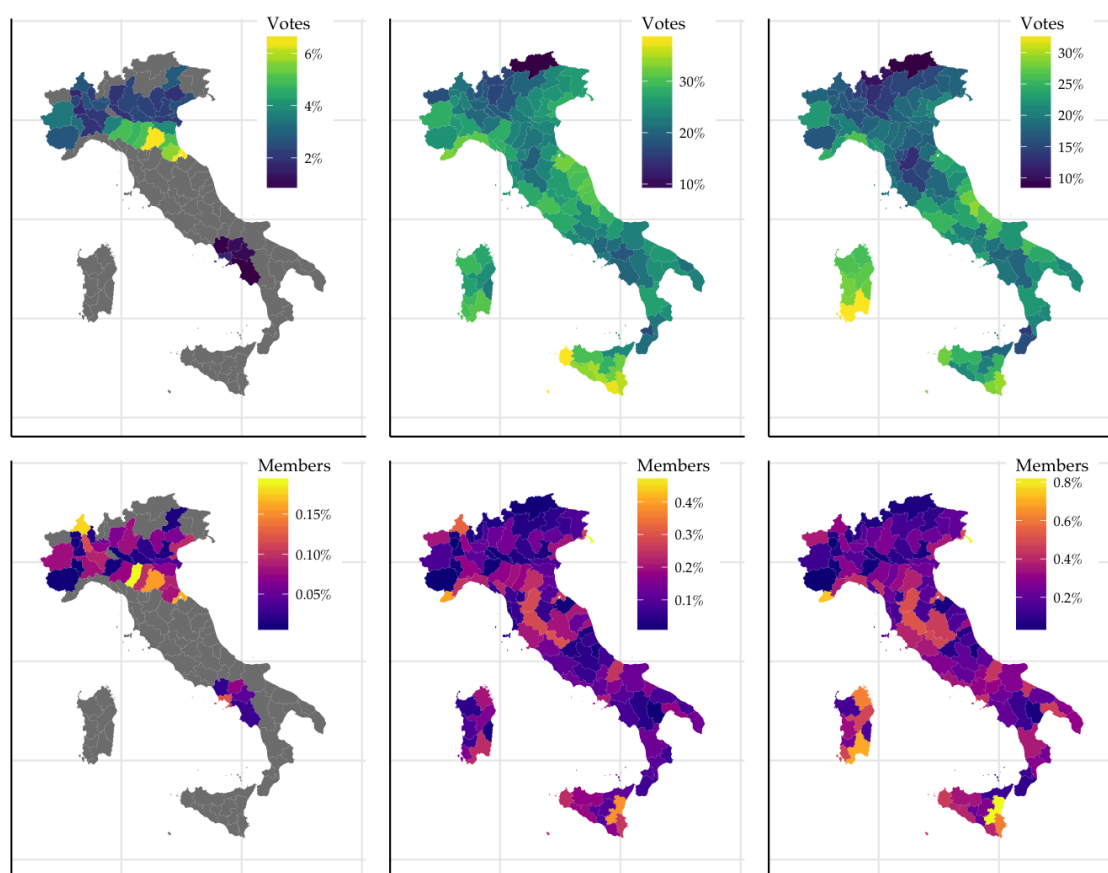
Figure 4.4: *Votes and meetups' members as percentage of total voters.*

area (e.g. targeted political ads, campaigning by national leaders). The second set includes variables describing the electorate of the area; the same political message can be relatively more or less effective depending on local receptivities (e.g. past voting patterns, unemployment, wealth, Internet access). Nevertheless, the assumption of importance of these variables does not decrease the interest of the uncontrolled relationship between membership and voting. In fact, even assuming an *effect* of variables from both sets on voting and an *interaction* with membership, it is on the relationship between Meetup membership and voting— either *significant and positive* or *insignificant*—that finally points to the electoral relevance or irrelevance of Internet-mediated mobilisation.

The decline in the strength of the effect between 2010 and 2014 can be explained by at least three possible concurrent factors. First, members who joined as

early as 2010, before any major electoral success of the Movement, were possibly more active and effective than later members in campaigning for the movement within their own social networks. Second, it is clear from Figure 4.1 that the electoral successes since the 2012 elections did preceded (and likely *caused*) an increase in membership. It is reasonable to postulate the existence of a *positive feedback loop*, in which membership positively influences votes that in turn positively influences membership. But as elections accumulate and the Movement consolidate its basin of support and electoral weight, the effect of membership on votes (as well as that of votes on membership) necessarily diminishes. Third, as the Movement gained in national media attention after 2012 (see Figure 4.17), the territorial effect of local meetups decreased since voters were exposed to the Movement ideas also via the legacy media and independently of their location.

It is not difficult to understand why a strong membership base might be effective in generating votes. In the case of a party or movement running for the first time, the ground work of members can be particularly valuable during a political campaign to generate attention towards and knowledge of the new political subject, because members can be actively engaged in the campaign but also because they can leverage—and influence—their personal networks (family members, friends, colleagues).

To complement the analysis I also added a set of variables that measure the activity on Facebook pages linked to the Movement. Unfortunately, contrary to Meetup, the API of Facebook does not allow a *search* of public pages. It is then not possible to ensure a complete list of all public pages that attracted comments, likes and attention of sympathisers and potential voters of the M5S. To complete a list of public Facebook pages that was sufficiently comprehensive, I followed this procedure. First, I searched a database of 1602 M5S groups registered with Meetup (as of October 2016), for a possible indication of a link to a Facebook page either in the dedicated field that Meetup assigns to this scope or in the short description that appears on the page of the group. Of the 1602 groups, 707 (44%) indicates on their Meetup profile a Facebook page. This already is an indication of

the importance that Facebook plays in the ecology of the M5S. Starting from these 707 Facebook pages, I then used a snowball sampling to expand the list. For each of the Facebook pages, I requested through the Facebook API the complete list of pages liked by it. This returned 4841 additional pages that were all manually checked to exclude pages not related to the M5S. The final list included 2475 Facebook pages: 80% pages groups and 20% pages of public figures linked to the Movement.

Finally, in order to assess whether the activity on Facebook correlated with the votes received by the M5S at the provincial level, I tested whether pages could be geolocated. When the geographic coordinates of a page were not explicitly indicated, geolocation was conducted by comparing each token contained in different fields of the page's metadata to a dictionary of Italian geographic entities compiled by geonames.org.[8] This allowed assigning a latitude and longitude to 85% of the pages. Clearly, it was not possible to assess whether a page had only a *national scope* or a *local scope* (or whether instead had a *mixed scope*), that is if the attention generated by a page was dependent or independent from the geographical location of users (who I assume to be also voters). For example, it is clear that the page of Beppe Grillo has a national scope, although it provides as location Grillo's home city—Genoa. In order to only include in the analysis pages with a more local scope, I proceeded as following. Assuming that a page with a national scope tends to receive likes from users *independently from* users' location and a page with a local scope tends to receive likes *dependently on* users' location, I constructed a network mapping the relation among pages based on the co-occurrence of liking from the same user (that is, I draw an edge between two pages when the same users liked a post on both), then measured the geographic distance between each pair of pages and finally calculated the mean of the distances connecting each page to other pages weighted by the number of co-liking users. With this approach, pages with a national scope were assigned

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[8]Specifically, in the case of person the fields that were searched (in this order) were `location.city` and about while in the case of groups `location.city`, `name` and about.

a higher weighted mean than pages with only a local scope. I fixed a threshold at a distance of 409km (the mean of the distribution of weighted means) and so excluded from the geographic analysis 282 pages that were inferred to be national in scope.

Figure 4.5 indicates that there is correlation (confirmed by a significance test) between the electorate of provinces, measured in terms of the number of voters in the 2013 general election, and both the number of geolocated Facebook pages in the final sample and the cumulated number of likes they receive. This would suggest that indeed the sample is comprehensive: no province seems to be underrepresented in terms of the number of pages included in the analysis.
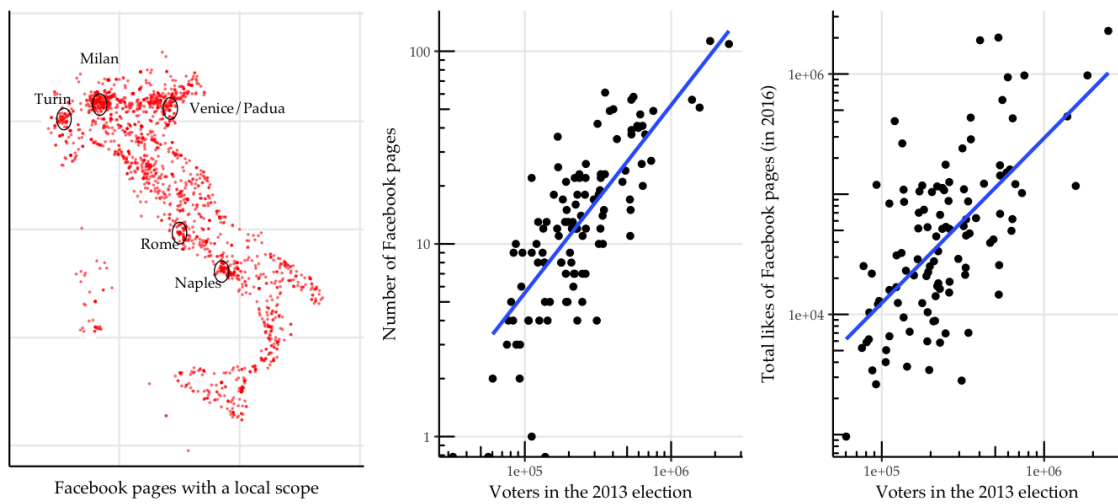
Figure 4.5: *Location of the 2094 Facebook pages and, grouped by province, correlation between voters in the 2013 general election and number of geolocated pages and their total number of likes.*

Based on the activity recorded on 2094 Facebook pages during the 90 days preceding the general election of 2013 (of which only 2085 were active), there is no significant correlation (although it is positive) between users' presence on social media, either by commenting or by liking, and the votes for the M5S in the 2013 general election (see results of the regression analysis in Section 1 of the Appendix). When controlling for the number of unique users liking or commenting on local Facebook pages against the vote received by M5S in

the same provinces, the Facebook activity is insignificant while membership of meetups remains significant. There are of course important limitations in using social media data to control for local votes. First, contrary to membership data from Meetup, users' data from Facebook does not contain information on where they actually live and the location of users is then inferred from their visible activity (liking and commenting). Second, Internet activity—as will also appear in the next chapter—tends to feature preferential attachment tendencies. That is, users will tend to comment and like very popular pages (that are mostly national in scope) instead of being attracted by peripheral pages. Nevertheless, even after excluding pages with a more national scope, the activity on the remaining pages is significant and well in proportion with the broad population of the provinces (see Figure 4.5). This would imply that if the strengthening of the mobilisation on Facebook and voting for the M5S are truly correlated, a significant and positive (even if weak) correlation should appear nonetheless.

In conclusions, meetups seemed to have had an important role in the extraordinary electoral success of the M5S in the 2013 general election but not participation on Facebook, which had no directly measurable role. This is relevant and testifies that Internet technologies, by wiping out the costs of coordination and spreading information, might have significant and lastly political consequences on the entry barriers to new political subjects aspiring to trigger mass mobilisation. Meetups required no investment of resources from the leadership of the Movement—Grillo only published a link to Meetup.com and passed entirely to the networking site the burden of coordinating the activities of militants. This is clearly not easy to replicate (it took years for Grillo to reach a critical mass of supporters) but possible. Still, the Movement had to invest resources in creating and curating content to keep the audience of supporters engaged. In the next section, I explore how the media system gravitates around the blog and its different components.

2. The political identity of the M5S

2.1. The program of the M5S

To talk about the political identity of the Five Star Movement (M5S) is not only politically contentious but also practically challenging because of the different axes (at least three) along which the M5S has been developing: the vertical top-down axis from Beppe Grillo to his followers (and sympathising voters), the horizontal axis connecting thousands of militants across the country to local, flexible and loosely organised meetups, and finally the cloudy axis linking Internet users through the different online communicative platforms pertaining to the Movement.

The results of the 2013 general election raise questions on the characteristics of the electoral base of the M5S and more generally on the characteristics of the Movement itself: what does it represent for the Italian party system and where can it be situated within the European left-right political tradition? To try to answer these questions I propose in this section the analysis of the program of the M5S, and in the next section, of electoral flows from other parties to the M5S.

The program of the M5S appeared online as early as 2009[9] and only minor changes have been introduced over the years: the seven sections of the second version of 2009—state and citizens, energy, information, economy, transportation, health, education—are maintained in the version accessed in 2015 (Movimento 5 Stelle, 2015), which is identical to the version published before the general election of 2013.[10] The quantitative analysis conducted by the Manifesto Research on Political Representation (MARPOR) project (Volkens, Lehmann, Merz, Regel, & Werner, 2014) on the 2013 program collocates the Movement on the extreme left of the political spectrum: in fact, based on the coding of 167 party positions

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[9]Version '2.0' published in October 2009 is still available online on the *Internet Archive* (Movimento 5 Stelle, 2009b)

[10]The 2013 version is maintained on the website of the Manifesto project (Movimento 5 Stelle, 2013)

between 1946 and 2013, it is the most far-left program ever presented by an Italian party.

This result does not necessarily reflect how voters *perceived* the Movement. Data from surveys conducted among M5S voters clearly pointed to an electoral base that was almost equally represented by right-wing and left-wing voters. Moreover, the coding of the program is heavily influenced by the significant and certainly not accidental absence of any mention of issues such as foreign policy, immigration policy, taxation and importantly the European Union (which by itself would have moved the barycentre of Movement much more to the right). Still I argue that the program (even if not a comprehensive program) is important to characterise the genesis of the Movement, to trace its political evolution from its origin as movement centered on the environment and social protections and to understand the identity that the Movement likes to project: as of July 2017 the same program (with only minor edits) is still linked to the homepage of the M5S[11]. Finally, the fact that the Movement is clearly off-chart relatively to all the major parties of Republican Italy points to the extraordinariness of the new movement and to the limits of describing it through traditional systems of reference.

The upper panel of Figure 4.6 shows the density distribution of 167 positions of Italian parties coded on a -100 (left-wing) to +100 (right-wing) scale. The median of the distribution (also indicated) is close to zero while the position of the M5S - with -49 - is 29 points below the second most left-leaning party running in the 2013 election. The bottom panel of Figure 4.6 tries to understand on what such an extreme position is based by comparing the position of the M5S in three different dimensions: planned economy, market economy and welfare (the M5S did not express any foreign policy position in the program). Accordingly, the Movement scores low (higher scores represent more favourable positions in that dimension) in terms of market economy positions (although not too far from the median), is in the right tail of the distribution for welfare and totally out of the

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[11]http://www.beppegrillo.it/movimento/

distribution for planned economy.
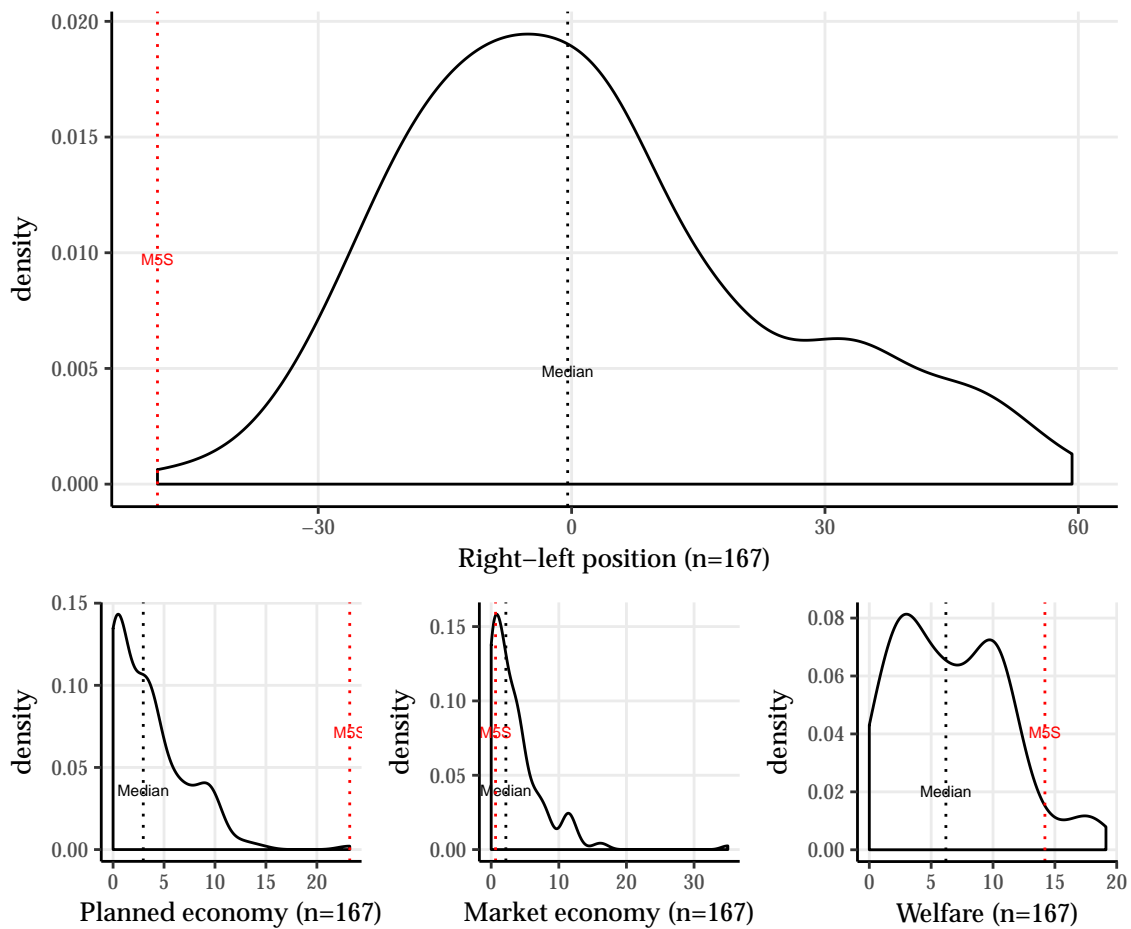
The M5S program is compared to those of other Italian parties (1946-2013) over four dimensions: political position on a left-to-right (negative-to-positive) scale, on planned economy, market economy and welfare. Source: (Volkens, Lehmann, Merz, Regel, & Werner, 2014)).

Figure 4.6: *Quantitative content analysis of the 2013 program of the M5S*

Although it can be debated whether the position of the program of the M5S was indeed so extremely on the left of the political spectrum if compared with other Italian parties, it is a fact that all issues raised in the program were compatible—virtually with no exceptions—with positions expressed by traditional left-wing parties. Indeed in the left-wing tradition, the program seemed more interested in defending the common good and the state from special interests instead of defending citizens *from* the state. The program demanded strong

state intervention in the economy; the provision of a thick net of public services (basic income, free university education, free health care, free Internet); stringent rules for the protection of the environment; and political reforms towards a more ethical and more democratic representative system. In general the style of the analysis of current economic problems mixed anti-establishment and anti-capitalist rhetoric: according to the program the roots of Italy's problems were the large monopolies (both public and private) protected by a corrupt political class. The solution offered by the Movement was to provide on the one hand support to small, local, and non-profit enterprises and on the other to bust big businesses and their clienteles (which of course are not incompatible with right-wing views). The program was silent on issues that are traditionally linked to right-wing parties. *Safety* (being related to the economy, the environment or personal health) concerns were central to the program as much as *security* concerns were totally missing; moreover, no mention was made of foreign, migration and crime-control policies. Interestingly taxation—which almost every party, whether right or left-wing, must promise to reduce to favour economic growth—was also never mentioned in the program.

2.2. Electoral flows

A number of studies have been published offering an analysis of the dynamics of the electorate of the M5S. Bordignon and Ceccarini (2012) describes the electorate of a movement that at the time of the study was estimated to attract around 9% of votes in local elections but that was also already projected to potentially reach 20% of votes. According to Bordignon and Ceccarini, the electorate of the M5S was at least originally inclined towards the left of the political spectrum and it was mainly 'young, educated, a resident of medium-large cities' and more connected to the Internet than the average. Referring to a survey study conducted between 2010 and 2012, they argue that the political profile of the electorate had been changing: during this period the percentage of potential M5S voters who self-identified as right-wing or centre-right-wing grew from

11% to 28%. In a more recent study, Pedrazzani and Pinto (2015) observed that the same trend continued after 2012: an analysis of opinion polls conducted between 2012 and 2013 confirmed that the fraction of electorate inclined towards the M5S that voted centre-right in 2008 grew from 27.6% before the 2012 local elections to 42.1% during the 2013 national election. Diamanti (2014) described the Movement as a bus driven by Grillo: the Movement initially took on board left-wing supporters mobilised around traditional environmental issues, subsequently stopped opening the doors to right-wing voters dissatisfied with the leadership of their parties, and finally - just before the 2013 general election - attracted supporters of Matteo Renzi (Italy's current prime minister) who had been recently defeated by Bersani in the primaries of the Democratic Party. According to Diamanti 'the M5S offered hospitality and citizenship to all those dissatisfied and frustrated with the combined ethical, political and economic crisis [...] the Movement became a vehicle for anti-political protest'. But this position would imply a conscious strategy deployed by the Movement to attract right-wing voters. It instead entirely possible that the electoral flows that finally brought voters to the Movement from different political parties were due more to the weakening of these parties than to the actual political offer advanced by the Movement.

In any case, data produced by a national electoral study conducted in 2013 after the general elections (Associazione Itanes, 2013) confirmed that the electorate of the M5S was indeed extremely composite and almost specular along the axis separating the left and right hemispheres. The first interesting result (Figure 4.7) concerned how the M5S voters self-identify: more than 60% refuse to take a position between right and left, 20% declare themselves as left-wing and 8% right-wing. According to these figures, the M5S electorate is less left-wing than the overall sample (3 percentage points difference), less right-wing (5 percentage points) and more uncomfortable with traditional left-right labelling (10 percentage points).

To understand which party is better represented among M5S voters, I compare in Figure 4.8 the percentage of 2013 M5S voters according to their declared vote
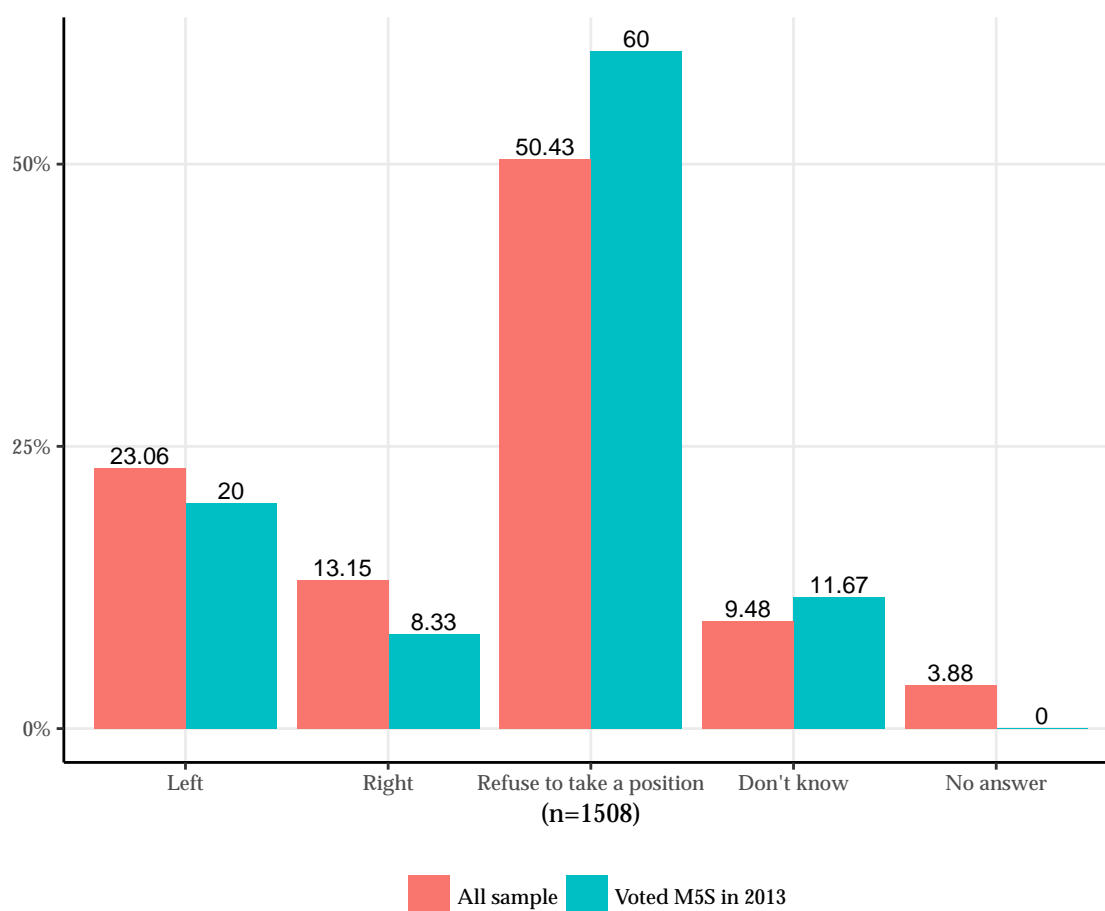
Source: Associazione Itanes, 2013.

Figure 4.7: *Self-identification of people who voted for the M5S in the 2013 general election.*

in the 2008 general election and the national results of the same parties in 2008 (ordered left to right on the horizontal axis from far-left to far-right). Clearly, no party is strongly overrepresented and the 2008 preferences of M5S voters seem to closely map the actual result of each party in that election. The only parties to be somehow overrepresented are SA (the Left - the Rainbow) and IdV (Italy of Values); most of the other parties show very limited differences including the two major parties: the PD (Democratic Party, with a difference of less than 4 percentage points) and the PDL (the People of Freedom, with a difference of less than 3 percentage points). The LN (Northern League) on the far-right shows a difference of only 1.3 percentage point. If we group parties in

two broad coalitions (although not the actual coalitions of the 2008 election which were highly fragmented) we observe that 47% of M5S voters voted in 2008 for a centre-right party while 53% a centre-left party.
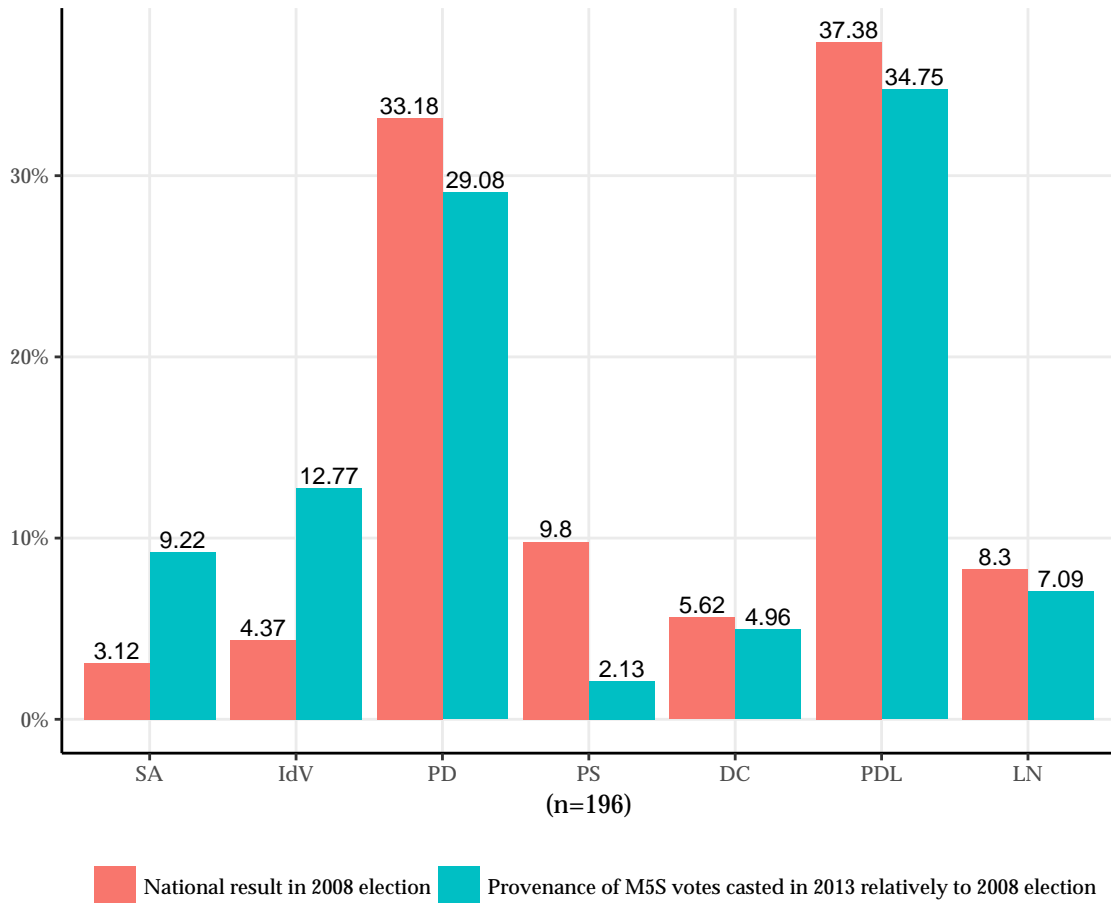
Source: Associazione Itanes, 2013.

Figure 4.8: *Party voted in 2008 by people who voted M5S in 2013.*

2.3. Trust of M5S voters

The level of trust towards representative institutions (parliament and parties) is low across all respondents to the electoral survey. But the opinion of M5S voters appears less dependent on party voted for in the previous general elections. Distrust towards parliament and parties is—as expected—noticeably higher among M5S voters than among people who did not vote for the Movement in

2013 (including non-voters): 82% of M5S voters distrust parliament (11 percentage points more than non-M5S voters) while 94% distrust parties (again 11 percentage points more than non-M5S voters). When controlling for vote cast in 2008 by M5S voters, left-wing voters are only slightly less likely to distrust parliament (3.6 percentage points difference with 2008 right-wing voters) while the difference among non-M5S voters is not only stronger (8.6 percentage points difference) but also the association between direction of vote in 2008 (left or right-wing) and trust towards parliament is statistically significant (p-value is 0.04). In their opinions of parties, the difference among M5S voters disappears (left-wing voters are actually more likely to distrust parties by 0.7 percentage points) while it is maintained although it loses statistical significance among non-M5S voters: right-wing voters are more likely to distrust parties by 3.7 percentage points.

The fact that M5S voters have (low) opinions towards representative institutions that are independent from their past voting behaviour is confirmed by Figure 4.9 where level of trust towards parliament and parties is mapped to the vote cast in 2008. In the lower panels, opinions of left and right-wing voters are aggregated.

In conclusion, even though a sentiment of deep distrust is common among all respondents, a difference seems to emerge: the behaviour in the 2008 general election is less effective in predicting the level of trust among M5S voters than among the rest of the sample. This, along with the indeterminacy—and unpredictability—of the association between political opinions and voting behaviour illustrated before, may support the hypothesis that up to a quarter of the Italian electorate chose the Five Star Movement (M5S) not only as a form of protest against the political establishment but also because their set of political preferences was not accurately represented by any of the other parties present on the traditional right/left political spectrum.
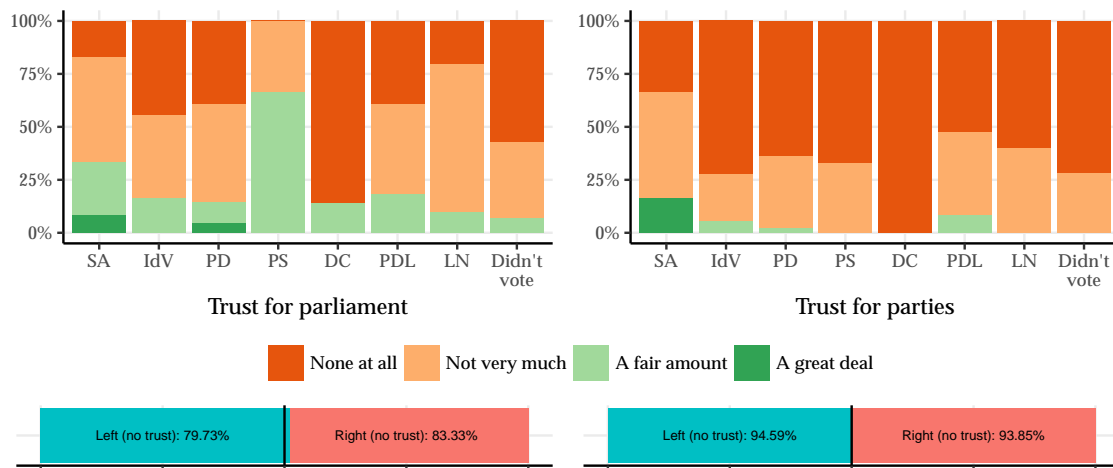
Source: Associazione Itanes, 2013.

Figure 4.9: *Trust of 2013 M5S voters towards parliament and towards political parties based on 2008 vote*

Party first national electoral competition

3. A new media ecology, and a new media actor

3.1. ICTs diffusion in Italy

With the beginning of the 21th century and the mass-marketing of ICTs, the media landscape of the more economically developed countries (MEDCs) was progressively transformed by the spread of Internet access into offices and households; an additional item was added to a news media market composed then of only newspapers, radio and TV. In 2002 the relative importance of TV and newspapers in Italy was dissimilar to the average of European countries, with TV playing a more important role than newspapers in terms of diffusion of political news: in Italy 20.5% of the population did not read about politics in newspapers against a European average of 14%, while only 5% did not follow politics on TV against a European average of 6%.[12]

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[12]Survey (*n* =42,359) conducted in the following countries: Austria, Belgium, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Hungary, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Sweden, Slovenia

The rise of the Internet corresponded in Italy (as generally in MEDCs) to a progressive but steady decline in newspaper readership. According to the survey of media habits conducted every year by the Italian National Institute of Statistics (Istat), the percentage of Italians reading a newspaper at least once a week declined by 10 percentage points in 20 years: from 59% in 1993 to 49% in 2013. TV daily audience did also decline over the same period—although less sharply—from 96% to 92%. The percentage of Italians using the Internet at least once a week, measurement of which began in 2001, increased in 13 years by 31 percentage points, from 21% to 51% (see Figure 4.10). It is possible to argue that the Internet, in fact, *caused* the decline of newspaper readership and TV viewership[13], but whether or not a causality mechanism kicked in, with the addition of a new medium—the Internet—the media ecology most certainly changed.

From a news media perspective the Internet embedded the very same technologies for the mass distribution of audio, video and textual contents of older media, but it critically also democratised them by lowering their cost to zero. It was not just the cost of *broadcasting* the content that has almost disappeared (at least once the cost for an Internet-connected device has been paid), but also the cost of *producing* it, both because the Internet opened access to vast informational resources, which could be consulted and meshed to form original content, and because it compressed the costs of obtaining hardware, post-processing software and skills. Indeed, the Internet must be also be thought as a huge repository of shared technical knowledge which can be easily and (mostly) freely tapped to learn not only content-producing and content-distributing skills, but also techniques such as photo and video-editing or web and graphic design.

(Norwegian Social Science Data Services, 2002).

[13] As noted by D'Arma (2015, pp. 69-71) newspapers in Italy were able to gain online readership through their websites more effectively than broadcasters
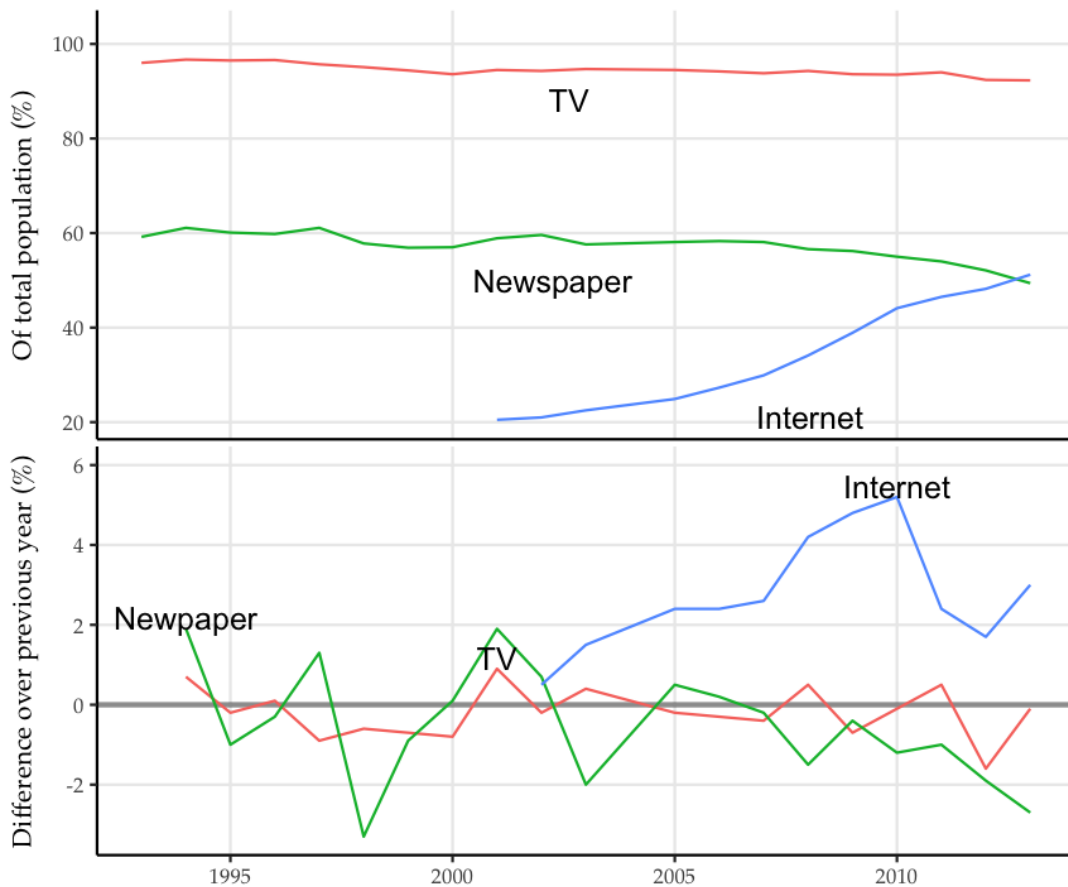
The percentage of the Italian population over three years old using Internet at least once a week, over six reading a newspaper at least once a week, over three watching TV. (Source (Istat, 2014a, 2014c)).

Figure 4.10: *Media use in Italy (1993-2013, n = 100)*

3.2. Blog as medium and message

In the first half of the 2000s, the breeding ground of the blog of Beppe Grillo was a community disempowered by traditional institutions but fundamentally empowered by a new generation of tools: a wary and mistrustful culture that embraced a *personalised* (see Inglehart, 1997; Dalton, 2008; Bennett & Segerberg, 2013), *projected-oriented* and *do-it-yourself* (see Bimber, 2003; Bang, 2004) approach vis-à-vis modernity's challenges. Out of a profound distrust toward traditional

economic, political, media and in general civil institutions (whether this was a party, the Church, a monetary authority, a multinational firm, a media conglomerate or a university) grew the awareness that independence from everything that was distrusted was not only conceivable but also affordable.

Grillo with his blog seemed to totally embrace this do-it-yourself mentality. Even the interface of the blog, which barely changed between 2005 and 2015, gave the impression of distance from the professionalism of politics and the media: the design of the blog was not only extremely rudimentary but also chaotic, with flashy ads, text, images, videos being meshed together and scattered over the page. The language used by Grillo was simple and vulgar, but also extremely clear, entertaining and rarely boring. Almost every blog post contained an image, introducing its content, often grotesque and funny, sometimes a childish collage of photos and slogans, always characterised by an amateurish style.

But notwithstanding this unprofessional style that still remains, Grillo's blog did maintain a stream of content produced and published with a constant frequency. Figure 4.11 plots the frequency of blog posts; the regularity in the number of posts published by Grillo's blog is impressive and more akin to a professional content agency than a personal blog: between May 2005 and January 2015, if we exclude 13 days, at least one blog post was published every day. It seems likely that the blog was never a one-man show and that an editorial team helped Grillo to post so frequently. Still it is interesting that even after years and millions of views the blog chose not to lose the visual style of a personal self-produced blog. This might be a precise editorial decision of those beyond the blog because the design of the blog and not only its content was an important part of the message and a reason for its success.

The very first blog posts to appear on beppegrillo.it attacked the political-economic establishment but also offered 'a way out': the Internet. On 28 January 2005, Grillo wrote a series of short posts almost in the form of aphorisms: 'Energy is civilisation. To leave it in the hands of pyromaniacs/oilmen is a crime' (Grillo, 2005d); 'The Net is the only way out' in a post titled 'The Net will save us' (Grillo,

2005k); 'What's politics? Nobody knows it anymore. Does it still make sense to talk of Right, and Left and centre? Maybe it makes more sense to talk of above and below. [...] In politics we don't need a leader, we are grown up people. We need a vision of the world [...].' in a post titled 'Politics disappeared' (Grillo, 2005j).

The blog was immediately *political* and the fact that only seven months after he started blogging, Grillo is ready to call his followers to meet and mobilise seems to support an early *political* scope of his acts. In the first two months of blogging Grillo targeted oil companies, the political party system, the Catholic church—although not the Pope (Grillo, 2005f), the ruling party (Grillo, 2005g), the economists (Grillo, 2005o), the US, an Italian defence conglomerate (Grillo, 2005a), the leading opposition party (Grillo, 2005n), the major Italian automotive company, the major Italian telecom company and the major Italian media company (Grillo, 2005l). But he also showed he had practical ideas against economic decline ('We will try to convince Heineken to keep the factory of Pedavena open and to close one in China' (Grillo, 2005m)) and car pollution (Grillo, 2005b). The blog was far from only a mobilising and motivational medium for Grillo's movement. From the very beginning, it was conceived as a source of information that was an alternative to the mainstream news media.

Indeed, Grillo did not only play the role of political commentator or satirist but also of news producers. He created news content, not because he claimed to be a professional journalist (he would keep reminding his audience he was neither a journalist, a scientist, a politician nor an economist) but because he maintained that the media was not providing the content it should. Italian news media companies, both public and private, were among the most recurrent targets of his attacks. Grillo used his blog to provide coverage of news content that was already somewhere in the news media sphere—he frequently embedded into his posts links to the source of the news—but that was not reported by traditional media. Although in most of his posts Grillo simply exposed a problem (whether pollution, economic decline or political decay), he also espoused *solutions* to

improve cities' liveability, public health, the economy, thus playing since the beginning a hybrid role of comedian, journalists and also of politician, in the sense of 'influencing the actions and policies of a government' ('Politics', 2016).
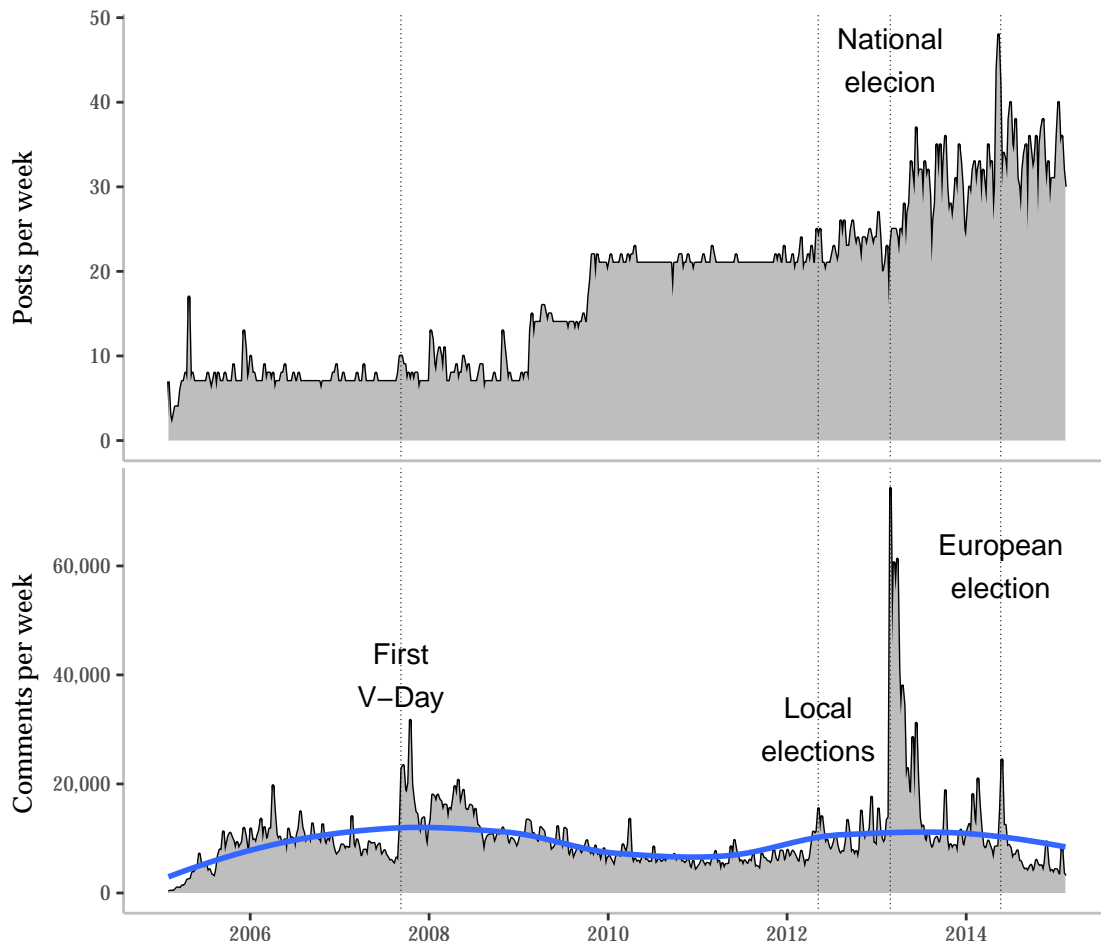
Figure 4.11: *Weekly frequency of posts and comments on beppegrillo.it (January 2005 - December 2012)*

3.3. From blog to community

The blog enterprise turned Beppe Grillo into a media actor and a highly relevant node in the Italian media sphere: according to Alexa, a firm tracking web traffic, in December 2005, only 12 months after the first post, beppegrillo.it was the 76th most visited Italian website (Internet Archive, 2005), and less than two years later it was the 49th (Internet Archive, 2007). Of course, the blog was

crucially different from traditional media since it also became a hub for an active community discussing Grillo's posts and themes: between the creation of the blog and the first V-Day an average of 7980 comments were published every week. The online community showed itself to be highly involved with the *offline* activities of the emerging movement since the days following the V-Day—which all data seem to indicate as the foundational event for the movement—the number of weekly comments peaked at 74,246.

A future analysis of the content of comments will offer the chance to understand motivations behind the raw numbers, but a merely quantitative analysis already offers the contours of a community which not only was receptive of Grillo's published content but also ready to *engage* with the content—or with what the content represents for them—and respond to Grillo's mobilisation calls by moving the conversation from screens to squares. Thus looking back at Grillo's enterprise, from 2005 to now, it appears that the network of postings, users, people, members, groups, meetings and mass events that emerged around his blog has been *hybridising* by progressively assuming the traits of news media, social movement and party organisations (see Chadwick, 2007, 2013), not only by adding nodes (see next section) but also by defining and redefining scope and functions of the network itself.

If the blog was born out of Grillo's desire to communicate with the audience of his shows while on tour, the large response from the very same audience (but maybe also from people who never directly attended his shows) turned it into something different: a forum for debate, where Grillo's voice was, of course, the most important but in quantitative terms represented only a small fraction of the volume of words being published. In fact, the ratio of words posted in the comment section to the words published by Grillo himself is 84 to 1. This interest in the blog also strengthened the role of an (alternative) news media agency that since his first steps Grillo had tried to assume.

3.4. The media system

It may be difficult to determine whether Grillo (and those counselling him) deployed a media strategy that was crafted in advance or whether he opportunistically adapted to unexpected circumstances. Yet it is clear that Grillo's media system progressively expanded into new roles (communicating, publishing, mobilising, campaigning, participating, deliberating and finally governing) and forms (blog, news agency, forum, social movement, party), complicating the task of comprehensively defining its final nature.

Figure 4.12 illustrates the chronological evolution of an integrated media system that progressively added complementary modules to the blog . The first module, Meetup, increased the *mobilisation* capacity of the community by adding a dedicated tool to help members coordinate meetings and activity on the ground. The second step, in 2006, was the creation of a YouTube channel, to facilitate *broadcasting* video content. The video was immediately an obvious choice for a person who grew up professionally on the TV screen. Even before the opening of a YouTube channel, videos of Grillo's monologues, shows, but also mesh-ups of interviews to others, were available on the blog. Interestingly, given the professional experience of Grillo, the production quality (audio, video, editing) of the video content, at least at the beginning, was poor and amateurish. It is certainly possible that presenting the content through low-quality interfaces was (and possibly still is) a choice to stress the traits of the initiative of an 'active citizen' (see Bang, 2005) and differentiate it from the production of professional traditional media institutions.[14] The third step was the creation of Grillo's Facebook profile in 2008 as a presence in the most rapidly growing social media

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[14]The design of the blog itself still maintained in 2016 an amateurish flavour, very different from highly sophisticated web-interfaces that are certainly available to a blog which could attract up to 600,000 daily unique visitors and possibly generate, according to estimates based on the number of visitors, between $ 7.5 and 15 million in revenues from ads (Di Salvo, 2014; see also Marone, 2014).

The thick arrows follow the chronological order of development. Nodes unconnected by arrows have no public date of creation. The number of 'users' for the Blog, the Forum and the two Facebook pages indicates the number of unique users who actively engaged with the site thought textual postings, excluding users engaging only through 'likes' or 'shares'.

* The number of unique users is estimated by comparing usernames. Data collected up to May 2015.

Figure 4.12: *The integrated digital media system of Beppe Grillo and the M5S*

community in Italy.[15] Notably Grillo's Facebook page, which in 2010 was also flanked by the Facebook page of the M5S, is often used to repost the same content

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[15]According to estimates the number of Italians using Facebook grew from 0 in January 2008 to 26 million in January 2014 (Cosenza, 2014)

of the blog (or links to it), and yet the frequency of activity generated on the page by users commenting, liking and sharing content is larger than the activity on the blog. Thus Facebook, in terms of media functionalities, plays a role similar to the blog, broadcasting messages and facilitating discussion, but the node's existence is crucial to tap into the huge network externalities provided by the Facebook platform. The presence on social media services was finally completed with Twitter in 2009 (again a broadcasting service which leverages a large network of users) and most recently Google+.

In 2009 Grillo enriched his blog with a new service: a forum open to registered members to publish and discuss policy *proposals* and the political strategy of the movement. The forum was a public service (certified and legitimised by being within the domain beppegrillo.it) to facilitate *participation* but also to publicly testify the open, democratic and innovative character of the movement. Somehow the forum reproduced a *weak public sphere* (see Fraser, 1990; Mansbridge, 1999) playing a Habermasian *deliberative* role by shaping the opinion of the movement[16]. Indeed the forum did not embed any formal mechanism to sanction the position of the movement, such as a voting system, and crucially did not enforce the closure of any discussion; that is, when a proposal was published, it would be indefinitely kept open for the community's comments.

In 2013 Grillo created again within his inner domain the *strong public sphere* of the movement: the 'Operative System of the M5S', later rebranded 'Rousseau', which was in charge of approving, with an online voting system open to all members, the official position of the movement with implications for the parliamentary activity of the 144 MPs of the M5S. Interestingly the 'Operative System' was the only module of the M5S media system not openly accessible: registered

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[16]According to Habermas 'there are contexts of action that do not primarily serve the carrying out of communicatively harmonised plans of action (that is, the purposive activities of the participants) but make communication possible and stabilize it—for instance, chatting, conversing, and arguing—in general conversation that becomes an end in itself' (Habermas, 1981/1984, p. 327). Thus *deliberation* for Habermas is not only defined by the production of authoritative decisions and deliberation may also happen *without* producing any formal decision.

users were the only ones authorised to view the propositions, vote and access the voting results. The creation of the Operative System palpably reduced the attention attracted by the Forum (see Figure 5.7).

Between 2010 and 2013, additional news media items entered the orbits of Grillo's blog. In 2013 Grillo created on his blog a webTV channel ('La cosa') dedicated to stream professionally edited video content in the form of short news stories and live-streams of Movement events. Finally, there was the addition of two news aggregators, which although not part of the domain beppegrillo.it, were strongly integrated with the blog through the presence of links. These two news aggregators, tzetze.it and lafucina.it, published a constantly updating list of news items selected by users and supportive of the positions of the M5S.[17]

At the end of 2013, the Movement had 144 MPs voted into office, multiple and sophisticated news media channels and an active crowd of engaged 'users' meeting regularly across the country and on the Internet. Without compromising the overall coherence and stability of the political enterprise, the M5S demonstrated to be effectively able to synthesise the traits of a news media organisation, a social movement organisation and party organisation, simultaneously operating different organisational forms, with injection of rigid hierarchy and procedural rules in regions of what may appear as a fundamentally acephalous body. But of course the long-term sustainability of the project is far from assured since the media system, being constitutionally unfit to exercise preventive control on users' behaviour, can only rely on *ex-post* repressive measures[18] to maintain internal coherence which must necessarily be perceived by the users as *exceptional*—instead of *ordinary*—system maintenance measures.

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[17]Notably, the two websites are owned by Gianroberto Casaleggio, the architect of the media strategy of the movement.

[18]As of December 2015, 37 MPs of the M5S have been expelled from or have left the Movement

4.   Legacy media and the success of the M5S

4.1.   The general elections of 1994 and 2013

The M5S, with over 8,800,000 (25.6%) votes obtained in the 2013 Italian general election, is at the time of writing the fifth most popular party ever in a general election in the history of the Italian republic. Although the M5S trajectory is certainly impressive for a newcomer party—having conquered one-quarter of the Italian electorate in its first major electoral contest—it is not unprecedented in recent years: in 1994 a political outsider, Silvio Berlusconi, gained 8,100,000 votes (21%) in the Italian general election with his party brand-new party, Forza Italia (see Figure 4.13). The most disruptive political innovations of the last twenty years of Italian history were created by two charismatic leaders who both owe their pre-political success to the very same thing: television broadcasting.

The Berlusconi and Beppe Grillo political movements were exceptional in the Italian political tradition because they were the only two electoral parties since 1948—the date of the first general election after the abolition of the monarchy and the fall of the fascist regime—with no historical connection to any other party to obtain more than 20% of the national vote and in fact, together with the Northern League in 1996 that nevertheless was created by federating different regional parties, to obtain more than 10% of the national vote. All the other parties that have gained more than 10% of the national vote between 1948 and 2013 were direct heirs of the legacy of the Christian Democracy (DC in the Italian acronym), of the Italian Communist (PCI) and Socialist Parties (PSI) and the post-Fascist Italian Social Movement (MSI) (see Figure 4.13).

The general elections of 1994 and 2013 have been described as 'turning points' in the history of the Italian Republic (D'Arma, 2015, p. xi). The election in 1994 saw the disintegration or profound transformation of all the major parties that had occupied the political scene since 1945 and—thanks to a reform of the electoral law—the party system transitioned to a bipolar setting characterised
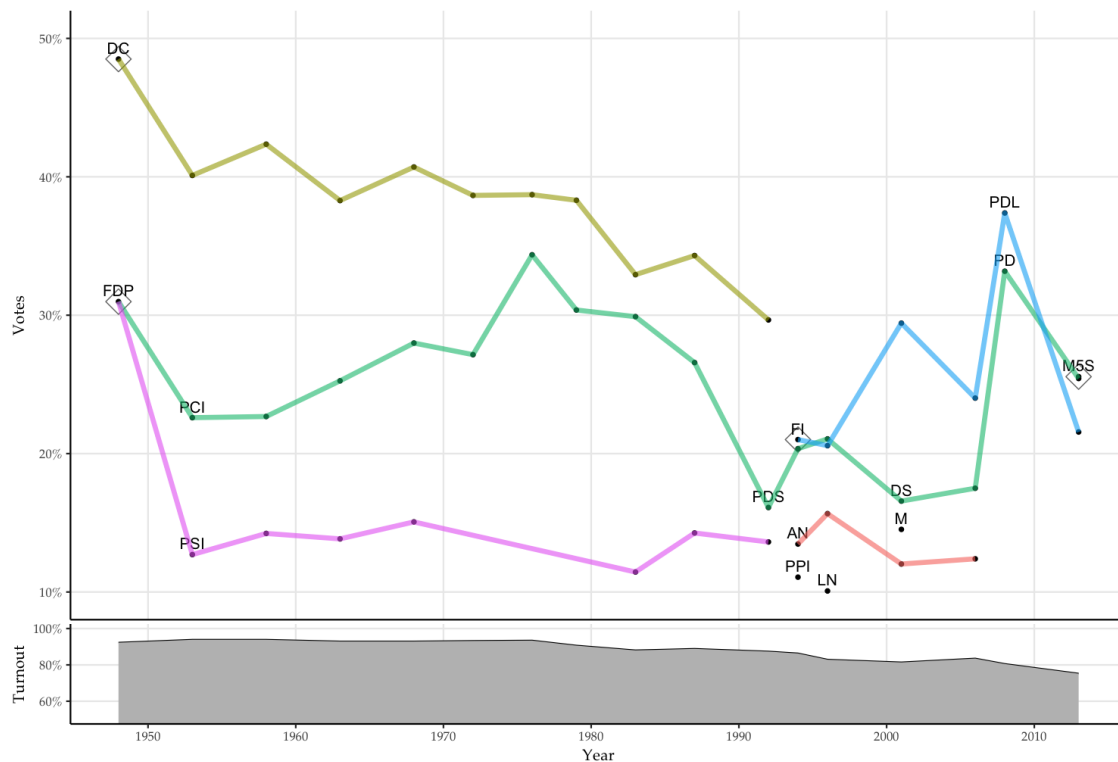
◇ = Party first national electoral contest.

Lines join same parties or different parties with common tradition across time.

All data refer to election results for the Chamber of Deputies, except for 2006 data, which refers to results for the Senate.

DC: Democrazia Cristiana; FDP: Fronte Democratico Popolare; PCI: Partito Comunista Italiano; PSI: Partito Socialista Italiano; PDS: Partito Democratico della Sinistra; FI: Forza Italia; AN: Alleanza Nazionale; PPI: Partito Popolare Italiano; LN: Lega Nord; DS: Democratici di Sinistra; M: la Margherita; PD; Partito Democratico; PDL: Popolo della Libertà; M5S: Movimento 5 Stelle.

Source: (Ministero dell'Interno, 2013)

Figure 4.13: *Vote distribution in Italian general elections (1948-2013)*

by two broad centre-right and centre-left coalitions. The general election of 2013 again shocked the party system by undermining, with the introduction of a third major party, the bipolarity that had characterised every general election since 1994. In both cases since neither party could count on the infrastructure of a mass organisation to mobilise electoral support, media were crucial in delivering their message to the electorate. And television played the workhorse role.

4.2. The rise of Forza Italia and the role of television

In January 1994 Silvio Berlusconi founded, funded and shaped his political creature, Forza Italia, in the image of his own company, Fininvest (which might have directly lent to the new party up to €11.70 million[19]), and leveraged its financial capacity, human resources, and—critically—mass media infrastructure (Hopkin, 2004). Although Berlusconi's communication and political skills did play a fundamental role in an almost unprecedented electoral success for a new party, the corporate backup crucially provided the resources to broadcast the party's message and reach voters (see McCarthy, 1996): in 1994 Silvio Berlusconi demonstrated that the Italian party system was open to new players that could mobilise mass support by deploying the resources of a €9.96 billion corporation.[20]

It is interesting to compare the development of what was to become the M5S with Berlusconi's Forza Italia. Meetup membership appears to be a good indicator for the actual membership of the M5S since the two numbers are relatively close—as of January 2014 there were 76,764 Meetup members against 87,656 people registered with the M5S (Grillo, 2014)—and it is reasonable to assume that the two memberships grew similarly. In quantitative terms, the mobilisation effort of the M5S through Meetup was slower than the mobilisation of Forza Italia. Accordingly, Forza Italia was conceived in mid-1993 but already in March 1994,

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[19]At current value. The figure of 14.40 billion Italian lire was published in a report by the auditing firm KPMG (Bonini & Fedrizzi, 2001)

[20]At current value. The *New York Times* reported Fininvest to be worth US $ 7.20 billion in January 1995. (Tagliabue, 1995)

just before the General Election, the 'Associazione Nazionale dei club "Forza Italia!"' had 14,200 members who signed up paying € 20.25 (at current value) (Poli, 2001, pp. 47-48). It took 3 years and 3 months to Grillo's 'meetups' to mobilise the same number of members.

The rapid rise of Forza Italia and the election as Prime Minister of Berlusconi only a few months after creating his political movement—significantly both Berlusconi and Grillo refrained from the use of the term 'party', an institution that both men accused of being part of the problem—has been largely attributed to television. Berlusconi was not only the owner of the three major private TV channels but also an unmatched TV communicator and TV salesman. In fact, according to Ginsborg (2004), the electorate that voted Berlusconi into office in 1994 was shaped during the 1980s by his TV shows. In the words of Bobbio (Bobbio, Bosetti, and Vattimo, 1994, p. 36 as cited in D'Arma, 2015, p. 8):

> I believe that television has played a decisive role, but not because Berlusconi has enjoyed greater visibility than his political rivals. It is rather that the society created by television is naturally a society of the right. [...] It is not Berlusconi as such who won; it is the society that his media and TV commercials have created that won.

Indeed, survey data confirm that television had been since 1968 by far the main source of information for voters. Figure 4.14 based on electoral surveys conducted between 1968 and 2013 (Associazione Itanes, 2013) shows the longitudinal evolution in the answer to two survey questions: whether the respondent followed political programs on TV and their primary source of information during the campaign. Television has clearly maintained a net predominance as informational medium during the campaign although in 2013 it declined slightly for the first time due to the growth of the Internet, which in any case is the primary source of information only for about 8% of respondents.
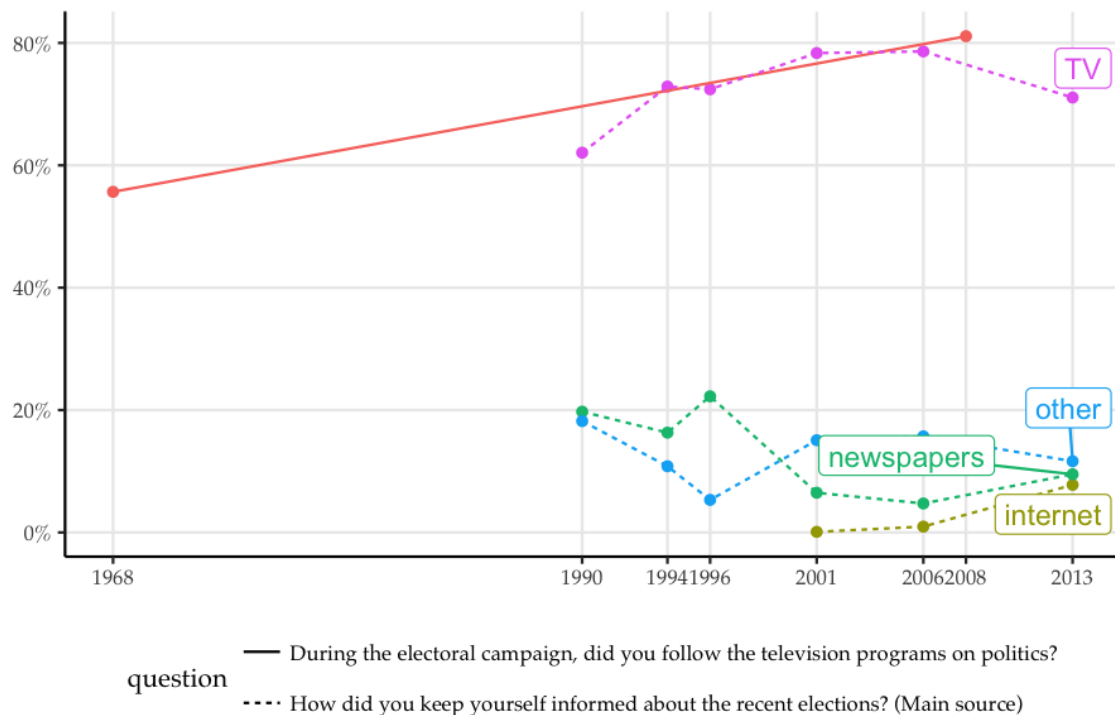
Figure 4.14: *Relevance of TV as source of information (source: Itanes, 2013)*

4.3. Media attention

If affinities in the trajectory and historical context of the rise of Forza Italia and the M5S have been widely discussed in the literature, the actual media attention catalysed by the two leaders has attracted considerably less attention. The fundamental role of legacy media in determining the electoral success of the two movements in 1994 and 2013 has never been disputed. If Berlusconi was directly present in the media, Grillo appeared indirectly (but still frequently) since the leader of the M5S refused to participate in political programs (Diamanti, 2014).

But media data presented in Figure 4.15 suggests instead that the level of attention dedicated to Berlusconi and Grillo was significantly different. By comparing the normalised frequency of articles mentioning the two figures in the two major Italian newspapers (*Corriere della Sera* and *Repubblica*) during the weeks around the elections of 1994 and 2013, it clearly appears that, if the attention

dedicated by the two newspapers to the two leaders before the campaign was somehow similar, Berlusconi attracted much more attention than Grillo in the weeks *preceding* the election while Grillo managed to increase his presence only *after* the unexpected electoral result.
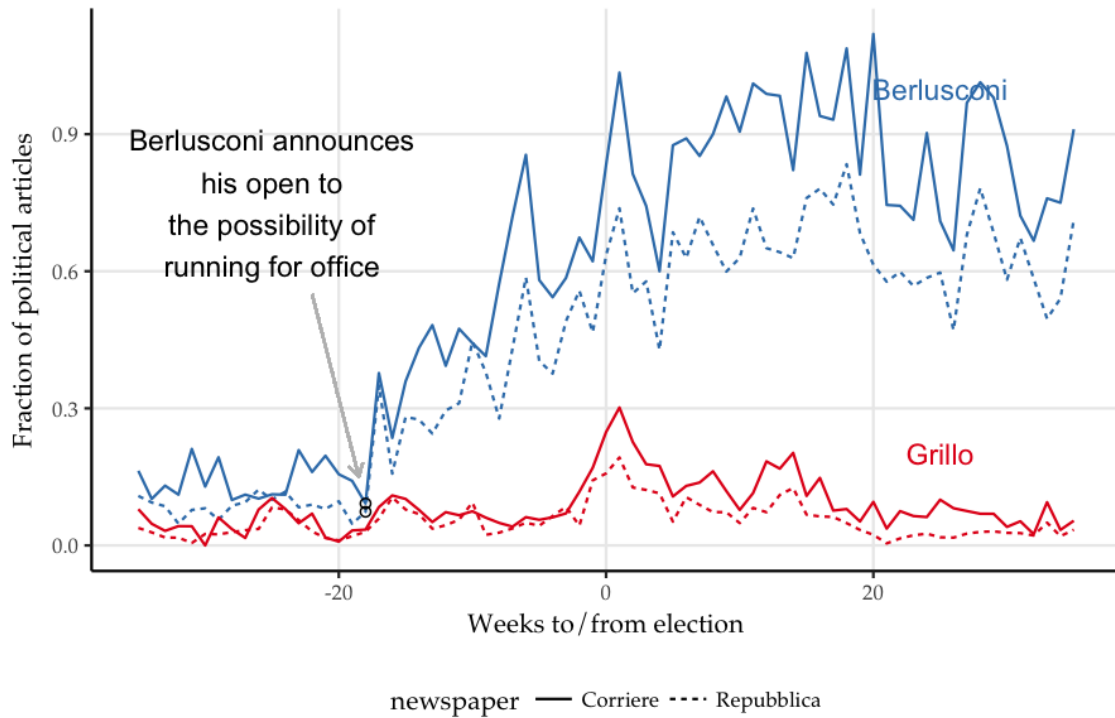
The number of articles mentioning Berlusconi and Grillo is normalised against the number of articles returned by searching the term 'politica' (Italian for politics) in the corresponding week.

Figure 4.15: *Presence of 'Silvio Berlusconi' and 'Beppe Grillo' in the two major Italian newspapers in the 71 days around the elections of 1994 and 2013.*

Grillo and the M5S also received considerably less TV attention than other parties running in the 2013 general election. Figure 4.16 presents the percentage of airtime dedicated to four parties on the six major TV channels as measured by Italy's Authority for Communications Guarantees (AGCOM, 2016). The four parties are the M5S, Berlusconi's Forza Italia (FI), the centre-left Democratic Party (PD) and the centrist Civic Choice (SC). The two networks, publicly owned RAI and privately owned Mediaset, followed similar behaviours, dedicating

approximately the same time to the four parties, with the only notable exception of Mediaset (owned by Berlusconi), that unsurprisingly dedicated relatively more airtime to FI. What is quite surprising is that the airtime dedicated before the election to the M5S is *lower* than that dedicated to any other party. It is clear that, even if television was certainly relevant in distributing political information, airtime did not translate proportionally into votes. In the 180 days preceding the 2013 general election, the M5S received on average 4.2% of the airtime dedicated to parties, while Civic Choice (also a new party) received 16%, the Democratic Party 24% and Forza Italia 34%. Still the M5S obtained more than 25% of the national vote, Civic Choice under the leadership of Prime Minister Mario Monti obtained only 8%.
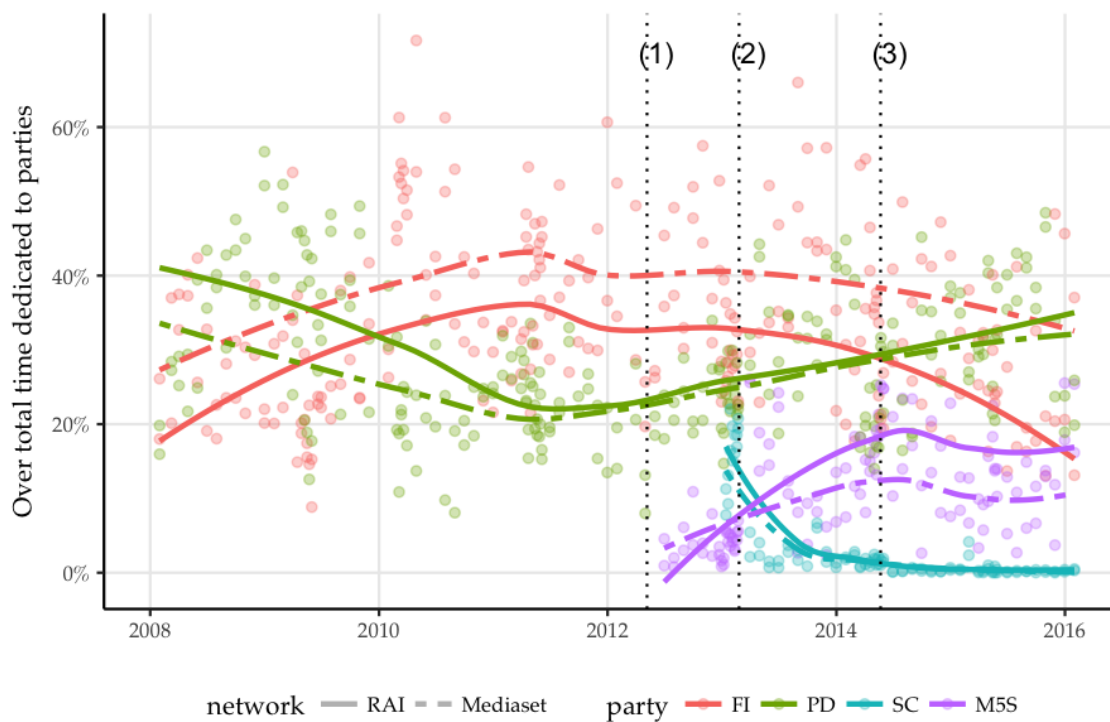
(1) Local elections of 2012; (2) General election of 2013; (3) European election of 2014. as measured by Italy's Authority for Communications Guarantees as percentage of time dedicated to all parties.

Figure 4.16: *Time dedicated to the three major parties during newscasts. (Agcom, 2016)*

But the level of media attention dedicated to Grillo and his movement was

low even before the electoral campaign of 2013 began (Mosca, 2014, pp. 41-42). The level of attention dedicated by the press and TV from the creation of the blog until the local elections of 2012 was stable and relatively low (see Figure 4.17). In the two major Italian newspapers, the number of articles mentioning Beppe Grillo and published between January 2005 (when the blog was created) and February 2013 (just before the general election) was on average one fifth of the number mentioning the leader of the major opposition party. Data from articles published in Corriere della Sera would suggest that the media seemed not to be particularly interested in the new movement until its first electoral success; the media did not provide the visibility and exposure that are usually indispensable to political parties especially during their first electoral campaigns, when they are unknown to most of the electorate. Even during the electoral campaign preceding the 2013 general election, the attention of news media towards Grillo was low compared with the attention dedicated to all the other candidates: in the 90 days preceding the election, 'Grillo was present only in 7 per cent of front-page news and in 5 per cent of the time dedicated to information TV. As a term of reference, the leader of the PD, Pierluigi Bersani, had 18 per cent and 13 per cent of the space in newspapers and on TV respectively; Silvio Berlusconi 35 per cent and 19 per cent.' (Legnante, Mancini, Mazzoleni, and Itanes, 2013 cited in Tronconi, 2015c, p. 216).

Interestingly the M5S succeeded in creating a totally new experience in Italian political history—a political organisation rising to national relevance without the support of any significant financial or organisational resource—largely thanks to the fact that ICTs brought the cost of reaching, organising and mobilising mass audiences down to zero (see Shirky, 2008; S. Coleman, 2012; Karpf, 2012). Yet traditional public and media events still had to play a (fundamental) triggering role to motivate people, by nurturing a *sense of empowerment* (Rainie & Wellman, 2012, p. 219), to participate on a scale that eventually made the difference between political relevance and irrelevance.
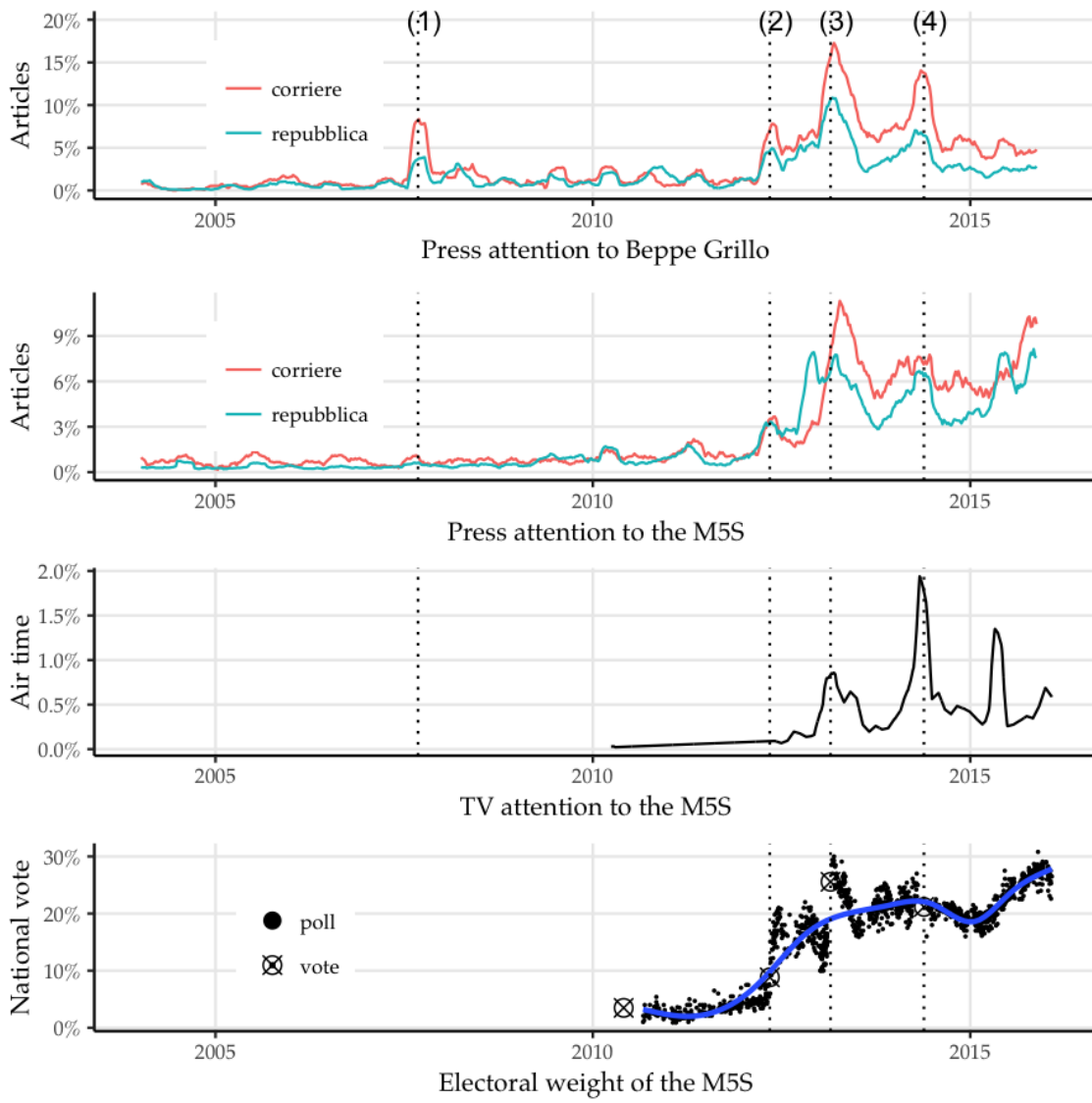
(1) V-Day in 2007; (2) Local elections of 2012; (3) General election of 2013; (4) European election of 2014

Figure 4.17: *Media attention attracted by Beppe Grillo and the M5S*

5.   Conclusions: The citizen-user

5.1.   The Internet as medium, identity and redemption

The mobilisation and eventually the organisation of the M5S was started and directed by Beppe Grillo from his blog. Since his early postings at the beginning of 2005, Grillo placed the Internet at the centre of its discourse; as a tool to communicate, inform and organise but also as a metaphor for a new way to see society as a decentralised, non-hierarchical, continuously deliberating, informed and efficient polity; as an instrument brandished against the establishment, the political class and the party system, but also the economic elites and the legacy media. A community of Internet users quickly formed around his blog and message. As much as they felt economically disempowered and politically disenfranchised in a dysfunctional system permeated by economic and moral corruption, they also felt distant from traditional political ideologies. But they were not without an ideology. In fact, the community embraced early an ideology defined by the system of ideas and ideals represented by the Internet and the unprecedented capabilities enabled by its technologies.

The Internet was a powerful (and, as I argue, essential) communication channel for Grillo and its nascent Movement but was never only a medium for communication. The citizens that populated the early online-only community, later mobilised in the networks of meetups and finally in the Five Star Movement (M5S), idealised their status of *user* of the Internet—as meta-institution to bring a revolutionary change to other institutions of society (state, economy and media)— and envisioned their role as users as an essential complement to their role as citizens. In fact, only their being *users* could re-empower them as *citizens* of an atrophic political system, that is, as relevant agents to bring about change.

We do not have a demographic picture of the community of citizen-users that created the conditions for the success of the M5S, but based on M5S voters responding in 2013 to ITANES electoral survey (2013, see Figure 4.18) we can

assume that they were probably younger (significantly, according to the electoral survey) and more highly educated (although not significantly). This, of course, makes sense if we consider that education and age strongly correlate with use the Internet, which was (and is) essential to participate in the M5S.[21] We can also assume that there are two attitudes that mostly define the community around the M5S: *distrust* towards representative institutions, expressed by almost the totality of M5S voters (see Section 2.3), and *economic anxiety*, felt by almost 70% of M5S voters (and by 46% of non-M5S voters, see Figure 4.18). That is a strong feeling of both political and economic disempowerment.

The profound and multilevel feeling of disempowerment permeating the community of activists indicates that the Internet must be intended, in the case of the M5S but also in the case of other anti-establishment movements, as an instrument of redemption and re-empowerment for the citizen-users. Grillo engaged people through his blog and his shows, but it was the Internet that gave them a voice and the possibility of meeting, discussing and organising. In fact, I argue, it was the sense of empowerment that citizen-users kept regularly receiving from their participation (in different forms, but always Internet-mediated) in the movement that sustained the movement between 2005 and its first electoral successes in 2012. It is no coincidence that the first boost in membership happened after the success of the rallies organised in September 2007 (see Figure 4.1). The Internet-based organisation delivered not only an event with high participation levels but also succeeded in attracting the attention of the legacy media (see Figure 4.17) which placed the movement on its radar.

Grillo's movement was not the only protest movement to emerge in the 2000s from the same milieu (anti-establishment, anti-capitalist, anti-corruption, see Della Porta, 2015b). But it was the only one to sustain its activities long enough

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[21]At the time of writing, although the Movement is the second group in Parliament party for size, registration to the M5S, to local meetups and deliberation are only possible online, which excludes members of more than 30% of Italian households that have no Internet connection (Istat, 2016).
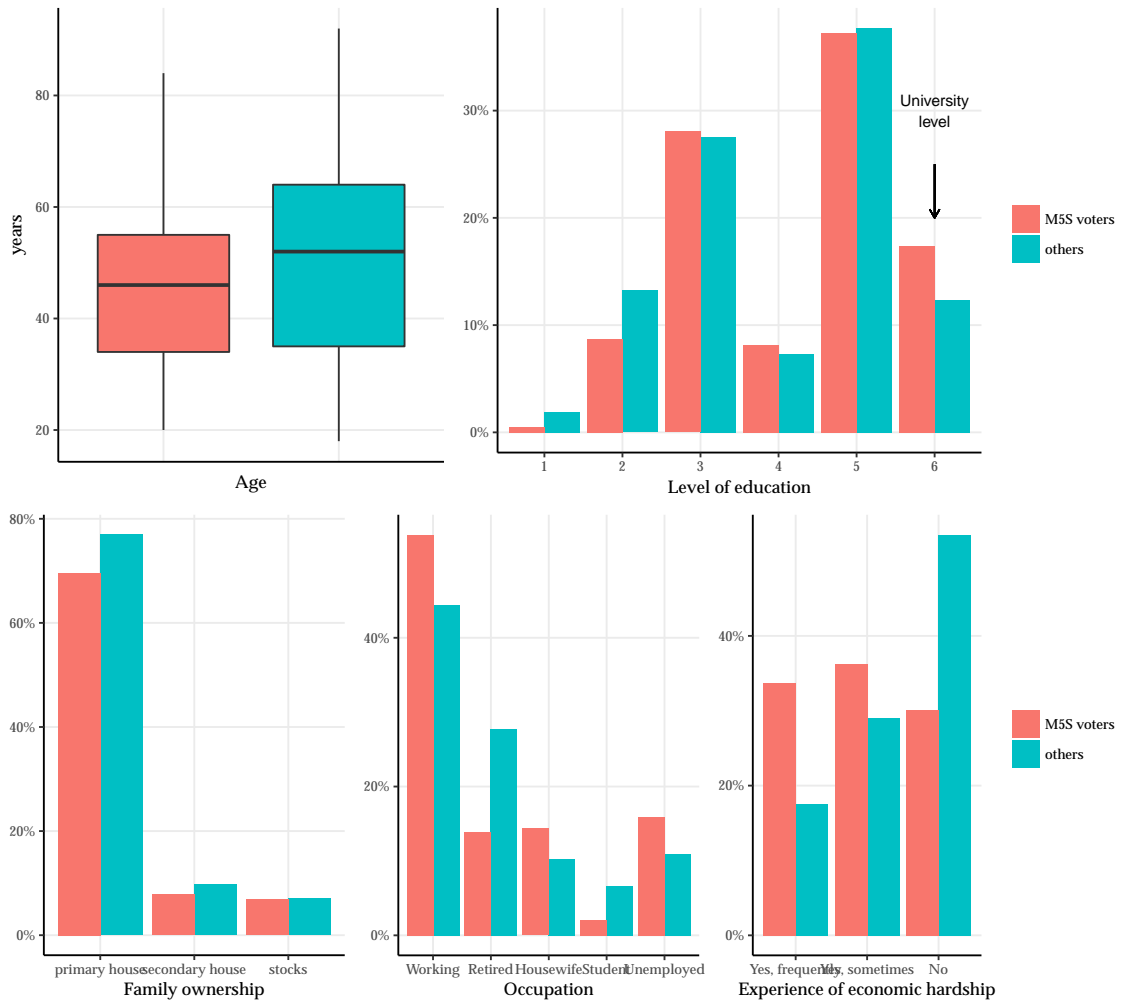
Figure 4.18: *Demographics of M5S voters (Itanes, 2013)*

to consolidate. This happened because of the charisma of the leader but arguably also because the movement effectively rewarded its members with a *sense of empowerment*, derived from an organisational success certified by the attention of legacy media, and with a *sense of community* maintained by a web of relations that took place on social media (which I will explore in the next chapter) and in person in thousands of meetings organised via Meetup.com.

5.2.   Evidence of electoral impacts

The relevance of the M5S does not stop at its organisational trajectory, which could mobilise and reach, depending on the definition of *mobilisation*, between 92,000 (those who have registered to a meetup of the M5S between 2005 and 2015) and 2 million (those who liked at least one post on the Facebook page of Beppe Grillo). The Movement participated in the general election of 2013 and gained almost 8.8 million votes. There are two observations possible based on that result. First, the size of its electorate must cast into doubt the definition of M5S as an Internet party. As indicated in this chapter, based on the electoral survey conducted after the 2013 election, 27% of the M5S voters have no Internet access and only 44% accessed any political content on the web during the campaign. Second, the proportion of membership to vote obtained in the election is historically low. If we consider only the membership of the Movement on the eve of the election (43,000), for each member registered to a meetup the M5S obtained 204.5 votes. To put this number into context it is useful to compare the ratio of votes received/membership by the M5S in 2013 with data collected about Italian parties for the period 1980-2007 (Mair & Biezen, 2001; Van Biezen, Mair, & Poguntke, 2012). In this period a linear regression analysis (in which 'year' is a control variable since Van Biezen et al. (2012) have empirically demonstrated that membership has been declining across Europe during the last decades) indicates that the association between membership and vote is strongly significant and that for an increase of one member there was an expected increase of 7.2 votes (see Figure 4.19). Interestingly, Berlusconi's Forza Italia (FI)—also a party strongly
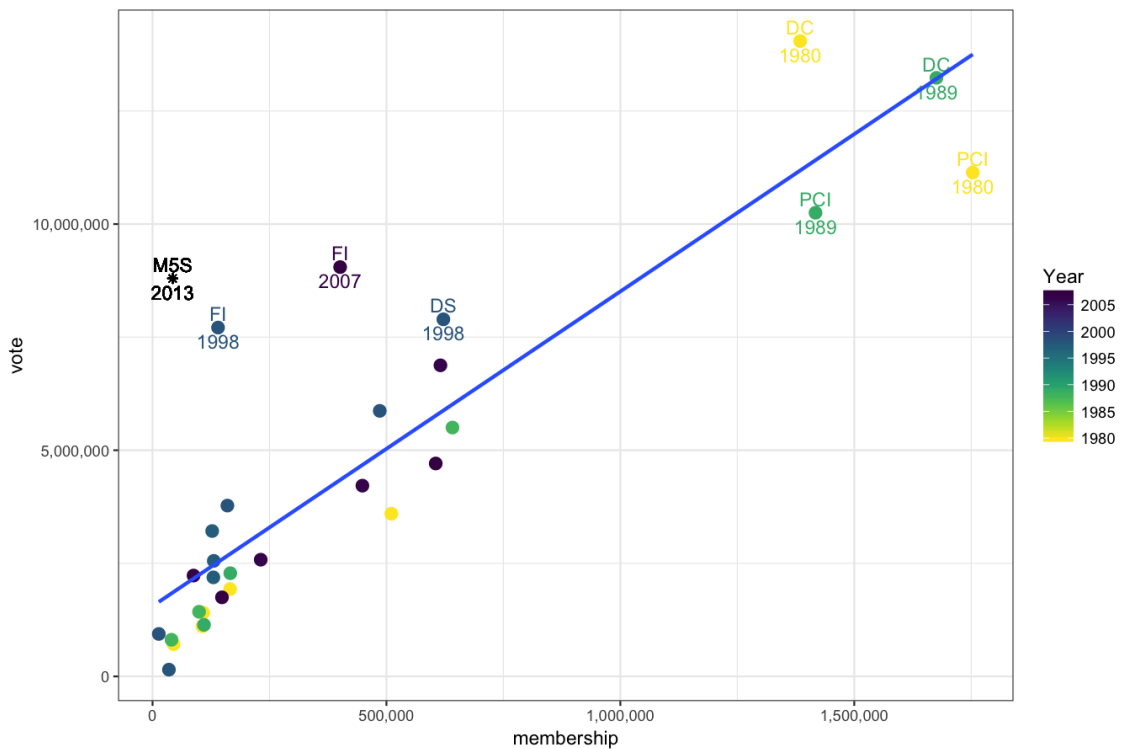
Figure 4.19: *Association between membership and vote (1980-2007, $R^2 = 0.81$) (Mair & Biezen, 2001; Van Biezen, Mair, & Poguntke, 2012)*

invested in media communication—is the party with the most similar proportion to that of the M5S with 55 voters for each member in 1998 and 22 in 2007, although Forza Italia was significantly less effective in 'converting' members into votes than the M5S.

The territorial analysis of the distribution of meetup members at the level of the 110 Italian provinces and vote gained by the M5S in those provinces in three consecutive elections indicates that, if limited in size in terms of traditional party standards, membership has a significant association with votes. This alone does not establish a direct causal relation running from membership to vote. Indeed more research is needed to investigate the dynamical relation between voting and local activism, a relation that is possibly influenced by confounding characteristics of the territory. But especially in light of empirical findings presented in this chapter on air time on national television dedicated to the M5S, which was significantly lower than air time dedicated to any other major party, a

causal relationship between membership and vote is reasonable especially since membership is captured *before* the election thus excluding a possible inverse causal relationship from this specific analysis.

The M5S message was easily communicated through short slogans that Beppe Grillo skilfully shared on his blog and social media channels. Television played a role in delivering his message but it is difficult to overestimate the importance of social networks, partially or totally Internet-mediated, reaching out to potential voters. As seen, although the Internet has grown in importance, only less than 50% of the M5S voters in 2013 used it to obtain information. But Internet access and use are not *geographically* determined as much as *demographically* determined. That is, although I do not present data on face-to-face interactions, it is plausible to assume that voters who are not exposed to the message of the M5S because they are not connected, might be easily exposed to someone who is.

The Internet crowd of citizen-users has played a crucial role in multiplying the reach of the forming movement in the early days, has sustained the movement during its first years of consolidation and finally contributed to the electoral campaign of 2013 by disseminating pro-movement talk on social media and by bringing it into communities of friends, coworkers and families throughout Italy. With their actions and dedication, citizen-users contributed to give credibility to a movement that self-identified as distant from professional, economic and political elites and to shape the public identity of a movement that to this day is still portrayed as empowered only by people and Internet resources.

Chapter 5

Online deliberative system

Writing is thinking.

<div align="right">Diedre McCloskey</div>

Digito ergo sum

Because something is happening here
But you don't know what it is
Do you, Mister Jones?

<div align="right">Bob Dylan</div>

If the previous chapter has described citizen-users and their relevance as agents of political mobilisation, shaping the identity of the M5S and crucially reaching beyond the borders of the Internet to promote its message, this chapter focuses on citizen-users as Internet *users*. It leverages the quantitative analysis of digital traces to map interactions and behaviours of users across the online platforms of the M5S with the aim of describing the inner functioning of the web of online interactions that have sustained the Movement over 10 years. It

Variable	Measurement	Coding
Permanence	Distance between first and last posting	Statistical
Frequency	Average number of postings published each day, week or month	Quantitative analysis
Scope	Number of topics discussed	Quantitative analysis
Gender	Gender inferred from user's first name	Quantitative analysis
Style (negative)	Relative frequency of rude or offensive terms published	Quantitative analysis
Style (positive)	Use of facts, expression of disagreement/agreement	Qualitative analysis of sample
Opinion	Opinion expressed on specific issue	Qualitative analysis of sample
Political orientation	Binary position on specific issue	Qualitative analysis of sample

Table 5.1: *Variables and their measurements*

wants to provide a quantitative description of the deliberation process, from tiny, low-threshold forms of participation (Van Laer & Van Aelst, 2010; Margetts et al., 2015) to more expressive forms of participation such as commenting in the online forum or registering for an onsite meeting. First, the chapter provides a quantitative description of the frequency of participation and flows between the different platforms of the M5S (i.e. Meetup, Facebook, Grillo's blog and the Forum). Second, the chapter describes through network analysis how users practically engaged with one another as they discuss three issues.

To operationalise the analysis I develop and code a set of variables. Table 5.1 describes the variables of the analysis and how they are estimated. By exploring

and testing variation over time and association among these variables I perform an empirical analysis to better understand patterns of political participation and deliberation. For example, a pattern indicating a general increase in the frequency of activity and scope of discussed topics over time would signal that the Forum—and the social network of (visible and invisible) participants behind it—is successful in sustaining users' online participation and expanding their interests. On the contrary, if permanence is generally limited in time or sustained only around major events (rallies and elections covered by the media), the argument of a positive effect of online participatory tools would necessarily lose ground. Also, how balanced is participation in the discussion? What role does gender play? Does gender help predict the scope of interest of the average user? Do male users tend to be more argumentative and aggressive in their wording?

The same set of variables is then used to conduct a network analysis to map *relations* among users and postings. Exponential random graph modelling (Lusher et al., 2013) allows the statistical analysis of presence (or absence) of ties among nodes controlling for given attributes of the nodes. It could then estimate whether the structure of the observed network among users indicates that users tend to prefer interacting with similar users (for gender, political orientations, permanence on the forum) or which relations tend to favour positive (use of argument) or negative (aggressive wording) deliberative behaviours: are users significantly more aggressive when interacting with female users or with users of different political orientation, and conversely what favours positive behaviours?

In the first section, I describe the theoretical framework that guides the interpretation of the data analysis. The concepts of everyday political talk and networked self-help characterise and describe the activities of the users I track through the online media system of the M5S. In the second section, I provide a quantitative analysis of the behaviour of users across four platforms: Facebook, Forum, blog and Meetup. The interest will be in mapping how users move across the different platforms and what behavioural and demographic features are possible to infer from the traces they left behind. In the third section, I describe

the coding of the textual content of the Forum and map the evolution of topics over time. In the final and fourth section I use network analysis to describe and model the characteristics of the interaction among users in the discussions around three politically relevant issues.

1. Everyday political talk

The mapping of online interactions on the different platforms of the M5S and their relations with a broader ongoing political debate is framed around the concepts of *everyday political talk* (Mansbridge, 1999) and *networked self* (Rainie & Wellman, 2012).

1.1. Everyday political talk

The influential idea of *public sphere* elaborated by Habermas (1962/1989) is effective in drawing a demarcation line to contain the intricate threads of talks, debates and thinking, which unfold publicly and shape what arguably is 'public reason'. Mansbridge's formulation of the concept of *everyday political talk* helps in appreciating the political importance of the discussions that occur out of formal deliberative rules and without the goal of producing binding decisions. Following Habermas's theoretical conceptualisation of a division of labour between a *public sphere* in charge of 'opinion-formation' and state institutions in charge of 'will-formation', Mansbridge defines a *deliberative system* that encompasses both formal and informal deliberative procedures (Mansbridge, 1999, p. 227)—or, by using the categorisation of Joohan Kim and Eun Joo Kim (2008), *instrumental deliberation* and *dialogic deliberation* respectively. Indeed, according to J. Kim and Kim (2008) 'deliberative democracy involves two dimensions of deliberation. One is instrumental deliberation, through which experts in the political system and rational citizens in the public sphere make collective decisions based on public reasons and shared values. The other is dialogic deliberation, through which citizens, without specific purposes and goals, freely interact with one another

to understand mutually the self and others, resulting in the production and reproduction of rules, shared values, and public reasons for deliberation' (p. 53).

Thus informal talk that happens to occur in the kitchen, online or in the corridors of parliament all contribute without any coordination to shape meanings, understandings and ideas which then permeate the institutional public decision-making process. This notion of a broad *deliberative system* which also includes chatter that, in the words of Mansbridge, 'is not always self-conscious, reflective, or considered' (1999, p. 211) rejects the narrow definition of *liberal individualists* (Chadwick, 2012, p. 46) of a deliberative democracy based on strict preconditions such as those defined by 'an *ideal deliberative procedure*' formulated by Cohen (1989/1997; as cited in J. Kim and Kim, 2008, p. 55) or requiring 'reasonable and rational agent[s]' with well defined 'plan' and 'ends' as argued by Rawls (1997, p. 93). Moreover, Habermas stresses the fundamental importance of informal political discussions in his *theory of communicative action* (1981/1984) because 'reason is not given from outside the society nor does it preexist in individuals' subjective minds; rather, reason is to be produced by nonpurposive, nonstrategic, nonsuccess-oriented social interactions' (J. Kim & Kim, 2008, p. 54).

I argue that the concept of *everyday political talk* is useful to interpret the role and rationale of online political debate, and also to locate and frame it within a broader *deliberative system*, which exceeds the Internet, which will be the focus of the next chapter; on a continuum that moves from the bedroom to the halls of power and intersects different actors moved by different motivations. That is to say, I argue that even if the snapshot of an exchange of a few uncoordinated online textual comments may at the micro-level appear inconsequential, it is neither meaningless for society nor for participants. Indeed in the Habermasian tradition, dialogue is not only transformative for the issue being talked about but is also transformative for the participant's self—'which allows for changing and being changed' (Cissna & Anderson, 1998, p. 10; as cited in J. Kim & Kim, 2008, p. 57); and interestingly the effects on the self, as result of the dialogue, are possibly deemed as more important by participants than the impacts on *others*

(Conover, Searing, & Crewe, 2002; as cited in J. Kim & Kim, 2008, p. 58).

1.2. The networked self

In light of the exponential increase of the opportunities of communication experienced by the quasi-totality of the population of developed and developing countries, thanks to both the 'Internet revolution' and the 'mobile revolution' (Rainie & Wellman, 2012), *everyday political talk* is much less constrained by time and space, and—it is reasonable to assume—it increases in complexity and relevance. Rainie and Wellman further developed the emergence of a *networked self* who is simultaneously part of 'social networks that are more diverse and less overlapping than [...] previous groups' (Rainie & Wellman, 2012, p. 9); a self who does not dissociate in distinct online and offline selves but 'a single self that gets reconfigured in different situations' (Rainie & Wellman, 2012, p. 126). Thus I argue that the conversations on online forums do not need to differ from offline *everyday political talk* in terms of the significance they assume for participants or in terms of the intrinsic motivations they provide, which are mostly ascribable to a sense of empowerment (Ekdale, Namkoong, Fung, & Perlmutter, 2010, p. 227; as cited in Rainie & Wellman, 2012, p. 219) and a sense of collective identity.

2. PARTICIPATION ON THE M5S MEDIA SYSTEM

The different components of the M5S media systems allow an unprecedented granular analysis of the activity behaviour of participants. Through web scraping and API services[1] I have collected public data for a period of more than ten years from the forum, the blog, Meetup and 981 public pages related to the Movement (including the official Facebook page of Beppe Grillo and of the M5S). Although digital traces left by users do not allow one to infer any socio-demographic traits,

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[1]An API, or application programming interface, allows to programmatically access the resources of a web site, which are returned in a structured form (contrary, for example, to the data displayed on a web page, which is generally unstructured) based on specific queries.

it is still possible to use the data to observe the frequency of activity across the different platforms and to infer the gender of individual users by their first name.

Each platform plays a different role for the Movement and for the participants who navigate across and between them. Beppe Grillo's blog is the cradle of the Movement and the channel through which the leader communicates (unilaterally) with his followers. The comment section of the blog has collected since January 2005 more than 5 million comments. The Facebook pages of the Movement are the broader gate to enter into contact with the M5S and other social media users interested in it: since 2009 almost 3 million users have been active on the pages. The Forum is the space where registered members can post their proposals and comments and engage horizontally with the rest of the community of M5S. Finally, Meetup is the platform where participants can organise and meet onsite across the country (for the complete map of the M5S media system see Figure 4.12).

In this section, I try to understand the role of the different platforms and especially the relationship between different online forms of participation (from 'liking' a picture to articulately discussing the positions of the Movement) and onsite participation. As the Internet is adopted by participants in politically motivated actions, a discussion has emerged on how to integrate Internet-mediated forms of participation with the traditional repertoires of political participation. An influential framework for analysis is proposed by Van Laer and Van Aelst (2010) that differentiates between 'Internet-based' and 'Internet supported' forms of participation respectively, indicating forms that are intended to be entirely concluded *online* and forms that are instead meant to be deployed in their final acts *onsite*. Whether a clear distinction can still be supported as larger and larger segments of our lives are in some way Internet-mediated—the impact of an onsite protest cannot be measure without accounting also for the impact of its online *counterpart*, in the forms of the cloud of tweets, likes and comments *about* the same event—is debatable. But the interest here is in providing an empirical analysis of what happens in practice within a large and diverse political community

populated by tens of thousands of users based on the *relations* observed between different Internet platforms.

In order to identify whether the same participant was active multiple times within the same platforms and across different platforms I restricted my analysis to users with unequivocal names: I identified all names (a string composed of first and last name) that belonged to multiple users in a single platform and, successively, dropped all users with these non-unique names from the data of every platform. In other words, I assumed, first, that a name (again, intended as combination of first and last name) can belong to more than one person, second, that a few names are much more common than others and, third, that people tend to register to platforms only once under their actual name (something that Facebook actually requires and enforces through suspension of 'illegitimate' accounts). Consequently, in order to identify common names, I searched the list of names registered with the same platforms for non-unique names and assumed they belonged to different people. This set of non-unique (or common) names was then removed from all lists to create a set of names that could be assumed to belong to only one person possibly active on multiple platforms. In doing so, I created a sample of 2.3 million users from an original population of approximately 3.5 million users.

2.1. Where users enter the media system

The first questions I tried to answer based on the data is where users land first in the media system and how they successively move across the different platforms. The interest is in understanding what platform attracts most of the users to the Movement and whether users then move to a different platform. If we assume a degree of 'specialisation' between the different platforms (with the Forum and Meetup being more operational and dedicated to policy formulation and membership organisation) thus it is interesting to understand whether users focus on only one platform or instead search for a more faceted participatory experience. The integration of different platforms is common since the online

footprint of a political organisation is on one side determined by preexisting preferences of users—in this case, the popularity of Facebp.com was initially suggested and linked by Grillo in an early blogpost. In this sense, interplatform flows measured by users' timestamped activities are relevant because they suggest the relative contribution to the Movement's online popularity across the different platforms. Consequently, given the presence of Facebook among the platforms used, they might suggest the relative importance of personal networks (Facebook friendships) as opposed to the relative importance of political messages that are not mediated by personal networks (i.e. the Forum and Grillo's blog). Importantly, the analysis is necessarily based only on traces left by the public activity of users (posts or likes) since no data is available for *views*.

Figure 5.1 illustrates for each of the four platforms the percentage of users that arrived at it *directly* or *indirectly* after landing on a different platform. Most of the users active on a platform are 'native' to that platform (that is, they did not previously appear on another platform) but if on Facebook and the blog the percentage of native users is above 95% and 97% respectively, for the Forum and Meetup the percentage of users that reached the platform only *after* visiting another is significantly higher: almost a quarter and third respectively. Looking at the bilateral exchange of users among each pair of platforms, or the fraction of native users moving to a different platform, it emerges that Facebook plays a predominant role in attracting users from other platforms: between 20 and 30% of users who originally landed on blog, Forum and Meetup successively also appeared on Facebook. Bilateral exchanges between Meetup, blog and forum are limited if we consider the fraction of users moving out of each platform but in general, native Meetup users appear to be more active on other platforms, followed by Forum users and blog users. Native Facebook users show a very limited interest in other platforms if we look at the outgoing fraction of users. When the percentage is translated into the actual number of users of the original population of 2,934,377 Facebook users, we can estimate (based on the sample data) that 8216 Facebook users successively moved to Meetup, 9977 to the blog

and 4695 to the Forum, which is still significantly lower than the inverse flow of 27,746 users from Meetup, 73,833 from the blog and 20,021 from the forum based on their estimated total user population. This can be explained by a (growing) relative importance of Facebook at the core of the M5S media system. Indeed, in a media system in which the fora for debate are distributed across different websites, it might be problematic for a user to understand where the effectiveness of involvement is higher. As Facebook draws the attention of users and of personalities of the Movement (e.g. MPs and mayors), it turns into the medium where important information is shared and where—since everybody is there—it might more convenient to be active to get attention.

2.2. Users' copresence across platforms

In order to check whether the behavioural data collected from the Internet is compatible with data collected through different means, I used responses provided in the 2013 electoral survey (Associazione Itanes, 2013). I test first whether the percentage of Meetup users also active on Facebook corresponds to the percentage of M5S voters who declared in the survey having participated in onsite demonstrations or meetings (as proxy of Meetup participation) and have visited the official pages of parties or politicians on social media (as proxy of activity on Facebook). The variables are not totally equivalent and the number of respondents is only 48. The survey question on participation is much broader in scope, qualifying onsite participation as presence at a rally, political debate or meeting while the survey question on social media is not only limited to Facebook but it also explicitly mentions Twitter and YouTube. Moreover, in the data collected from the Internet, *presence* on Facebook is intended as *active presence* through likes or comments. Even considering these differences the two percentages are compatible: 44.5% of Meetup users are also active on Facebook while, according to the electoral survey, 52.3% of voters of the M5S have visited at least once the page of a party of a politician on social media.

In general, the data from the Internet indicates that more than half of Meetup
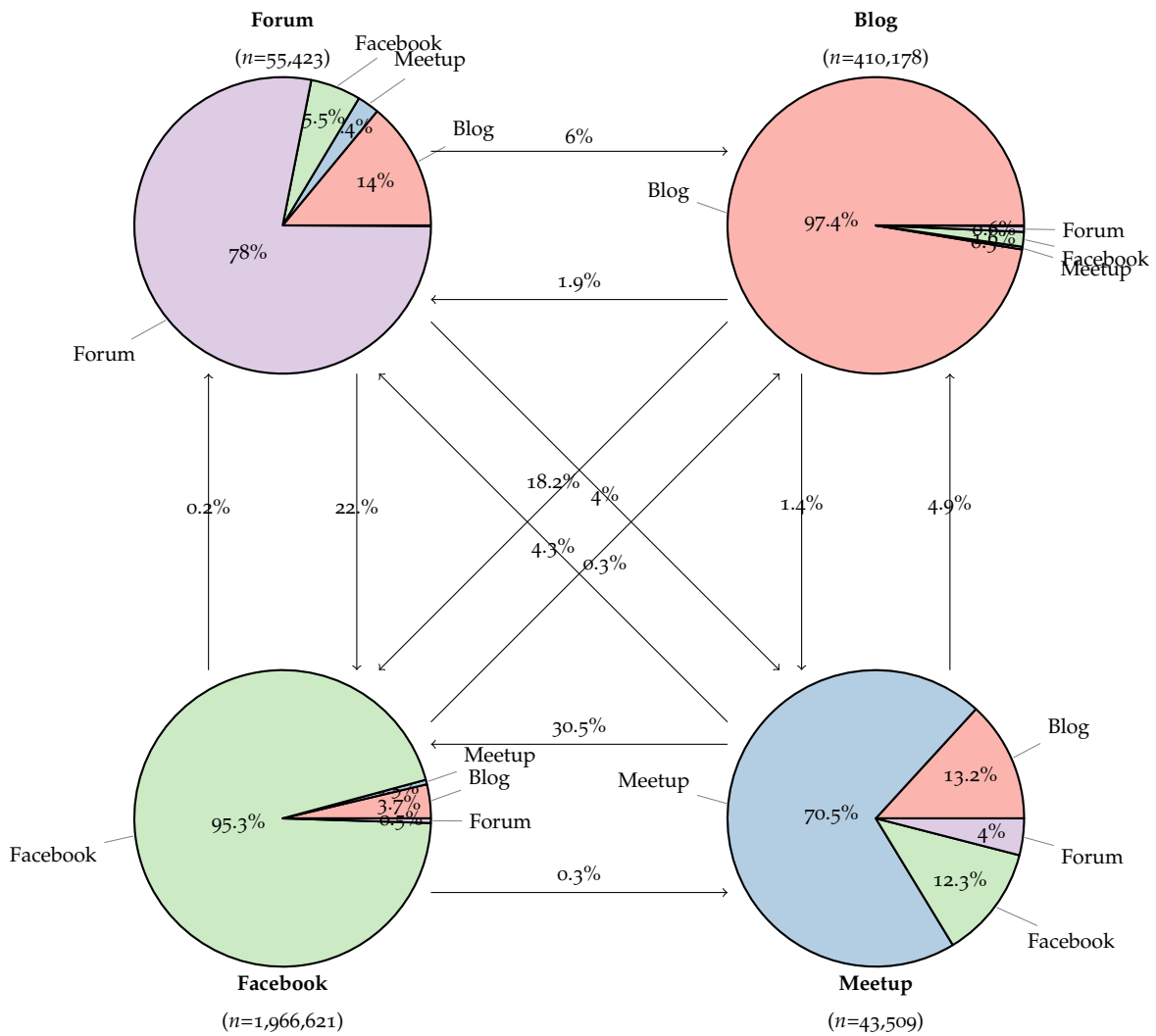
Percentages in each node indicate the fraction of the number of users active on that platform according to the platform they visited first. Percentages on links indicate the fraction of users of the out-going platform who successively appeared on the other platform.

Figure 5.1: *User behaviour between blog, Meetup, Facebook and forum*

users (53.1%)—which I all assume to be onsite participants since Meetup.com offers only limited social media services apart from those related to organising, publicising and participating in onsite meetings—are also active on other platforms and 42.5% have posted a comment on other platforms. If compared to the electoral survey, the fraction of onsite activists also actively commenting online

overshoots the fraction of onsite participants declaring in the survey also having take part in online discussions (31.8%). A possible explanation for this difference is that the technological barrier to *browse* a website (to read an article or watch a video) is considerably lower than the barrier to actively *engage* with a website. Thus a Meetup user might differ from the average onsite activist because they necessarily own not only the capacity but also the dedication to actively engage with the technology of website.

The number of sample users commenting on any platform also present on Meetup is expectedly limited (1.8%). This is probably due to the fact that Facebook pages of the Movement are accessible for comments to all Facebook users (estimated in Italy alone to be around 26 million[2]). If we restrict the analysis to only those participating in the Forum, thus it is assumed to people closer to the orbit of the Movement, the percentage rises to about 9%. This proportion might appear low since it indicates that less that a tenth of users active on the Forum, which was intended as an operational interface for policy proposals, are also involved in onsite participation. This is even more surprising since meetups had real power within the M5S (for example, they had great autonomy in selecting candidates for elections). But it might also indicate that only a minority of users of the Forum feel the need to complement their participation with onsite participation. In this sense, to see onsite participation as a natural next step for someone involved in online participation might not only not reflect the actual behaviour of the large majority of users but also assign a higher value to onsite (and higher threshold forms of) participation that most of the users active online simply do not perceive.

The fraction of users active on one platform who are also active on other websites is important to understand how the platform is integrated with (or open to) the rest of the media system. Given one the total number of users on a platform, Figure 5.2 shows the fraction of users also active on another platform.

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[2]The figure of Italian users on Facebook is provided by Facebook through its *Create Adverts* page where the audience for each selection of demographic traits is estimated.

The concentration of the distribution is estimated computing the Gini coefficient. The fact that most of the users who appear on one platform do not appear anywhere else is also due to the fact that 38% of users left only one trace on just one platform and only one-third of the sample left more than five traces in total. Meetup and the Forum were demonstrated to be the most integrated platforms with similar Gini-coefficients, followed by the blog and finally by Facebook.

The copresence analysis offers interesting insights into the dynamics of online users and political participation. The four platforms clearly play very different roles in the everyday lives of their users. Facebook is not a platform dedicated to political participation and it is therefore possible to imagine that users who ended up liking or commenting on a post published by the Movement might have found it in their timeline because of the behaviour of their Facebook friends or simply because the Facebook algorithm assessed that the post might have some interest for the user. In other words, on Facebook users do not necessarily need to search for a particular content—and most of the time they probably do not—but instead they see the content that is proposed to them by the service. And in this sense, the style of the Movement (simple and usually entertaining) might have played well with the Facebook algorithm, which certainly selects content based on its potential to keep users longer on the site. Then it is not surprising to find that Facebook users very rarely reached other platforms. Yet because of the huge user base of Facebook, its contribution to the other two platforms, Meetup and the Forum, is important.

The flow of attention towards Meetup is the most relevant for the question of whether online participation might have an effect on offline participation. As we noticed, since Meetup does not offer traditional social networking services (like messaging or picture sharing) it is reasonable to consider all its users as interested in organising or participating in offline meetings. The fact that of the 43,500 users in the Meetup sample, about one-quarter of users has been active previously on other platforms, indicate that indeed online participation might trigger an interest in onsite political action. And in this sense probably the most interesting

participants are those that landed on Facebook first and later reached Meetup to register with a group. If we take the 43,500-large sample as representative of the entire Meetup population of 92,500 users registered with a group of the M5S, this translates to a total flow of more than 11,000 people who moved from interacting on Facebook to some level of onsite participation.
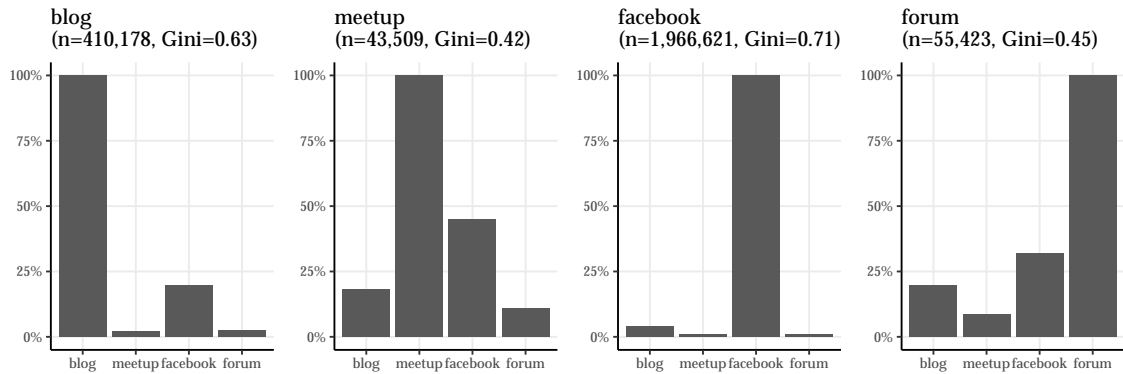
The Gini coefficient measures the dispersion of users across the different platforms.

Figure 5.2: *Percentage of users of each platform also active on other platforms*
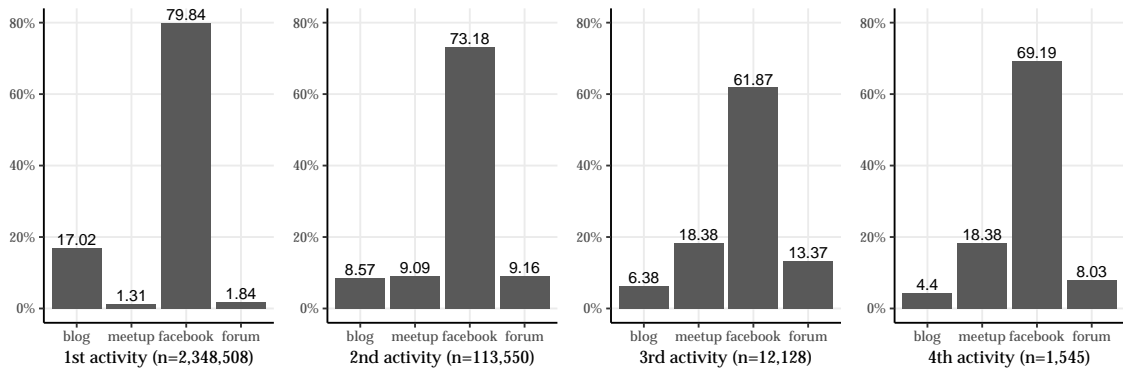
Figure 5.3: *Percentage of users active on each platform in their first, second, third and fourth activity*
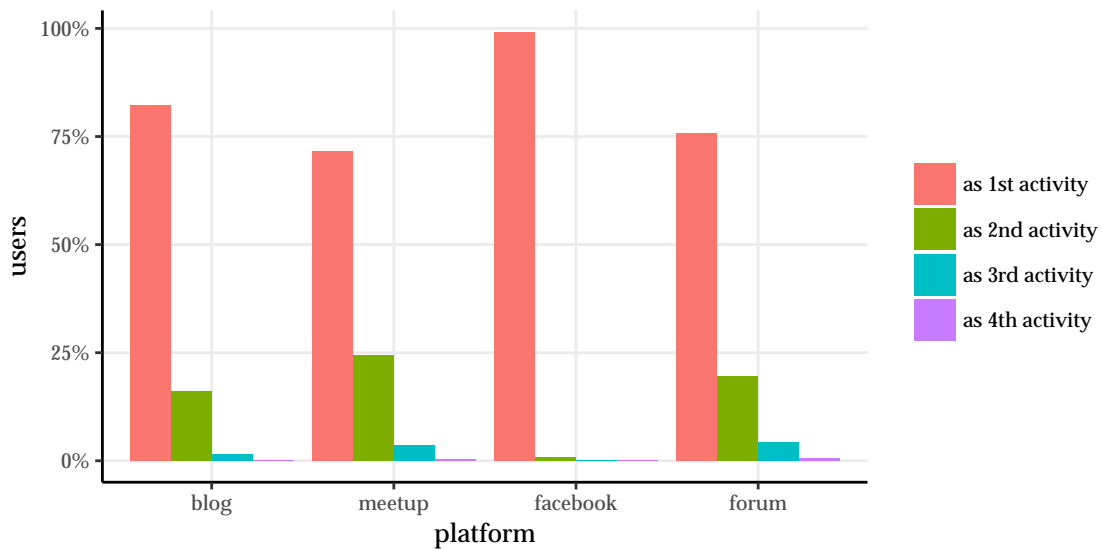
Figure 5.4: *Percentage of users reaching each platform in their first, second, third or fourth activity*

2.3. The role of gender

Gender in political participation is explored in a survey of about 50,000 Italians conducted in 2013 by the Italian National Institute for Statistics (Istat, 2014b). The figures confirm that although an interest in politics is almost equal between males and females—of the 70.8% of respondents declaring that they 'talk about politics', 53.3% are male and 46.7% female—joining a party is predominantly a male activity: of the 1.1% of respondents declaring that they have joined a party more than 70% are male. In a different survey on Internet access (Istat, 2014c), the gender gap appears to be virtually null: male Internet users represent 52% the population aged 6-65. In terms of the gender split, the survey figures on interest in politics are remarkably close to the data of actual behaviours (see Figure 5.5). Name matching identifies 76.4% of Meetup users as male (70.6% in the 2013 survey) and among Facebook users liking the pages of the Movement 43.6% as female (against 46.7% female respondents declaring an interest in politics). But the data also point to a growing gender gap in *commenting* behaviour. Of the

1,812,876 online sample users assigned to a gender, only 39% are female. This figure is compatible with the Itanes electoral survey of the entire population in which of the respondents declaring themselves to be active online[3] 37.2% are female. When we instead focus on actual comments (thus excluding liking) the percentage of female participants drops to 20.1% in the blog and to 13.3% in the Forum. The gap is particularly apparent on Facebook where we have behaviours regarding comments as well as likes. The liking of female participants testifies that they are in fact present and interested in the page in almost equal number to male users—in Italy female users are only 46.15% of the total according to Facebook and 48.12% according to the electoral survey. And yet when it comes to commenting, female participation in the observational data drops by almost 29% (these results are consistent with Bode, 2017).

Results from Facebook have important implications for the actual access of citizens to political participation because they are generated by a population which approximates in terms of gender representation the broader polity population (that is, approximately 50% male and 50% female). First, from the liking behaviour we can assume that women are as interested as men in politics. In other words, the data help us in ruling out that women are not politically active because they are less interested than men. Second, there is a clear barrier to women's participation as the level of engagement increases but also as the engagement turns public (although likes are public, the name of the user is not immediately visible out of their network of friends).

A recent multi-country research on Facebook and political engagement conducted through questionnaires and focus groups (Vromen, Loader, Xenos, & Bailo, 2016) clearly indicates why some users might refrain from being too public about political arguments. A female user put it this way: 'After Obama won his second term I definitely had some cheery tweets about it, but nothing that could really piss anyone off. I try to express my views more in real life than online

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[3]The survey question does not specify the type of activity broadly referring to 'Participating in online discussions on political issues [...]'

because I don't think people are able to handle those conversations maturely and people end up getting in fights that have nothing to do with politics and a lot more to do with name calling' (Vromen et al., 2016, p. 12). Are female users more concerned about this than men, thus creating a bias in the participating crowd? The data from the Facebook pages of the M5S seems to support this.
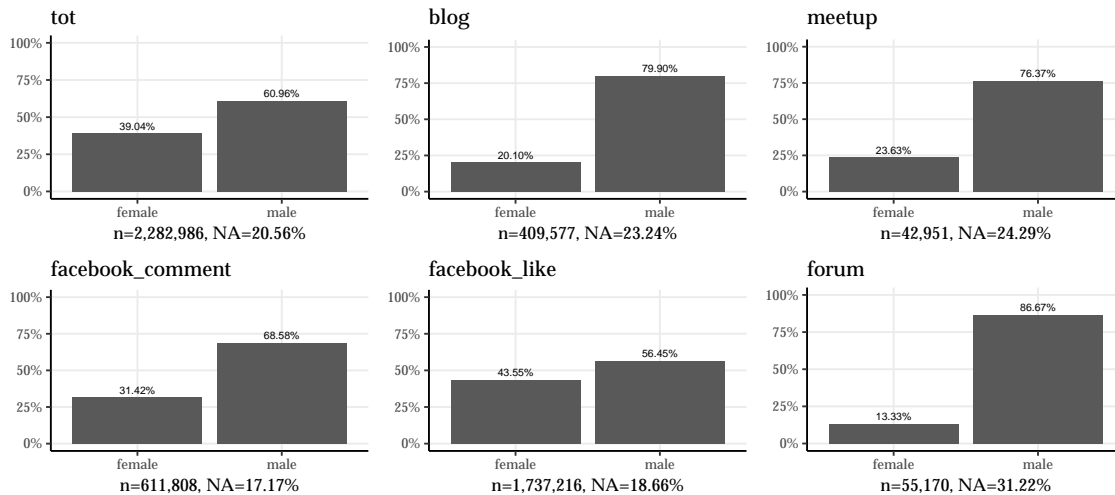
The number of female and male users is estimated comparing their first names to a dictionary of Italian names. NA indicates the percentage of users for which assigning a gender was not possibile.

Figure 5.5: *Female and male users*

2.4. Users' permanence

The data also allows a precise understanding of the time spent by each user online. The upper panel of Figure 5.6 maps the density distribution of the permanence online of the sample's users (that is, the difference between the first and the last activity). As expected a high number of users (45.26% of the sample) shows only one activity before dropping out of the datasets. The density line does not proceed linearly but it draws two bumps: one between 0 and 500 days and one between 500 and 1000 days. The datasets collect data up to 31 January 2015; the first bump represents users entering the system at about the

time of the 2014 European election and still active at the end of January while the second bump represents users landing at the time of the 2013 general election (see also Figure 5.7). The bottom panel shows how behaviour differs between the four platforms and helps characterise how the different websites are used. Not surprisingly Facebook users appear to be more volatile, highly concentrated on the left of the distribution (that is, towards very short periods). Also, they demonstrate much more responsiveness to electoral events, with the density line drawing very stark bumps around the two elections. The density for very long attendances is finally lower than for all other platforms. The behaviour of Forum and Meetup users is remarkably similar indicating that the two platforms might attract users with a similar level of commitment to the Movement: they are less volatile than Facebook users and they show a higher density for attendances between 250 and 1800 days than blog users. Blog users are the most constant in their behaviours: they are not affected by elections and they outperform all other user sets for attendances over 2000 days (their density line reaches a local maximum around 2700 days, corresponding with the V-Day, the national rally of 2007).

2.5.   Frequency of activity across time

The final analysis looks at the correlation between the presence of users on different websites. After exploring the flows of users among the different platforms, the idea is to test whether an increase in user presence on one platform significantly correlates with an increase, after a lag of one week, in another platform. Figure 5.7 maps the number of users active every week across the different websites and for Facebook the number of users actively commenting, liking or posting every week. Five dates are marked: the V-Day, the 2012 local elections, the 2013 general election, the 2014 Sardinian regional election, and the 2014 European election. Not surprisingly all events draw sharp increases in the number of users active on almost every platform, a pattern that was also identified in Figure 5.6. The 2013 electoral event is peculiar though because the election was also *followed* by
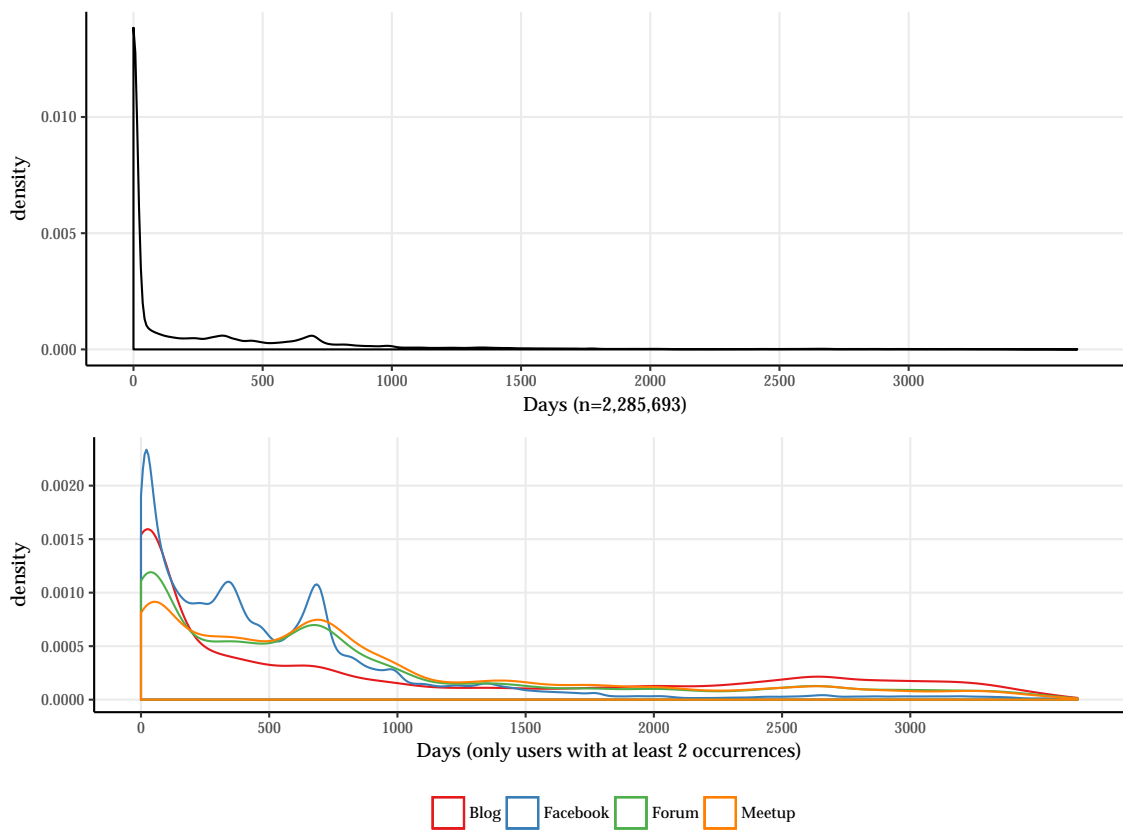
The upper panel the density distribution of time spent by all sampled users calculated as difference between the first and the last occurrence in the dataset. The bottom panel the distribution of users with more than one activity for the four platforms.

Figure 5.6: *Time spent in the media system by users*

intense activity on every website–something that did not happen for the less suc-
cessful election in Sardinia (the Movement failed to present a candidate) and the
European election. Meetup activity (either a user joining a group or a user joining
an event) is clearly seasonal (with drops in activity during summer and winter
holidays) but also less volatile than other online activities; moreover although the
number of active users gently declined after the general election of 2013, it seems
to have been relatively more stable.

A simple comparison of the standard deviations of the different time series
allows us to rank platforms according to how stable and constant the commitment
of users is. The least volatile website is the Forum (SD=588.43) followed by
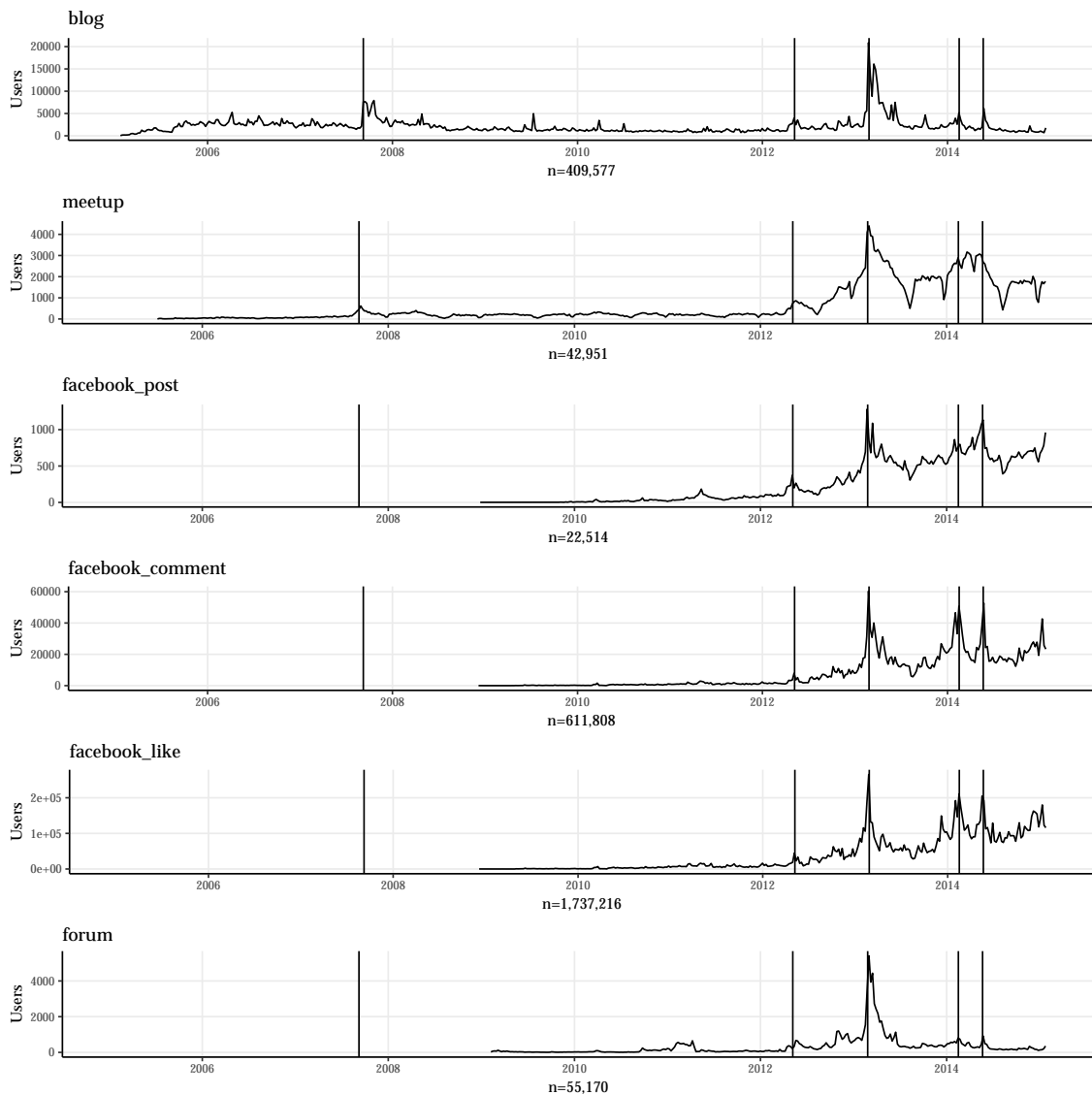
The vertical lines indicate from left to right the V-Day in 2007, the local elections in 2012, the general election in 2013 and the European parliament election in 2014.

Figure 5.7: *Number of users active every week*

Meetup (SD=868.92), the blog (SD=1843.61) and Facebook (SD=54,134.60). Even comparing only *commenting*, the standard deviation of Facebook (11,020.95) is more than 18 times the standard deviation of the forum.

A formal statistical hypothesis test for 'causality', or whether a time series is helpful in predicting another time series one week in the future, is conducted among all time series. Figure 5.8 shows the results of the Granger-causality tests

(Granger, 1969). According to the direction and significance of possible Granger-causal links, presences on blog, forum and Facebook pages are all found to be significant predictors of a presence in the other two platforms the following week. This is not surprising since we saw that external events (such as elections) play an important role in determining online activities. The more interesting results are instead the Granger-causal links from Facebook to Meetup and from Meetup to the Forum. The link between Meetup and the Forum could be explained by the fact that onsite discussions are followed up online in the forum (more than 10% of Meetup users are also active on the Forum and 8.5% of Forum users on Meetup) but multiple confounding variables are possible. To complicate the analysis of the link from Facebook to Meetup is the fact that the significance of the effect fades when only comments or posts are considered. That is, what is really affecting the activity on Meetup is *liking*. As we observe in Figure 5.7, spikes in liking volumes are powerful indicators of external events. In fact, more than for other activities, likes abruptly rise and fall close to the event without any subsequent tailing off trend (or, symmetrically, any smooth increase ahead of the event). Thus what the Granger-causality tests may indicate is that, independently of where the activity takes place, commenting, liking and meeting respond differently to external events. Likes are instantaneous expressions of participation which concentrate—for a political community—close to major political events such as elections. Comments are also triggered by elections but are additionally fuelled, especially when elections are successful, by *other comments*; indeed users cannot reply to likes but can reply to comments. Participation in onsite events follows a third kind of trajectory: successful political events (such as the V-Day or the 2013 general election) do help mobilisation, but the organised commitment of activists is less temporally limited by the event itself and is actually sustained over time.

The analysis of platform and cross-platform behaviour of 2.3 million users delivers a picture where Facebook plays—not surprisingly—the most vital role in terms of users reached. The Movement itself, through its pages managed by local meetups, activists and elected members, dedicates considerable resources
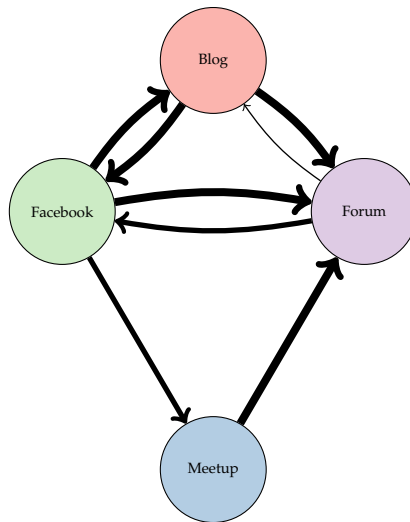
The Granger-causality test is performed with 1-week lag for each pair of platforms. Direction of significant (p-value < 0.1) Granger-causality is indicates by the arrows. Arrow's thickness indicated a progressively lower p-value.

Figure 5.8: *Granger-causality test for active users across platforms*

to posting on Facebook, publishing after the election of 2013 an average of approximately 500 posts per week, clearly an indication of its importance. Facebook allows reaching with content (news, pictures, links) users who are not searching for that specifically. And if Facebook users tend to generally spend less time on the pages of the Movement, still a significant minority is observed engaging in other platforms after being active on Facebook. This indicates that indeed engagement on Facebook may lead to further engagement online, on the Forum, but also offline through Meetup.com. Finally, gender is a significant predictor of engagement. Although women are as active as men in liking of Facebook political posts, they are much less likely to comment on a post.

3.   Issues, topics and style on the Forum

After presenting data on the behaviour of users across four different platforms, Facebook, blog, Meetup.com and the Forum, I will carry out a textual analysis of the multithreaded discussion developing in the Forum. The interest is in under-

standing not only the dynamics of the discussion itself but also how users interact in the online debate. More specifically the interest is in the role that difference of opinions plays in the debate. A recurrent question of online deliberation studies is whether the Internet increases the propensity of users to engage in political talk (or for that matter in any other talk) to fragment into communities of like-minded people, thus reducing exposure to difference to a minium. The predominant answer is that in indeed the Internet, and social media in particular, does create 'bubbles' where users are segregated according to their opinions. Nevertheless, whether this also happens in well defined and strong political communities such as the M5S, has not been explored. I noted before that the *sense of empowerment* and *community* might have played an important role in sustaining the activity of citizen-users and in fact they might be strongly correlated: citizen-users feel empowered because the Internet has enabled them to organise their community into a powerful political organisation. But if this is true, maintaining the unity of the community is important to avoid being disempowered into numerical (and electoral) irrelevance, thus creating a deliberating context that might see a clear incentive in engaging with those with a different opinion to convince them, or to menage their differences.

In this sense, the Forum constitutes a clearer case of a deliberating community than the other websites in the M5S media system. The Forum has fewer commenting users than Facebook or the blog and they tend to be more 'dedicated', returning more often to the debate. Moreover, the Forum is dedicated to the political discussion while politics is clearly only one of the multiple arguments discussed on Facebook, increasing the risk of threads of discussions that are not relevant to the main topic under analysis. Finally, the Forum is managed by users, who create and comment on the Forum's threads (although clearly this does not exclude some form of external control by the site's administrators) while on the blog and on the Facebook pages in the dataset, users will always comment under some postings published by Grillo or by some public figure.

Postings were coded based on three categories: *issues*, *topics* and *style*. Issues

are narrow in scope and are defined by the presence or absence of key terms in the text. Topics are defined by large sets of words which can appear with different degrees of probability in a posting on a topic. Style, which is independent of both issues and topics, aims to qualify the fashion of the posting in terms of how opinions are expressed. More generally, *topic analysis*, conducted by statistically clustering 50,000 randomly selected texts, aims to take a picture from afar of the broader discussion. *Issues analysis* is instead conducted on a more limited (and different) set of texts, selected based on four dictionaries and then manually coded. I will now provide more details on how issues, topics and style are coded.

3.1. Coding of issues

The issues I selected for the analysis are immigration, guaranteed minimum income (GMI), the European single currency and Parliament confidence vote. A post is considered to discuss an issue if it contains at least one word that matches a regular expression related to the issue;[4] a post can be labelled as pertaining to multiple issues since labelling is not exclusive. The four issues were identified because of their relevance to the national debate, because of their importance in the internal debate of the M5S and also because of their diversity.

Immigration concerns the spheres of national identity, human rights and the economy, and is a traditional and passionate issue in the political debate. The GMI is a measure of the welfare state which—although periodically discussed in the public sphere—never received strong political support. The debate over exiting the European common currency involves considerations of national sovereignty and the economy. Finally, the discussion after the general election of 2013 on the role of the M5S in the negotiations to form a coalition government with the centre-left Democratic Party is relevant for it historical importance—being the first

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[4]For *immigration* the corresponding regular expression is `immigr`, for *GMI* is `reddito (di cittadinanza|minimo)`, for the *European single currency* is `\bdall(.)euro\b`, for *Parliament confidence vote* is `(?=.*(vot(.*?)|dare|diamo)\s(di|la)\s(fiducia))(?=.*bersani)`.

political decision of the M5S—but also because it casts light on the relationship between the public and politics.

Figure 5.9 shows the relative frequency of postings judged to be discussing the four issues published on the Forum (line) and by Beppe Grillo on his blog (heatmap). The Figure already confirms that the debates on the four issues had different temporal dynamics. Not surprisingly the debate on providing support or not a government in coalition with the Democratic Party through a confidence vote in parliament is limited to a few weeks after the 2013 general election. Immigration is a recurrent issue across time and also seems to concentrate at specific moments, when the frequency of occurrences is possibly triggered by public events. The GMI and the common currencies issues are campaigning issues for Beppe Grillo and the Movement; this is confirmed by the intensity of occurrences of the two issues on Grillo's blog, with the moment of initiation of the campaigns clearly visible in the heatmap of Figure 5.9.

3.2.   Coding of topics

Postings were clustered with a topic model algorithm in 15 groups. Topics were fitted with the LDA model originally proposed by Blei et al. (2003) and implemented in the R package `topicmodels` (Hornik & Grün, 2011). The LDA model does not determine the number of groups to identify and the number of 15 is in this case estimated with a trial-and-error process. The algorithm clusters postings according to the frequency of their words independently from the actual words' position within the text: postings containing a relatively more similar set of words will have more probability of being grouped together. The LDA model, once the number of topics has been predefined and the text prepared for the analysis—common words (stopwords), numbers and punctuations are removed—proceeds in three steps.

1. A term-document matrix is computed listing all words that appear in the *corpus* (the collection of postings under analysis) and their frequency in
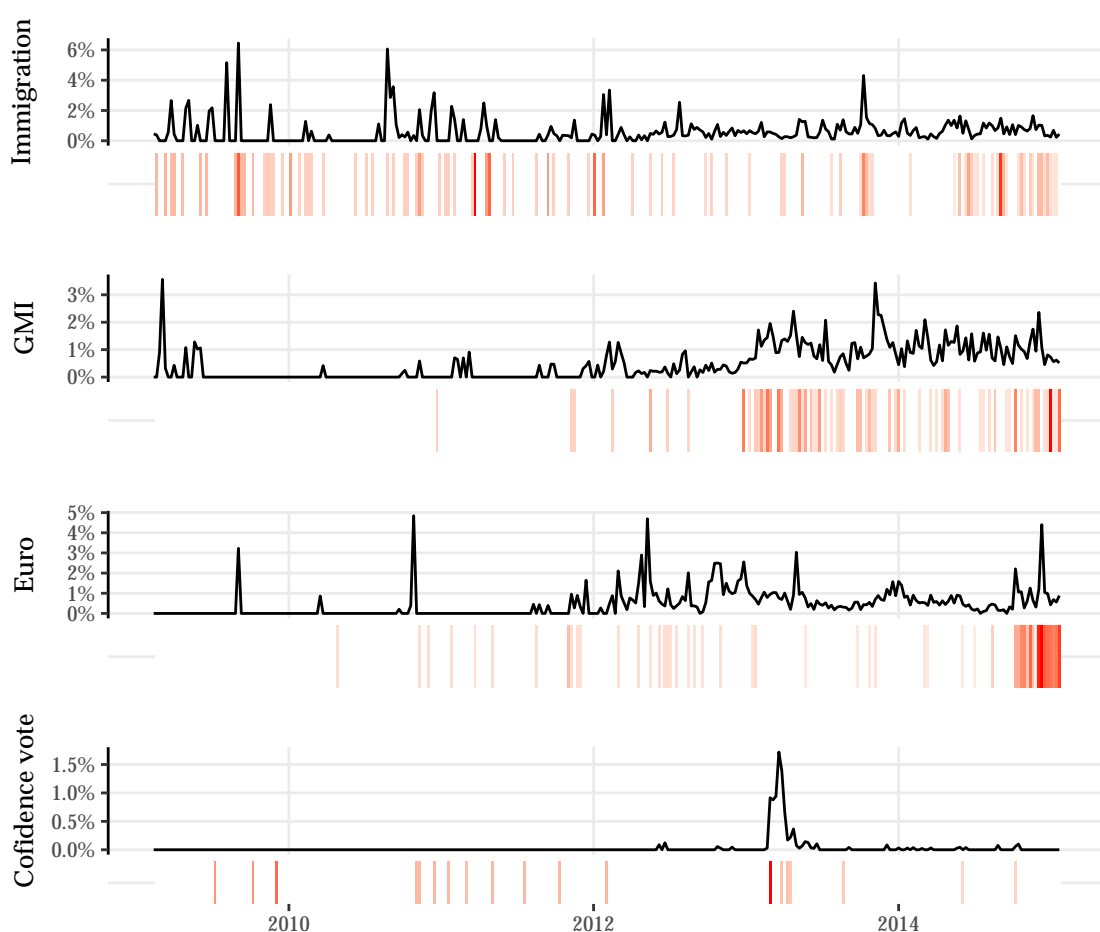
Figure 5.9: *Relative weekly frequency of users' and Beppe Grillo's postings respectively on the Forum (line) and on the blog (heatmap) containing terms referring to immigration, GMI, exiting the Euro and parliamentary confidence vote.*

postings;

2. Each word will randomly be assigned temporarily to one of the topics; if a word appears more than once in the corpus it will be randomly assigned to one or more topics;

3. The probability of each word of each document (or individual posting) belonging to a topic will be iteratively tested and updated according to how frequently other occurrences of the word under analysis appears in different topics and how frequently topics are represented in the document containing that word. This final step will be repeated multiple times.

The algorithm will estimate for each *document*, based on the words it contains, the probability that it belongs to every one of the set of topics. It is then possible to assign each document to the most probable topic or instead to all the topics above a certain probability threshold. Analogously for each *topic*, the algorithm will estimate the most likely words that it contains.

Of the 15 topics used by the LDA model to cluster 50,000 randomly sampled postings of the Forum of the M5S, 13 produced interpretable results and were manually labelled based on the most likely terms that appear in each topic. Figure 5.10 presents the number of postings assigned to each label. The topic labelled as 'undefined' contains postings assigned to two different topics by the LDA model but equally uninterpretable.
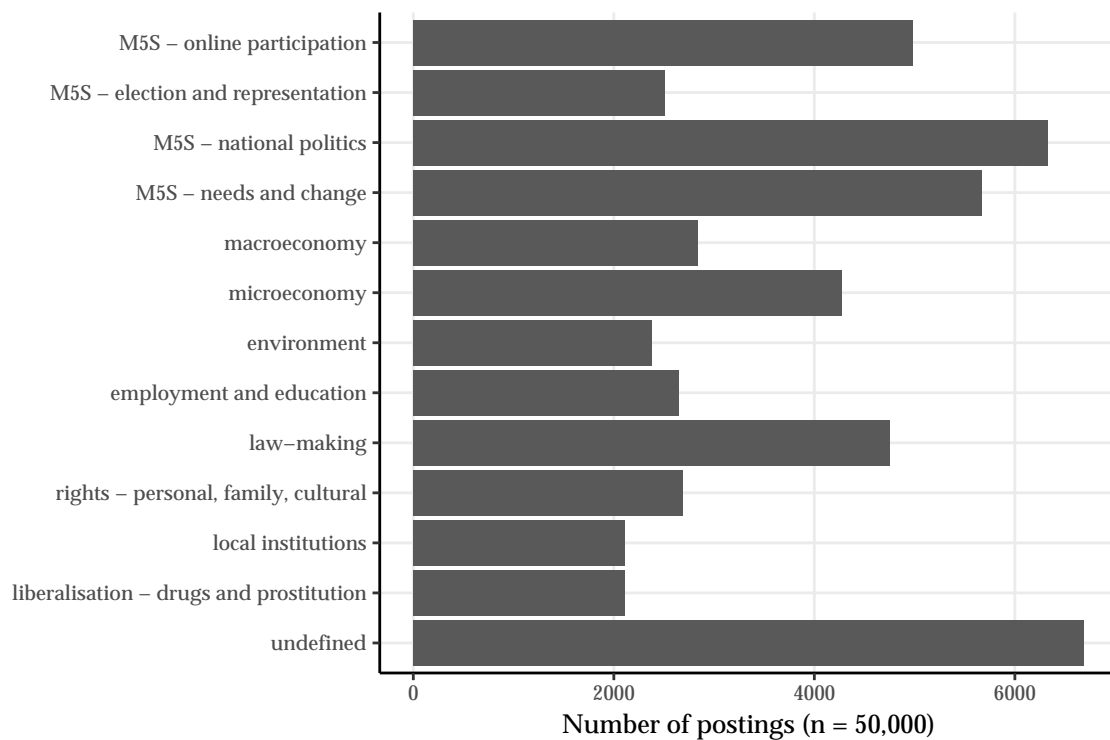
Figure 5.10: *Number of postings for each topic identified through Latent Dirichlet allocation*

Based on a qualitative analysis of the results, the LDA topic modelling technique seems to successfully identify the major discussion themes that animated the existence of the Movement since its inception. Importantly of the 15 topics sought by the algorithm, 13 present a coherent set of words that allows the

labelling of the topic. The relatively high number of postings (13%) clustered in the two incoherent topics are possibly explained by the fact that many postings *do in fact discuss multiple topics*. Two topics dealing with law-making activities were assigned the same label. Four topics were focused on the M5S itself with the word 'movement' appearing among the most likely terms.

Table 5.2 displays the 10 most likely terms to appear in each topic. One topic (labelled 'needs and change') stands out since it does not seem to deal with a specific thematic, instead the words used in these postings pertain to an aspirational sphere such as 'necessary' (literally: 'it is necessary'), 'change', 'we can', 'ideas', 'need', 'problem'.

Not surprisingly the fact that the word *movement* appears often among the most significant words (LDA identified terms should not only interpret as the *most frequent* relatively to other topics but also as the *most representative*) in four out of 15 topics signals the importance of the Movement for the community of citizen-users active on the Forum. Based on the copresence of other significant words (see Table 5.2), I labelled the four topics as 'Online participation', 'Election and representation', 'National politics' and 'Needs and change'. Words' copresence indicates that the discussion around the Movement was not only focused on the construction of the Movement as a national political organisation competing in elections but also quite interestingly on the internal democracy of the Movement, with discussion on the role of online participation within the M5S and on the practical functioning of the Forum. More than 10% of the samples posted discussed the 'online participation' topic.

The topic of online deliberation is of particular interest because it testifies to the aspiration for self-organisation of citizen-users to be reached by leveraging Internet tools and technologies. In this topic, users discussed why online deliberation was a foundational issue for the movement. In June 2012 a user wrote:

> The web platform to discuss and vote proposals in real time and to certify participants to the vote for me is ESSENTIAL. This not only

Environment	Online participation	Law-making	Law-making	Election and representation
energy	movement	law [act]	law [act]	movement
products	forum	state	citizens	stars
water	proposal	problem	state	rome
production	proposals	house [home]	art [section]	state
waste	site	rai [public TV]	activity	list
businesses	program	country	public	president
cost	post	proposal	article	group
costs	blog	saw	public	beppe
products	net	pay	constitution	grillo
collection	stars	money	rights	candidates
Undefined	Local institutions	National politics	Needs and change	Rights - personal, family, cultural
grillo	city	movement	people	persons
said	territory	government	persons	man
understand	municipality	vote	country	state
people	municipalities	parties	movement	sons
post	police	grillo	politics	world
understood	streets	elections	necessary	right
saw	[public] transport	electoral	change	rights
beppe	citizens	politics	ideas	social
outside	areas	parliament	problem	country
you say	car	to vote	we can	society
macroeconomy	liberalisation - drugs and prostitution	employment and education	undefined	microeconomy
euro	com	work	important	euro
debt	youtube	school	coluor	taxes
banks	watch	workers	hover	state
state	state	youth	mania	pay
currency	play	hours	padding	money
europe	video	businesses	you know	income
bank	prostitution	schools	forum	work
billions	use	business	and	taxation
public	drugs	to work	button	pension
economy	health	state	cta	expenses

Table 5.2: *The 10 most likely terms (translated) in the 15 topics identified by the LDA model clustering 50,000 postings from the Forum*

to formulate the program and select candidates but also to anchor the action of those who will be elected as our representatives to our feedback.

For another user, only online deliberation could guarantee transparency in the deliberation process. In late 2014 he wrote that

> Meetups are not a platform to propose and vote. Since they require a fee, who pays govern it and self-nominate to represent others [...]. Meetups need to be abolished as soon as possible and replaced with an online platform for proposals and for voting that is transparent and free.

This is interesting because it testifies to a tension between a traditional form of political participation (although Internet-mediated)—which since it takes place onsite is easily manipulable and will tend to replicate traditional power structures— and the Internet, again idealised as the place of total transparency and equality. This vision, a sort of Internet fundamentalism in which every representative institution (paradoxically also the meetups) is replaced by an Internet technology or service, is recurrent in Beppe Grillo's rhetoric, throughout the Movement and, I argue, is based on a fundamental lack of trust for every traditional political institution that defines citizen-users and that motivates them into action, to begin with.

Internet-based solutions and technologies to problems faced by the communities are sometimes the actual subjects of the discussion. A number of postings lamented the inefficiency of the Forum as a deliberating platform. In April 2012, a user wrote 'I noticed that many proposals of the Forum that are potentially interesting quickly lose visibility in favour of others, maybe not that interesting, inserted after'. The apparent lack of reasonable criteria for maintaining the visibility of postings that are in most cases submerged by other more recent postings attracted a number of complaints from users and some proposed the adoption of applications specifically designed for online deliberation, which usually included

also the possibility of voting. Among the most popular platforms proposed for adoption by the Movement were *LiquidFeedback* (see Bertone, De Cindio, & Stortone, 2015), already adopted by the Pirate Party in Germany, and *Airesis*, a platform that combined social networking and online voting features. Notably, a number of meetups adopted the two platforms (which were both open source) but eventually Beppe Grillo opted for a property solution—the 'Operative system', later called 'Rousseau'—as the official national online deliberation platform.

3.3. Coding of style and expression of opinion

In order to deepen the understanding of the qualitative aspects of the online exchanges among users, I also coded variables on how comments were formulated based on the coding scheme proposed by Jennifer Stromer-Galley (2007). In particular, I coded for the *style* of the comment and whether and how a user embedded an opinion in the posting.

In terms of style, I distinguished between a *negative* style and a positive *style*. A quantitative variable assessing the negativity of the style was computed by counting the relative frequency of vulgar or offensive terms that appeared in each posting. For this purpose, a dictionary of vulgar and offensive terms was compiled expanding on the words listed under the category `Parole_volgari-IT` of the Italian version of Wiktionary.[5].

The positivity of the style was instead based on how reasoned the expression of an opinion was. It was manually coded in four binary variables based on whether the post actually expresses a personal opinion ('*I think* we need to be very careful not to make the mistake of blaming immigrants rather than politicians who...'); whether the user explicitly expresses agreement or disagreement with another user's posting ('*I agree*, and also add that we of the Movement are contributing to this...' or 'Understandable idea *but very superficial...*'); and finally whether the posting mentioned a fact—independently from the veracity of fact

[5]https://it.wiktionary.org/wiki/Categoria:Parole_volgari-IT

itself ('I both read act 94/2009 (a.k.a. bossi-fini) and decree 25 July 1998, n. 286 ... sections 13 and 16 ...').

Additionally, each *user* was also binary labelled (again, manually) based on the political position inferred from the totality of his or her comments posted debating one of the three issues analysed in this chapter. A binary labelling of a position (which in the three debates is generally intended as being in favour or against some action) is a necessary simplification because users might not express their position in a full or coherent way or because they might have a more multifaceted position. More details will be provided in the section dedicated to each debate. A user's political position, although simplified, is nevertheless important because it allows understanding of the degree of fragmentation due to homophily in the online debate.

3.4. Evolution of topics and users' interest

Between February 2009, when the first posting appeared on the Forum, and January 2015, the community of users animating the Forum significantly grew in numbers (see Figure 5.7): during its first week online the Forum had a minium of 23 unique users posting on its pages while during the last week of January 2015 the minimum number of users was 357. It is also reasonable to assume that the community of users did not only increase in volume over the years but also changed in terms of its composition and possibly interests.

As described in the previous chapter, the electoral survey ($n = 1508$) conducted after the 2013 general election indicated that the political spectrum of M5S voters was bipolar, with approximately 53% of the voters being drawn from a centre-left party and 47% from a centre-right party. Nevertheless, this bipolarity was certainly not a trait of the original community which grew out of Beppe Grillo's blog to constitute the M5S. The 11-pages manifesto of the M5S published in October 2009 (Movimento 5 Stelle, 2009b)—the same year the Forum went online—dedicated about 40% of its contents to explain the Movement's proposals for environmental conservation. The content analysis conducted by Volkens et al.

(2014) of the 2013 electoral manifesto—which simply expanded by 3 pages the 2009 version—confirms that the Movement strongly and significantly leaned—at least at the beginning—towards the left of the political spectrum for its positions on the environment, welfare state and the economy. Two previously cited studies (Bordignon & Ceccarini, 2012; Pedrazzani & Pinto, 2015) have assessed through surveys conducted at different times that among sympathisers of the Movement those who declared themselves as centre-right voters were in 2010—one year after the Forum was launched—only about 11%. Two years later, in 2012, the percentage was 28%. As a consequence, it is probable that as the M5S gained support among right-wingers, the number of right-wing users active in the Forum also increased but less than proportionally since, according to the Itanes electoral survey, right-wing voters tended in 2013 to engage less in online commenting (see Figure **??**) than others.

To understand whether the data from the Forum reflects any evolution in terms of the interests of its active users, it is useful to quantify the relative frequency of the different topics in the first and second halves of the Forum's life, that is, comparing the online talk from the period January 2009-January 2012 with talks from the period January 2012-January 2015. The results are shown in Figure 5.11.

Quite surprisingly the Forum shows a constant level of interest for most of the topics in the two periods and their relative positions vary only slightly. The exceptions are 'environment', 'national politics' and—although less dramatically—'online participation'. The environmental thematic—which as seen was at least initially a strong identity item for the M5S—clearly lost over the years considerable interest, declining from third most discussed topic to one of the least. The analysis of the activity of uniquely identified users also points to the strong importance of discussion on the environment in the first months of existence of the Forum if compared with later periods. During the first six months (between February and August 2009) in 24% of the cases, the first posting of a new user discussed the environment, between August 2014 and January 2015 the same
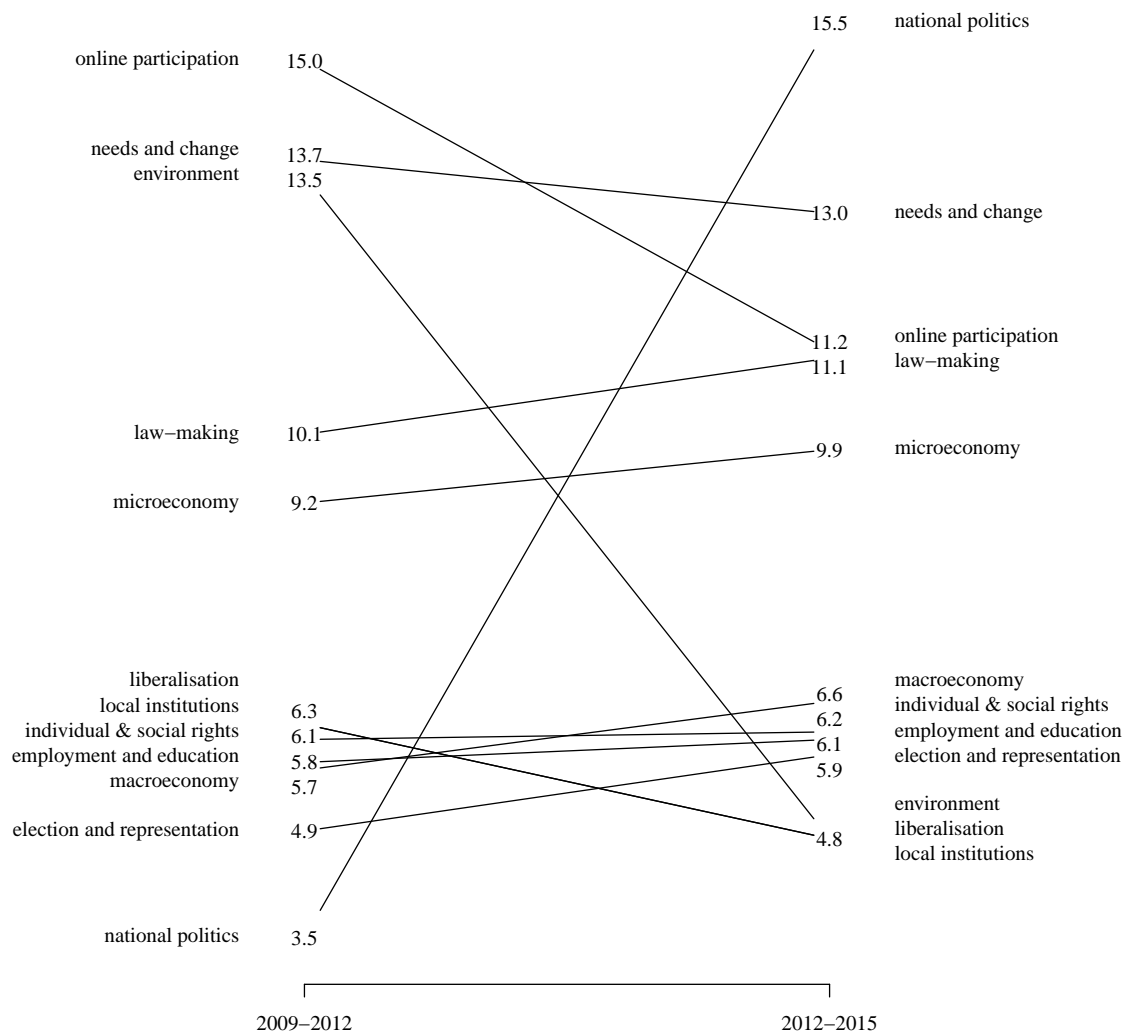
Figure 5.11: *Difference in percentage frequency of posting on the Forum between the first (2009-2012) and the second period (2012-2015)*

topic was discussed only in 4.5% of cases in first postings of new users. If the environmental topic (defined by words such 'energy', 'water', 'waste', 'gas', 'car', 'consumption', 'pollution') lost traction, *politics* instead gained dramatically, moving from the least discussed topic (2.6% of the all postings published during the first 6 months) to the most discussed (10.3%). This is at least partially explained by the fact that two terms that are likely to appear on the topic ('movement' and 'star') are derived from the name of the Movement itself (the name was adopted

only a few months *after* the Forum went online and therefore the terms could not appear in the first months of the Forum's existence), and many other terms relate to elections, which the Movement started to run only in 2010 and during which the volume of postings always strongly increased. Yet the increase in attention to national politics is also justified by the transition of the M5S from a social movement with specific interests to a political party competing in elections and to govern the country.

Interestingly this adjustment from the environment to politics is not only apparent from what was published on the Forum but also from the posting frequency of Grillo himself. To compare the relative frequency of topics discussed on the Forum (as identified by the LSA algorithm) with the relative frequency of the topics discussed on the blog, I ran the same algorithm previously used with 50,000 randomly selected postings of the Forum with the entire corpus of postings published on the blog and identified in both results the topic *environment* and *national politics*.[6] Figure 5.12 maps with a LOESS curve the evolution of the relative frequency of weekly postings on the environment and national politics both on the blog and the Forum.

Although Beppe Grillo's progressive disengagement from postings on the environment was less pronounced in relative terms, it certainly did progressively occur between 2005 and mid-2011. On the blog, postings on national politics

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[6]The two processes clearly identified slightly different sets of words pertaining to the topics of national politics and environment in the two corpora. Nevertheless, the two topics were easily identified in both. For the topic *environment* the intersection between the two sets of the 20 most significant words derived from the two corpora included 7 words (35%) while for the topic *national politics* the intersection included 8 words (40%). Words not present in both sets of the 20 most significant words were still unambiguously related to the topics. For the topic *environment* they were: 'prodotti' [goods], 'aziende' [businesses], 'costo' [cost], 'costi' [costs], 'prodotto' [good], 'elettrica' [electric], 'produrre' [to produce], 'gas' [natural gas], 'auto' [car], 'consumo' [consumption], 'lavoro' [work], 'mercato' [market], 'prezzo' [price]; while for the topic *national politics*: 'governo' [government], 'voto' [vote], 'grillo', 'elettorale' [electoral], 'votare' [to vote], 'partito' [party], 'votato' [voted], 'fiducia' [confidence (as in *vote of confidence*)], 'voti' [votes], 'pdl' [PDL (Berlusconi's Pary)], 'berlusconi', 'maggioranza' [majority].
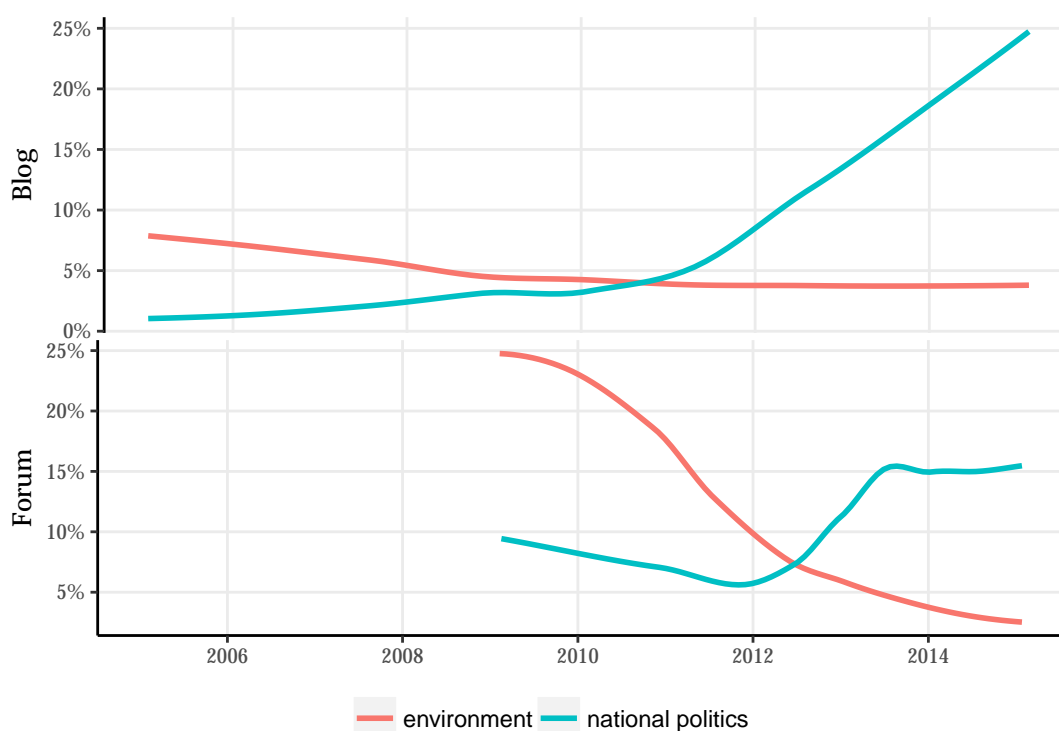
Figure 5.12: *Fraction of posts on environment and national politics between 2005 and 2015 (LOESS curve)*

became more frequent than postings on national politics in the second half of 2010. 2010 is a crucial year for the Movement because in March it participated for the first time in local elections, which resulted in the election to office of some of the Movement's candidates. On the Forum, postings on national politics became more frequent than postings on the environment two years later, in July 2012 between the unexpectedly positive results in the local election of May and the extraordinary outcome of the Sicilian election in October, when the M5S became the most voted party. In other words, the relative frequency of the two topics seems to indicate a significant shift in the focus of the online discussion away from traditional topics and towards more practical goals: party politics and elections. If in the case of the blog's posts, the shift happened because of one person's decision—Beppe Grillo—on the Forum the shift was either caused because new posters with new sets of preferences hit their keyboards entering the discussion or because old posters changed their preferences. As a matter of

fact, as shown in Figure 5.7, the number of users active on the Forum strongly increased from 2012. Nevertheless, this does not exclude that older users might also have contributed to the trend by changing their posting habits. Observing only the postings of 182 long-term users, active both before July 2011 and after July 2012, the pattern that emerges is indeed almost identical: environment is discussed in 13% of the postings between 2009 and 2012 and down to 3% between 2012 and 2015, national politics over the same two periods moves from 3% to 9%.

A clear pattern in online behaviour, whether watching a video or commenting in discussion threads, is what is usually referred to as 'preferential attachment process' or cumulative advantage (see the Section 3.2 in Chapter 3 on network analysis). That is, online users will tend to concentrate their attention on items that are already very popular. The political discussion growing on the Forum of the M5S is no exception. Between 2009 and 2015, 106,285 new discussion threads were created on the Forum and successively commented on 780,617 times. Nevertheless, comments are far from equally distributed across the different threads. Simply, a few discussion threads attract most of the attention and most of the threads attract almost none. The 5% most commented on threads (5314 threads) attracted 47% of the overall comments on the Forum and the 50% least commented on threads (53,142 threads) attracted 10% averaging 1.5 comments each. On the Forum a preferential attachment process can be triggered for different reasons. First, the graphical user interface of the homepage of the Forum promotes at top of the page the most up-voted threads (for the week, month or in absolute), which for the fact of being more visible receives more clicks from users landing on the homepage. Second, users willing to participate in the discussion might be attracted to the most commented threads because they perceive them as potentially more interesting—since they were selected by many other users already—or because they estimate that a comment in a crowded thread will be more likely to be read and eventually replied to.

Although few threads stay active for years—and not necessarily the most

commented one,[7] attention towards threads decays quickly: of those threads that received at least one comment, only 14% received comments for more than a week and only 7% for more than a month.

Preferential attachment and rapid decline in interest in individual threads necessarily impact how topics evolve on the Forum. First, a user—assuming that each comment pertains to the same topic of the other postings of the threads— will be more likely to discuss topics that are frequently discussed at that moment in time. That is, temporarily proximate comments will concentrate on a limited number of topics. Second, the intensity of the debate around an individual topic does not guarantee that the activity around the same topic will last as attention towards threads drops off quickly. By comparing with a linear regression analysis[8] the distribution of comments over topics posted during a day by a user with the distribution of all comments posted during the same day on the same topics shows that—not surprisingly—the effect of the general discussion on individual choices is strong and significant. Conditional on the fact that user a on a given day d_1 has decided to comment on any of the 12 topics listed in Figure 5.10 (thus excluding the three topics labelled as *undefined*), an increase of 1 percentage point in the proportion of comments dedicated to topic X over the total number of comments published on any topic by any user that same day d_1, results in an increase of 0.3 of a percentage point in the proportion of comments user a is expected to dedicate to topic X. Interestingly, if we take into account the number of days between d_1 and the day of the very first comment published by user a, the results is that *seniority* will increase (significantly but not strongly) the independence of the user from the choices of the crowd: assuming a general attention of 20% to topic Y on a given day, a new user (with 0 days of seniority) will be expected to dedicate to the same topic 6.1% of his comments, a user with

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[7]Surprisingly, the correlation between the number of days between the first and the last comment is only weakly correlated (0.07) with the number of commentes actually received.

[8]The fitted model is a *fixed effect* model, estimated with the R package `plm` (Croissant & Millo, 2008), where users are assumed to have some unobserved behavioural characteristics which are fixed in time.

100 days of seniority 5.8% and a user with 1000 days of seniority 3.2%.

Finally, it is interesting to explore whether the number of topics touched on by users increases linearly with the *permanence* of users on the Forum. Clearly, a user that spends more time on the site is more likely to engage in more topics. This is also because as we saw, topics discussed by users are not independent from what is simultaneously discussed on the Forum since the discussions that appear on the home page attract a higher volume of comments simply because they are more visible. Yet, as illustrated in Figure 5.13 the relation between permanence and the number topics discussed is not linear. As users spend more time on the Forum the number of topics discussed typically stabilises around 3-4. This is compatible with a general trend, which we will repeatedly find in the analysis of the discussion networks, to concentrate attention; on topics as on threads and users. But it also seems to suggest that users have predefined sets of preferences (as it would be reasonable to assume) and will not engage with every topic under discussion.
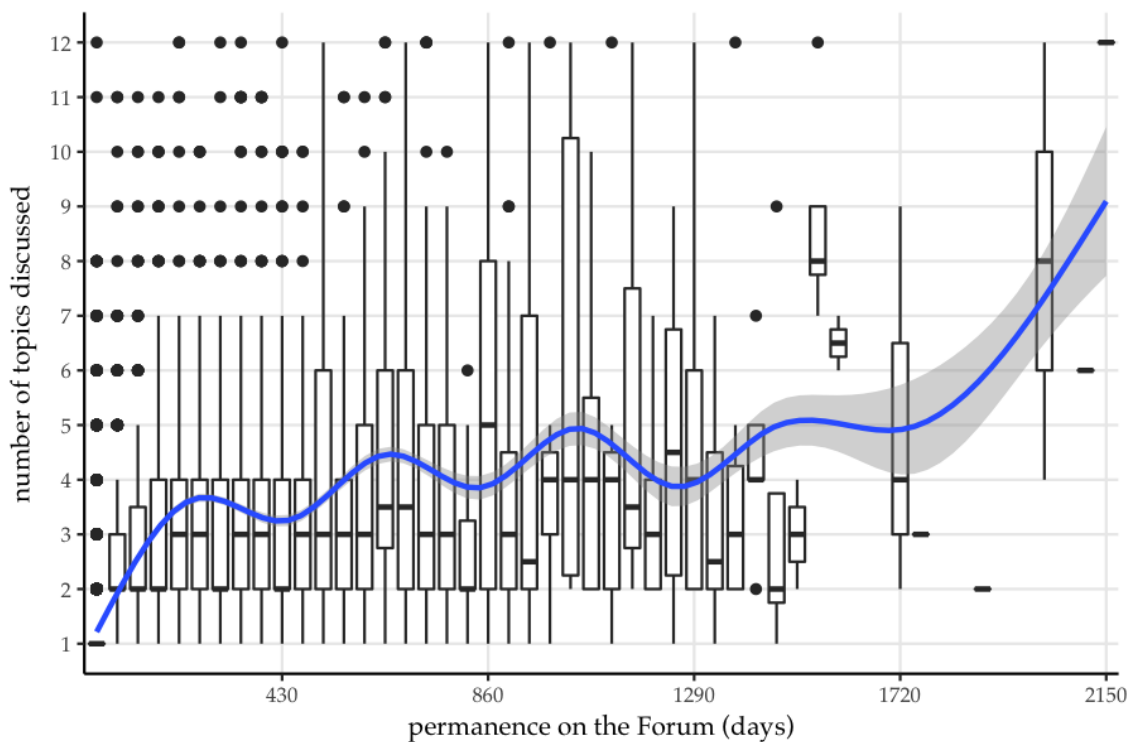
Figure 5.13: *Relation between number of topics and permanence*

4. DISCUSSION NETWORKS

Topic analysis based on the frequency of terms published in the postings offers a picture of the long-term evolution of the discussion on the Forum. During its first three years, the Forum discussed the environment and the online participation infrastructure of the expanding movement, through words such 'blog', 'forum', 'internet', 'members', 'web', 'program'. Progressively, and alongside the constitution of the political and electoral machine of the M5S, a prominent topic emerged both on Beppe Grillo's blog and on the Forum, characterised by words such as 'movement', 'parliament', 'government', 'vote' and 'confidence' (referring to the confidence vote).

In this section, I apply network analysis to describe the networks formed by the interaction among participants in the discussion to highlight the topology, or the particular form, taken by networks of deliberating users and the characteristics that help to predict the formation of these networks.

4.1. The shape of discussion networks

The data on interactions among users in the Forum is well suited to representation in network form. The Forum of the M5S is designed following a traditional multi-thread structure: each new thread (defined as a *proposal* by the Forum's designers) appears in a new page and is open to comments, which grouped the posting describing the proposal. That is, each posting is unequivocally related by construction to a thread. Moreover, few comments are explicitly posted in response to another comment (a user has the option to click on the 'reply to' button at the bottom of each comment). Finally, based on the analysis of users' names I was able, as described in the previous section, to relate comments to a unique set of users.

Given the relational structure of the data, it is possible to represent it as different typologies of networks. The primal network representation would have *three types of nodes—threads* (or the page where the postings appear), *postings*

(comments but also the posting opening each thread) and *users*—but also *three types of relations*. Indeed, each posting is necessarily related both to a thread (it has to appear on a page) and to a user (it has to be posted by someone). But a posting additionally to be related to a thread can be optionally also related to another comment.

In order to more intuitively describe the relations in the dataset, I proceeded by defining two network representations, which necessarily simplify the relational structure of the data but also allow to better focus on key characteristics of the deliberation under analysis.

The first network representation is a binary network, where nodes are of two types (binary): either a user or a thread. The relation described in this network are instead of only one type; a user is connected to a specific thread if he or she has posted in that thread. This binary network representation offers an intuitive mapping of the distribution of the users' presence across the multitudes of threads. Two preliminary networks statistics can be calculated out of the binary network representation of the conversation: the outdegree of each user's node (how many times he or she posted) and the indegree of each thread's node (how many comments each thread received).

The second network representation focuses instead on the direct interaction among users. The resulting network, a direct-reply network, will consist of only one type of nodes (users) and one direct relation between two users when someone replies to somebody else's post. Similarly to the binary representation, the two preliminary statistics that can be calculated from the direct-reply network are the outdegree and indegree of each user-node. The outdegree represents the number of postings in reply to something a user published while the indegree is the number of replies a user received. A high outdegree would signify that a node has been particularly active while a high indegree signifies that a user-node has been central to the conversation.

Given that what we observe is a political deliberation within the official forum of a highly relevant political movement with—based on what I describe in the

next chapter—measurable effects for the national policy debate, the two network statistics are descriptively as well as normatively important. A deliberation that is numerically dominated by only a few voices cannot be perceived as truly representative of the public engaged in the discussion. Similarly the fact that only a few users receive a reply to their postings might mean that most of the postings are in fact ignored. This is important especially in light of the democratic potential of online political deliberation envisaged not only by scholars of political participation and deliberation but also—and probably more relevantly in political terms—by movements such as the M5S in Italy or Podemos in Spain.

In order to help the interpretation of the network statistics of the bipartite and direct-reply networks of the forum of the M5S, I modelled the data from the forum of Germany's Pirate Party, which has the same multi-thread structure of the forum of the M5S although with a much lower participation, into the same type of networks. Figure 5.14 compares the indegree and outdegree of the four networks on a log-log scale. The log-log scale is necessary because of a pervasive characteristic of the degree distribution, which we observe in each one of the four networks both for indegree and outdegree. This characteristic, which is observed in human-generated networks as well as in naturally-occurring networks is generally being referred to as the phenomenon of *preferential attachment* or *Matthew effect*, which takes its name from the Parable of the Talents narrated in the Gospel of Matthew where the rich get richer and the poor get poorer.

According to the data from the two fora, we observe a very similar distribution for both indegree and outdegree in the two different networks (bipartite and direct-reply) and both in the forum of the M5S and in the forum of the Pirate Party.[9] The distribution of the out and indegree tends towards a power-law

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[9]There were three reasons to compare the forum of the M5S with the forum of the Pirate Party. First, both forums were developed approximately around the same time, with the same thread/comments structure and the same user interface (with the most recent and most popular threads appearing on the homepage). Second, both forums were open to comments from everyone. Third, the relationship (both ideological and practical) between the two movements and the Internet were very similar, resulting in both cases in a pronounced centrality of online

distribution (although mathematically speaking it is not a perfect one) typical of scale-free networks (Barabási & Albert, 1999; Clauset, Shalizi, & Newman, 2009), in which there are many more nodes with a very low degree than nodes with a very high degree. A scale-free distribution has the property of forming a straight line when plotted on log-log scale. The distribution of the indegree in the bipartite network as well as in the direct network can be easily explained by the fact that the average user is more likely to comment on the most commented thread or user because, first, by design, highly commented nodes (either thread or users) are usually more visible on the page, second, because a user might be more inclined to target a node that is relatively more active because it is also more visible to other users. The explanation behind the distribution of the outdegree is instead less trivial. In fact, if it is reasonable to assume that in general there will be few very active users, it is still open to question why the distribution would approach so closely a power-law distribution, thus tracing so closely the distribution of indegree. In other words, if it is clear why users will tend to have different levels of involvement, it is not clear why the difference in involvement between those less active and those more active is so extreme and its distribution non-linear.

A tendency towards a scale-free distribution is not only observed in degree distributions. Figure 5.15 shows the permanence of users in the two fora, that is, the difference in days between the last and the first posting. A very high number of users (66% and 82% respectively in the fora of the M5S and Pirate Party) posted only once. And again we have very few users with a very long presence on the fora and most of the remaining users skewed towards a shorter stay.

If the power-law (or scale-free) distribution does not perfectly describe[10] the

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debate.

[10]In fact all observed distributions did not pass the formal statistical test proposed by Clauset et al. (2009) possibly because of the fluctuations occurring in the tail of the distribution and observable in the figures as the cone-like shape that the distributions take as the value of the x-axis increases.
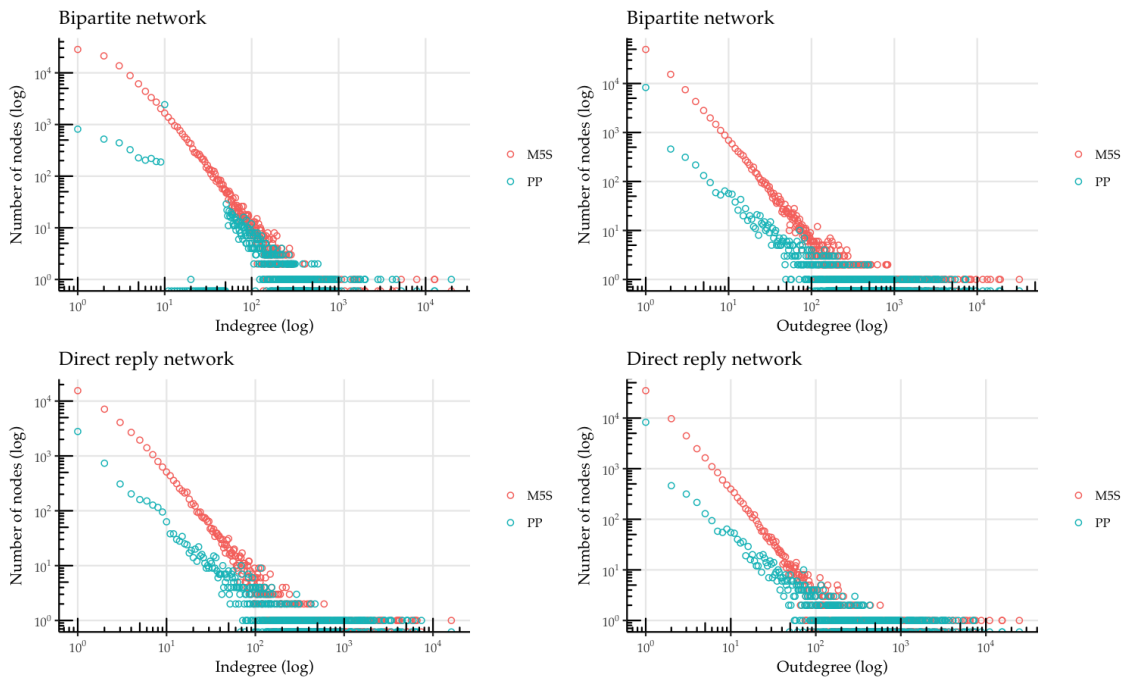
Figure 5.14: *Degree distribution in the fora of the Five Star Movement (M5S) and Pirate Party (PP)*

distribution of degree and permanence, they all nevertheless show an extreme disparity in how the activity is distributed across nodes. And the fact that this property is found in two fora used for political discussion in two different countries is certainly troubling for those who foresee the Internet as a tool to level the differences in access to the public debate.

Finally, Table 5.3 compares the statistics of the M5S's direct reply network with the other three networks described in the previous section. Again most of the statistics presented in the table indicates that the two fora, either if described as a bipartite network of users and thread or as a direct reply network, have very similar characteristics, pointing to some general rule in the development of a conversation network.

We observe that, first, a 'giant component' (Newman, 2003) of connected nodes tends to emerge in all networks—a property observed in many random and naturally occurring networks—containing between 86 and 97% of all nodes. Second, although the sizes of the two bipartite networks are 1 to 11, we observe a
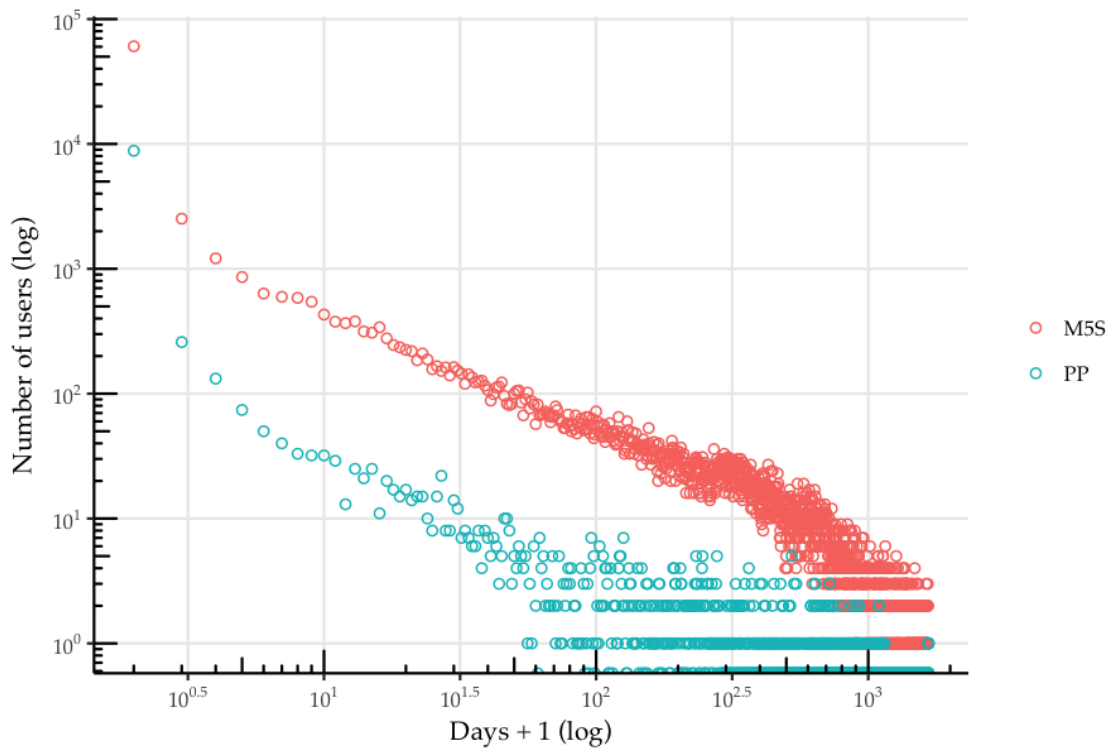
Figure 5.15: *User permanence in the fora of the Five Star Movement (M5S) and Pirate Party (PP)*

similar (and very low) average number of users per thread, which again suggests that most of the threads go unnoticed by the community of users. Third, in both direct-reply networks we observe a very strong correlation between indegree and outdegree; a user that posts a lot will tend to receive a lot of comments, which seems to indicate a possible strategy for obtaining the attention of the community.

As I mention throughout this thesis, the extreme distribution of participation and attention in different deliberating systems has profound implications for the ideals of online deliberation. For large polities, the only mechanism of direct deliberation that has resisted and demonstrated success through history is clearly voting. Voting allows compression and aggregation the opinions of a crowd by counting. Counting is clearly a democratic principle since the value of a vote is totally independent of any characteristic of the actual voter and in a fair system each person is eligible to cast the same number of votes. But when we transpose *counting* (or for that matter any other statistical averaging) to a distribution that

	n	e	c	N (%)	U (mean)	D (mean)	T	D cor
M5S direct reply	87913	424516	10913	86.05		4.42	0.01	0.89
PP direct reply	10729	225854	174	97.82		3.40	0.14	0.91
M5S bipartite	198317	780617	7756	91.07	0.87	1.00	0.00	
PP bipartite	17320	227588	149	97.90	1.63	1.00	0.00	

Table 5.3: *Statistics of the discussion networks (n = nodes; e = edges; c = number of components; N = percentage of nodes in the largest component; U = user per discussion thread (mean); D = shortest path length (mean); T = transitivity; D cor = indegree/outdegree correlation)*

is non-normal, such as those distributions that depend on the activity of Internet users in which participation is not only different across the population of users but *extremely* different, the result is that we disregard the contribution of the large majority of participants.

Two numerical examples based on activity on Facebook pages of the M5S and on the Forum of the German Pirate Party can hopefully clarify this. The forum of the Pirate Party has a distribution of activity that is very similar to those found in the Forum of the M5S but, contrary to the Forum of the M5S, assigns a unique identity to each user[11]. In the period under consideration, there were 10,729 active commenters on the forum of the Pirate Party but the 536 (that is, less than 5%) most active commenters were responsible for 90% of the comments. If the average commenter posted about 21 comments, 77% of commenters posted only one comment (8299 in total) while the most prolific user posted 7280 comments. This distribution voids averages of any real significance and more importantly undermines the practical value of the contribution of the large majority of users.

But the problem does not stop at expressive actions such as comments. Indeed, even the Internet activities that more closely resemble voting such as liking, up-voting and sharing (that can generally be posted only once) are possibly even more problematic in democratic terms. Let us consider the 24.5 million

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[11] In the case of the Forum of the M5S whether the same username belonged to the same person was estimated based on the frequency of names.

likes distributed across 560.00 posts published on Facebook pages of relevant figures of the M5S by about 1.37 million users between 2009 and 2015. From a crowd-sourcing perspective, likes are extremely relevant because they do not only aggregate the opinion of the community but also filter *in* what it is worth discussion (and possibly submitted to a vote) and filter *out* what is not. But if a filtering mechanism is clearly essential to avoid clogging a mass deliberative system, one that is respectful of basic democratic principles should at least guarantee that the largest possible number possible of arguments is heard by the crowd. But as a matter of fact, we observe in the data that 40% of the posts do not receive any likes (with the consequence that they are not shared throughout the community), 50% of the posts receive fewer than 40 likes and about 0.03% of posts received more than 10,000 likes. As seen, the problem with extreme distributions does not only involve the *in*degree (number of likes received by each post) but also the *out*degree (number of likes posted by each user). Each user can only express one like and still the 647 most active users (an extremely tiny fraction within a crowd of up to 1.37 million users) were responsible for 10% of all likes, thus acquiring a disproportionate relevance in steering the conversation.

This extreme difference in how preferences (and consequentially attention) are distributed is problematic because it is fundamentally antidemocratic. And this is not a problem that emerges only because of Facebook-specific design and its proprietary and secret filtering algorithm. The exact same distribution of attention emerges also from the forum of the Pirate Party. The core of the issue is that within an online deliberating community, the array of opinions to which any user is exposed are dependent on the preferences expressed by users who have logged into the system previously. And as the number of users grows, the probability of each opinion being presented to the crowd is progressively more skewed in favour of only a few, selected through mechanisms that are questionable in terms of established rules of democratic proceduralism. This is quite paradoxical because crowd-sourcing tools are indeed empowering for citizen-users since they make participation not only easier but also more effective

(and the M5S testifies to this). Nevertheless, although they have the potential to perfect democracy, they are far from perfectly democratic tools since they tend to distribute attention and influence in ways that are not compatible with the ideals of democratic equality.

4.2. The discussion network of the M5S

The mapping of the discussion network of engagement among users (that is, a *direct-reply network*) will be the object of the analysis developed in the remainder of the chapter. The following analysis aims to understand if any pattern emerges in how users interact with each other. If the analysis of topics indicated that the discussion tended to converge and draw on the most discussed topic of the day, it did not show whether users tended to *prefer* to engage more with some users and less with others. By modelling the network structure to measure the *effect* of specific characteristics, it is possible to query the discussion network to understand whether some configurations are more likely to appear than others given what we observed on the Forum. In particular, it will be possibile to test for the presence of homophilic tendencies among users—a question that has attracted considerable attention among researchers interested in online political discussion—and for the relative importance of users who were eventually elected to parliament. In this section, the analysis covers all the interactions among users on the Forum over a period of more than one year. In the following sections, the analysis will cover instead shorter periods and focus on exchanges around selected issues (i.e. immigration, confidence vote, and common currency).

The analysis of topics suggests that the political organisation of the Movement progressively gained in importance in the online discussion. By comparing names declared on the Forum by the users with the names on the electoral lists of candidates of the M5S to the 2013 general election, I labelled 359 users as *candidates* (85 were successively elected). The interest is to understand whether in the run-up to the election and immediately after the election, the position within the network of users who ended up playing a public (and political) role

was significantly different from the position of other users. Because the 2013 electoral law did not allow voters to directly express a preference for a candidate but only for a party, the M5S organised in December 2012 (a few months before the election) an online consultation to allow registered members to indicate their preferred candidates. The ordered list of candidates of the M5S in each electoral district was then compiled based on the preferences received from members in the online primaries. The network analysis was performed on three temporally contiguous network slices: the first network contains all users active in the online discussion (either because they replied to someone or because someone replied to them) between June and December 2012, when the online primaries took place, the second network comprises all interactions between the primaries and the general election in March 2013 and the last network covers a period of six months after the election (the sets of active users include members, candidates but also simple users commenting on the Forum). For each period, the network is fitted into in an exponential random graph model (Lusher et al., 2013) to quantify the importance of a set of characteristics in generating connections (that is, replies) among members. Table 5.4 displays the effect of each configuration on the likelihood of finding a connection between a pair of users. The *gender* of users inferred from their name and whether they are a registered *member* of the M5S (only members can open a new discussion thread on the Forum but commenting is open to anyone) are also controlled for. In the Table, *homophily* indicates the likelihood of observing a relation between two users who share the same attribute. *Sender* and *receiver* indicate instead the likelihood of observing a connection respectively from and to a user with that attribute.

Membership of the movement does seem to have an effect on how the discussion develops. In fact in all the three periods, one is significantly more likely to observe relations between users who do not share the same membership attribute (that is, one is a member and the other is not). This pattern, along with the fact that non-members are more likely to send a reply and members to receive one, is certainly reinforced (if not integrally caused) by the Forum's rule that

		Jun '12 - Dec '12	Dec '12 - Feb '13	Feb '13 - Aug '13
active users		13,420	14,777	40,306
connections		28,719	27,344	91,091
Network effect		Estimate (SE)	Estimate (SE)	Estimate (SE)
edges	○——▸○	$9.879(0.023)^{***}$	$0.441(0.008)^{***}$	$-10.891(0.012)^{***}$
member				
homophily	●——▸●	$-0.285(0.016)^{***}$	$-0.283(0.018)^{***}$	$-0.165(0.009)^{***}$
sender	●——▸	$-1.540(0.017)^{***}$	$-0.803(0.019)^{***}$	$-0.403(0.010)^{***}$
receiver	——▸●	$1.889(0.018)$	$1.606(0.020)^{***}$	$2.047(0.010)^{***}$
gender - male				
homophily	●——▸●	$0.083(0.029)^{**}$	$0.058(0.028)^{*}$	$0.090(0.015)^{***}$
sender	●——▸	$0.032(0.027)$	$-0.126(0.025)^{***}$	$0.107(0.013)^{***}$
receiver	——▸●	$0.122(0.023)^{***}$	$0.085(0.020)^{***}$	$0.007(0.012)$
candidate - not elected				
sender	●——▸	$-0.012(0.059)$	$0.218(0.080)^{**}$	$-0.736(0.100)^{***}$
receiver	——▸●	$0.245(0.040)^{***}$	$0.440(0.048)^{***}$	$-0.187(0.046)^{***}$
candidate - elected				
sender	●——▸	$0.549(0.076)^{***}$	$-0.745(0.235)^{***}$	$-0.996(0.276)^{***}$
receiver	——▸●	$1.994(0.032)^{***}$	$2.044(0.039)^{***}$	$2.404(0.034)^{***}$

Table 5.4: *Network effects and standard errors obtained with an exponential random graph modelling of the network of direct replies on the Forum*

restricts to members the privilege of opening a new thread: members receive more incoming connections because users are more likely to reply to the main post of the thread instead of replying to comments to the thread. In any case, members and non-members do appear to connect. Gender also does not seem to limit engagement among users. Although two users are significantly more likely to connect if they share the same gender, the effect is very limited.

The effect of candidate and elected users is more interesting and seems to indicate that the Forum recognised early the leadership role of a few users that were

successively elected to parliament. Although the results of the primary elections were never published, those who were elected to parliament necessarily received more votes in the primaries than those candidates who were not elected.[12] In all three periods, thus also before the primaries (first column) and before the election (second column), elected candidates show they were much more likely to attract incoming connections—which is arguably a measure of relevance within the discussion networks—than other users, including non-elected candidates. And notably, their effect as the receivers grow stronger peaking *after* the elections. On the contrary, non-elected candidates show that they slightly increase their effect as receiver only up to the election: afterwards they are actually less likely to receive a comment. The effect as *senders* of candidates is instead nonlinear: elected candidates are significantly more likely to engage other users before the primaries—when the opinion of their fellow Movement's members was certainly valued—but less likely to do so *after* the primaries. Indeed the fact that elected candidates were more engaged, reaching out to other users on the Forum, could possibly have helped them receive relatively more votes in the primaries than non-elected candidates.

A limit in the ERGM presented before is that it is necessary to treat a dynamic network as a static one. But it is reasonable to assume that the behaviour of nodes at t_0 will have an effect on the behaviour of the same nodes at t_1. In particular, we might assume that a user that is active today is also likely to be active tomorrow. And less trivially, we can wonder what is the effect of past indegree to future indegree. In order to model the dynamics of the direct reply network I used the method proposed by Leifeld, Cranmer, and Desmarais (2016) that extends ERGM. The complete network describing users' activity between 2009 and 2015 is subset in an ordered series of networks describing the interactions happening over seven days. Because of the computational demand deriving from modelling the entire

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[12]The number of votes in the primaries defined the order of the list of candidates in the election. According to the electoral law, candidates are elected, proportionally to the number of votes the party received, in the order in which they appear on the list.

series of 312 week-networks, I proceeded by subsetting once more the series in windows of 25 weeks and modelling a random sample of four 25-week networks. The results are shown in Table 3 in the Appendix. They indicate that, first, gender is not a significant predictor of interaction throughout the four samples: a male user will be more likely to interact with another male user only in one out of four sampled periods. Second, past degree is consistently a significant predictor for the present degree. Not surprisingly users with a higher past outdegree tend to have a significantly higher present outdegree and symmetrically users with a higher indegree tend to have a higher present indegree. Coherently with the static model we observe that users with a high past indegree tend to have a lower present outdegree. Finally and more interestingly, users with a high past outdegree are consistently associated with a lower indegree in the present, signalling that if in general being vocal is a good strategy to get attention in the *short* term, it is, in fact, counterproductive in the *long* term. This final finding seems to provide evidence that the deliberative system somehow counterbalances the overexposure of a few users—which as seens is a crucial problem in online deliberation if leading to over-influence—by dedicating to them progressively less attention.

4.3. Discussion network on immigration

The analysis of the period around the 2013 general election indicates that users and their behaviours are not independent of the political trajectory of the Movement. In fact, candidates of the M5S active on the Forum attracted significant attention from other users in the months around the election. Moreover, users' interests in a traditional topic such as the environment progressively declined in favour of discussions more connected to the broader political debate, as the Movement gradually became a national actor with evident political responsibilities derived from its role in parliament, where the M5S had more than 150 MPs. But whether or not online users do engage with others with a different set of opinions and political views is still to be investigated. The relevance of the ques-

tion is reinforced by a wide academic literature on online political polarisations and more generally on Internet social behaviours. Moreover the M5S offers an almost unique case, being a national political community with an electoral base extending all the way from the far-left to the far-right of the political spectrum. Given the constitution of the Movement, diversity of opinions on the Forum seems highly likely. How this diversity plays out in the interactions among users will be the focus of the rest of the chapter.

Immigration, not dissimilarly from other countries, is a recurrent issue in the Italian political debate. The discussion is usually either triggered by a news event (such as migrant boats or crime) or by a political event such as a law reform. The network analysis of the discussion focuses on a time-window of few weeks, between October and November 2013. Specifically, the sudden increase in attention to the issue illustrated in the bottom panel of Figure 5.16 is triggered by two events. The first event on 9 October 2013 (red intercept in the Figure) was the vote in parliament, supported by many MPs of the M5S, on a bill to decriminalise entering the country without a visa. The second event was a blog post published by Beppe Grillo the following day (Grillo, 2013e) censuring the vote of his MPs.

The discussion network, limited only to postings related to immigration and published between October and November 2013, is composed of 112 users and 214 connections. The limited size of the network allows coding of the political orientation of the users based on the content of their postings. Approximately 50% of the users were labelled either *left-wing* (29% of the total) if their positions were in line with the vote of the M5S in parliament (in that occasion the Movement voted in agreement with other left-wing parties) or *right-wing* (21% of the total) if they were in favour of stricter controls on immigration flows. Additionally users were labelled left-wing if they expressed concerns in terms of human rights protections ('Children and minors must be protected ... According to international law newborn and pregnant women must ...') and right-wing if they disagreed with humanitarian concerns either for economic, practical or political reasons ('To be indulgent in welcoming [migrants] ... causes more incentives for these
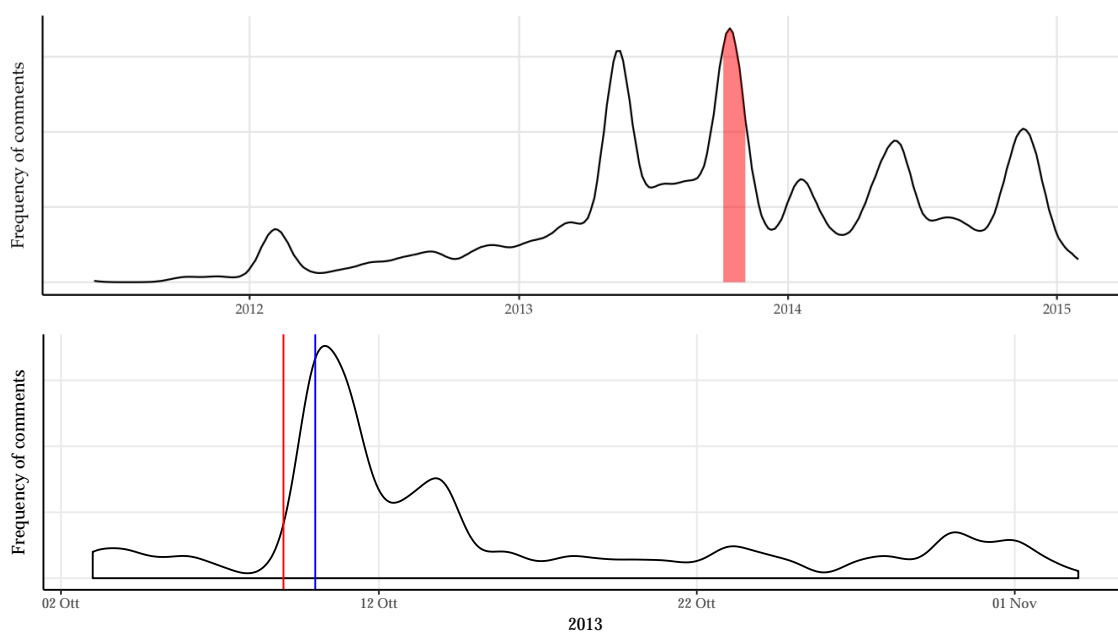
The region highlighted in the upper panel is zoomed in the lower panel. The blue and red vertical intercepts indicate pbeginning and end of the network slice used in the network analysis.

Figure 5.16: *Frequency of postings on immigration on the Forum*

journeys and more capsizing and deaths ...').

The network effect estimated by fitting an exponential random graph model (ERGM) on the discussion network on immigration is presented in Table 5.5.

Network effect		Estimate (SE)
edges	○⟶●○	$-4.788(0.169)^{***}$
reciprocity	○◄⟶●○	$2.729(0.446)^{***}$
gender homophily	●⟶●●	$-0.093(0.173)$
political homophily	●⟶●●	$0.885(0.209)^{***}$
sender (right-wing)	●⟶	$1.060(0.187)^{***}$
receiver (right-wing)	⟶●●	$-1.818(0.360)^{***}$

Table 5.5: *Network effects computed fitting the discussion network on immigration between October and November 2014 with an exponential random graph model*

The first effect in the Table is *reciprocity*, which is—not surprisingly for a social

network—strongly positive: the fact that user *a* replies to user *b* increases the likelihood that user *b* reciprocates by replying to user *a*. Gender has no significant effect in determining who talks with whom. Instead, political orientation seems to have a significant—although not very strong—effect in the network: users with similar political orientation are more likely to be connected. And yet the effect of political orientation on the likelihood of a user sending or receiving a comment seems to indicate that political homophily is not *symmetrical* because right-wing users are at the same time *more* likely to send a comment and *less* likely to receive one. Indeed, as illustrated in Figure 5.17 political homophily appears to be limited to left-wing users only, who prefer to discuss with their likes. Right-wing users show the opposite tendency, engaging more often with left-wing users. The result is that, as a matter of fact, the number of connected pairs of users with different political orientation is very close to the number of connected pairs with the same political orientation.
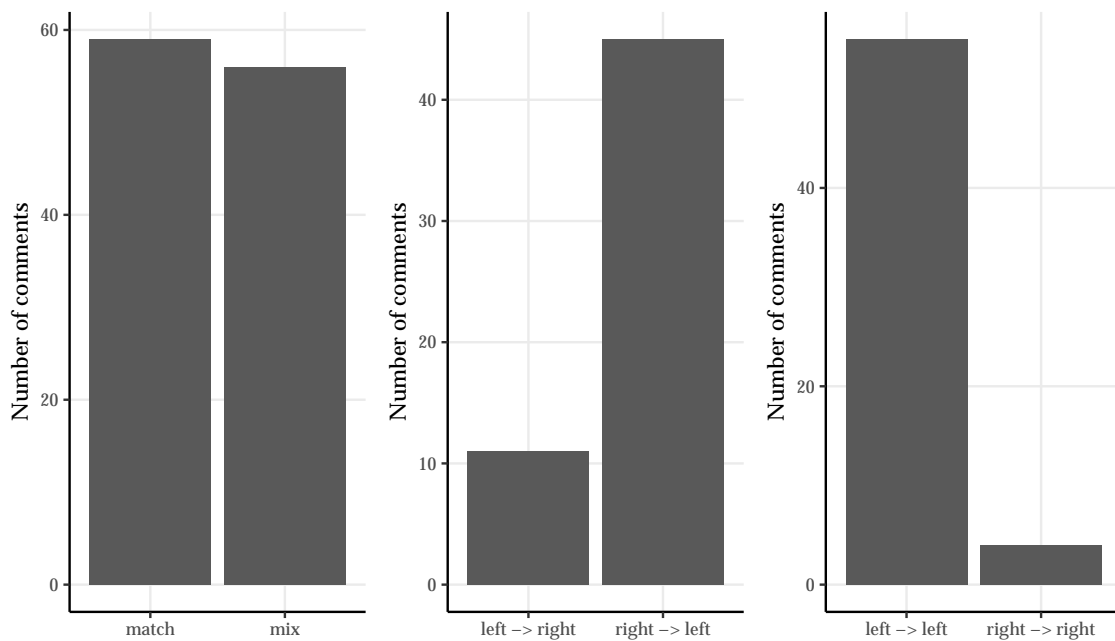
Figure 5.17: *Political attributes of the comments in the immigration debate*

The asymmetry in behaviour between right-wing and left-wing users continues if we model with a binomial regression *agreement*, *disagreement* and the

inclusion of *facts* in the postings (see regression tables in Section 4 of the Appendix). When approaching left-wing users, the right-wing user will be *more likely* to use facts in their postings and *less likely* to openly express a disagreement.

The network analysis of the discussion on immigration provides some evidence that, especially within a well-defined political community such as the community of the M5S, online political discussion does not necessarily take place among those who are like-minded. In fact, the discussion that took place on the Forum between October and November 2013 showed that users engaged with different opinions, refrained from using vulgar terms (only 3% of postings contains a vulgarity) and were ready to mention facts in support of their opinion (42% of postings report a fact). Nevertheless, this specific discussion needs to be necessarily contextualised within the political enterprise of the M5S. The asymmetric pattern that emerges from the discussion can be explained in terms of the shifting of internal balances between the different political constituents of the Movement. In this particular circumstance it was the right-wing component that had to steer the Movement in a different direction (exactly as Beppe Grillo tried to do with his blog post). The attempt of right-wing users to engage with left-wing users, who held at the time the predominant position on immigration in the Movement, also frequently bringing facts to their attention. For example, citing from a newspaper and presenting figures to support his argument, a user wrote:

> The Sole 24ore [an authoritative financial newspaper] publishes numbers on the presence of Chinese in the triangle Milan-Parto-Verona, their commercial businesses have increased in only a few years from 6000 to 14,800 and those run by Italians from 54,000 to 31,000. Either we are totally stoned or immigrants are benefitting by more favourable conditions.

The attention dedicated by those holding an anti-immigration opinion to engage with pro-immigration users could have been motivated by a wish to

convince them but also by a desire to show to all readers of the Forum that a right-wing view on immigration was not necessarily a minority within the Movement.

4.4. Discussion network on 2013 confidence vote

The unexpected success of the M5S in the general election of 2013 generated a spike in participation in all the online platforms of the Movement (see Figure 5.7). Although the M5S won fewer seats than the centre-left Democratic Party, Beppe Grillo and the Movement were depicted by the media as the real winner in the contest. The electoral coalition led by the Democratic Party and its candidate for the premiership, Pier Luigi Bersani, did not obtain enough seats in the two chambers to form government alone. As the size of the electoral capital of the M5S became apparent, after the polls closed in the evening of 25 February 2013, the debate on the position the Movement should have kept in parliament started to snowball.

Beppe Grillo always maintained before the election that the Movement would have steered clear of alliances and *inciucio*[13] with parties that bore the full responsibility of the degeneration of political institutions. Importantly, no pre-electoral polls gave the M5S any weight in the post-election negotiations to form a government: it was assumed that the centre-left coalition, eventually together with the centre coalition of former prime minister Mario Monti, would have had the necessary number of seats to form a government. The results of the election that started to emerge in the early hours of the afternoon of 25 February disrupted this scenario. The distribution of seats in Parliament allowed only for two possible coalitions: a centre-left centre-right grand coalition, necessarily including Berlusconi's PDL, or a coalition of Bersani's PD and the M5S. The Movement really faced the possibility of assuming political responsibility to execute its program.

Figure 5.18, in the lower panel, shows the volume of comments on the Forum

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[13]Beginning with 1995 in the jargon of Italian politics these post-election alliances are labelled with the popular term 'inciucio', which both brings the meaning of something *messy* and *fraudulent*

since the closure of the polls on 25 February. In the morning of 26 February (2 in the Figure) a post, which would receive more than 5000 comments, was published on the Forum asking for the Movement to support a government led by Bersani. But it was only on 27 February that the debate really started to intensify. That day, all major newspapers led with Bersani's offer to Grillo to form a coalition government. Late in the morning an online petition was posted on change.org[14] by a voter of the M5S asking Beppe Grillo to 'give confidence' to a coalition government. The petition, which was eventually signed by 161,719 people, gained widespread attention in the media. Beppe Grillo, a few minutes after the petition opened to signatures, when it was clear that it was going viral, published on his blog (4 in the Figure) a post title 'Bersani, talking deadman' (2013b). In the post, with 18,841 comments one of the most discussed on the blog, Grillo declared that 'the M5S will not give any confidence vote to the PD (or other parties)'. Two days later a post titled 'Confidence vote?' was published on the Forum and directly addressed the creator of the petition: 'Dear [name omitted], the Movement revolutionised the way of doing politics. NO CONFIDENCE! NO INCIUCIO! NO PREDEFINED AGREEMENT! [...] Old politics [...] IS DEAD! The Movement and those who supported and support it MUST AVOID DEGENERATION.'[15] The post, the second most commented-on in the Forum, attracted 12,623 comments.

In order to analyse the debate on the Forum, I defined a discussion network of users' direct replies and limit it to postings that refers to the debate on the confidence vote[16] published between February and April 2013. The network contained 317 users and 288 links connecting them: each link represented a comment a user posted in reply to a posting. Analogously to the previous analysis, each comment was binary-coded according to whether it expressed agreement

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[14]www.change.org/p/caro-beppe-grillo-   dai-la-fiducia-al-governo-per-cambiare-l-italia-grillodammifiducia

[15]http://www.beppegrillo.it/listeciviche/forum/2013/03/votare-la-fiducia-4.html

[16]Postings were identified as part of the discussion is matched against the regular expression `(?=.*(vot(.*?)|dare|diamo)\s(di|la)\s(fiducia))(?=.*bersani)"`
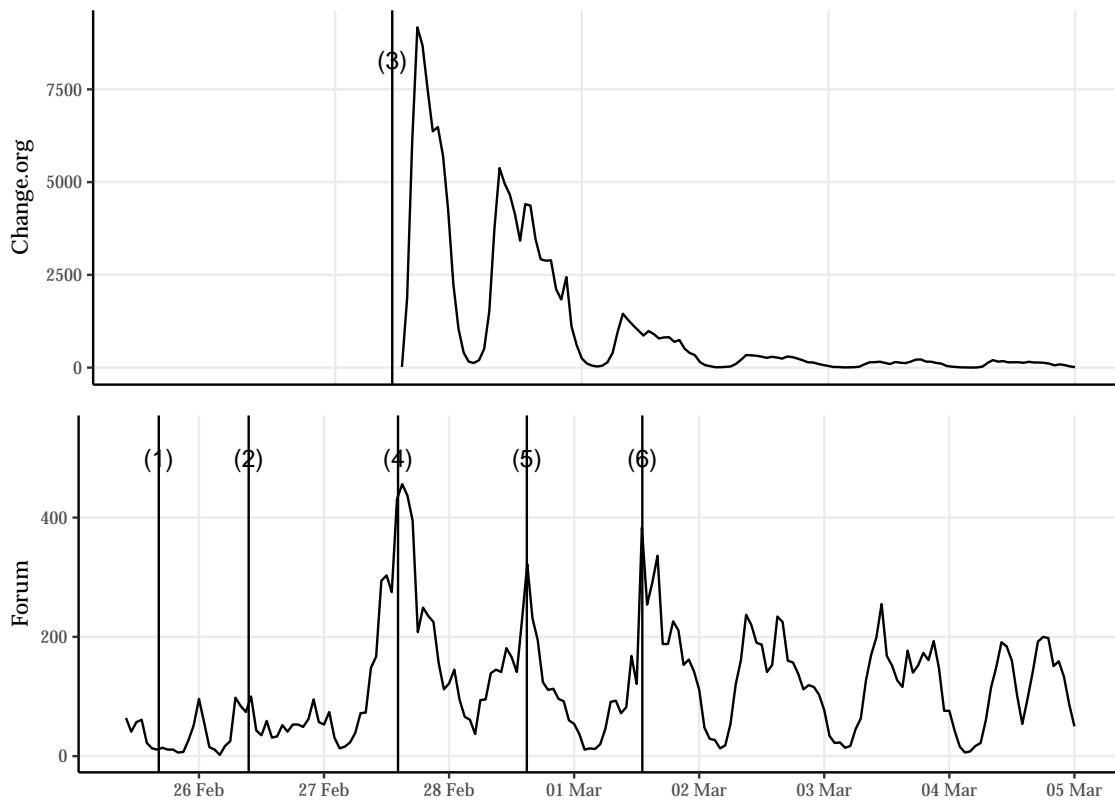
(1) News that the M5S is the first party in the lower chamber; (2) A proposal is posted on the Forum attracting 5242 comments to request the M5S to support a government led by Bersani of the Democratic Party (PD); (3) A petition is posted online asking Beppe Grillo to support a PD-led government; (4) Beppe Grillo posts against supporting a coalition government with the PD, (5) a post is published on Beppe Grillo's blog critising the online petition; (6) a proposal is posted on the Forum attracting 12,597 comments in support of Beppe Grillo's position against forming a coalition government.

Figure 5.18: *Signatures per hour for the online petition to support the government of the Democratic Party and comments per hour on the Forum*

or disagreement, or whether it contained a fact. The political orientation of the comment, either in favour of or against an alliance with the PD, was also estimated. Although in most of the cases a binary classification was appropriate, for a few comments the result was problematic. As a guiding line, a comment showed approval towards the coalition government if the author's opinion was that favouring the creation of a government led by the PD was somehow acceptable.

Classification of opinions that accepted a coalition with the PD but only with a government led by the M5S or by a person not compromised by the establishment, was decided case by case: in general if the comment expressed agreement with opening negotiations with a party (the PD) that was seen as sharing a few programmatic similarities with the Movement the opinion was classified as favouring a coalition government.

Based on these criteria, postings allowed the classification of 56.5% of the users: of those classified, 52.5% agreed with the position expressed by Grillo, opposing any coalition with other parties, 40.8% expressed the opposite view, favouring some sort of agreement with the PD, and 6.7% had somehow conflicting views. The exponential random graph modelling of the discussion network allows testing for the presence of patterns in the formation of ties among users. The effect of each configuration tested by the model on the discussion network is shown in Table 5.6. As with the ERGM on the migration debate and most social network, reciprocity is an important factor in determining the creation of ties. What instead is quite different from what is found generally in a social network discussing political views is that the probability of observing a tie among a pair of users sharing the same opinion is *lower* than among a pair with *different* opinions. In other words, in this discussion users showed heterophily more often than homophily. Moreover, users *against* a coalition government appeared to be more active in directly engaging users who *favoured* a coalition government.

Network effect		Estimate (SE)
edges	○———▶○	$-6.096(0.097)^{***}$
reciprocity	○◀———▶○	$2.522(0.734)^{***}$
political homophily	●———▶●	$-0.690(0.339)^{*}$
sender (against)	●———▶	$1.074(0.129)^{***}$
receiver (against)	———▶●	$-1.973(0.333)^{***}$

Table 5.6: *Network effects computed fitting the discussion network on parliamentary confidence vote between February and November 2014 with an exponential random graph model*

Heterophily is in fact quite surprising in online political discussion networks, where ideological polarisation has been continuously observed over the years (Adamic & Glance, 2005; Barberá, 2015). And yet this pattern is perfectly understandable in the context of a political community, empowered by an unexpected electoral result, where users try very hard to convince and persuade others and in so doing steering the position of the Movement. Moreover, the data show that cross-opinion engagement is again not symmetrical. As in the case of the migration debate, it appears that one side of the debate—interestingly the side that aligns with the position of the leader—played a more active role in engaging with the other view. It can be argued that their activism in defending the purity of the Movement and its intransigence towards the 'old politics' was a response to the pressure, mounting from the media and probably also from a non-negligible number of M5S voters, to give a stable government to the country and show political responsibility in a difficult economic crisis. According to a user opposing any opening towards the PD,

> [o]ur role is to dismantle the current party system and create a new one. What's the point in voting to support a government led by the PD, and its secretary Bersani, that during the last 20 years governed for more than 10 and now they pretend they did not contribute to the disasters of the last 20 years [...]. We must move forward with our program of dismantling the current system without doubts or interruptions.

The criticism towards Beppe Grillo and the preconceived attitude of closure towards any debate, was articulated around two arguments: in terms of pragmatism and natural evolution of the Movement—according to a user 'the M5S must show its value and move from protesting to realising its political program', but also in terms of a lack of internal consultation. For another user,

> humiliating the base and the bottom-up democracy, the decision [...] was taken by the top [...]. In article 4 of the Movement's manifesto

'it is recognised to the Internet a central role for the phases of [...] consultation, deliberation and decision and election'. [...] Nothing of this occurred. By reading comments in the Forum, it appears that users are more or less divided in half [...]

As previously noted in the topic analysis, the debate on internal democracy and consequently the role of citizen-users in shaping the politics and the policies of the Movement attracted on the Forum, and throughout the M5S, a large number of postings. It was a crucial issue for the Movement since so much of the identity of its supporters active online depended on it. It is then not surprising that the issue reemerged vehemently during the debate on whether to support a coalition government. In the days after the general election of 2013, the sense of empowerment of the community of citizen-users reached its peak along with the frequency of online activity.

Notwithstanding the fact that some within the Movement (according to my coding about 40% of commenters) favoured a political agreement for the creation of a government also supported by the votes of the M5S, the issue was never put to a vote and in general the discussion was discouraged, that is, the role of users around the most important decision in the history of the Movement was undermined. Grillo, as the debate started to unfold following the success of the online petition, made clear that the issue was not debatable since during the campaign the Movement had always professed its opposition to any coalition government. The non-negotiability of the position of the Movement against any coalition crushed those who saw the assembly of citizen-users as the only authoritative forum for deliberation and decision-making. The entire affair put then the Movement under strain because Grillo had to defend his position not against the old forces of politics but against an online petition signed by thousands (the very essence of the idea of Internet democracy) with what was seen by many as an anti-democratic decision.

4.5. Discussion network on exiting the common currency

The discussion on abandoning the common European currency is, similarly to the discussion on immigration, diffused across time (see Figure 5.9). Yet, in October 2014, after the Movement launched its campaign for a referendum on the euro, the domain of the debate on the Forum became more defined: the referendum. The attention Beppe Grillo dedicated to the issue significantly increased after the campaign was launched and the position expressed by Grillo on his blog entered and fuelled the debate on the Forum. The option of leaving the common currency was never contemplated by any of the main parties with the notable exception of the right-wing Northern League and was not in the M5S electoral manifesto presented in 2013. In fact, few users complained about the decision of launching the campaign, which they perceived both as useless and far from the original (environmentalist?) roots of the Movement. A user wrote:

> I have a personal impression that, at least where I live, a few old militants of the meetups who organised stands and went on the ground are pissed off. I am against both the pointless referendum and leaving the euro [...] I phoned and asked old militants who were on the ground in 2005 and 2007 [...] and I felt a general detachment. Can you imagine what is like to keep a stand open for 6 months [to collect the signatures for the referendum]? It's crazy [...]. NOW, GO ON, web-revolutionaries. I give way.

Nevertheless, although most of the self-described left-wing users did identify the issue of leaving the Euro as a right-wing issue, it does not appear from the data that those in favour of leaving the Euro spent relatively less time on the Forum. In fact the median permanence of users in the two groups, measured as the number of days between the last and the first post, was almost the same: a user supporting leaving the common currency is expected to have been active on the Forum for 648 days while a user with the opposite view only slightly longer: 675 days.

The discussion network for the quantitative analysis was drawn from 254 postings of 144 users, published on the Forum between October and December 2014. The opinion of 56.2% of the 144 users was binary-coded based on whether the author agreed or not with leaving the European common currency. Many users also raised the issue of the opportunity and constitutional legitimacy of a referendum on the issue. Nevertheless, coding only focused on the opinion on the common currency and not on the discussion on how to obtain an exit. According to the data, the majority (58.02%) of users active in the discussion for whom an opinion was coded favoured leaving the common currency against 29.62% who said they wanted to remain in the common currency and 12.34% who expressed mixed opinions.

Notably, the majority of postings (59%) used facts in support of the argument, while only 35% of postings included facts in the debate on the coalition government and 42% in the debate on immigration. This could indicate that the debate on the Euro currency, pertaining to the domain of economics, is more technical or at least is perceived as more rigorous by users: for example, if the debate of migration and party coalitions was probably conceived as driven by moral (and thus absolute) considerations, multiple postings of the debate on the Euro listed meticulously pros and cons of any action. This is also confirmed by a tabular analysis on the number of postings in the debate on the Euro currency that contained a link to any page. If in the corpus of about 400,000 postings published on the Forum between 2009 and 2015, about 6% contained a link (indicated by the presence of a string containing `http...`), 18% of postings discussing leaving the Euro currency contained one. A Pearson's Chi-squared test confirmed the significance of the difference.

In terms of opinion polarisation, the debate showed a pattern similar to the debate on migration, with a higher probability of tie-formation between users with similar views, when controlling for other configuration such as reciprocity and sender and receiver characteristics (see Table 5.7). And yet 52.17% of ties connected pairs of users with different opinions (a pair of users can have more

than one tie if they exchanged multiple comments). This could indicate that although users did exhibit homophily on this argument, when they engaged with users with opposing view they tended to exchange more comments.

Network effect		Estimate (SE)
edges	○⟶●○	$-4.701(0.097)^{***}$
reciprocity	○◀⟶●○	$2.709(0.329)^{***}$
political homophily	●⟶●●	$0.819(0.196)^{*}$
sender (against Euro)	●⟶	$0.119(0.153)$
receiver (against Euro)	⟶●●	$-0.713(0.181)^{***}$

Table 5.7: *Network effects computed fitting the discussion network on exiting the common currency between October and December 2014 with an exponential random graph model*

5. CONCLUSION: THE EVERYWHERE POLITICAL TALK

In this chapter, we observed behaviours and interactions of tens of thousands of users across the different online platforms deployed over the years by the M5S. From the analysis of empirical evidence based on transactional data generated by users it emerged that, first, in its aggregate form participation in online deliberative systems is non-linear and difficult to compress with the traditional averages of normal distributions. This has not only consequences for the analysis (non-linear distributions are inherently more difficult to describe) but also for the democratic value and potential contribution of the online deliberation experiment. Second, online deliberating communities do not necessarily fragment along opinion lines: evidence from the network analysis of three distinct debates shows that users engage (possibly also because of strategical considerations) with different opinions. Third, evidence suggests that users active on the Forum are strongly interested in debating how to practically implement online deliberation, which is consistently among the most discussed topics. This suggests that the

citizen-users who took to the Internet and to the Forum are not only interested in policy goals (the relative importance of discussion on environmental issues, represented by four of the five stars in the name of the M5S, progressively faded away) but also in transforming the meaning and weight of direct political participation through the Internet (the fifth star of the name).

The chapter has provided evidence supporting the dialogic potential of online deliberation, in which citizen-users interact and arguably produce knowledge that is shared throughout the community of the Movement. I first noted that the dialogue is real in the sense that differences of opinions are represented and accounted for by the users involved; no debate shows a strong segregation of the debating community. But I also noted that the community under analysis is not necessarily representative of the political talk taking place everywhere on the Internet since users might feel 'a sense of community' and agree on fundamental issues. Second, the dialogue is informed by facts and frequently users add links to other resources to add credibility or to inform. The occurrence of links in postings varies, more technical debates (such as the debate on the Euro currency) are found to contain links with a higher probability, but still in general about 6% of postings contain a link.

Nevertheless, the profound inequality in the level of attention to postings and participation casts serious doubt on whether the debate is actually democratic (in the sense of representing opinions fairly and in an unbiased way). As observed, present attention is a formidable predictor for future attention and consequently new opinions, contrary to the belief of equal access guaranteed by the Internet, have an extremely high chance of going totally unnoticed by the community of users. Specularly, users also behave extremely differently. As seen by comparing activity patterns of female and male users, demographic characteristics might contribute to explain the difference. But it seems difficult that demographic differences could integrally explain such extreme differences in activity. These two patterns that emerge from the behaviour of users (long-tailed distributions for both attention to nodes and activity of nodes) can be interpreted in light of

the fact that users are *networked individuals* (Rainie & Wellman, 2012).

The blips of activities that are captured by the data should be put into the context of individuals that are simultaneously actors on different networks, which they navigate, activate, deactivate, based on preferences that are influenced by constant exposure to the very same networks. Thanks to Internet and mobile technologies, the activation/deactivation cycle can last a fraction of a second (a user likes a posting shared through one of its networks such as friends, coworkers, members of the M5S) or exceptionally can last for hours, days, months or even years. The multiplication of networks, of layers of interactions, provides individuals with an immense pool of nodes to connect to but paradoxically the omniscient influence of the networks, in which each user is immersed, results in the promotion (exponentially in terms of the size of the network) of only very few nodes—the promotion of which can only be justified based on the actual quality of the node's content.

An additional effect of the multiplication of networks around individuals is that everyday political talk, the talk that based on the conceptualisation of Mansbridge (1999) is conductive to the formation of political opinions, is also much more ubiquitous and diverse. It happens *everywhere* because the multiplication of layers of personal networks, which are constantly recombined and reconfigured, produces much more intersection points between different domains that allow politics to pop up at any time, even unexpectedly when the *ego*-user at the centre of the network is not actively looking for it. It is *diverse* because traditional forms of representing political arguments and opinions are outmatched by visual content (often in the form of memes).

If the analysis presented in this chapter has indicated that the practice of online deliberation is compatible with the ideal of *dialogic deliberation*, the next chapter will assess whether it can also sustain *instrumental deliberation*, which results in decision making (J. Kim & Kim, 2008). From the topic, analysis emerged that direct participation through Internet tools played an important role in the debate on the Forum. But the analysis of the debate on the M5S support for

a coalition government identified a tension between citizen-users' aspiration of placing decision-making within the perimeter of formal online deliberation mechanisms (made manifest in the voting platform that the Movement created in 2013) and the leadership of Beppe Grillo, who in practice deprived the online community of any authority on that issue.

Chapter 6

Online deliberative discourse

Go home, public sphere. You're drunk.

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The chapter offers a discourse analysis based on natural language processing of the deliberation process for the institution of a guaranteed minimum income. The policy proposal was not part of the original electoral manifesto of the M5S but became part of the program of the Movement, and actually turned into a flagship item, after being discussed online. The analysis explores how the discourse on the GMI took shape in the online discussion and assesses its trajectories both internally to the Movement, from discussion to voting and then to an official position of the party organisation, in the online community of citizen-users, and in the broader national public sphere. There are two reasons for the choice of the discussion on the GMI as a case study. First, the proposal for the introduction of a so-called 'citizen's income' after the 2013 general election quickly became the flagship item for the Movement: the M5S and its leadership dedicated considerable attention to the GMI and the GMI never left the Movement's agenda. This continuous attention allows to treat the multiyear discussion as a single thread instead of independent fragments. Second, the relevance of the item both within the Movement and in the public arena triggered a large and sustained volume of comments from the users of the Forum. The choice of the GMI as

case study is thus motivated by its historical and political relevance and by the practical considerations of finding a debate that was sustained over the years.

In October 2013 the M5S presented a law proposal to the Italian Senate to introduce nation-wide a 'citizen's income' (Catalfo, 2013) which was then also widely publicised by Grillo himself on different media platforms. The proposal followed an online debate on the Movement's platforms that dated back to at least 2005 and 2009 when it was first discussed respectively in the comment section of Grillo's blog and on the Forum of the M5S. The first online vote on the GMI took place just before the general election of 2013, in a survey organised on Grillo's blog. In November 2013, a few days after the bill was presented in the Senate, the Movement also opened a discussion on the bill on the deliberation platform of the Movement (the so-called 'Operative system', sistemaoperativom5s.beppegrillo.it). The M5S bill proposed the institution of a GMI for every EU citizen residing in Italy fixed at an 'at-risk-of-poverty threshold' computed annually by the National Institute for Statistics (ISTAT).

In this chapter, I argue that the online debate contributed significantly in pushing the GMI onto the public agenda and to parliamentary deliberation, although the policy item was already intermittently present in the public and political debate. The online discussion resulted first in the popularisation of a policy idea: a 'citizen's income'. The idea of a benefit to be distributed universally to all citizens, which is the text-book definition of 'citizen's income', appeared first in the context of a conspiratorial theory, shared among users who had an active role in online fora of the M5S, according to which monetary financial institutions such as central banks impoverished ordinary people through seigniorage, that is, by illegitimately keeping the difference between the cost of printing money and the nominal value of money. Second, as the idea was discussed in the commenting sections, Grillo progressively legitimised it by presenting it as economically sound: if the first 'expert' to appear on the blog had no scientific accreditation (purportedly he never completed any graduate course) the second expert was a Nobel prize recipient: Joseph Stiglitz. Third, the *label* of the policy

idea was appropriated by the Movement—although the *content* was not integrally incorporated—in the run-up to the general election of 2013 and it trickled down to the discourse of candidates of other parties. Fourth, after the general election, at least three parties, including the M5S, discussed the 'citizen's income' in Parliament and bills to introduce nation-wide some sort of GMI were presented.

The chapter is structured as follows. In the first section, I provide some clarification on the definitions of 'guaranteed minimum income' and 'citizen's income' and consequently of the terms I used to search different corpora of texts for documents related to this issue. In the second section, I present a method of semantic analysis based on the collocation of documents within a multidimensional concept space. The method will provide (in the fourth section) a reading of the semantic evolution of the discussion via a quantitative analysis of thousands of posts published during almost ten years on different platforms. In the third section, I present the national debate on GMI by querying the archives of the two major Italian newspapers and of the Italian Parliament for documents containing specific terms. In the fourth section, I present the debate as it unfolded on different online platforms within the M5S. In the final section, I present an assessment of the impacts that the online debate might have had on the official position of the M5S and on the national debate.

1. Definitions of 'guaranteed minium income' and 'citizen's income'

According to economists active in the public debate on the reform of the Italian welfare system (see Boeri & Perotti, 2013), the policy proposed by the M5S was in fact *not* a 'citizen's income' (or basic income), the label chosen by the Movement, but a guaranteed minimum income (GMI).[1] In the definition of

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[1] During a Senate hearing to provide an opinion on the M5S bill, National Institute for Statistics (ISTAT) also pointed to the inexactness of the terminology adopted by the M5S in labelling its policy, which is 'denominated *citizen*'s income, but in this case amounts to a selective

political economist Philippe Van Parijs (2004) a 'basic income is an income paid by a political community to all its members on an individual basis, without means test or work requirement' (Van Parijs, 2004, p. 8) but the law proposed by the M5S clearly involved a means test: 'measure of the citizen's income [...] is calculated monthly based on the household income' (Catalfo, 2013, Art. 3 § 5). In other words, if the provision of a citizen's income as generally intended by economists involves the periodic transfer from the state to all citizens of the *same* amount of money without any conditions but citizenship, the formulation of the M5S law implies a conditionality and the 'citizen's income' is intended as a supplement to a household's income to allow it to reach a minimum income fixed by the state, which in fact is, for economists, the definition of the GMI. The M5S was not the first party to propose or pass a GMI provision labelling it citizen's income. The first example is probably the left-wing coalition at the Campania Regional Council, which passed a law granting a 'citizen's income' to those with annual income below 5,000 euros (Giunta Regionale della Campania, 2004).

Taking into account that in practice the GMI is recurrently—although improperly—referred to as *citizen's income* by news media and political movements, I searched the corpus of news media and political text for both phrases. Still, I refer here to GMI, independently from the proponents' own denomination, if the proposed benefit is conditional on the actual income of the recipient.

2. MAPPING DOCUMENTS IN THE CONCEPT SPACE

The challenge in mapping a conversation made up of thousands of fragments of written texts disseminated through different channels—in the current case, a blog, a forum, two newspapers and Parliament—is in maximising the compression of contents minimising the loss of relevant information, that is, of interest for the analysis. My descriptive analysis of the debate for the introduction of GMI,

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measure, limiting payments of benefits to households with an income below a determined threshold' (Alleva, 2015, p. 6)

alternatively referred to as 'citizen's' or 'guaranteed minimum' income, aims to seek relations of influence among written contributions of very different actors (from ordinary citizens to journalists and MPs). The assumption is that each contribution is potentially influenced by previous contributions and can potentially influence successive contributions. The expected *individual* 'weight' of each contribution varies greatly, depending on whether it is posted in the comment section of a forum or published in a major newspaper. Still, because of the new topography of the public sphere flattened by the wide diffusion of communication technologies, contributions of marginal actors are now at the same 'click-distance' from the general public as front page articles. But if differences in technological endowments for expressing ideas and opinions between actors in the public sphere have been reduced (or arguably disappeared), whether this new geography brings practical consequences in the development of the debate is still an open question.

In order to follow the evolution of the conversation and track the direction of possible influence, I mapped the relationship among texts, or *documents*, that entered the debate (via online fora, newspapers or parliamentary acts) based on the *concepts* expressed in them. Concepts are either abstract ideas (e.g. unemployment, poverty) or tangible objects or people (e.g. car, horse, Shakespeare). A concept is not an opinion. Two actors might both use a concept in a discussion, such as unemployment, without necessarily sharing a common opinion (or for that matter, a common understanding) of the concept. Still, especially in a policy debate, if concepts are sufficiently well defined, mapping the use of concepts by actors can provide insights on the general direction of the debate and support inference on the relations among interventions.

Operationally I needed to construct a *concept space* populated by a finite set of concepts and collocate each of my documents (posts, articles or parliamentary acts) in that space. In the process, the *distance* between each document and each concept is measured. Once documents have a position relative to all the concepts, I can infer the relative importance of each concept within the document (e.g.

the concept 'car' is expected to be more important than the concept 'motorbike' in a document discussing car safety) but also whether two documents are both similarly distant to the same set of concepts based on their respective cosine-similarity.

2.1.   The concept space

Explicit semantic analysis (ESA) was proposed by Gabrilovich and Markovitch (2007) to compute a document position in a high-dimensional concept space. At the core, the technique compares the terms of the input document with the terms of a document describing the concepts to estimate the relatedness of the document to each concept. As in Gabrilovich and Markovitch (2007) I populate the concept space for the analysis with a selected number of articles from the Italian version of Wikipedia. Wikipedia is particularly well suited for use as a source of the concept space. First, the encyclopaedic mission of Wikipedia makes it sufficiently universal to cover a wide range of topics (or concepts). Second, the fact that many different users contribute to Wikipedia (although not necessarily from different demographics[2]) should increase the variety of the terminology that appears in the description of the concepts. Third, Wikipedia articles are nested into a hierarchical tree of categories, thus making filtering articles by categories of interest easier. Fourth, the entire corpus of Wikipedia articles is published under a Creative Commons licence, and thus freely available to researchers.

To define my concept space based on relevant Wikipedia articles for the debate analysis, based on Gabrilovich and Markovitch (2007), Milne and Witten (2013), Egozi, Markovitch, and Gabrilovich (2011), I proceeded as following. I downloaded the entire corpus of webpages published under the domain it. wikipedia.org as of February 2016 along with databases containing information on internal links connecting the different pages of Wikipedia, links connecting

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[2]According to the last survey conducted, among contributors to the Italian Wikipedia 86% are male, 49% have a university degree (Wikimedia, 2012).

pages and categories, and relations between pages in different languages.[3] From the raw corpus containing 2,574,955 pages, I immediately filtered out all pages that were not encyclopaedic articles but pages dedicated to maintaining Wikipedia and all articles with fewer than 100 words, which I considered insufficient to fully describe a concept, remaining with a corpus of 864,274 articles. To assess the relevance of each remaining article I mapped the inter-page links connecting the article; in this sense, pages with a relatively higher number of incoming or outgoing links were considered more relevant. After fixing a threshold for relevance to the median values of eight incoming and 27 outgoing links, 277,416 articles remained for the analysis.

The last layer of filtering was based on the *categories* of the articles. The category structure of Wikipedia is hierarchical. The uppermost category of the Italian Wikipedia taxonomy is `Categoria: Categorie` which has three child-categories: `Categoria: Wikipedia`, `Categoria: Multimedia` and `Categoria: Enciclopedia`. I immediately eliminated the first two child-categories since they related the pages dedicated to the administration of the site. From the remaining categories, I constructed a graph mapping their hierarchical relations (all categories must have a parent-category). This successively allowed me to extract categories in the close proximity of a few categories of interest and remove others (such as categories of people). Specifically, to define the set of categories to include in the analysis I identified, after inspecting the textual documents discussing GMI, nine broad categories that in their English translation were 'Category: Poverty', 'Category: Unemployment', 'Category: Banking', 'Category: Income', 'Category: Politics', 'Category: Politics of Italy', 'Category: Monetary economics', 'Category: Constitution of Italy' and 'Category: Five Star Movement'. Starting from these eight categories I queried the graph for all categories with a maximum of two-degree

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[3]More specifically I downloaded from dumps.wikimedia.org/backup-index.html the following database backup dumps: `itwiki-20160203-pages-articles.xml`, `itwiki-20160203-pagelinks.sql`, `itwiki-20160203-categorylinks.sql` and `itwiki-20160203-langlinks.sql`.

Figure 6.1: *Relations between the most relevant Wikipedia categories used to map the concept space*

separation from them, obtaining a set of 540 categories. Figure 6.1 shows the most relevant categories and their relations obtained by extracting the neighbourhood of the eight categories listed above. All articles not belonging to these 540 categories were removed, bringing the final number of Wikipedia articles for the concept space to 4827.

2.2. Term frequency analysis

Once I had defined the two corpora, the corpus of posts, news articles and parliamentary acts and the corpus of Wikipedia articles forming the concept

space, I proceeded to their term frequency analysis to make them quantitatively comparable after removing stopwords and stemming remaining terms. Term frequency analysis is widely applied in NLP. In its most basic implementation each document of a corpus is considered as an unordered list of words (that is, where each word actually appears *within* the document is irrelevant) and the number of occurrences of each word in each document is computed. We can then think of a document as a *vector* of term frequencies within a common *vector space* indicating the frequency of all words that appears at least once in the corpus (see Manning et al., 2008, Chapter 3).

Assigning to each word within a document the same importance irrespective of how often the word is used in the corpus can be undesirable because it may underrate the significance of a word that is used rarely across the documents. To address this problem I applied as weighting for each term its *inverse document frequency* defined as

$$idf_t = log\frac{N}{df_t}$$

where N was the number of documents of the corpus and df_t the number of documents containing the term t. Then I derived a weighted term of frequency tf_t simply by multiplying it for the corresponding df_t obtaining, for each term of document d, $tf \times idf_{t,d}$, finally obtaining a *term frequency–inverse document frequency* (TFIDF). The effect of this weighting is to increase the relative importance of terms that appear in few documents over terms that appear in most of the documents, thus weighting more words that we assume to be important to interpret the document. Still, two documents with similar terms could have very different term frequency vectors simply because in a longer document a term has a higher chance of appearing more often. Because the length of documents in both corpora used in the analysis varied significantly (from short comments to long Wikipedia articles), I *normalised* each vector.[4]

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[4]The term-document matrix was computed with the function `TermDocumentMatrix(corpus, control = list(weighting = function(x)`

2.3. The semantic interpretation vector

Each document and concept were at this point described by a vector of weights, one weight for each word contained in the document, that is, in the former, the collection of all documents of the discussion under analysis and in the latter, the Wikipedia articles forming the concept space. Each weight indicates the relative importance of a corresponding word within the document or concept. The last step is to interpret each document in terms of the set of concepts in the concept space, thus identifying which concepts better interpret the content of a document. What we want to obtain is computing for each document D a 'semantic interpretation vector' Gabrilovich and Markovitch (2007, p. 1607) of length N so as to describe with a scalar value the strength of the association between the document D and concept c_j for $c_j \in c_1, ..., c_N$. For document D we already know its TFIDF vector $\langle v_i \rangle$ where v_i is the weight of word w_i, and so we know $\langle k_j \rangle$ containing an inverted index of concept weights for word w_i. The final step is then to multiply the v_i of each word w_i of document D with k_j of concept c_j and sum the results:

$$\sum_{w_i \in D} v_i \cdot k_j$$

which returns the weight of concept c_j in document D.

2.4. Evaluation

To evaluate the result of the semantic interpretation vector in rendering the meaning of a document, I list in Table 6.1 the top 20 concepts (which correspond to articles of the Italian Wikipedia) returned from a Forum's comment and a newspaper article, selected among documents below 1500 characters. Importantly, as seen before, the concept space was pre-processed so as to include only concepts of interest for the analysis. Still, concepts were not handpicked but, leveraging

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`weightTfIdf(x, normalize = TRUE)))` from the R package `tm` (Feinerer, Hornik, & Meyer, 2008)

the relations among Wikipedia articles defined by the taxonomy of hierarchical categories, drawn into the analysis based on their taxonomic proximity to target categories (see Figure 6.1). The reduction in the number of categories helped to bring the computation required down to manageable levels but also to focus the concept analysis and reduce the chance of *false positive* results (that is, concepts that were totally unrelated to the document). In fact, the objective of the analysis is not to simply retrieve the information contained in the document (that is to understand what the documents are saying) but to map their relations and their relation to concepts relevant to understand the evolution of the discourse.

In the two documents shown in table 6.1 there are in fact a few false positives.The online comment (left column) is related to the concepts of 'Rebirth of Christian Democracy' or 'Italian fiscal code card', which clearly are not mentioned in the document. The newspaper article is instead associated with concepts of union organisations that—although part of the Italian General Confederation of Labour (CGIL), mentioned in the document multiple times—are not directly referred to. Still, the concept analysis is quite effective in identifying the main concepts mentioned in the document without any significant *false negative*. In the comment (left column) the analysis rightly identified the concepts of 'productivity', taxation on firms ('tax wedge'), public debts ('fiscal cliff') while in the newspaper article the concepts of 'unemployment', 'Regional government of Lazio' and 'CGIL'. Notably the absence of the concept of GMI is by design. In fact since *all* documents contained a reference to GMI, the weight assigned to all the terms pointing to the concept was low (see 2.2).

For the current analysis the absence, or low chance thereof, of *false negatives* is crucially more relevant that any issue occurring with the *false positives* results. In fact, the interest is not in retrieving the exact meaning of documents, which could potentially be polluted by a large number of false positive, but in identifying which document referred to a specific concept before subjecting it to a qualitative analysis. Moreover, from the two documents illustrated in Table 6.1 it emerges that false positive points to very specific and semantically limited concepts—'Rebirth

document	concepts
1) we are talking about basic income, non-guaranteed minimum income 2) and in any case with the various cuts you don't reach 30 billion per year 3) money to subsidise idleness and unproductivity? absurd and who should create jobs since companies are closing because Italy is a tax hell? the state? Another fake welfarism. 4) with both citizen's income and with GMI the general Italian mentality is fraudulent so it would cost even more than any normally budgeted calculation.	Productivity; Tax wedge; Fiscal cliff; Rebirth of Christian Democracy; Profit; Government agency; Tax haven; Social stigma; Italian fiscal code card; Declaration of taxable income
2) Alert work, unemployment at 10% Di Berardino, CGIL∗: we need immediately investments for public works. Economy, The union: "Insufficient resources? The Region must use EU funds and cut external consultants". The problem of unemployment is becoming a 'social emergency in our territory ": Claudio Di Berardino, general secretary of the CGIL in Rome and Lazio, raises the alarm. According to union estimates, the unemployment rate is now back to almost 10%, but also including the "discouraged" (ie people without work who do not enroll at the job centres) the rate exceeds 12%. And yet, says Di Berardino, "in Lazio region one million people, mostly pensioners and casual workers, live on less than 800 euros per month while recourse to irregular work and evictions for non-payment do increase." The CGIL, therefore, calls for immediate investment to boost the economy and jobs. And to recover the resources, the region "makes maximal use of the available European funds and resets for five years the costs of any outside consultancy." Berardino also asks the Regional government of Polverini to restore the "citizenship income", the 'check for 530 Euros per month for the poor introduced by' former governor Marrazzo, but cancelled for budgetary reasons.	Federation of knowledge workers∗; Italian General Confederation of Labour (CGIL)∗; Unemployment; Regional government of Lazio; Federation of Metallurgical Workers∗; Investment; History of CGIL∗; General Labour Union; Administrative region; Italian Labour Union

∗ Italian General Confederation of Labour (CGIL). Federation of knowledge workers and Federation of Metallurgical Workers are part of CGIL.

Table 6.1: *Two documents (top row) and the respective top 10 concepts (bottom row) derived by comparing their term frequency to the term frequency of Wikipedia articles*

of Christian Democracy' is an obscure party and the 'Italian fiscal code card' is a card containing the Italian tax number, while all broad concepts—'productivity' and 'unemployment'—are correctly identified.

An additional evaluation of the result of the analysis was conducted of

the highest weighted concepts across the different corpora: online, media and Parliament (for details on the 20 highest concepts for each corpus see Table 4 in Appendix).

3. The GMI public debate in Italy

The debate on the GMI is an interesting case study because before it was actively promoted by the M5S, the issue was rarely discussed by the media and in Parliament. GMI, whether referred to as 'guaranteed minimum wage' or 'citizen's income', was present in the debate before 2013 but sparsely mentioned. Even if these specific measures were not debated, unemployment and poverty are constant themes in Italian political discussion, and parties and newspapers alike routinely advance analyses or proposals to tackle them. In fact, both poverty and unemployment have dramatically increased in the temporal period covered by the analysis of the online discussion (2005-2015, see Figure 6.2).

To track the evolution of the debate on GMI that occurred in the Italian Parliament, I analysed bills and parliamentary acts containing the phrases 'guaranteed minimum income' and 'citizen's income' either in the title of the document or, when present, in the description of the document.[5] Based on the terminology adopted by the two chambers of Parliament, which equally contribute to each national legislation, *Bills* are law proposals presented by one or more Members of Parliaments not necessarily members of the the same party ('progetto di legge' or 'disegno di legge' in Italian) while *acts* are a broader class of documents presented by MPs including 'interrogations', 'motions', items in discussion agendas and 'resolutions'. The analysis of the parliamentary documents helps understand not only if and how often the issue was debated but also which parties put the issue forward. Based on the data structure of the historical archive of Parliament, each document is linked to one or more MPs and each MP to one parliamentary

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[5]Documents were obtained querying the online databases of the two chambers (Camera dei Deputati, 2016; Senato della Repubblica, 2016) with the regular expression filters `reddito (minimo )?di cittadinanza` and `(reddito minimo garantito)`.
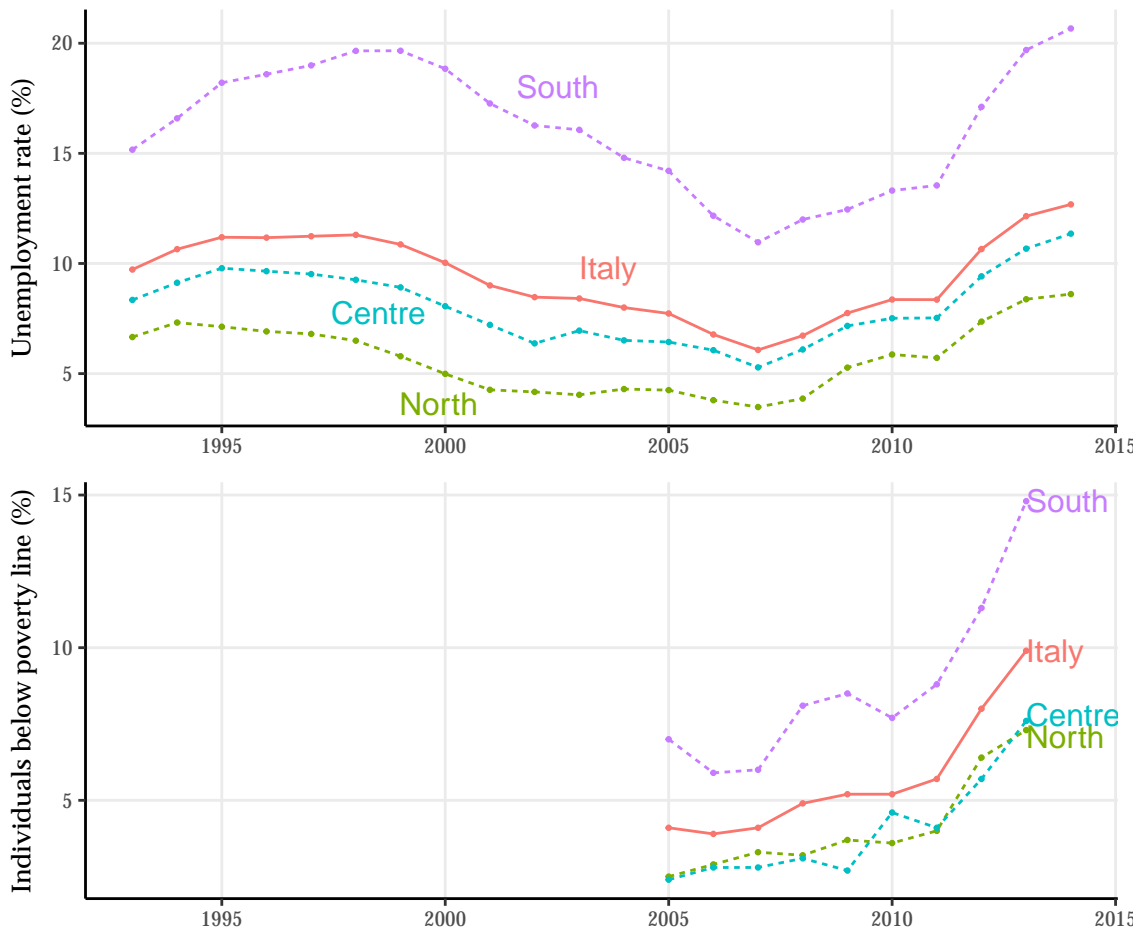
Figure 6.2: *Unemployment and poverty rate in Italy (Source: Istat, 2015)*

group, which usually corresponds to a party. If MPs were members of a party that participated in a general election when presenting the document—MPs can switch parliamentary groups after the election—they are assigned a left/right score based on the coding of the electoral manifestos (Volkens et al., 2014) nearest to the date of the presented document.

Figure 6.3 presents the data from the historical archive of the Italian Parliament for the period 1989-2015. In total 105 documents were retrieved, 89 from the Chamber and 16 from the Senate[6] with respectively 383 signatures of Members of the Chamber and 150 Senators. The left-right alignment of each party (vertical axis) is based on the coding by the Manifesto Project (Volkens et al., 2014). Points are slightly jiggled to improve readability. Based on Manifesto Project coding, acts and bills presented by the M5S are clustered in the lower part of the panels (see Section 2). In the top panels, each mark corresponds to a signature of a MP and is collocated on the vertical axis based on the political position of the signatory MP. The blue lines indicate a locally weighted smooth (Cleveland & Devlin, 1988; as implemented by in Wickham, 2009) with the corresponding standard error (computed excluding the M5S data points) to appreciate the political collocation of the signing MPs. The bottom panels depict the occurrences of documents across time. The first observation is that the frequency of occurrences over the 26 years under analysis of the two phrases do increase dramatically after the election of 2013 and not just because of the activity of the MPs of the M5S. Second, the GMI issue cannot be labelled either as left-wing, since right-wing MPs actively discussed GMI policies, nor as a radical issue since centrist and moderate parties also discussed it.

The first ever record in the archive of Parliament to refer to GMI is a bill presented in the Chamber of Deputies in 1989 by Proletarian Democracy, a far-left party (Russo Spena, 1989). The bill openly linked the concept of a guaranteed minimum income (GMI) to the concept of a '"salary of citizenship" as a right

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[6]In the case of the Senate only *bills* were collected because it was not possible to link *acts* to MPs in the Senate's archive.
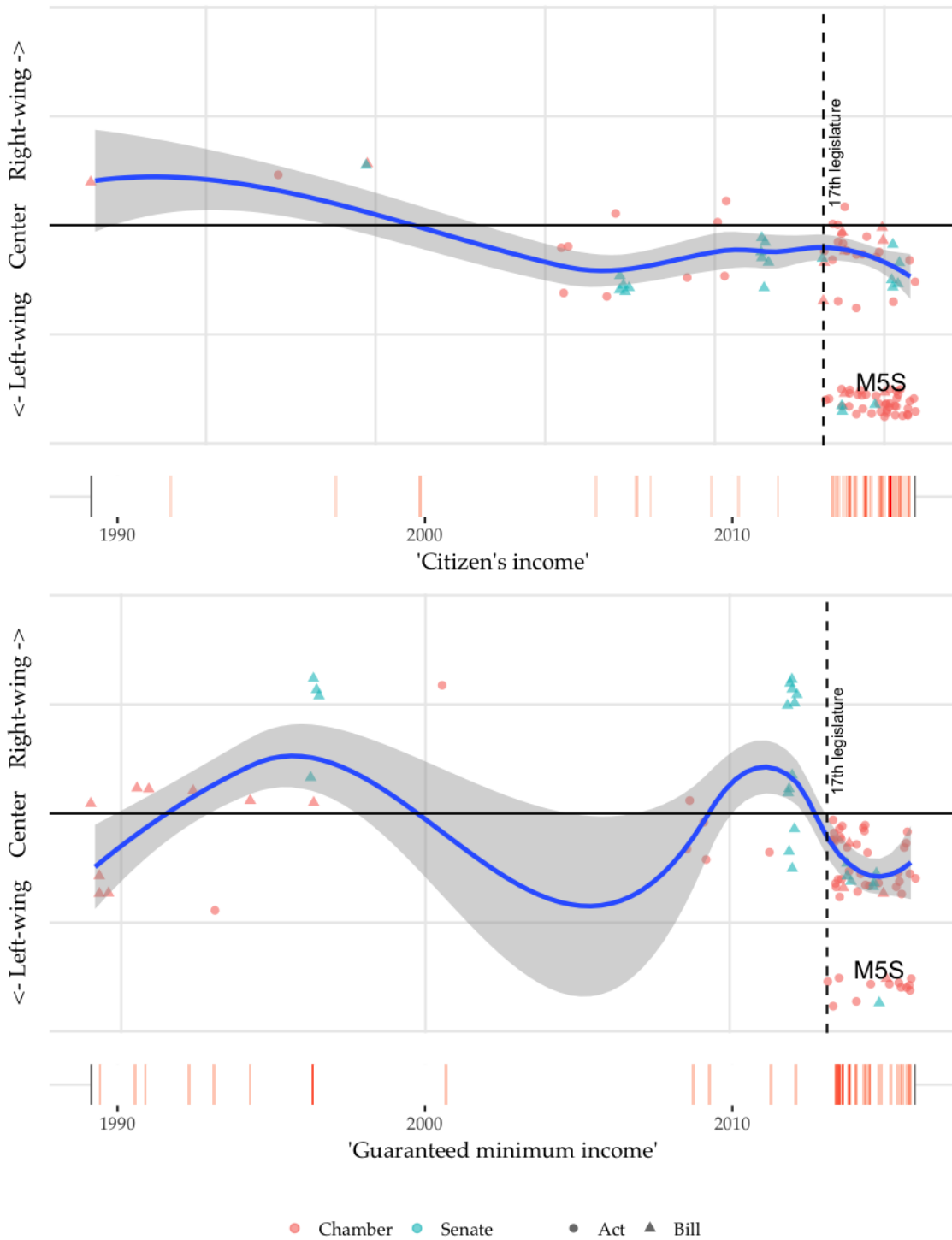
Figure 6.3: *MPs presenting acts and bills mentioning 'guaranteed minimum income' or 'citizen's income' (top) and number of acts and bills presented (bottom)*

of every citizen to obtain public money with the aim of guaranteeing (at least in part) his needs' (Russo Spena, 1989, p. 1). Interesting the 1989 law proposal is very similar to the bill presented 24 years later by the M5S, both in terms of the conditionalities established by the law—beneficiaries must actively look for a job if they are able to work (Russo Spena, 1989, Art. 3)—but also in terms of the justifications formulated on Constitutional grounds; both bills referred to Article 3 of the Constitution (Russo Spena, 1989, Art. 1 § 1; Catalfo, 2013, Art. 1 § 1), which states that '[i]t is the duty of the Republic to remove those obstacles of an economic or social nature which constrain the freedom and equality of citizens' ('Constitution of the Italian Republic', 1948, Art 3).

In 1994 National Alliance, a right-wing party successor of the post-fascist Italian Socialist Movement, presented a bill to institute a GMI within a policy aimed at protecting the family as a fundamental component of society (Buontempo, 1994, p. 1). Although the bill referred to Constitutional economic guarantees, explicitly mentioning the Article 3 of the Constitution in line with the 1989 and 2013 bills, it also added as justification in the third paragraph of its introductory section a 'Letter to Families' written by the Pope. In 1999 National Alliance proposed a new bill for the institution of a 'universal citizen's income' but this time within a bill focusing on tax reform and wealth redistribution (Gramazio, 1999).

Figure 6.4 shows the relative frequency of articles mentioning the GMI in the two major Italian daily newspapers mentioning it between 1992 and 2015. *La Repubblica* discussed GMI between December 2003 and February 2004, following the approval of a regional law in Campania but then reduced the level of attention dedicated to GMI until the end of 2012.[7] *Il Corriere della Sera* barely mentioned GMI before late 2012. In fact, between January 2008 and October 2012, 'citizen's income' is only mentioned in the newspaper five times. What increased attention towards GMI by October 2012, as is visible in Figure 6.4, was the electoral

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[7]The archive of *la Repubblica* also returns results for articles that appeared in the local sections of the newspaper.
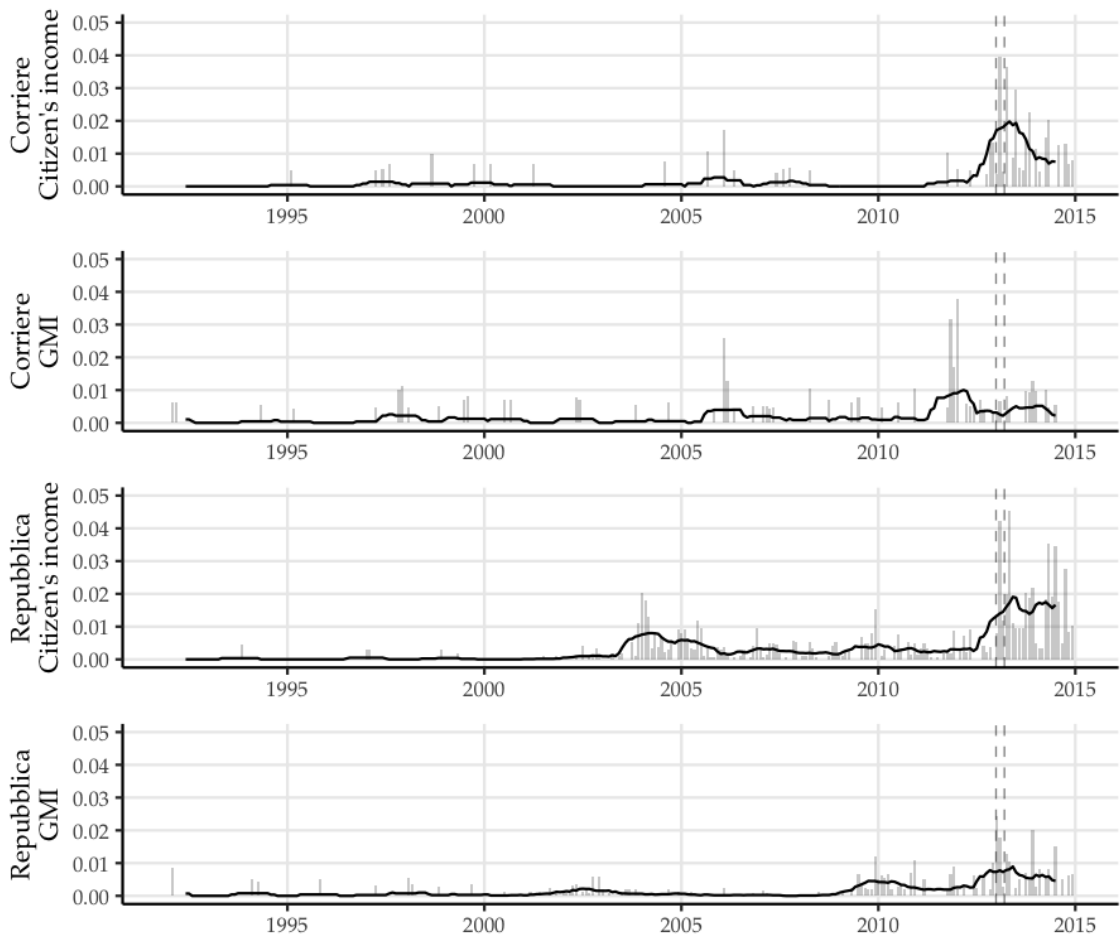
Figure 6.4: *Number of articles mentioning 'citizen's income' as fraction of articles mentioning 'politics' published in the same period.*

campaign waged by Grillo and the M5S. Between the end of October and the general election of February 2013, 17 articles in *il Corriere della Sera* referred to 'citizen's income'—without providing a comprehensive description of the provision—and mostly in relation to the M5S campaign. In fact, GMI was recognised as a feature of the electoral campaign of the M5S in both newspapers (see Stella, 2010; Buzzi, 2012; Emanuele, 2012; 'Grillo', 2012). Yet GMI was not only put forward by the M5S and during the campaign other centre-left parties were also associated with the proposal, although more weakly (see for example Giannattasio, 2012).

The interest of other parties is confirmed by the parliamentary debates following the general election of 2013. As the M5S was preparing (and voting online on) its proposal almost every left-wing party put forward a proposal, and sometime multiple proposals, explicitly mentioning the GMI or the 'citizen's income'. If the economic crisis certainly played a role in the attention dedicated by MPs to proposals targeting unemployment and poverty, it cannot be excluded that those proposals were tactical: a response to the campaign of the M5S.

4. The GMI debate within the M5S

May 2005 First comment to appear on the blog;

March 2009 First proposal to appear on the forum (Esposito, 2009);

November 2011 First mention of GMI in a post on beppegrillo.it (Grillo, 2011);

December 2012 Grillo launches his 'agenda': GMI is the second among 16 issues (Grillo, 2012b);

February 2013 Online 'survey' to identify the five most pressing social issues to be addressed by the M5S, GMI is the fourth most voted (28,868 votes from 60,155 voters) (Grillo, 2013f);

October 2013 M5S formally presented a bill in the Senate to introduce the GMI (Catalfo, 2013);

November 2013 M5S launched an online discussion (followed by a vote) on its
deliberation platform for the bill introducing the GMI (Grillo, 2013a).

GMI was not mentioned in the program of the M5S first published in 2009 on
beppegrillo.it or in the versions published in the following years (Movimento 5
Stelle, 2009b, 2013, 2015). The 2009 program referred instead to a 'guaranteed
unemployment benefit' (Movimento 5 Stelle, 2009b, p. 7) without providing
further details on what the actual measure would imply. Still, the law proposed
by the M5S in 2013 clearly expanded the pool of recipients, from the unemployed
to all citizens below the official poverty line (Art. 2 § 2 Catalfo, 2013).

Figure 6.5 presents the weekly number of posts mentioning GMI, either as
'citizen's income' or 'minimum income', relative to the total number of posts
published the same week. It was necessary to normalise the data since participa-
tion on every platform increased dramatically with the general election of 2013.
The fora, considered separately, are the blog posts published by Beppe Grillo,
the comment section of the blog, the Forum of the M5S, the comments on posts
on the Facebook page of Beppe Grillo and the posts published on 979 public
Facebook pages related to personalities of the Movement. Additionally, I also
analysed the description of 111,054 public events organised by meetups linked to
the Movement. All digital traces were left between February 2009 and February
2015.

4.1. Discussion Forum: 2009-2011

The conspiracy theory on seigniorage is an important concept in the debate on
GMI on the Forum between 2009, when the Forum went online, and 2011, when
the discussion hit Beppe Grillo's blog. In this time span the discussion on the
Forum was not intense—there were 22 mentions of GMI—36% concentrated in
March 2009 and almost 70% in three discussion threads. The topic never faded
completely from the discussion. After March 2009, GMI was mentioned again in
June 2009, March 2010, October 2010 (twice), February 2011 (twice) and finally
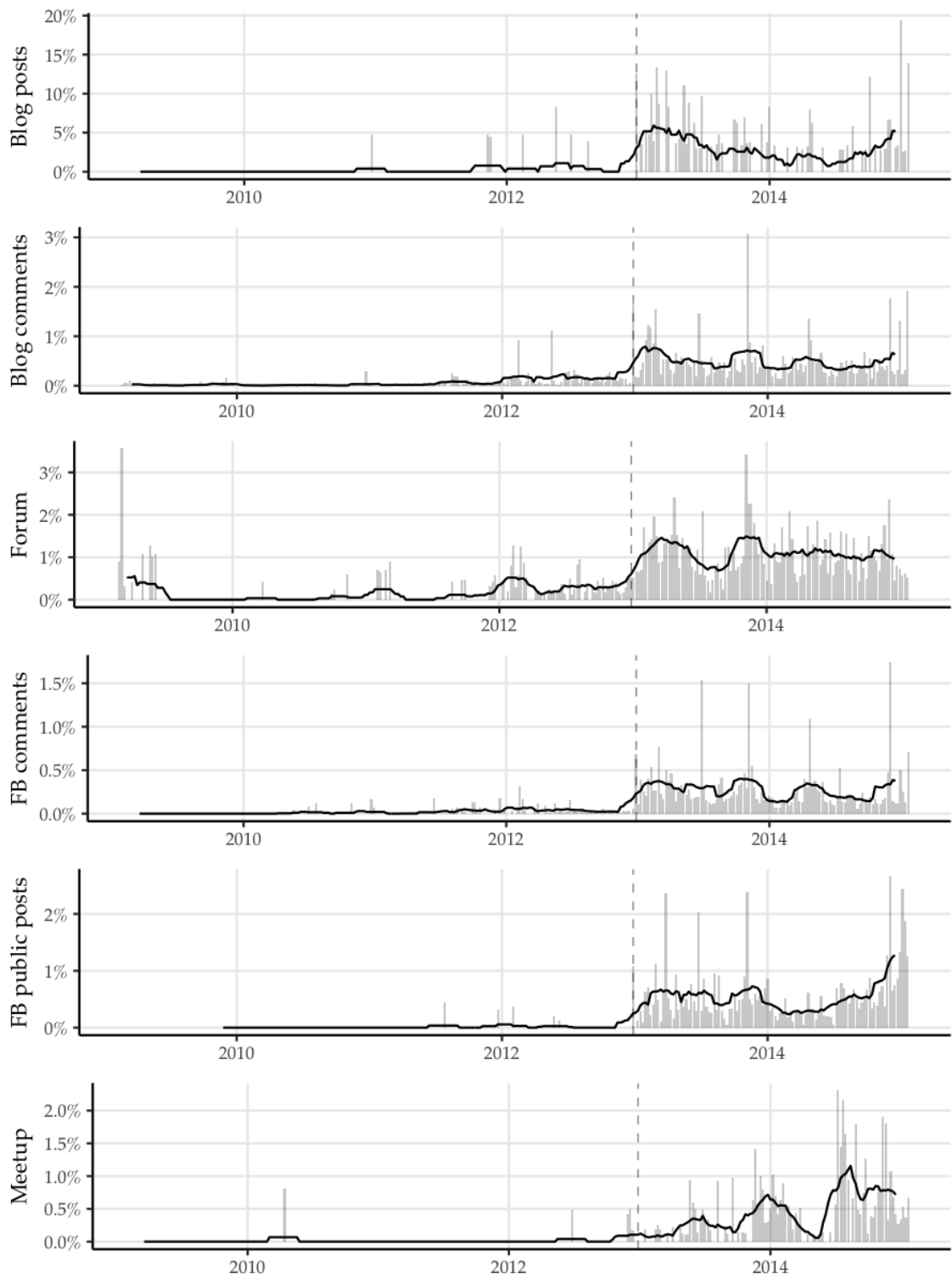
Figure 6.5: *Relative frequency of posts or events mentioning 'guaranteed minimum income' or 'citizen's income'. The vertical line indicates the publication of Grillo's agenda.*

March 2011. GMI was only marginally discussed in the Forum (in the same period the Forum received 20,761 postings) but it nevertheless turned out to be a key programmatic issue for the M5S after Grillo endorsed it. The concept analysis of this period confirms that concepts related to 'monetary economics' have received more attention than concepts linked to 'unemployment' or 'poverty'—traditionally perceived as the policy problems that GMI should address. Figure 6.6 shows the relative weights of the different concepts in the discussion and the frequency of interventions on GMI: a *weight* should be intended as proximity (or cosine similarity of the term frequency vectors) of the postings discussing GMI relatively to the Wikipedia articles used to define the concept space. The concept of 'seigniorage' appeared among the top 20 concepts in 23% of the postings and only three comments out of 22 did not refer to concepts linked to the categories of 'monetary economics' or 'banking'.

A qualitative analysis of the texts confirms the importance of the theory of conspiracy in framing the discussion on GMI. In fact GMI was in this period only marginal to the discussion focused on seigniorage and was seen as a tool to redistribute surplus value supposedly created by central banks in the activity of printing money. The fact that the debate was driven by a conspiracy theory should not be surprising. M5S militants were motivated by a profound distrust for institutions and especially for those institutions that were perceived as distant from ordinary people in times of economic crisis. The European Central Bank was an ideal target since it could be identified as *undemocratic*, officials are not elected, and *foreign*, its headquarters are in Frankfurt, Germany. For one user of the M5S Forum, it is the ECB that is ultimately responsible for seigniorage

> The currency printed in debt, on which is imposed seigniorage ... [The ECB] prints currency (for few cents) LENDING it to states (at face value) with interest ...

The problem then would be solved by returning monetary sovereignty to national states, a solution shared by many on the Forum. In the words of the same user
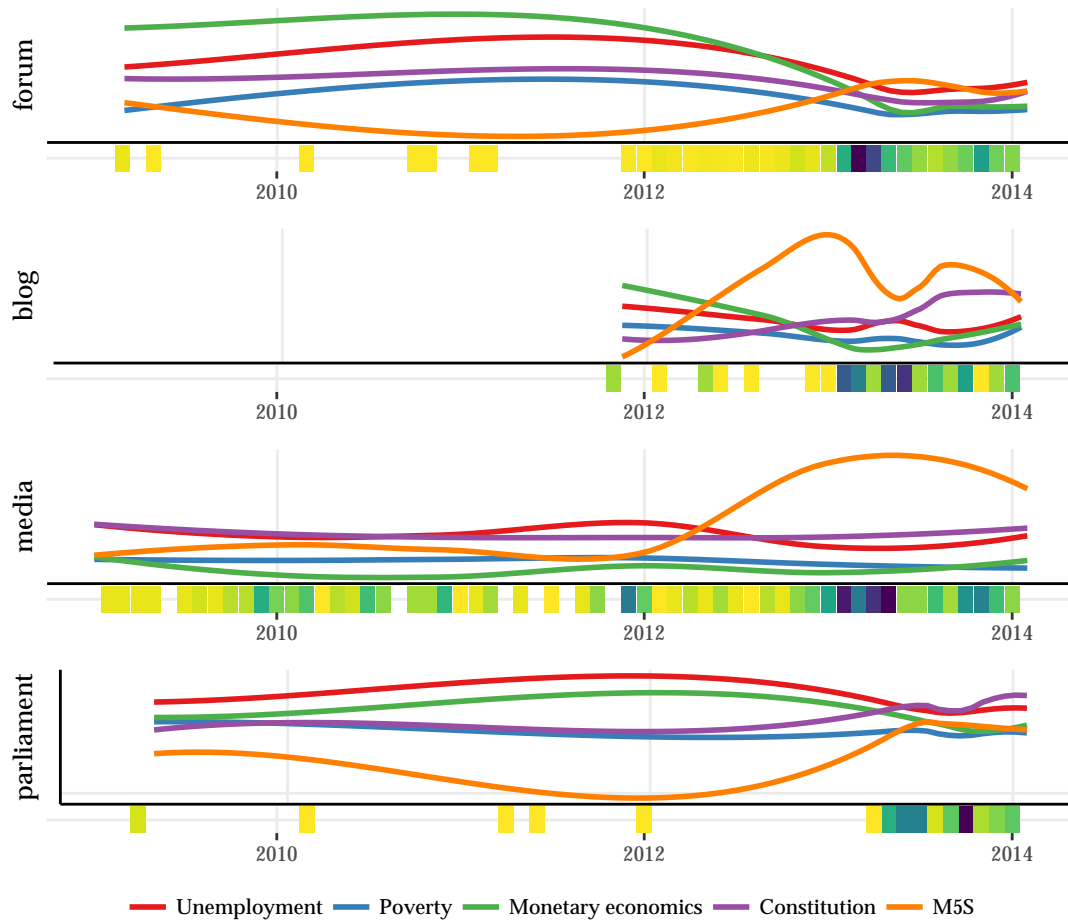
Figure 6.6: *Weight of concepts in the discussions (lines) and frequency of interventions (heatmap)*

How can you imagine eliminating or even reducing public debt when monetary sovereignty is in the hands of the ECB? ... It 's a vicious circle. If a state could print money, could create liquidity and consequently jobs, producing goods and therefore inflation would not exist ... there would be no debt and with the money from seigniorage you could easily create a citizen's income.

The radical tone of the debate and the targets, central banks and the financial sector in general, was set in one of the earliest posts published in March 2009 on the Forum and titled 'Abolition of the private banking system'. The post, opening a thread that was intensely discussed receiving almost 300 comments, stated:

The issue of currency and credit management must be part of the functions performed by the State: it must provide this service to citizens. The tools are there: both technological, informational, and knowledge of monetary emission mechanisms of credit regulation. Minds working today for private bankers could use their knowledge for the State; maybe even with the same salary. So we will see what they can do for the community! The state would then have the most important tool to adjust the structural interventions needed in the country. A country free from debt, from fear. A country that can invest in schools, health care, culture, infrastructure, public buildings, with a view to the long term, wide-ranging. A free state! To this, it would associate a citizen's income that guarantees the minimum to live with dignity for all. We would be free from debt, bank seigniorage, and the free will of a handful of criminal bankers.

Not all interventions that proposed the introduction of the GMI were framed within the broader issue of seigniorage. In fact the justification of GMI on ethical grounds and to facilitate social cohesion and inclusion appeared early on in the discussion along with the concept of 'unemployment', which would, later on, play a crucial role in framing and justifying the M5S law proposal. A post published

also in March 2009 opening a thread titled 'Minimum income of citizenship' stated

> An unemployment check is necessary. We must do continuous retrain-ing for those who remain out of work. Those who remain out of work should give their availability to participate in retraining in exchange for a minimum income of citizenship. A minimum income without which you can not claim to be a citizen of a collective ... This requires signing an ethical agreement between citizens and collective and a continuous exchange between the individual and society. An ethical agreement for social inclusion not tolerating any misconduct [from recipients, which would cause the] cessation of the social support

A later thread, opened in November 2010 and titled 'Abolition of VAT' (value added tax), also triggered some discussion on GMI—although GMI was not mentioned in the opening post. GMI was introduced in the first comment to the opening post where a user suggested introducing a 'basic income':

> VAT affects rich and poor without distinction and is not a progressive tax, but this can be fixed with a tax-free transfer from the government, also called BASIC INCOME or CITIZENSHIP INCOME

The provision of a non-taxable transfer, explained here by this commenter, was explicitly included in the bill on GMI presented by the M5S (see Catalfo, 2013, Art. 3 § 10). According to the same user, GMI was a key policy instrument in a more just tax-reform and he offered an example to explain the mechanism.

> f the government transfers to each citizen 1000 euros (symbolic amount, actually the basic income should be sufficient to live with dignity), if I do not have another job and I spend all of the 1000 euros, I will have paid 500 euro tax (VAT at 50%) and then I will have received from the government a benefit of 500 euros, the difference. If instead I have a

job that pays 1000 euro, in total at the end of the month I will have
2000 Euros.

If I spend all 2k euros, I have paid 1000 in taxes, the government
did not give me any support. Those who spend more than twice the
basic income will begin to pay taxes to the state proportionally, until
arriving at the rate of VAT.

A basic income also would make for a better labour market, less
competition, more equality between employees and managers. (I)

This posting is an excellent example of a comment trying not only to express
an opinion but also to inform the debate by providing a justification, technical
information in an didactical tone (in this case with two hypothetical examples)
and a link to external resources—a series of 10 German YouTube videos with
Italian subtitles. External links are frequently used on the Forum: about 7% (or
405) of the Forum's postings published between 2009 and January 2015 in the
GMI debate contains at least one link. Most of the links (28%) pointed to the
domain of beppegrillo.it, which hosts both Grillo's blog and the Forum, and
10% of the links were directed toward the domain of the European Commission
(ec.europa.eu), which hosted an online consultation for the introduction of the
GMI. But links frequently have an informative purpose. If about 8% of links
pointed to YouTube and 3% to Wikipedia, we also find among the top linked
hosts news media websites, the website of the Italian agency for social security,
of the Italian Senate—where the bill was presented in 2013, of the Italian Central
Bank and of the U.S. Security and Exchange Commission.

To better understand the structure of the discussion in the three threads which
attracted most of the postings about GMI in the period 2009-2011, before Beppe
Grillo entered the debate, I constructed a network mapping of all the comments
that users active in these three threads addressed to each other. Mapping direct
replies helps appreciate what type of discussion we are observing and if any
user was active in more than one thread. A thread, with an opening post and

Figure 6.7: *Star-shaped (left) and horizontal (right) online discussions among ten users*

subsequent comments, can take multiple shapes. At one extreme it can replicate a perfect broadcasting star-shaped model with one central node, the user publishing the original post, and a crown of commenters linked only to the central user and only in one direction, *from* periphery *to* the centre. At the other extreme, we find a perfectly *horizontal* discussion, where everyone talks to everybody else. Figure 6.7 exemplified these two types of discussions among ten users.

Figure 6.8 maps instead the actual comments among users in the three threads discussed above. Nodes are colour-coded according to the thread where each user was active: red nodes for users active in the thread on seigniorage (that only marginally referred to GMI), yellow for the GMI thread, blue for the VAT thread and orange for the four users that discussed both the seigniorage and GMI thread. Again each directed link represents a comment posted by a user in reply to another user. The three threads have very different sizes, with 86, 23 and 5 active users respectively.

The seigniorage thread, (red) attracted much more comment and comments per user than the thread narrowly focused on the formulation of a policy to create a GMI and on the abolition of VAT (blue). But also the structure of the discussion is much more complex, with a region of users reciprocating each other comments. In network terms, a way to measure the level of dialogic involvement of users or the interactivity of the discussion is to compute the probability of finding for each comment from user A to user B a reciprocated comment from user B to user A. In a random sample of 1000 threads of the Forum we found a very low propensity to reciprocity; in fact given a random thread the expected probability for a comment to be reciprocated is 0.30% but we also observe that in 37.5% of

threads no comment is actually reciprocated.

In the seigniorage thread 20% of comments are reciprocated while no comment is reciprocated in the thread on GMI, which also received only about 15% of the comments of the thread on seigniorage and about 10% of the upvotes. In other words, users participating in the discussion on seigniorage demonstrated a higher level of dialogic involvement.

It is not surprising that narratives based on conspiracy theories attracted significantly more attention and interaction on the Forum, since they are probably much more entertaining. But then only postings from the other two threads—more pragmatic and detailed—raised and discussed items (conditionality, tax exemption, retraining, sanction of misconduct and the moral obligation of a policy of income guarantee) that would be included in the bill finally proposed by the M5S, which not incidentally does not include any mention of monetary sovereignty or seigniorage as the main policy problem justifying the institution of GMI. The tone of the discussion in the seigniorage thread was too extreme (implying at a minimum leaving the Euro area) to be converted into a credible policy proposal by the M5S. Users showing a radical anti-capitalist approach were vocal in criticising the institution of GMI without obtaining first full monetary sovereignty, as one user posted 'Only under monetary sovereignty can a citizen's income be allowed'. Another of the few users who cross-commented in both the GMI and seigniorage thread, posted in the GMI thread

> But what are you discussing? Do you even know that with the current debt-money issued by counterfeiters-bankers, EVERY investment or state subsidy (as the citizen's income) is a PURE COST to be unloaded on the whole community, either by increasing taxes or by disposing of state assets to have liquidity either by borrowing more and more inevitable from the same counterfeiters-bankers ...?
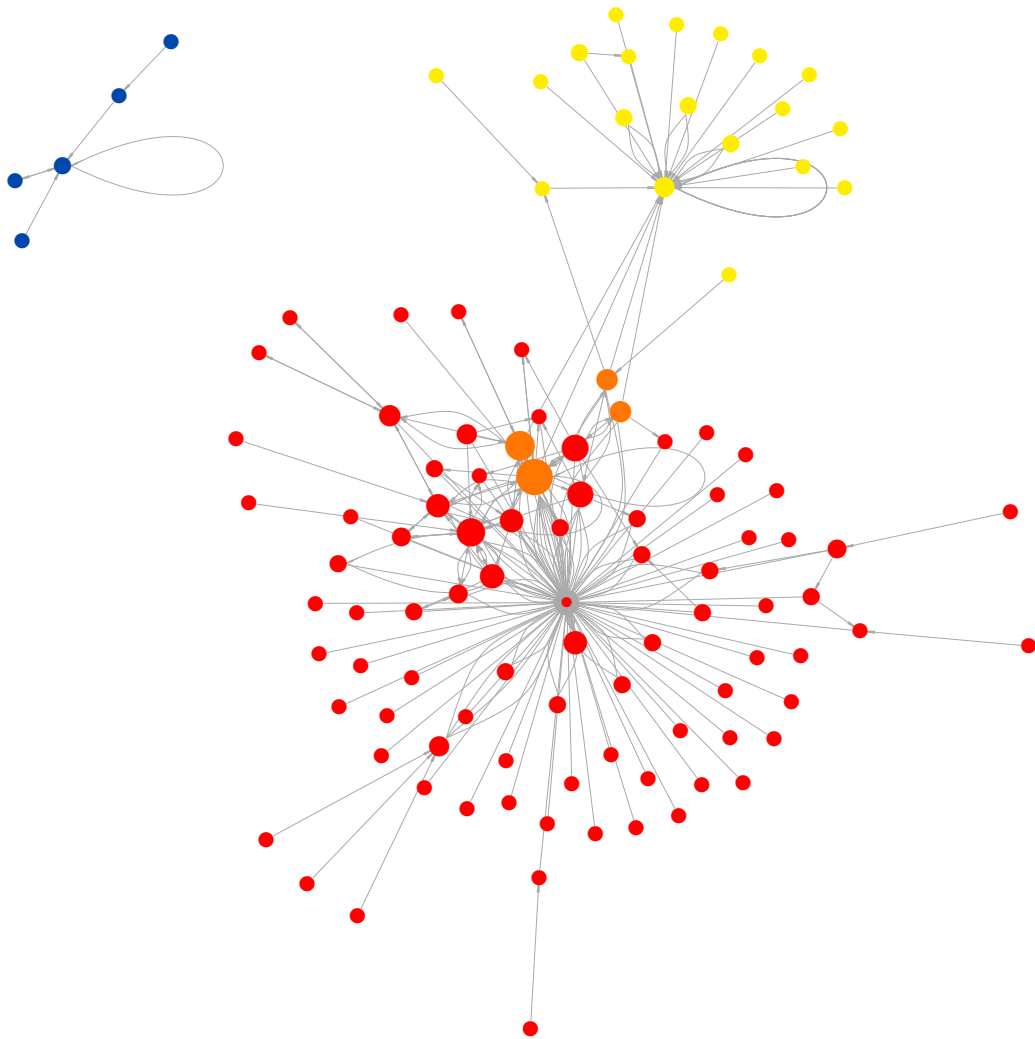
Figure 6.8: *Users active in three selected threads: on bank seigniorage (red nodes), GMI (yellow nodes), on value added tax (blue nodes) and on both seigniorage and GMI (orange nodes). Direct links represent a comment from user to user and nodes' size are proportional to the level of activity of the corresponding user*

4.2. Discussion Forum and Blog: 2011-2012

The first mention of the GMI to appear on Beppe Grillo's blog was on November 2011 (Grillo, 2011) when the blog hosted a post by Domenico De Simone, a former lawyer, journalist, writer, blogger and self-professed 'counter-economist' with no academic affiliation.[8] GMI was only marginally mentioned in the post, which was mainly a critique of the financial and banking sectors and an account of their responsibility for the global financial crisis. De Simone's post finally proposed levying a tax on financial transactions, the so-called Tobin Tax named after economist James Tobin, and to redistribute it in the form of some type of citizen's income.

Bank seigniorage was never explicitly mentioned but the theory exposed in the post certainly shared with users active on the Forum's thread opened almost three years earlier, and titled 'Abolition of the private banking system', a common understanding of the functioning of modern finance and economics. If the original poster of that Forum's thread identified the policy problems to be addressed as the 'debt, bank seigniorage, and the free will of a handful of criminal bankers', De Simone wrote on Grillo's post that

> our work justifies the issue of that money [which according to De Simone is paper money, bank money, public debt and financial derivatives], but who creates it, without doing anything, takes possession of our work through the interest mechanism and through such a mechanism by which people are not put in a position to repay their debt.

After this first mention of GMI on his blog—although in a guest post—within the framework of a bank seigniorage economic and financial theory, Grillo started delinking his proposal for a citizen's income from 'counter-economics'—to use

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[8]In the biographical page of his blog, Domenico De Simone openly distances himself from academia. He wrote that his views 'are strongly opposed by the academic establishment' (de Simone, n.d.).

the definition of De Simone—and 'bankers conspiracy' theories. Notably, in line with the online base of the M5S, Grillo did maintain strong opposition towards the current monetary policy regime, and would end up raising the flag of a referendum for leaving the euro in October 2014 (see Section 4.5 in Chapter 4). This detachment from monetary theory in justifying GMI is also apparent in the concept map detailed in Figure 6.6 where after De Simone's post in November 2011, the more traditional concepts of 'unemployment' and 'Constitution' experience a relative increase in weight while the concept of 'Monetary economics' experiences a decrease. This is evident also from a later post, in which Beppe Grillo personally proposed the 'the creation of a fund for the citizen's income for all the unemployed equally, to meet their primary needs' (Grillo, 2012c). Indicating that Grillo probably considered the issue to be relatively novel for his audience (GMI was still a marginal topic in the fora of M5S) he embedded in the post a link to the Wikipedia page on citizen's income.

Between February 2012 and December 2012, Grillo referred on his blog to the GMI only four times. One of those references was in August 2012, when the blog published an article signed by Economics Nobel prize recipient Joseph Stiglitz and Italian economist Mauro Gallegati (Grillo, 2012a). The article offered an analysis of the global economic malaise following the financial crisis—anaemic economic growth, unemployment and public debt—and suggested a 'progressive introduction of a *citizen's income*' to redistribute wealth. To publish an article from two economists, one of whom world famous, was a dramatic departure from the previous post of De Simone. Between 2011 and December 2012, the focus of the GMI debate internal to the M5S was moved by Grillo from the fringe to more pragmatic grounds, supported by political and economic sound arguments.

In the period between November 2011 and December 2012, the discussion on GMI on the Forum was spread across 93 threads, although in only 13 threads the main topic was GMI. In this period the number of postings mentioning GMI increased substantially but mostly because the Forum grew. The fraction of weekly posts on GMI remained marginal and would stabilise at around 1% of all

posts published in the Forum only *after* Grillo published his agenda in December 2012.

Figure 6.9 maps the conversation among users in the seven busiest threads on GMI in this period (interactions among users are less meaningful for the blog since there is only one author and all comments are necessarily replies to a Grillo blogpost). In comparison with the only thread dedicated to GMI in the period considered in the previous section, we notice an increase in the interactivity of the discussion measured by the *reciprocity* of the exchanges among users but also by the number of comments being exchanged *horizontally*, that is, in replying to other comments rather than in reply to the opening post of the thread.

The first thread focusing on GMI (red nodes in Figure 6.9) to be published in this period (and the most commented-on) was opened by Marino Mastrangeli—who would be later elected to Parliament and after a few months expelled from the M5S—in December 2011, a few days after the post by De Simone was published on Grillo's blog. The opening post by Mastrangeli (Mastrangeli, 2011), titled 'Let's propose a constitutional revision to make explicit the right to guaranteed minimum goods and service, thought expropriation from those who have more', interestingly framed for the first time the issue of GMI in terms of fundamental rights. In fact, Mastrangeli opposed the institution of a guaranteed minimum *income* and proposed to guarantee *goods* and *services* instead because an income 'could be spent by people on vices and luxuries'. The reciprocity of this thread is extremely high (0.73) but it is driven by the style of Mastrangeli who replied (very politely) to almost every comment that his opening post received: in fact, 95% of all comments of this thread are published by or directed to Mastrangeli, indicating an extremely vertical conversation.

The second major thread to be dedicated to GMI is published a few months later (blue nodes in Figure 6.9), in August 2012—that is a few months before the general election. The thread is interesting not only because of the fairly large number of comments (61) but also because of the intense dialogic exchange among users: reciprocity is just above the average of the Forum (26%) and most
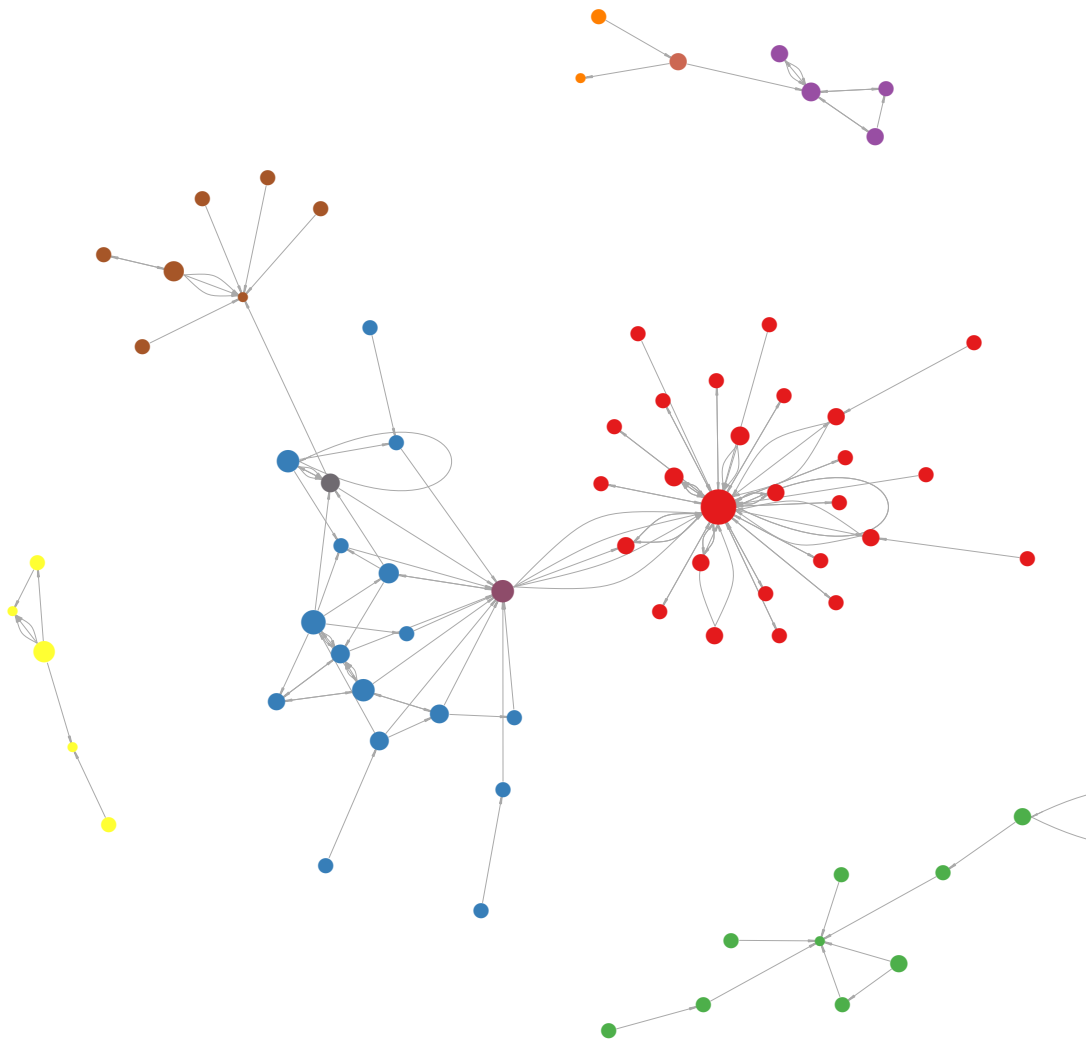
Figure 6.9: *Users active in the busiest threads on GMI (2011-2012). Direct links represent a comment from user to user and nodes' size are proportional to the level of activity of the corresponding user*

of the comments (73%) are not directed to the opening post, but are posted in reply to other comments. In fact the discussion of this thread is also linked to the discussion of Mastrangeli's thread, because of one single user who posted four comments in that thread.

The concept analysis of this thread confirms that the focus is on unemployment. Among the 61 postings, the concepts of 'unemployment' and 'unemployment rate'—the most frequent—appear among the top 20 in 29% and 34% of the comments respectively while 'income'—the third most frequent—appears in 25% of the comments. By grouping all concepts into broad categories, we find that the most frequent concept categories used in the discussion are, almost with the same average weight, 'Income' and 'Unemployment' while 'Constitution of Italy' is in third place, above 'banking' and 'monetary economics', that appear respectively in fifth and seventh place. This is representative of a general trend both in the Forum and on the blog of Beppe, to distance the discussion on GMI from monetary theories: citizen's income was mainly turned into a response to the policy problem of 'unemployment'. Antonio, a commenter to the thread published in August 2012, stressed the problem of unemployment also bringing forward his personal situation:

> I agree with the citizen's minimum income also because if one is unemployed like me with no hope at age 49 of returning to work (but certainly not because of my decision) only when you are in these situations can you understand how you feel.

4.3.   Discussion Forum, Blog and Parliament: 2012-2015

In December 2012, less than three months before the general elections, with a blog post titled 'Grillo's agenda', Grillo and the M5S presented their plan for the upcoming election in the form of a list of 16 items: the introduction of a 'citizen's income' was number two in the list, after an 'anti-corruption law' and before the suppression of public funding to parties. The blog post explicitly referred

to the contribution of the online discussions; Grillo wrote that the plan is 'an excerpt from the program of the M5S [the author included here a link to the document] and from *proposals discussed on the forum and on the blog*' (Grillo, 2012b). If we compare the program of M5S and the agenda, we note that GMI is not contained in the official electoral program, which instead, as I already mentioned, referred to a 'guaranteed unemployment benefit' (Movimento 5 Stelle, 2013, p. 10). This seems to imply that Grillo himself acknowledged that online discussion contributed significantly putting GMI on the agenda of the M5S. Notably, other points listed in the agenda but not mentioned in the 2013 M5S program were the abolition of public funding of parties and the referendum for the common currency. Both the GMI and the referendum for the Euro became after the general election of 2013 defining issues for the Movement, while a law abolishing the public funding of parties was passed by Parliament in the December 2013 general election thus removing the issue from the debate.

Grillo's post on December 2012 'officialised' support of the M5S for GMI and dramatically increased the volume of the discussion on GMI, online and offline, but—as emerges from the analysis of postings previously published— did not create the discussion. Figure 6.5 clearly shows that the publication of Grillo's agenda was an impactful event for each time-series. All fora reacted to the publication of the agenda by increasing the attention dedicated to the GMI. Still, if the blog, the posts of prominent figures of the Movement and the onsite discussions did show negligible attention to GMI before the publication of the agenda, the commenting section of the blog and the Forum regularly discussed it in the four years preceding the publication. By comparing the average relative frequency of the two periods separated by the publication of Grillo's agenda, we can also quantify the difference in reactions on the different platforms. The strongest impact in online discussion resulting from the publication of the agenda appeared in the posts published by prominent figures of the movement, with the average weekly attention dedicated to GMI *after* the publication being 37 times the average weekly attention *before* the publication. On the other side, the weekly

average on the Forum and the commenting section on the blog of Beppe Grillo before the publication of the agenda already represented respectively 15.08% and 12.97% of the average after the publication.

On the same blog the number of posts mentioning GMI increased dramatically after December 2012. The concept analysis of the blog posts indicates that Grillo closely linked the discussion of GMI to the M5S, much more significantly than in the same discussion developing in the forum (see Figure 6.6). In other words, Grillo did not only aim to push a bill on GMI forward but repeatedly attempted to connect the discussion to the Movement itself. And this certainly succeeded with the media, for which the concept 'M5S' was always highly weighted (again see Figure 6.6). In the 81 posts discussing GMI published on the blog in the two years between December 2012 and January 2015, the word 'M5S' or 'Movimento' appeared in 72% of the documents with an average of 3 mentions per document, while during the same period only slightly less than 30% of the postings mentioned the M5S.

After the general election in February 2013, when the M5S turned overnight into the most voted-for party in Italy, Grillo met in a formal round of consultations with Italy's President of the Republic, who is in charge of nominating the Prime Minister. In those days, because of the surprise victory in the election and key role that the M5S could have played in the formation of a new government, Beppe Grillo reached a peak of media attention (see Figure 4.17). It is reasonable to assume that the wording of the blog posts was especially carefully measured in those days and the target audience broader than usual. In a blog post that received almost 10,000 comments, Grillo wrote

> This morning I went to the Quirinale [official residence of Italy's head of state] with the House and Senate leaders, Roberta Lombardi and Vito Crimi, to meet with the President of the Republic and communicate the position of the Five Star Movement. The M5S gained the highest number of votes in the last election. For that we officially ask for the mandate to form a new government to carry out our pro-

gram, in particular to implement the measures to support small and medium-sized enterprises, the citizen's income and cut the waste out of politics (Grillo, 2013c)

From being totally absent from Grillo's blog stream between 2005 and the end of 2011 and only sporadically mentioned in the following year, GMI turned after the general election into one of the three main items of the M5S executive program for the government.

A few weeks later, in June 2013, the newly elected M5S MPs presented in the Senate a brief document for a vote, in which the Movement asked the Government to 'take initiatives to introduce a guaranteed minimum income, by preparing a plan identifying beneficiaries, considering as an indicator the number of citizens living below the poverty line' (Morra, 2013). The policy problem was explicitly framed in terms of a growing 'unemployment rate [that] reached 12.8%' and poverty; accordingly 'in 2013 in Italy there will be over 4 million poor' and 'more than 9 million Italian citizens ... do not receive any income and are therefore at risk of poverty and social exclusion'. The document also pointed to the constitutional right to a 'full participation in social life' and referred to the 'minimum income' as a 'fundamental social right intended to serve as an instrument to protect the dignity of the individual'. Interestingly although the document asked for the introduction of a 'guaranteed minimum income', the blog presented it as a proposal to introduce the 'citizen's income' (Grillo, 2013d), then purposely or accidentally confusing the two.

5. Conclusions: Measuring the influence of online deliberation

To estimate the net impact on a policy process of a discussion distributed across multiple fora and media is clearly difficult. As seen, GMI could hardly be defined as a new policy item when it was first introduced in the Forum discussion and then on the blog by Beppe Grillo.

GMI, both in the more utopian form of 'citizen's income' and in the more economically pragmatic formulation of a 'guaranteed minimum income', was discussed in the academic literature by economists and political philosophers, and importantly was already adopted at the time of the discussion as actual welfare policy in numerous European countries and by a few Italian regional administrations—something Forum's users repeatedly noticed, as one commenter wrote in August 2012: 'Citizen's income is reality everywhere in Europe but in Italy, Greece and Hungary'. Over the years, the media did report on policy experiments at the regional level. Parties, both on the right and left of the political spectrum, included provisions for GMI in their electoral programs and in documents and bills presented in Parliament. And yet although GMI had been floating in the '"policy primeval soup" in which specialists try out their ideas in a variety of ways—bill introductions, speeches, testimony, papers, and conversation' (Kingdon, 1995, p. 19), a strong opportunity to move the discussion forward did not present itself until Beppe Grillo's decision to introduce GMI to his agenda.

Beppe Grillo never openly engaged—at least not under his real name—in the Forum or to reply to a comment on his blog posts. Nevertheless, the temporal evolution of the discussion on GMI seems to indicate that the discussion did originate in the crowd of posters of beppegrillo.it before being picked up by Grillo himself. It is possible that Grillo was convinced of the importance of a campaign for the introduction of GMI because of its political relevance more than for any economic and welfare consideration.

The economic plan of the M5S formalised in the Movement electoral manifesto published in 2013 was vague and missing any flagship item that could be identified by the electorate with the Movement. Moreover since GMI was desirable for both right-wing and left-wing voters, it became even more attractive to a party that after the general election of 2013 discovered it had a highly heterogeneous electoral base (see Chapter 4). Even assuming that the explicit reference by Grillo to the contribution of the deliberation on the Forum to his agenda (he

mentioned the contribution of online deliberation in a post, see Grillo, 2012b) was opportunistic and politically motivated, we observe a temporal correspondence in the evolution of the concepts being discussed the debate on the Forum and the concepts used by Grillo in his blog posts.

In the previous sections, I assessed the evolution of the discussion both with a qualitative content analysis of few representative documents and in terms of the concept analysis conducted by mapping the location of each document within a *concept space* populated by approximately 4000 concepts. I aggregated a few of the most relevant concepts into broader categories (i.e. unemployment, poverty, monetary economics, the Italian Constitution and the M5S) and tracked the evolution through time of their mean *weight* based on their relevance in the documents. The average suggested that the importance of concepts in the discussion on the Forum and the blog had changed over time, in particular, the concepts framing GMI as an answer to a monetary conspiracy of banking institutions declined relative to concepts framing the discussion in terms of unemployment and fundamental rights. Moreover, the weight of concepts referring to the M5S, thus suggesting a politicisation of the discussion, increased on the Forum (slightly) and on the blog and in the media (substantially).

I already observed (see Figure 6.5) that a crude frequency analysis of the postings could support the existence of a causal relation between the discussion of GMI on the Forum and its adoption by Grillo and the M5S. But in the interest of understanding whether, in fact, Grillo did follow the shift in focus occurring on the Forum—something that is corroborated by the qualitative content analysis of a representative sample of documents—it is useful to map the evolution in time of the documents within the concept space. For each document, I already computed a vector of weights of length N, with N equal to the number concepts, corresponding to the association of the document with each of the concepts of the concept space. By binding all vectors, I obtain a matrix of where each column corresponds to the vector of the weight of a document and each row to a concept. Because the interest is in comparing the similarity of documents I

computed the *cosine similarity*,[9] which is largely applied in NLP (see Manning et al., 2008, p. 111), of each pair of documents. I finally visualise the 'distance' between documents with a technique called t-SNE for high-dimensional data (Van der Maaten & Hinton, 2008).

The results are illustrated in Figure 6.10. Each dot in the Figure represents a document and is colour coded based on the concept category with the highest weight in the corresponding document.[10] Dots are placed according to their *relative distance*; in this sense the two axes represent coordinates of a two dimensional space resulting from the dimensionality reduction algorithm illustrated before and have no intrinsic value. Although dots do not perfectly cluster according to their colour—this is a consequence of the fact that the position of each dot is estimated based on all 4827 concepts while the colour represents only the most relevant concepts in the document—regions with a clear prevalence of one colour do emerge in the plot. From the top, the second row of plots shows the kernel density estimation of four concept categories, indicating the region in the plot where dots from that categories are denser: 'monetary economics' on the far right of the plot, 'M5S' on the left and 'unemployment' and 'Constitution' respectively in the centre-left quadrant and centre-right quadrant. Notably, the concept category of unemployment and Constitution have a large intersection while the M5S and monetary economics are more peripheral (although monetary economics does marginally intersect with unemployment). This should not be a surprise because a discourse based on concepts related to unemployment might also tap into concepts related to constitutional rights: in fact, 'the right of all citizens to work' is constitutionally recognised ('Constitution of the Italian Republic', 1948, Art. 4). The triangle, representing the 2013 M5S bill proposing the introduction of the M5S, is colour coded in the Constitution concept category—as previously

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[9]Formally for vectors $\vec{V}(d_1)$ and $\vec{V}(d_1)$ of documents d_1 and d_2 we compute the cosine similarity wth the formula $sim(d_1, d_2) = \frac{\vec{V}(d_1) \cdot \vec{V}(d_1)}{|\vec{V}(d_1)||\vec{V}(d_2)|}$.

[10]Again the weight of a concept category is computed by averaging all the concepts of the category.

noted the bill refers explicitly to fundamental rights.[11]

The last two rows in Figure 6.10 show, for the blog and the Forum, in which region of the concept space documents are found to be more numerous or *denser* in the three periods analysed in this chapter: between 2009 and the first mention of GMI on Grillo's blog in November 2011 (period 1), between November 2011 and the presentation of the M5S bill in October 2013 (period 2), and between October 2013 and January 2015.

As observed through the content analysis, the discussion started on the Forum with a focus on monetary economics (and specifically on seigniorage). In period 2, that is after Beppe Grillo entered the debate, the focus of the discussion shifted leftward, with a new burst of activity around the concept category of unemployment. In period 3, monetary economics is relatively less important, a new focal point opened around the concept category M5S, but documents discussing unemployment still populated the densest region of the concept space. In other words, in the last period if the discussion maintained its focus on the concept of unemployment, the relative importance of the Movement as the concept grew within the discussion signalled that GMI also assumed a role as flagship proposal for the M5S.

Overall, the 'barycentre' of the figure moved over time from right to left and, especially in the shift between periods 1 and 2, closer to the location of the bill. The discussion on the blog followed a similar pattern, from right to left, but with a one-period lag. In fact in period 2 (Grillo was not active in period 1), Grillo's posts were still on the right on the concept space while the discussion on the Forum was already closer to the bill, in the centre of the concept space. Grillo eventually moved rightward, but only after the bill was presented and to focus more on framing the issue of GMI as a battle of the M5S. In conclusion, Grillo

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[11]In the third paragraph of the introductory part of the bill, the M5S lawmakers wrote: 'It is necessary to act now to change course and focus political action on the welfare of the citizens, first recognising basic rights: the opportunity and capabilities needed to live a decent life, the right to work, education, information and culture.'
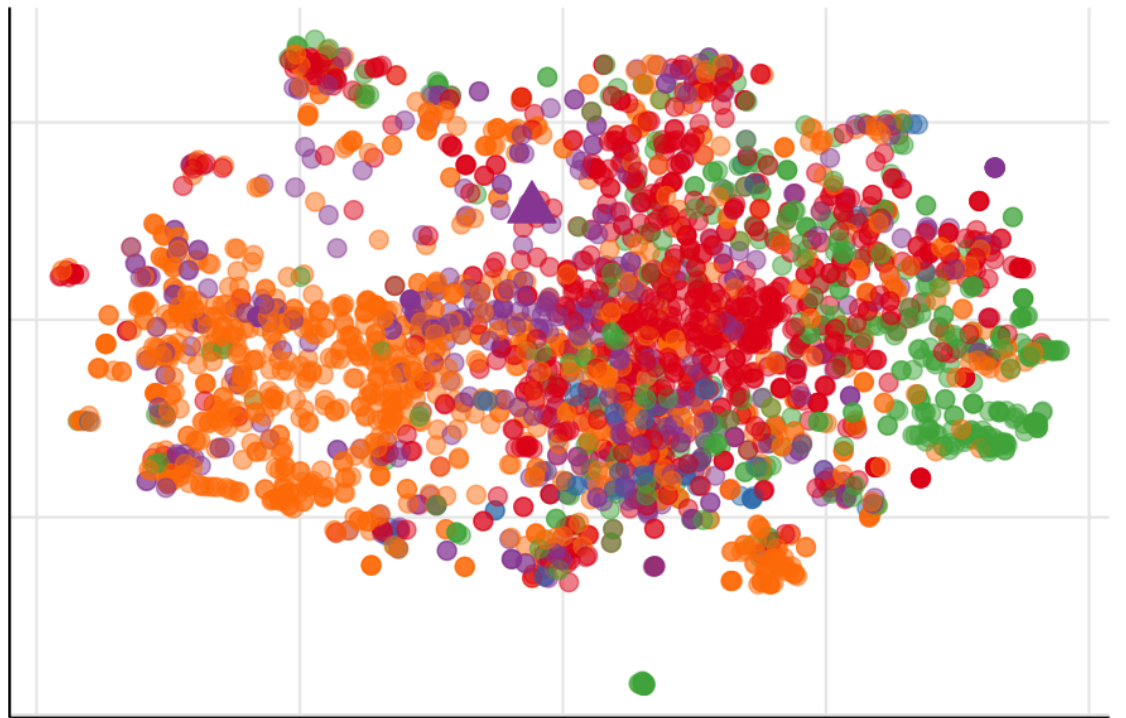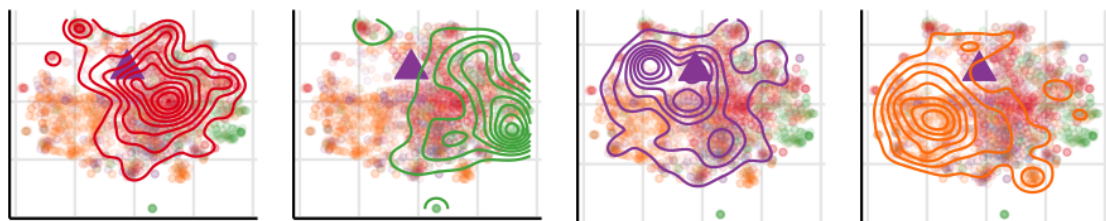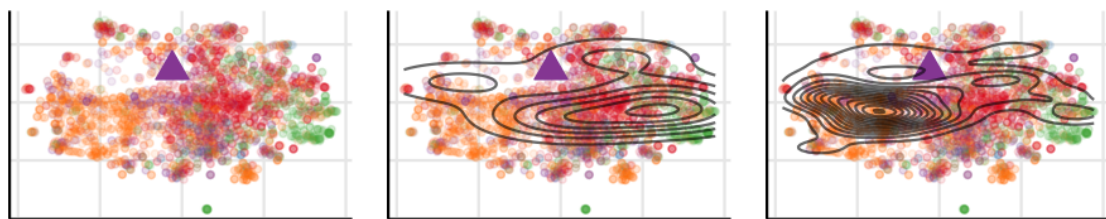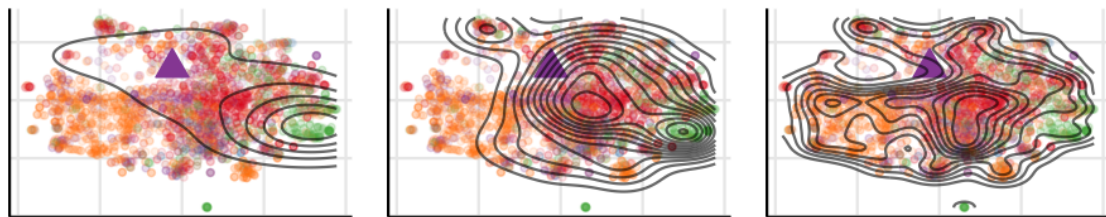
Figure 6.10: *Postings on GMI from the forum and the blog distributed according to the similarity of their concepts. Dots indicate the position of individual documents, lines their density*

followed the pattern of the Forum with a lag of few months: first focusing on monetary arguments for the GMI and then moving through the concept category of unemployment towards the concept of M5S.

In conclusion, the longitudinal analysis of the debate on the M5S suggests that online deliberation, and in particular the discussion on the Forum, had an impact on the policy platform of the Movement. Two elements support this conclusion: first, references to the GMI unequivocally appeared first on the Forum and only later in the postings of Grillo and, second, Grillo made explicit mention of the contributions of the Forum while presenting the policy on his blog. Moreover, because of the relevance of the M5S within the Italian political system—online deliberation was able to reach and eventually influence the national debate. This evidence thus suggests that online fora might sometimes have an organic relation with broader political organisations. The analysis presented in Chapter 5 on the online debate for the participation of the M5S in a coalition government, from which Beppe Grillo quickly drained any deliberative power, pointed to the limits of online fora as instruments for political influence in the presence of strong leadership. But the deliberation on GMI also illustrates when and how online deliberation might have a significant impact, not in opposition to the leadership but in agreement with it.

First, the online fora were able to push an item onto the agenda not against a set of strong alternatives but in the absence of any. A factor that increased the chances for the emergence of GMI as a proposal was the fact that no other credible welfare policy had been endorsed by the leadership of the Movement. Second, online deliberation by itself had a significant impact only when its discourse was endorsed by Grillo. That is, the actual impact of online deliberation was mediated by the leadership of the Movement—and possibly also by news media and other parties, which entered the debate after Grillo's public endorsement.

Chapter 7

Conclusion

1. Internet-enabled organisation beyond the M5S and Italy

Politics is progressively more mediated through ICTs. Thanks to the Internet—intended as a technological platform for the exchange of information and communication across society—and mobile phones, ICTs have been incorporated into daily routines, normalised by constant use in mediating their personal communication and more in general to accompany everyday activities. Because of the enormous commercial payoff from mediating people's lives, it is easy to predict a constant stream of technological innovations. Internet technologies will keep adapting in response to user preferences and behaviours; new ones will replace old ones, people will adopt and adapt to some while dropping others.

And yet the core innovation that these technologies brought, that is the capability to reach out and be reached by information and communication on a massive scale instantaneously, cheaply and through friendly interfaces, is here to stay. Even assuming that politics will at least partially oppose resistance to being mediated by ICTs, it is hard to imagine a future in which Internet technologies will be *less* relevant than today in the processes of political organisation, participation, deliberation and voting. In fact, it is easier to imagine a future in which politics will be shaped much more substantially by ICTs than it is today.

At the time of writing it is still too early to fully evaluate the importance of

the role played by Internet technologies in the 2016 US presidential campaign—because they certainly played a role, preliminary evidence points to a very significant one. Not only because ICTs were used by candidates in radically different ways than in past campaigns—notably Donald Trump used Twitter unconventionally through the campaign, more *intimately* and less *institutionally*—but because the Internet provided to a candidate with no organisational support the essential infrastructure to bridge the gap and compete with better resourced candidates. This is not to argue that the Internet was not successfully used before. As argued by Karpf (2012), the Internet had played an important role in political campaigning since at least 2003, when Howard Dean leveraged Meetup.com to organise his base. But so far the Internet had complemented traditional party and organisational infrastructure, which were still essential to mobilise supporters, fundraise and broadcast the candidate image and message. In the 2008 US presidential campaign, Barack Obama savvily used ICTs, exploiting expertise accumulated in the Democratic party after Dean's primary campaign in 2003, but his campaign was also run on 750 million dollars, more than double the size of Trump's campaign eight years later. In 2016, the success of Donald Trump defied traditional expectations because he had neither a strong party affiliation to implement a strong organisational infrastructure nor the financial support to buy what was thought to be an essential element of any successful campaign: space in broadcasting media.

To keep Trump's campaign in perspective, Figure 7.1 presents the cumulative campaign spending as reported to the Federal Election Commission, by different candidates in the 2016 US presidential race. The campaign of Donald Trump spent less than any other major Republican candidates during the primaries and significantly less than Hillary Clinton after he secured the Republican Party's nomination. Between June 2015, when he officially launched his campaign, and January 2016 the cumulative expenditure of Trump's campaign was less than 50% of Cruz's campaign. Even more stark is the difference in media buy. In the initial months of his campaign, Trump spent about a tenth of Cruz's expenditure
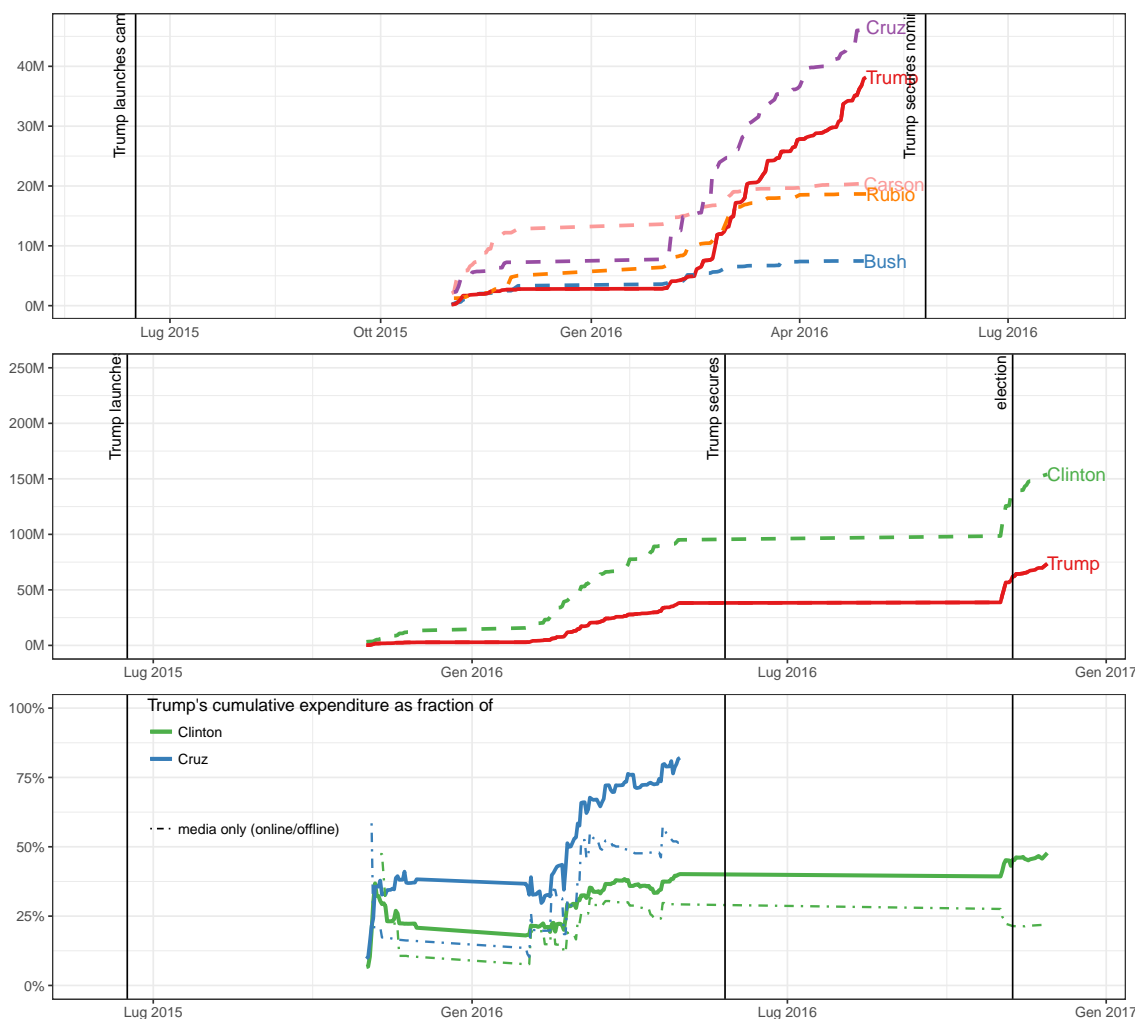
Figure 7.1: *Cumulative expenditure of candidates in the 2016 US presidential campaign (Source: Federal Election Commission)*

on media buy, and between the nomination and election day Trump spent on media buy about one-quarter of Clinton's expenditure (and about a half since the beginning of the campaign).

The outsourcing to ICTs of campaigning functions traditionally played by internal organisation structures and legacy media (at a cost) can not alone explain the rise of political outsiders such as Trump in the US and Grillo and the M5S. For one thing, neither Trump nor M5S had a monopoly on the use of the Internet. In other words, the Internet seems a convincing answer to the question 'how did they make it without organisational and financial resources' but it does not

provide an answer to the much more substantial question of 'why them and not others'. The Internet, by dramatically lowering the access barriers to political competitions, has made their success possible although not easily replicable. And this alone might represent a deep and lasting change for political contests. It demonstrates, as argued by Margetts et al. (2015), that politics has the potential to become more 'chaotic' because of the 'turbulence' introduced into the political system by outsiders that thanks to the Internet are much better able to gain traction in the debate and thus become successful political entrepreneurs. And not only in a traditionally chaotic country such as Italy but even in a country with a very stable party system and political traditions.

More research is need on the mechanisms that make this possible in practice. Some have argued that, notwithstanding the importance of the Internet, the workhorse of political communication is still legacy media; political entrepreneurs indirectly leverage their reach by having their controversial (and 'clickable') statements, originally published on the Internet, broadcast by them (see Diamanti, 2014). These entrepreneurs, as outsiders, would simply exploit the fact that legacy media institutions have still to develop norms and policies to manage and control the flow of Internet-mediated political communication, which is one-way since it does not involve any journalistic enquiry or cross-examination. In their absence, the usual behaviour is to simply re-publish integrally the most controversial part of the message.

But evidence presented in this thesis points also to the importance of Internet-mediated social networks to deliver political communication far beyond Internet users. The strong association between membership of Internet-enabled meetups and the results in three successive elections indicate that the M5S did not reach voters only through the media (either old or new) but also by local networks of family members, friends and colleagues. The importance of social networks (partially or totally Internet-mediated) as an alternative channel for political communication is also supported by the analysis of airtime (see Figure 4.16) dedicated to parties in the 2013 campaign for the general election. Even assuming

that the media were readily broadcasting Grillo's blogposts because they were entertaining and controversial, airtime data indicate that the attention dedicated by television to the M5S was significantly *lower* than the attention dedicated to other parties.

Trump's campaign probably also leveraged the *hybrid* social networks (that is, only partially Internet-mediated) of thousands of supporters to reach millions of voters, in so doing outsourcing essential mass communication functions that in the past had to be managed by a large organisation, responsible not only for producing and coordinating political communication but crucially also for fundraising the media buy to eventually broadcast the candidate's messages. So far attention has been mainly focused on the spread of fake news over social media, but the point is not really *what* is shared but the potential reach of this hybrid network of personal networks. In an article published in the *New York Times*, Maheshwari (2016) estimates that a photo apparently showing anti-Trump protesters bussed in from other cities taken by Eric Tucker (not a journalist) and tweeted during the campaign to his 40 followers was retweeted 16,000 times and shared on Facebook 350,000 times. Assuming 200 friends for each Facebook users who shared the story, its potential reach was 70 million Facebook users.[1] And this without any contribution from broadcasting media—indeed, the fact that news media quickly disproved the story without affecting its circulation proves that social media networks can also operate independently from news media influence—and no resources, either financial or organisational, were invested by the Trump campaign.

If evidence suggests an affirmative answer to the question of whether the Internet might have radically changed political competition by lowering entry barriers, more conflicting evidence is found in impacts on the *shape* of political

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[1]The number of 200 friends is assumed based on a survey conducted by Pew Research Center (2014) among adult Facebook users in the US. The number of 70 million users reached by the story must be intended as 'potential' and not as an actual estimate since Facebook friends have always partially overlapping list of friends.

organisations. Do ICTs enable political organisations that are leaderless, non-hierarchical and fundamentally horizontal? The debate around this question has been defined and popularised by the Utopian vision of authors such as Benkler with *The wealth of networks* (2006), by Shirky with *Here Comes Everybody* (2008), by the disenchanted perspective of Morozov ('The brave new world of slacktivism', 2009) and Gladwell ('Small change', 2010). The events developing at the turn of the 2010s, both in the West, with the 15-M movement in Spain and the Occupy movement in the US, and in the Middle East, with the Green revolution in Iran, the Arab Spring in multiple countries and the Gezi Park protests in Turkey, were interpreted both in terms of the disruptive potential of the Internet and the limits of Internet-mediated social movements. Internet-mediated mobilisations did bring down a number of regimes but they failed in bringing lasting change because movements not supported by *strong* interpersonal ties (that is, non-Internet mediated) will eventually dissolve and without a hierarchy will not be able to make decisions, thus falling into irrelevance (compare Gladwell, 2010; Karpf, 2010).

In this sense, it is true that the figure of Beppe Grillo has been essential for the experience of the M5S. Notwithstanding the Movement's rhetoric, which rejects any formal hierarchy and place on the Internet and with the community of 'Internet users the role of governing and leading' (Movimento 5 Stelle, 2009a), Grillo is unquestionably the leader of the Movement and the Movement would not exist in its form without him. Yet sporadic evidence of the autonomy of the community of citizen-users and of the independence of the Movement from the figure of its founder have emerged. First at the end of a debate that cut through the different components of the Movement (one leaning towards environmentalism and left-wing values, the other towards nationalism, anti-Europeanism and right-wing values) the position of Grillo on immigration was rejected by members in an online vote, which Grillo eventually accepted. Second, in the period between the European election of 2014 and the first months of 2015, based on the analysis of the archives of the two major Italian newspapers, the number of articles

mentioning the M5S exceeded the number of articles mentioning Beppe Grillo. This is important because as observed, the presence of Grillo in the 2013 campaign of M5S was predominant not only over any other figure of the M5S but also over the Movement itself.

Moreover, the importance of the leadership of Grillo must be relativised by the continue existence and functioning over a period of more than 10 years of thousands of meetups with tens of thousands of members. The figure of Grillo was important in mobilising and motivating this large crowd of members. And the national successes of the Movement contributed to sustaining mobilisation (see Figure 4.1). But it is difficult to justify sustained *participation* through the media system of the M5S and in the meetups only by the charismatic presence of Grillo. The Movement has successfully created a tangible community of citizen-users—steadily active *online* and *onsite*—that acquired a sense of self-consciousness through continuous participation and strengthened its internal cohesion through repeated interactions among its members. It was finally this community, depending on Internet services to articulate its activities and critically to keep existing in its current identity of a community of citizen-users, that sustained over years the development of the Five Star Movement (M5S), of its organisation, and that gave a crucial continuity to the identity behind the Movement between the most public events.

The experience of the M5S provides empirical evidence of the development of a political organisation that in less than 10 years brought onto the national scene and to Parliament the ideas and identitarian discourse of a community of citizen-users born on the Internet and organised through the Internet. Parallel experiences of Internet-enabled political organisations in different regions of the world confirmed that, following a transnational process of massification of access to ICTs that brought, at the end of the 2000s, mobile phones to about 80% of people living in of upper-middle income countries and Internet access to about 70% of the those living in high-income countries (see Figure 7.2), the Internet has modified the dynamics of political organisation and participation by making

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## Error in country %in% cc_groups:  object 'country' not found
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Figure 7.2: *Internet users and mobile cellular subscriptions per 100 people (Source: World Bank, 2016a and 2016b)*

horizontal coordination much easier, along with bringing broadcasting capability to every node connected to the Internet-mediated networks of networks.

Yet successful cases of Internet-mediated political organisations and mobilisation, that is with the ability to enter and to remain in the political system as relevant actors, always involved the presence of a strong and charismatic leadership. Succesful cases are the M5S in Italy and Podemos in Spain, but also as we seen the mobilisation in support of Donald Trump's candidacy for the presidency of the US. A list of less successful or unsuccessful cases includes instead the Occupy movement, the 15-M movement, all the movements that took the streets in the Middle East between 2009 and 2011, and notably also the German Pirate Party, which did not succeed in consolidating the good (and unexpected) results obtained in 2011 and 2012.

In this sense, the Internet has been really effective in mobilising and channelling into visible forms of organisation bursts of discontent but it has appeared to be less effective in normalising participation into stable forms of organisations without the presence of a charismatic founder. I argue that the M5S is a partial exception to this, since its community of citizen-users has stabilised through recurrent interactions and has consequently given to the Movement the continuity indispensable for political relevance. The importance of Grillo in the everyday organisation of the M5S, a network of thousands of meetups and as many elected members scattered around the country, should not be overestimated since in practical terms most of the decisions of the Movement must be taken out of his direct or indirect control. If on one side Grillo has repeatedly demonstrated himself to be for the Movement a crisis-solver of last resort, on the other the network of meetups and members has demonstrated itself to be a functioning

political organisation winning votes and electoral competitions. More ethnographic research is needed to evaluate how individual meetups and those elected to represent the M5S coordinate in practice with the broader movement and what role online deliberation plays in their internal decision making, but from the data presented in this thesis, which have assessed trends in participation, it is already possible to make the simple consideration that a political organisation, fully exploiting the resources offered by ICTs, was able to mobilise, grow and stabilise—something that, given the political opportunities, is not unachievable in other national contexts.

2. ASYMMETRIC ONLINE DELIBERATION

In this thesis, I have adopted a definition of *online deliberation* that encompasses different forms of interactions. I intended deliberation as a spectrum of behaviours, moving from talking *informally* about politics with the aim of expressing an opinion (but also of making one) to formally taking decisions within a set of *formal* rules. I linked the informal part of the spectrum to concepts such as *everyday political talk* (Mansbridge, 1999) and *dialogic deliberation* (J. Kim & Kim, 2008) both built on the Habermasian concept of *communicative action*. I also conceptualise the informal deliberation process observed on different Internet platforms as part of a *system*, not because I think it behaves *organically* through harmonic and predictable interactions among its different threads (it does not) but because I observed that they dynamically influence each other.

The online deliberative system of the M5S, articulated over different platforms, played three positive roles within the Movement. First, thanks to Facebook the M5S pushed politically deliberative content into the feed of millions of users leveraging an already extensive network of supporters. This new condition of ubiquity of the deliberative stream, 'everywhere political talk', is not a feature characterising only the M5S political communicative environment but is instead a new feature brought in by the new reality of multiple, intersecting, Internet-

mediated networks connecting individuals. In this setting, politics is more often delivered to individuals—who are thus not necessarily politically active in the traditional sense—than sought.

Second, the discussion fora provided a *real*, in the sense of reflecting different opinions, mediating chamber among those interested in the future of the Movement. Further research is needed to understand whether fora also played a role in conciliating or reducing differences—an essential function to maintain the unity of a political organisation. Yet it is already possible to make the argument that by keeping an always-on deliberative system, a real possibility for Internet-mediated organisations, strong differences might manifestly coexist without imperilling unity. Indeed, this is also a crucial feature of electoral systems in which losers, thanks to constitutional warranties, perceive their status as only temporary and are encouraged to maintain their dissent within the legal limits of the political system. Based on my analysis of the deliberative system of the M5S, strong divergences that emerged in the debate along a traditional left-right political spectrum did not result in a splintering of the Movement.

Third, the deliberative system demonstrated its political relevance by influencing in at least one case the agenda of the 'Movement-in-Parliament' and the national debate. This provides important evidence on the question of what role an online deliberative system might play in practice. One of the strongest critiques of the relevance of online politics, let us call it the 'slacktivism' critique, is that political relevance is obtained only through strong organisation. Only organisations can act strategically enough to frame and push items onto the agenda and eventually bring about change. Yet the M5S has demonstrated that an organisation can emerge from low-threshold political activities (the origin of the Movement is a blog's comment section) providing that users have easy access to the resources to scale involvement up as they see fit.

In the case of the M5S, the community of citizen-users never sealed off low-threshold activities, downplaying their significance relative to more involved forms of participation. In fact, it kept encouraging them. Many postings cir-

culating within the Movement's social networks emphatically end with the sentence 'Let's share this!' The memefication of the distinctive signature of the M5S citizen-user significantly points to its importance and identitarian value: a parody Facebook page titled 'Shame Let's stop this Let's share it' (www.facebook.com/eloradifiniamola) has at the time of writing reached more than 50,000 likes. The deliberative system has in the case detailed in Chapter 6 acted organically within the organisation, by providing a specific service to the Movement, elaborating and naming through deliberation a policy proposal to be officially adopted. This played two important roles: it gave credibility to the rhetoric of a Movement founded on a community of deliberating citizen-users and filled a relevant vacuum in the economic policy agenda of the Movement.

Along with a positive role—because of its normative, strategic and tactical value for the political organisation—online deliberation has nevertheless also shown to have a counter-democratic feature with the potential to undermine the organisation that fosters it. As found in a number of studies on online deliberation, and more broadly on online behaviour, the distribution of attention as well as the frequency of participation of single users is highly asymmetric. This is important because as political organisations embrace tools of direct participation to strengthen internal democracy, they might actual have the opposite effect, in which a few users have extreme influence and a few topics attract disproportionate attention. Preferential attachment, the tendency to prefer nodes (either posts or users) that already have a high number of incoming connections, is a feature found in different networks (see Chapter 5) but if it is not necessarily problematic in most cases, it is troubling in settings such as online deliberation in which the output might obtain legitimacy from the supposedly democratic (that is, fairly participated) character of the process.

Moreover, the fact that many political organisations, such as the M5S, outsource deliberative functions to Facebook introduces additional issues. As the importance of Facebook in mediating public discourse and political communication (both vertical and horizontal) has been growing, so has the inquisitiveness

dedicated by academics, journalists and politicians to its potential effect on the debate. Accordingly, the problem is that Facebook is not only a social networking service; the company has also acquired a role in filtering and redistributing content based on totally opaque rules. It is argued that suggestion algorithms (based on other users' behaviours) might induce the creation of filtering bubbles in which users are all exposed to the same content and totally segregated from what users in other bubbles are exposed to. Facebook internal researchers have confirmed the existence of bubbles but they also argued that users play more of a role in creating these bubbles, through their choices, than Facebook's suggestion algorithm (Bakshy, Messing, & Adamic, 2015).

Data from platforms other than Facebook presented in Chapter 6 provide evidence that Internet users on mass communication platforms tend indeed to be distributed extremely unequally and around very few nodes, thus supporting the idea that users bear responsibility. Preferential attachment seems a foundational feature of Internet communications that is independent of design. Nevertheless, Facebook is also proven to show more extreme distributions than other platforms because it tends to experience more low-threshold activities (i.e. liking) and probably also because of the importance of the filtering algorithm. If the amount of content to filter is larger (because the social network fuelling it is larger) the relative importance of the filter is consequently higher.

Similarly to but more extremely than other platforms, Facebook runs the risk of producing online deliberation processes that are strongly *asymmetric* in terms of user participation and attention dedicated to content and also *segregated*. The fact that segregation did not happen on the Forum of the M5S is a positive sign because it means that it ought not to necessarily happen in online deliberative contexts. But based on a number of studies especially focusing on mass deliberation on Twitter and Facebook it seems to be more exceptional than significant due to the specific and hardly replicable context in which it happened: a cohesive and self-conscious community of citizen-users.

In this sense, a simple simulation can demonstrate that when preferential
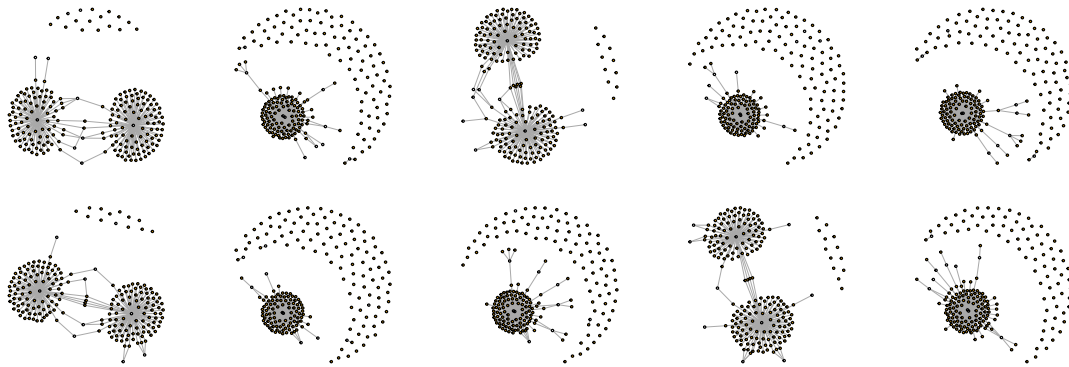
Figure 7.3: *Simulation of bipartite network formation with preferential attachment corrected by binary homophily*

attachment is not only motivated by *popularity* or past clicks but also by *opinion*—not surprisingly found to be by Bakshy et al. (2015) a strong predictor of what a user will eventually click—it can generate filtering bubbles without any algorithmic intervention. Figure 7.3 shows the result of 10 simulations generating networks connecting 200 nodes of two types: users and posts. Each post and each user is assigned one of two possible *opinions* and each post is labelled as either *popular* or *unpopular*. Each edge connecting a user to a news item will be created with probability 0.98 (that is, in 98% of the cases) if the post is popular and the user share the same opinion, 0.02 if the post is popular but the user shares a different opinion and 0.01 if the post is unpopular whether or not the user shares the same opinion. In the 10 simulations, filter bubbles have emerged four times.

In conclusion, I argue that the online deliberative system of the M5S played a positive and important role in promoting cohesiveness and influencing in a measurable way the politics of the Movement, which is rare not only in the Italian political system but in general in large political organisations. Nevertheless, the democratic value of such a process must be questioned. Whatever emerges from a deliberation process emerges through a process that does not guarantee scrupulous vetting of all arguments nor fair participation of all voices, in other words, something that would allow it to reach the Habermasian ideal of reasoned but informal deliberation. Online deliberation is fundamentally asymmetric

independently of any specific technological design and can easily degenerate into segregated deliberating communities.

3. CITIZEN-USER AND DEMOCRACY

In the terminology of information and communication technologies (ICTs), a *user* is the individual at the centre of a computer or network service. The Internet and mobile revolutions, or more broadly the *information* revolution, have diffused and popularised ICTs to the point where individuals are almost constantly *users* of and connected to some sort of service; whether a telephone network, a social networking service, a sharing service, a location service or a search engine. The empowerment perceived by the user depends not only on the resources available through the service but also on the ease in navigating, filtering and selecting these resources, which ultimately are determined by the design of the user-interface, the layer through which the user communicates with the service itself. The technological advances in both the accumulation of digital resources but also—and probably more importantly—in the sophistication of the user-interfaces responsible for their retrieval and utilisation, have enormously empowered the average user (see Rainie & Wellman, 2012); so that nowadays the information and communication resources available to everyone with an Internet connection would have been unaccessible even to the largest human organisations, public or private, only a few decades ago.

The growing sense of empowerment on the part of users of ICTs enabled services in the last two decades contrasted vividly with the sense of disempowerment caused instead by participation in the political system. A large body of literature produced over more than two decades has been describing on the one hand that citizens of Western democracies seemed to invest less time and dedication to traditional forms of political participation (see Putnam, 2000; Van Biezen et al., 2012) and on the other an erosion of trust between citizens and political institutions—especially the institutions of representative democracy (see

Hayward, 1995; Norris, 1999a; Catterberg & Moreno, 2006). Politics and political institutions have perceivably failed in the eyes of citizens to deliver what they promised. They have failed in centralising the role of citizens—experiencing unprecedented centrality in their online existences—and in increasing their importance within the political system, factual and perceived.

The response of those protesting the failure of politics is then to reinitialise it from the bottom, from *citizens*, as individuals and as a multitude. The word 'citizen' or 'citizens' appear in more than 30% of blog posts published by Grillo between 2005 and 2015 and in more than 8% of postings on the Forum. To put its frequency in perspective, Grillo used the word 'citizen' or 'citizens' once every 764 published words, the users of the Forum once every 670, while the analysis of a corpus of Italian web texts of about 380,000 documents (Lyding et al., 2014) indicates that those words are generally expected to be used once every 5000 words. In January 2005, in the second blog post ever published on his blog, Grillo wrote: 'The only way to ensure the survival of democracy is to make sure that government does not control the potential for *citizens* to share information and to communicate' (Grillo, 2005c). Also, the flagship policy proposal of the M5S was named *citizen's income*—although technically, as seen in Chapter 6, it was not, since the amount of benefits is conditional. An analysis conducted on the manifestos of anti-austerity protest movements in Spain and Greece of the early 2010s by Gerbaudo (2017) encountered a similar focus on 'citizen' and 'citizenship', as a source of 'collective identification'—'citizen movements' as opposed to social movements and party organisations—and as a justification for economic and political demands.

The Five Star Movement aimed to fix politics and government by bringing the citizen to the centre of the political system through the very same technologies that boosted the information revolution, as a user of sophisticated interfaces that would allow him or her to navigate distributed sources of knowledge and information, actively contribute to deliberation and unceasingly monitor the institutions. The ideology of the M5S is not interested in defining relations

among citizens but instead in depicting a new relation *between state and citizens*, made possible by ICTs that are not only available but also very popular. The ideal citizen is then a citizen-user: constantly connected, informed, participating and empowered through a set of Internet services. ICTs connect citizen-users into a perfectly horizontal and rational community, with neither a centre nor a periphery, a top or a bottom. Political power is diffused instead of being centralised. The supreme power rests in the community (polity) of citizen-users as a whole; it is not exercised through representative institutions but through ICTs and deliberating services.

In this sense, the community of citizen-users represents *the people* as opposed to *the elites*, with a dichotomous division that has convinced many (Diamanti, 2014; Franzosi, Marone, & Salvati, 2015; Inglehart & Norris, 2016) that the M5S is, in fact, a populist movement. Empowering citizen-users translates into the weakening of forms of representative democracy with the justification that, first, representative institutions have failed through incompetence and because they have been captured by special interests, and second, that citizen-users—armed with common sense and motivated only by the common good, have the competence and legitimacy to govern directly. Inherently, this implies that policy and political solutions to the polity's problems are always easy, clear-cut and non-conflictual, that is, they do not imply the possibility of so-called '*wicked problems*'.[2] As correctly pointed by Mudde (2004), from a normative perspective, the problem with populism is not really in the dichotomy people/elite (which is clearly present in the rhetoric of the M5S) but that a dichotomous vision necessarily refuses to acknowledge differences and divisions *within the people* and consequentially to address them *democratically*, that is, mediating when possible and always protecting the rights of minority groups.

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[2]According to Head (2008), in a public policy context a 'wicked problem' is a problem characterised by 'uncertainty', 'complexity' and 'value divergence'. Head offers a few examples of wicked problems from domestic policy areas in Australia: among those are 'Overcoming Indigenous disadvantage', 'Sustainable use of natural resources' and 'Self-harming ("unhealthy") behaviours'.

In this research, I observed that citizens in large numbers do participate in a wide array of discussions, share information from different sources, monitor the behaviour of institutions and influence policy-making; directly and indirectly (as through elections), formally and informally. Yet, I also observed that the citizen-user *in practice* is distant from the deliberating ideal imagined by the Movement. First, users are not peers; the networks mapping the interactions among users show an extreme level of disparity, with a very few responsible for most of the activity (and influence). Second, the social network that emerges from interactions among users is no community but instead a *crowd*, in which users' presence is extremely volatile. Yes, at times *communities*—that is, rational, cohesive and self-reflective groups of individuals—do emerge from the crowd but they are not long-lasting and are mostly focused on individual problems or specific collective actions. Third, if the crowd has demonstrated on a few occasions that it influences the Movement's positions on specific issues and policy-making more in general, it has not done it *consistently*; it is almost impossible to determine beforehand the level of influence (if any) that it will eventually have on any issue. Fourth, citizen-users are an elite among citizens.

The relationship between citizen-users and democracy is problematic, although the citizen-user is ideally perceived by a number of contemporary political movements and organisations as a democratising force. Even assuming that the entire population has the same level of access to the Internet, which given current trends is a realistic scenario for the near future but is currently not a valid assumption, the Internet mediation of politics does not necessarily solve known problems of 'representational distortion' in participation and deliberation (Verba, Schlozman, & Brady, 1995). As observed, women comment less than men even if, based on liking records, they make up almost half of the audience. And it is realistic that other demographic traits, such as education, could also affect participation.

Moreover, it is not clear how citizen-users, in the absence of leadership, could solve complicated (wicked) problems. In this sense, the community of citizen-

users debating on the Forum of the M5S has been shown to be functional for the emergence of differences. This provides evidence for the idea that online social networking might have the merit of allowing the formation and protection of publics of different size thus also facilitating contacts among members of minority groups (see Dahlberg, 2007). Nevertheless, there is no clear solution to the problem of how to reconcile minority and majority positions when deliberation takes place online and must indicate a final decision. The example of Wikipedia is often cited as case of successful decision-making by large online communities (see Konieczny, 2010) but Wikipedia does not need to guarantee equality among users (in fact, a few users have a disproportionate influence) and notably, since by design the editing of articles is a continuous process with no possibility of settling on a final version, there is no need for definitive decisions.

In the case of the M5S and many other online communities, decisions are taken by voting and thus by the majority of the citizen-users. An online vote can legitimise a decision but does not solve all the potential democratic deficits of the deliberation process. In fact, establishing a vote is a complicated decision by itself. How to formulate substance, scope and timing of online voting has enormous consequences. At the time of writing, the M5S allowed registered members to propose legislation through its online voting platform but did not allow the proposal of a vote on the politics of the Movement and only the leadership of the Movement had authority over whether or not to put a political decision to a vote. Even disregarding the problems of the process that establishes a vote, it is easy to envision how voting could unfairly penalise minority groups and opinions and clash with basic democratic principles.

The M5S built its image in opposition to the idea of party and traditional party organisations; 'we are not a party!' is recurrent slogan. What is rejected is not only the party as organisation (accused of being too financially burdensome and aggressively protective of its privileges) but also the delegation of power from members to the leadership. In fact, the M5S ideologically refuses any transfer of power from citizens to (elected) representative institutions. This position

changes the quality of the relationship among members and between members and the political organisation. But it also lowers the entry barrier: by *joining* the Movement, the citizen-user does not *delegate power* to an assembly or to a leadership (neither is constitutionally present in the organisation M5S) but instead gains access to an online deliberating platform, which is restricted to approved members only. Moreover, since the official programmatic document of theM5S is limited to only a few items and does not address the most controversial and complicated issues on the public agenda (e.g. immigration, reproductive rights, foreign policy), membership is not ideologically burdensome. The question is how more traditional parties will respond to the political offer of the Movement and more in general to the emergence of citizen-users. Citizen-users, from their screens and displays, are at the center of empowering informational and communication systems. This centrality and the individualistic values that it enables are not compatible with traditional party hierarchy and activist obedience (according to the M5S is not compatible with the very existence of representative institutions). I argue that to attract support parties will need to make their deliberative processes more participatory. In order to mobilise citizen-users, parties will need to devolve some power to the members for example by using primaries more frequently. This will have an effect on the political system. The question is whether more participation will mainly produce more instability and more turbulence or instead whether political organisations will prove to be able to govern a continuous stream of participation.

In conclusion, I do not argue that citizen-users do not play a positive role in a democracy. Based on the evidence presented in this thesis, they complement democracy by enriching the debate. Nevertheless, it is problematic to paint them as the only genuine repositories of democratic legitimacy as opposed to undemocratic representative and technical institutions. Evidence from the M5S experiment points to the fact that although the rhetoric of the Movement assigned to the figure of the citizen-user the highest prestige and authority, in practice the organisation of the M5S limited the real autonomy of citizen-users. This suggests

that within the organisation it was the crowd that influenced through mediation the politics of the Movement rather than individual citizen-users.

4. Crowd-mediated politics

Behind the rhetoric of individual, personal access to political participation that ICTs offers to citizen-users, the practice of mass political participation in the fora of the M5S returns a picture of a mediating crowd more than that of a community where individual contributions regularly emerge.

Further research is needed on whether the parliamentary activity of the M5S derived significant input from online deliberation. Chapter 6 describes in detail how online deliberation might influence policy making: indirectly and through the initiative of the leadership. Bills proposed by MPs elected with the M5S might have been directly influenced by the discussion on the Forum. Yet, from the analysis I conducted on digital traces illustrated in Chapter 5, it emerged that after being elected MPs reduced their engagement with the other users on the Forum.

This is confirmed by comparing their presence on the Forum *before* and *after* the general election (see Figure 7.4). There are at least two elements that contribute to explaining this noticeable decrease in attention by MPs after the general election. First, as already noted, in the months after the general election, the M5S developed and finally deployed an online voting platform. This could have convinced MPs to dedicate more attention to the new platform than to the Forum. Unfortunately, the voting platform restricts at the time of writing access to members of the Movement, so it is not possible to fully investigate the actual involvement of MPs on the web site. Second, as noted, the relevance of Facebook both as communication channel and forum has been growing along with the popularity of Facebook in Italy—according to Facebook, more than 23 million Italians, or about half of the electorate, had an account with the service at the time of the 2013 general election. At the time of writing, virtually every M5S MPs
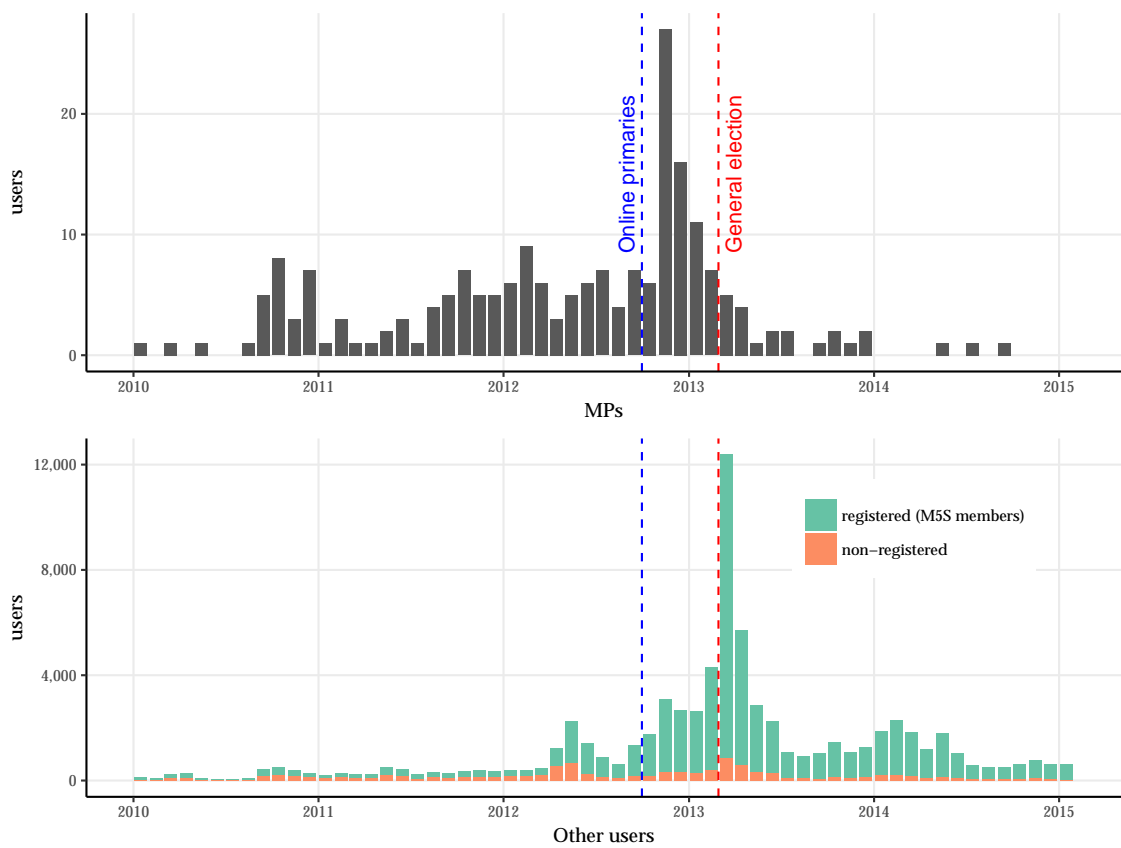
Figure 7.4: *Forum participation of MPs elected in February 2013 with the M5S (unique monthly presence).*

had a page on Facebook. These two factors alone could explain why MPs might have withdrawn from the Forum to dedicate more attention to the online voting platform and notably to curate their personal profile on Facebook, which allows them to control the 'agenda' on the page and cultivate an audience, something that is not possible debating on the Forum. And yet, if alternatives to the Forum have been emerging after the election, a few thousand registered users (and registered also with the M5S) still maintained a regular presence on the Forum until mid-2014. The fact that MPs have not used the Forum as frequently as other members does not point to a strong 'top-down' support for online deliberation.

So far, no convincing evidence has emerged that the community of citizen-users active within the M5S has been able to push 'bottom-up' any item on the agenda of the Movement or to influence important decisions. This is not to say that there was no 'bottom-up' influence, though. On the contrary, in Chapter 6, I substantiated evidence of this influence. But I also argued that the influence was more of an *in*organic crowd than that of an organic community. The difference is relevant because only an organic community has the capacity, through well-defined rules and norms, to express opinions and proposals that are legitimately the expression of the multitude of citizen-users—even if they do not necessarily reflect the opinion of everyone. Crowds do not have such capacity. Crowds produce noise and unordered streams of political talk without the capacity to legitimately solve conflicting opinions. When the crowd prevails on the community, democratic legitimacy is lost.

Grillo and the M5S always predicated a strong preference for direct democracy over representative democracy, perceived as corruptive, inefficient and thanks to the Internet no longer needed. The Movement's online deliberation platform was unequivocally named after Jean-Jacques Rousseau, who in his *Social contract*, offered a strong critique of representation justifying it with the observation that 'the moment that a people provides itself with representatives, it is no longer free; it no longer exists' (Rousseau, 1762/1999, p. 129). The M5S's argument for direct democracy is in the tradition of a political critique towards neo-liberal and

representative democracy formulated in the 1960s by the New Left and by the European social and environmental movements of the last decades of the 20th century. The argument is also in line with Barber's criticism of representative democracy and call for 'participatory politics' (1984). But the Movement fails to appreciate—in theory, but not in practice—the inherent problems with a radical application of 'participatory democracy', which indeed Barber never postulated, proposing instead to supplement, and not replace, the current institutional arrangements (Adamson, 1989). In a similar vein, Bobbio argued that

> if by direct democracy is meant the participation of all citizens in all the decisions which concern them, the proposal is absurd. For everyone to make decisions on everything in the increasingly complex societies which exist in modern industrial nations is *physically impossible* (1984/ 1987, p. 187).

Even assuming continuous deliberation by citizens to be *possible* (because of the development of ICTs as postulated by Grillo and the M5S) according to Bobbio it would still be

> undesirable in human terms, i.e. from the point of view of the ethical and intellectual development of humanity. In his early writings, Marx had held up the total human being as the ultimate goal of the social evolution of the species. But the Rousseauistic individual called upon to participate in the political process from morning to night in order to exercise his rights as a citizen would not be the total human being but the total citizen (a term coined by Dahrendorf with obvious polemical intent). And the total citizen is on closer inspection merely another aspect, and a no less menacing one, of the total state. It is no coincidence that Rousseauistic democracy has often been interpreted as totalitarian democracy, in basic conflict with liberal democracy. (1984/1987, p. 187)

In the political trajectory of the M5S, ICTs have not emerged as a transformative force for political deliberation although the online community of citizen-users had played consultative roles on more than one occasion. Notwithstanding the fact that the Movement has been built around and continues to be defined by ideals of radical direct participations of the community—that is the entire *polity*—of all citizens, it never applied that configuration. It did not because, faced with the problems that would have resulted from its practical implementation—which as the Movement correctly argued were not *technological* but as I argue *political*, the M5S preferred to maintain its ideological purity and avoid any compromise. The absence of norms regulating and necessarily limiting how opinions could take shape and emerge 'bottom-up'—in other words, defining what online deliberation meant for the Five Star Movement (M5S)—inevitably resulted in the dissolution of the community into a crowd.

As ICTs, especially social networking services, progressively take up internal communication and organisational functions of political organisations, it is inevitable that political mediation by online crowds will become more frequent. But crowd-mediation does not necessarily empower participating citizen-users. In fact, in the presence of divisions and conflicts—usually the norm in political talk—it mostly empowers the leadership, free to promote selected opinions and views at the expense of others. Problematic is that, as in the case of the M5S, the absence of any democratic guarantee for the deliberation process (crowds are not compatible with the most basic norms of democratic proceduralism) does not stop the leadership from implying the democraticness of the process—as opposed to undemocratic traditional politics—even though the outcome has not spontaneously emerged from a community but has been selectively derived from a crowd.

In this thesis, I provided evidence and analysis in support of the argument that the development and mass distribution of ICTs has levelled the field of political competition, to the point in which substantial financial and organisational resources are no longer a necessary condition. If on one side, this means

the injection of chaos and turbulence (see Margetts et al., 2015) into political systems, on the other, by facilitating access, it improves the quality of democracy. Nevertheless, the risk is that technology might be excessively ideologised and used to mask very traditional underlying disparities or, even worse, authoritarian decisions.

The diffusion of ICTs has introduced an unprecedented problem to politics. The 'total citizen', that is the continuously deliberating citizen, is no longer impossible to imagine given the familiarity with ICTs of the broad population. This makes it even harder for those defending the merits of representative democracy and its wide set of rules—already put in a weak position by the world-wide collapse of trust in elected institutions—to argue for its preservation. Political entrepreneurs such as Grillo can easily exploit this objective weakness and argue for the replacement of most of those institutions with deliberating platforms. The fact that Grillo himself has not been able to deliver on his promises within the Movement he created is even more worrying. It points to a scenario in which an institutional arrangement involving crowd-mediation and leadership authority instead of representative democracy and rules is sold as direct democracy. From any standard, such an arrangement is going to be not only *less* democratic than the traditional one based on representation that it has replaced but also profoundly *undemocratic*.

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Appendices

1.   LINEAR REGRESSION ON MEETUPS' MEMBERSHIP, FACEBOOK ACTIVITY AND M5S VOTES IN 2010, 2013 AND 2014

	Dependent variable:					
	log(votes)					
	Regional elections 2010		General election 2013		European election 2014	
	(1)	(2)	(3)	(4)	(5)	(6)
log(voters)		0.596***		0.881***		0.842***
		(0.169)		(0.036)		(0.036)
log(members)	0.432***	0.202**	0.447***	0.070***	0.487***	0.102***
	(0.069)	(0.089)	(0.040)	(0.021)	(0.045)	(0.024)
Constant	6.801***	0.410	8.552***	−0.304	7.644***	−0.298
	(0.353)	(1.838)	(0.220)	(0.372)	(0.271)	(0.352)
Observations	37	37	110	110	110	110
R^2	0.526	0.653	0.539	0.929	0.522	0.923
Adjusted R^2	0.512	0.633	0.535	0.927	0.517	0.922

Note: *p<0.1; **p<0.05; ***p<0.01

	Dependent variable:		
	log(votes)	votes_ratio	
	General election 2013		
	(1)	(2)	(3)
log(voters)	0.914***	−0.038***	−0.035***
	(0.029)	(0.009)	(0.010)
log(members)		0.016***	0.016**
		(0.006)	(0.006)
log(days_90liking_users)	0.014	0.003	
	(0.010)	(0.002)	
log(days_90commenting_users)			0.002
			(0.003)
Constant	−0.371	0.636***	0.598***
	(0.349)	(0.097)	(0.106)
Observations	86	86	77
R^2	0.933	0.178	0.144
Adjusted R^2	0.931	0.148	0.109
Residual Std. Error	0.174 (df = 83)	0.043 (df = 82)	0.045 (df = 73)
F Statistic	575.854*** (df = 2; 83)	5.904*** (df = 3; 82)	4.108*** (df = 3; 73)

Note: *p<0.1; **p<0.05; ***p<0.01

2. TABULAR ANALYSIS FOR ONLINE AND OFFLINE PARTICIPATION RESPONSES TO 2013 ELECTORAL SURVEY

	Didn't participated in online political discussions	Did participated in online political discussions	Tot
Did't go to meetings, political debates or rallies	81.82	18.18	100.00
Did go to meetings, political debates or rallies	68.18	31.82	100.00
Tot	75.51	24.49	100.00

Table 1: *Source: Associazione Itanes, 2013*

	Didn't participated in online political discussions	Did participated in online political discussions	Tot
Did't go to meetings, political debates or rallies	72.97	56.25	77.62
Did go to meetings, political debates or rallies	27.03	43.75	22.38
Tot	100.00	100.00	100.00

Table 2: *Source Associazione Itanes, 2013*

Pearson's χ^2 contingency table test on the two variables returns a *p*-value of 0.11.

3. Temporal exponential random graph models

	Sample 1 Estimate		Sample 2 Estimate		Sample 3 Estimate		Sample 4 Estimate	
edges	-7.987	*	-7.777	*	-8.739	*	-9.278	*
mutual	6.319	*	5.503	*	5.970	*	7.348	*
nodematch.gender	0.222	*	-0.013		0.006		0.280	*
nodeifactor.gender.male	-0.019		-0.068		0.705	*	0.025	
nodeifactor.gender.unknown	-2.160	*	-0.656		-0.345	*	-1.355	*
nodeofactor.gender.male	-0.091		0.020		0.172		-0.282	*
nodeofactor.gender.unknown	0.380	*	0.189		0.569		0.250	*
nodeicov.past_outdegree	-0.443	*	-1.355	*	-0.916	*	-0.873	*
nodeicov.past_indegree	1.331	*	2.616	*	1.993	*	1.432	*
nodeocov.past_outdegree	0.810	*	1.660	*	1.334	*	1.350	*
nodeocov.past_indegree	-0.663	*	-1.655	*	-1.372	*	-1.356	*

Table 3: *Results of a temporal ERGM on four 25-week long network mapping the direct reply within the Forum of the M5S*

4. BINOMIAL (LOGISTIC) REGRESSION ON COMMENT CHARACTERISTICS POSTED IN THE IMMIGRATION DEBATE

	Dependent variable:				
	right_to_left	left_to_right	fact	disagreement	agreement
	(1)	(2)	(3)	(4)	(5)
agreement	−0.243	−0.475			
	(0.517)	(1.085)			
disagreement	−0.756*	1.092*			
	(0.429)	(0.649)			
fact	0.669*	−1.086		0.568*	−0.282
	(0.360)	(0.715)		(0.295)	(0.392)
pol_code_V1right			0.533*		
			(0.287)		
Constant	−1.068***	−2.628***	−0.556***	−0.973***	−1.590***
	(0.281)	(0.496)	(0.191)	(0.201)	(0.239)
Observations	167	161	205	214	214
Log Likelihood	−93.965	−37.694	−137.696	−133.407	−91.744
Akaike Inf. Crit.	195.929	83.389	279.391	270.814	187.487

Note: *p<0.1; **p<0.05; ***p<0.01

	forum	blog	corriere	repubblica	camera_acts	camera_bills	senato_bills
1	Tasso di disoccupazione	V2-Day	Movimento 5 Stelle	Assessore (Italia)	Comunità europea	Contributo	Contributo
2	Disoccupazione	Voto disgiunto	V-Day	Regione amministrativa	Unione economica e monetaria	Contributi obbligatori per le assicurazioni obbligatorie	Contributi obbligatori per le assicurazioni obbligatorie
3	Baby pensioni	Tasso di disoccupazione	V2-Day	Assessore	Povertà estrema	Indennità di mobilità	Pensione
4	Voto disgiunto	Patto del Nazareno	Fondazione cassa di risparmio	Giunta provinciale	Previdenza sociale	Previdenza sociale	Limite di sostenibilità
5	Potere direttivo	Fondazione cassa di risparmio	Tasso di disoccupazione	Tasso di disoccupazione	Cuneo fiscale	Pensione	Soggettività tributaria
6	Pensione	V-Day	Voto disgiunto	Unione Democratica Sarda	Organizzazione per la cooperazione economica europea	Limite di sostenibilità	Presidente del Senato della Repubblica
7	Fondazione cassa di risparmio	Movimento 5 Stelle	Disoccupazione	Giunta comunale	Unione dei Federalisti Europei	Lavoro nero	Previdenza sociale
8	Pension scheme	Mozione di sfiducia	Riforma delle pensioni Fornero	Consiglio regionale del Lazio	Politica di bilancio	Tasso di disoccupazione	Lavoro nero
9	Riforma Dini	Debito pubblico	Riforma del lavoro Fornero	Politica di bilancio	Europa Federale	Lavoro subordinato	Schema pensionistico con formula delle rendite predefinita
10	V-Day	Baby pensioni	Federazione Impiegati Operai Metallurgici	Esterino Montino	Investimento	Teoria costituzionale nel diritto della previdenza sociale	Modello 730

Table 4: *The top 20 concepts (which correnpond to an article of Italian Wikipedia) emerging from the semantic analysis of online postings (forum and blog), newspaper articles (corriere and repubblica) and parliamentary documents (camera acts, camera bills, and senate bills).*

	forum	blog	corriere	repubblica	camera_acts	camera_bills	senato_bills
11	V2-Day	Pensione	Pensione	Fondazione cassa di risparmio	Baratro fiscale	Schema pensionistico con formula delle rendite predefinita	Impiegato
12	Cuneo fiscale	Cassa di risparmio	Baby pensioni	Consiglio regionale (Italia)	Tasso di disoccupazione	Potere direttivo	Potere direttivo
13	Certificato unico dipendente	Elezioni politiche italiane	Federazione delle Liste Verdi	Disoccupazione	Banca europea degli investimenti	Hovevei Zion	Prestazione
14	Cassa di risparmio	Trappola della liquidità	Confederazione Generale Italiana del Lavoro	Federazione delle Liste Verdi	Bolla previdenziale	Impiegato	Indicatore della situazione economica equivalente
15	Pension scheme	Povertà estrema	Riforma Dini	Consiglio metropolitano	Accordi europei di cambio	Decreto legislativo 10 febbraio 1996, n. 103	Lavoro subordinato
16	Baratro fiscale	Disoccupazione	Federazione lavoratori della conoscenza	Voto disgiunto	Movimento Federalista Europeo	Assegno	Tasso di disoccupazione
17	Contributo	Riforma del lavoro Fornero	Estrema sinistra	V2-Day	Macroeconomia	Indicatore della situazione economica equivalente	Indennità di mobilità
18	Sussidio	Stella Alpina (partito)	Sussidio	Sindaci di Trapani	Deficit pubblico	Disoccupazione	Decreto legislativo 10 febbraio 1996, n. 103
19	Movimento 5 Stelle	Voto di scambio	Articolo 18 dello statuto dei lavoratori	Sussidio	Assicurazione	Lavoro autonomo	Sistema di collocamento pubblico
20	Debito pubblico implicito	Banca Popolare Cinese	Schema pensionistico con formula delle rendite predefinita	Movimento 5 Stelle	Economia keynesiana	Riforma Dini	Assegno

Table 5: *The top 20 concepts (which correnpond to an article of Italian Wikipedia) emerging from the semantic analysis of online postings (forum and blog), newspaper articles (corriere and repubblica) and parliamentary documents (camera acts, camera bills, and senate bills).*