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RESEARCH ARTICLE

FROM SUPER-PARTICIPANTS TO SUPER-ECHOED
Participation in the 2018 Italian Electoral Twittersphere

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ABSTRACT: Who and how takes part in a typical Twitter discussion about political elections? In what degree? In our study we try to shed some light on these questions by examining the case of Italian 2018 national election. Starting from the database that we collected during the latest general campaign, we analyse all the users who participated in the discussion unfolding in the two months preceding the vote. To do that, we exploit the concept of super-participants isolating the 1% of users who generate large part of the discussion. We study them identifying the two main participation flows in the Twittersphere generated by tweets and retweets, discovering that participation curves are very skewed. To address issues of centrality and inclusiveness in online communication, we look at who the super-participants are in the broader society, finding that many of them are citizens. To inquire if participation draws attention, we identify a set of super-echoed users discovering that, belonging to élite categories is still an advantage given that starting popularity is often more important to be shared than participation. In fact, citizens' super-participation is not mirrored by an equally consistent received attention. Notwithstanding, political supporters and satirical blogs emerge to be two very interesting categories.

KEYWORDS: electoral campaign, super-participants, super-echoed, participation inequality, Twitter, 1% rule

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1. Introduction

Discussions about the transformations taking place in the digitalized public sphere are becoming increasingly important as the dynamics of hybrid media environments consolidate. The most recent electoral campaigns have been characterized by growing awareness about the dissemination of "fake news", the unscrupulous exploitation of users' personal data for profiling and targeting, and the puzzle of how such uses of big data can impact on electoral outcomes.

As more and more social interactions become embedded in digital environments, the extension, the detail and the variety of the digital trace data that such interactions leave behind increase. This large amount of data makes it possible to analyze the mechanisms underlying the structures, contents and engagement strategies in social media that are essential to highlight the public participation dynamics and understand "who has the power to manage or shape online political communication" (Wright 2017, 1). Thus, exploiting big data can help shed clearer light on several issues connected to online political participation. Whether the spread of social media has a positive or negative impact on the democratic process, political participation and public civic engagement, whether the availability of such media can be a key factor in the success of social movements, are open questions that motivated several researches (Boulianne 2015; Davis 2010; Gerbaudo 2012; Nisbet, Stoycheff and Pearce 2012).

Before the petabyte age, these questions could be addressed only through data collected a posteriori and from samples of the population. Instead, with big data, one can avoid the distortions deriving from a posteriori self-assessments, summarization and sampling, and obtain a relatively complete and unbiased overview of what is happening (Gonzalez-Bailon 2013; Howison et al. 2011; Jungherr 2015). However, big data suffer from many problems related to accuracy, lack of completeness, and ethics (boyd and Crawford 2012).

It is important that the ability to address these questions through big data becomes a shared asset in the scientific community, because it is increasingly clear that the most fruitful approaches are those that mix digital trace data analysis with a flexible way of handling theories and methods from the tradition of social and political sciences (Jungherr 2015; Larsson and Moe 2013).

In particular, the study of participation in online political discussions is crucial for understanding how new media produce changes in the public space of communication. New online platforms are engineered to give every registered user the same opportunity to publish content. Nevertheless, it is widely recognized that this opportunity is over-used by some, used moderately by some others, and not used at all

by a sizeable chunk of the population of the platform - the so-called "lurkers" (Bruns and Stieglitz 2013; Graham and Wright 2014a, 2014b; Mustafaraj et al. 2011; Nielsen 2006).

However, the active content producers empowered by the social media platforms need not be the same ones that play major roles in the traditional media system: active citizens not affiliated to any media or political organization can publish their own content on an equal footing with any journalist or politician. These questions lead to the issue of the élite vs. non-élite divide that appears to be so important in today's political discourse. It has been observed that social media, while allowing some interaction between élite and non-élite actors and dynamics, remain overall more of an unfulfilled promise in this respect (Krzyżanowski and Tucker 2018). In hybrid media systems, traditional mass communication media continue to be central (Vaccari et al. 2015), and mass communication, broadcast-style, top-down models, patterns and habits are still deeply entrenched in the practices of many privileged actors and can thus easily be reproduced in new media (Berglez 2016).

Our aim in this study is to exploit digital trace data to analyze how participation unfolds in the Twitter discussion concerning the Italian 2018 general election. Since the literature about the general issue of participation in the Twittersphere is informative but somewhat dispersed, one of our goals is to lay out a simple toolkit of concepts and interpretations that may be of use in obtaining information about the structure and composition of a diffused politically vocal Twitter public.

To do so, we exploit the concept of super-participants, i.e. the most active users in the communication flow who often produce most of the content in online environments (Graham and Wright 2014a). We also revise the concepts of participation and super-participation in the Twittersphere based on the platform's main communicative features (tweets and retweets) and their shared meanings in the literature, to gain better understanding of what it means to take part in online debates. To this end, we look both at whether the group of the super-participants receive an equal amount of attention (mentions, retweets and replies) compared to their activities, and if they overlap with the group of the most retweeted users, which we label "super-echoed".

Therefore, the novelty of this study lies primarily in the fact that it dissects participation in a Twitter political debate, looking at how it is structured, to what extent it is unequal, and at the same time the entanglement between being active and being "attentioned". Furthermore, it focuses on the top segments of the activity and share rankings, investigating how different categories of socio-political actors are represented among them.

The remainder of this article is organized as follows. In the first place we present the theoretical frame that provides context, strategies and concepts for our observations and analyses, followed by a brief focus on our case study. Then, we state our research questions and hypotheses related to participation and attention flows. Thereafter, we describe the case discussion that we selected and the choices that we made on the construction of the set of the super-participants, the super-echoed and on the classification of the users. Finally, we discuss what has emerged from the analyses, point out some limitations of the present study and suggest some directions for further research.

2. Political participation in the Twittersphere

In recent years, a large amount of research has exploited digital trace data to shed light on online political participation. The studies that reason across different online services and offline facts still tend to rely on surveys or theoretical reasoning (Greffet and Wojcik 2017; Halpern et al. 2017), and those that rely on digital trace data tend to focus on one online application (Jungherr 2015, Jungherr et al. 2016). This is due to the difficulty of integrating data from different platforms, which is both a technical difficulty and a legal and ethical one (boyd and Crawford 2012).

Twitter is a social network site particularly suitable for the study of online political participation because it is used mainly for text messages intended to be public. Twitter enables the users to publish content of limited length, to share content published by other users, to reply to or to like content by others. In such a context, political participation has been mainly understood as publishing, or sharing, contents containing political keywords or hashtags (Jungherr 2015; Hawthorne et al. 2013). It is generally held that hashtags structure the Twittersphere into narrower, issue-focused, and searchable streams made up of all the tweets containing that hashtag, which have been called “ad hoc publics” (Bruns and Burgess 2011). Consequently, political participation on Twitter can be best approximated by participation in communication spaces (Jungherr 2015) unfolding around political hashtags (Bastos et al. 2013; Hawthorne et al. 2013; Hosch-Dayican et. al 2016; Jungherr 2015; Larsson and Moe 2012, 2013).

Among the communication spaces examined, there have been those generated by live tweeting about television political talk shows or debates (Anstead and O’Loughlin 2011; Bentivegna and Marchetti 2015; Hawthorne et al. 2013), those developed on the occasion of electoral campaigns (Jungherr 2015; Larsson and Moe 2012, 2013;

Mustafaraj et al. 2011), and those regarding other publicly important issues (Bastos et al. 2013; Bodrunova et al. 2016; Small 2011).

Above and beyond the different methodologies adopted and the diverse affordances considered, these studies consistently underline that participation is often unequally distributed, most of the time in a manner that is strongly skewed (Hargittai and Walejko 2008; Jungherr 2015). Indeed, some Twitter users participate a great deal while others only sign in to read others' messages (boyd and Crawford 2012; Crawford, 2009).

Since the levels of participation seem to be often distributed among the participants in a skewed manner, it makes sense to take a closer look at those users at the extreme left of the distribution: those who contribute the most because they often produce a far more than proportional share of the overall content produced in a given online environment (Anstead and O'Loughlin 2011; Haklay 2016; Nielsen 2006; Barberá and Rivero 2015).

A seminal study in this domain was the one that introduced the notion of "super-participants" to conceptualize and study online discussion forum users who showed a considerably high and potentially overwhelming degree of participation (Graham and Wright 2014a). Since then, the notion has been refined (Wright 2017) and applied in a variety of ways and contexts to study political talk in online non-political or third spaces (Wright et al. 2017), online political talk (Wright et al. 2016), online participation across different online services and types of activities (Greffet and Wojcik 2017), and Twitter activism itself (Bentivegna and Marchetti 2015).

Aside from the use of the specific label of super-participants, other studies have focused on a substantially similar issue by considering most active tweeters (Larsson and Moe 2012, 2013), power-users, and vocal minority (Mustafaraj et al. 2011).

All these authors have based their assessments of the most active users on the number of posts produced by each user in a given communication space: Bentivegna and Marchetti (2015) called "super-participants" those that had produced more than 20 posts; Mustafaraj and his colleagues (2011) considered those that had produced more than 50 posts; and Larsson and Moe (2012) ranked all the users according to the number of posts produced and took the 10 top-ranking ones.

Furthermore, one of the main issues is how these levels of participation are related to attention and influence gained by users in the online environment. Attention and influence can be interpreted and operationalized in several ways (Jungherr 2015). Attention received by a user is often measured through the total number of received @mentions and @replies (Dubois and Gaffney 2014; Cha et al. 2010; González-Bailón et al. 2013; Jürgens and Jungherr 2015; Sousa et al. 2010). Influence, as the effective

outreach of the messages by a given user, can be approximated by the number of received retweets (Cha et al. 2010; Dang-Xuan et al. 2013; Lee et al. 2010; Subbian and Melville 2011).

The question of whether these forms of weight are related to, or determined by, the level of a user's participation has been posed, and given a positive answer (Bodrunova et al. 2016). Indeed, a fundamental aspect of this centrality in communication flows relates to the divide between élites and non-élites that traditional media have generally fostered through their logics of professionalism and broadcasting. Since social media tend to disrupt these logics, do they also tend to overcome the divide? A clear and final answer is not forthcoming. It has been found that users that could be ascribed to the category of the traditional élite still enjoy dominant positions in Twitter communication spaces (Ausserhofer and Maireder 2013; D'heer and Verdegem 2014), and that such users tend to maintain and reproduce broadcast communication styles on the new medium (Bentivegna and Marchetti 2015; Berglez 2016). But it has also been found that traditionally non-élite communicators, like citizens, may be empowered by the platform to achieve greater weight and centrality. The mechanisms through which this may happen have been identified as either sheer size and share of active posting, a mode of functioning of Twitter that favors the message itself instead of the identity of its author, or reciprocal practices of communication (Bastos et al. 2013; Larsson and Moe 2013).

Even though many researches have been carried out on participation in Twitter political communication spaces using digital trace data, there is no uniform way to conduct such analyses. Several studies have highlighted the need for the systematic development of tools with which to measure participation and impact taking place through the social media (Bruns and Stieglitz 2013; Theocharis 2015). This is essential especially because the rapid evolution of the technological platform and analysis tools tends to generate conceptual and operational chaos, making it increasingly difficult to rely on past research as a source of points of reference (Gil de Zuniga and Diehl 2017).

The first step towards a standard way to measure participation in Twitter communication spaces consists in clearly defining along which dimensions the participants can be located, and then providing these dimensions with a valid semantic interpretation.

The first and basic action that a Twitter user can perform is to post original content (tweet). It seems easy to interpret the act of posting as a form of participation in communication space, or even the form of participation par excellence. This line of reasoning can be found, in mainly implicit form, in most of the past studies on the topic

(Anstead and O'Loughlin 2011; Bentivegna and Marchetti 2015; Hawthorne et al. 2013; Hosch-Dayican et. al 2016).

Secondly, a fundamental tool that Twitter provides to the users is the retweet. There is not a unique interpretation for the retweet feature (Freelon 2014). Various communication scholars have pointed out that different ways to decode the meaning of the retweet action are possible (Highfield et al. 2013; Larsson and Moe 2012; Meraz and Papacharissi 2013; Small 2011). The most influential study on the topic highlighted that "participants' social and informational goals vary, and accordingly, so do their retweeting practices" (boyd et al. 2010, 10). In this variety of practices, the lowest common denominator is that retweeting is propagation of content. This meaning, in fact, is shared by virtually all the scholars that have written on the subject (Anstead and O'Loughlin 2011; Bakshy et al. 2011; Elmer 2013; Highfield et al. 2013; Larsson and Moe 2012; Meraz and Papacharissi 2013; Small 2011; Zhao et al. 2014).

Also received retweets have been subject to several different but connected readings. From a logical point of view, they are very different from their active counterparts: while retweeting is an action, received retweets are something like a metric of success. As such, they have been used as indicators of influence (Cha et al. 2010; Dang-Xuan et al. 2013; Subbian and Melville 2011), position (D'heer and Verdegem 2014), popularity (Aleahmad et al. 2016), importance (Jürgens and Jungherr 2015; Larsson and Moe 2013), gatekeeping (Bastos et al. 2013), and prominence (Jungherr 2015).

As far as the most retweeted users in a discussion are concerned, an approach parallel to that of the super-participants is not established in the literature, although the most retweeted users in a communication space have been isolated for closer observation (Dang-Xuan et al. 2013; Larsson and Moe 2013), and a group of prominent users of a similar communication space has been identified on the basis also of this metric (Jungherr 2015).

3. Case study: Participation in the Italian Twittersphere

To gain a clearer empirical understanding of online political participation, and propose a new analytical approach, we examine the case of Italy, where a general election was held in March 2018. The campaign boosted public attention to digital

communication and after the vote one of the major Italian newspapers called this election "the first in Italian history to be played and won on the social media"[1].

Some past scientific findings have suggested that the Italian Twittersphere has some characteristics that make it an interesting case for investigating the dynamics of political participation, though somewhat less developed than other national ones due to comparatively modest adoption of the internet (Mingo and Bracciale 2018) and social networks (Poushter et al. 2018).

It has been found that among the politically vocal Italian Twitter users, the more they participate and gather information on the social media, the more they are likely to engage in "higher threshold" political participation activities (Vaccari et al. 2015). Other studies have shown that, although politics in the Italian Twittersphere are not the main discussion topic, the small group of Italian twitterers that do discuss it receive large coverage in press and television, thus potentially entering the circuit of major agenda setting as a component of a hybrid media system (Bentivegna and Marchetti 2015; Bracciale and Rega 2016; Marchetti and Ceccobelli 2016). Especially after a wave of adoption immediately before the 2013 election, the platform has been recognized as having become a fundamental part of institutional communication, a new public space, although it appears to be still strongly oriented towards traditional mass media (Di Fraia and Missaglia 2015).

During the 2018 general election, Twitter was still a relevant public arena often chosen by press and television journalists as a proxy for the discussions ongoing in the social media, also because of the generally publicly accessible nature of its content. Thus, it can be argued that although Twitter users are a minority of Italian social network sites users, they enjoy a privileged position in the media ecosystem. Consequently, the users that succeed in voicing their opinions and being echoed on Twitter have a better chance of impacting on the Italian traditional media sphere than those who do so on other social networks.

4. Research question and hypotheses

Against this theoretical background, we formulate some research questions and hypotheses to gain better understanding of political participation on social media through digital trace data. The first research question concerns whether also the Italian

[1] http://ricerca.repubblica.it/repubblica/archivio/repubblica/2018/03/17/il-peso-dei-like-sulle-elezioni13.html - Monica Rubino su La Repubblica il 17 marzo 2018.

Twitter communication flow on the general election was dominated by a handful of users, and if we can recognize specific measures to grasp what level of participation is such that a user can be considered a super-participant (RQ1).

Inequality in participation has been detected in many Twitter political communication spaces, and it has been measured in very different ways: in live tweeting spaces attached to televised political debates, for example, it has been found that a large proportion of the users posted only once, while the most active 20% of them accounted for more than 50% of the posts (Anstead and O'Loughlin 2011). A study in Italy on the same topic showed that 2.1% of the users produced 18.6% of the tweets, while the bottom 43.5% tweeted only once (Bentivegna and Marchetti 2015). A similar situation has also been observed in an electoral campaign-centred communication space (Mustafaraj et al. 2011).

HP1. Participation will be distributed among users in a markedly unequal way.

The greater investment that some users make in the discussion, making them super-participants, does not say anything about their visibility or reach in the communicative flow. The few existing studies relating participation and visibility conclude that higher levels of participation positively correlate with higher levels of received attention (Bastos et al. 2013, Bodrunova et al. 2016). But an Italian electoral Twittersphere has been found to be still largely shaped by broadcast logics (Bentivegna and Marchetti 2015; Di Fraia and Missaglia 2015), and this likely implies that the size of the starting audience (i.e. the connections that a user has), rather than the activities of the user in the communication flow itself, is the primary driver of received attention. Therefore, we suppose that a high level of participation is not clearly correlated with a high level of received attention when we consider the top level of participation. On this basis, we want to gain deeper understanding of whether the participation flow is related to the attention flow (RQ2).

HP2. There will be a negative correlation between participation and received attention (received retweets, mentions and replies) for the super-participants.

To determine whether super-participation gives rise to higher visibility in the communication space, the general approach has been to look at the number of retweets and favorites received by the super-participants. Only a few studies, on the other hand, have attempted to assess which users achieve maximum visibility in a communication space by isolating the top-ranking accounts for retweets received

(Dang-Xuan et al. 2013, Larsson and Moe 2013). Following this strategy, we introduce the adjective "super-echoed" to refer to the most retweeted users in order to grasp the minimal and basic meaning of the retweet action through the metaphor of sound propagation, taking inspiration from the established and rationalized use of the concept of listening as a metaphor for paying attention online (Crawford 2009).

As said, the overlap between the group of the super-participants and the group of the super-echoed has never been considered. Given our previous considerations about the lack of correlation between participation and attention (HP2), it seems natural to hypothesize that the overlap will not be large. We thus formulate a further research question aimed at assessing if and to what extent the set of the super-participants overlaps with that of the super-echoed (RQ3).

HP3. The overlap between super-participants and super-echoed will be very small.

To grasp this relation between participation and reach better, it is necessary to investigate who the super-participants and the super-echoed are in terms of their identity in the broader society (RQ4). Several studies on participation in Twitter political communication spaces have found that lay people or citizens account for a significant, or even very large, proportion of the content posted to the communicative space (D'heer and Verdegem 2014, Hosch-Dayican et al. 2016). Nonetheless, the same or analogous studies have also highlighted that non-élite actors are still not able to match élite ones when it comes to measures of "weight" that they or their actions have achieved, like position (D'heer and Verdegem 2014) and spread of their views (Hawthorne et al. 2013).

HP4. The super-participants, both the super-tweeters and the super-retweeters, will comprise a large proportion of non-élite users, contrary to the super-echoed.

5. Research design, data and methodology

5.1 Sample

We downloaded tweets embedding at least one of the most widespread general hashtags related to Italian political elections (#4marzo, #4Marzo2018, #ElezioniPolitiche2018, #elezioni2018, #politiche2018) from January 1, 2018 to March 4, 2018 (election day). In total, 402,534 posts were collected via Twitter streaming API

by the Policom.online project[2]. Also metadata from users' profiles were downloaded and then analysed as descriptive variables.

The sample consisted of 123,830 original tweets, 265,962 retweets and 12,742 replies made by 84,434 unique users.

5.2 Identifying the super-participants

The decision on how many users to select as top ranking may give rise to difficulties. Graham and Wright advocated context-sensitive parameters for those who should be deemed super-participants (Graham and Wright 2014a), and we agree with them.

Therefore, we decided to analyse both tweets and retweets production curves and then to apply the so-called 1% rule. The rule in its original formulation states that in most online communities, 90% of users are lurkers who never contribute, 9% of users contribute a little, and 1% of users account for almost all the action (Barberá and Rivero 2015; Bruns and Stieglitz 2013; Nielsen 2006). According to the classification of the communicative actions proposed in the theoretical framework, we explored how participation developed in the general hashtags by calculating the amount of users for each type of Twitter action (tweet, TWs; and retweet, RTs). There was a little overlap among tweeters and retweeters. This means that only few users adopted all communicative actions to participate in the public debate. Therefore, participation in Italian campaign hashtags seemed to be mostly double-folded: users who tweeted and users who retweeted. Hence, we divided the set of participants into two non-exclusive subsets to distinguish these two types of participation (Zhao et al. 2014).

In view of these considerations, we deemed it appropriate to identify as super-participants the top-ranking 1% users for tweets posted (super-tweeters) together with the top-ranking 1% users for retweets (super-retweeters), analysing each category separately. In our data, 1% of super-tweeters produced 24.2% of the tweets, and 1% of super-retweeters made 27.5% of the retweets.

5.3 Identifying the Super-Echoed

To understand if super-participation goes together with a high amount of received attention in the Italian Twittersphere, we decided to analyse the attention flow through the number of received retweets considering retweeting action as propagation

[2] Policom.online is a multidisciplinary research project focused on Italian political communication www.policom.online.

of contents of users (Anstead and O'Loughlin 2011; Bakshy et al. 2011; Highfield et al. 2013; Larsson and Moe 2012; Meraz and Papacharissi 2013; Small 2011, Zhao et al. 2014).

As already explained, we use the verb "echo" to refer to received retweets in order to grasp the minimal meaning of "being retweeted" through the metaphor of sound propagation.

Consequently, we selected this 1% of super-echoed comparing them to the super-participants to determine whether there is any relationship between participation and the attention received and any differences between the most productive and the most "attentioned" users.

5.4 Classifying the users

Many different typologies have been used to identify Twitter users in broader society. We extracted from these typologies seven categories encoding the élite/non-élite divide and more fine-grained information about a user's social role especially relative to the political system: media, politics and institutions, citizens, political supporters, social media experts, civil society.

The *media* are the accounts of media outlets and of journalists (Ausserhofer and Maireder 2013; Bentivegna and Marchetti 2015; Bodrunova et al. 2017; D'heer and Verdegem 2014; Dubois and Gaffney 2014; Hosch-Dayican et al. 2016; Larsson and Moe 2013; Maireder et al. 2017; Xu et al. 2014).

Politics and institutions include the official accounts of local government, state and international institutions, parties, politicians, public servants and organizations affiliated to political actors (Bentivegna and Marchetti 2015; D'heer and Verdegem 2014; Hosch-Dayican et al. 2016; Maireder et al. 2017).

Citizens refers to lay people: profiles appearing to belong to individual persons without any openly disclosed publicly relevant affiliation (Ausserhofer and Maireder 2013; Bentivegna and Marchetti 2015; D'heer and Verdegem 2014; Hosch-Dayican et al. 2016; Larsson and Moe 2013).

Supporters are the accounts that present explicit endorsement of a political movement in their profiles (Jungherr 2015; Xu et al. 2014).

Social media experts are blogs and bloggers, social media managers and parody accounts (Leavitt et al. 2009).

Civil Society aggregates sub-categories like celebrities (Bentivegna and Marchetti 2015; Cha et al. 2010; Leavitt et al. 2009), whom we interpreted as strictly celebrities in sports and entertainment, business executives and companies (Cha et al. 2010), NGOs

and other civil society organizations and their activists or cultural and research organizations and recognized "intellectuals" (Maireder et al. 2017).

Two trained coders[3] manually identified 976 users by observing their Twitter profiles (biography, profile and cover image, number of followers) and timelines, and by searching on the web through Google. Among the three subsets 18 users were unidentifiable because they had deleted their profiles or had been suspended by Twitter.

6. Results and discussion

6.1 The inequalities in participation

As explained in the research design and methodology section we decided to analyze the two main participation flows (tweets and retweets) in Italian general election hashtags to determine how participation and attention developed during the 2018 election campaign.

We noted that there were few users featuring among both the super-tweeters and the super-retweeters (4.5%) thus confirming that super-participation is strongly divided into two separate flows: tweets and retweets.

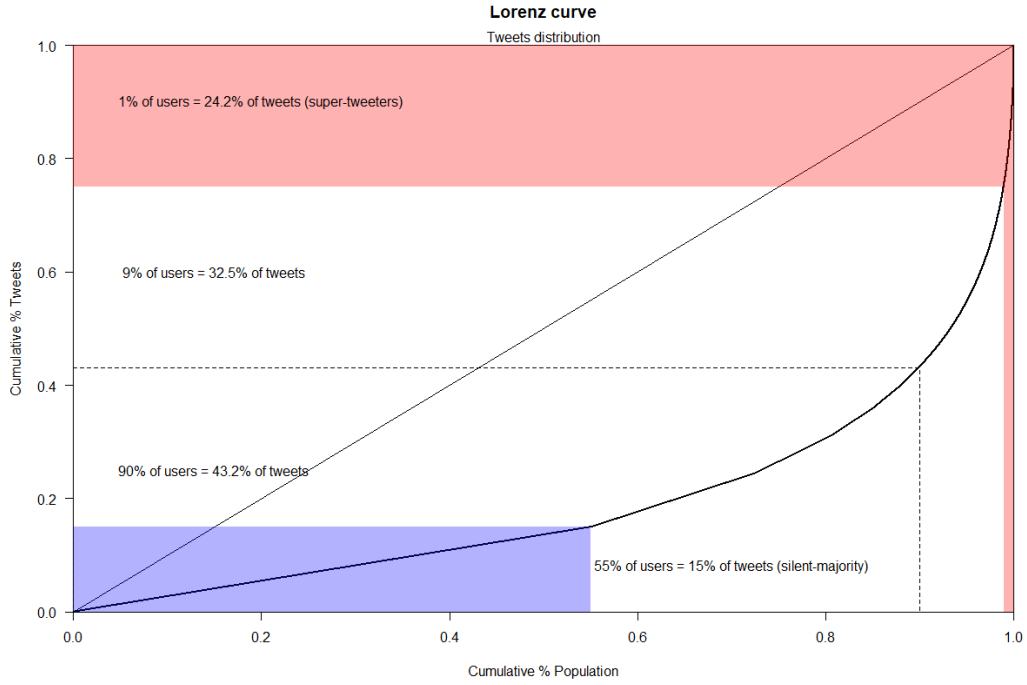
Following Barberá and Rivero (2015) we calculated the Lorenz curve of both distributions and the related Gini coefficient to determine how participation is concentrated. The Lorenz curve of tweets in Figure 1 shows that tweet production is markedly unequal (Gini coefficient = 0.61).

In line with the so-called 1-9-90 rule, we can see that the 1% (338 super-tweeters) produced more than 24% of the total tweets, little less than the total production of the next most productive 9% of users (32.5%), and the 90% of users produced less than half of the total amount of tweets (43%).

Finally, we note that the majority of users (55%) tweeted only once, producing in total only 15% of the tweets, a result quite similar to that of Mustafaraj et al. (2011). This means that the super-tweeters, are placed on a superior level of productivity compared to the other users.

[3] The coefficients of Krippendorff's α was highly satisfied (α> 0.86 and percentage agreement = 98%) by conventions established in the field (Hayes and Krippendorff 2007).

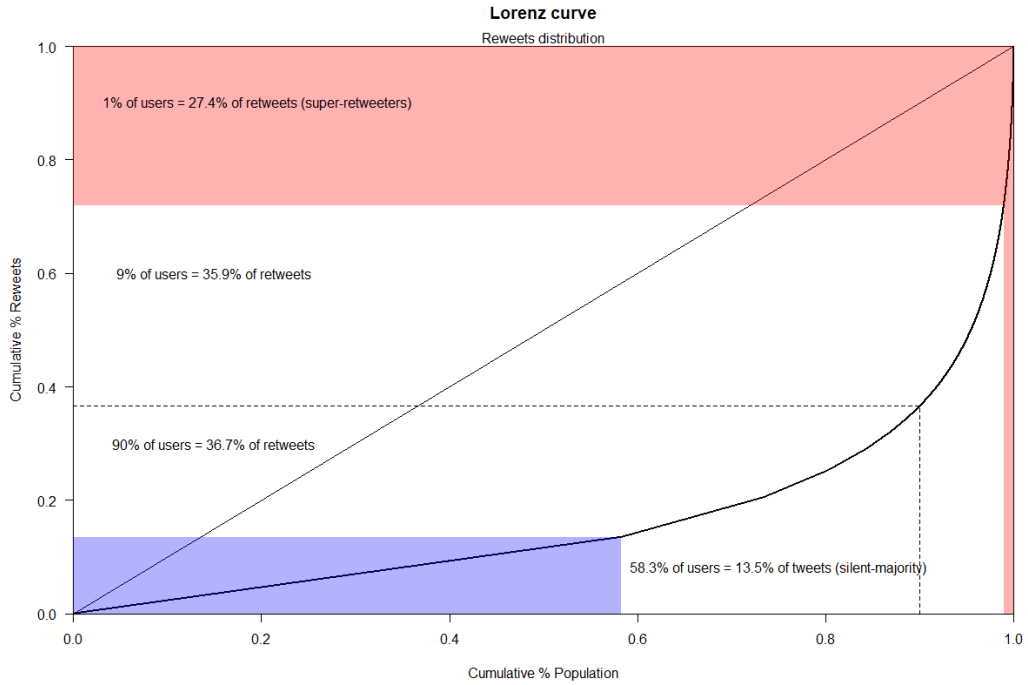
Figure 1. Lorenz Curve. Inequality in the number of tweets



Source: Authors' elaboration

Also the distribution of the retweets appears very unequal and even more skewed than tweet distribution (Gini index = 0.67). In fact, the Lorenz curve of retweets (Figure 2) shows that 90% of users produced only 36.7% of total retweets, whereas the most productive 10% of the users accounted for more than 63%. The super-retweeters produced almost as many retweets as the bottom ranking 90% of users, which means that they are prominent accounts in the retweets flow. In this distribution, too, we found a huge "silent majority" of users (58.3%), who retweeted only once, accounting for 13.5% of the total retweets, similar to Mustafaraj et al. (2011).

Figure 2. Lorenz Curve. Inequality in the number of retweets



Source: Authors' elaboration

These results confirm our first hypothesis: participation is indeed distributed among users in a markedly unequal way. To assess more rigorously if the 1% rule fits with our data and to understand the differences among the groups that it distinguishes, we analyzed the tweets and retweets production of the users. Table 1 shows that the super-tweeters and the super-retweeters were very different from the other groups in terms of activities: as expected, super-tweeters and super-retweeters show very high means (daily and per user) compared to other groups. These data confirm that the 1-9-90 rule is useful to describe participation in Italian election campaign hashtags, because the three groups appear quite homogeneous in the "amount" of participation regardless of the specific communicative feature adopted for grouping (tweet or retweet).

Table 1. Tweeters and retweeters activity

tweets	*n. users*	*min TWs*	*max TWs*	*mean/users*	*min mean/days*	*max mean/days*
1% (super-tweeters)	338	38	3,067	88.8	0.6	50.2
9%	3,034	6	37	13.2	0.1	0.6
90%	30,336	1	5	1.7	0.02	0.1
retweets	*n. users*	*min RTs*	*max RTs*	*mean/users*	*min mean/days*	*max mean/days*
1% (super-retweeters)	619	54	864	118	0.9	14.1
9%	5,546	7	53	17.2	0.1	0.89
90%	55,463	1	6	1.7	0.02	0.1

Source: Authors' elaboration

6.2 Super-participation and attention flows

Adopting an interpretation consolidated in the literature, we considered the total number of received replies and mentions as a measure of influence and attention (Dubois and Gaffney 2014, Jürgens and Jungherr 2015, Sousa et al. 2010) together with the total number of received retweets (Cha et al. 2010, Dang-Xuan et al. 2013, Lee et al. 2010, Subbian and Melville 2011).

As highlighted in the research design and methodology section, users tended to favor only one communicative feature, instead of practicing all of them in a balanced way.

The Spearman rank correlation (r_s) between the number of actions done by the super-tweeters and the amount of attention received, shows that tweets production is quite positively related to received replies. This means that among the super-tweeters those who tweeted more received more replies. Also the super-tweeters who retweeted more tended to receive higher numbers of replies (r_s=0.3), and so did those who replied more. However, all the coefficients, regardless of their significance, are not so high, therefore signaling that participation does not strongly relate to received attention as far as the super-tweeters are concerned.

Table 2. Spearman correlation among actions and attention measures in super-tweeters

		Tweets	*Retweets*	*Replies*	*Received Mentions*	*Received Retweets*
participation	Tweets					
	Retweets	0.15*				
	Replies	0.17	0.25*			
attention	Received Mentions	0.13	-0.05	0.02		
	Received Retweets	0.04	0.30***	-0.03	0.50***	
	Received Replies	0.26**	0	0.32*	0.56***	0.45***

Source: Authors' elaboration. Significance codes: p < .001 *; p < .01 **; p < .05 ***

Turning to the super-retweeters, Table 3 shows that there is a positive relation between number of tweets and all the indicators of received attention, especially received retweets (r_s=0.63). Instead, the amount of retweets that they make is weakly positively correlated with all the indicators of attention. As to replies, they are positively related to received retweets and, more strongly, to received replies (rs=0.42). It is very interesting that the communicative feature that these users employ most intensively (RTs) is very weakly related to attention with respect to other features that they tend to use less, such as tweets done.

These correlations show that participation by the super-tweeters is less related to received attention than that by the super-retweeters. The main communicative feature of each group (tweeting for super-tweeters and retweeting for super-retweeters) is less positively correlated with attention than the others.

These findings partially confirm our second hypothesis, namely that super-participation is not related to received attention regardless of the communicative feature adopted.

Table 3. Spearman correlation among actions and attention measures in super-retweeters

		Tweets	*Retweets*	*Replies*	*Received Mentions*	*Received Retweets*
participation	Tweets					
	Retweets	0.13*				
	Replies	0.39***	0.14			
attention	Received Mentions	0.34***	0.20**	0.19		
	Received Retweets	0.63***	0.23***	0.29**	0.33***	
	Received Replies	0.20*	0.20*	0.42***	0.42***	0.43***

Source: Authors' elaboration. Significance codes: p < .001 *; p < .01 **; p < .05 ***

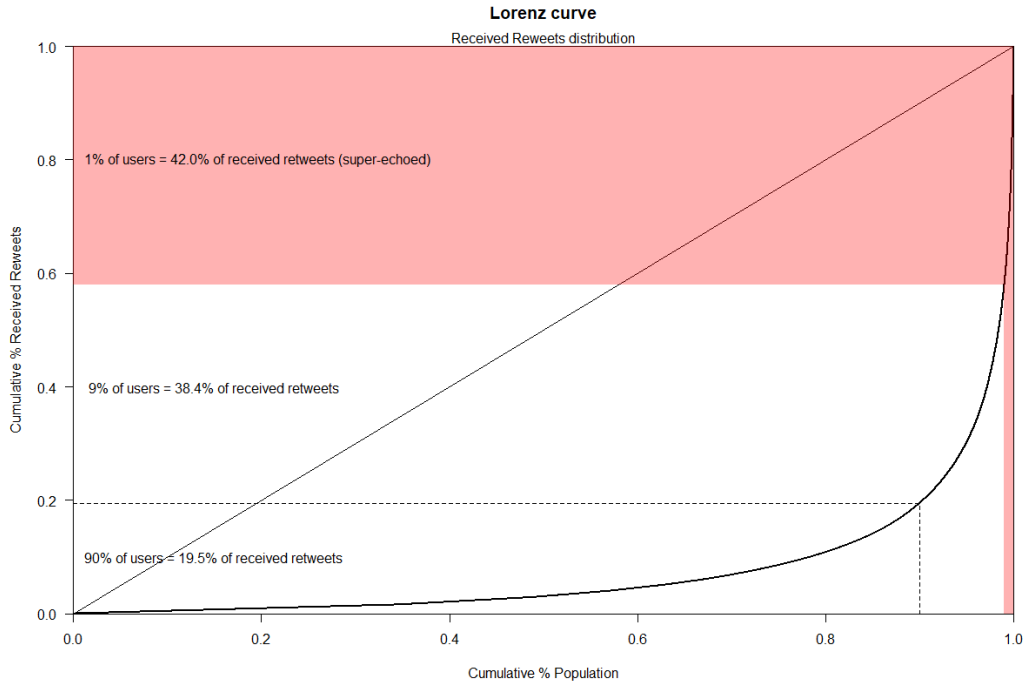
Our conclusion is that super-participation tends to be polarized into two main communicative practices (tweets and retweets flows), but received attention seems to increase when users diversify their spectrum of actions in the online environment.

6.3 The overlap between super-participants and super-echoed

To take a further step forward in the analysis of the received attention, we chose to explore the received retweets flow by focusing on the most retweeted accounts, which we labelled "super-echoed".

First, we found that the attention distribution is far more skewed than the participation curves (Gini index = 0.85): the Lorenz curve (Figure 3) shows that the super-echoed (1%) received 42% of the total amount of retweets. Indeed, the most retweeted 9% received 38.4% of the retweets and the remaining 90% got only 19.5% of total retweets. The 1% rule very well represents the concentration of the attention flow on few subjects.

Figure 3. Lorenz curve. Inequality in received retweets



Source: Authors' elaboration

To determine whether super-participation potentially influences others by reaching secondary audiences (Vaccari and Valeriani 2015), we have verified the existing overlap among super-participants (super-tweeters and super-retweeters) and super-echoed (Figure 4). Roughly half (42%) of the super-echoed are super-participants, but only 6% of the super-participants are super-echoed. On comparing the intersections among the three sets it appears that the super-tweeters have more chances of becoming super-echoed: 13% (46) of super-tweeters (338 in total) are super-echoed while only 5% (31) of super-retweeters (619 in total) are super-echoed (Fig. 4). Indeed, these findings show that more than half of the super-echoed are not involved in super-participation and, therefore, that super-participation is not always a driver of being retweeted or "echoed", quite confirming our third hypothesis.

Figure 4. Eulero-Venn diagram with super-participants and super-echoed

Source: Authors' elaboration

6.4 Élite vs. non-élite users' visibility

To gain deeper understanding of who the super-participants and the super-echoed are, and whether non-élite users excel more in participation than in received attention with respect to élite users, we manually codified all these users as described in the Methodology section. As shown by Table 4, Media and Citizens account for the most significant subsets of the super-tweeters.

Media are the most popular accounts (number of followers), followed by Politics and Institutions. The most active categories are Supporters, Media and Citizens. The received retweets mean shows an interesting pattern: Supporters are by far the most retweeted category, followed by Social Media Experts and Politics and Institutions

despite the huge differences in number of followers. Moreover, on exploring these categories we find that, besides Supporters, the most retweeted political actors are related to Forza Italia (@renatobrunetta, @GruppoFICamera, @forza_italia, etc.), and the most retweeted Social Media Experts are above all satirical blogs (@ArsenaleKappa, @Kotiomkin, @CapsicumSatira, etc.).

Table 4. Super-tweeters metadata, participation, attention means

n = 338		*Metadata*			*Participation*			*Attention*		
Category	*(%)*	*followers*	*friend*	*age (years)*	*Tws*	*Rts*	*Rps*	*MNT rec*	*RTs rec*	*RPs rec*
Citizens	25.7	1,488.2	1,255.3	~ 4	75.7	30.0	3.5	0.4	120.5	1.5
Civil Society	5.3	6,560.6	6,708.4	~ 6	62.8	25.6	2.8	1.3	92.6	0.5
Media	32.5	108,083.3	1,001.9	5.5	83.8	4.7	0.1	13.9	180.9	6.4
Politics and Institutions	11.5	15,201.3	1,089.5	~ 4	69.9	71.6	2.7	39.6	228.9	3.2
Social Media Expert	10.6	8557.8	2074.5	4.5	70.6	26.2	1.0	2.9	229.6	1.1
Supporters	10.3	3247.9	2337.4	~ 5	86.8	64.3	6.8	1.5	450.4	1.7

Source: Authors' elaboration. Tws: tweets; Rts: retweets; Rps: replies; MNT rec: received mention; Rts rec: received Rts; Rps rec: received Rps.

These findings shed interesting light on how super-participation and the related attention unfolded in the Italian Twittersphere during the general elections: first, if we consider Politics and Institutions and Media as sources of political information, Supporters embody the influencers of the two-step flow of communication (Katz and Lazarsfeld 1955), acting as "niche authorities" (Ausserhofer and Maireder 2013) able to spread messages among their personal communities. Second, we find another equally important way to narrate politics based on the participation and the received attention measures: irony. This confirms the findings of other studies on political debates in the USA (Freelon and Karpf 2015) and in Germany (Trilling 2015) that humor and satirical content are quite widespread in online political discussion on Twitter. But at the same time, we found satirical blogs more retweeted than parody accounts analyzed by

Freelon and Karpf (2015) even though they are also present in the Italian Twittersphere.

As it emerges from Table 5, most of the super-retweeters are Citizens and Supporters. Among the super-retweeters, Politics and Institutions show a higher mean of follower numbers compared to Media, contrary to what was the case for the super-tweeters. This is because super-tweeter Media include many legacy media (@corriere, @repubblica, @la7tv, etc.), that tend to be more "broadcast" (Bracciale and Martella 2016) than journalists or more marginal media, which make up most of the Media part of the super-retweeters group. However, we should bear in mind that there are also some media in super-retweeters that have clear and specific reasons to retweet: for example, @IlMattinale is a partisan newspaper which often retweeted political leaders, and @TgrRai is the official account of a public Italian news radio station that retweeted contents from local newsroom. Super-retweeters Politics and Institutions include more parties' accounts than the same group in super-tweeters did, since, as we have observed while monitoring the online campaign for the Policom.online project (Bracciale and Cepernich 2018), party accounts tend to retweet a great deal, especially contents posted by their candidates or by their local sections. In fact, they are the most active in retweets compared to all categories.

As to be expected, Supporters and Citizens are the least popular, but retweet a great deal compared to other categories. As among the super-tweeters, Politics and Institutions are the most mentioned and the second most retweeted accounts: above all the already-mentioned Forza Italia accounts. These further findings seem to suggest that the political party led by Silvio Berlusconi was very active in the Italian Twittersphere during general elections, but it seems that most of their activities were somewhat restricted to their inner circle. The most retweeted super-retweeters are Social Media Experts in which there are many satirical blogs or quite well-known bloggers that are also in the super-tweeters group. Citizens and Supporters, together with Media, are the less attentioned accounts, even though they show quite high participation. For these categories, it seems that attention amount relates to popularity on the platform, even for Media: although no legacy media were found in this subset.

Account categories are roughly present in the same proportions within the super-echoed (from 15% to 22%), except for Civil Society, that only account for 6.6% of the subset (Table 6). This consideration seems to confirm our fourth hypothesis on the composition of the "super-users" especially if we compare the high share of Citizens and Supporters in both super-tweeters and super-retweeters to the super-echoed one. Nevertheless, super-echoed appear more equally constituted than expected.

Table 5. Super-retweeters metadata, participation and attention means

n = 619		*Metadata*			*Participation*			*Attention*		
category	*(%)*	*followers*	*friends*	*age (years)*	*TWs*	*RTs*	*RPs*	*MNT rec*	*RT rec*	*RP rec*
Bot	0.2	7,410.0	7936.0	2.4	0.0	79.0	0.0	0.0	0.0	0.0
Citizens	52.9	1,995.4	1733.4	4.0	5.1	112.8	0.7	0.7	36.9	0.5
Civil Society	4.5	10,040.6	6914.8	5.9	13.7	111.6	2.8	4.0	104.2	2
Media	3.4	12,076.4	2544.5	5.0	11.8	104.0	1.7	3.0	44.1	1.7
Politics and Institutions	8.4	26,888.9	2347.7	4.3	18.9	150.3	0.3	29.6	158.4	1.1
Social Media Expert	2.4	7,5071.1	5181.8	5.5	50.7	90.7	0.7	4.3	291	1.1
Supporters	26.9	2,412.2	1840.5	4.4	10.7	125.0	2.1	0.9	71.2	0.9

Source: Authors' elaboration. Tws: tweets; Rts: retweets; Rps: replies; MNT rec: received mention; Rts rec: received Rts; Rps rec: received Rps.

At first glance, the super-echoed accounts are far more popular than the super-participants: the difference is so huge that is impossible not to see a connection between the success of their tweets and their popularity on the platform. As to be expected, the most popular accounts are Media and Politics and Institutions, while Supporters are the least followed users. Quite expectedly, super-echoed Media and Supporters are also the most productive of original content, but the first group does not share contents produced by others (RTs), as opposed to Politics and Institutions. As already noted, this is mainly due to the presence of many parties' accounts (e.g. @forza_italia, @Elezioni2018_FI, @FI_Online_), which are very active in content sharing. Looking at the received attention, the most mentioned users are Politics and Institutions, followed at a considerable distance by Media. This is due to the presence of very important Italian political leaders among the super-echoed, like @matteorenzi, @matteosalvinimi, @berlusconi, etc. Unexpectedly, there are no large differences in received retweets based on categories, even though super-echoed Citizens emerge as the less retweeted users regardless of their high participation. We found very surprising the high amount of retweets received by Supporters, especially considering

their low number of followers. We also looked at who retweeted some of them, and we found many different users among their most active retweeters: a clear sign that they were not retweeting each other. Thus, this finding confirmed our conviction that Supporters played the role of "niche authorities" (Ausserhofer and Maireder 2013) in the Italian Twittersphere during the election campaign.

Table 6. Super-echoed metadata, participation and attention means

n = 121		*Metadata*			*Participation*			*Attention*		
category	*(%)*	*followers*	*friends*	*age (years)*	*TWs*	*RTs*	*RPs*	*MNT rec*	*RT rec*	*RP rec*
Citizens	19.8	8,092.3	3604.8	~ 4.5	44.9	93.2	3.2	3.5	771.9	5.1
Civil Society	6.6	129,051.5	4165.8	~ 7	21.5	70.6	1.0	13.0	942.8	5.1
Media	15.7	655,673.2	1562.3	7	73.1	12.4	0.6	70.7	990.1	36.6
Politics and Institutions	22.3	263,634.0	1376.9	~ 5	29.5	114.5	0.2	169.6	829.4	43.8
Social Media Expert	14.9	192,609.0	5893.7	~ 5	22.4	16.4	0.9	4.6	1031.6	3.6
Supporters	18.2	5,539.5	2578.3	~ 4	66.5	74.4	5.6	4.8	1095.2	3.5

Source: Authors' elaboration. Tws: tweets; Rts: retweets; Rps: replies; MNT rec: received mention; Rts rec: received Rts; Rps rec: received Rps.

7. Conclusion

We examined the public discussion on Italian political election taking place on Twitter from 1 January 2018 to 4 March 2018 (election day), monitoring the main general hashtags tagging messages on this topic. The main aim of the work was to explore how public participation unfolds on Twitter during an election campaign, especially by looking at whether participation relates to attention on analyzing several categories of users. We verified whether the Twitter communication space (Jungherr 2015) was dominated by a handful of actors. In fact, through social media data we

were able to gain better understanding of what participation on Twitter means by exploring the two different production flows (tweets and retweets done), and if it relates (and how) to the attention (received retweets) comparing the top users of each communication flow.

Our analyses confirm most of our hypotheses. Our first research question receives the answer that we expected: we found that participation was distributed in a strongly unequal manner, and that there was a group of users, the super-participants, that stood out for their levels of activity. More importantly, we were able to further distinguish between two rather distinct participation flows that we detected: that of the tweeters, and that of the retweeters. In fact, among the super-participants a sort of "specialization" takes place, with some systematically favoring tweets and others doing the same for retweets, and this results in two groups of super-participants with small overlap. Despite this differentiation, in line with previous findings (Barberá and Rivero 2015; Nielsen 2006) the 1-9-90 rule and the rule of thumb of isolating the top 1% most active users in each flow proved an effective approximation and a useful tool.

As for our second research question, about the relation between participation and attention, we consider our hypothesis about a lack of correlation quite confirmed. In the subset of the super-tweeters the relation between participation and attention was generally weak, and in the subset of the super-retweeters it was slightly more positive almost only when the users diversified their practices using communication features to which they were less "accustomed". On the other hand, in the subset of the super-echoed there was not so evident relation between participation and attention, especially because the most attentioned categories acted in very different ways. Moreover, super-echoed Citizens, despite their high amount of activity, were the less attentioned. Popularity on the platform, indicated by number of followers, seemed more important to receive attention for the users belonging to the group of the top-attentioned, above all with regard to received mentions and replies (i.e. super-echoed Media and Political and Institutions).

The answer to our third research question, about the overlap between the super-echoed and the super-participant sets, is positive: the overlap was quite small, confirming that super-participation is not a decisive factor to become a most echoed user. Therefore, the Italian Twittersphere appeared not in line with previous studies (Bastos et al. 2013; Bodrunova et al. 2016), even though they do not focus on the top segments of the distributions, in which competition for attention may be stronger due to the concentrated presence of élite actors.

Notwithstanding, the answer to our fourth and last research question revealed a great deal of complexity. It is true that there is a greater proportion of non-élite users

among the super-participants than among the super-echoed. However, several further observations are needed to articulate this claim.

In the first place, the category of users that made up a greater proportion of the super-tweeter group were the Media, which is a typically élite category, in line with other findings on the Italian Twittersphere (Di Fraia and Missaglia 2015). It was the group of the super-retweeters that was the most dominated by non-élite, thus suggesting that the retweet may work as a somewhat low-cost tool of participation, and that it was above all exploited for campaigning: in fact, Politics and Institutions, and Supporters emerged as the most active in retweeting among the super-retweeters.

In the second place, one should consider the fact that the different categories of users exhibit specific patterns of participation and attention. First, Supporters acted as "niche authorities" (Ausserhofer and Maireder 2013) or opinion leaders (Katz and Lazarsfeld 1955), and they also receive a large amount of attention. In fact, according to our data, Supporters received retweets from many different users, thus reaching the so-called "secondary audience" (Vaccari and Valeriani 2015) that enables the exponential spread of the messages in the Twittersphere.

Secondly, Political actors, as we observed in the case of several accounts associated with FI, may create a closely tied circle, interacting a lot among themselves. Finally, a group of satirical blogs emerged as very active and rather successful in being echoed, thus pointing to the strength of the need for less conventional and lighter narrations of politics in the Italian Twittersphere, to which these blogs respond with their irony. This finding confirms that irony characterizes many political debates on Twitter (Freelon and Karpf 2015; Trilling 2015) but from the point of view of the users it was quite unexpected that satirical blog/bloggers could be as much echoed as élite categories like Media or Politics and Institutions.

The analysis revealed that beyond the expected patterns (participation and attention inequality, élite domination of the debates, etc.) several categories of users participated and received attention in different ways, and that the overall debate was not monopolized by traditional actors like Media and Politics and Institutions. It seemed to us that, compared to previous studies on the Italian Twittersphere (Bentivegna and Marchetti 2015), participation was more skewed but at the same time more ample and widespread than before: it is still true that attention converges above all on élite actors, but we found that not extremely popular categories (Supporters and Social Media Experts) were able to take part in the most competitive segments of the Italian communication space.

Indeed, we think that the systematization of the communicative flows adopted in the present study together with the 1% rule could be easily adopted to analyze other

countries' political debates on Twitter to enable better comparison using the same research tools.

Thus, we hope that this effort could allow a further step forward in comprehension of how "the technological affordances of these platforms [...] influence social relations and communication, as well as the nature and function of the relations between political, media and citizen agents" (D'heer and Verdegem 2014, 722), due to the attempt to connect activity, attention and users' identity in the broader society, based on how these elements are structured in social media. Reflections and questions on these issues point to an urgent need to understand how online discussions can be conditioned by strong power dynamics between private and public actors, and by interconnection with governance processes.

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