

Scientists versus the people: Science, anti-science and counter-science in Italian populist communication, before and during the pandemic

Mirko Crulli
UNIVERSITY OF PISA

Abstract

This paper fits into the complex debate on the relation between pandemic and populism, shedding light on one aspect that has not yet been sufficiently investigated: the renewed antagonism between common sense and scientific knowledge in populist communication. How has the way populist actors speak of expert knowledge and scientists changed since the outbreak of the Coronavirus? Has the pandemic fostered an extension of the 'elite' concept in populist rhetoric, allowing populist forces to identify scientists as the new central antagonist of 'the people'? The research attempts to answer these questions through a content analysis of populist tweets (N=1533). We focus on a relevant case study, Italy, which makes it possible to distinguish between different 'types' of populist parties, in terms of both ideology and strategical 'constraints'. Findings show that a radical right 'science-related populism' has emerged as a backlash against scientists' massive intervention in the political sphere.

1. Introduction

Since the very beginning of the Covid-19 pandemic, scholars have questioned the possible implications of the health and socio-economic crisis for populist forces. In Europe, the debate has focused above all on trying to understand whether the Coronavirus and all that derived from it may represent an electoral 'enemy' or 'ally' of populist radical right parties (Mudde, 2007), of which there has been an overwhelming rise over the last two decades.

Such attention to the relationship between the pandemic crisis and populism is not surprising, since there is a strong historical correlation between crisis and populism. More precisely, although crises are not a necessary prerequisite of populism, the latter has often been interpreted as a derivative of crises (Hubé and Bobba, 2021: 2–8). Indeed, many authoritative studies of comparative politics and political sociology on the transformations of political conflict, drawing on cleavage theory (Lipset and Rokkan, 1967), trace the roots of populism, and its strengthening, to 'critical junctures' that often coincide with crises, such as the transition from materialistic and industrial societies to post-materialistic and post-industrial societies, the intensification of globalization, and the Great Recession (Bornschieer, 2010; De Wilde et al., 2019; Hooghe and Marks, 2018; Kriesi et al., 2006; Norris and Inglehart, 2019). It is also clear that what we still have to emerge from is

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Contact Author: Mirko Crulli, University of Pisa

E-mail address: crullimirko@gmail.com



not only an unprecedented health crisis but also a devastating socio-economic and political crisis, which ‘adds to and exacerbates the dynamics of existing crises’ in Europe (Alteri et al., 2021: 8).

Interpretations of the state of health of populism after the Coronavirus have been disparate. Alongside reports and collective volumes containing studies on various national cases (Bar-On and Molas, 2020; Hubé and Bobba, 2021; Katsambekis and Stavrakakis, 2020), a few interventions of a more general nature have maintained a cautious position (Mudde, 2020; Wondreys and Mudde, 2020), while many have used tones that seem too definitive at present. Some have predicted that populist radical right parties will be ‘the profiteers’ of the pandemic in the long run (Burni, 2020). Others have described them as its ‘victims’ (Betz, 2020; English, 2020) or its ‘significant losers’ (Samaras, 2020). And still others have foreseen that populism will emerge from Covid as a ‘peripheral and almost negligible’ ideology (Bufacchi, 2020), or have claimed that the coronavirus crisis may have given way to ‘a post-populist phase’ (Gerbaudo, 2021: 25).

This paper fits into this complex debate on the relation between pandemic and populism. However, the research question is not whether the pandemic has strengthened or weakened populism. Indeed, a significant bulk of works have already been dedicated to this topic, and, beyond this, I believe that a reflection with true heuristic value on the electoral consequences of the Coronavirus crisis for populist parties should be postponed at least to the effective conclusion of the crisis. Therefore, this contribution aims to shed light on one aspect that, although present in the public debate, has not yet been adequately investigated: the renewed tension between common sense and scientific knowledge in populist communication following the pandemic. How has the way populist actors speak of expert knowledge, of women and men of science, changed? Did the pandemic offer a ‘window of opportunity’ for the extension of the ‘elite’ concept in populist rhetoric, allowing populist leaders and parties to identify mainstream experts and scientists as the new core antagonist of ‘the people’?

These are the basic questions guiding the research, which is structured as follows. The next section illustrates the theoretical framework. I clarify what is meant by ‘populism’ (or rather, what definition of populism is adhered to here) and in what sense the outbreak of the Coronavirus could have favored an extension of the ‘elite’ concept in populist rhetoric and the emergence of a new ‘variant’ of ‘science-related populism’ (Mede et al., 2021; Mede and Schäfer, 2020). Then, I try to empirically answer the research questions, through a content analysis of populist communication on Twitter, by selecting a single relevant case study: Italy. The bipolarism that structured the Italian party system of the 2000s was indeed upset in the post-Great Recession period by the rise of several populist parties, with different characteristics. First, there was the sudden electoral success of the ‘polyvalent’ (Pirro, 2018) or ‘eclectic’ (Mosca and Tronconi, 2019) populism of the Five Star Movement (M5S). Then, from 2018 onwards, came the strengthening of populist radical right parties – the League, transformed into a nationalist and populist party by Matteo Salvini (Albertazzi et al., 2018), and Giorgia Meloni’s Brothers of Italy (FdI), whose surge reconfigured the balance of power inside the right-wing alliance (Albertazzi et al., 2021). Moreover, during two years of pandemic crisis, two cabinets – the ‘Conte II’ and the ‘Draghi’ cabinets – have alternated, and these have been supported by different populist parties. In short, the Italian case is particularly interesting and apt

because it enables us to examine science-related communication by populist forces both of different ‘types’ and with different ‘constraints’, one having been in government (M5S), one in opposition (FdI) and one first in opposition and then in government (Lega) throughout the pandemic crisis.

2. A ‘new’ antagonist of the people and a new populist ‘variant’

Although populism remains one of the most debated concepts in socio-political literature, the definition of populism that has garnered the greatest consensus in recent years is that provided by Cas Mudde’s ‘ideational approach’ (Mudde, 2004, 2017). According to this definition, populism is ‘an ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, “the pure people” versus “the corrupt elite”, and which argues that politics should be an expression of the general will of the people’ (Mudde, 2004: 543). As Mudde himself pointed out (Mudde, 2017: 29), many scholars usually associated with other interpretations of populism – for instance, those who depict it as a ‘discourse’ (Laclau, 2005) or a ‘political style’ (Moffitt and Tormey, 2014) – nonetheless consider populism a phenomenon related to the dichotomous ideas of ‘people’ and ‘elite’. Therefore, it is a common acknowledgement that the two key concepts on which populism is based are those of ‘people’ – virtuous and holder of the truth – and of ‘elite’ – bearer of falsehoods and selfish interests.

With this in mind, the thesis advanced here is that the outbreak of the pandemic created at least the potential for the extension of the ‘elite’ concept. Due to the new centrality of science in the public arena, and to the enormous and unprecedented exposure of scientists in the media, also virologists, immunologists, epidemiologists, and all sorts of scientists could fully enter ‘the elite’ which is targeted by populist actors. In other words, after the Coronavirus, the enemies of the people in the Manichean view of populism may no longer be only traditional parties, non-majoritarian institutions, the European Union, and non-natives, but also women and men of science, who have assisted European governments in outlining their policy strategies.

To be clear, populists’ aversion to expert knowledge is not new (Alteri et al., 2021: 12; Caramani, 2017). A typical populist feature is indeed trusting the ‘common sense’ of the people and at the same time distrusting the ‘specific knowledge’ presumably supported by the elites and considered to be disconnected from real, practical and ordinary everyday life (Moffitt and Tormey, 2014). This connection between ‘anti-intellectualism’ – or in any case distrust of intellectuals and knowledge-based institutions, such as universities – and populism has already been highlighted by empirical research (Merkley, 2020; Saarinen et al., 2020). Nonetheless, the pandemic has inevitably increased the penetration of technical and scientific knowledge into the political sphere, forcing the ruling elites to rely more than ever (albeit not without tension) on technical-scientific recommendations. As a backlash, the pandemic may also have exposed scientists more than ever to populist ‘attacks’ (Brubaker, 2020: 2–7; Eberl et al., 2021), providing a window of opportunity for the full inclusion of scientists in the despised elite. In fact, during the pandemic there have been several signs that populist rhetoric is drawing renewed vigor from the attack on scientists. To name just one from the case study of this research, Italy, even a few days after joining Mario Draghi’s coalition government, the leader of the Lega, Matteo Salvini, criticized the main advisor of the Ministry of Health, asked to change the scientists of the Technical Scientific Committee

(CTS), and declared: ‘We can no longer stand “experts” who sow fear and uncertainties’ (la Repubblica, 2021b).

Therefore, it is no coincidence that some authors have begun to speak of a new ‘variant’ of populism, labelled as ‘science-related populism’, and conceptualized as ‘a set of ideas suggesting a fundamental conflict between an allegedly virtuous people and an allegedly immoral academic elite over who should be in charge of science-related decision-making and over what is deemed “true knowledge”’ (Mede et al., 2021: 274).¹ This new populist variant would not primarily advocate a rejection of scientific knowledge per se, but rather a contestation of the decision-making sovereignty of established science, aiming to replace it with the legitimate ‘science-related decision-making sovereignty and truth-speaking sovereignty’ of the people (Mede and Schäfer, 2020: 484). In this sense, ‘science-related populism’ is something more than pure and simple anti-intellectualism,² since what characterizes the former is considering ‘the people’ to be just and superior not only in moral terms (such as in the ‘classic’ populist *weltanschauung*) but also in epistemological terms. And in fact, on more than one occasion during the pandemic, the message of several populist parties and politicians seems to have been: ‘let’s replace “their scientists” – those of the establishment – with “our counter-scientists” – those of the people’ (on the use of ‘counter-knowledge’, namely, ‘proposing politically charged alternative knowledge authorities in the stead of established ones’, by the populist radical right see Ylä-Anttila, 2018).

To mention a telling event, the League senator Roberta Ferrero organized the ‘First World Conference on Early Treatments for Covid 19’ in September 2021, hosted by the Italian Senate. The association promoting the event has argued that the Covid disease is easily treatable at home and has called for the use of alternative therapies, which have been strongly criticized by the official scientific community. However, the League senator did not present the conference as an event of protest against science and medicine. Rather, she defended the initiative by stating: ‘international doctors with long curriculums spoke. Is it no longer possible to speak, or express scientific theses in this country?’ (la Repubblica, 2021a). It is thus evident that the attempt, supported by other important League exponents, was to give a voice to ‘counter-scientists’ as opposed to the mainstream ones.

Through the following content analysis of the Italian populist tweets, we will proceed to gauge whether this ‘science-related populism’ has risen (on the supply side of politics) and whether the hypothesized extension of the ‘elite’ concept in populist communication has occurred.

3. Research design

To choose the populist actors on which the research is based, I resorted to the POPPA (Populism and Political Parties) Expert Survey, conducted by Meijers and Zaslove (2021). The POPPA Expert Survey builds on the ideational approach to populism but,

¹ An apparently similar concept, introduced before Covid-19, is that of ‘medical populism’, defined as ‘a political style based on performances of public health crises that pit “the people” against “the establishment”’ (Lasco and Curato, 2019). However, such ‘medical populism’ is conceived of as a particular type of response to health emergencies, rather than as a ‘variant’ of populist ideology. Unlike ‘science-related populism’, therefore, it is a contingent phenomenon to health crises, and not a ‘set of ideas’ that can be present even outside a crisis, or, in any case, persist once a crisis is over.

² Definable as ‘a generalized suspicion and mistrust of intellectuals and experts of whatever kind’ (Merkley, 2020: 26).

instead of relying on a dichotomous understanding of parties' populism (parties are either-or-not populist), it conceives of populism as a multi-dimensional and continuous property, and thus it measures populism as an interval index ranging from 0 to 10. This is particularly apt and useful when judging contentious cases of populism. For instance, as regards Italy, the literature has been rather unanimous in labelling *La Lega* and the *Movimento 5 Stelle* (M5S) as 'populist', whereas the cases of *Fratelli d'Italia* (FdI) and *Forza Italia* (FI) have been more contested³. Therefore, I selected only the parties whose score on the populism index based on POPPA data is higher than 6. These are the M5S (9.46), the League (8.6) and FdI (7.44). I excluded *Forza Italia* because its score is 5.56: almost equidistant from the two extremes of the POPPA populism scale. This choice is further justified by considering that in recent years *Forza Italia* has 'sub-contracted populism and Euroscepticism' to its allies on the radical right (the League and FdI) and, especially during the pandemic, it has 'reinvented itself as a moderate and pro-EU party' (Albertazzi et al., 2021: 12; 2).

The analysis is based on a collection of tweets posted by the official accounts of the selected parties and their leaders: Matteo Salvini (Lega), Giorgia Meloni (FdI), Beppe Grillo and Luigi Di Maio (M5S). Two different M5S exponents are considered, because the leadership of this party is not as clearly 'monocratic' as in the two populist radical right parties. Throughout the course of the pandemic crisis, Di Maio has been the most important exponent of the Movement in public office⁴, whereas Grillo holds the role of 'guarantor'. Therefore, considering both Di Maio and Grillo, we can distinguish between the communication of the leader within the institutions and that of the external 'guarantor', possibly freer to keep the original anti-establishment vocation.

I use Twitter as a data source for the analysis of science-related populist communication for several reasons. First, discussions on relevant public issues, such as the Covid-19 crisis, take place on Twitter almost concurrently with real events (Boccia Artieri et al., 2021). Secondly, recent studies have reiterated that 'the features of this platform are now widely recognized as a key arena for political communication' (Albertazzi et al., 2021: 4). Thirdly, previous research has also claimed that due to its structural characteristics (e.g., the character limit), Twitter is 'perfect for the embodiment of populism' (Bracciale and Martella, 2017: 3).

The time span covers from 1 January 2019 to 31 December 2021. The investigation, therefore, comprises the whole pre-Covid year (2019) and almost two years of pandemic crisis, which we can consider open from 30 January 2020, the date of the first confirmed infections from Covid-19 in Italy. The period of the pandemic crisis is divided according to two criteria: (1) the alternation between the Conte II government (until 12 February 2021) and the Draghi government; (2) the distinction between different pandemic phases. The entire time frame is therefore divided as follows:

- 1) *Pre-Covid year*: from 1 January 2019 to 29 January 2020.

³ To mention just one example, employing text-analytic methods to measure the level of populism in Italian parties' press releases (from the period of the 17th Italian parliament), Decadri and Boussalis (2020: 8–10) found a rather moderate level of populism for Berlusconi's party and even more so for FdI

⁴ Giuseppe Conte became the political leader of the M5S only in August 2021.

- 2) *1st wave*: from 30 January to 8 October 2020 (the day on which the use of medical masks became mandatory, as a first measure against the advent of the second wave).
- 3) *2nd wave and end of the Conte II cabinet*: from 9 October 2020 to 12 February 2021.
- 4) *Beginning of the Draghi cabinet and 3rd wave*: from 13 February to 21 June 2021 (the day the curfew was lifted).
- 5) *End of the 3rd wave, mass vaccinations, Omicron variant*: from 22 June to 31 December 2021.

Through this periodization, it will be possible to examine how and how much the way of speaking about expert knowledge, science and scientists by Italian populists changed between pre- and post-Covid periods, as well as through the different pandemic phases. The research hypotheses are that, since the outbreak of the pandemic crisis, there has been – in the tweets of Italian populist actors - an increase in:

- (H1)** negative references to mainstream science, experts and scientists;
- (H2)** direct attacks on mainstream experts and scientists;
- (H3)** references to mainstream scientific knowledge, experts and scientists as illegitimate, enemies, or ‘others’ than ‘the people’;
- (H4)** references to ‘counter-sciences/counter-knowledge’⁵ or ‘counter-scientists/experts’ of ‘the people’ as opposed to those of the establishment.

The first two hypotheses concern the level of anti-intellectualism and anti-scientism more generally, while the third and fourth hypotheses concern more specifically the extent to which mainstream science and scientists have been portrayed as part of the elite, and the extent to which the communicative elements of ‘science-related populism’ have recurred. A fifth hypothesis is needed to differentiate between populist forces in opposition and in government. Indeed, it is likely that the latter, having to face the crisis, were more bound to present the technicians and scientists close to the establishment in a more positive way:

- (H5)** hypotheses 1-4 find more confirmation for populist actors in opposition than for those in government.

Finally, the paper also aims to verify whether the tweets containing elements of anti-intellectualism, anti-scientism and ‘science-related populism’ have been more successful than those containing more neutral references to science. This is crucial for the broader public sphere debate because, since the very beginning of the pandemic, claims that emerged from the digital world have resulted in grassroots ‘anti-hygienic’ anti-lockdown protests in the streets (Ariza, 2020; Vieten, 2020). Thus, there are compelling reasons to assume that the consensus apparently accumulated by populists in social media through anti-science or counter-science rhetoric does not remain confined to the screens.

- (H6)** Elements of anti-intellectualism/anti-scientism and ‘science-related populism’ increase the number of likes of a given tweet.

⁵ Potentially endorsed also by experts with a consolidated scientific profile.

Through the Twitter API, all the tweets by the parties and leaders mentioned above in the selected time frame and containing keywords related to science and expert knowledge were downloaded (see Appendix A). After a preprocessing phase aimed at removing the tweets that - even containing the keywords - were not really focused on expert knowledge, science and scientists, the dataset comprised 1,533 tweets.

Table 1. Science-related tweets per account and period: total N (1st row) and N per month (2nd row)

	Lega	Salvini	Fdi	Meloni	M5S	Di Maio	Grillo	Total/ Mean
Pre-Covid year	18	25	29	10	55	1	61	199
	1.37	1.90	2.21	0.76	4.19	0.08	4.64	2.16
1 st wave	260	95	116	15	33	8	11	538
	30.83	11.26	13.75	1.78	3.91	0.95	1.30	9.11
2 nd wave and end of Conte II cabinet	118	32	63	5	2	3	2	225
	27.87	7.56	14.88	1.18	0.47	0.71	0.47	7.59
Draghi cabinet and 3 rd wave	167	27	193	13	4	3	1	408
	38.84	6.28	44.88	3.02	0.93	0.70	0.23	13.55
3 rd wave end, vaccinations, Omicron	38	3	99	12	7	2	2	163
	5.91	0.47	15.39	1.87	1.09	0.31	0.31	3.62
Total	601	182	500	55	101	17	77	1,533
	16.45	4.98	13.69	1.51	2.76	0.47	2.11	5.99
Pre-Covid	18	25	29	10	55	1	61	199
	1.37	1.90	2.21	0.76	4.19	0.08	4.64	2.16
Post-Covid	583	157	471	45	46	16	16	1,334
	24.91	6.71	20.13	1.92	1.97	0.68	0.68	8.14

Source: author's elaboration on data retrieved via the Twitter API.

All these tweets were coded manually,⁶ to verify whether:

- (H1) the reference to mainstream science and/or mainstream experts/scientists was negative (-1), neutral (0) or positive (+1);⁷
- (H2) there was a direct attack on mainstream experts/scientists (0=no; 1=yes);
- (H3) there was a reference to mainstream scientific knowledge and/or mainstream experts/scientists as illegitimate, enemies, or 'others' than 'the people' (0=no; 1=yes);
- (H4) there was a reference to 'counter-sciences/counter-knowledge' or 'counter-scientists/experts' of 'the people' as preferable to those of the establishment (0=no; 1=yes).

⁶ About 10% of each account's tweets were coded by both the author and another scholar to ensure inter-coder reliability (Krippendorff and Hayes, 2007). The Krippendorff's α was: 0.86 for H1; 0.91 for H2; 0.80 for H3; 0.98 for H4. These are satisfactory values, which justified the coding of the rest of the tweets by the author alone.

⁷ Whenever a tweet contained only references to 'counter-sciences' or 'counter-experts/scientists', and not also references to mainstream science and/or experts, the reference to the latter was considered neutral.

The data derived from the manual coding of the tweets were then analyzed through descriptive statistics and regression models.

Table 2. Examples of the different elements examined in the tweets (translation from Italian to English by the author)

H1	Negative reference to mainstream science and/or experts/scientists	Fake news on the coronavirus? Let's start with those of 'experts' and scientific committees. Lega, 16/04/20
H2	Direct attack on mainstream experts/scientists	From #TV to the #RedCarpet... but never in the laboratory and at work 😊 #Burioni #Venice #Virologist. Fdl, 01/09/21
H3	Reference to mainstream scientific knowledge and/or experts/scientists as illegitimate, enemies, 'others'	++ STOP THE PRESENCE ON TV OF VIROLOGISTS THAT TERRORIZE THE ITALIAN PEOPLE++ Lega, 18/02/21
H4	Reference to 'counter-sciences/counter-knowledge' or 'counter-scientists/experts' of 'the people'	RESULTS ARE SUPPORTING HIM: COME ON PROF. DE DONNO, THE DOCTOR OF THE PEOPLE 🇮🇹🇮🇹🇮🇹 Lega, 13/05/20

Source: author's elaboration on data retrieved via the Twitter API.

Before moving on to the results, it is interesting to outline which areas of science the collected populist tweets referred to, so as to contextualize 'what science is to populists'. I classified each tweet as belonging to one of the following areas: 'Medicine & Health'; 'Economics'; 'Social Sciences & Humanities'; 'Engineering and ICT'; 'Energy, Ecology & Environment'; 'Physics & Astronomy'; 'Generic reference to science/expertise'. Then, I calculated the percentage of tweets that referred to each area, in the entire period, in the pre-Covid period and in the post-Covid period (see Appendix 1B). Over the entire period, most of the tweets made reference to 'Medicine & Health' (61%), followed by 'Generic references to science/expertise' (27%), while the tweets that dealt with other areas of science were just 12%. However, the outbreak of Covid-19 was a watershed, as the situation was very different in the pre-pandemic year. The major component was 'Generic references to science/expertise' (38%); compared to other areas, 'Medicine & Health' was the one with the most references (20%), but the gap with other fields was much narrower ('Energy, Ecology & Environment' at 14%; 'Economics' at 12%). Predictably, then, science-related populist tweets have mostly been centered on 'Medicine & Health' (67%) since the advent of Coronavirus. I also checked if some of the tweets referred to non-Italian science/experts, and it turned out that this was the case for less than 6% of the total tweets. Therefore, almost all science-related tweets by Italian populist actors concerned the Italian context.

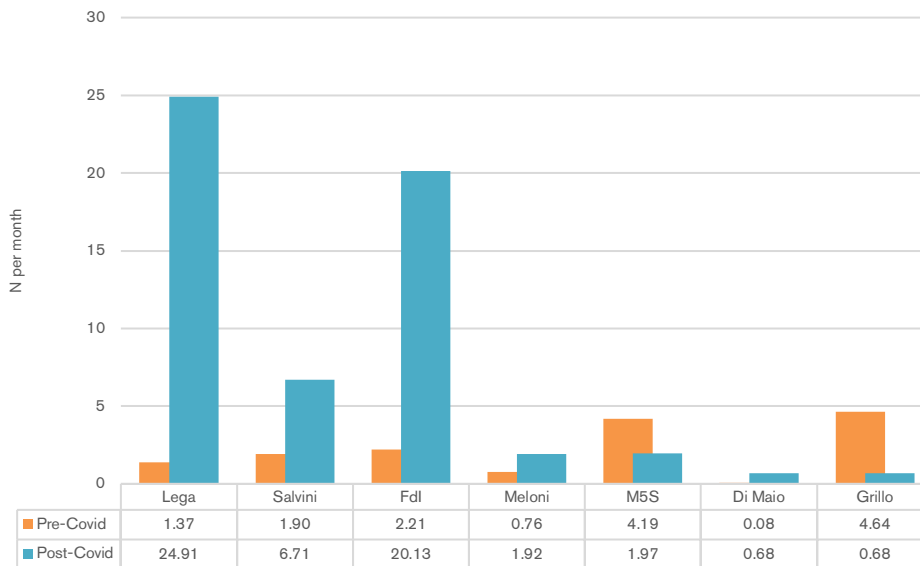
4. Findings

Considering that for many months since the outbreak of Covid-19 the virus has been almost the only relevant issue in the public debate – in Italy as elsewhere – it would have been reasonable to expect an increase in the volume of tweets concerning science from any political party and leader. But it was not so. The first significant result of this research is indeed that the monthly number of tweets concerning expert knowledge and science published by the M5S and Grillo has been significantly lower during the pandemic crisis than in the pre-Covid year. Furthermore, as regards Di Maio, the tweets per

month relating to these issues were close to zero both in the pre-pandemic and during the pandemic.

In the pre-Covid period, the M5S's science-related tweets were more than those of the two populist radical right parties. Since the advent of Coronavirus, it has evidently been the opposite. Therefore, it seems that expert knowledge and science in times of pandemic have been a quantitatively relevant theme in the social communication of populists on the radical right only. Assuming that the number of tweets on a specific topic is a measure of salience and that salience can be strategically manipulated by parties for electoral purposes, one possible conclusion is that the M5S has had no interest in politicizing science. After all, it is plausible that the M5S, being constantly in government, has preferred to 'remove from the spotlight', or at least not politicize, the problematic management of the health crisis and of the public role of science.

Figure 1. Science-related tweets per populist parties and leaders



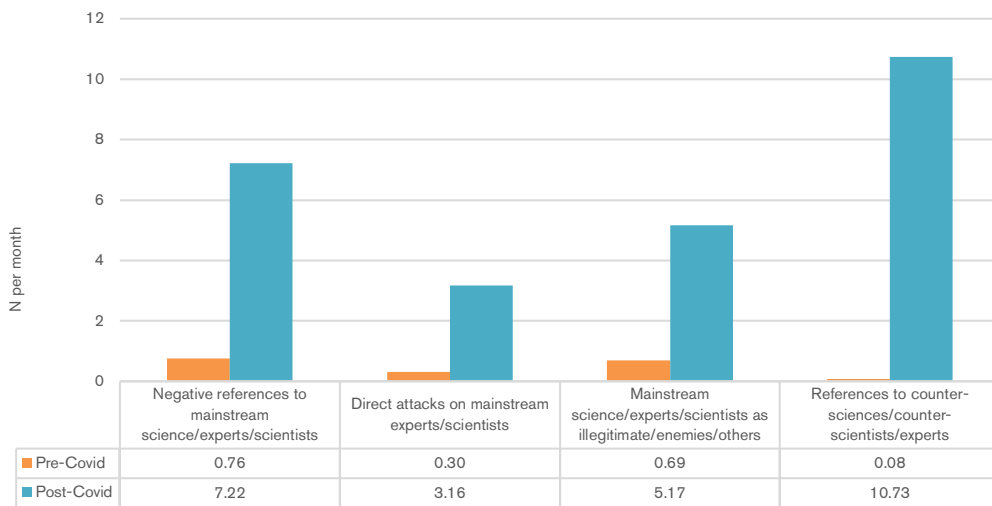
Source: author's elaboration on data retrieved via the Twitter API.

Of the 17 tweets posted by Di Maio and 77 posted by Grillo throughout the time span, none contained elements of anti-intellectualism, anti-scientism, or 'science-related populism'. This finding is also noteworthy and in some ways surprising, since the old endorsement of some anti-science positions, and in particular 'no-vax' positions, by many M5S exponents and by Grillo himself is well known. The pandemic could have provided Grillo especially, freed from institutional constraints, with the opportunity to re-politicize the debate on science and vaccines in a populist key. But evidently the intention has been the opposite: not to dally with the anti-science electorate, or in any case with those who are close to 'counter-science' narratives. The party account as well has not published any tweet with negative references to science, attacks on experts/scientists, or elements of 'science-related populism' during the pandemic crisis. The vast majority of tweets by the M5S (70.71%), Di Maio (87.50%) and Grillo (77.63%) contained

positive references to science and/or mainstream experts/scientists⁸. Only 2 out of the 101 M5S tweets included negative references to the experts (H1) and presented the latter as part of the ‘elite’ (H3) but both were from the pre-Covid year. During the pandemic, instead, the party’s Twitter communication has appeared to be aimed at combating fake news and ‘counter-knowledge’. For example, seven times during the 1st wave the M5S account published the following tweet: ‘Beware of fake news on #coronavirus. Here are the hoaxes refuted by the experts of the Ministry of Health and of the Higher Institute of Health’. Hypotheses 1-4 are therefore to be rejected as regards the M5S and its leaders.

As for the populist radical right, it should first be noted that more than 80% of the tweets of both Salvini (148/182) and Meloni (45/55) were retweeted by the official accounts of the respective party; thus, they are already comprised in the sample of tweets of the League and FdI (25% of the tweets from the account of the League are retweets from Salvini, while 9% of the tweets from the account of FdI are retweets from Meloni). For this reason, we will focus here on the two parties only (the disaggregated analysis of science-related tweets published by the two party leaders, Salvini and Meloni, is summarized by Figures 2A-5A in Appendix B). For both parties, the first consideration is that the monthly number of tweets relating to expert knowledge and science has surged enormously during the pandemic crisis (+1,718% for the League and +811% for FdI). So, although these themes were not absent from the social communication of these parties, certainly (and predictably) the outbreak of the pandemic has made them much more central.

Figure 2. Analysis of science-related tweets published by the League



Source: author’s elaboration on data retrieved via the Twitter API.

The content analysis of the tweets of both the League and FdI amply supports hypotheses 1-4. Starting with Salvini’s party, the presence of all elements of anti-

⁸ However, it must be acknowledged that the official accounts of the M5S and of the two leaders are probably not sufficiently representative of the variety of positions within the M5S. For instance, it is telling that some of the more active ‘no-vax’ MPs, such as Sara Cunial or Gianluigi Paragone, were elected through the M5S lists in 2018 (both cited MPs were later expelled from the party).

intellectualism, anti-scientism and ‘science-related populism’ has significantly increased in the post-Covid period. But, among these, the League has above all made use of references to ‘counter-sciences/counter-knowledge’ and ‘counter-scientists’.

Many League tweets sponsored the use of hydroxychloroquine as an effective therapy for Covid-19, despite the contrary opinion of AIFA (*Agenzia italiana del farmaco*) and WHO. This therapy, in the words of Professor Cavanna (one of the experts portrayed as ‘people’s scientists’) reported by the accounts of both the Lega and Salvini, has only two ‘major flaws’: ‘it costs very little, and Trump likes it’. Especially during the 1st and 2nd Covid wave, the League conducted an incessant campaign in support of Professor De Donno,⁹ presented as the doctor ‘of the people’ or ‘of the poor’, being the promoter of the other therapy (in addition to hydroxychloroquine) considered by the League to be effective and ‘democratic’: the hyperimmune plasma. The superiority of these ‘scientists of the people’ compared to alleged ‘bribed’ scientists, who go on TV with conflicts of interest, has also been stressed by the League.

GIUSEPPE DE DONNO, THE PIONEER OF PLASMA THERAPY: [‘IF EVERYTHING REMAINS IN THE HANDS OF BRIBED SCIENTISTS, WE WON’T GET ANYWHERE’ (...)] ‘I HAVE NO CONFLICTS OF INTEREST, I WISH IT WERE THE SAME FOR SCIENTISTS WHO GO ON TV’]

(Lega, 20/05/2020)

We must thank prof. Giuseppe De Donno and his colleagues, who from the beginning, in the general skepticism or, worse, with the open hostility of some ‘television scientists’, believed in it with humility and passion

(Lega, 03/06/2020)

Honor and merit to the great prof. De Donno 🙏 [‘My treatment is democratic. For this, they stand against me. Plasma therapy is cheap, it works great, and it doesn’t make billions. And I’m a country doctor, not a Big Pharma shareholder’]

(Lega, 15/06/2020)

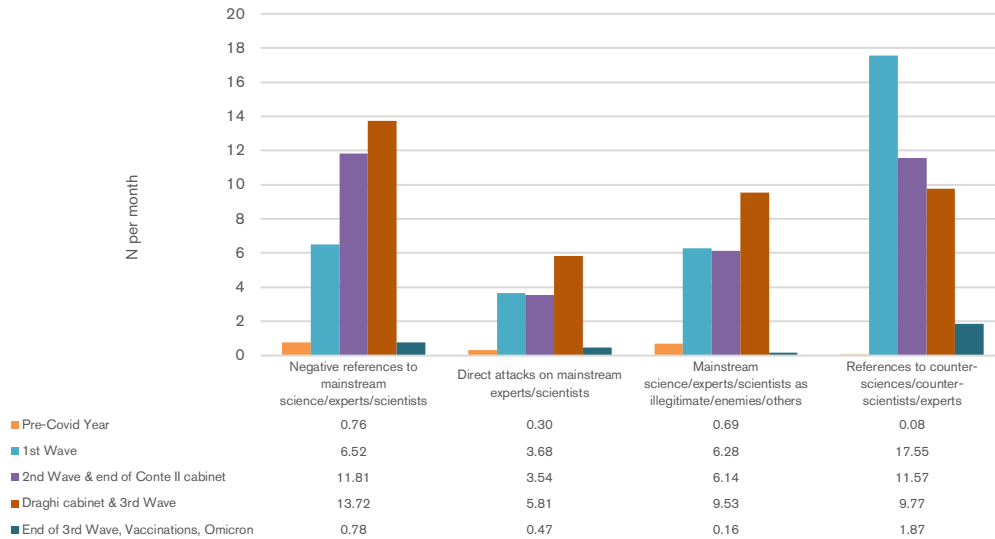
Although Prof. De Donno had obtained the approval for his experimentation of hyperimmune plasma transfusions at the University of Pavia, this was still a therapy in an experimental phase, considered controversial by most of the scientific community, and finally judged not suitable for treating Covid by official medicine. Ultimately, as can be seen from the tweets cited above, supporting these therapies with such motivations was equivalent to supporting the replacement of official science with a ‘counter-science’ of the people.

After the surge registered in the early pandemic phase, the monthly number of negative references to science, direct attacks on mainstream experts/scientists, references to the latter as part of the adverse elite and references to ‘counter-science/scientists’ by the League remained high for the duration of the health crisis. The monthly number continued to be high after the League’s entry into the Draghi government, whereas it has drastically dropped in the most recent period, that of mass vaccinations. Therefore, it is

⁹ 90 of the 260 1st wave tweets retrieved from the League account (35%) included references to De Donno.

possible that, as we approach the exit from the toughest emergency phase, the use of these communicative elements in the League tweets will return to pre-pandemic levels.

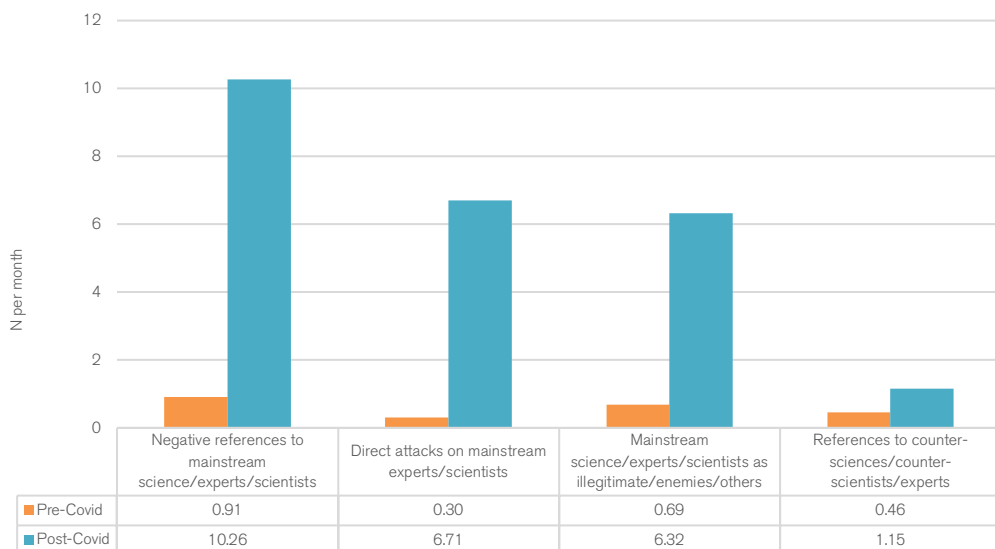
Figure 3. Analysis of science-related tweets published by the League per period



Source: author's elaboration on data retrieved via the Twitter API.

Elements of anti-intellectualism, anti-scientism and 'science-related populism' in the FdI's tweets have been more frequent since the outbreak of the pandemic. However, Meloni's party made less use of references to 'counter-sciences' and 'counter-experts' and more of references to the other three elements investigated. Therefore, despite having both adopted largely populist science-related communication, the two Italian radical right parties seem to have followed partially different communication strategies.

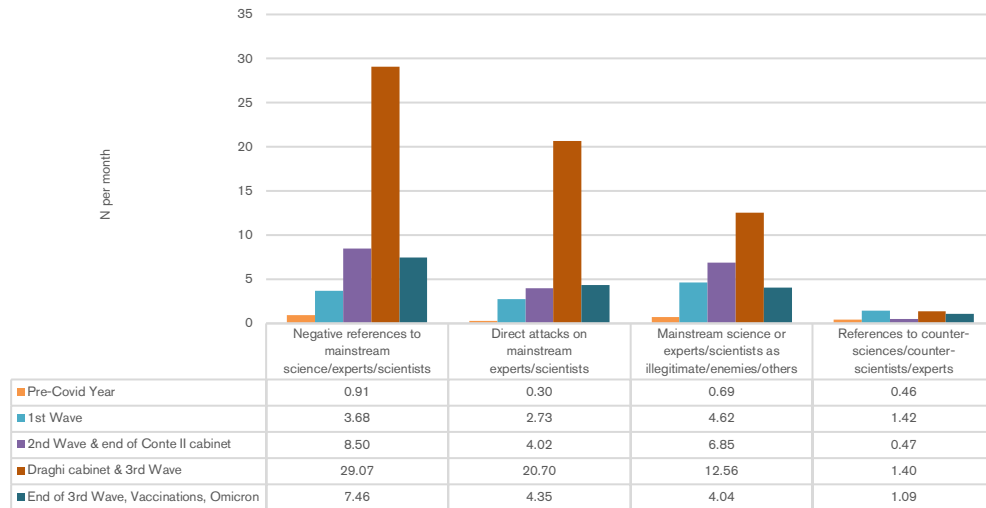
Figure 4. Analysis of science-related tweets published by FdI



Source: author's elaboration on data retrieved via the Twitter API.

FdI's negative references to science and scientists, direct attacks on experts/scientists and references to the latter as illegitimate, enemies, or 'others' climbed during the first months of the Draghi cabinet, coinciding with the 3rd wave of the virus in Italy.

Figure 5. Analysis of science-related tweets published by FdI per period



Source: author's elaboration on data retrieved via the Twitter API.

Many attacks were against the members of the Technical Scientific Committee and the experts of the task forces that have backed both governments in the management of the health emergency. These technicians and scientists have repeatedly been blamed for making decisions 'without any scientific basis', aimed at implementing 'control mechanisms' over the people or even a 'health dictatorship'. In some tweets, they were also accused of being part of a 'new caste'.

Other #experts for a #government of incompetents! This is the new #caste
(FdI, 29/06/2020)

Stop to #health dictatorship. Stop to impositions without scientific explanations.
(FdI, 22/04/2021)

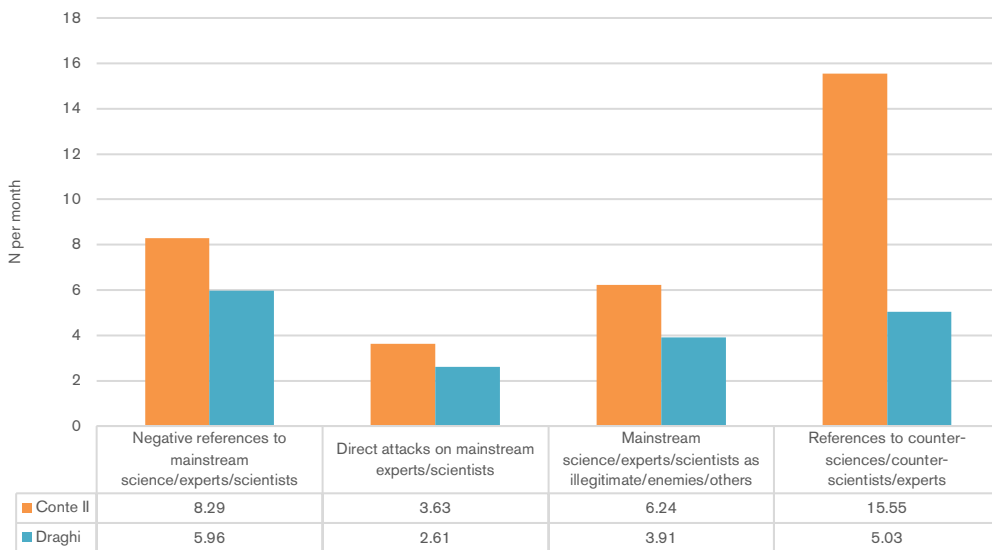
The latest CTS farce: masks in the restaurant between courses. Mask up and mask down (...): the last frontier of fools who bully Italy without any scientific basis to support their vexatious measures
(FdI, 28/05/2021)

I believe the drift taken by the management of the epidemic is crazy: from scientists I expect medical solutions such as home care and protocols, not mechanisms for controlling the life of each individual. Citizens' freedom is sacred, inviolable and binding
(FdI, 07/06/2021)

However, the data of the fourth sub-period are strongly influenced by the fact that after the insults addressed to Giorgia Meloni by professor Gozzini of the University of Siena (22 February 2021), the attacks by FdI – or rather the ‘counter-attacks’ in the party’s view – against Gozzini himself, other university professors and the academic world as a whole, multiplied.

To sum up, hypotheses 1-4 are largely confirmed for the parties of the populist radical right, whereas they must be rejected for the M5S. Hypothesis 5 finds a first validation from the comparison between these political forces. Indeed, the M5S, which managed the pandemic emergency for the entire observed period, has not employed anti-science or counter-science rhetoric. But we still have to judge whether their entry into the Draghi government represented a watershed in the science-related communication of the League. Expectations are confirmed: the League made less use of all four types of tweets after becoming a governing party (sub-periods 4+5). Above all, its references to ‘counter-sciences’ have fallen by nearly 70%.

Figure 6. Analysis of science-related tweets published by the League: comparison between the Conte II and the Draghi cabinets



Source: author’s elaboration on data retrieved via the Twitter API.

The last step of the research (H6) consisted in verifying whether the presence of the elements of anti-intellectualism/anti-scientism and ‘science-related populism’ increased the popularity of the tweets published by populist parties (N=1202). ‘Popularity’ is here operationalized in terms of likes. A simple comparison of the averages of likes received by the different types of tweets provides an initial confirmation of H6. Above all, the percentage difference between the average likes of tweets that feature references to ‘counter-science’ or ‘counter-experts’ and those that do not contain this element is remarkable (73%), beyond being statistically significant.

Table 3. Average popularity of the different types of tweets

		Likes count avg.	Difference	t-test (H0: diff=0)	
				t	Ha: diff>0 p-value
Reference to mainstream science and/or experts/scientists:	Pos.	166.97	57.39%	2.91	0.00***
	Neg.	262.79			
Direct attack on mainstream experts/scientists:	No	247.78	8.73%	0.53	0.3
	Yes	269.42			
Reference to mainstream scientific knowledge and/or experts/scientists as illegitimate, enemies, 'others':	No	231.34	37.3%	2.21	0.01**
	Yes	317.64			
Reference to 'counter-sciences/counter-knowledge' or 'counter-scientists/experts' of 'the people':	No	214.92	72.93%	4.21	0.00***
	Yes	371.66			

Notes: *** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Source: author's elaboration on data retrieved via the Twitter API.

To test this last hypothesis more appropriately, we apply two multiple linear regression (MLR) models, in which the dependent variable is the number of likes of the tweets. In the first model, the independent variables are the four categorical variables obtained through the manual coding of the tweets. Considering only statistically significant results, it emerges that the tweets in which mainstream science and experts were presented as 'elite' (H3) and the tweets in which there was a reference to 'counter-science' or 'counter-experts' (H4) were almost twice as successful as those that did not contain these elements. However, the goodness of this model is scarce.

Table 4. Popularity of science-related tweets by populist parties: explanatory models

Likes count (y)		1 st model		2 nd model	
		b	SE	b	SE
H1	Reference				
	positive				
	neutral	47.08	40.7	58.12**	28.62
	negative	-36.14	55.49	31.38	39.07
H2	Direct attack on mainstream experts/scientists (no/yes)	57.75	44.82	87.1***	31.53
H3	Reference to mainstream scientific knowledge and/or experts/scientists as illegitimate, enemies, 'others' (no/yes)	133.61***	43.52	32.16	30.74
H4	Reference to 'counter-sciences/counter-knowledge' or 'counter-scientists/experts' of 'the people' (no/yes)	154.92***	35.47	11.45	25.28
Contr	Retweet from the leader (no/yes)			956.82***	27.36
	_cons	163.57***	32.18	32.43	22.94
	Adjusted R ²	0.03		0.52	

Notes: *** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Source: author's elaboration on data retrieved via the Twitter API.

Thus, the second model includes a fifth dichotomous variable that assumes a value of 1 when the tweet is actually a retweet from the party leader (and therefore the author is Salvini for the League, Meloni for FdI, Di Maio or Grillo for the M5S), and a value of 0 in all other cases (original tweet or retweet from other accounts). Indeed, previous research has already shown that populist posts originating from the party leader are more successful (Bobba, 2019). By adding this variable, the goodness of the model increases considerably and the party leader as the source of the tweet becomes the decidedly more important variable for the success of the message. Therefore, these two regression models provide only partial support for hypothesis 6.

5. Conclusions

In this paper, I have dealt with a specific aspect of the intricate relation between pandemic and populism, namely how and how much the populists' way of speaking about expert knowledge, science and scientists has changed following the Coronavirus. In particular, I investigated whether the pandemic has favored an extension of the 'elite' concept in populist communication, allowing populist forces to target scientists as a new central antagonist of 'the people', and whether a 'science-related populism' (Mede et al., 2021; Mede and Schäfer, 2020) has established itself as a backlash against scientists' massive irruption into the political sphere. The empirical analysis focused on Italian populist actors, whose pre- and post-Covid tweets were examined. Italy was chosen as a single relevant case study because here there are populist parties of different 'types' and which had different 'constraints' during the pandemic crisis, meaning that some were in government and others in opposition.

The research questions may have appeared trivial to those who believed that, before Covid-19, science was an irrelevant topic in the Italian political debate. But, on the contrary, already during the previous decade science had become a profoundly politicized issue; so much so that the country was considered 'a strategic case to understand the development, dissemination, and use of public epistemologies' (Brandmayr, 2021: 50). For instance, the political debate on vaccines was very heated in the years preceding the pandemic. In this respect, a clash between populist parties and mainstream parties had already taken shape: the former against compulsory vaccination (and in some cases close to 'no-vax' stances); the latter open to the hypothesis of compulsory vaccination (and definitely 'pro-vax') (Brandmayr, 2021). Given this already important level of politicization of science in Italy, it was not to be taken for granted that the pandemic would further increase the extent to which populist actors resort to anti-science and counter-science narratives.

And indeed, this was not the case for the 'neither left nor right' populist party – the Five Star Movement. Firstly, the monthly number of M5S tweets concerning expert knowledge and scientists has decreased considerably during the pandemic crisis (fig. 1). Secondly, and above all, the M5S has not posted any negative references to science, nor attacks on experts/scientists or contents of 'science-related populism'. Instead, the M5S references to science have been mostly positive and characterized by 'institutional' tones, arguably due to the fact that the M5S has been constantly in government throughout the pandemic, managing the health emergency during two consecutive cabinets.

The results of the content analysis of the tweets of the two populist radical right parties are totally different. This reminds us once again that not all populisms are the same. The recurrence of all the elements of anti-intellectualism, anti-scientism and 'science-related populism' considered here has radically increased in the tweets of the League and FdI since the outbreak of the pandemic (figg. 2; 4). Nevertheless, the two parties seem to have implemented different communication strategies. The League has made greater use of references to 'counter-sciences' or to scientists presented as alternative and preferable to those of the establishment – a much less frequent element in FdI's communication. Meloni's party has mainly employed negative references and direct attacks on mainstream experts/scientists, who have also been portrayed as a 'new caste'.

Ultimately, the idea that the pandemic represented a window of opportunity for the inclusion of mainstream scientists among the enemies of ‘the people’ and for the emergence of a ‘science-related populism’ holds, but only for populists on the radical right. Nonetheless, we must pay attention to two other factors that make this conclusion more nuanced. The first factor is related to whether or not the party belonged to the government coalition. Indeed, during the Draghi government, of which the League is a member, the recurrence of anti-science and counter-science rhetoric in the League’s tweets has diminished (fig. 6). The second factor is related to ‘the cycle of issue attention’. The use of elements of anti-intellectualism, anti-scientism and ‘science-related populism’ in the League’s tweets has sharply declined in the last few months analyzed here, those marked by the mass vaccination campaign (fig. 3). This supports the interpretation that anti-science and counter-science have not taken real root in the League but were just a temporary rhetorical device resorted to for electoral goals during the peak of public attention towards the virus. This would lead to assuming that, with the end of the most critical emergency phase, these elements are going to disappear from the social communication of the populist radical right. However, the results relating to FdI do not point to this interpretation, since its negative references to science and its direct attacks on mainstream experts/scientists have been more frequent during the vaccination period than they were during the 1st Covid wave (fig. 5).

Finally, on one hand, tweets dealing with anti-science or counter-science have on average been more successful than those featuring more neutral references to science (tab. 3). On the other hand, there is only tepid evidence that the presence of elements of anti-intellectualism/anti-scientism and ‘science-related populism’ increased the popularity of tweets from populist parties (tab. 4). In fact, even more than the content of the science-related tweets, what really determined the success of a tweet was the fact that the party leader (rather than the party itself or another account) was the author. This can be interpreted as a sign of the increasing trend in the ‘personalization’ of politics favored by new technologies, in line with previous research which has already found that populist posts originating from the party leader are more popular (Bobba, 2019).

Two years after the outbreak of the pandemic in Italy, the continued media overexposure of scientists seems to have fostered the emergence of a conflict not only between the populist radical right and mainstream scientists, but also between politics and science more generally. Proof of this was the approval by the Italian government of an O.d.G. (*Ordine del giorno*) dated 22 September 2021 which requested that virologists, immunologists and infectious disease specialists appear in the media only with prior authorization from the structure where they work. Whether this clash, as well as the more explicit one between the populist radical right and mainstream science, will be reabsorbed with the disappearance of the virus or, on the contrary, will contribute to a higher politicization of science even in the post-pandemic era and to a strengthening of the alignment between political and epistemological positions is something we still have to understand. Nonetheless, some sociologists believe that ‘a crisis in the relationship between science, politics and society’ is already underway in liberal democracies (Alteri et al., 2021: 9). Future studies may also investigate further the implications of the populist right’s winking at anti-science and counter-science positions, not only in Italy but throughout Europe. A fruitful line of research could be to explore whether and how far

populists' anti-science and counter-science rhetoric has pushed grassroots protests (against lockdowns, anti-contagion measures or compulsory vaccines) that have spread to all European countries.

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Appendix A. Methodology

Keywords

I utilized the Python library ‘twarc2’, which uses the Twitter API, to collect all the tweets published by the selected accounts containing the following keywords:

scienz-a/e; scienziat-o/a/i/e; scientific-o/a/i/che; dottor-e/i; dottoress-a/e; dr.; dott.ssa; virolog-o/a/i/he; immunolog-o/a/i/he; infettivolog-o/a/i/he; epidemiolog-o/a/i/he; burioni; accademic-o/a; professor-e/i; professoress-a/e; prof.; prof.ssa; professoron-e/i; espert-o/a/i/e; ricercator-e/i; ricercatric-e/i.

‘Burioni’ is the only proper name included in the research as, to the best of my knowledge, Burioni is the only scientist who was really involved in the Italian political debate before Covid-19 (Brandmayr, 2021).

Pre-processing

The initial pre-processing phase aimed to remove tweets that, while containing the keywords, were not really inherent to expert knowledge, science and scientists. The result was a dataset of 1,533 tweets (1,202 from parties and the remainder from leaders). The rest of the pre-processing phase was necessary for ensuring a correct manual coding of the tweets. This second phase involved the following operations:

- whenever it was necessary to read the title of the newspaper article or web page linked to the tweet to understand the meaning of the tweet, this title was added in square brackets to the text;
- whenever it was necessary to read the content of the image published with the tweet to understand the meaning of the tweet, this content was added in square brackets to the text;
- whenever a tweet ended with a truncated sentence due to the character limit, linking to a Facebook or Instagram post for the full text, that post was retrieved and considered in place of the tweet.

Appendix B. Figures and tables

Figure 1A. Areas of science referred to by the collected populist tweets

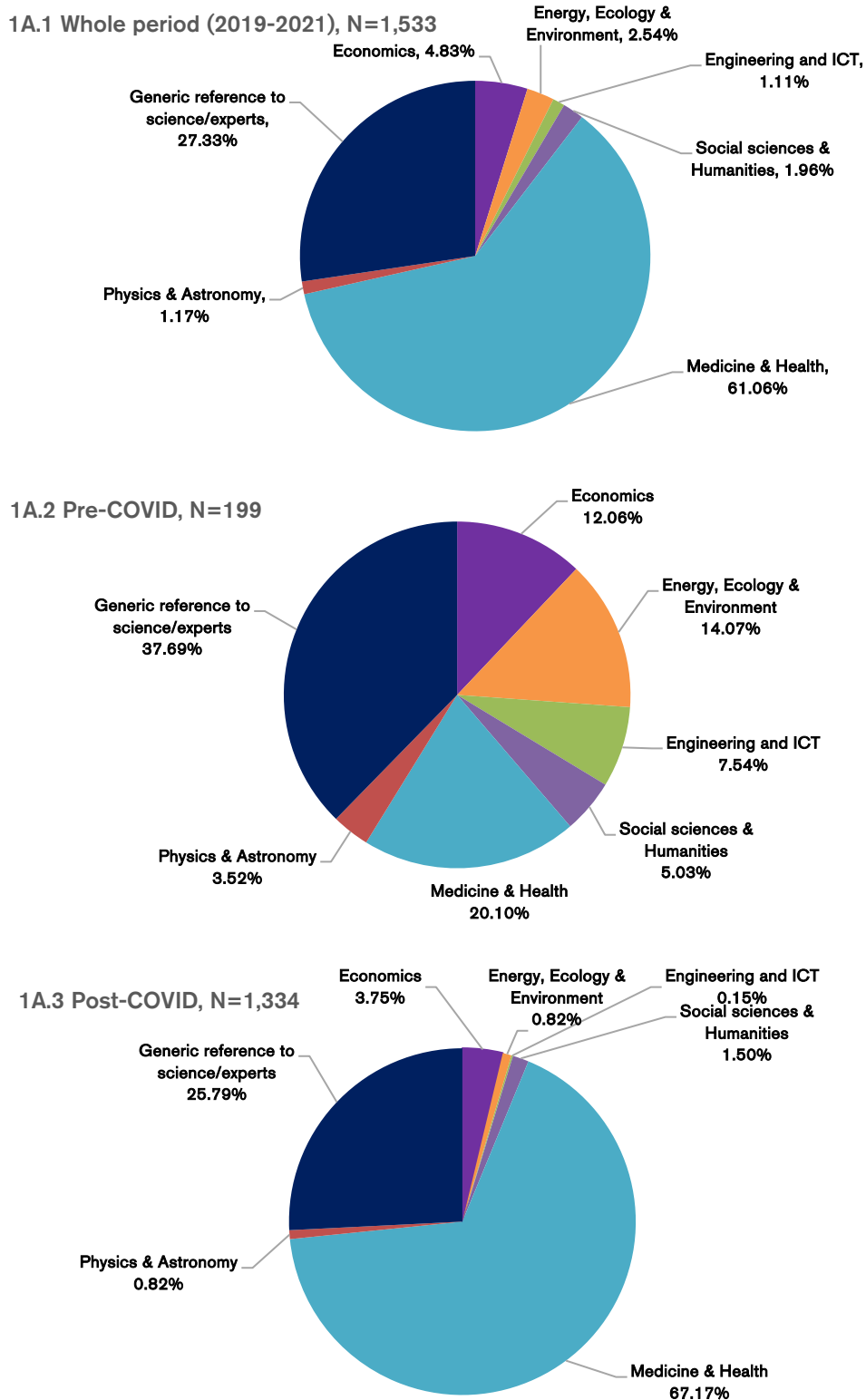


Figure 2A. Analysis of science-related tweets published by Matteo Salvini

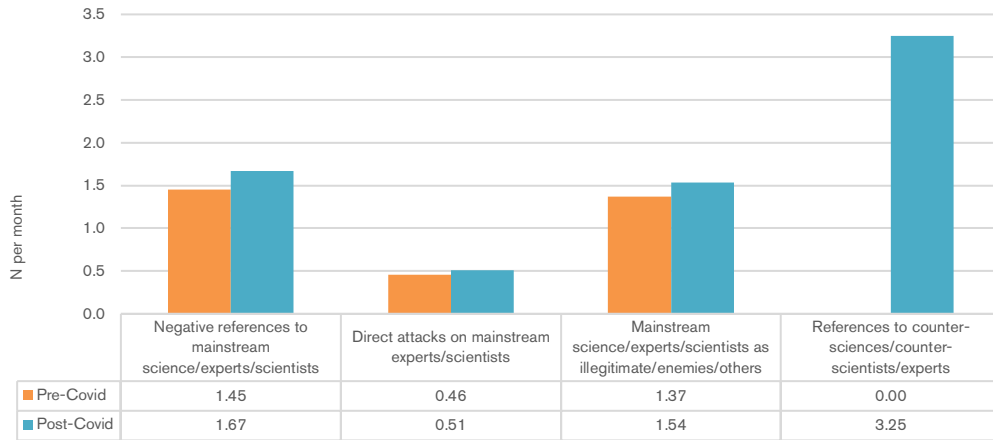


Figure 3A. Analysis of science-related tweets published by Matteo Salvini per period

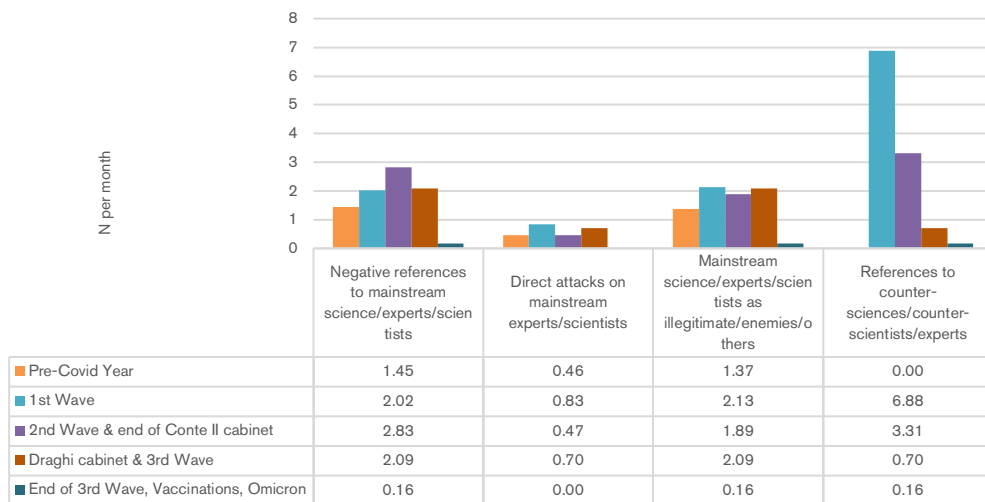


Figure 4A. Analysis of science-related tweets published by Giorgia Meloni

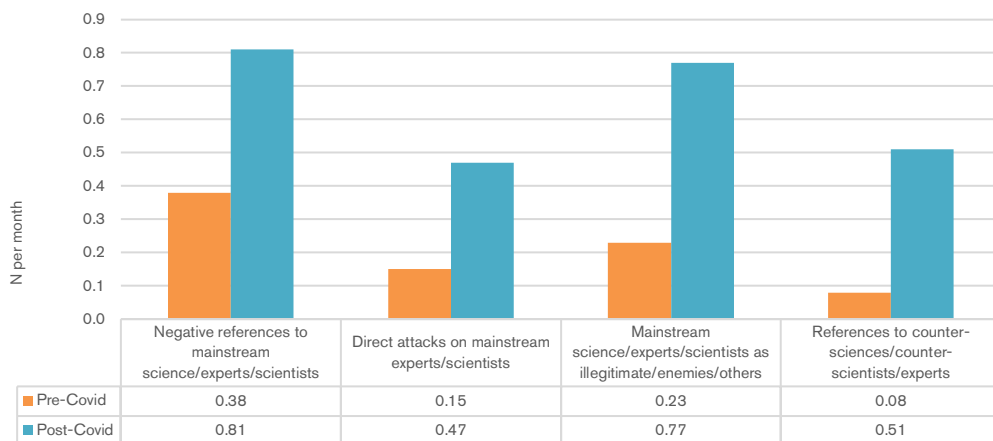
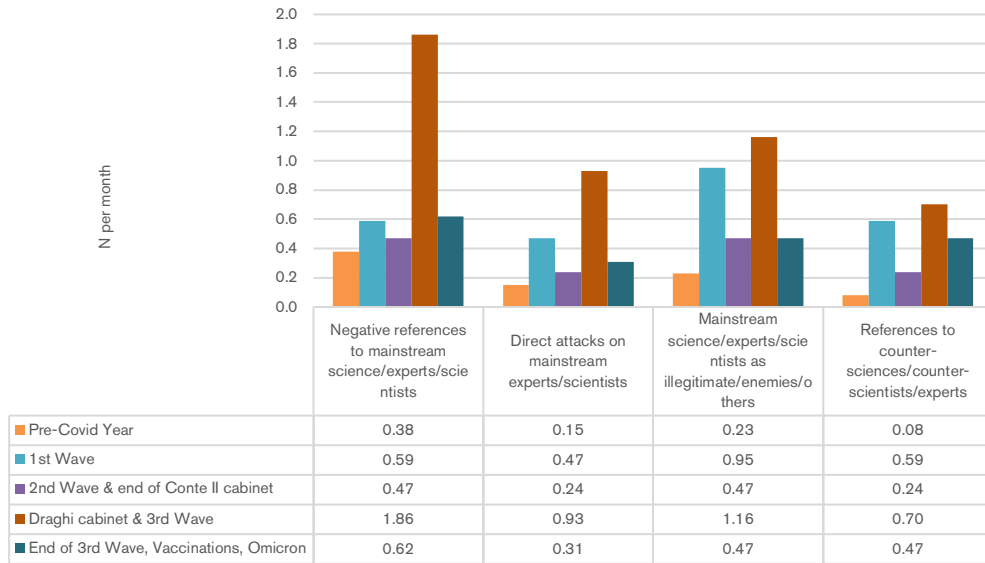


Figure 5A. Analysis of science-related tweets published by Giorgia Meloni per period



Source for all Appendix graphs: author's elaboration on data retrieved via the Twitter API.