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The Perceptions of Migration During the Pandemic: What Twitter Data Tell Us?

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Abstract

This paper aims to analyse sentiments and emotions about migration in Italy using Twitter, by comparing the period of COVID-19 pandemic with the previous year. We take Italy as a case study because it has been severely affected by the COVID-19, it is one of the largest recipients of immigrants in Europe and, is among the few countries that implemented an amnesty for irregular migrant workers during the pandemic. We apply a text mining and sentiment analysis to the tweets with hashtags and keywords related to the migration and to the COVID-19 pandemic. Results show that tweets related to migration express a sense of emergency and also invasion. No major changes occurred in the period of the pandemic in comparison with the previous period. Indeed, both negative and positive sentiments are present in the tweets in both periods, confirming a certain polarization in the public discourse about migration.

Keywords: Migration; Italy; perceptions; social media; COVID-19

Introduction

COVID-19 and international migration

The pandemic of the coronavirus disease SARS-CoV-2 (COVID-19) is the greatest challenge that Italy and the rest of the world have faced since World War II. International migration trends have changed since the beginning of the year 2020 because most of the countries of the world closed their borders due the pandemic. Indeed, among the measures adopted by governments to limit the spread of the virus, restrictions to international mobility including partial or complete border closure are those who lasted longer (compared to the other restrictive measures) all over the world. Such restrictions have caused a decrease in the stock of international migrants that is estimated to have lowered by 2 million globally compared to pre-pandemic trends. In a recent report published by the International Organisation of Migration, McAuliffe et al. (2021) have stressed that the pandemic has acted a great disrupter for international migrants as it has affected the entire migration cycle: the departure from countries of origin, the entry and stay in countries of transit and of destination, and the process of return to the countries of origin. During the pandemic, migrants have faced difficulties in the receiving societies because they often represent the most vulnerable groups of population, thus they often lacked access to health care, they faced job loss and increasing racism and

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xenophobia. Migrants had also problems in returning to their countries of origin, because of border closure and lack of resources provided by their countries of origin to organize mass repatriation operations.

Recent research (Triandafyllidou, 2022) has highlighted that closure of the borders and of the economic activities were however selective measures taken by governments. Indeed, some workers considered as essentials (e.g. medical, paramedical personnel, care workers, farmers, people working in the food processing industry) continued to work during the pandemic. Several workers, even during the period of border closure, could benefit of an exemption to the restriction of movements because without their labour force, rich countries in Europe and North America would have faced a shortage of labour in essential economic sectors such as agriculture and elderly care. Few countries such as Canada and Italy applied special policy interventions to counteract the effects of the pandemic for migrants. Canada in May 2020 introduced the Agri-food Immigration Pilot where migrant workers in agriculture could apply for permanent residency. Italy between May and August 2020 introduced a regularisation programme, addressing farmworkers and domestic and care workers in private homes (Triandafyllidou, 2022).

The pandemic has also brought a new wave of racism and xenophobia toward migrants, in particular “non-white” migrants. Hate speech toward Asians in North America and Europe has spread quickly in the first months of the pandemic, causing several verbal and physical assaults (Boris, 2022). As in past epidemics, scapegoating of minorities has increased rapidly among majority groups, exacerbating pre-existing biases and prejudices (Jedwab et al., 2021).

Perceptions and narratives toward migrants and migration

Despite the COVID-19 emergency and the decrease in migration flows, the topic of migration continued to be addressed and discussed in political and public debate. Perceptions, narratives and attitudes about migration are a complex field of study. They may vary according to the source(s) and/or channel(s) of information and to the point of view used while studying perceptions (e.g., migrants, perspective migrants, politicians, journalists, the receiving society, the sending countries and so on). Time and place are also important variables for studying the narratives on migration. Understanding migration narratives is a key goal in framing migratory phenomena at several levels of analysis since they play a role in shaping the overall migration response (Boswell et al., 2011). As pointed out in the literature, narratives can be seen as ‘stories’ representing migration in different respects and can function as legitimising frameworks for specific policy actions (Ceccorulli & Lucarelli, 2017).

Since several years, the political and mediatic debate on migration in European countries is polarised around two main discourses. 1) A positive view of migration based on a humanitarian and cohesive approach. 2) A negative view of migration based on nationalistic and discriminatory discourse towards migrants. Politicians use these two contrasting views to shape public opinion perceptions and attitudes towards migration (de Rosa et al., 2021; Renner et al., 2018).

Italy is no exception, as stressed by Colombo (2018: 163), “Politicians and journalists have commonly employed terms like ‘massive invasion’ to describe the phenomenon”. Migration is perceived as a threat, an invasion and most often migrants are defined as clandestine, irregular, illegal and undocumented (e.g. Colombo, 2018; Terwal, 1996). Despite the heterogeneity of approaches, previous research in the Italian context keeps on detecting



robust stereotyped narratives of immigrants appearing as threats for host society or as victims of exclusion/injustice (Binotto et al., 2016). Such a consistent body of evidence emerges from content and language analysis (Calvanese, 2011; Cerase, 2013; Stolfi & Brancato, 2019) discourse analysis (Tudisca et al., 2019; Lucchesi, 2019), and visual sociology (Pogliano, 2011, 2015).

Perceptions and narratives toward migrants and migration in social media

Currently, worldwide, people exchange their opinions and thoughts on social media platforms about any kind of topic, including migration. In doing so, they generate extensive amounts of structured data that offer an opportunity for studying the online behaviour of large groups of people. Social media can help understand how narratives and discourses surrounding migration are formed and spread by different social groups (e.g. de Rosa et al., 2021; Florio et al., 2019; Krzyżanowski, 2018).

Given the growing importance of social media in shaping the debate about several social phenomenon and considering the recent Italian context, analysing how the migration phenomenon is addressed in social media is very important. The case study of Italy is particularly interesting for several reasons: firstly, because Italy is one of the largest recipients of immigrants in the European Union (EU) as one of the main port of access to the EU, second because Italy has been severely affected by the COVID-19 paying a large death toll and experiencing one of the stricter and longer lockdown within the Western world, third, Italy is among the few countries that have implemented a regularization program for irregular migrant workers during the pandemic.

The paper focuses on the perceptions on the immigration phenomenon in Italy expressed through the social media, comparing the discourse that emerged at the time of the pandemic and the discourse that emerged in the year before the pandemic broke out. In particular, the paper has the following objectives: analysing the perceptions, sentiments and emotions expressed on the immigration flows in Italy, immigrants and the migratory phenomenon in general; analysing the perceptions, sentiments and emotions about this topic during and in relation to the COVID-19 emergency and to the amnesty for irregular migrant workers implemented to respond to the lack of seasonal workers during the pandemic.

Data and methods

Words, sentences and thoughts expressed in the tweets published on Twitter platform can be analysed by applying text mining and sentiment analysis. In general, this kind of analysis permits to study communication processes in various areas, such as the commercial sector, political sphere, traditional mass media and social media. Through this analysis it is possible to discover perceptions, opinions and ideas about certain products, politicians or social phenomena. Nowadays, the sentiment analysis is often used to study the communication that occurs within social media. On Twitter social media, thanks to an essential layout both for smartphones and pc, users can easily and quickly express and communicate opinions and ideas, show appreciation for other tweets, share ideas of other users thanks to the re-tweeting instrument. The need to write short texts prompt users to use specific terms, while the simple layout and shortness of the messages pushes them to post messages frequently and regularly. In addition to the use of specific words within the messages, another relevant feature of Twitter is the use of the hashtag (#) followed by keywords. These hashtags make it possible to easily define the topic of the tweets. For several years, therefore, tweets have constituted a

reservoir of relevant textual data for conducting various types of analysis regarding the opinions and feelings of users towards certain issues.

Tweets can be collected by accessing Application Programming Interfaces (APIs), through which it is possible to download tweets published over a certain period of time and/or on certain topics by entering specific keywords. The text contained in tweets can be studied through text mining techniques that, using natural language processing (NLP), transform texts into structured data that can be analysed (Salloum et al., 2017). In this way it is possible, for example, to conduct analysis on the most frequent words or on the associations between different terms. A particular application of text mining, sentiment analysis, allows to extract information about sentiments from texts, thanks to computational linguistics algorithms. In recent years, several studies have applied text mining and sentiment analysis techniques to texts contained in tweets (e.g. Öztürk and Ayzav, 2018; Kumar and Sebastian, 2012; El Rahman et al., 2019).

In this study, tweets were collected through the Twitter Academic Research product that allows to access Twitter's real-time and historical public data from March 2006 to the present. In particular, to build our dataset, we used the R package "academictwitter" that allows users with a Twitter Developer account to connect to the API and download tweets and retweets.

We collected tweets from January 01, 2019 to January 31, 2020 (pre-pandemic period) containing various Italian words connected to migration phenomenon. Therefore, the search query included the Italian words for *migrations*, *migrants*, *immigration*, *illegals*, *Mediterranean*, *refugees*. The word *illegals* was included since illegal migration is a significant component of the total immigrant population in Italy. We then downloaded tweets from February 01, 2020 to April 30, 2021 (pandemic period), looking for the same queries connected with migration and by adding the word *amnesty* and the hashtags #covid19, #coronavirus. The keyword *amnesty* was included since an amnesty was applied in spring 2020 to compensate for the pandemic-related lack of seasonal workers. Data were checked and cleaned: we selected only tweets in Italian, we deleted the re-tweets and, for the second group of tweets, we only considered words containing references to migration, since the hashtags concerning the virus had created noise and some tweets did not include migration-related discourse but only pandemic-related. We then obtained 18,799 tweets for the pre-pandemic period and 5,621 for the pandemic period.

We applied text mining and sentiment analysis techniques to analyse the words used in these tweets and to understand what kind of sentiment these tweets express. Specifically, we analysed the most frequent words within tweets and the associations between some of our keywords and other words (using "TM" R package). In order to perform this analysis, we cleaned the text data by removing special characters, blanks, punctuation, numbers, and stopwords. We then built a term document matrix to identify the most frequent words and analyse with which words some of our keywords are most related. In this way we tried to understand what are the most recurrent words used in tweets and retweets about migration and whether or not there were major changes in the wording of the tweets over a period of time characterized by many events related to the migration phenomenon.

We then conducted a sentiment analysis to understand what sentiments and emotions the tweets expressed (we used "syuzhet" R package). Sentiments can be classified as positive, negative or neutral. The "syuzhet" package has four sentiment dictionaries and four methods to detect sentiments. These four methods are *syuzhet*, *bing*, *afinn* and *nrc* and they use different



scales and give different results. The *syuzhet* lexicon was developed by the Nebraska Literary Lab under the direction of Matthew L. Jocker and the scores are equal or above +1 for words associated to the positive sentiment and equal or below -1 for negative words. The *bing* lexicon was developed by Minqing Hu and Bing Liu as the Opinion Lexicon and the scores are equal or above +1 for words associated to the positive sentiment and equal or below -1 for negative words. The *afinn* algorithm was developed by Finn Arup Nielsen as the Afinn Word Database, and extended by analyzing Twitter posts, and it contains slang and words used on the web. Scores are equal or above +5 for positive words and equal or below -5 for the negative ones (Naldi, 2019; Widyaningrum et al., 2019). All these methods assign a score (from negative to positive) to the words which compose tweets and the score for every tweet is the algebraic sum of the word's scores. The *nrc dictionary* was developed by Mohammad, Saif M. and Turney, Peter D. as the NRC Emotion Lexicon and it is different from the others because it does not only focus on polarity considering positivity and negativity, but it also assigns words to 8 different types of sentiments, categorized as emotions (Naldi, 2019; Widyaningrum et al., 2019). The 8 emotions are anger, fear, sadness, disgust, anticipation, trust, surprise, and joy. For each tweet the method counts the number of words associated with each category (Naldi, 2019)³.

Results

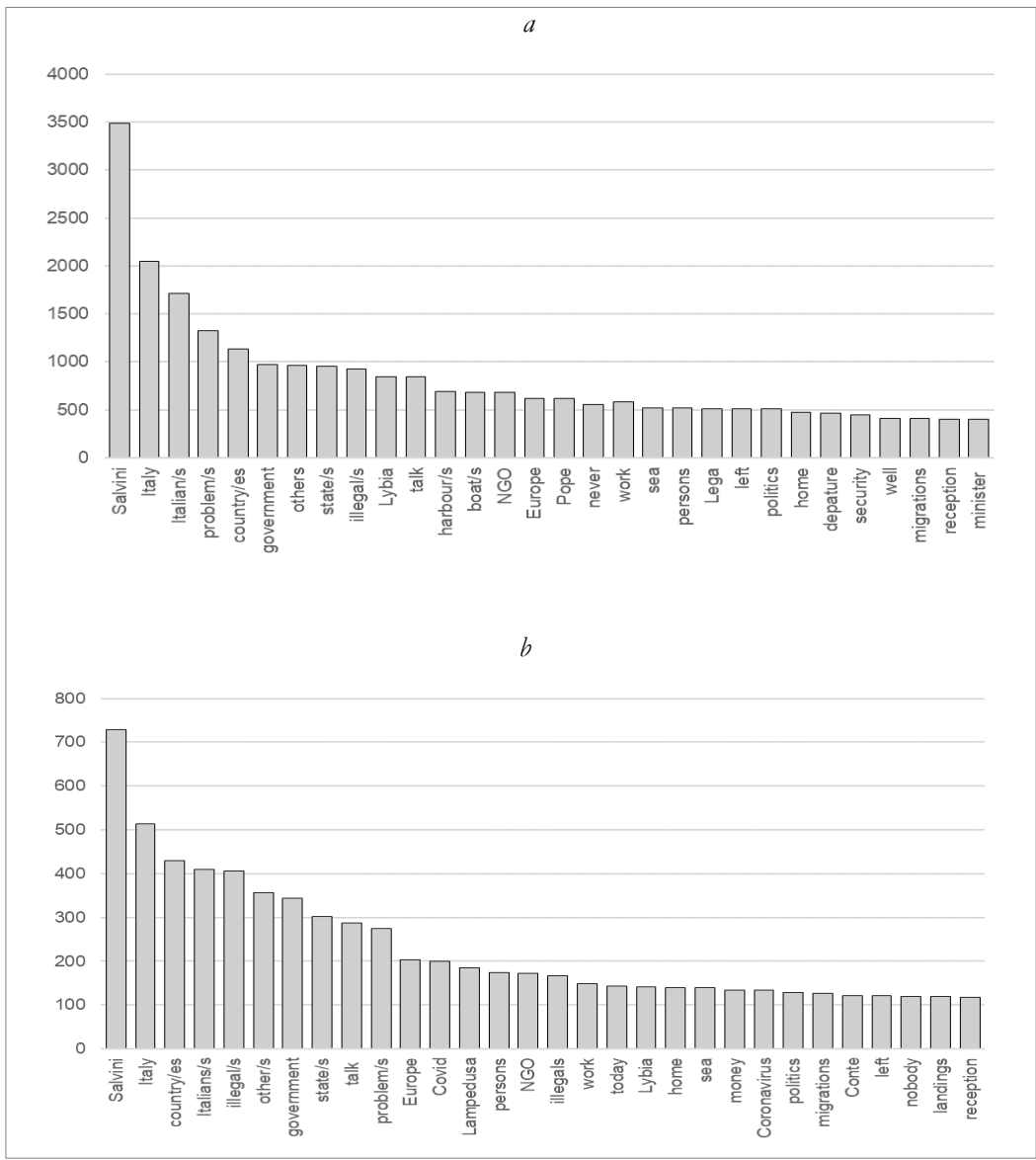
The results concerning the most frequent words show that in the discourse concerning migration there are no major differences between the pre-pandemic and the pandemic period. The two most frequent words in the analysed tweets are *migrants* and *immigrants*, two of our keywords. In both the analysed datasets these two words are followed by the words *Salvini*, the former interior minister and head of the main Italian sovereigntist party, and *Italy* (Figures 1a and 1b). Conte, head of the Italian government during the first phases of the emergency related to the pandemic, appear among the first 30 words (after the first two keywords) in the tweets published during the pandemic. Among these tweets, some words refer to the COVID-19 emergency. Words related to the arrivals by sea, such as *NGO*, *Lybia* and *sea*, and words referring to *problem/s* and to the issue of *security* also appear frequently in our two groups of data. The perception of immigration as a problem is evident by examining which terms are associated with the keyword *immigration*. For the pre-pandemic period, this term is associated with terms such as *illegal*, *uncontrolled*, *migrant*, *security*, for the pandemic period it is associated also with the words *facilitation* and *savage*. This confirms that immigration is perceived as uncontrolled, dangerous, and a problem.

As far as sentiment analysis is concerned, looking at the mean scores of all tweets for the first three methods, the values are very close to 0. This result shows that, on average, the tweets seem to express neutrality. However, by looking at the minimum and maximum scores, it seems that this average neutrality hides also peaks of positivity and negativity (Tables 1a and 1b). By checking sentiments and emotions of the two groups of tweets, we found out that positive and negative words are almost equivalent, with a slight preponderance of the positive ones in the tweets published in the pre-pandemic period and of the negative ones in the pandemic period. This confirms our findings using the other methods, which detected a

³ This package and these methods, like others used in sentiment analysis, have limitations, such as the inability to detect sarcasm or analyze context. Also, *syuzhet* and *bing* dictionaries do not always consider negativity in a proper way. Despite this, however, the use of the four dictionaries allows to have an informative overview of the sentiments expressed in the tweets; furthermore, the possibility to investigate also the typology of the sentiments, that is the emotions, certainly enriches the analysis.

neutrality in average hiding peaks of negativity and positivity. Regarding the emotions, the first one is trust, followed by the emotion fear in both datasets. Words associated with this emotions account each more than 10% of all words. The words associated with the positive emotion of surprise are the least frequent.

Figure 1. 30 most frequent words (after the first two keywords) for pre-pandemic (a) and pandemic (b) tweets



Source: elaboration on TWITTER data



Table 1a. Summary statistics of positive and negative sentiments by three lexicons for pre-pandemic tweets

| | Min. | 1 st Qu. | Median | Mean | 3 rd Qu. | Max |
|---------|---------|---------------------|--------|---------|---------------------|--------|
| syuzhet | -2.1000 | 0.0000 | 0.0000 | -0.0644 | 0.0000 | 2.2000 |
| bing | -3.0000 | 0.0000 | 0.0000 | 0.0017 | 0.0000 | 2.0000 |
| afinn | -7.0000 | 0.0000 | 0.0000 | 0.1054 | 0.0000 | 7.0000 |

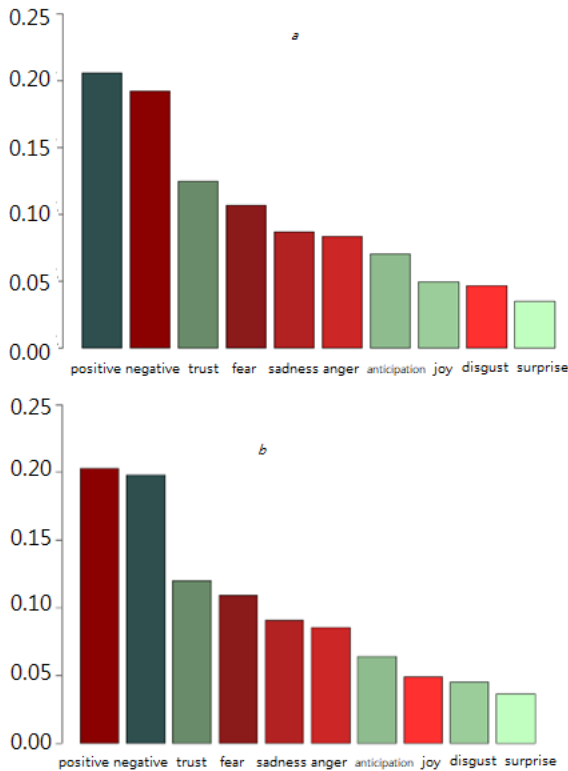
Source: elaboration on TWITTER data

Table 1b. Summary statistics of positive and negative sentiments by three lexicons for pandemic tweets

| | Min. | 1 st Qu. | Median | Mean | 3 rd Qu. | Max |
|---------|---------|---------------------|--------|---------|---------------------|--------|
| syuzhet | -1.7500 | -0.1000 | 0.0000 | -0.0599 | 0.0000 | 3.1500 |
| bing | -2.0000 | 0.0000 | 0.0000 | 0.0084 | 0.0000 | 2.0000 |
| afinn | -6.0000 | 0.0000 | 0.0000 | 0.1299 | 0.0000 | 5.0000 |

Source: elaboration on TWITTER data

Figure 2. Sentiments and emotions of the words for pre-pandemic (a) and pandemic (b) tweets



Source: elaboration on TWITTER data

Conclusion

The general objective of this paper was to analyse how the discourse regarding migration was addressed in social media in Italy during the COVID emergency and in the year before, trying to detect similarities and differences.

Very often, media and politicians have approached the phenomenon with a terminology that tends to highlight negative aspects of the phenomenon or to depict in an alarmist way the issue of migration flows, especially the arrivals by sea. Above all, it is this latter issue that have attracted and is attracting the attention of the general public. Our work confirms this view of migration and is in line with the results of other studies conducted in Italy on the language used about migration and migrants in the mainstream media and on social media (e.g. de Rosa et al., 2021; Colombo, 2018; Binotto et al., 2016; Cerase, 2013; Colombo, 2013). Moreover, the prevalence of this perception of migration is evident both in tweets published in the pre-pandemic period and in those published in the emergency period.

The analysis of the most frequent words in the tweets published in Italian language in different periods shows how the issue of arrivals by sea is particularly present. The importance, already emerged in other studies, of the role of politicians or institutional figures is confirmed by our analysis (e.g. Colombo, 2013, 2018; Triandafyllidou, 2000). The analysis of the association between some keywords and other words, shows that migration-related keywords are associated with negatively connotated words that vehiculate the idea of migration as a phenomenon difficult to manage, uncontrollable, forerunner of problems and risks, and strongly associated with illegality, thus providing a negative view of the phenomenon.

Sentiment analysis, exploited with four different methods, gave the same results regarding the sentiments. In average, there is a neutrality, but this average neutrality hides peaks of negativity and positivity, sentiments that are both present, with a higher proportion of negative words in comparison to the positive in the pandemic period.

Our work confirms that the public debate regarding migration on social media is strongly linked to certain aspects of the migration phenomenon in Italy, thus strongly polarized (de Rosa et al., 2021). As emerged in other studies and as observed in the current reality, migration seems to be perceived as an emergency and a problem to be solved and migrants are perceived either as a threat or as victims. The COVID-19 emergency has not changed the elements of discourse, which are practically the same as they were before the pandemic. The slight preponderance of negative words during the pandemic could be a signal that the emergency slightly exacerbated sentiments and perceptions associated with the migratory phenomenon that were already negative.

Undoubtedly, if it is true that social media is somehow a reflection of what is written and said in other media and what is actually conveyed in different sectors of society, at the same time it is also true that the discourse on social media contributes to focus the attention of politicians and society on certain issues. For this reason, knowing, through the analysis of terms and sentiments, how social audiences deal with migration issues is of particular interest, within the scientific community and in political institutions, in order to be able to direct studies, research and debates on a complex phenomenon.



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