Navigating Political Waters: Network Analysis of the Syrian and Ukrainian Refugee Influxes in the Italian Discourse on Social Media

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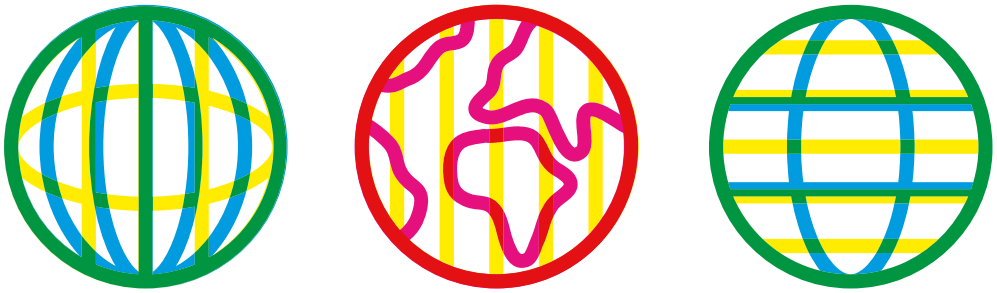

Navigating Political Waters: Network Analysis of the Syrian and Ukrainian Refugee Influxes in the Italian Discourse on Social Media

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Abstract

This study compares Italian Twitter discourse during the 2015 Syrian and 2022 Ukrainian refugee influxes from a network analysis perspective. Analyzing political community-building dynamics, it explores user opinions, prevalent communities, opinion leaders, and agenda-setting strategies. This research contributes to our understanding of social media dynamics during moments of rapidly-evolving refugee developments within a country. The dataset consisted of about 400,000 tweets and 200,000 user data points. Networks of approximately 70,000 nodes and 200,000 edges were generated using the data. Our findings align with the “silent majority” and the “amplification of the right” theses. Despite not comprising the largest cohorts, anti-refugee communities, spearheaded by charismatic far-right leaders with issue ownership and populated by right-wing users, witness a magnification of their voices through a high level of user engagement within their community. The emergence of the Ukrainian crisis acts as a catalyst, reconfiguring this discursive landscape and signifying dynamic shifts in positions and strategies. Our findings underscore the significant role of digital platforms in the diffusion and transformation of political opinions by an indebt analysis of two communication networks.

Keywords: Italy, Refugee, Social Network Analysis, Twitter, X


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1. Introduction

In In an age of heightened global migration, the intersections of political discourse and refugee influxes have emerged as critical subjects of investigation for communication sciences (Castelli Gattinara, 2016; de Rosa et al., 2021; Dehghan & Bruns, 2022; Eberl et al., 2018; Heidenreich et al., 2019, 2019; Mendelsohn et al., 2021; Mertens et al., 2021; Pajnik, 2015; Shah & Ogden, 2021). The displacement of populations due to conflict and instability prompts profound social and political deliberations within host countries (De Coninck et al., 2019; Debrael et al., 2021). This study embarks on a comparative exploration of the political communication landscape within the Italian Twittersphere during two pivotal refugee movements—those emanating from Syria in 2015 and from Ukraine in 2022.[1] The divergent treatment of Syrian and Ukrainian refugees has become a subject of considerable discussion, as the latter often received a distinct set of rights and privileges that diverged markedly from the experiences of the former (Coi et al., 2022; Esposito, 2022; Karasapan, 2022).

The chair of the UN Syria Commission, Paulo Pinheiro, noted the "depressing" double standards in refugee hosting, comparing the reception of Ukrainian and Syrian refugees (Ghadakpour, 2022).[2] Ukrainians have been afforded remarkable privileges, with the EU's Temporary Protection Directive granting them access to work, healthcare, education, and housing (European Commission, 2022; Karasapan, 2022). This generosity starkly contrasts with the treatment of non-European asylum seekers and refugees during the 2015 Syrian refugee crisis (Coi et al., 2022). Countries such as Slovakia and Poland, which displayed strong anti-refugee sentiments against Syrians allow Ukrainian refugees to enter the country even without papers (Esposito, 2022). European leaders known for their anti-refugee policies, such as Orban and Salvini, welcomed Ukrainians and even organised transportation to bring them in (Esposito, 2022; Roberts, 2022). Differences in gender, religious, political, and cultural aspects between Syrian and Ukrainian (as well as other ethnic) refugees can either foster similarities or generate sentiments of hostility within the social context of the receiving countries (David D. Laitin, 2022; De Coninck, 2023). However, there are concerns that the radically divergent responses and policies might stand as a testament to the intersection of racism, religion, and political realities in shaping refugee treatment as opposed to universal principles (Drazanova, 2022; Gorodzeisky & Semyonov, 2019).

In the contemporary media landscape, the significance of social media platforms for analyzing political communication has grown exponentially, largely due to the pervasive influence of digitisation of the media (Finnemann, 2014). Social media platforms serve as dynamic arenas where public discourse unfolds in real time, offering a unique window into the immediate responses, opinions, and narratives that shape societal conversations (Jungherr, 2015; Preotiuc-Pietro et al., 2012). The active and engaged user base within these platforms becomes a wellspring of insights, reflecting the ever-evolving landscape of public sentiment and attitudes (Freelon, 2014, 2018b; Menchen-Trevino, 2020). The digital age has ushered in a hybrid media environment where traditional news outlets coexist with user-

[1] Twitter has changed ownership in late 2022 and has recently renamed itself as X. We will use the old more established name throughout the text.

[2] https://www.euronews.com/my-europe/2022/07/04/syrian-and-ukrainian-refugees-should-receive-same-treatment-says-un-commission-chair

generated content on the social media, granting unprecedented agency to non-elites in shaping the discourse surrounding critical events (Freelon & Karpf, 2014). This amalgamation of media forms has led to complex interactions and symbiotic relationships, influencing not only how information spreads but also how narratives are constructed, contested, and amplified (Caren et al., 2020; Pöyhtäri et al., 2021). From traditional media studies, there has been a transition towards exploring the fragmented public sphere within digital online platforms, moving away from the analysis of the singular "public sphere" of legacy media to the exploration of the fragmented public communication spaces, described as networked public sphere (Friedland et al., 2006; Habermas & Burger, 1991).

Against this backdrop of differential treatment and reception of refugee populations, shifting political climate and changing communication dynamics, this study aims to dissect and elucidate the intricate interplay between political communication networks and the contrasting reception of Syrian and Ukrainian refugees within Italy's Twittersphere. Our focus on Italy is pertinent for migration research, due to its strategic Mediterranean location, significant policy implications within the EU, prominent role in media and public discourse, and its contribution to the broader global conversation on displacement, integration challenges, and human rights. Employing mixed methods research, this study addresses key questions about the political polarisation, prevalent information-sharing communities and their interrelations, community opinion leaders, and successful media strategies, offering insights into how social media platforms both reflect and potentially affect the treatment of refugees within a dynamic and interwoven social media environment.

2. Literature and Political Context

2.1 Political Background: The 2015 Syrian and 2022 Ukrainian Refugee Crises in Italy

In recent years, Europe has been confronted with two significant refugee influxes. The first was sparked by the Arab Spring and subsequent Syrian Civil War, which commenced in 2011 (Angelis & Badran, 2021). This conflict prompted a widespread exodus of Syrians who were escaping violence, persecution, and the destruction of their homes. Many sought sanctuary in neighboring countries, while others embarked on risky journeys to Europe. In 2015, a record numbers of refugees subsequently entered Europe (Terry, 2021). As a border policy, EU closed its borders to influx of refugees and later made a deal to host the refugees in Turkey to keep them off from its borders (Karasapan, 2022).

For Italy, this crisis had far-reaching ramifications on politics, sparking debates among the country's major political parties (Castelli Gattinara, 2016). As a primary entry point for migrants arriving from North Africa, Italy confronted substantial challenges in managing the crisis and addressing escalating humanitarian needs (Castelli Gattinara, 2016, p. 132). After Greece, Italy is the main country of arrival for refugees arriving in Europe via sea routes (Castelli Gattinara, 2017). This refugee crisis has deeply influenced Italian politics, stirring conflicts over border control, cultural diversity, and fiscal constraints.

The issue of immigration has become a major public concern, forcing mainstream parties to engage in public discourse rather than simply dismiss the matter. One such party is the majority PD (Partito Democratico—Democratic Party), led by its secretary Matteo Renzi, who was formerly the Prime Minister of Italy. PD, a social democratic party, officially supports immigration. However, some of its policies in this area have generated controversy, such as providing funding for robust border control measures in Libya (Vilella et al., 2020). During this period, the political landscape in Italy has witnessed the rise of Lega Nord, commonly referred to as Lega. This party has subsequently evolved into its successor, Lega per Salvini Premier (League for Salvini Premier), abbreviated as LSP, although we will continue to refer to it as Lega in this text. Lega vehemently opposes illegal immigration and advocates for border closure. It exemplifies yet another instance of a populist, far-right European political party with nationalistic tendencies. Its foundation rests upon euro-sceptic policies and anti-immigration stances (Mudde, 2014). Lega is led by Matteo Salvini, a prominent Italian politician and the current Deputy Prime Minister of Italy.

On 24 February 2022, a new wave of refugee movement was triggered by Russia's invasion of Ukraine. Around 6 million refugees fled Ukraine across Europe, and an additional 8 million were internally displaced within the country. By March 20, 2022, approximately a quarter of Ukraine's population had left their homes. The majority of Ukrainian refugees were women and children, as Ukrainian men were required to fight in the war. This invasion led to Europe's largest refugee crisis since World War II. As mentioned before EU invoked the Temporary Protection Directive, granting Ukrainians the right to reside, work, and study in member states for an initial year (Esposito, 2022). The Italian anti-immigration parties showed a rather welcoming attitude towards the Ukrainian refugees. For example Salvini made a speech in favour of supporting Ukrainian Refugees and visited a refugee camp for Ukrainians (Roberts, 2022).

Previously, Lega had been part of the government with the M5S (Movimento 5 Stelle, 5-start Movement). However, that government eventually collapsed. In October 2022, amidst international crises, heightened tensions, and an ongoing refugee wave, Lega joined the Centre-Right Coalition. This coalition won the 2022 Italian general election, leading to Lega's participation in the government. The

predominant force within the coalition is the Brothers of Italy (Fratelli d'Italia, or FdI), whose president Giorgia Meloni is the current Prime minister of Italy. FdI is characterised by illiberal tendencies and shares policy proposals similar to those of Lega (Puleo & Piccolino, 2023). Another significant partner in the present Italian government is the liberal-conservative Forza Italia. On the other side of the political spectrum, the left-wing Democratic Party (DP) and the non-aligned 5-Star Movement (M5S) now constitute the main opposition parties. Those opposition parties suffered considerable losses in both support and parliamentary seats during the 2022 elections. This succinct chronology of the refugee waves, coupled with the rise of the populist Right to power in Italy in response to the refugee crises, alongside the divergent policy approaches taken by various political actors, provides the political backdrop for our study.

2.2 Social Media and Public Opinion on Migration

Extensive research has investigated the impact of social media on democratic society, politics, and public opinion, often considering social media as a reflection of public sentiment during political events, such as elections (Tumasjan et al., 2011). Predictive analyses utilizing social media data have gained significant popularity in recent times (Cano-Marin et al., 2023). However, others have raised theoretical and empirical concerns regarding the optimism surrounding such studies (Jungherr, 2015; van Klingeren et al., 2021). Since the computational turn in social sciences and humanities, diverse methodologies and approaches continue to be employed in the exploration of a wide range of topics using digital social media data (Berry, 2012; Rogers, 2019).

Research examining public attitudes towards migration in the context of Syrian refugee influx gained significant attention in the last decade. Many early scholarship taking a critical stance towards the observed discrimination and inhuman treatment of refugees (Marino & Dawes, 2016; Nail, 2015). Later empirical works expanded the literature towards the analysis of the causes of the sentiments. Scholars have delved into how social media usage and preferences interact with voting behavior and attitudes related to migration policies (De Coninck et al., 2023). Quantitative studies found that favourable socio-economic conditions tend to correspond with more positive attitudes on both country and individual levels, while a higher number of refugees is generally associated with more negative sentiments (De Coninck et al., 2021). Moreover, studies have indicated that the younger generation is notably more receptive and open to newcomers. Within this context, socio-demographic characteristics play a more important role than the media portrayal in shaping the attitudes (Debrael et al., 2021). Additionally, studies that investigate the media framing of the refugee "crises", and political communication by politicians and parties from differing ideological alignments found to be associated with public attitudes and explored from various perspectives (Heiberger et al., 2022; Heidenreich et al., 2022; Makhortykh & Sydorova, 2017; Mendelsohn et al., 2021; Pöyhtäri et al., 2021; Sales, 2023).

The scholarly investigations employing digital research methodologies to examine attitudes towards migrants and refugees have encompassed a diverse range of methodologies within the field. These studies can be classified according to the nature of their analysis: those dealing with the message contents and those dealing with the social media networks, accepting the caveat that there are always studies which combine both (Dehghan et al., 2020; Radicioni et al., 2021; Tateo, 2005; Toraman et al., 2022). The former encompasses research into message content in all its modalities. Approaches like sentiment analysis, topic detection, and corpus linguistics methodologies have demonstrated their usefulness and employed for migration related computational studies frequently (Chung & Zeng, 2016; Niklas Sievers et al., 2021; Rowe et al., 2021; Zehring & Domahidi, 2023). Semantic network analysis, including studies on co-

occurrence networks of hashtags or named entities, can also be subsumed within this category (Ichau et al., 2019; Nerghes & Lee, 2018; Tuters & Willaert, 2022). Subsequent to the visual frames-based research, the exploration of migrant-related content in videos on platforms such as TikTok is also gaining momentum in the academic discourse (d'Haenens et al., 2019; Kim et al., 2023; Rogers, 2021). Conversely, the latter group of studies underscore the intricacies of communication networks and their dynamics, leveraging concepts from social network theory to dissect communication patterns on social media platforms (Halberstam & Knight, 2016; Jamieson et al., 2020; Kwon, 2020; Logan et al., 2023). Freelon (2020) delineates an additional methodological differentiation within this realm. It distinguishes between studies that underscore the network science facet of Social Network Analysis (SNA) with the intention of advancing generalizable network models and principles applicable to diverse contexts (2020). In contrast, there are studies that employ network analysis as a tool or method in the realm of communication sciences, intertwining it with subject-specific context-sensitive knowledge, which we adopt in this paper.
Numerous scholars have integrated network analysis methodologies with other approaches to dissect communication dynamics within online social networks concerning political discourse on migration (S. Bodrunova et al., 2015; S. S. Bodrunova et al., 2016, 2017; de Rosa et al., 2021; Dehghan & Bruns, 2022; Ferra & Nguyen, 2017; Pöyhtäri et al., 2021; Vilella et al., 2020). These endeavours strive to model the structural dynamics of virtual public discussions, with or without analyzing lexical choices or platform affordances (Bruns, 2023). Our paper introduces a comparative dimension by juxtaposing network structures at two distinct time points, corresponding to different influxes of refugees into Europe. While prior studies have examined similar points of interest on a single graph, we aim to compare the topology of these networks, user communities and their inter relations, and identifying influential users.

RQ1: What is the shape of communication networks on Twitter during the Syrian and Ukrainian Refugee crises?

Drawing insights from the above-mentioned literature, we anticipate highly polarised networks during the Syrian refugee wave, while expecting relatively less fragmented discussions in the second wave due to the social, cultural, and political affinities toward Ukrainian refugees (De Coninck, 2023). Next, we delve into the analysis of significant user communities engaged in these debates. We inquire whether similar community groups persist across different time periods and explore the constituencies of these communities.

RQ2: What are the biggest user communities involved in the discourse surrounding the refugee waves, and how do these communities interrelate?

Previous research comparing networks related to distinct but interconnected events remains limited (Berman et al., 2019; Stegmeier et al., 2019; Yao et al., 2022). We hypothesise that echoing polarisation tendencies, communities with significant members are likely to predominantly interact with user groups sharing similar viewpoints (Enjolras & Salway, 2023; Gargiulo & Gandica, 2017). Within our study, the concept of ideological homophily, the tendency of nodes (in this case users) to connect with other nodes sharing similar characteristics within networks, may be strong in our study considering the topic and the presence of echo chamber effects (Cinelli et al., 2021). Nevertheless, it is important to acknowledge that certain scholars recommend caution regarding the latter term (Bruns, 2021, 2017, 2019b). As a working hypothesis, we envision the anti-refugee community to be smaller, juxtaposed with larger pro and neutral communities. We expect these latter two communities to exhibit intertwining aspects and comprise smaller subgroups. At the level of individual nodes, detecting opinion leaders and their influence is a

central objective within the realm of for communication studies (Casero-Ripollés, 2021; Ingenhoff et al., 2021; Tridetti, Stéphane, 2016).

RQ3A: Who are the influential users in these debates?
RQ3B: Do these central figures persist across both time periods?
RQ3C: Are they elites or non-elites?

As previous studies have noted, we expect traditional actors to maintain considerable influence in these communication networks (Ferra & Nguyen, 2017; Freelon & Karpf, 2014). Potentially, right-wing politicians with social media following, such as Salvini, could exhibit heightened activity compared to their counterparts in migration policy debates. However, there is also support for the rise of non-elite users as opinion leaders on social media networks and decline of gate-keeping function of the legacy media and traditional political actors (Casero-Ripollés, 2021; Heidenreich et al., 2019; Hemsley, 2019; Meraz & Papacharissi, 2013). Finally, we turn our attention to the issue of recommendation algorithms, in relation to the network activity of the user communities.

RQ4: In the realm of algorithmic recommendation, which opinion leaders possess a greater advantage in effectively amplifying their messages?

On Twitter, recently renamed to X, two primary avenues exist for expanding one's audience. The first involves using retweets and fostering interactions, while the second hinges on achieving either a highly popular status or a trending status. The process of retweeting and engaging with content directly enhances its dissemination within the network chain, thereby amplifying the original author's message. Furthermore, indirect amplification is achieved when users interact with the message, contributing to its virality. The Twitter recommendation algorithm facilitates the exposure of certain topics or hashtags to users with relevant interests and elevates them as trending topics within the Twitter user interface. Additionally, interactions play a role in influencing the visibility of messages in search results on the platform. However, the precise workings of Twitter's algorithm remain not fully understood, and the existing literature on this topic is limited (Dujeancourt & Garz, 2023). The frequent shifts in platform management and policy changes further complicate this matter, despite the fact that the algorithm was recently made public (Twitter, 2023). Nonetheless, it remains evident that politicians and other users stand to benefit from the retweeting, liking, and overall engagement of their content by others. There are debates about whether the right-wing politicians or influencers do this better than others (Tuters, 2019). However, some scholars found no support for the thesis that right-leaning parties talk more about migration than left- leaning parties in an international study (Heidenreich et al., 2019). Yet, others found evidence for the "amplification of right" thesis, which posits that despite smaller user numbers, far-right groups magnify their online presence by leveraging higher activity levels, retweets, link sharing, and other strategies within the attention-driven social media ecosystem (González-Bailón et al., 2022). Should this pattern hold true within our networks, it could imply that anti-refugee messages are poised for wider dissemination. Such a trajectory could potentially enable and foster a toxic online environment, impeding constructive political communication within the realm of online public deliberations regarding migration policies with hateful speech and disinformation (Åkerlund, 2020; Evkoski et al., 2022; Freelon & Wells, 2020).

3. Methodology and Data

The objective of this study is to leverage network analysis terminology and concepts to shed light on the community structures and prominent users within the communication networks on Twitter pertaining to the 2015 Syrian and 2022 Ukrainian refugee influxes. This study adopts an exploratory approach, combining network analysis, data science techniques for data collection, cleaning, and analysis, along with domain expertise for the interpretation of results. Methodologically, we position ourselves within the emerging landscape of mixed-methods network analysis (D'angelo et al., 2016, 2016; Dehghan et al., 2020). This study seeks to conceptualise the Twittersphere as a networked public sphere, drawing inspiration from, among others, Habermas' (later) notion of "issue publics" (2006) and the communication dynamics that constituted it during the peak points of aforementioned refugee waves (Bruns, 2023; Münch, 2019). To achieve this objective, a comprehensive elucidation of our data collection process, information about our data, a brief introduction of certain important network analysis terms that and justification of our other study design choices is crucial.

To formulate our inquiry, we conducted an extensive query term exploration, involving a variety of Italian words, their combinations, and relevant hashtags. First, we initiated queries utilizing Twitter's Academician API, which has since been discontinued, against the Tweet Count endpoint. There is no endpoint for retrieving historical trending topics or hashtags. Our analyses of various keywords revealed that "refugee" emerged as the most frequently employed term within the specified time frame. Although terms like "migration," along with its derivatives such as "migrant" and "immigration," were less frequently used, some consider them to carry a more neutral connotation (Vilella et al., 2020). However, we intentionally chose to exclude "migration" and its related terms from our query due to the observation that, while it was relevant in the context of discussions surrounding the Syrian refugee influx, its application to the Ukrainian crisis in 2022 introduced a bias in our data. Notably, the tweets we collected that specifically mentioned migrants in 2022 were referring exclusively to Syrians, not Ukrainians. To maintain consistency in our keyword selection and to avoid introducing complexities to our dataset, we opted to omit this term. Furthermore, our stance differs from that of Vilella et al. regarding the characterisation of "refugee" as being "particularly used" by pro-migrant factions. Our data reveals a higher preference for the term "migrant" within anti-migrant communities. Moreover, there exist other studies that examine the significance of the terms employed to describe displaced individuals, with findings suggesting that "migrant" tends to carry a more negative connotation (Holmes & Castañeda, 2016; Lee & Nerghes, 2018; Nerghes & Lee, 2018). Acknowledging the absence of a more ideal alternative, we accepted the fact that there is no single neutral keyword to choose and settled with refugee. Additionally, our trials revealed a contrast in the usage of hashtags between 2015 and 2022 in relation to migrants. While the former period had useful hashtags, the latter period witnessed a decline in hashtag usage, including the absence of explicit anti-Ukrainian refugee hashtags. Given that queries with words also catches their hashtag equivalents (such as *rifugiati* also catches #rifugiati), we decided against incorporating hashtags in our query, but we do not disregard their importance (Bruns et al., 2016; Bruns & Burgess, 2015).

After careful consideration, we opted for the Italian versions and conjugations of "refugee" as our query string.[3] Initially intending to gather data from 2015 to 2023 to encompass ongoing discussions on Syrian

[3] The query string we used was the following: "*profuga OR profugo OR profughe OR profughi OR rifugiate OR rifugiati OR rifugiato OR rifugiata*". It catches any tweet (retweet, reply, quote) containing any of these words.

refugees, we noted that network dynamics around the Syrian Refugee crisis tended to skew towards more recent times, likely due to the growth in user and message volume on Twitter, as well as the disappearance of deleted accounts and tweets. This original idea presented both advantages and disadvantages: while losing historical specificity, it could offer insights into the current state of conversations about "Syrian refugees" (for example current search results on Twitter).[4] Ultimately, we decided to introduce a timespan limit, focusing on peak communication periods regarding Syrian and Ukrainian refugees across the European Union to capture the peculiarities of the conversation as it happened as much as possible.

The data gathered from Twitter API provides users with three different datasets: 1) Response data, containing all (re)tweets that match the query with metadata; 2) Originals data, containing the tweets the collected (re)tweets from response data relate to (retweets, quotes or replies) and their metadata; and 3) User data, containing the data of users who are associated with the tweets in the Response or Originals dataset, such as senders, original authors of retweets or mentioned users in tweets and their metadata. It is worth noting that during its active period, the Twitter API endpoint v2 (through the Academician API) was the most reliable and comprehensive method to systematically collect data from Twitter (Pfeffer et al., 2022). These three datasets are relationally linked to each other via their unique "id" number. This established a connection between all three datasets. The total sizes of our datasets for the various cases are provided in Table 1.

Table 1. The datasets

	Syrian Refugee-related	Ukrainian Refugee-related
Response data	160,289	241,971
Originals data	21,946	33,324
User data	66,819	157,701

The response dataset comprises diverse forms of interactions within the Twitter platform. "Tweets" denote original messages crafted by users, expressing their viewpoints on migration. "Retweets" involve the redistribution of tweets by other users, extending the reach of content. "Replies" represent responses to tweets, facilitating interactive dialogues. "Quotes" entail the sharing of tweets alongside added commentary, often contextualizing or critiquing the content. "Mentions" occur when users tag others in their tweets, encouraging broader participation and discourse engagement (source). The quantities of these interactions in our dataset are presented in Table 2.

Table 2. The counts of different tweet types in the response datasets

	Syrian Refugee-related	Ukrainian Refugee-related
Tweets	62,605	92,382
Retweets	88,023	135,172
Quotes	1,908	2,724
Replies	7,753	11,693
Total (Response data)	160,289	241,971

[4] Another study we conducted on the German-speaking Twittersphere where we adopted this initial idea can be found in the Proceedings of the 5th Weizenbaum Conference. At the time of writing, the process of preparing it foronline release was still ongoing.

Unless explicitly excluded, Twitter datasets are largely dominated by retweets (Vilella et al., 2020). The prevalence of retweets can be attributed to their simplicity and speed in disseminating information. While not all retweets necessarily indicate approval, they generally indicate a positive relationship between the user and the original author, at least in terms of the shared message (Ahn & Park, 2015; Evkoski et al., 2022; Firdaus et al., 2018; Hemsley, 2019; Hemsley et al., 2017; Majmundar et al., 2018; Nagarajan et al., 2010). Consequently, retweets often form the focal point of computational research on Twitter due to their comparatively unambiguous nature, as we will also adopt (Ahn & Park, 2015; Cherepnalkoski & Mozetič, 2016; Rath et al., 2017; Vilella et al., 2020).

Providing a chronological sequence of events proves valuable for contextualizing the dataset. The illustrated daily tweet counts, and annotated events are presented in Figure 1A and 1B, respectively. Notably, an unfortunate incident occurred on August 27, 2015, involving a refugee boat off the Libyan coast. This event highlighted the perilous journey many refugees undertook, especially towards Italy due to its strategic location along the migration route. Tragic fatalities persisted throughout 2015, with over 2700 lives lost on this treacherous sea route. Simultaneously, Europe faced its own tragedies, exemplified by the discovery of a truck containing the bodies of 71 refugees at the Austria-Hungary border. The image of a Syrian child's lifeless body on a Turkish coastline on September 2, 2015, intensified media attention and spurred political discussions both in Italy and the EU. This sequence of events culminated in Germany's decision to welcome refugees, sparking criticism from anti-refugee factions. The timeline further underscores refugees' determination to reach Europe despite risks.

In the Italian context of the Ukrainian refugee crisis, a significant turning point occurred on February 24, 2022, following the Russian invasion of Ukraine, prompting a substantial number of Ukrainians to seek asylum. Notably, the government, composed of a right-wing coalition comprised of hardline anti-refugee parties, adopted a receptive stance toward the influx of Ukrainian refugees. This was further facilitated by the approval of the Temporary Protection Directive by the European Union, granting initial residence, work, and study rights to Ukrainian migrants within member states (Esposito, 2022). Italy demonstrated its commitment by providing refuge and establishing dedicated camps, which received official visits from government authorities. The media also reported a considerable pre-invasion Ukrainian population residing in Italy, highlighting the existing ties between the two nations. Notably, as of March 9, 2022, a total of 23,872 Ukrainian refugees had arrived in Italy, primarily entering through the Italian-Slovenian border. This number escalated to 34,851 within three days, as reported by official figures on March 12th.[5]

[5] ANSA.it. 'Ukraine: Close to 24,000 Refugees in Italy so Far - Draghi - English', 9 March 2022. https://www.ansa.it/english/news/politics/2022/03/09/ukraine-close-to-24000-refugees-in-italy-so-far-draghi_88134621-568c-4d46-931f-e93a66c05592.html.

ANSA, Agenzia. 'Ucraina: Viminale, arrivati in Italia 34.851 profughi - Ultima ora - Ansa.it'. Agenzia ANSA, 12 March 2022. https://www.ansa.it/sito/notizie/topnews/2022/03/12/ucraina-viminale-arrivati-in-italia-34.851-profughi_908af26d-93fa-4e52-b044-1e3fa1c12b07.html.

Figure 1A. Timeline of tweets related to Syrian refugees

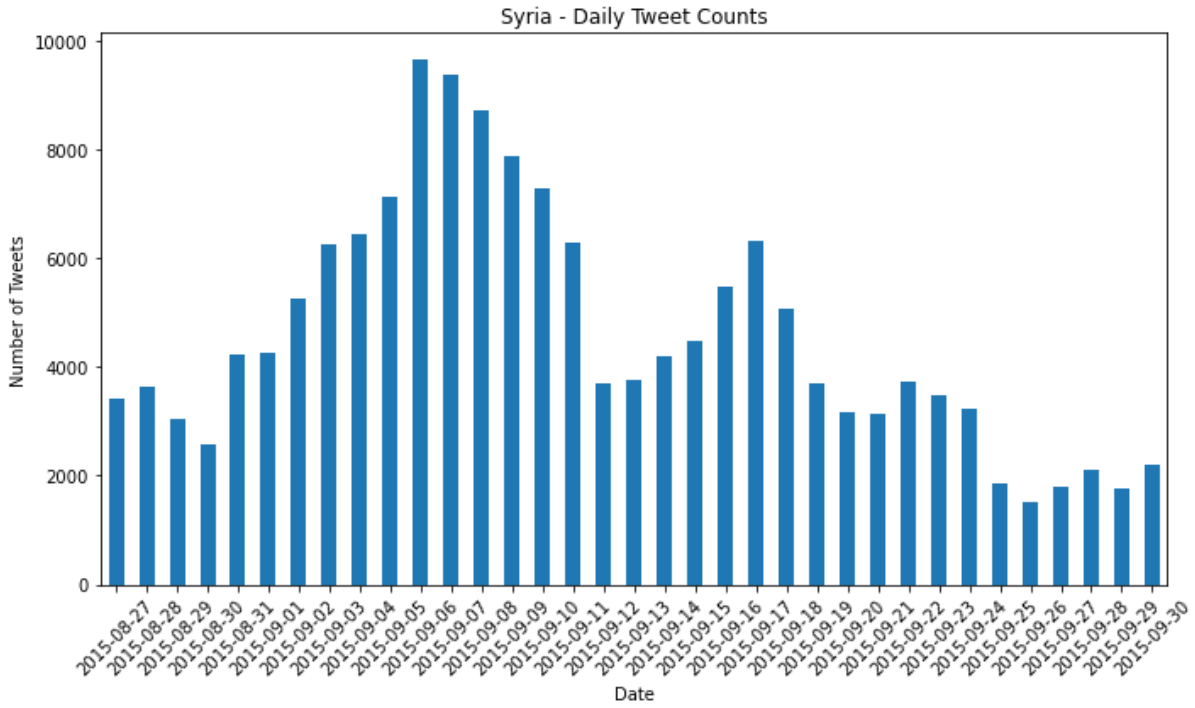
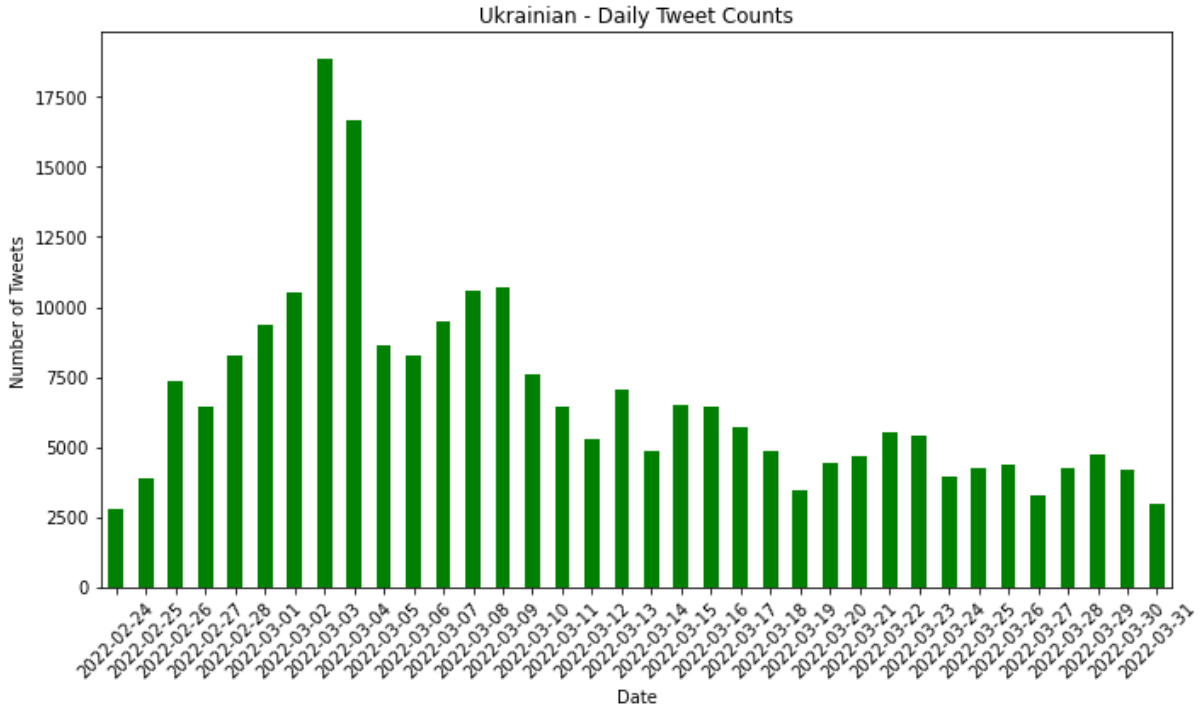


Figure 1B. Timeline of tweets related to Ukrainian refugees



4. Results

4.1 The Communication Network Overview

Each network (referred to as N1 and N2) is generated using the TSM package in Python but then imported into Gephi for better visualisation (Bastian et al., 2009; Freelon, 2014/2023). As mentioned, these networks show the spread of information (based on retweets) among users on Twitter during the mentioned periods. Our model operates on the premise of trust or approval flowing from the retweeter (source) to the original author (target). Noteworthy users are identified through high retweet activity. The spatialisation of networks is accomplished using the Force Atlas 2 algorithm, resulting in nodes that are closer if related. a widely adopted force-directed technique often coupled with Gephi (Jacomy et al., 2014). Force-directed algorithms simulate physical forces between nodes, positioning them in a manner that reflects underlying structural relationships. This is achieved through the repulsion of nodes akin to charged particles and the connection of nodes by springs, approximating a stable equilibrium layout.
Graphs 1A and 1B are generated based on the networks N1 and N2 respectively. We focused on the nodes which are part of the biggest connected component and those found to belong to the top 10 communities. We applied the Louvain Community Detection Algorithm, chosen for its computational efficiency and capacity to manage extensive networks, classifies nodes with a singular label while assuming undirected edges (Alam et al., 2012; Blondel et al., 2008; Münch, 2019). Through modularity optimisation, this method iteratively identifies communities, its outcomes influenced by the chosen resolution level. Our selection of this algorithm proved suitable for detecting communities and discerning users' positions and ideologies. For Graphs 1A and 1B, we aimed to provide an overview of the polarisation and applied a high-resolution algorithm that resulted in satisfactory modularity. Modularity quantifies the degree to which nodes within the same community are more densely connected to each other compared to what would be expected in a random network. More specifically it measures the strength of the internal connections within communities relative to the connections between communities. It is considered that scores above 0.3 are considered acceptable, 0.5 as a good standard to detect community structures and scores above 0.7 are rarely observed in social networks SOURCE. Table 3 provides the descriptive statistics of the networks formed.

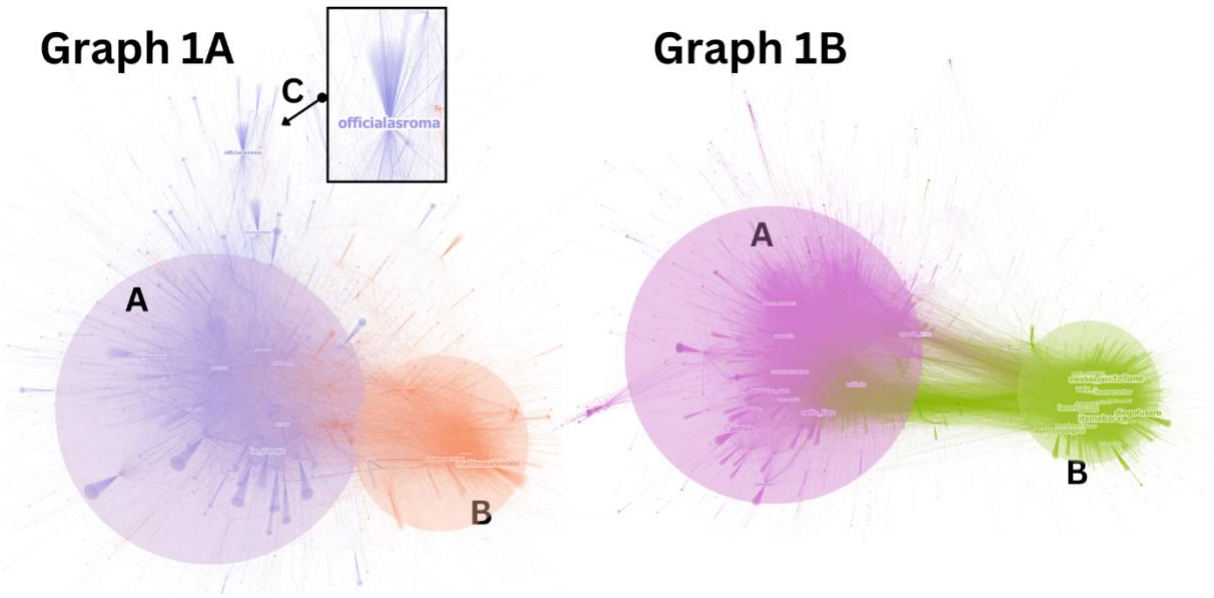
Table 3. Descriptive statistics of the networks under study

	Syrian Refugee-related (N1)	Ukrainian Refugee-related (N2)
# of nodes	30,147	47,147
# of edges	60,301	137,512
# of nodes (in top10 Coms)	18,050	42,365
# of edges (in top10 Coms)	41,033	131,032
Avrg. Degree	2.74	3,1
Avrg. Weighted Degree	2.97	3,75
Network Diameter	19	27
Avrg. Path length	7.11	8.7
Polarised Modularity	0.38	0,44
Optimum Modularity	0.64	0.58

The discrepancies in the number of nodes and edges between the 2015 and 2022 networks can be attributed to several factors, including Twitter's evolving user base and removal of deleted accounts and messages. Twitter's historical API only provides us the data as it is still stored thus, removed or changed information by users or management is not stored. Both networks exhibit polarisation between two communities (annotated as A and B). Moreover, the low average (weighted) degree score shows that the connections between nodes is sparse. A closer look of the graphs would show triangular cluster formations exemplified by instance C. These are formed by the users retweeting a tweet from an influential node. Our graph exhibits a clear power law with a few users having a high indegree and most others having just a few or no incoming ties. The power law is rather characteristic of social networks and it (as opposed to normal distribution) often demonstrates a "long tail" distribution, where a small number of highly connected nodes have a disproportionately large number of connections, while the majority have fewer (Lazer et al., 2009; *Network Science by Albert-László Barabási*, n.d.; Raj P. M. et al., 2018). This phenomenon is observed in various network structures, such as the distribution of website popularity or the connectivity of nodes in complex systems.

These patterns are representative of communication networks on social media, and they are characterised by low values in terms of average degree, network diameter, average path length, and density. The network diameter, a concept from graph theory, quantifies the greatest distance between any two nodes within a network. The average (shortest) path length, an analytical measure in network analysis, quantifies the typical distance between all pairs of nodes in a graph. This metric offers understanding into the general effectiveness of information or signal dissemination within a network. The concept of the "small-world effect" in networks relates to the discovery that in numerous real-world networks, including those with a substantial number of nodes, the average distance between any two nodes is unexpectedly short. This indicates that most nodes can be reached from any other node through a relatively small number of intermediary connections, often termed "degrees of separation." The small-world effect suggests that networks display a significant level of interconnectivity and streamlined information flow, thus facilitating swift transmission of information or influence across the network.

Importantly, a noticeable rise in edge density across various sections of both Graph 1A and 1B suggests the presence of distinct community structures within the graph. Additionally, the less frequent connections between the larger clusters, depicted as faintly colored ties and gaps, indicate the existence of intermediary nodes. These nodes serve as bridges, allowing tweets to move between clusters, thereby establishing short pathways between different facets of the discussion. This phenomenon supports the emergence of the small world effect within the network. In Graph 1B, the bridging nodes are further categorised into two groups, signifying that Community A itself is composed of diverse users with distinct assortative relationships among them, thus forming more intricate sub-communities.



4.2 Key Players and Their Communities

To facilitate the presentation of our analyses, we introduce the visualisations depicted below, titled Graphs 2A and 2B. They are still based on the previous network layout, aiding in providing a sense of direction and familiarity. As our main centrality measure to detect influential users, we chose indegree centrality. Indegree centrality is a measure in network analysis that quantifies the number of incoming connections that a node in a network receives from other nodes. In simple terms, it reflects how popular or influential a node is within the network based on the number of links directed towards it. Nodes with higher indegree centrality are often seen as more important or influential in terms of receiving connections, information, or interactions from other nodes. In social networks, for instance, nodes with high indegree centrality might represent individuals who are frequently mentioned, referred to, or interacted with by others, making them key figures within the network. In a retweet network, a user being retweeted frequently signifies what is commonly understood as influence within social networks. Another term used to refer to nodes with high indegree centrality is "authorities." A greater weighted indegree centrality indicates a higher degree of message sharing, implying a potential for reaching a larger and more diverse audience.

To enhance the clarity of the visualisation, we employed a multi-layered projection technique using Gephi. We chose to utilise a total of three layers, as this configuration effectively showcases differences between various influencers without overly complicating the graph (Bruns et al., 2013). In this arrangement, the top layer consists of highly influential nodes, while nodes with the lowest degree are positioned in the bottom layer. Nodes with the highest degree are placed in the top layer, and nodes with medium centrality find their place in the middle layer. Nodes within the bottom layer are associated with low influence or represent the audience, those in the middle layer are classified as having medium influence, and those in the top layer are acknowledged as highly influential. The size of nodes and their

labels correspond to their indegree centrality. However, users in the bottom layer are not labelled due to their abundance. Moreover, only nodes with significant retweet counts (measured by indegree centrality) are labelled within the visualisations.

Graphs 2A and 2B have been segmented into the optimal number of communities using the Louvain Algorithm. The Louvain algorithm is a widely used method for identifying clusters or communities of closely interconnected nodes within a network. This algorithm operates in two phases: In the first phase, nodes are grouped into communities to maximise a metric known as modularity, which quantifies the quality of the community structure. The second phase involves constructing a new network where communities from the initial phase are treated as nodes. Optimisation continues to refine the community structure within this new network. The Louvain algorithm effectively unveils latent patterns within networks by prioritizing the maximisation of modularity. It proves especially effective for networks characterised by pronounced community structures, and its applications span various domains for revealing relationships and clusters within intricate systems. However, it is important to note that the Louvain algorithm is randomised and can yield varying node counts. To address this, we followed the suggested best practice by Deen (2020) and determined the optimal distribution through repetition. Furthermore, the Louvain algorithm often generates a large number of small communities in addition to larger ones. In our analysis, we focused on the top 10 communities as a meaningful cutting point (Freelon, 2020; Freelon et al., 2015, 2016). Each community is identified based on its most authoritative node, and the size of each community (total number of member nodes) is detailed in Table 4.

Table 4. Communities and number of nodes in N1 and N2. Communities are named after their most central node.

	N1		N2	
#	**Community**	**Population**	**Community**	**Population**
1	matteosalvinimi	4,206	boni_castellane	11,565
2	asiablog_it	2,972	sarita_libre	9,602
3	lercionotizie	1,831	agenzia_ansa	6,405
4	repubblicait	1,719	emmevilla	5,888
5	vittoriozucconi	1,648	l_patrizia	4,020
6	avvenire_nei	1,642	juventusfc	2,291
7	officialasroma	1,396	enpaonlus	1,508
8	la_stampa	1,338	marconoel19	1,182
9	erriders	1,018	giorgiameloni	1,000
10	linkiesta	897	laura boldrini	525

Within N1, the most prominent community centers around Matteo Salvini, a politician and the leader of Lega at that time (see the right side of the Graph2a). He advocates anti-refugee sentiments, fueling his political campaign through the criminalisation of refugees and the instigation of fear among the populace. With a prolific Twitter presence, he garners significant retweets for his messages. The retweet behavior within his community showcases strong homophily, with numerous other influential accounts sharing similar anti-refugee sentiments and espousing far-right ideologies. The second largest community is led by a pro-refugee account that focuses on disseminating news about refugees. The seventh largest community is guided by the official AS Roma Twitter page, showcasing successful fundraising efforts for refugees. Their campaign resonates widely, as users retweet to amplify and endorse the message, potentially reaching diverse sections of the population. Deen (2014) categorises such influencers as "bridging nodes," connecting the discourse with users outside the immediate network. Although their influence may not be overtly visible within the network, they extend the reach of their political messages

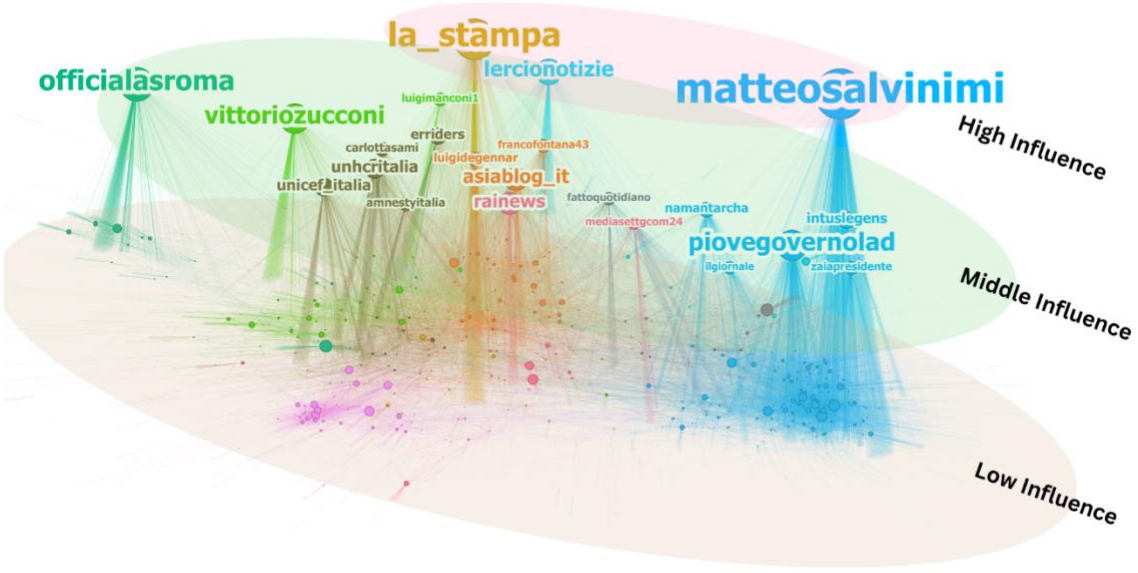
to others. La Stampa, one of Italy's oldest newspapers with a left-leaning political stance, emerges as the only node rivaling Matteo Salvini's influence within N1. Its messages convey positivity and advocate humanitarian approaches toward refugees. Overall, we observe that many communities share pro-refugee messages and together they form a bigger population than the anti-refugee community, however the internal ties among the latter are much higher than the former.

Within N2, we observe that the internal activity of the anti-refugee community has increased resulting in the fact that only they have highly active users at this period in the network. They retweet each other and bring visibility to their messages this way, however this might also indicate isolation and problem for reaching to a wider audience. Apart from the expected far-right and ultra-nationalist accounts there are two interesting things among the opinion leaders of the biggest community at this time: 1) there are some pro-Russian accounts, 2) The previous voices of the anti-refugee sentiments are no longer central in the graph or even in the biggest anti-refugee community. Salvini and other politicians from the center-right coalition are in the 9th biggest community whose most influential node is the current prime minister Giorgia Meloni. They are now rather in between the biggest anti and pro-refugee communities. It appears that their institutionalisation as the government and changing position reduced their dominance on the social media. However, new non-elite (referring to those who are not part of the traditional news cycle and political groups) influencers seem to replace them. In fact, the homophily and internal retweeting behavior of the anti-refugee community increased, indicating increasing isolation during the Ukrainian refugee influx. The second biggest group is a pro-refugee users community, who share many tweets criticizing the hypocrisy of the government in relation to the Syrian and Ukrainian Refugee waves. 6th biggest community is another bridging community introducing non-interested users into the subject they support Ukrainian refugees and send positive messages.

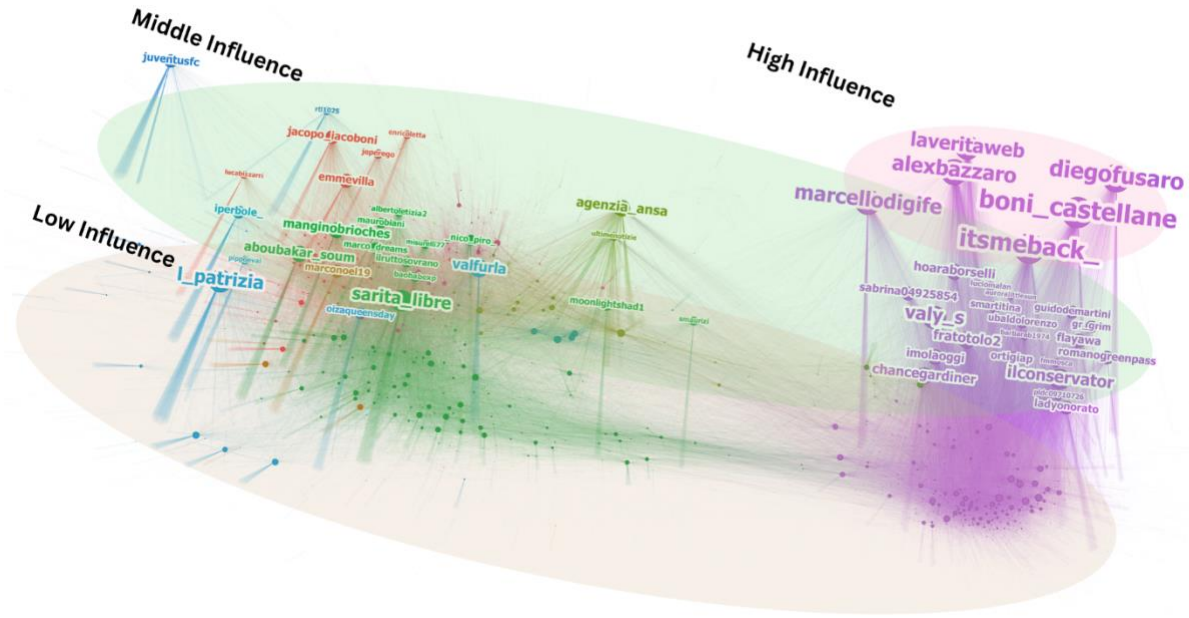
In summary, although anti-refugee groups exhibit a dominance in terms of retweet counts, a significant portion of their retweets originate from within their own community. On the other hand, pro-refugee and neutral communities have weaker connections but encompass a broader range of users and groups, suggesting a more diverse but less actively engaged support base. Notably, in 2022, we observe numerous non-elite users assuming influential roles within the network. Furthermore, during the same year, there appears to be a correlation between the rise of far-right political parties in Italy and their diminished prominence within the far-right movement. This implies a potential disconnect between the movement's grassroots supporters and its political leaders, indicating some discontent within the base.

opportunities
for a fair narrative on migration

Graph 2A. Syrian Refugee-Related Network, Multi-Layered (N1)



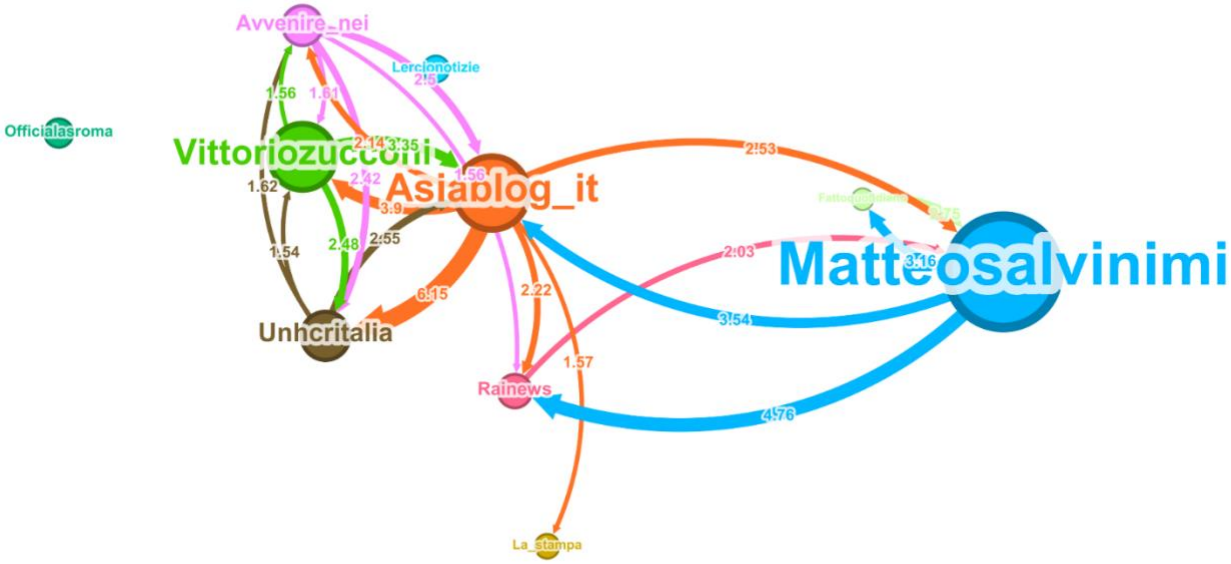
Graph 2B. Ukrainian Refugee-Related Network, Multi-Layered (N2)



4.3. Unveiling Community Structures and Dynamics of Polarisation

By consolidating the communities into super-nodes that serve as representations, we can examine the relationships between different communities. Graphs 3A and 3B illustrate the network structure based on communities for N1 and N2. While almost all communities exhibit some level of interconnection, we have eliminated weaker connections from the visualisation to enhance clarity.

Graph 3A. Syrian Refugee-Related Communication Network Community Structure with Top Nodes as Labels

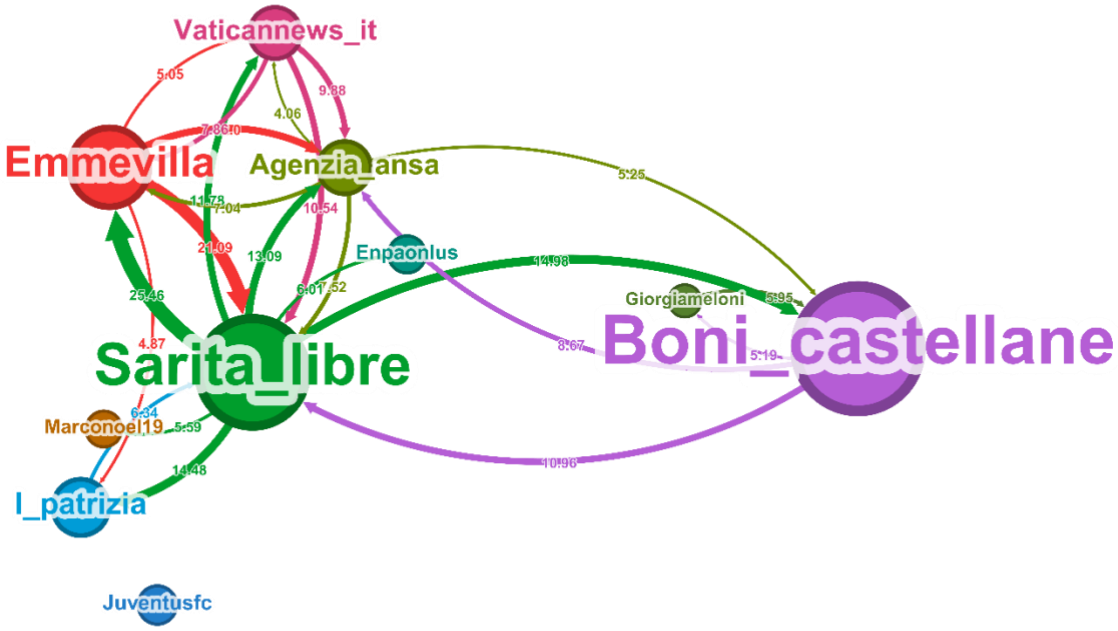


Graph 3A sheds light on the discourse within the Italian Twittersphere, specifically addressing the Syrian refugee crisis. Of particular significance is the expansive community associated with Matteo Salvini, underscoring his pivotal role in steering the anti-refugee conversation. A noteworthy observation pertains to users who disseminate information from both this prominent community and the second largest community, which revolves around the Asiablog_IT account. The latter focuses on refugee news through a human rights lens. Given the community sizes and the dataset's scope, approximately 600 retweets occur between users of these two communities, comprising roughly 1 percent of the cumulative retweets exchanged among these groups.

Distinct pro-refugee communities exhibit strong retweet interconnections (evident on the left side of Graph 2A), a contrast to the anti-refugee faction (visible on the right side of Graph 2B). An additional intriguing aspect pertains to the tenuous ties held by "officialsroma" and "La Stampa" with other communities. These communities, although espousing pro-refugee sentiments based on their retweets, transcend their initial domains, disseminating messages to novel communities. This extension of pro-

refugee content dissemination encompasses diverse subjects, encompassing football fan club fundraising to humanitarian news about refugees.

Graph 3B. Ukrainian Refugee-Related Communication Network Community Structure with Top Nodes as Label



Graph 3B offers a community-centric portrayal of N2. Here the foremost anti-refugee community dominates the graph in terms of retweets, characterised by an internal tie prevalence of approximately 90 percent. Notably, the community dubbed "Giorgiameloni" comprises influential politicians, including Salvini, alongside their followers and retweeters. Strikingly, 38 percent of all retweets from this community emanate from the principal anti-refugee community, suggesting a shared ideological foundation. Conversely, the expansive anti-refugee community refrains from retweeting the other community, opting to amplify fresh opinion leaders such as the influencer "Boni_castenalle." The latter, utilizing a pseudonym, disseminates replacement by migration theories and represents a quintessential non-elite influencer emblematic of the information age far-right movement.
On the progressive end, "L'a_partiza" encompasses academic and leftist accounts, while "Saita_libre" rallies left-wing activists and anti-racist advocates. Noteworthy is "Enpaonlus," devoted to animal rights, and "agenzia_ansa," encompassing media institutions. "Marconoel19" fosters a community supportive of refugees, aligning with left-leaning ideals. Within N2, while right-wing accounts garner higher retweet counts, translating into algorithmic visibility, a discernible trend emerges—more individuals engage with influencers and opinion leaders expressing favourable stances towards refugees.

In summary, a compelling retweet pattern unfolds: anti-refugee accounts manifest a propensity for frequent mutual retweeting, resulting in denser intra-community connections. This is reflected in their elevated average degree, in contrast to the pro-refugee and neutral communities, which exhibit sparser links. Furthermore, inter-community connections underscore the pro-refugee and neutral factions' distributed and interconnected framework, in contrast to the more self-contained and isolated nature characterizing anti-refugee communities.

5. Discussion and Conclusion

Our research has revealed notable transformations within the Italian Twittersphere and the political landscape during the refugee crises that we analysed in terms of communication networks. These transformations are particularly evident in the emergence of distinct issue-oriented publics that have formed through interactions on Twitter in response to the successive waves of refugees. These issue publics exhibit unique characteristics across different levels.

Addressing our main research question (RQ1), the analysis uncovered several distinctive patterns. These include a power law distribution of centrality, a scarcity of connections between nodes, and a prominently polarised structure within both networks. While a universally accepted polarisation metric is lacking in the literature, our analysis empirically demonstrated the segregation of opinions and opinion leaders advocating different ideas (Dehghan & Bruns, 2022; Falkenberg et al., 2022). Furthermore, our analysis indicated that a unified pro-refugee sentiment among Italian Twitter users did not manifest in the N2 network. Instead, the persistence of anti-refugee sentiments within a specific segment of the population remains evident.

Regarding community structures (RQ2), our observations revealed a growing level of activity among anti-refugee groups in promoting their viewpoints. Conversely, on the opposite side of the network, diverse groups with varying objectives and characteristics have emerged. Some of these communities take on more political roles, engaging in criticism of political matters, while others are involved in humanitarian or altruistic campaigns, as well as information sharing endeavors. When considering both the total number of retweets and the per-user retweet activity, the anti-refugee cluster stands out as the largest. However, in terms of user participation, a majority of those involved in these discussions continue to uphold pro-refugee or neutral stances on the issue. This discovery aligns with earlier research that characterises this network activity as a manifestation of the "silent majority" phenomenon (Vilella et al., 2020). This trend persists both before and after the time frame covered by their study. The Italian Twittersphere predominantly maintains support for refugees, although unlike the role of Salvini and Lega in amplifying anti-refugee sentiments in 2015, no single political party or media entity manages to centralise and amplify this position.
Lastly, in terms of the network structure, while we identified polarised communities expressing contrasting views on refugees and supporting opposing opinion leaders, we did not detect any clear echo chamber effects in our retweet dataset. Additionally, since retweets represent the most assortative type of interaction on Twitter, we expect inter-community connections to increase if other forms of interactions are also considered (Bruns, 2017).

Regarding influential nodes within the network, or more precisely, opinion leaders on Twitter (RQ3A), our findings elucidate that Salvini held a distinct and pivotal position in spearheading a social media movement during 2015—an accomplishment unmatched by any other political entity or figure in 2022 concerning refugee policies. Nevertheless, Salvini's centrality within the network has waned over time. His role within the anti-refugee communities, in tandem with his government allies, appears to have diminished due to their evolving policies. Furthermore, their current pro-Ukrainian refugee stance lacks resonance with their former base, evident from the scant dissemination of their messages in this group. Concurrently, those on the left persistently critique the incongruities embedded within his refugee policies. Our observations reveal that certain users, who might otherwise struggle to attain prominence

within traditional media, have emerged as potential substitutes for Salvini as opinion leaders. A parallel trajectory holds true for various other communities, particularly evident in 2022. In contrast to 2015, where La Stampa assumed a pivotal role as an informational conduit for refugees (while Salvini was an opinion source), the landscape of 2022 exhibits a distinct shift. Here, no political party, politician, or media entity exercises dominion over the discourse. Instead, anonymous users and influencers, leveraging their social media influence, preside over the discussions. Consequently, our findings diverge from studies espousing the ongoing clout of traditional news outlets (Ferra & Nguyen, 2017; Freelon & Karpf, 2014). However, this could be the case because of the highly controversial and heated nature of these issues, yet it also shows the weakness and diminishing power of such institutions in the given new hybrid media system. In other words, our findings support the rise of non-elite users as opinion leaders on social media networks (RQ3C) and the decline of the gate-keeping function of the legacy media and traditional political actors (RQ3B) (Casero-Ripollés, 2021; Heidenreich et al., 2019; Hemsley, 2019; Meraz & Papacharissi, 2013).

Finally, it is imperative to undertake an analysis of Twitter as a socio-technical platform, taking into account its content recommendation system and its role in shaping the dissemination of sentiments and information. Our observations underscore that despite the insularity of anti-refugee groups, which appears to hinder the dissemination of their messages to broader affinity and interest clusters on Twitter, they remarkably excel in the propagation of their own content. This heightened interactivity within the social platform does not elude the discerning gaze of Twitter's recommendation algorithm, which identifies such interaction as indicative of "engaging" content (Twitter, 2023). Consequently, this content is classified as a trending topic and gains prominence in search results. This intricacy bears implications for users who casually navigate the Twitter landscape, potentially drawing them towards the content generated by these specialised interest groups. This reality takes on heightened significance in the contemporary context, marked by the increasing mediatisation of daily life and the widespread integration of digital platforms. Consequently, a majority of individuals turn to online interactive and social platforms, like Twitter, to seek answers to their inquiries, guided by algorithms that rely on real-time attention metrics for content suggestions (Bishop, 2018; Rieder, 2019). Consequently, this situation might unwittingly expose unsuspecting users to anti-refugee content, despite their lack of active pursuit of such material. This can manifest adverse consequences, notably the amplification of conspiracy theories, disinformation, and hateful content on the network as far-right communities are disproportionally source of such content (Åkerlund, 2020, 2022). Thus, our findings substantiate the "amplification of right" thesis within our dataset (González-Bailón et al., 2022), as these groups counterbalance their numerical disadvantage on the networks with heightened activity (RQ4).

These findings highlight several critical considerations. Firstly, they emphasise the need for implementing moderation measures to address potential issues arising from these divisive and intolerant groups. Secondly, they underscore the importance of pro-refugee groups enhancing their online presence to effectively counter the influence of anti-refugee narratives on social media platforms. Lastly, they stress the urgency of ongoing research within the realm of social networks, aimed at vigilantly monitoring the activities and reach of such groups. This vigilance is crucial to implementing preventive measures and ensuring that the democratic public remains informed about the potential risks associated with these groups. Regrettably, in relation to the latter point, the increasing tendency of social media platforms to restrict or commercialise data access impedes public accessibility to such information, which can have an adverse effect on the development of democracy in our information-centred societies (Bruns, 2019a; Freelon, 2018a; Pfeffer et al., 2022).

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