Evaluating the Perception of Roma in Europe through Social Network Analysis

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Abstract—The Roma people are a nomadic ethnic group native to India, and they are one of the most prevalent minorities in Europe. In the past, Roma were enslaved and they were imprisoned in concentration camps during the Holocaust; today, Roma are subject to hate crimes and are denied access to healthcare, education, and proper housing. The aim of this project is to analyze how the public perception of the Roma people may be influenced by antiziganist and pro-Roma institutions in Europe. In order to carry out this project, we used social network analysis to build two large social networks: The antiziganist network, which is composed of institutions that oppress and racialize Roma, and the pro-Roma network, which is composed of institutions that advocate for and protect Roma rights. Measures of centrality, density, and modularity were obtained to determine which of the two social networks is exerting the greatest influence on the public's perception of Roma in European societies. Furthermore, data on hate crimes on Roma were gathered from the Organization for Security and Cooperation in Europe (OSCE). We analyzed the trends in hate crimes on Roma for several European countries for 2009-2015 in order to see whether or not there have been changes in the public's perception of Roma, thus helping us evaluate which of the two social networks has been more influential. Overall, the results suggest that there is a greater and faster exchange of information in the pro-Roma network. However, when taking the hate crimes into account, the impact of the pro-Roma institutions is ambiguous, due to differing patterns among European countries, suggesting that the impact of the pro-Roma network is inconsistent. Despite antiziganist institutions having a slower flow of information, the hate crime patterns also suggest that the antiziganist network has a higher impact on certain countries, which may be due to institutions outside the political sphere boosting the spread of antiziganist ideas and information to the European public.

Keywords—Applied mathematics, oppression, Roma people, social network analysis.

I. INTRODUCTION

THE Roma people are one of the most prominent minorities throughout Europe. They originally come from the Indian subcontinent, and they are a nomadic ethnic group. Roma have been oppressed throughout history: they were enslaved throughout the middle ages and they were victims of the Holocaust. Today, Roma are oppressed and racialized through misrepresentation and restrictions from access to healthcare, education, and proper housing.

Roma have been misrepresented in the media and popular culture. They are condemned as dishonest, criminal, dirty, and they are presented as thieves and beggars in newspapers.

Furthermore, they are labeled as a "problem" and as deserving of exclusion [1]. Roma men and women are considered lazy, belligerent, vulgar, dirty, and criminal; Roma women, however, are also subject to sexualized racial harassment, and they face the vulnerability of rape, which is justified through the stereotype of Roma women being "sexually available" [2]. Movies such as The Hunchback of Notre Dame and television shows such as My Big Fat American Gypsy Wedding are more popular examples of misrepresentation in pop culture, and they reinforce current negative stereotypes [3].

Roma are commonly known as "gypsies," a slur that has become socially accepted. The name "gypsy" comes from "Egyptian," which is what the English called Roma when they were first known in Britain [4]. Even politicians like Traian Băsescu (former Romanian president) have adopted this term and use it regularly when referring to Roma [2].

Based on such portrayals, Roma experience oppression in European societies in several ways. They are victims of police brutality, they are racialized and "othered," and they are discriminated against within the criminal justice system [1]. In Hungarian society, for example, Roma are referred to as "an issue" and a "burden to Hungarian society," and "differences in values" and lifestyle are sometimes brought up as excuses for these instances of othering [5]. Some blame Roma's education level and suggest it hinders their social and economic integration [5].

Countries like France have enacted mass deportations of Romanian and Bulgarian Roma in the past; other countries, such as Italy, have engaged in similar activity as well [2]. Many European countries have explicitly color-blind policies that prohibit affirmative action based on race [2]. Furthermore, European countries have created laws that limit Roma's opportunities (e.g. France limits the types of professions available to Roma seeking work), and that do not allow Roma to gain residency, thus forcing them to set up illegal housing that does not meet their basic necessities [3].

Not much research on Roma has been carried out throughout the years. Many countries still fail to collect race-based data, which hinders the possibility of conducting research on Roma and the implementation of policies that can protect Roma. A very small number of psychological studies have addressed discourse and texts about Roma (e.g. discursive research on the prejudice towards Roma in Romania) [1]. Other studies that have focused on Roma used critical discourse analysis (CDA) to evaluate discriminatory language in the media [6], and randomized controlled trials to determine the effects of behavioral intervention for prevention of HIV and STDs in high risk social networks of young Roma

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[7]. However, there is a severe lack of studies that made use of social network analysis to study prejudice towards Roma, which is what this project aims to do. With this study we hope to shed some light on the current status of the public's perception of Roma and on the networks that influence it. We hope to be able to reveal which institutions are the most influential in this matter and to bring awareness to the readers.

II. METHODOLOGIES

The main methodology used to carry out this project is social network analysis (SNA), which is often used in the social and behavioral sciences. SNA involves graphically plotting networks and mathematically analyzing them through algorithms that yield statistics that help us learn more about the nature of such networks. The individual entities in a network are the nodes or vertices of the graph, and the connections among such entities are referred to as the edges or links. There are previous studies that have used some form of network analysis to study sociological matters, which have focused on selection bias and active avoidance of minority group members [8], as well as interactions between social networks of black and white people [9].

In order to build the antiziganist and the pro-Roma social networks, we first gathered data from peer-reviewed academic journals, news articles, and online archives on large European institutions that we classified as either antiziganist or pro-Roma based on the information we found. Large institutions included political parties, non-governmental organizations, governmental organizations, and hate groups. Institutions were classified as antiziganist if they had expressed antiziganist sentiments through hate speech or if they supported legislation that oppressed Roma (e.g. legislation that prevented Roma from accessing proper housing). Institutions were classified as pro-Roma if they had shown support for Roma people or advocated for their rights and protection. In this classification process, actions were prioritized over statements; discriminatory actions were the determinants of an institution's categorization, regardless of whether it contradicted statements released in the past. Furthermore, edges or connections among institutions were established if any of the following were found: collaborations on events (e.g. demonstrations); common membership of larger "umbrella" organizations (e.g. UNITED for Intercultural Action); joint letters or statements to governments and partisan organizations; an institution featuring another institutions' work/publications on its website; financial support between organizations; and statements of endorsement between institutions. The names of larger "umbrella" organizations were recorded in hopes of detecting communities on Gephi within the two networks.

We used a network-visualization software called Gephi to plot and analyze the two social networks following the data collection. Gephi obtained measures of density, centrality, and modularity for both social networks, which we used to identify the most influential institutions for each network and determine the extent of interconnectedness among the institutions.

The data on hate crimes on Roma were gathered from the database of the OSCE. We gathered the data from 2009 through 2015 for the 24 countries that reported hate crimes on Roma to OSCE; however, due to missing values, we only analyzed the data for the eight countries with the most complete data. The countries that had the most complete data are the following: Bulgaria, Czech Republic, Hungary, Italy, Poland, Serbia, Sweden, and Ukraine. We used a statistical software called RStudio to obtain a time series plot and examine the trends in hate crimes for the eight countries.

III. RESULTS AND DISCUSSION

A. Antiziganist Social Network

We were able to include a total of 68 institutions in the antiziganist network, which made up the nodes of the network, and we detected 235 connections (or edges) among those institutions (see Fig. 1). Due to the fact that we took into account a multitude of factors to define connections among institutions, this network is directed, such that we specified that some institutions have links from A to B and not necessarily from B to A. According to Gephi, the density of the antiziganist network is of 0.052, and the average path length is of 4.25. Furthermore, we obtained a value of 0.725 for modularity.

By looking at individual values for betweenness centrality, we detected the four most influential institutions in the antiziganist social network: the Italian Tricolour Flame Party (0.126); the Hungarian National Guard (0.116); the Hungarian Jobbik Party (0.107); and the Hungarian Civil Guard Association for a Better Future (0.106).

B. Pro-Roma Social Network

The pro-Roma social network we built is composed of 63 institutions and we were able to detect 328 connections among them (see Fig. 2). This is also a directed network, due to the criteria we used to define the edges. According to Gephi, the pro-Roma network has a graph density of 0.084, and its average path length is of 2.655. The value for modularity we obtained for this network is of 0.354.

The observed individual values for betweenness centrality suggest that the following five institutions are the exert the most influence in the pro-Roma network: The OSCE (0.146); the European Roma Rights Centre (0.142); the International Organization for Migration (0.140); Amnesty International (0.139); and the Council of Europe (0.121).

C. Hate Crimes on Roma

Our raw data consisted of the number of Roma individuals who were victims of hate crimes from 2009 to 2015 for 23 European countries; however, due to missing data for certain years, we only included those nations that had data for at least five of the seven years of interest. This narrowed the number of nations down to the following eight: Bulgaria, Czech Republic, Hungary, Italy, Poland, Serbia, Sweden,) of the hate crimes, which shows differing trends for the eight nations: Sweden has an increasing trend; Hungary reaches a peak in 2010, and then follows a decreasing trend; and Serbia does not

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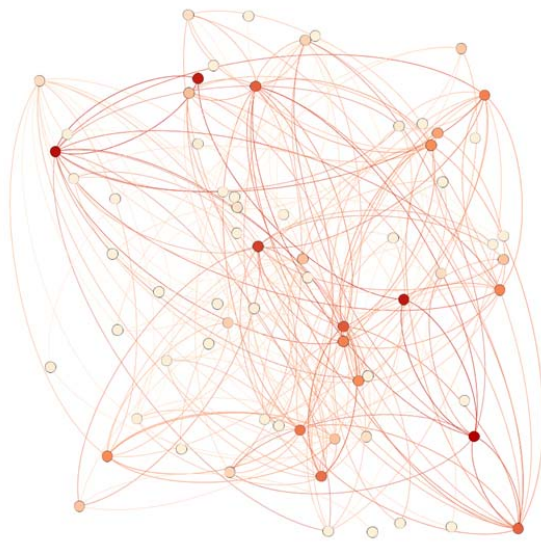show any patterns or significant decreases or increases in hate crimes on Roma.

Fig. 1 Antiziganist social network obtained with Gephi

Fig. 2 Pro-Roma social network obtained with Gephi

There are several explanations for the observed patterns in hate crimes. It is a possibility that local current events impacted the frequency of hate crimes for certain years. For example, critical elections may have triggered spikes in hate crimes in certain nations. Furthermore, historical events in certain countries may be having an effect on the occurrence of hate crimes on Roma. It could be that those countries that had more occurrences of oppression in the past take a longer amount of time to change the mentality and sentiments that the larger population has towards Roma, thus explaining why certain countries have higher hate crime frequencies than others.

We cannot draw any conclusive statements from these data

since the data we gathered from the OSCE database come only from countries that have organizations which report these hate crimes. There likely are unreported hate crimes that are included in this analysis and thus we do not have the desirably complete data to draw more telling conclusions.
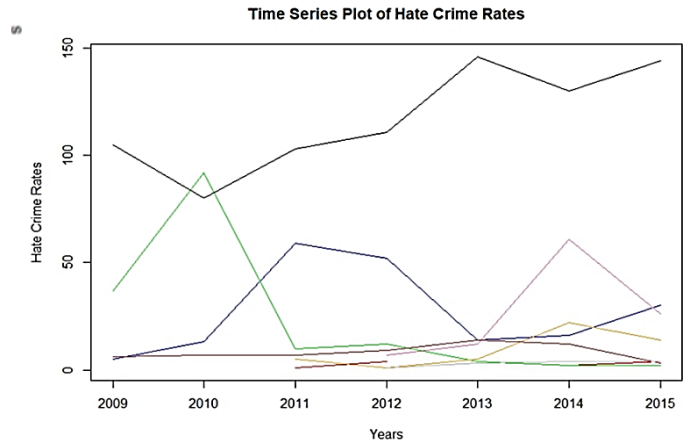

Fig. 3 Time series plot of hate crimes on Roma from 2009 to 2015 for eight European countries: Bulgaria (red), Czech Republic (blue), Hungary (green), Italy (orange), Poland (pink), Serbia (brown), Sweden (black), and Ukraine (grey). The plot was obtained with RStudio

D. Discussion

The statistics Gephi yielded and the information we obtained from the hate crimes provide us with several pieces of information regarding the dynamics of the two social networks.

TABLE I
STATISTICS OBTAINED FOR EACH NETWORK

	Antiziganist Network	Pro-Roma Network
Density	0.052	0.084
Average Path Length	4.25	2.66
Modularity	0.725	0.354

As shown in Table I, the density of the pro-Roma network, is higher (0.084) than that of the antiziganist network (0.052), meaning that the pro-Roma institutions are more tightly knit. As for centrality, the data show that the average path length for the pro-Roma network (2.66) is lower than that of the antiziganist network (4.25), which suggests that the flow of information is faster among the pro-Roma institutions. Furthermore, although the pro-Roma network has a lower modularity (0.354) than the antiziganist network (0.725), which shows that the antiziganist network has a higher tendency to subdivide into communities, the densities of the two networks are closer to 0 than to 1; thus, we cannot draw any conclusions about communities. Another factor that prevents us from making inferences about communities is the fact that they are most relevant when edges are two-way (as opposed to one-way, like in our study). The difference in modularity also indicates a telling difference in organization between the two types of institutions: despite the pro-Roma network having a higher overall density (at a higher scale), the

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antiziganist network contains groups of institutions that are highly interconnected at a lower scale.

Overall, the results suggest that there is a greater and faster exchange of information between pro-Roma institutions; however, the impact of the pro-Roma network itself is ambiguous when we take the trends in hate crimes into account. The time series plot (Fig. 3), shows different patterns for the eight countries, suggesting that the impact of pro-Roma institutions varies from nation to nation and is thus inconsistent. We speculate that there are other institutions (outside of those that were included in the two social networks in this study) that are affecting pro-Roma and antiziganist institutions' influence on the public's perception of Roma. For example, it is a possibility that antiziganist institutions may be exerting more influence on the perception of Roma in certain nations because of media outlets that boost their visibility. This may be helping with the flow of information in the antiziganist network, since political parties in the antiziganist network are featured on the news regularly. Back in 1998, the Bulgarian press showed that "90 percent of hate speech in 'print media' involve the Roma" [6]. Today, there is still an ever-present negative portrayal of Roma, which is impacting public policy as well as inflating people's prejudice towards Roma [11]. Politicians explicitly insult and defame Roma in the media; one example is Zsolt Bayer, the co-founder of the Fidesz Party of Hungary, who compared Roma to animals and said they "shouldn't be allowed to exist" [10]. This negative language and the policies several governments implement that affect Roma (such as France's forced Roma deportations) [3] are all contributing to the perception that the European public has of the Roma people [11] by fueling antiziganist views. It is possible that despite the greater interconnectedness of pro-Roma institutions, outside institutions such as media outlets are supporting antiziganist institutions by increasing their visibility and thus increasing the flow of antiziganist ideas to the public, thus impacting the public's perception of Roma.

Overall, it appears that little has changed in terms of the European public's perception of the Roma people, and the issue seems to be centered around the high visibility of antiziganist institutions. Pro-Roma institutions need to find ways to be in the public eye more frequently so that they can their pro-Roma ideas can reach the public more efficiently.

The speculations discussed in this report are not by any means conclusive, due to the several limitations of the data analyzed in this study. First, there may be more edges in both networks that could not be detected throughout this study. Social networks are dynamic, and thus the number of edges in each network will change with the passage of time. Furthermore, there may be more institutions that either oppress or support Roma, meaning that not all nodes could be detected and included in this study. Future studies could build antiziganist and pro-Roma networks on a local scale, such that the influence of the two networks can be analyzed for one nation at a time. Additionally, studies on Roma that use SNA could focus on other areas of the world, such as the Americas; the results would be telling of what types of institutions are most prominent across the world when it comes to influencing the public's perception of Roma.

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