

Media Framing Dynamics of the ‘European Refugee Crisis’: A Comparative Topic Modelling Approach

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MS received July 2018; revised MS received December 2018

The complexity and duration of the so-called ‘European refugee crisis’ created a climate of uncertainty, which left ample room for mass media to shape citizens’ understanding of what the arrival of these refugees meant for their respective country. This study analyses the national media discourses in Hungary, Germany, Sweden, the United Kingdom and Spain for this time period. Applying Latent Dirichlet Allocation topic modelling in five languages and based on $N=130,042$ articles from 24 news outlets, we reveal country-specific media frames to track the overall course of the refugee debate and to uncover dynamics and shifts in discourses. While results show similarities across countries, due to media coverage responding to real-world developments, there are differences in media framing as well. Possible sources of these differences such as countries’ geographic location or status as receiving country are discussed.

Keywords: Refugee crisis, European media discourse, comparative content analysis, topic modelling

Introduction

From January 2015 until December 2016, during the so-called ‘European refugee crisis’, about 2.5 million people applied for asylum in the European

Union. This situation caused a strongly politicized and at times heated public and political debate. The complexity and duration of the 'crisis' created a climate of uncertainty, which left room for mass media to shape citizens' understanding of what the arrival of these refugees meant for their respective country (Greussing and Boomgaarden 2017). While some studies have addressed the consequences of the 'crisis' for national and European policy or election outcomes, we still lack a comprehensive overview of national media discourses and their dynamics throughout the years 2015 and 2016. Looking at country-specific findings on how media framing *shifts* during this period, our study allows for a fuller comprehension of public and political responses in different countries across these years. We study five European countries (Hungary, Germany, Sweden, the United Kingdom and Spain) that differ based on their geographical closeness to the refugee routes, based on journalistic traditions, and whether they are receiving countries or not. Topic modelling is employed, which allows identification of the most dominant media frames in large-scale corpora of refugee-specific media coverage in the different countries. Given the transnational dimension of the refugee topic, findings are discussed, with a comparative focus in the final section of this article.

Media Frames: Narratives about Migration and the 'Refugee Crisis'

To understand which perspectives, angles or thematic foci media coverage of the 'refugee crisis' emphasized, this study relies on the identification of media frames. Frames can be seen as schemes of interpretation that endorse a particular problem definition or causal interpretation of an issue (Entman 1993) and are commonly researched in studies of media and migration (e.g. Eberl 2018). Frequently found frames in migration coverage are the 'Economy' frame (e.g. migrant workers' impact on the job market), the 'Welfare' frame (i.e. migrants' impact on the welfare system), crime and security-related perspectives and an emphasis on political and legal processes (e.g. Gabrielatos and Baker 2008; McLaren et al. 2018).

Only a few studies investigate the salience of migration frames in the media across countries (e.g. Berry *et al.* 2016). To highlight a few results, for the time period between 2014 and early 2015, the call for European political responses to and solutions for mass migration was relatively strong in Spain compared to media frames applied in Italy, the United Kingdom, Sweden or Germany. Highly salient in Sweden was the 'humanitarian' frame (also 'human interest' framing) with a focus on empathetic reporting. In Germany, post-arrival integration of refugees was most emphasized. Another interesting finding is that the discourse between 2014 and 2015 was overall mostly concerned with the process of refugees being on the move and fleeing war. The crime narrative in contrast was rarely seen across countries (Berry *et al.* 2016).

For the main period of the 'refugee crisis' (2015–16), there are first snapshots into media framing and a few systematic comparisons (e.g. Georgiou

and Zaborowski 2017; Pérez 2017). Examining media responses surrounding Hungary erecting a physical barrier along its border with Serbia in July 2015, the drowning of Alan Kurdi, a Syrian boy, in the Mediterranean in September 2015 and the Paris terrorist attacks in November 2015, a recent study revealed a particular prominence of discussions of defensive measures (i.e. a ‘border’ frame) and humanitarian actions in German news coverage in contrast to the coverage in the Czech Republic, France, Greece, Hungary, Ireland, Serbia and the United Kingdom (Chouliaraki and Zaborowski 2017). Another study shows that conflicts between the Hungarian police and refugees at the Serbian–Hungarian border (16 September 2015) were framed quite differently by Hungarian, German and pan-European broadcasters (Kenyeres and Szabó 2016).

However, we still know very little about the dynamics of media discourses about the ‘European refugee crisis’ more generally and even less so in terms of systematic and comparative analyses. In the following, we provide a comprehensive analysis of the dynamics in media coverage and framing in five European countries.

Data and Methods

The study relies on five large-scale corpora from the different countries consisting of print and online articles from several leading news outlets. All articles were published between 1 January 2015 and 31 December 2016, and include words either based on the stem *asyl**, *refugee** or both. Table 1 provides an overview of the article corpora used for the analysis. The media-outlet selection was guided by media reach, diversity (i.e. from quality to tabloid) and availability (i.e. dependency on media archives).¹

Table 1

Media Corpora Description			
Country	Media outlets	Keywords	N (articles)
Hungary	<i>Magyar Hírlap, Magyar Idők, Nepszabadság, Nepszava</i>	<i>menedék*</i> or <i>menekült*</i>	8,865
Germany	<i>BILD, Frankfurter Rundschau, Spiegel Online, taz, Welt Online, ZEIT Online</i>	<i>asyl*</i> or <i>flüchtling*</i>	58,526
Sweden	<i>Aftonbladet, Dagens Industri, Dagens Nyheter, Expressen, Svenska Dagbladet</i>	<i>asyl*</i> or <i>flykting*</i>	17,789
United Kingdom	<i>Daily Mirror, The Daily Telegraph, The Guardian, Metro, mirror.co.uk, telegraph.co.uk</i>	<i>asyl*</i> or <i>refugee*</i>	31,223
Spain	<i>ABC, El Mundo, El País</i>	<i>asilo*</i> or <i>refugiad*</i>	13,639

To measure media frames, defined as reoccurring patterns of specific words (Jacobi *et al.* 2016), we apply five topic models to inductively reveal latent subtopics in our five corpora. In particular, we use the Bayesian Latent Dirichlet Allocation model, since it is known to be useful to give an 'overview of what kind of topics are discussed in which media or time periods' (*ibid.*: 13). This approach considers the distributions of words and identifies patterns in the textual structures (Blei *et al.* 2003). Each ascertained topic consists of word clusters (i.e. top terms) that frequently co-occur within articles and are not inherently connected to other topics. We calculated multiple models, constantly increasing the number of k topics in pre-defined steps up to a maximum of 25 for every country. Following qualitative inspection of resulting models, we decided to set $k=10$ for every country to get sufficient granularity (i.e. level of detail).² We set the alpha measure to 'auto', allowing the python package 'gensim' (Rehurek and Sojka 2011) to choose an optimal measure according to the respective corpora.

In absence of standard validation procedures for topic modelling results, we followed Grimmer and Stewart (2013) and assessed *semantic* as well as *predictive validity* of the models. With the help of native speakers, the authors ensured *semantic validity* of the calculated topics by examining whether they are distinctive from other topics within the same model/country and whether they identify a consistent range of articles. We interpreted the topics and labelled them based on the top terms. We made sure to have distinct labels, to be able to differentiate topics, while at the same time harmonizing labels across countries when topics were referring to seemingly similar topics, with country-specific variations in used terms (see Table 2). In addition, we read three randomly selected articles per topic and country for qualitative validation purposes. Furthermore, *predictive validity* was evaluated by examining the trend of topics over time within the different corpora and comparing them to corresponding events in the respective country. While this manuscript's results section provides further comprehensive evidence, the topic of 'elections' is a good example, as it was frequently used as a validation baseline, mirroring different regional and national elections in four of the five countries.

In the next step, the distribution of probabilities of topics for each article was calculated based on the beforehand-identified topics. Probabilities for all topics range from 0 to 1 for each article. For the analyses below, we only consider the topic with the highest probability for each article.³

Results: Dynamics of the Coverage

Saliency of the Refugee Coverage

We begin our empirical analysis by assessing the dynamics of the visibility of coverage related to refugees overall in the five countries. In order to compare dynamics between the different countries, we calculated the average number of relevant articles per week and country and show the deviation of this

Table 2

List of Frames and Associated Words Identified by the Topic Modelling Procedure

Frames	Examples of associated words	Frames	Examples of associated words
1. Economy	per cent, Euro, million, economy, company	9. Elections	party, parliament, election, candidate, political
2. Welfare	schools, housing, education, health, aid	10. Crime and terrorism	perpetrator, police, victim, attack, terrorist
3. Accommodations	apartments, accommodation, federal, costs, to house	11. Refugee movement	flee, arrive, escape, island, Syria
4. Humanitarian aid	international, foreign minister, human, humanitarian, organization	12. War	military, war, regime, forces, peace
5. Refugee camps	migrants, camp, jungle, boat, detention	13. Values and culture	cultural, religious, social, society, story
6. Border	border, fence, authorities, route, crossing	14. Human interest	life, tells, family, home, feel
7. National refugee policy	crisis, debate, government, ministry, president	15. Unaccompanied children	unaccompanied, minority, children, childhood, asylum
8. EU refugee policy	European, countries, commission, quotas, Schengen	16. Brexit	referendum, vote, leave, campaign, Brexit

Not all frames appear in all five countries. Associated words shown in the table are the strongest loading, the most reoccurring (between countries) or the most exemplary for each frame. Country-specific words are not shown for cross-country frames.

average in the graph in Figure 1. In fact, results can be grouped into three types of dynamics.

First, there is Hungary, with a slight increase in refugee-related coverage from early January 2015 to July 2015 and a largely stable attention for the issue afterwards. Refugees first started to arrive in Hungary as early as winter 2014, which means that the country was already on high alert at the beginning of our period of analysis, which in turn might explain the rather monotonous dynamic in coverage. Second, Germany and Sweden both have one distinct peak in refugee coverage around the height of the crisis, at the end of summer 2015 (Georgiou and Zaborowski 2017). Furthermore, there is a second (smaller) peak in German coverage that coincides with the aftermath

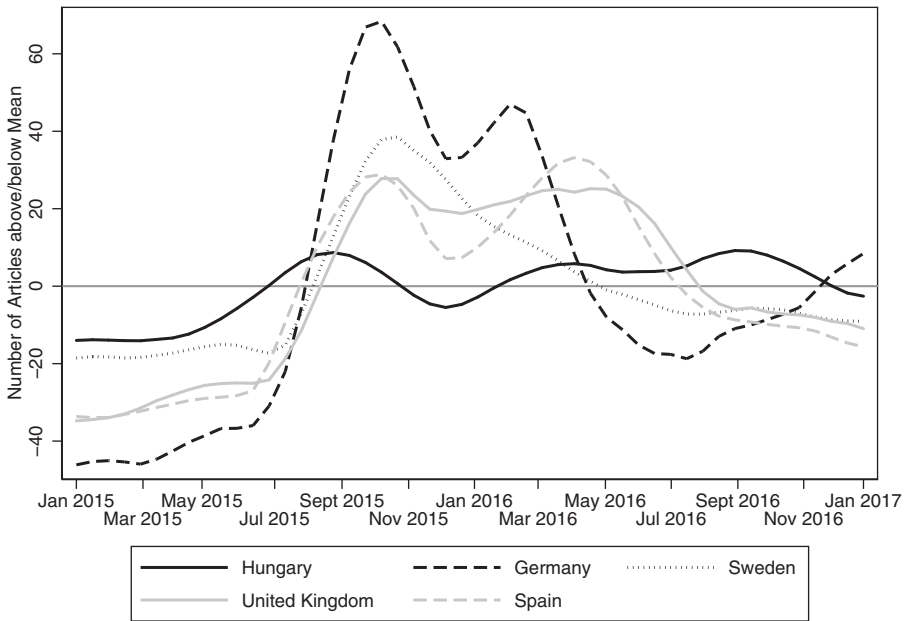


Figure 1
Dynamics of Refugee Coverage in Europe.

Horizontal reference line indicates average weekly coverage per country over the whole period of analysis. Lines are centred on their countries' respective average, indicating the deviation of the coverage in a given week from this average. Lines are smoothed using a kernel-weighted local polynomial regression. N of articles = 130,042.

of the sexual assaults on New Year's Eve. Coverage sharply decreases afterwards. Third, there are the United Kingdom and Spain, where, in both countries, the main peaks in coverage are not (only) around September 2015. In the United Kingdom, coverage stays at an increased level just until after the Brexit referendum in June 2016, while, in Spain, coverage witnesses a second slightly stronger peak between April and May 2016 (compared to a first one in October 2015). A qualitative inspection of this second peak shows that Spanish media were strongly concerned with the refugee agreement between the European Union and Turkey as well as the upcoming Brexit referendum. In July 2016, coverage in both countries drops below their period average, coinciding with a decline in refugee arrivals.

Framing Dynamics

In the following, we discuss dynamics in media framing of the crisis separately for the five countries.⁴ Keep in mind that, while topics may have the

same label in different countries, these topics arise from different models. Topics with the same label are thus similar but not the same across countries.

Hungary: Three key dynamics are visible (see Figure 2). First, before May 2015, media framing was mainly concerned with (international) ‘humanitarian aid’. However, as refugees arrived more numerous on Hungarian soil, the framing changed. In a similar way, a more general ‘crime and terrorism’ frame made way for the more specific ‘border’ frame—also concerned with the security of the country, although with a clearer focus (see also Georgiou and Zaborowski 2017). The peak of the ‘crisis’ is thus mirrored in media coverage by a peak in ‘border’ framing. Soon thereafter, the Hungarian government decided to close its border to Croatia (October 2015). After borders were closed, the framing shifted from the national level (i.e. ‘border’ and ‘national refugee policy’) to the European level (i.e. ‘EU refugee policy’). Hungarian media were waiting for European Union decision makers to find a solution to the ‘crisis’.

Germany: In the months leading to the peak of the ‘refugee crisis’, the ‘border’ frame is most salient (see Figure 2). However, after Merkel’s well-known assertion ‘*Wir schaffen das*’ on 31 August, the frame decreased in importance, while the ‘national refugee policy’, the question of how to deal with refugees now that they are in the country becomes more relevant. In contrast to the other countries, the search for ‘accommodations’ plays a particularly important role in German media. Note that the ‘crisis’ also played an important role in the regional elections in March and September 2016.

Sweden: Generally, ‘human interest’ is the most salient frame over the whole period of analysis (see Figure 2). Findings are in line with previous studies on migration coverage in Sweden (e.g. Berry et al. 2016). However, the frame importance decreased with the peak of the ‘crisis’, at the same time as the frames ‘refugee movement’ and ‘EU refugee policy’ increased in salience. Once the height of the ‘crisis’ had passed, which also meant that fewer refugees would arrive in Sweden, the ‘human interest’ frame increased again.

United Kingdom: We can see two key dynamics (see Figure 2). The strongest frame used by United Kingdom media to describe the height of the ‘crisis’ is focused on ‘refugee camps’. The frame peaked in media coverage around August 2015; then there is a small peak in March 2016 as refugees were stuck in Idomeni and another one in October 2016 as the wretched refugee camp in Calais was cleared. Furthermore, around June 2016, a Brexit frame appears in refugee-related coverage. However, the frame decreases in salience again soon after.

Spain: Media framing of the ‘refugee crisis’ is quite different in Spain compared to the other countries in our sample (see Figure 2). In fact, we do not see a pronounced peak between August and September 2015. There is only a small peak in ‘border’ framing around that period. Instead, the ‘EU refugee policy’ frame steadily increases, just until a few weeks after the ratification of the European Union–Turkey deal, which was intended to limit the

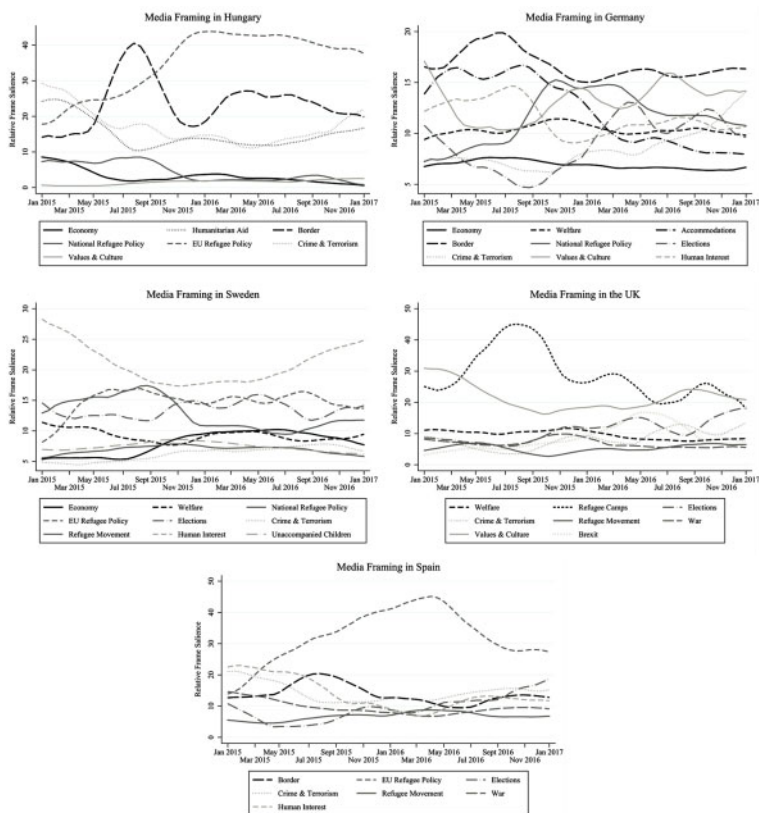


Figure 2
Dynamics of Refugee Framing in Europe.

Graphs are based on separate topic models for each country. Direct comparability of topics across countries is limited, as some topics may be similar but not the same. Relative frame salience in a given week sums up to 100. Lines are smoothed using a kernel-weighted local polynomial regression. *N* of articles = 121,625.

number of refugees entering the European Union through Turkey. Finally, while, in the first months of 2015, the ‘human interest’ frame was relatively more salient, the ‘EU refugee policy’ dominated Spanish media coverage afterwards (see Berry *et al.* 2016).

Discussion and Conclusion

We used a topic modelling approach to map the dynamics in media framing of the so-called ‘refugee crisis’ in five European countries. Most of the time, peaks in coverage or in particular frames coincide with real-world

developments. However, while there are shared dynamics between countries, there are systematic differences as well.

Geography seems to play a role. Particularly in countries that were closer to the Balkan route (Hungary and Germany), the height of the ‘refugee crisis’ between August and September 2015 was framed as a border issue. Coverage was thus focused on the question of whether borders should remain open or be closed. In countries that were farther away, instead other frames were more salient. For example, the United Kingdom coverage emphasized Calais, the refugee camp just across the English Channel.

Furthermore, media framing tends to be more different and diverse in receiving countries such as Germany, Sweden and the United Kingdom (Balabanova and Balch 2010), namely countries where the impact of the ‘refugee crisis’ is expected to be more long-term. Here, frames that deal with the refugees’ impact on the welfare system or on the country’s economy, as well as the search for accommodations, are relatively more salient compared to other countries.

Of course, there are also country specificities. Spain’s focus on European Union policy and Sweden’s emphasis on the human interest frame is unmatched in our sample, but reflect these countries’ journalistic traditions in covering immigration-related issues (Berry *et al.* 2016).

Other differences refer to particular frames. For example, the human interest and humanitarian aid frames tended to be more important in the beginning of news cycles but were less relevant at the ‘crisis’ peak. Greussing and Boomgaarden (2017) find similar dynamics concerning the victimization frame.

Finally, some frames remained mostly flat (i.e. without any meaningful dynamic). Particularly compared to studies dealing with immigration coverage in general, the low salience of crime framing might seem surprising. It is, however, in line with other studies investigating the ‘refugee crisis’ (e.g. Berry *et al.* 2016). This brings us to a limitation of this study: in focusing on the peak period of refugee arrivals in Europe, we investigated a disruptive event, which has the power to alter journalistic conventions and routines (Horsti 2008). Frame salience and dynamics may thus be very different in the beginning, during and at the end of a crisis. We therefore encourage future studies on media framing of the ‘refugee crisis’ not only to continue to analyse the case in a dynamic and comparative manner, but to expand the period of analysis in order to include pre- and post-crisis periods as well. Despite such limitations, this study is among the first to provide a systematic overview of the main dynamics in debates occurring in national media systems.

Acknowledgements

This project has received funding from the European Union’s Horizon 2020 Research and Innovation Programme under grant agreement No. 727072. We want to thank Eva Luisa Gómez Montero, Beatriz Herrero Jiménez, Rosa

Berganza, Nora Theorin and Peter Bajomi-Lazar for their country- and language-specific support.

1. Similar to other studies of this kind, our study is focused on a set of leading outlets within each country and may thus not represent each country's media landscape in its entirety.
2. This ensures that we do not lose information, but also limit topics to overarching issues, rather than splitting them into very detailed subtopics, which would result in numerous uninterpretable 'garbage' topics.
3. Pre-setting too many topics will lead to fragmentation/duplication of topics. Since we decided for the same number of topics for all countries, in some cases, topics were duplicated (e.g. 'border' in Hungary, 'crime and terrorism' in Spain) and thus combined for the analysis. In Germany, Hungary, Sweden and Spain, a so-called 'garbage' topic—an artefact of the method—was generated. Articles that had this topic assigned with the highest probability were excluded for the dynamics of framing analysis.
4. While we focus on framing dynamics in this analysis, an overview of overall frame salience across countries during the period of analysis can be found in Table A1 of the online Appendix.

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