

Kai Gehring, Joop Adema and Panu Poutvaara

Immigrant Narratives in German Newspapers

Narratives about immigrants matter for both natives and immigrants because narratives shape attitudes, political outcomes, and perceptions of discrimination. A recent and growing literature has shown that media narratives influence how people think and act (Shiller 2017; Andre et al. 2021; Esposito et al. 2023; Bursztyn et al. 2022) as well as that specific framing of immigration matters for how migrants are perceived (Djourelouva 2023; Keita et al. 2022). However, no study has examined narratives about immigrants in a systematic way. We fill this gap by studying narratives in German national and regional newspapers between 2005 and 2019.¹ We focus on Germany as the largest member state of the European Union, home to a large and diverse immigrant population, and one of the main destination countries for asylum seekers worldwide. Germany also features a rich and diverse landscape of regional newspapers, opening up the possibility to link immigrant narratives to specific local conditions.

APPROACH

Our definition of narratives, following Shiller (2017), is rather broad, including not only causal statements about the role of immigrants, but also statements characterizing immigrants as an actor or group. Contrary to much of the text-as-data literature in economics, we use individual sentences as the unit of analysis, as sentences are the fundamental building blocks of longer texts like newspaper articles. To provide a comprehensive dataset capturing immigrant narratives, we combine more traditional dictionary-based approaches with the capabilities of modern Natural Language Processing (NLP) techniques that detect

¹ The underlying paper, "Immigrant Narratives." can be accessed here: <https://www.cesifo.org/en/publications/2022/working-paper/immigrant-narratives>.

- KEY MESSAGES
- We measure immigrant narratives in German newspapers and assign each sentence to one of seven themes
 - Using natural language processing (NLP) tools and customized dictionaries, we analyze over 100,000 articles
 - 45 percent of narratives are on Foreign Religion, 23 percent on Cultural Integration, and only 12 percent on Economic themes
 - Changes in sentiment in immigrant narratives come mainly from shifts between themes
 - Southern and Eastern European immigrants receive much more positive coverage than Arabs and Turks

linguistic features like grammar, word types, and dependencies. Specifically, we use the Python package spaCy (Honnibal et al. 2020), which allows us to extract linguistic features such as dependencies and word-types.

For each sentence, our method aims to detect (i) whether the sentence is about immigrants; (ii) if it fits into one or more of seven narrative themes that we identify; and (iii) if it has a (theme-specific) negative, neutral, or positive sentiment. Instead of following an unstructured topic-modelling approach, we classify narratives into seven pre-defined themes. Those themes are based on key topics in the economics of immigration literature and our reading of 500 randomly chosen German newspaper articles about immigrants and the existing literature on drivers of concerns about migration. The seven themes contain the economy-related narratives Work, Welfare, and Entrepreneurship, the society-related narratives



Kai Gehring

is Professor for Political Economy and Sustainable Development at the University of Bern and the Wyss Academy for Nature.



Joop Adema

is a Junior Economist and a Doctoral Student at the ifo Institute, where he researches different aspects of international migration.



Panu Poutvaara

is the Director of the ifo Center for International Institutional Comparisons and Migration Research and Professor of Economics at LMU Munich.

Foreign Religion² and Cultural Integration, as well as Immigrant Criminality, and Immigrants-as-Victims. The last theme differs from the others by focusing on all narratives that depict immigrants as victims of crimes or discrimination against immigrants.

First of all, we identify sentences to be about immigrants if they contain immigrant actors (e.g., based on nationalities and foreign names) or immigration-specific words from our theme-specific dictionaries. Secondly, for each of the seven themes, we construct dictionaries to capture words related to the theme. Using NLP tools, we construct a pipeline that assigns themes to sentences. Concrete examples of how we use these NLP tools are pronoun tracking (to identify which actor introduced in a prior sentence is referred to) and Part-of-Speech tagging (enabling us to identify the perpetrator or the victim of a crime—to assign a sentence as either about Immigrant Criminality, or Immigrants-as-Victims). Lastly, rather than relying only on context-agnostic sentiment dictionaries, we also assign a theme-specific positive, neutral, or negative sentiment to each of the words in the theme-specific dictionaries. We fine-tune the theme-specific sentiment assignment by using spaCy to account for weakening and strengthening adjectives, as well as negating statements in sentences.

DATA

We obtained individual articles about immigrants published by German newspapers from Factiva, an international newspaper database. We queried articles from 65 regional and 5 national newspapers between 2005 and 2019 using a Boolean search filter that combines immigrant-specific search terms with a geographic location within Germany. Based on Entity Recognition and lists of foreign and German locations, we further ensure that an article is concerned with immigrants in Germany. After discarding articles that are likely about events or people not based in Germany, our dataset contains 107,428 articles. Unless otherwise specified, the following analyses are based on running our approach on this dataset.

Moreover, we use municipality-level newspaper sales data by the German Audit Bureau of Circulation (IVW). Using the data from IVW and administrative data from the German statistical office, we can calculate local characteristics in the coverage area of newspapers.

VALIDATION

To validate our approach, we recruited 16 human coders among native German speaking university students from different parts of Germany and carefully

² We define all religions except Christianity and Judaism as foreign religions given that they have been introduced to Germany mostly by immigrants arriving after the Second World War. In practice, this predominantly captures narratives about Muslims and Islam in general.

trained them for the task. Each student coded a batch of 437 articles, which equals around 18,000 to 20,000 sentences. We use the sample of articles coded by students to study heterogeneity among human coders and to assess the performance of our algorithm compared to standard approaches. Our algorithm has an accuracy rate of 96.6 percent in the classification of immigrant narrative sentences, and clearly outperforms alternatives based on simple keyword matching, providing the best balance between true positives and false negatives. While our new theme-specific dictionaries contribute a lot to the initial classification performance, correct sentiment assignment is particularly improved using specific NLP functionalities and, especially, our sentiment adjustment functions that leverage weakening and negating statements.

NARRATIVE THEMES OVER 15 YEARS

To study the relative prevalence of the different narrative themes over time across all articles, we sum up the number of narratives within a theme and divide by the sum of all narratives. When doing this, a given sentence can be classified into more than one theme. For example, a sentence about unemployment among young Muslims would be classified to be about both Work and Foreign Religion, while a sentence about unemployment among Turkish immigrants would be counted to be only about Work. Although newspaper narratives are not equivalent to the spread of narratives among the population, they provide a useful way to study prevailing narratives. The composition and sentiment of a sentence is influenced by many factors, including the journalist's private preferences as well as—given the profit-orientation of newspapers—the preferences of their readers.

Figure 1a shows the composition of immigrant narratives by year across all newspapers in our sample between 2005 and 2019. The results are quite striking. While economists usually highlight the economic implications of immigrants for the labor market or welfare state, media coverage focuses much more on Foreign Religion and Cultural Integration. Economy narratives are relevant, but at a clearly smaller scale than the societal themes and with considerable fluctuations. Over the entire 15 years, out of all sentence-level narratives identified in our sample, 12 percent concerned the Economy, 45 percent Foreign Religion, 23 percent Cultural Integration, 12 percent Immigrant Criminality, and 7 percent Immigrants-as-Victims. This is in line with the literature on concerns about immigration, which has highlighted that cultural concerns trump economic concerns (Card et al. 2012). Over the period covered by the study, the share of narratives about Foreign Religion and Immigrant Criminality has increased, at the expense of Cultural Integration.

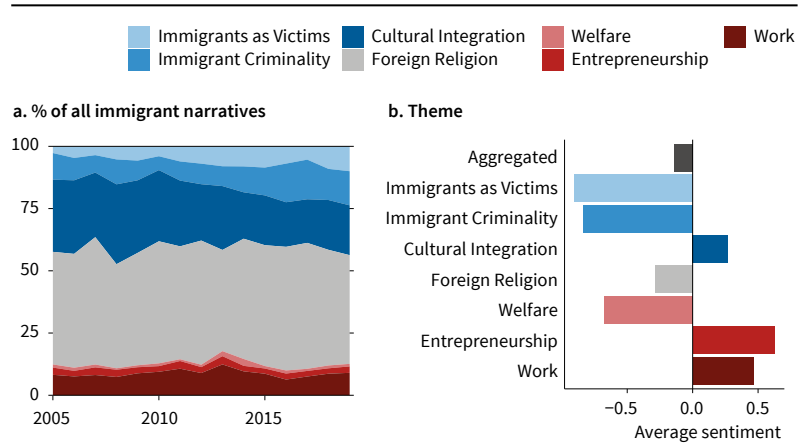
To study with what sentiment the narrative themes are conveyed, we aggregate the sentiment

across all sentences by theme. Figure 1b shows that the theme-specific sentiments of Immigrants-as-Victims and Immigrant Criminality are overwhelmingly negative, and Cultural Integration is more positive than Foreign Religion. Furthermore, Work and Entrepreneurship carry predominantly positive sentiment, whereas Welfare is largely negative. We also analyzed theme composition and sentiment between different newspaper sections (news, politics, and local news). We find that Cultural Integration is most prevalent, and aggregated sentiment most positive, in the local news sections. Furthermore, Immigrant Criminality is most prevalent in politics and general news sections.

RESPONSE TO THE 2015 REFUGEE CRISIS AND THREE RELEVANT EVENTS

In the following, we restrict our analysis to a balanced set of 41 newspapers in the years 2013 to 2019, covering the 2015 refugee crisis and three relevant events: (i) the opening of German labor markets for Bulgarians and Romanians on January 1st, 2014; (ii) a mass incidence of sexual assaults by mostly Arab men on December 31st, 2015, in Cologne (iii), and the statement on March 15th, 2018, by the conservative German minister of the interior Horst Seehofer that for him, “Islam does not belong in Germany.” Figure 2a shows the monthly number of articles about immigrants in Germany. The vertical lines indicate the three events. In terms of the number of articles, the labor market opening barely shows up. The sexual

Figure 1
Narrative Theme Shares over Time

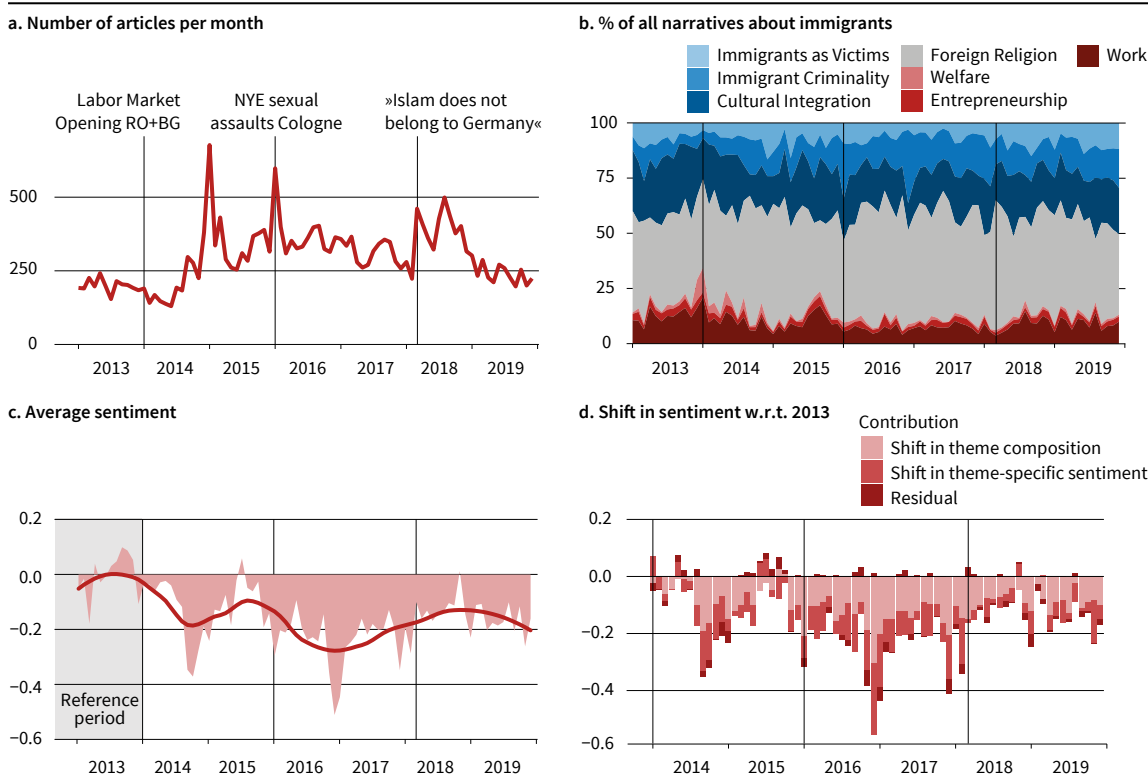


Source: Authors' compilation of articles from Factiva (balanced sample 2005–2019).

assaults and Seehofer's statement, instead, generated major increases in the number of articles. January 2016 is the month with the second-highest number of articles related to immigrants in Germany throughout our balanced panel of seven years.

Figure 2b shows how the theme shares changed over time, with each event showing up clearly. Labor market opening for Bulgarians and Romanians was associated with an increase in the Work and Welfare theme shares, both before the opening and after it. Sexual assaults in Cologne were followed by more articles on Immigrant Criminality, and Seehofer's statement on Islam considerably increased the Foreign Religion theme share. The share of Immigrant Crim-

Figure 2
Salience of Immigration, Narrative Theme Shares and Sentiments

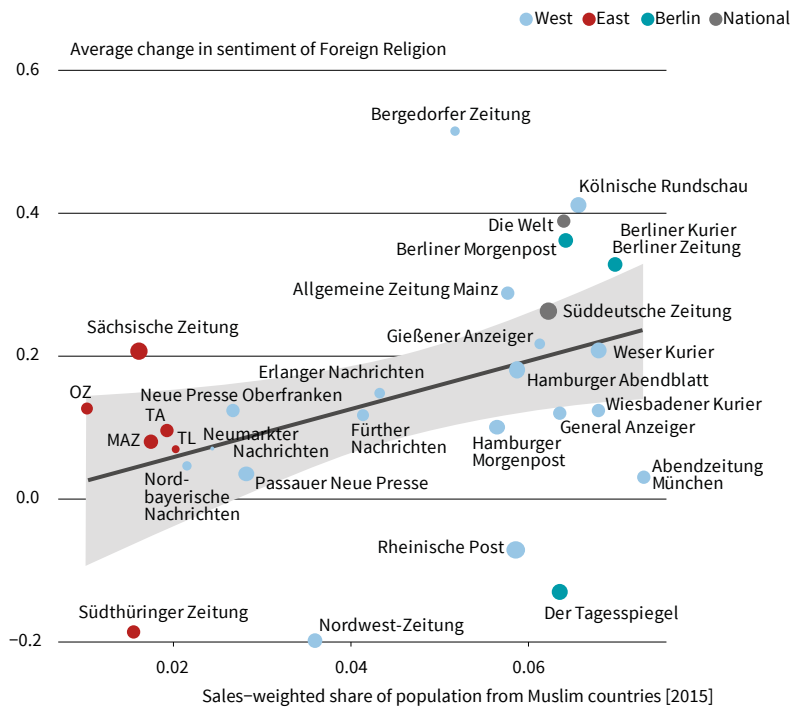


Source: Authors' compilation of articles from Factiva (balanced sample 2013–2019).

© ifo Institute

Figure 3

The Local Share of Immigrants from Muslim Countries Predicts a More Positive Response in a Large Societal Discussion about the Role of Islam in Germany



Note: MAZ: Märkische Allgemeine Zeitung; OZ: Ostthüringer Zeitung; TA: Thüringer Allgemeine; TL: Thüringische Landeszeitung.

Source: Authors' compilation of articles from Factiva (balanced sample January to May 2018).

© ifo Institute

inality remained at a higher level from 2016 onward, increasing from 8 percent in 2013 to 16 percent in 2016 and 2017, and averaging 14 percent in 2018 and 2019.

Figure 2c depicts aggregated sentiment over time on a monthly basis. Labor market opening had only a marginal effect on aggregated sentiment. Sexual assaults in Cologne were followed by a rapid deterioration of the average sentiment, while Seehofer's statement generated a backlash that made aggregated sentiment somewhat less negative compared with previous months. Overall, aggregated sentiment was positive for 7 months in 2013, but thereafter only one month in 2015, and never thereafter. The lowest value of aggregated sentiment in December 2016 and in January 2017 followed an Islamist terrorist attack in a Christmas market in Berlin, which also shows up as a peak in Immigrant Criminality in Figure 2b.

Figure 2d provides a decomposition of the changes in aggregated sentiment in terms of changes caused by shifts in the theme composition and shifts of theme-specific sentiment. The decomposition shows that most of the deterioration of aggregated sentiment after the start of the refugee crisis in 2014 can be attributed to shifts between themes, rather than to shifts in theme-specific sentiments.

NARRATIVE CHANGES AROUND EVENTS AND THE ROLE OF NEWSPAPERS' LOCAL CHARACTERISTICS

As the statement of the then-minister happened in relative isolation to other salient events and unleashed

a large societal discussion, we study this event in more detail. As the share of immigrants from Muslim countries varies widely across Germany, we examine whether this discussion was conveyed more positively toward Foreign Religion by newspapers in areas with more Muslims. To study this, we consider the change in the sentiment of Foreign Religion by newspapers two months after compared to two months before the event.

Figure 3 relates the change in the average sentiment on Foreign Religion to the local share of immigrants from Muslim countries in 2015 for each of the newspapers, which is calculated by weighting local characteristics with the sales of the respective newspaper in each municipality. We find that Foreign Religion narratives became more positive in areas with more Muslim immigrants. This is in line with the contact hypothesis of immigration (Allport 1954), which states that intergroup contact can reduce prejudices. We find that journalists in places with more Muslims were more likely to write more positively on Foreign Religion.

NARRATIVES BY MIGRANT GROUP

To study how different migrant groups are portrayed in the German newspaper landscape, we identify the following salient migrant groups. First, we straightforwardly distinguish between refugees and non-refugees based on whether there is an explicit reference to refugees or asylum seekers in the article. Second, we distinguish immigrants from the largest origin country groups in Germany: Southern Europeans (predominantly Greeks and Italians who migrated before the mid-1970s), Turks (mostly migrated before the mid-1970s), Arabs (mostly refugees from Syria and Iraq) and Eastern Europeans (mostly labor market migrants after the 2005 EU enlargement). We identify the presence of those migrant groups in an article based on mentions of nationalities and first and last names that are characteristic to that migrant group.

We find large differences in narratives between migrant groups by origin country. Figure 4a shows that there are strong differences in theme shares between migrant groups. Articles about refugees contain less Foreign Religion narrative than articles that are not about refugees and more about Economy-related themes. Furthermore, 4b shows that aggregate sentiments about refugees are more positive than about other migrants on average, which is in line with the literature showing that migrants who fled persecution are perceived more positively than those who are seeking economic opportunities (Bansak et al. 2016). Comparing Arabs and Turks, who are predominantly Muslim but arrived in Germany in different periods, reveal that narratives about Arabs are more likely to contain Foreign Religion. Even though Turks are an established immigrant group engaged in many ways in German society, still more than half of all narratives

contain Foreign Religion. The two European migrant groups, Eastern and Southern European migrants, are often portrayed with Cultural Integration and Work and Entrepreneurship narratives, which are more positive than the other themes. The articles about Eastern European migrants are much more likely to be about Welfare concerns than articles about any other group, which drives down aggregate sentiment. Moreover, we find that narrative theme shares differ more by group than over time, showing the persistence of group-specific narratives.

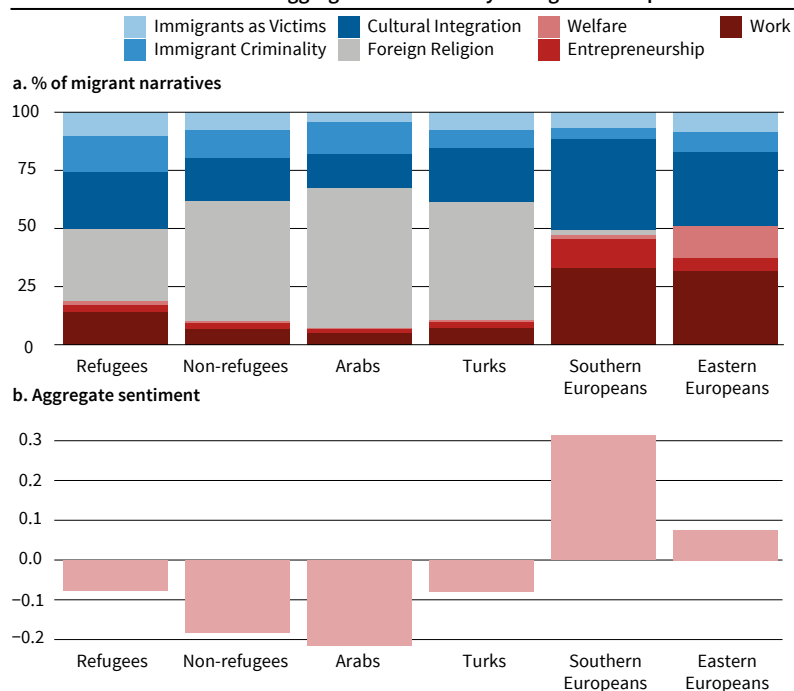
POLICY CONCLUSIONS

Our work proposes a new way to capture media narratives about immigrants. The method combines customized dictionaries and advanced natural language processing (NLP) tools, and we apply it to more than 100,000 articles from newspapers in Germany. Foreign Religion and Cultural Integration are the most common themes, accounting together for two-thirds of immigrant narratives. We find that the largest margin of adjustment affecting aggregate sentiment in newspaper articles are shifts between different themes. Analysis of narratives concerning separate immigrant groups suggests this may be well driven by shifts in the salience of immigrant groups, with Southern and Eastern Europeans being more often depicted in the context of Economy, and Foreign Religion being the most common theme in articles about Arabs and Turks. In future work, our approach could be used to study how media pluralism at the local level and newspaper ownership affects narratives about immigrants and how media narratives relate to attitudes towards immigration among readers.

Our work can also inform policies to promote immigrant integration. In terms of media coverage, -it is striking that Cultural Integration is predominantly positive, while Foreign Religion is mostly negative. As Cultural Integration is relatively most common in local news sections, our results suggest that reserving more space and resources for local news and culture sections could promote more positive media coverage of immigrants. Furthermore, our work can inform journalists about how immigrant narratives and narratives about specific themes are shaped. In the end, knowing your biases may be the first step towards reducing them.

Figure 4

Narrative Theme Shares and Aggregate Sentiment by Immigrant Group



Source: Authors' compilation of articles from Factiva (balanced sample 2013–2019).

© ifo Institute

REFERENCES

- Allport, G. W. (1954), *The Nature of Prejudice*, Addison-Wesley, Reading, Mass.
- Andre, P., I. Haaland, C. Roth and J. Wohlfart (2021), "Narratives about the Macroeconomy", *CEBI Working Paper 18/21*.
- Bansak, K., J. Hainmueller and D. Hangartner (2016), "How Economic, Humanitarian, and Religious Concerns Shape European Attitudes Toward Asylum Seekers", *Science* 354(6309), 217-222.
- Bursztyn, L., A. Rao, C. P. Roth and D. H. Yanagizawa-Drott (2022), "Opinions as Facts", *Review of Economic Studies*, rdac065.
- Card, D., C. Dustmann and I. Preston (2012), "Immigration, Wages, and Compositional Amenities", *Journal of the European Economic Association* 10, 78–119.
- Djourelouva, M. (2023), "Persuasion through Slanted Language: Evidence from the Media Coverage of Immigration", *American Economic Review* 113, 800-835.
- Esposito, E., T. Rotesi, A. Saia and M. Thoenig (2023), "Reconciliation Narratives: The Birth of a Nation after the US Civil War", *American Economic Review* 113, 1461-1504.
- Keita, S., T. Renault and J. Valette (2022), "The Usual Suspects: Offender Origin, Media Reporting and Natives' Attitudes Towards Immigration", *CEPII Working Paper 2022-10*.
- Honnibal, M., I. Montani, S. van Landeghem and A. Boyd (2020), "spaCy: Industrial-strength Natural Language Processing in Python", *Zenodo*.
- Shiller, R. J. (2017), "Narrative Economics", *American Economic Review* 107, 967–1004.