

The temporal dimensions of territorial stigma: a 35-year analysis of the Bijlmer's representation in Dutch newspapers using computational methods

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Abstract

The role of media in producing territorial stigma is a central concern for urban researchers. This study investigates how one of the most stigmatised areas in the Netherlands, the Bijlmer, has been portrayed in newspaper media over a period of 35 years, and how this portrayal relates to structural changes in the district. The concepts of core and event stigma are employed to understand the temporal dimensions of stigma production. The corpus includes 22,934 articles from the five largest Dutch newspapers that referenced the Bijlmer since 1990. Hierarchical topic modelling and sentiment analysis are used to detect topical representations of the Bijlmer. The findings indicate that in the 1990s two news peaks regarding the Bijlmer crash have been important in raising its (inter)national status, whereas the Bijlmer has also suffered from core stigmatisation on various crime and social issues. In addition, the findings suggest an intricate relation between structural changes in the Bijlmer and media attention. This study contributes to the literature by demonstrating the relevance of core and event stigma, employing novel techniques in research on territorial stigma, and investigating the relation between structural neighbourhood conditions and media representation.

Keywords

Territorial stigma; core and event stigma; hierarchical topic modelling; sentiment analysis; Bijlmer

Introduction

A rich body of scholarship has developed on the dynamics of neighbourhood reputations and stigmas (Evans & Lee, 2020; Wacquant et al., 2014). Studies in this field have various foci, for instance on how residents cope with stigma (e.g., August, 2014; Garbin & Millington, 2012) or how symbolic categories intersect with spatial inequalities (e.g., Jensen et al., 2021). However, it remains unclear to some degree how these stigmas are produced (Schultz Larsen & Delica, 2019; Slater, 2017). Especially the media is considered a relevant actor in creating and transmitting territorial stigma, since it has the power to shape hegemonic discourses on disadvantaged neighbourhoods (Evans & Lee, 2020; Glasze et al., 2012; Martin, 2000). To understand the production of territorial stigma through media, this study investigates how one of the most stigmatised urban areas in the Netherlands, the Bijlmer, is represented in the newspaper media.

The contribution of this paper to the literature is threefold. First, it addresses the undertheorized role of core and event stigma. Territorial stigma can be understood through how core stigma (i.e., neighbourhood attributes such as poverty, racial composition, and crime) and event stigma (i.e., key stigmatising events) apply to neighbourhoods (Butler-Warke, 2021). These forms of stigma result from the influential role of the media in how they select, edit, and present news on disadvantaged neighbourhoods. The Bijlmer is an interesting case considering core and event stigma, since its portrayal has historically been formed through its core characteristics such as the ‘failed’ modernistic design and black population (Balkenhol, 2014; Wassenberg, 2011) but also through the high impact of the 1992 airplane

crash into two of its high-rise estates (Rosenthal et al., 2001). The concepts of core and event stigma have not yet been applied much in research on territorial stigma, while they are potentially useful in understanding its temporal dimensions (Butler-Warke, 2021).

Second, this study adopts an original methodological approach to researching neighbourhood representations. Most studies on the media construction of neighbourhoods use some form of content analysis, showing how neighbourhoods are represented in the news and the techniques by which they are stigmatised (e.g., Butler, 2020; Devereux et al., 2012; Kearns et al., 2013, Schwarze, 2022). However, these studies are often restricted in terms of newspaper inclusion, coverage, sample, or period, limiting their ability to investigate neighbourhood representations across time and scale. The current study addresses some of these limitations through computational text analysis. More specifically, I use hierarchical topic modelling and sentiment analysis to classify the content of 22,934 articles referencing the Bijlmer. The advantage of these methods over more traditional methods is that they can process large amounts of text. I uncover how the Bijlmer has been depicted in five national newspapers across 35 years. The analysis captures the various ways in which the newspaper media constructs the image of the Bijlmer over a long time period, highlighting the interplay between core and event stigma. Through this analysis, the paper contributes to new ways of conducting research on neighbourhood reputation and stigma by leveraging computational methods (Lee et al., 2025; Stuart et al., 2025; Törnberg & Chiappini, 2020).

Finally, in contrast with other studies on the media production of territorial stigma, this study also considers structural transformations in the neighbourhood. Once viewed as the most ‘notorious’ area of the Netherlands (Pinkster et al., 2020), the Bijlmer has changed considerably in the past decades. These changes result from processes such as urban renewal (Wassenberg, 2011), migration (Crul, 2016), and city-wide gentrification (Booi, 2024). The Bijlmer has certainly not lost its stigma, but the question remains how its structural

transformation relates to media representation. Although other studies demonstrate that neighbourhood attributes can contribute to stigmatisation by the media (e.g., Alvarez & Ruiz-Tagle, 2024; Jahiu & Cinnamon, 2022; Schwarze, 2022), they seldomly consider how neighbourhood changes relate to media representations. This paper therefore examines how social and symbolic processes intertwine and how this relationship may change over time (Horgan, 2018). The central goal of this study is to investigate how the Bijlmer area has been represented in the five largest Dutch newspaper and how these representations relate to structural changes.

Core and event stigma

The literature predominantly relies on the concept of territorial stigma to examine how stigma attaches to residents who occupy specific bounded and segregated spaces. Territorial stigma refers to the symbolic power of authorities to produce negative representations about disadvantaged areas, and the ways in which residents may cope with such denigrations (Wacquant et al., 2014). In this study, I focus on the related but less commonly used concepts of core and event stigma (Butler-Warke, 2021). These forms of stigma originate from the work by Hudson (2008) on organisational stigma. Core stigma is conceptualised as stigma that results from the ‘nature of an organisation’s core attributes – who it is, what it does, and whom it serves’ (Hudson, 2008, p. 253). Core stigma implies organisations have characteristics that make them incompatible with the moral standards of a particular social audience. Examples are strip clubs, tattoo parlours, and gambling and tobacco companies (Hudson, p. 253). According to Hudson (2008, p. 257), core stigma is contingent on several factors, including (1) the relative distance between the values, beliefs, and ideologies of the evaluating audiences and the core attributes of the organisation being evaluated; (2) the

awareness of the evaluating audiences of the organisation's core attributes; and (3) the size and/or relative power of the stigmatising audiences.

Event stigma, on the other hand, 'results from discrete, anomalous, episodic events' (Hudson, 2008, p. 253). Such events can be seen as key damaging moments (Butler-Warke, 2021, p. 210). Examples are bankruptcy, industrial accidents, and mass product defects (Hudson, 2008, p. 253). The fundamental difference between core and event stigma is that, in principle, core stigma is non-coverable while event stigma is. Event stigma tends to disappear over time, also depending on the organisation's response. Core stigma is intrinsic to an organisation and may only change depending on the evaluating audiences.

Butler-Warke (2021, p. 210) argues core and event stigma also apply to the study of place-based stigma to 'understand how it [stigma] comes to adhere to certain spaces and not to others and why it adheres in some places for a short period of time and yet maintains its adhesion for longer in other locales'. Disadvantaged neighbourhoods face core stigma because they have several attributes that set them apart from 'mainstream' society, such as high levels of crime and poverty, and a starkly different racial composition. It is important to emphasise here that these attributes do not 'naturally' cause stigma. Rather, the media – especially sensationalist newspapers – draw out and capitalise on such neighbourhood features through several techniques such as negativity bias (Devereux et al., 2012; Kearns et al., 2013; Schwarze, 2022), framing (Liu & Blomley, 2013), and othering (Butler, 2019; Glasze et al., 2012). The media thus influence what issues are discussed and how these are talked about. This often leads to pathologizing discourses, such as blaming the poor for their own misfortunes, that disregard the role of structural disadvantage (Hastings, 2004). It should be noted that the 'media' is not a single voice that uniformly misrepresents disadvantaged neighbourhoods. For instance, local media tend to be less negative and sensationalist than national media and might also offer more positive community stories (Devereux et al., 2012;

Martin, 2000). Taking this into account, core stigma can be seen as constant but relatively low-level stigmatisation through continual press reporting that focuses on the core attributes of neighbourhoods and how these are discursively constructed (Butler-Warke, 2021).

Event stigma, on the other hand, comes from high and intense news reporting on a particular event that is viewed as ‘shocking’ and ‘anomalous’ (Butler-Warke, 2021). In a brief period, a strong level of stigma is created by drawing national attention to a specific place. Event stigma latches on to core stigma, by building on existing tropes and stereotypes surrounding neighbourhoods. Core and event stigma are thus not independent forces. They can occur simultaneously with event stigma being the most powerful when this occurs. However, event stigma often disappears after some time because the media lose interest, after which core stigma takes over again as the dominant form (Butler-Warke, 2021).

Although the concepts core and event stigma have not been employed much, multiple studies demonstrate how such dynamics work. For instance, Butler-Warke (Butler, 2020; Butler-Warke, 2020) examines an uprising in Toxteth, Liverpool in 1981, which resulted from issues such as high unemployment and structural racism. During this year there was ample and predominantly negative press coverage on Toxteth, in which the uprising was framed as the occurrence of multiple ‘riots’ caused by ‘mobs’. Hence, in 1981 event stigma prevailed. The excessive coverage on Toxteth was, however, grounded in a longer history of stigmatising news production. Before 1981, Toxteth was already associated with various issues such as community strife, crime, substandard housing, indicating the presence of core stigma. Reporting on Toxteth gradually receded after 1981. This suggests that event stigma became less prominent and there was a return to core stigma (Butler-Warke, 2021).

Another example comes from Kearns et al. (2013), who studied two housing estates in Glasgow. There is a constant level of newspaper reporting on both estates throughout the study period (1998-2011). Most news articles were on themes such as asylum seekers,

violence and crime, and the poor quality of the environment that were predominantly negatively framed. In 2001, event stigma occurs because of a news peak on the murder of an asylum seeker. Not only does event stigma become dominant during this time, the nature of the stigma also fundamentally changes. Where before the housing estate was associated with asylum seekers causing problems, the focus in narrative shifted to other residents who were supposedly racist and hostile (Coole, 2002). This was due to the assumption that the murder was racially motivated. However, this did not necessarily change the image of asylum seekers – or led to more sympathy – because reporting primarily focused on the tensions between asylum seekers and other residents in the context of the murder (Coole, 2002). Both examples show the dynamics of core and event stigma. During high news peaks event stigma takes over core stigma, after which event stigma recedes again. Event stigma builds on elements of core stigma but can also change core stigma itself (Butler-Warke, 2021).

The Bijlmer

The Bijlmer is one of the most well-known neighbourhoods in the Netherlands. Here, I mostly focus on its stigmatised features. Detailed descriptions of its history can be found elsewhere (e.g., Aalbers, 2011, Balkenhol, 2014; Helleman & Wassenberg, 2004). The Bijlmer was originally designed as the “city of the future” according to modernist principles. Iconic for the Bijlmer have been its high-rise estates with social housing apartments. Between 1965 and the early 1970s these estates were constructed, signalling a break with more traditional styles of low-rise building (Helleman & Wassenberg, 2004). However, in the public perception the Bijlmer became quickly known as a ‘failure’, due to all kinds of negative social dynamics interfering with the Bijlmer’s architectural features (Aalbers, 2011). Even though there was significant pressure on the metropolitan housing market, the middle class – for whom the Bijlmer was intended – never arrived in large numbers. Instead, the middle class preferred the

new towns surrounding Amsterdam where single-family dwellings with private gardens were available. Planning failures of the Bijlmer also influenced this process. Important facilities that were initially promised, such as communal spaces, shops, public transport to the city centre, and schools, took several years before being finally realised (if at all). In addition, it has been argued that the numerous public and semi-public spaces in the Bijlmer were designed in such a way that social control and ‘natural’ surveillance were largely absent (see Helleman & Wassenberg, 2004).

As a result, in the mid-1980s the Bijlmer was characterised by high turnover and vacancy rates. About a quarter of all housing units were vacant, while the residential mobility rate was 40-50% per year (Wassenberg, 2011, p. 370). Various issues arose such as nuisance, crime, deterioration, and drug use, which were partly caused by moving the drug scene from the city centre to the Bijlmer (Aalbers, 2011). The weak position of the Bijlmer on the housing market attracted groups that had difficulties finding housing elsewhere, such as immigrants, undocumented people, and young people.

Although initiatives such as extra maintenance and more police surveillance tried to address these problems, authorities felt that they did not lead to structural improvement. Therefore, in the early 1990s a more radical approach including large-scale urban renewal was adopted. Interestingly, the renewal operation was supported by a large majority of residents, although a smaller group was opposed to it (Wassenberg, 2011). Several waves of renewal have occurred since then, replacing about half of the original high-rise estates with single-family dwellings and more low-rise apartment buildings. The restructuring of the Bijlmer is considered one of the largest urban renewal operations that occurred in Europe in the past decades (Wassenberg, 2011).

Representations of the Bijlmer are strongly intertwined with notions of blackness. The early phase of the Bijlmer coincided with the independence of the former Dutch colony

Surinam in 1975. Because of economic and political conditions many Surinamese and Antillean people migrated to the Netherlands, and ended up in the Bijlmer due to a lack of affordable housing options and discrimination (Balkenhol, 2014). In addition, in the 1980s there was substantial migration from West African migrants to the Bijlmer, notably from Ghana, which was mainly driven by economic motives. These migrants often had an undocumented status because of stringent migration policies (Mazzucato, 2008). The problems of the Bijlmer (e.g., crime, illegal tenancy, and deterioration) have frequently been linked to these black populations, leading to racialised images such as the Bijlmer being a “ghetto” or a place that fundamentally differs from “Dutch society” (Abdou, 2017; Pinkster et al., 2020; Van Gent & Jaffe, 2017). Although these images dominate the public perception, the Bijlmer also serves as a symbolic place that fosters black culture in the Netherlands (Aalbers, 2011; Abdou, 2017).

A highly significant event in the Bijlmer was the 1992 airplane crash. On the 4th of October 1992 a cargo airplane from the Israeli El Al Airlines crashed into two of the high-rise estates due to engine failure, causing the death of 43 people. The airplane crash became known as the Bijlmer disaster or crash (*Bijlmerramp*) and turned into a highly mediatised event with a long aftermath. The crash exacerbated the negative image of the Bijlmer because it exposed the impoverished living conditions of both undocumented and legal immigrants (Aalbers, 2011). Moreover, multiple issues remained unresolved following the crash, such as the exact content of the airplane’s cargo and the unaccounted presence of “men in white suits” right after the crash. In the following years many people who had been close to the crash site became allegedly chronically sick, further feeding into rumours that the airplane had been carrying depleted uranium (Vasterman et al., 2005). The continual dissatisfaction with the inadequate response from the authorities culminated into a parliamentary inquiry on the Bijlmer crash in 1999. The public hearings generated substantial media attention, centring

on personal and emotional stories. The parliamentary committee was able to solve some of the controversial issues, but its recommendations were not supported by most political parties. Overall, the Bijlmer crash reified its image as a place of ‘otherness’ where residents lack political power (Rosenthal et al., 2001). As I will show, the Bijlmer crash also constitutes a clear case of event stigma, with episodes of intense news reporting in 1992 and 1999.

Most studies on structural transformations in the Bijlmer have focused on the period up to 2010 (e.g., Aalbers, 2011; Wassenberg, 2011). Around 2010 the effects of renewal operations in the Bijlmer became visible through (black) middle-class formation and the driving out of ‘undesirable’ groups (Aalbers, 2011). Yet, Pinkster et al. (2020) note that the stigma of the Bijlmer still acts as a powerful force, contingent on the residents’ characteristics. The stigma thus persists even though the level of marginality is relatively low, also compared to urban contexts outside the Netherlands.

Table 1 indicates how Amsterdam’s Southeast district (including Bijlmer neighbourhoods) has developed on several social indicators since 2010. In general, the Southeast still holds a marginal socioeconomic position relative the city’s average. On some indicators the difference between the Southeast and Amsterdam has become smaller over time (e.g., social assistance, -15% and -7%, respectively), whereas on other indicators it has grown (e.g., average housing price, 94% and 106%, respectively). Especially the share of private rental housing has increased in the Southeast, from 9.2% to 26.0%, indicating the strong growth of rent-liberalised housing construction and private landlordism in Amsterdam (Hochstenbach & Ronald, 2020). Regarding crime, the area has also improved, for instance with a relative drop of 48% in youth suspects compared to 38% on the city level. Finally, the strong presence of people with a Surinamese background is slowly declining, from 33.2% to 25.4%. Since the share of native residents is also declining, this means the Southeast is

becoming more ethnically mixed (cf. Crul, 2016). In sum, the Southeast has changed considerably in the past years, including higher scores on various social indicators, but still occupies a relatively marginal position in the urban landscape.

Table 1. Demographic and social statistics on Amsterdam and the Southeast

		Southeast (2011-2015)	Southeast (2022-2025)	% difference	Amsterdam (2011-2015)	Amsterdam (2022-2025)	% difference
Composition	Population total (2011-2025)	80,465	93,228	16%	780,559	934,374	20%
	Native (2011-2025)	25.6%	20.6%	-20%	48.7%	39.9%	-18%
	Surinamese (2011-2025)	33.2%	25.4%	-23%	8.9%	6.6%	-26%
Socioeconomic	Higher educated (2011-2022)	18%	30%	67%	38%	48%	26%
	Median disposable hh income (2011-2023)	23,197	34,028	47%	25,415	39,400	55%
	Social assistance (2011-2023)	9.2%	7.8%	-15%	6.0%	5.6%	-7%
Housing	Owner occupied (2011-2025)	26.0%	25.9%	0%	26.4%	30.3%	15%
	Private rental (2011-2025)	9.2%	26.0%	183%	25.0%	31.1%	24%
	Social rental (2011-2025)	64.9%	48.2%	-26%	48.6%	38.7%	-20%
	Average price (2012-2025)	160,328	310,870	94%	254,684	524,416	106%
	Satisfaction neighbourhood 1-10 (2011-2023)	6.9	7.0	1%	7.3	7.5	3%
Crime	Youth suspects (2015-2024)	4.4%	2.3%	-48%	3.2%	2.0%	-38%
	Murder and manslaughter - N cases (2012-2024)	62	47	-24%	368	270	-27%
	Safety neighbourhood 1-10 (2015-2024)	6.5	6.6	2%	6.8	7.1	4%

Sources: Research and Statistics Amsterdam, Statistics Netherlands, Police statistics

Note: some statistics are own calculations by aggregating from the neighbourhood level

A final note is needed regarding terminology on the Bijlmer. The Bijlmer is also referred to as (Amsterdam) Southeast, a term that is more common nowadays because of the stigmatising connotation of the term “Bijlmer”. Officially, the Southeast refers to the larger district that includes several of the original Bijlmer neighbourhoods such as *Bijlmer-Centrum* and *Bijlmer-Oost*. At a later stage, the Southeast district was further developed on the east side including multiple functions such as providing office space, residence, shopping, event spaces, and a train station. This part of the Southeast is often viewed as a separate area from the original Bijlmer and is therefore less subject to stigmatisation.

Data

To study how the Bijlmer has been depicted in the Dutch newspaper media, I collected all newspaper articles published in the five largest Dutch newspapers referencing the Bijlmer of Southeast. The corpus does not only include articles that specifically discuss the Bijlmer, but also articles that briefly mention the Bijlmer. Even short references, or what DiMaggio (2013) calls ‘casual allusions’, can reflect prevailing assumptions about the Bijlmer. The five largest Dutch newspapers were chosen because they vary in their degree of political orientation and style (see Table 2), making it thus likely that their portrayal of the Bijlmer reflects different national views. I selected news articles from the paper versions to guarantee comparability across time, since digital formats are only available since 2019.

Table 2. Description of the five largest Dutch newspapers

	Availability in Nexis Uni (from dd-mm- yyyy)	Newspaper style	Political orientation	N articles
Algemeen Dagblad (AD)	4-11-1991	Popular	Centre-right	3,369
NRC Handelsblad	8-1-1990	Quality	Centre-left	5,370
Telegraaf	2-1-1999	Popular	Right	4,943
Trouw	2-1-1992	Quality	Centre-left	4,572
Volkscant	2-1-1995	Quality	Centre-left	4,680

Sources: Gregoriou et al. (2022), Ruigrok et al. (2014)

Articles were downloaded from the Nexis Uni database using the following search query:

Bijlmer OR ("Amsterdam" AND ("Zuidoost" OR "Zuid oost"))*

The asterisk (*) ensures that all references to the Bijlmer are incorporated, including terms such as *Bijlmermeer*, *Bijlmerdreef*, *Bijlmerramp*, *Bijlmerbajes*, etc. The initial corpus consisted of 26,826 articles. Various steps were taken to prepare the corpus for data analysis. In the first step, duplicate texts were removed based on headlines and content. Since some duplicates contain minor textual differences, articles from same newspaper in the same month that had a similarity score > .85 were also excluded.

Next, the articles were split into paragraphs for two reasons. First, the language model has a token limit of 512, it therefore handles short texts better than long texts. Second, only paragraphs containing the terms “Southeast”, “South-East”, “South East” or a variation of “Bijlmer*” were retained. Many articles only briefly refer to the Bijlmer, therefore containing much redundant text that does not address the Bijlmer in any way. Selecting paragraphs explicitly mentioning the Bijlmer streamlines the textual analysis while keeping essential textual information. This choice assumes that text closer to a term conveys more relevant information (Lund & Burgess, 1996). Furthermore, non-relevant paragraphs were removed. For instance, some articles discussed events in Southeast Asia, which were unrelated to the Bijlmer. The final dataset contains 22,934 articles with 38,142 paragraphs.

The corpus has some limitations. One limitation is that the Nexis Uni database starts from 1990. This means that earlier representations from the 1970s and 1980s cannot be studied while they are important for building the image of the Bijlmer that still lingers today (cf. Pinkster et al., 2020). Another limitation is that some newspapers were only included later into the database (Table 2). The frequency and topical representations of news are

therefore not strictly comparable between years. However, given the importance of stigmatising events in the 1990s, I chose to include all articles from their earliest availability. This issue will be considered during interpretation of the results.

Methods

The analysis mostly relies on hierarchical topic modelling. Topic modelling is a method that has become popular across various domains in the social sciences (Egger & Yu, 2022). It provides an automated procedure for coding the content of a corpus of texts into a set of substantively meaningful coding categories called “topics” (Mohr & Bogdanov, 2013, p. 546). A topic indicates what a specific text is about (“aboutness”). Topics are viewed as groups of words that are associated under a single theme and the relations between these words shape the meaning of the theme (DiMaggio et al., 2013; Mohr & Bogdanov, 2013).

I use BERTopic (Grootendorst, 2022) from the BERT-architecture (Bidirectional encoder representations from transformers). BERTopic uses contextual embeddings where the representation of words (or sentences) depends on surrounding words in a text. These contextual embeddings are then numerically represented in a high-dimensional vector space, allowing for the identification of texts that have similar meaning because they are close together in this space. For example, in its simplest form, the words “immigrants” and “refugees” have similar meaning because they are often used in the same context – i.e., surrounded by the same words or sentences. In a similar vein, BERTopic embeds documents to find documents that are semantically similar, thereby assuming that they share the same topic. In the next steps, BERTopic employs dimensionality-reducing (UMAP) and clustering (HDBSCAN) techniques to further determine which documents belong together (i.e., a cluster) and which documents can be considered as outliers.

Each cluster is then assigned a topic based on the class-based TF-IDF (c-TF-IDF) measure, a modified version of the traditional TD-IDF. The TD-IDF calculates how often a word is used in a document relative to the whole corpus, indicating how distinctive certain words are for a text. Within BERTopic, the same principle is applied to clusters of documents instead of single documents. A *bag-of-words* approach determines which terms represent a topic, but only after documents have already been clustered based on semantic similarity.

The following model settings were chosen after several tests and initial analyses. The topic model was trained using “*robbert-2022-dutch-sentence-transformers*”, which is a suitable language model for clustering tasks in Dutch (Delobelle et al., 2020). The minimal cluster size was set to ten documents. The topical representations include either single words (unigrams) or a combination of two words (bigrams). The threshold for topic-document probabilities was set to .01 to reduce the number of outliers, ultimately designating 12.5% of the articles as non-classifiable (Table 3).

BERTopic determines a single topic per input text (Grootendorst, 2022). The topic model provided a solution with 345 topics (level-0 topics). Following the same logic behind thematic analysis (Braun & Clarke, 2006), these topics were manually coded into higher-level thematic groups. I apply *hierarchical* topic modelling here because the hierarchical relations between the topics were visualised in BERTopic – based on the distance between c-TF-IDF representations – and served as input for the coding process. The first round of coding led to the identification of 54 topics (level-1 topics), which in a second round were coded into seven meta-topics (level-2 topics). Finally, the topics were aggregated to the article level by counting the number of unique topics per article. The average number of meta-topics per article is 1.08, indicating that a large majority of articles only contains a single topic (93.1%).

Sentiment analysis is also applied in this study. Like topic modelling, it is a natural language processing technique that detects the sentiment or opinion in a text (Liu, 2022). The

sentiment expresses how the content is evaluated. This can be done on different dimensions, such as polarity (i.e., positive or negative) or intensity (i.e., strength of an emotion).

Sentiment analysis can therefore show to what extent certain topics have positive or negative associations. When news on an issue has a more negative sentiment, it can be assumed to have a stronger stigmatising effect (Stuart et al., 2025). Thus, linking the sentiment of a text to its topic indicates what news is particularly stigmatising for the Bijlmer.

I use the BERT-architecture to classify the sentiment each paragraph. The classification task was performed using the *robbert-v2-dutch-sentiment* language model, which is a fine-tuned Dutch model for sentiment analysis. This model is trained on book reviews. It might therefore miss some of the contextual nuances regarding the Bijlmer, but it can give a reasonable indication of sentiments. The model labels the texts as either ‘positive’ (value: 1) or ‘negative’ (value: 0). It also provides a score for how confident the model is that these labels express a certain sentiment. Only paragraphs with a confidence score $>.70$ are used to calculate the average sentiment per meta-topic (89,3% of all paragraphs).¹

Results

Seven meta-topics were extracted from the hierarchical topic model, indicating with which themes the Bijlmer (or Southeast) is associated in the newspaper media (Table 3). These meta-topics are briefly described as follows:

- Area (8.7%): mainly concerns development issues and the physical environment relating to the commercial area on the east side of the district. For instance, it includes news on traffic issues, the reconstruction of the Bijlmer train station, or plans for building new offices or hotels. This meta-topic also occasionally links to the general development of the city.

- Bijlmer crash (21.0%): includes all kinds of news on the Bijlmer crash. This covers topics such as details of the crash, the condition of the airplane, the aftermath, potential health consequences for residents, and the parliamentary inquiry.
- Built environment (10.9%): focuses on the design and renewal of the original Bijlmer. This includes articles discussing the modernistic design, renewal plans, the reasons why renewal was deemed necessary, and the views of residents. This meta-topic deals more with the ‘older’ part of the Southeast, whereas the Area topic is on the ‘newer’ part.
- Crime (13.9%): involves different sorts of news on crime and deviances, for instance on murders, robberies, shootings, fraud, undocumented migrants or police actions. Here the offender or victim is from the Bijlmer and/or the crime occurred in the Bijlmer. Relatively much reporting is on the so-called *Bijlmerbajes* (Bijlmer prison).
- Culture & Media (9.4%): covers either cultural events that occurred in the Bijlmer or the commercial district on the east side, or the ways in which the Bijlmer is represented in cultural products such as books, movies, television or exhibitions.
- Social & Political (14.2%): a relatively broad category that includes various social and political issues. This category may cover the many churches in the Bijlmer, racism towards black residents, poverty, staffing issues in schools, local politics, or public health hazards.
- Sports (4.5%): relates to sport events in the Bijlmer, athletes originating from the Bijlmer, or news on stadium of the football club Ajax.

Table 3. Meta-topics, sentiment score, and level-1 topics descriptions

Meta-topics (level-2)	N	%	Average sentiment (0-1)	Level-1 topics
Area	2,145	8.7%	0.61	[markets, stores, Sundays], [event locations, shows, Ziggo Dome], [station, train, metro], [traffic, public transportation, roads, parking, bicycle paths, cars], [electricity, wind turbines, power outage], [city, development, offices, South Axis, banks, headquarters, tourism, hotel], [green, water, hiking, trees, farm, birds]
Bijlmer crash	5,170	21.0%	0.51	[El Al, (depleted) uranium, cargo, white suits], [academic hospital, medical research, medical complaints, disease, ptss, autoimmune], [victims, deceased, sports hall, families, assistance, commemoration, missing persons], [fire brigade, barracks, fire chief, seriousness], [airplane, engines, Boeing, 1992], [parliamentary inquiry, politics, truth, commission, Bijlmer disaster, political responsibility, 'purple II' cabinet, debate], [lawyers, relief fund, emergency fund, El Al, compensation, victims], [Bijlmer disaster, Enschede, Volendam], [Buitenveldert runway, Schiphol, airport, airplane traffic, working group, risk, flight safety], [media, journalism, series], [illegal immigrants, undocumented, population register]
Built environment	2,678	10.9%	0.67	[masterplan, district, South East], [stores, facilities, malls, deterioration, crime, renewal], [Bijlmerbajes housing, Bajeskwardier, students, Grenshospitium, asylum seekers, legal exhaustion], [housing, dwellings, euro, value, renewal, demolishment, residents, housing corporation, communal space, parking], [neighbourhood, estates, architecture, design]
Crime	3,414	13.9%	0.48	[police, arrest, suspect, robberies, raid, cocaine, kilo], [fraud, DigiD, Nigerians, child allowance], [murder, shootings, stabbings, xx years old, victim, police], [body, missing, found, rape, police, woman, victim], [child, fall, garbage container], [rap, violence, shootings, street culture, social media], [prison, prisoners, cells, Bijlmerbajes, escape, penitentiary, phone taps, addicts, director], [weapons, guns, stop and frisk, safety risk], [police, bureau, crime, safety feelings], [coffeeshops, junks, addicts, nuisance, isolate], [illegal immigrants, Ghanaians, police, cafe], [stores, mall, safety, nuisance, robberies], [attempted terror attack, Ikea, 11 march 2009]

Culture & Media	2,302	9.4%	0.78	[food, kitchen, restaurant, beer], [theatre, festival, circus, opera, ballet], [art, exhibition, artists, collection, museum, subsidy], [music, dance, rap, street language, band, fashion, DJ], [festival, Kwakoe, football tournament], [media, books, magazines, movie, documentary, television]
Social & Political	3,490	14.2%	0.65	[Surinamese, Antillean, Bouterse, migrants, population], [churches, migrant churches, God, believers, Christians, mosque], [sex, prostitution, girls, homosexuality, gay], [black council, racism, Black Pete, protest, history, slavery], [illegal cabs, TukTuk], [poverty, youth, unemployment, care, teenage mothers, parents, homelessness, child obesity, food bank, neighbourhood court], [politics, politicians, parties, affairs, district council, Audit office, conflict of interest, mayor], [waste, cameras, garbage bags, surveillance, nuisance, dogs, stray cats], [public health, asbestos, dioxin, infection, vaccination, tests, HIV, AIDS, malaria, Ghanaians, doctor, patients], [students, school, education, elementary school, children, school community, learning orchestra, exams]
Sports	1,100	4.5%	0.70	[sports, amateur football results, tournament, Bijlmer origins, dams, tennis, sprints], [Ajax, stadium, Olympic, sport]

Note: other categories are Frequent words (N = 1127, 4.6%), Not classified (N = 3,079, 12.5%), and Not relevant (N = 107, 0.4%). Level-1 topics are represented here in limited form, for full representation see Custers (2025).

The meta-topics show that news on the Bijlmer is highly diversified. Many different topics come up when the Bijlmer or Southeast is invoked, which can also be seen in the detailed list of level-1 topics (Table 3). The distribution of meta-topics is thereby fairly equal, meaning that not one meta-topic dominates over others. Most meta-topics cover between 10% to 20% of news on the Bijlmer. Thus, in terms of news coverage, the Bijlmer (or Southeast) is associated with a large plurality of topics.²

This finding does, however, not preclude that some meta-topics are more important in shaping the image of the Bijlmer. The largest meta-topics are Bijlmer crash (20.1%), Social and Political (14.2%), Crime (13.9%), and Built environment (10.9%). The prevalence of these meta-topics across time is plotted in Figure 1, pointing towards some relevant insights regarding core and event stigma. There are two clear news peaks in 1992 and 1999 that result from reporting on the Bijlmer crash. Reporting in these years – and adjacent years to a lesser extent – is clearly much higher than in other years. The peaks indicate that the Bijlmer was at the forefront of the national news in these two years, with for example over 1,500 articles mentioning the Bijlmer crash in 1999.³ The content of these two peaks substantially differs. Whereas in 1992 the news mainly discusses the victims, the airplane engine failure, and undocumented immigrants, in 1999 the parliamentary inquiry is the most important topic followed by discussions on potential medical harms and the airplane's cargo (see Figure S1 in Supplemental Material). In addition, Figure 1 confirms the idea that event stigma gradually loses its significance after some time. A few years after 1999 the Bijlmer crash receives much less attention while other meta-topics take precedence.

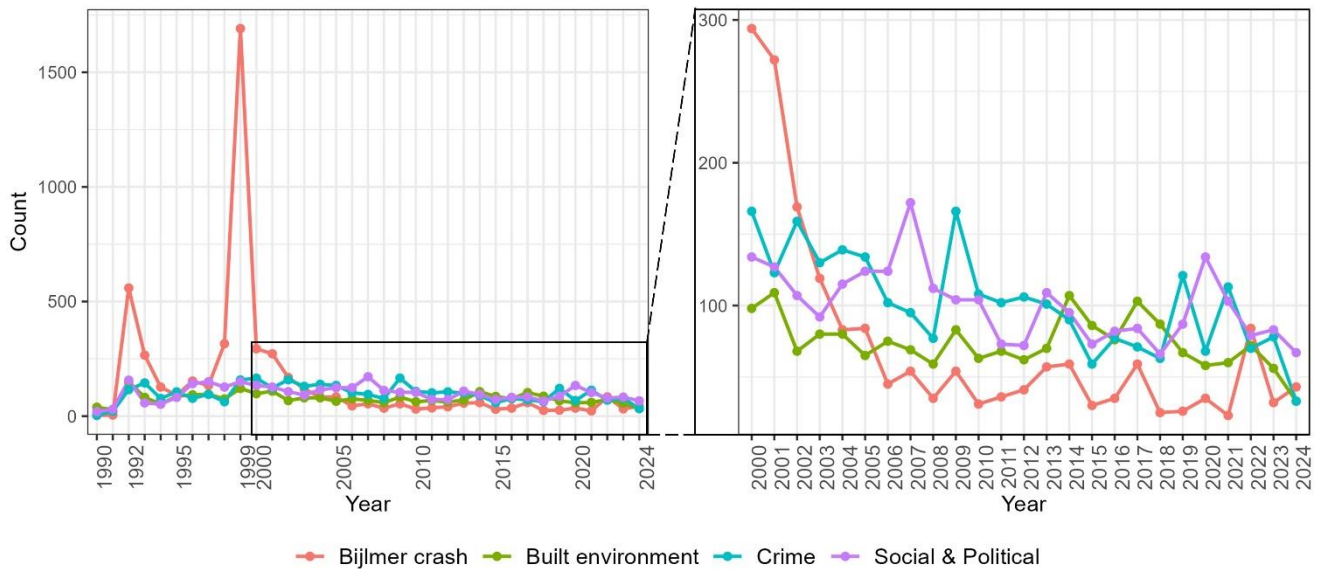


Figure 1. Frequency of news for the four largest meta-topics (1990-2024)

Given the focus here on event *stigma*, the question is to what extent reporting on the Bijlmer crash has been stigmatising for the Bijlmer. The sentiment score for the meta-topic Bijlmer crash is relatively low (0.51), only Crime has a lower score (0.48) (Table 3). News on the Bijlmer crash therefore carries a relatively negative sentiment. This is further confirmed by deep reading the articles. For instance, articles on the topic of undocumented immigration emphasise the high number of undocumented migrants that applied for residence permits after the crash and problems with the population register (cf. Aalbers, 2011). These observations are also supported by other studies that demonstrate reporting on the Bijlmer crash tended to be emotional and sensationalist, often centring on personal tragedies and speculations of cover-ups (Rosenthal et al., 2001; Vasterman et al., 2005).

Next to the major impact of the Bijlmer crash (i.e., event stigma), an underlying stream of core stigma can also be detected. Both the content and sentiment score of Crime, and Social and Political to a lesser degree, suggest that such news has stigmatising effects. Figure 1 shows that crime news is ongoing throughout the years with about 100 to 150 articles per year. Reporting on crime continues even in years when event stigma dominates,

indicating core stigma is sustained along event stigma (Butler-Warke, 2021). Crime news thereby ties a wide variety of crimes to the Bijlmer. As the level-1 topics show, newspapers report on issues such as addiction, undocumented migration, feelings of unsafety, fraud, prison escapes, gun possession, robberies, stabbings, and murders (Table 3). This process of repetitively associating the Bijlmer with various crimes and deviances is likely to enforce it stigma, since readers are constantly made aware that crime occurs there (Schwarze, 2022).

The level-1 topics under Social and Political further demonstrate that the Bijlmer is associated with several social problems. Some examples are youth engaging in immoral sexual practices, politicians being involved in affairs and conflicts, and schools that are underperforming. Moreover, topics such as poverty, teenage mothers, homelessness, and child obesity are continually brought up. Connecting all these societal ‘ills’ to the Bijlmer reinforces its image as a place where problems concentrate. The sentiment score (0.65) further indicates Social and Political articles carry fewer negative sentiments than the Crime articles. Even when articles are more positive in general, they can have stigmatising effects because they reinforce the oppositionality between the Bijlmer and the rest of society. For example, highlighting the presence of many migrant churches may show community spirit among ethnic groups in the Bijlmer, but this also promotes the idea that people in the Bijlmer are ‘different’ since church attendance is generally low in the Netherlands. Yet not all topics under Social and Political are necessarily stigmatising. For instance, articles on racism and struggles to abolish the derogatory figure of Black Pete emphasise the collective action capacity of black groups in the Bijlmer (cf. Abdou, 2017).

Finally, I consider the relation between structural changes in the Bijlmer and media attention. Table 1 demonstrated that the Southeast advanced on multiple indicators with higher socioeconomic and safety scores yet maintaining its relatively marginal position in the city. Figure 1 shows that no large surges in reporting have occurred since the news peak of

1999 (see also Figure S2; Supplemental Material). Reporting has since then been a fluctuating process with smaller news peaks from time to time, which mainly happen for Crime and Social Political. One peak occurs in 2007, relating to local council members of the Labour Party being accused of nepotism and conflicts of interest. In 2009, the media reported on multiple shootings that occurred in the Bijlmer, thereby constantly referring to earlier shootings that happened during this year. Such news peaks demonstrate that the media continually activates the neighbourhood's core stigma in which incidents play a central role (cf. Butler-Warke, 2021).

Other news peaks seem to become smaller over time. In 2007 and 2009 the number of articles is higher (about 175-190 articles) than for other peaks in 2019-2021 (about 115-135 articles). Furthermore, the overall level of reporting has somewhat declined since the last Bijlmer crash news peak. There is a decrease between 2000 and 2008 from approximately 195 to 100 articles on average, after which the number of articles remains constant (Figure S2). The decline during the 00s mainly relates to the media losing interest in the meta-topic of the Bijlmer crash (Figure 1), whereas the pattern for other meta-topics is irregular.

These observations demonstrate there is no clear-cut relationship between structural developments in the Bijlmer and media attention. The developments in the Bijlmer during the 00s are associated with a relative decline in reporting frequency, but the latter seems to be caused by less attention for the Bijlmer crash. The pattern of declining media attention is not sustained after 2010 while social conditions did improve considering multiple indicators (Table 1). Moreover, media reporting is highly volatile with much variation between years in which topics are covered. Underneath the average trend in the level of reporting there is thus much diversity in what news is presented.

Conclusion and discussion

This study investigated how the Bijlmer, one of the most ‘infamous’ urban areas in the Netherlands, has been depicted in the newspaper media since 1990. Computational text analyses including topic modelling and sentiment analysis were employed to classify all references to the Bijlmer during this period. The findings have multiple relevant implications for the literature on territorial stigma.

First, the results indicate that the Bijlmer (and larger Southeast district) is associated with a large variety of topics. Although the Bijlmer crash, social and political issues, and crime belong to the largest news categories and are at least partially stigmatising, there is also a considerable yet smaller amount of news that is less stigmatising (e.g., on area development, sports, and cultural events). This finding differs from other studies that show news on stigmatised areas is predominantly negative with crime as a central motif (e.g., Devereux et al., 2012; Kearns et al., 2013; Liu & Blomley, 2013; Schultz Larsen & Delica, 2019; Schwarze, 2022). One explanation might be that news on the Southeast district does not only cover the original Bijlmer neighbourhoods but also the commercial area on the east side. The spatial layout of the district therefore makes news more variegated by not only covering social problems of the Bijlmer. Another explanation might be related to the methodological approach taken here, which is not strictly comparable to similar studies. By analysing all references to the Bijlmer, including casual allusions (DiMaggio et al., 2013), over a 35-year period more trivial news is potentially included. A more fine-grained picture emerges than in other studies that focus more on direct news about stigmatised areas. Taken together, the results indicate that while a significant portion of news coverage on the Bijlmer tends to be stigmatising, the overall media portrayal is more diverse than commonly assumed.

Second, this study has demonstrated that core and event stigma are useful concepts to understand the temporal dynamics of place-based stigma (Butler-Warke, 2021). The Bijlmer

crash constitutes a key historical event that drew enormous media attention to the Bijlmer on two separate occasions (i.e., the crash itself in 1992 and the parliamentary inquiry in 1999). The amount of reporting on this event implies that the Bijlmer became strongly embedded in the national consciousness, building on an already ‘spoiled’ reputation. Yet, the impact of the crash has waned in the 21st century, during which core stigmatising features such as crime and other social issues gained relative prominence again. The findings also indicate that core and event stigma should not be viewed as two separate forms of stigma. Rather, they build and latch on to each other whereby incidents are used by the media to reaffirm core stigma (Burtler-Warke, 2021). This can, for instance, be seen in that undocumented migration was frequently discussed during peak reporting on the Bijlmer crash, but that it is also brought up as a separate topic under the Crime category.

Finally, this has been one of the first studies on territorial stigma that explicitly investigated the link between neighbourhood changes and media portrayal over a longer period. The results suggest a complex relation between structural conditions and media coverage. Structural changes in the Bijlmer during the 00s are associated with a gradual decline in media attention, but this is mainly due to less reporting on the Bijlmer crash. After 2010 reporting has been stable with year-to-year variation in what is being covered. A point of discussion is what this finding means for the stigma of the Bijlmer. The Bijlmer has been one of the most stigmatised urban areas in the Netherlands, if not *the* most stigmatised (Abdou, 2017; Aalbers, 2011; Pinkster et al., 2020; Van Gent & Jaffe, 2017). This stigma still exists today, although it can be argued that it does not carry the same weight and intensity as in the 20th century. Large-scale urban renewal (Wassenberg, 2011) and city-wide gentrification (Booi, 2024) have diminished its overall stigma (cf. Aalbers, 2011). Yet, the results imply that the marginal position of the Bijlmer is still associated with a certain degree of core stigma.⁴

I will finish with a brief reflection on the methodology. By applying topic modelling and sentiment analysis to a large corpus of newspapers, this paper has adopted a novel approach in researching the production of territorial stigma (cf. Lee et al., 2025; Stuart et al., 2025). This approach differs from common methods of content and qualitative analyses. I do not claim that the methodology applied here is somehow ‘better’ than traditional methods. Its advantage is that it can detect patterns of neighbourhood representation across a long period and multiple newspapers, something that is unattainable with the manual coding of a large corpus. On the other hand, topic modelling is criticised for lacking human evaluation in assigning codes, because topics in a topic model are constructions that are *interpreted* into, rather than *read out* of the combination of words present in each topic (Shadrova, 2021, p. 17). This is also apparent in this study, since I can only indicate which topics are likely to be stigmatising. For instance, questions remain on how the Bijlmer crash has been exactly stigmatising for the Bijlmer itself – or for national politics on the other hand (Rosenthal et al., 2001) – and what techniques are used by the media to stigmatise. To answer such questions, qualitative methods remain essential because they provide in-depth insights into the mechanisms and techniques by which disadvantaged areas become stigmatised.

Notes

1. All R and Python code is available at Custers (2025). The dataset cannot be published due to copyright restrictions.
2. Meta topics are in some cases less distinct than they might appear. For instance, certain level-1 topics under Built environment also have a relation to Crime. An example is that news on crime and nuisance in stores links to the need for urban renewal.
3. The height of the peak in 1992 is underestimated here due to lack of inclusion of some newspapers in the Nexis Uni database for this year (see Table 2 and Figure A2).
4. An important nuance is that this study only considered printed editions of newspapers. It could be that different dynamics of stigma are uncovered when digital editions or other platforms such as social media are studied (cf. Schultz Larsen & Delica, 2019).

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Supplemental Material

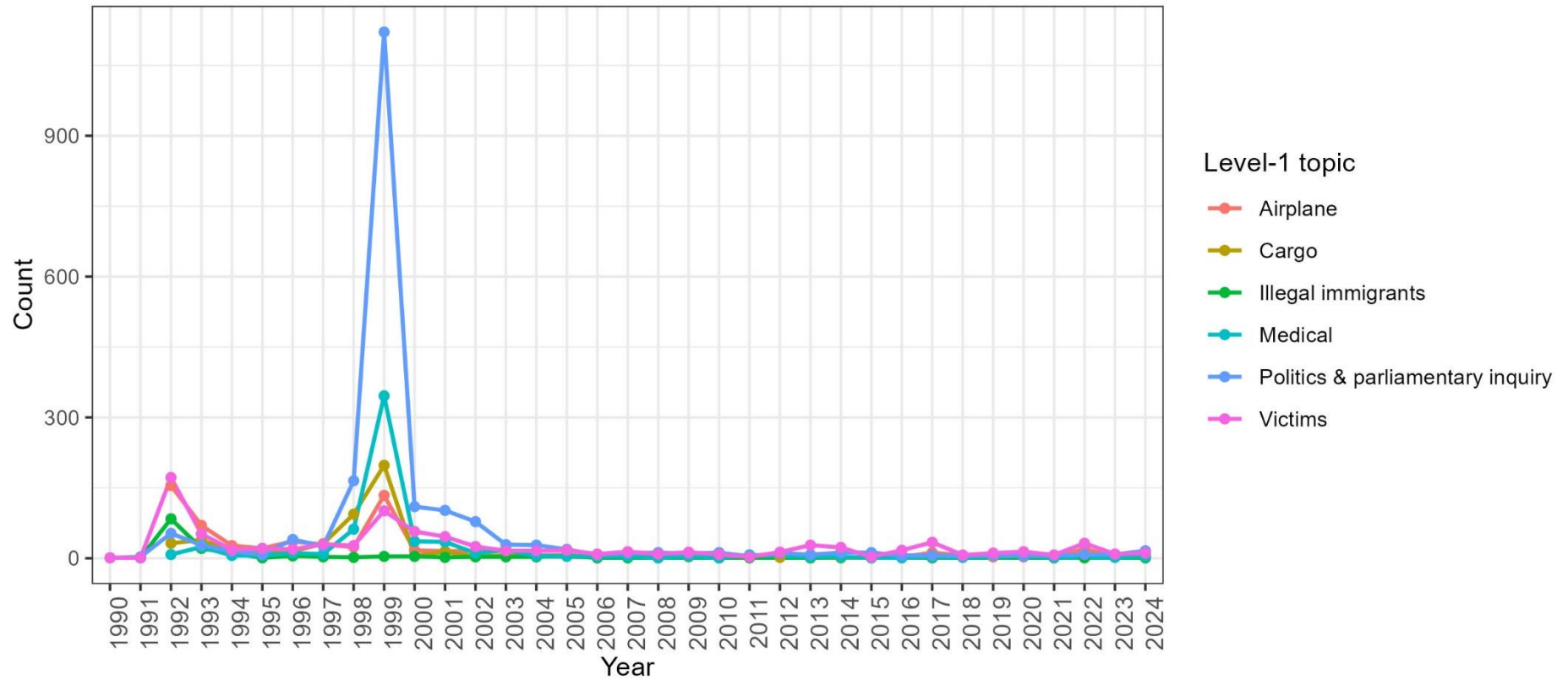


Figure S1. Frequency of news for level-1 topics for Bijlmer crash (1990-2024)

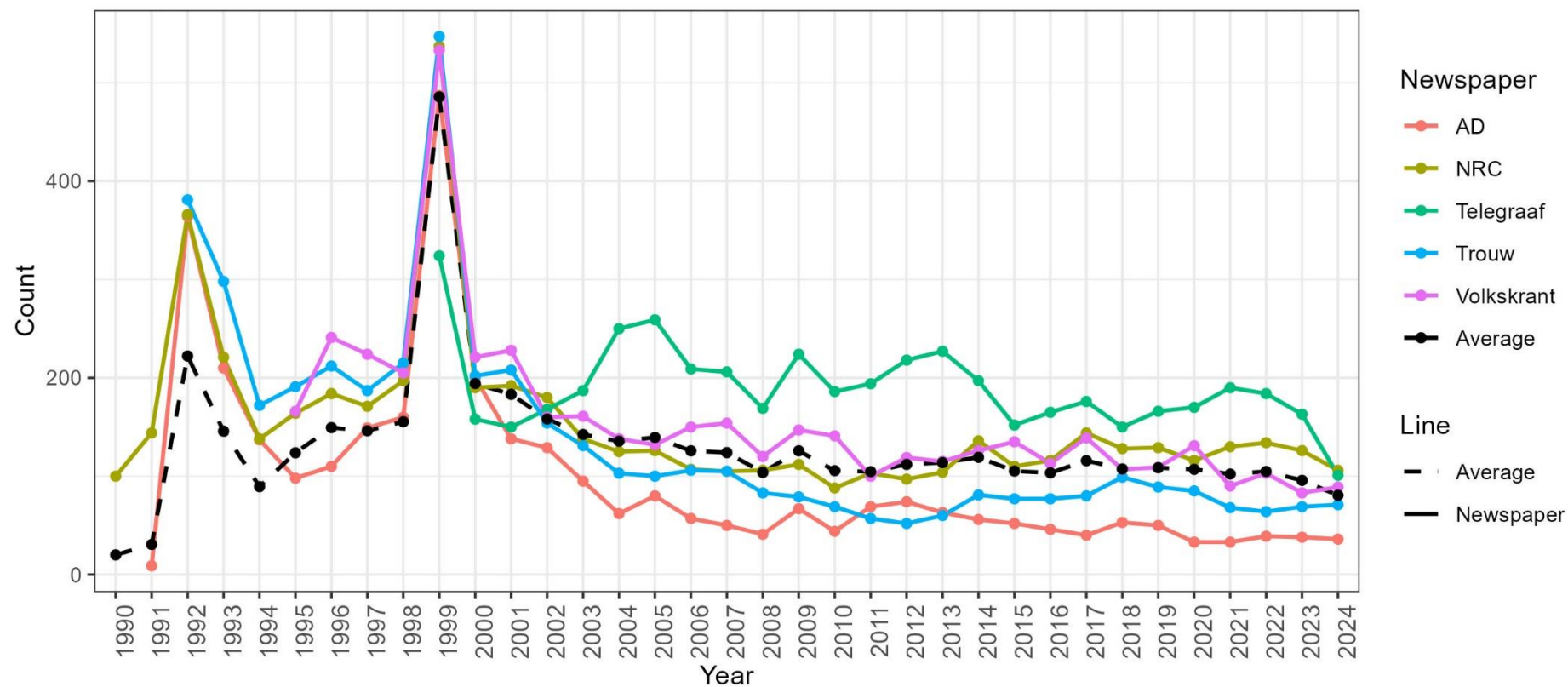


Figure S2. Frequency of newspaper articles per newspaper (1990-2024)