

Media Coverage of Immigration and the Polarization of Attitudes[†]

By SARAH SCHNEIDER-STRAWCZYNSKI AND JÉRÔME VALETTE*

This paper investigates the effect of media coverage on immigration attitudes. It combines data on immigration coverage in French television with individual panel data from 2013 to 2017 that records respondents' preferred television channel and attitudes toward immigration. The analysis focuses on within-individual variations over time, addressing ideological self-selection into channels. We find that increased coverage of immigration polarizes attitudes, with initially moderate individuals becoming more likely to report extremely positive and negative attitudes. This polarization is mainly driven by an increase in the salience of immigration, which reactivates pre-existing prejudices, rather than persuasion effects from biased news consumption. (JEL D83, D91, J15, J18, L82)

The news media isn't just an actor in politics. It's arguably the most powerful actor in politics.

—Ezra Klein, *Why We're Polarized* (2020, 240)

Against the backdrop of the 2015 refugee crisis and rising migration flows, immigration has emerged as a highly contentious and politically charged issue, particularly in Europe and the United States. This surge in public and media attention coincided with the rise of nationalist and populist movements, such as Germany's AfD, Italy's Lega, France's Front National, and the Republicans under Donald Trump's leadership, who took a strong anti-immigration stance (Guriev and Papaioannou 2022). Drawing on accessibility-based models from media theories, such as agenda-setting

*Jérôme Valette: (email: jerome.valette@cepii.fr); Sarah Schneider-Strawczynski: (email: S.Schneider-Strawczynski@exeter.ac.uk). Leah Boustan was coeditor for this article. The usual disclaimers apply. We thank two anonymous reviewers for helping us to improve and revise this paper in several ways. We also thank Joop Adema, Simone Bertoli, Clément Bosquet, Samuel P. Engle, Christina Gathmann, Julien Grenet, Sekou Keita, Philipp Ketz, Sergei Guriev, Joël Machado, Vincent Pons, Hillel Rapoport, Ariell Reshef, Victor Stéphane, Ekaterina Zhuravskaya, and the attendees of the third EBRD-King's College London Workshop on the Economics and Politics of Migration in London, the third CReAM/RWI Workshop on the Economics of Migration, the St Andrews Workshop on the Political Economy of Immigration, the first Welfare and Policy Conference in Bordeaux, the Economics of Migration Seminar held online, the 11th annual conference on Immigration in OECD countries in Paris, the sixth international Conference on Understanding Voluntary and Forced Migration in Lille, the Migration Workshop in the Bordeaux School of Economics, as well as participants in invited seminars at BETA (Strasbourg), CERDI (Clermont-Ferrand), CEPII (Paris), CRIEF (Poitiers), and IESEG (Paris), for their valuable comments and insightful suggestions on previous versions of the paper. This work has been funded by a French government subsidy managed by the Agence Nationale de la Recherche referenced ANR-17-EURE-001 and ANR-20-CE41-0014.

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and priming,¹ one can hypothesize that increased media attention on immigration has heightened viewers' focus on the issue and reactivated preexisting prejudices against immigrants.

This paper aims to investigate the relationship between media coverage of immigration and the formation of attitudes toward immigration. To accurately capture the prevalence of immigration on television, we use data from the French National Audiovisual Institute (INA), which records a detailed description of all subjects covered by French television channels. This allows us to provide a comprehensive picture of immigration's overall prominence and representation in French evening television news over time, including its framing toward specific topics or sentiments. These television data are then combined with individual panel data from the ELIPSS survey (Longitudinal Internet Studies for Social Sciences) to track individuals' attitudes toward immigration in 12 distinct waves between January 2013 and December 2017. Unlike most papers that use geographical or experimental variations in media coverage, this paper links respondents to their preferred television channel for political information, and thus to their actual media exposure. The richness of our panel dataset also allows us to control for individual, channel, and wave fixed effects in the main empirical specification, effectively mitigating concerns related to self-selection, i.e., individuals watching television channels that align with their ideology.²

The main result of this paper is that increased news coverage of immigration polarizes attitudes. There is a shift in the distribution of attitudes toward both extremes, as individuals with initially moderate attitudes become more likely to report extremely positive and negative attitudes. This asymmetric change results from initial belief heterogeneity; those with initially moderately positive attitudes become extremely positive, while those with initially moderately negative attitudes become more concerned about immigration. In terms of magnitude, we find that a one-standard-deviation increase (1.9 percent) in the share of immigration-related subjects in overall broadcasting is associated with a five percentage point increase in the likelihood that individuals with moderate attitudes report extreme attitudes. These results translate to the political level, with a polarization of voters toward parties with the most extreme positive and negative immigration stances.

Consistent with polarization at both ends of the distribution of attitudes, an increase in immigration coverage has no effect on the average immigration attitude in the population. This supports previous findings by Baysan (2022) who studied a randomized door-to-door informational campaign in Turkey designed to warn voters about the threat posed by a referendum aimed at reducing executive power constraints. She showed that the null average effect on vote shares concealed polarization on both sides of the political spectrum, particularly in areas with a high concentration of moderate voters. We confirm the importance of looking beyond average effects

¹ See Scheufele and Tewksbury (2007) for a detailed review of media theories.

² Durante, Pinotti, and Tesei (2019), for instance, demonstrate that Italian viewers changed their favorite news programs in response to a change in news content on public television after the 2001 national elections. Other empirical tests in the paper support our findings that the results are not sensitive to self-selection on observables and unobservables, and are unlikely to be driven by an endogenous adjustment of TV channels or time-varying shocks correlated with individual unobservables that would be not absorbed by fixed effects.

when investigating how exposure to the same information affects individual attitudes and beliefs. We focus on situations in which individuals are exposed to information about immigration, through media consumption rather than direct contact,³ and not through a single shock, but rather through repeated exposure to information over time. Unlike Baysan (2022), who uses ballot-box-level data, we precisely characterize individuals who polarize as those with initially moderate attitudes toward immigration who move to the extremes of the distribution based on their initial inclination.

Several tests in the paper support interpreting our results through the lens of salience. Salience must be understood here as the psychological process by which an individual's limited attention is increasingly drawn to a prominent topic, resulting in the topic being overweighted in subsequent decisions (Kahneman 2011; Bordalo, Gennaioli, and Shleifer 2013).⁴ Within our framework, increased immigration coverage raises the prominence of this subject in the minds of TV viewers, causing them to place greater emphasis on the immigration topic when forming their opinion, thereby amplifying their initial position on the distribution of attitudes from moderate to extreme.⁵ Consistent with this interpretation, polarization of moderates occurs even when they are exposed to the same topic, a neutral tone, or information from the same channel, namely for viewers exposed to the same information.

We provide further evidence that the polarization of moderates is not explained by i) motivated reasoning, when TV viewers seek and accept information that aligns with their preexisting beliefs while discounting or dismissing contradictory information, or ii) persuasion, when TV viewers exposed to differing information sets and framing update their attitudes in different directions depending on the bias of the news, resulting in the so-called "echo chamber" effect (Zhuravskaya, Petrova, and Enikolopov 2020). We find motivated thinking to be only relevant for individuals who already have extremely positive or negative attitudes, and not for individuals who have moderate attitudes, as this strategic adjustment requires strong initial attitudes (Swire et al. 2017).⁶

This paper contributes to the fast-growing literature on the impact of salience on political attitudes. Existing papers in the context of migration manipulate the salience of the topic using experimental settings (Dennison and Geddes 2019; Hopkins, Sides, and Citrin 2019; Grigorieff, Roth, and Ubfal 2020; Dylong and Silke 2024).⁷ Alesina, Miano, and Stantcheva (2022) randomize the order in which respondents receive questions about immigration and redistribution in an online survey experiment and find that

³Baysan (2022) specifies that the goal of the door-to-door campaign was to inform voters by specifically circumventing the government's strict media censorship.

⁴See Eisensee and Strömberg (2007) or Snyder and Strömberg (2010) for striking examples of the role of the press in driving the salience of a specific topic.

⁵Similarly, Baysan (2022) suggests that the information campaign may have increased the salience of authoritarianism, causing individuals to pay more attention to this topic.

⁶Specifically, pro-immigration individuals are more likely to maintain extremely favorable attitudes when exposed to neutral and positive information, but not when exposed to negative information, which aligns with motivated reasoning. There is also a significant backlash toward more negative attitudes when anti-immigration viewers are exposed to positive immigration coverage that sharply contradicts their initial beliefs.

⁷This paper does not cover the literature on the direct impact of immigration on natives' attitudes and votes; refer to Alesina and Tabellini (2024) for a review. Similarly, see Barber and Odean (2007); Chetty, Looney, and Kroft (2009); Finkelstein (2009); Bordalo, Gennaioli, and Shleifer (2013, 2015); Ochsner and Roesel (2023) for examples of the impact of salience on individuals' decisions and beliefs.

(i) priming immigration without any additional information deteriorates natives' attitudes toward immigration and (ii) this salience effect overcomes the positive impact of exposure to positive anecdotes about immigrants. Similarly, Barrera et al. (2020) used an online survey experiment during the 2017 French presidential election campaign to randomly expose respondents to fact-checking on far-right statements. The results show that (i) fact-checking successfully corrects people's misconceptions and beliefs about immigration but (ii) has no effect on their voting preferences because the negative impact of fact-checked erroneous statements on far-right support is compensated by the salience effect of fact-checking exposure. Our paper provides additional out-of-the-lab evidence on the relevance and importance of salience in determining natives' attitudes toward immigration.

Other papers use quasi-natural experiments to capture meaningful variations in the salience of migration, such as Gagliarducci and Tabellini (2021) with the construction of Catholic churches in the United States between 1890 and 1920 that increased the salience of the Italian community, Ochsner and Roesel (2023) with Austrian far-right populist campaigns that reactivated anti-Muslim sentiments in the mid-2000s, or Giavazzi et al. (2024) with the salience of immigration in German social networks following criminal events or terrorist attacks between 2013 and 2017. These papers find that priming immigration sways natives' attitudes in a particular direction, mostly increasing anti-immigration attitudes. A notable exception that does not identify an average effect is Colussi, Ispording, and Pestel (2021), who find that the increased salience of the Muslim population during Ramadan is associated with increased support for extreme parties (both left and right) in German municipalities with mosques. Compared to this paper, which cannot distinguish whether the effect occurs as a result of media exposure or direct contact with immigrants, our study systematically associates individuals with their exposure to television news. Similarly, we show that short-term variations in the salience of immigration are a strong driver of political polarization.

This paper also speaks to the emerging literature on the cultural and political polarization (DiMaggio, Evans, and Bryson 1996; Fiorina and Abrams 2008; Desmet, Ortuño-Ortín, and Wacziarg 2017; Martin and Yurukoglu 2017; Gentzkow, Shapiro, and Taddy 2019; Alesina, Miano, and Stantcheva 2020). Unlike most studies focusing on the United States, we provide evidence for polarization in a European country. Additionally, while existing works suggest that social media may drive polarization by creating echo chambers that exacerbate political divisions (Bail et al. 2018; Levy 2020; Allcott et al. 2020; Zhuravskaya, Petrova, and Enikolopov 2020; Cinelli et al. 2021), this paper shows that traditional media, such as television, can also contribute to polarization by simply making a topic more salient. This result is important, as television news is less ideologically targeted and more frequently fact-checked than information spread on social media.

Finally, this paper also contributes to a lesser extent to the literature on the role of media in shaping political attitudes where seminal papers use exogenous variation in broadcasting or penetration to derive causality.⁸ This paper specifically

⁸ See DellaVigna and Kaplan (2007); Gerber, Karlan, and Bergan (2009); Enikolopov, Petrova, and Zhuravskaya (2011); DellaVigna et al. (2014); Barone, D'Acunto, and Narciso (2015); Martin and Yurukoglu (2017); Mastroiocco

focuses on attitudes toward immigration (Boomgaarden and Vliegenthart 2009; De Philippis 2009; Héricourt and Spielvogel 2014; de Coulon, Radu, and Steinhardt 2016; Facchini, Mayda, and Puglisi 2017; Benesch et al. 2019; Couttenier et al. 2021; Keita, Renault, and Valette 2023; Djourelouva 2023) but does so without an experimental design. Instead, we use systematic within-channel variations in the coverage of immigration to investigate the effect of differential monthly exposure to immigration through television, and the panel dimension allows us to focus on intraindividual variability rather than local average effects.

The rest of the paper is organized as follows. Section I describes the data on individuals' attitudes and media reporting on immigration. Section II describes the empirical and identification strategies. Section III reports the main results and Section IV discusses additional tests that discriminate between alternative interpretations of the results. Finally, Section V concludes the paper.

I. Data

This section describes and provides descriptive statistics for the main datasets used in this paper. First, we present attitudes toward immigration from the ELIPSS panel survey and document the extent to which viewers self-select into TV channels. Then, using data from the French National Audiovisual Institute (INA), we characterize the coverage of the immigration topic on French television between January 2013 and December 2017.

A. Attitudes toward Immigration and Self-Selection into TV Channels

Individual attitudes toward immigration are measured with the ELIPSS survey (Tiberj and Goujou 2020). In this representative panel study, respondents are asked to complete a 30-minute self-administered questionnaire using a touchscreen tablet. The 2013 pilot study included 1,039 individuals, 80 percent of whom remain in the 2016 sample, alongside 2,514 new individuals who joined the panel.

This paper employs 12 specific waves of the ELIPSS panel that measure individual attitudes toward immigration in France between September 2013 and November 2017 (see Table 1). We focus on French citizens aged 18 to 79 years who report television to be one of their two main sources of political information and watch news programs at least one day per week.⁹ Taking into account missing information for specific waves and controls, our final sample for analysis consists of 6,776 observations from 1,312 unique respondents.¹⁰

and Minale (2018) for causal inference and DellaVigna and Gentzkow (2010); DellaVigna and La Ferrara (2015); Enikolopov and Petrova (2015) for extended reviews of the literature on the impact of media on political outcomes.

⁹Of the respondents, 69 percent report television as a source of political information, well ahead of radio (44 percent), internet (42 percent), or newspapers (26 percent). Among TV viewers, 75 percent declared watching television at least five days a week. These numbers are consistent with findings by Kennedy and Prat (2019) who report that all "three top media organizations in France are primarily television-based" and that citizens mainly obtain their information from these media. It also echoes the 2021 Reuters Institute Digital News Report, which shows that despite a slight decline in favor of online information, TV remained the first source of information for news in France between 2013 and 2021.

¹⁰See online Appendix Figure A1 for a detailed description of sample selection.

TABLE 1—NUMBER OF INDIVIDUAL OBSERVATIONS PER WAVE

Wave	Year	Month	Obsv.	%	Q1	Q2	Q3
1	2013	September	464	6.83	x	x	x
2	2013	December	447	6.58		x	x
3	2014	April	405	5.96	x		
4	2014	June	406	5.97	x	x	x
5	2014	December	412	6.0	x		x
6	2015	March	382	5.62	x	x	x
7	2015	April	417	6.14		x	
8	2015	June	393	5.78	x	x	x
9	2015	December	393	5.78	x	x	x
10	2016	September	1,068	15.72	x	x	x
11	2017	May	982	14.45	x	x	x
12	2017	November	1,027	15.11	x	x	x
Total:			6,796	100			

Notes: This table reports the number of individual observations per wave in the benchmark sample. Q1, Q2, and Q3 indicate whether the three statements used in the analysis, namely “There are too many immigrants in France,” “France’s cultural life is enriched by immigrants,” and “French Muslims are French citizens same as any others,” respectively, are recorded in each specific wave.

Source: Authors’ elaboration on ELIPSS data.

Respondents are asked to answer to what extent they agree or disagree with the following statements (Q1) There are too many immigrants in France, (Q2) France’s cultural life is enriched by immigrants, and (Q3) French Muslims are French citizens same as any others. Respondents specify their level of agreement with each statement on a four-point Likert scale ranging from strongly agree (1) to strongly disagree (4). To ensure comparability between answers, we first recode answers from different questions such that higher values always represent more negative attitudes toward immigration or Muslim citizens. Then, we compute $Attitudes_{it}$ as the average attitude of individual i in wave t on the three aforementioned dimensions.¹¹

Figure 1 depicts the distribution of pooled $Attitudes_{it}$ within our sample, which closely follows a normal distribution, with the majority of respondents reporting moderate attitudes toward immigration. Following Fisher (1958), we categorize respondents’ attitudes toward immigration into four groups using bins constructed by minimizing the sum of squared deviations from the group mean. Then, we define the categorical variable $Attitudes_{it}^{cat} \in \{Pro-immigration, Pro-immigration moderate, Anti-immigration moderate, Anti-immigration\}$, which assigns each observation to one of the groups. Approximately 33.60 percent of the respondents are considered *pro-immigration moderates* with $Attitudes_{it} \in [2; 2.5]$, while 28.22 percent of them are *anti-immigration moderates* with $Attitudes_{it} \in]2.5; 3]$. For the two tails of the distribution, 19.81 percent of respondents hold very positive attitudes toward immigration with $Attitudes_{it} \in [1; 2[$, while 18.37 percent of them

¹¹ Note that not all three questions are included in every survey wave, as detailed in Table 1. Consequently, the average is consistently computed based on the available questions. In online Appendix C3, we offer evidence of the robustness of our results by assessing the impact of excluding any of the three dimensions used for the index and by employing a composite index generated through principal component analysis (PCA).

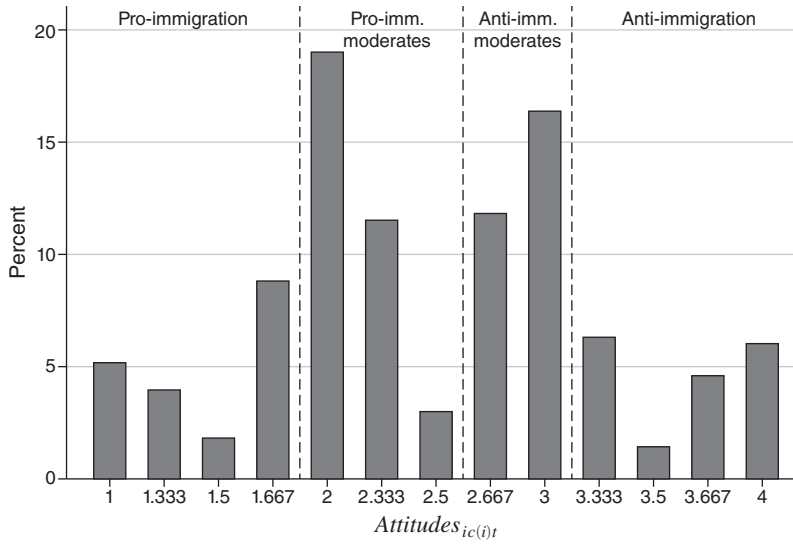


FIGURE 1. INDIVIDUALS' ATTITUDES TOWARD IMMIGRATION, 2013–2017

Notes: $Attitudes_{it}$ is the average attitude of individual i toward immigration. Pro-immigration corresponds to $Attitudes_{it} \in [1; 2[$, Pro-immigration moderates to $Attitudes_{it} \in [2; 2.5]$, Anti-immigration moderates to $Attitudes_{it} \in [2.5; 3]$, and Anti-immigration to $Attitudes_{it} \in]3; 4]$.

Source: Authors' elaboration on ELIPSS data (2013–2017).

exhibit strong negative attitudes with $Attitudes_{it} \in]3; 4]$.¹² Throughout the rest of the empirical analysis, individuals with extreme political attitudes are referred to as *pro-immigration* and *anti-immigration* respondents, respectively.

Unsurprisingly, individual characteristics differ strongly across the four groups of immigration attitudes. Online Appendix Table A1 reports that, on average, respondents with more (less) positive attitudes toward immigration are significantly more (less) likely to be highly educated, employed, and have higher incomes. The characteristics of pro-immigration moderates largely follow the patterns of pro-immigration individuals; similarly, the characteristics of anti-immigration moderates are close to those of anti-immigration individuals.

The transition matrix of attitudes in online Appendix Figure C3 demonstrates significant variability in respondents' attitudes toward immigration across waves, with variations notably toward adjacent categories of attitudes. For instance, pro-immigration moderates' (anti-immigration moderates) attitudes are more likely to transition to pro-immigration (anti-immigration) in the next period, rather than making drastic shifts to the opposite ends of the attitude spectrum. Online Appendix Figure C4 also shows that over the course of our four-year panel, approximately 50 percent of respondents did not maintain the same attitudes toward immigration at the end of the panel that they had at the start of the panel.

¹²This classification is robust to the use of the distribution of attitudes in the first wave of respondents (September 2013 or September 2016 for the refreshment sample) or the first wave (September 2013).

Respondents in the ELIPSS panel are also asked about their “usual preferred channel to watch political news programs.”¹³ This allows us to connect each respondent to the content they have been exposed to during the study period. The analysis is restricted to seven channels, namely TF1, France 2 (FR2), France 3 (FR3), Arte, M6, BFM TV, and CNews due to the limited sample size for other channels.¹⁴ This channel information is available in two waves, in September 2013 and 2016. This means that for the first nine waves, we assign each individual his or her baseline 2013 channel, and the possibility of switching channels only applies to the last three waves. The channel transition matrix in online Appendix Figure C2 shows that viewers tend to show strong loyalty to their preferred news channels within four years and that channel changes are relatively infrequent. This makes the assumption that the preferred channel is largely time-invariant plausible.¹⁵

Regarding self-selection into channels, the literature provides sound evidence that viewers tend to choose media platforms that conform to their ideology (see Mullainathan and Shleifer 2005; Gentzkow 2006; Durante and Knight 2012, among others). We provide detailed evidence of self-selection into channels in online Appendix A1. Overall, we find that individuals opposed to immigration tend to favor TF1 for political information, while immigration supporters are more likely to choose Arte, France 2, or CNews.¹⁶ As shown in online Appendix Figure A6, this selection results in varying distributions of attitudes for each channel, although the majority of them attract a diverse set of respondents with mixed attitudes toward immigration.

B. *Immigration in the Media and the 2015 Refugee Crisis*

We use media data provided by the French National Audiovisual Institute (INA), which archives news broadcasts for France’s main national television channels (Philippe and Ouss 2018; Cagé, Hervé, and Viaud 2019), to provide a comprehensive picture of immigration’s overall prominence and representation in evening news over time. The analysis is restricted to all the news covered by evening news programs between 6:45 p.m. and 9:30 p.m. from January 2013 to December 2017 on TF1, France 2, France 3, Arte, M6, BFM TV and CNews (I-Tele before February 2017). All programs in our analysis mainly focus on events and information with national resonance. During our analysis period, the two leading news programs by

¹³ Respondents only indicate their main preferred channel, which potentially restricts our understanding of their television consumption. However, our focus is solely on political information from evening news programs. In this context, it appears reasonable to assume that individuals do not simultaneously watch multiple channels; if they do, it would decrease the likelihood of detecting effects in our analysis.

¹⁴ See Table A2 in the online Appendix for a breakdown of individual observations across channels. Specifically, we exclude channels such as Canal+, France 5, LCP, and LCI for which we have fewer than 150 observations over time or 35 distinct respondents in the ELIPSS data. These minor channels account for only 5 percent of the original TV viewer sample.

¹⁵ Of those who reported their preferred TV channel for political information in both 2013 and 2016, 17.89 percent change their preferred TV channel between the two periods.

¹⁶ CNews’s alignment with more positive immigration attitudes may come as a surprise, but note that this channel shifted its political stance after Vincent Bolloré’s takeover in July 2015, which affects only the last four waves of our sample (Cagé et al. 2022).

TF1 and France 2 had 6.1 million and 4.8 million viewers per evening, respectively (25 and 20 percent of the French audience).

To identify whether subject s on channel c in year-month t is related to the immigration topic ($Immigration_{sct} = 1$), we exploit INA's descriptors and account of news, which provides a comprehensive description of each broadcasted subject.¹⁷ We build a lexicon that includes keywords associated with immigration and their variations in spelling (see online Appendix B1). Using a bag-of-words model, a subject is classified as immigration-related if it includes at least one word from the lexicon. For instance, the following subject in the data, from the BFM TV evening news program on September 16, 2015, is classified as immigration-related since it includes keywords from the lexicon such as "migrants" and "refugees."

Speakers: Ruth Elkrief, Nathalie Schuck (Le Parisien), Thierry Arnaud. According to an ELABE poll survey, 80 percent of the respondents ask for an increase in border controls. Interview of Bernard Sananès, president of the ELABE institute. Fear increased following the pictures of **migrants** in Hungary or Germany. European leaders are in a panic. The reversal of opinion was predictable. The question of border control arises outside Schengen. Syrian **refugees** are not so interested in France. (Institut National de l'Audiovisuel 2020)

The empirical analysis exploits this unique framework to compute a measure of the salience of immigration on French TV news channels. First, information on immigration news is collapsed at the channel-month level to match the time dimension provided by the ELIPSS survey.¹⁸ Then, we define $ShareSubj_{ct}$, the share of subjects devoted to the immigration topic in year-month t on the evening news program of channel c , as follows:

$$(1) \quad ShareSubj_{ct} = \frac{(\#Subj_{sct} | Immigration_{sct} = 1)}{\#Subj_{sct}},$$

where $\#Subj_{sct}$ is the total number of subjects broadcast in year-month t during the evening news program of channel c . This variable captures the prevalence of the immigration topic in the overall broadcasting of political information on French television channels. As reported in online Appendix Table B1, the average share of immigration-related news for all months from 2013 to 2017 is 4.50 percent, with a standard deviation of 4.80 percent and a maximum of 38.10 percent (Arte in September 2015).¹⁹ In descending order, the channels with the greatest average

¹⁷This is the most comprehensive information on television broadcasting available because there is no systematic transcription of all television programs.

¹⁸Unfortunately, only the month of the survey and not the exact date of the interview is available for all respondents. This implies that we cannot rule out the possibility that the impact of the media on attitudes is a short-term effect that lasts only a few days. Nonetheless, the within-channel variability at the month level corresponds to 75 percent of the within variability when information is considered at the day level, and focusing on monthly variations allows us to capture the effect of repeated exposure to immigration-related subjects.

¹⁹The corresponding numbers in our benchmark sample used in the empirical analysis are 2.73 percent, 1.91 percent, and 18.80 percent, as we only use the month preceding the 12 ELIPSS waves and individual observations are not distributed evenly across waves.

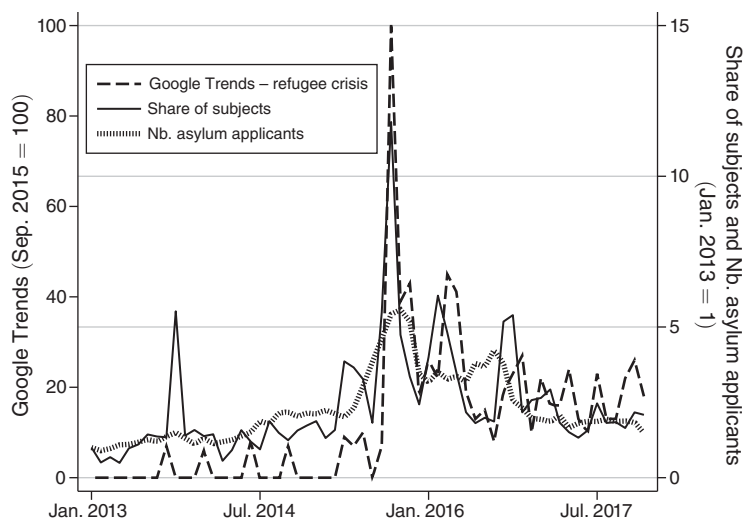


FIGURE 2. MEDIA COVERAGE OF IMMIGRATION AND THE 2015 REFUGEE CRISIS

Notes: “Share of Subjects” is the average share of subjects on French TV evening news programs devoted to immigration-related topics. “Google Trends–refugee crisis” reports the monthly frequency of search queries associated with the refugee crisis, namely how often a refugee-related term is entered into the Google search engine. “Nb. asylum applicants” is the monthly total number of asylum seekers in Europe as reported by Eurostat. The data from Google Trends are scaled such that the highest peak is set at 100. Scaling for the other two series is relative to the initial period in January 2013.

Sources: Authors’ elaboration on INA, Google Trends, and Eurostat data.

coverage of migration in the sample are Arte, France 2, CNews, BMF TV, France 3, TF1, and M6.

The empirical analysis exploits channel deviations from the average coverage of immigration over time that is mostly driven by world events. Figure 2, online Appendix Figure B2, and online Appendix Table B1 display a significant rise in immigration coverage that coincides with the substantial influx of asylum seekers into Europe following the 2015 refugee crisis. The average share of immigration subjects increased from 3.30 percent prior to September 2015 to 5.90 percent thereafter. Additional data from Google Trends on the refugee crisis category also illustrate how natives’ attention to immigration shifted in response to this increased salience of immigration.

Online Appendix Figure B3 provides descriptive evidence that the data capture meaningful and sufficient variation at the channel level for the 12 available waves of the ELIPSS survey. Even after absorbing common monthly shocks and channel-specific time-invariant characteristics, there are still appreciable variations over time in the coverage of immigration across the various French evening news programs (see online Appendix Figure B4). These channel-specific fluctuations in immigration coverage can be attributed to various factors, including changes in editorial staff, and board preferences for specific subjects. For instance, Cagé et al. (2022) report that political representation across French channels is influenced by journalists’ decisions and their adaptation to the channel they work for. Thus, we provide additional estimates

in Section IIIB to ensure that our effects are not solely driven by channel adaptation to audience attitudes. Additionally, idiosyncratic shifts in news priorities, such as coverage and special editions on other topics, or channel-specific contractual agreements (e.g., for sporting events), can impact the time available for immigration news (Eisensee and Strömberg 2007; Durante and Zhuravskaya 2018; Djourelouva and Durante 2022). To this end, we demonstrate the robustness of our findings by using 2SLS estimates, as outlined in online Appendix C11, which leverage news pressure from sports and disaster-related news to predict exogenous changes in immigration coverage.

As stated in Section IA, we can only track individual attitudes for a subsample of 12 months. In online Appendix B3, we show that the subsample of media data for the months preceding each wave of the ELIPSS survey is, however, representative of the variation recorded in the full INA database.

II. Empirical Strategy

This section presents the main empirical strategy in Subsection A and discusses its identification challenges in Subsection B.

A. Empirical Specifications

The first benchmark empirical model tests the hypothesis that an increase in immigration coverage increases the likelihood of reporting extreme attitudes toward immigration. We use $Pol_{ic(i)t}$ as a dependent variable, which equals one if an individual i in wave t , watching evening news programs on his or her preferred channel c , reports extreme attitudes (pro- or anti-immigration), and zero otherwise (moderates). We estimate the following specification:

$$(2) \quad Pol_{ic(i)t} = \beta_1 ShareSubj_{ct-1} + \beta' \mathbf{X}_{it} + \gamma_i + \gamma_c + \gamma_t + \varepsilon_{it},$$

where $ShareSubj_{ct-1}$ is the aforementioned measure of the coverage of immigration on channel c during the month preceding the month of the interview. γ_i stands for wave fixed effects that absorb time-varying shocks that are common to all individuals, such as the impact of the 2015 refugee crisis in Europe, which unambiguously affected natives' attitudes toward immigration (Hangartner et al. 2019; Schneider-Strawczynski 2020; Steinmayr, 2021), while γ_i and γ_c are the individual and channel fixed effects, respectively.²⁰ A vector of time-varying covariates, \mathbf{X}_{it} , that includes age, marital status, education, household size, number of children, employment status, occupation, and income categories, improves the precision of the estimates.²¹ The coefficient of interest β_1 captures the marginal impact of an increase in the coverage of immigration on the likelihood of polarization. It can be interpreted as

²⁰ Channel fixed effects (γ_c) can be estimated separately from individual fixed effects (γ_i) because the preferred channel for political information is updated in 2016.

²¹ A detailed description of control variables is available in online Appendix Table C1.

the percentage-point increase in the likelihood of reporting extreme attitudes toward immigration for a one percentage point increase in immigration coverage.

Second, to test whether polarization occurs on both sides of the distribution of attitudes, we replace the dependent variable $Pol_{ic(i)t}$ in equation (2) with $Pro-Pol_{ic(i)t}$, which is equal to one for individuals with pro-immigration attitudes and zero otherwise, and symmetrically with $Anti-Pol_{ic(i)t}$, which is equal to one for individuals with anti-immigration attitudes and zero otherwise.²² We also report unconditional quantile estimates as a robustness check (Firpo, Fortin, and Lemieux 2009).

Third, we interact the treatment variable with preexisting attitudes to determine whether the direction of the shift of moderate individuals at the two extremes of the distribution is stochastic or the result of latent heterogeneity within this group. The benchmark specification becomes as follows:

$$(3) \quad Pol_{ic(i)t} = \beta_1 ShareSubj_{ct-1} + \beta_2 Attitudes_{it-1}^{Cat.} + \beta' \mathbf{X}_{it} + \gamma_i + \gamma_c + \gamma_t \\ + \beta_3 ShareSubj_{ct-1} \times Attitudes_{it-1}^{Cat.} + \varepsilon_{it},$$

where $Attitudes_{it-1}^{Cat.} \in \{Pro-immigration, Pro-immigration\ moderate, Anti-immigration\ moderate, Anti-immigration\}$ is a categorical variable that classifies the individual i into groups of attitudes at $t - 1$. Marginal effects are obtained through:

$$(4) \quad \frac{\partial Pol_{ic(i)t}}{\partial ShareSubj_{ct-1}} = \beta_1 + \beta_3 Attitudes_{it-1}^{Cat.}.$$

The omitted category is “Pro-immigration,” such that $Attitudes_{it-1}^{Cat.} = 0$ and β_1 is the marginal effect of an increase in the coverage of immigration for $i \in \{Pro-immigration\}$ at $t - 1$.

Including $Attitudes_{it-1}^{Cat.}$ on the right-hand side could make equation (3) susceptible to Nickell bias (Nickell 1981), as it shares similar variations with $Pol_{ic(i)t}$, both being derived from $Attitudes_{it}$ with a one-month lag for the former. Thus, we also always report the results of estimating equation (3) with time-invariant baseline attitudes, defined as the attitudes of individuals when they enter the panel. The main effect of attitudes (β_2) is absorbed by the individual fixed effects in this robustness check. Note, however, that using initial attitudes rather than attitudes at $t - 1$ is a less desirable option because it does not allow respondents’ attitudes to evolve over time.²³

Given that the sampling process is not clustered, we follow Abadie et al. (2022) and report standard errors clustered at the individual level to account for within-individual serial correlation over time in all estimates. In online Appendix C7, we also report that our conclusions remain virtually unchanged when clustering standard errors at the channel level or when computing wild cluster bootstrapped standard errors to address the issue of the small number of clusters when clustering at the TV channel

²² See online Appendix Figure C1 for a graphical representation of the coding process for the various dependent variables.

²³ In online Appendix C1 we document substantial shifts in attitudes over time.

level (see Cameron and Miller 2015; MacKinnon and Webb 2017; MacKinnon and Webb 2020).²⁴

B. Identification Assumptions

The main concern with the empirical strategy is the possibility of individuals self-selecting into television channels that align with their immigration attitudes, which would confound the estimates. The benchmark specification includes individual fixed effects, γ_i , to address the possibility that TV consumption choices are endogenous to immigration views. This means that the identifying variability stems solely from the correlation between an individual's attitudes toward immigration and the monthly variation in the salience of immigration on his or her preferred TV channel.

Individual fixed effects absorb the impact of any time-invariant individual characteristics on immigration views but not the effects of shocks correlated with these characteristics. Concerns may arise if variations in immigration news coverage are entirely demand driven, and if channels perfectly adjust their content based on what they anticipate about their audience's changing interests and beliefs about immigration over time (Gentzkow and Shapiro 2010). We devote Section IIIB to this threat to identification and present several pieces of evidence demonstrating that this issue is unlikely to affect our main results. Among other tests, we find no significant effects when assigning non-TV viewers to a television-based immigration coverage by matching them to a TV viewer based on several characteristics. More importantly, when we estimate a model that simultaneously includes all leads and lags of our variable of interest, we find nonsignificant correlations between current and future variations in immigration coverage and individual attitudes.

Finally, given that different exposure to immigration may result from individuals changing their preferred TV channel due to a shift in their attitudes, we provide additional evidence, in Section IIIB, that our estimates remain robust to interacting channel and individual fixed effects (γ_{ic}). While this approach mitigates the issue of ideological self-selection across channels, it does shift the identifying variability to the correlation between monthly variations in immigration coverage on a specific French TV channel and an individual's attitudes toward immigration watching this channel during a particular year. In terms of policy implications, it restricts the relevance of the results to individuals who opt not to change their preferred TV channel. Given that individuals are particularly attached to their TV news and that channel changes are relatively rare, as shown in Section I, it is both reassuring and unsurprising to see that the results are robust to the inclusion of these fixed effects.

²⁴We use the Stata *bootest* package (Roodman 2015) to perform the wild cluster bootstrap with Webb weights and 999 replications. Our main conclusions are also robust to clustering standard errors at the channel-month level. However, MacKinnon and Webb (2020) emphasize that when working with panel data, "it is never to cluster below the cross-section level"; and this is why we do not report these results, which are available upon request to the authors.

TABLE 2—COVERAGE OF IMMIGRATION AND POLARIZATION OF IMMIGRATION ATTITUDES

	(1)	(2)	(3)	(4)
$ShareSubj_{ct-1}$	1.640 (0.459)	1.747 (0.361)	2.171 (0.554)	2.603 (0.613)
Controls	Yes	Yes	Yes	Yes
Individual FE	No	Yes	Yes	Yes
Wave FE	No	No	Yes	Yes
Channel FE	No	No	No	Yes
Nb. observations	6,796	6,796	6,796	6,796
Adjusted R^2	0.018	0.431	0.449	0.450
Std. coefficient	0.031	0.033	0.042	0.050

Notes: The dependent variable is Polarization, Pol_{icijt} , which takes value one for individuals with extreme attitudes and zero otherwise. The vector of time-varying controls includes age, education, employment status, marital status, number of children, household size, a dummy for blue-collar and income categories. Standardized coefficients for the coverage of immigration, with a mean of 0 and a standard deviation of 1, are also reported in the table footer (Std. coefficient). Robust standard errors clustered at the individual level are reported in parentheses.

Sources: Authors' elaboration on INA and ELIPSS data.

III. Main Results

This section covers the main findings regarding the impact of immigration coverage on the polarization of attitudes. Section IIIA reports the estimates of the benchmark equations (2) and (3), as well as the robustness checks associated with these specifications. Section IIIB presents additional identification results, and Section IIIC focuses on political preferences rather than immigration attitudes. Finally, Section IIID studies which types of framing drive the results.

A. Attitudes toward Immigration

Table 2 reports the results of the benchmark equation (2) estimated with different structures of fixed effects and controls. Overall, it shows that an increase in immigration coverage significantly increases the polarization of those with moderate attitudes toward the extremes. In the most comprehensive specification, in column (4), we find that a one percentage point increase in the share of immigration subjects ($ShareSubj_{ct-1}$) is associated with a 2.60 percentage point increase in the likelihood of individuals reporting extreme attitudes. In terms of standard deviations (0.019 in the estimation sample), this corresponds to an approximately five percentage point increase.

We extensively discuss and challenge the robustness of this result in online Appendix C. Specifically, we report that the polarization effect is robust to excluding channels or waves one by one (online Appendix Figures C5 and C6), using alternative dependent variables (online Appendix Table C3), or employing alternative independent variables to measure the coverage of immigration in TV channels (online Appendix Table C5).²⁵ In online Appendix C5, we also investigate whether

²⁵The results are also robust to alternative subsamples, such as restricting the empirical analysis before the 2016 refreshment sample, to the set of respondents who have non-missing answers on all of the questions in the

TABLE 3—DIRECTION OF THE POLARIZATION

	<i>Pol</i> (1)	<i>Pro-Pol</i> (2)	<i>Anti-Pol</i> (3)	<i>Pro-Pol moderates</i> (4)	<i>Anti-Pol moderates</i> (5)
$ShareSubj_{ct-1}$	2.603 (0.613)	1.677 (0.443)	0.926 (0.393)	-1.739 (0.677)	-0.865 (0.576)
Nb. observations	6,796	6,796	6,796	6,796	6,796
Adjusted R^2	0.450	0.585	0.557	0.370	0.350
Std. coefficient	0.050	0.032	0.018	-0.033	-0.017

Notes: The dependent variable in column 1 is Polarization, which takes value one for individuals with extreme attitudes and zero otherwise. The dependent variable in column 2 is a dummy equal to one for pro-immigration attitudes and zero otherwise. The dependent variable in column 3 is a dummy equal to one for anti-immigration attitudes and zero otherwise. The dependent variable in column 4 is a dummy equal to one for pro-immigration moderate attitudes and zero otherwise. The dependent variable in column 5 is a dummy equal to one for anti-immigration moderate attitudes and zero otherwise. All estimates include wave, individual, and channel fixed effects. The vector of time-varying controls includes age, education, employment status, marital status, number of children, household size, a dummy for blue-collar and income categories. Standardized coefficients for the coverage of immigration, with a mean of 0 and a standard deviation of 1, are also reported in the table footer (Std. coefficient). Robust standard errors clustered at the individual level are reported in parentheses.

Sources: Authors' elaboration on INA and ELIPSS data.

the polarization response of an increase in the coverage of immigration on natives' attitudes varies across individual characteristics and sources of political information. Our findings reveal that the unemployed, older, and those with lower levels of education are less likely than others to change their attitudes, often remaining entrenched in their positions. We find little evidence of heterogeneity in the responses of individuals who also consume political information from other secondary sources such as radio, newspapers, or the internet.

As discussed in Section II, polarization may be concentrated only on one side of the attitude distribution if moderate respondents increased their likelihood of reporting either extremely positive or extremely negative attitudes but not both. In such a case, average or median immigration attitudes would shift in one direction, but as shown in online Appendix Table C2, increased immigration coverage has no effect on both. This finding is consistent with previous research by Baysan (2022), which suggests that a null effect on the average or median may reflect changes in opposite directions within the distribution of attitudes, masking an overall polarization effect. While Baysan (2022) demonstrates that this occurred through direct contact for information provision, this paper demonstrates that it can occur through traditional media exposure. In Table 3, we reestimate equation (2) with alternative dependent variables to investigate this phenomenon. In column 2, we use *Pro-pol*, a dummy variable equal to one for individuals with pro-immigration attitudes and zero otherwise, and in column 3, we use *Anti-pol*, a dummy variable equal to one

index, or to the waves that ask all three questions simultaneously. However, we find no effect of immigration coverage on attitudes when we restrict the analysis to non-citizen respondents. This result should be interpreted with caution because the number of non-citizens in the ELIPSS survey is very small, making it impossible to draw any firm conclusions. All of these results are available upon request.

for individuals with anti-immigration attitudes and zero otherwise. By construction, the sum of the two separately estimated coefficients for these new dependent variables equals the previously estimated coefficient for *Pol*. Columns 2 and 3 show that polarization exists on both sides of the attitude distribution, as both coefficients are positive and statistically significant. In columns 4 and 5, we present estimates for pro-immigration moderates and anti-immigration moderates to provide a comprehensive overview. These coefficients are nearly perfectly symmetric with those estimated in columns 2 and 3, with quantitatively similar but opposite signs. In both cases, the negative signs indicate a lower likelihood of expressing moderate attitudes as immigration coverage increases.

These findings are corroborated by unconditional quantile estimates (Firpo, Fortin, and Lemieux 2009) reported in online Appendix Figure C10. Quantile estimates allow us to exploit the full variability of our measure of immigration attitudes without the need for separate dummies, such as pro- or anti-polarization indicators. The estimated coefficients support previous results that increased immigration coverage impacts the likelihood of displaying extreme attitudes on both ends of the distribution. It is associated with both an increase in the likelihood of having more positive attitudes toward immigrants at the left-hand side of the distribution (quantiles 10 to 30) and a significant increase in the likelihood of having more negative attitudes toward immigrants at the right-hand side of the distribution (quantiles 70 to 90).

Finally, Figure 3 reports the marginal effects of increased immigration coverage on the likelihood of polarization to demonstrate that the increase in attitudes at both ends of the distribution is not arbitrary but rather reflects underlying heterogeneity in initial immigration attitudes. These marginal effects, estimated as described in Section II, show two main patterns. First, Figure 3, panel A reveals that polarization results from changes in attitudes among all individuals, with the exception of anti-immigration individuals whose attitudes remain stable regardless of the level of immigration coverage. This echoes previous findings in the literature that changing the attitudes of those who already have strong exclusionary attitudes may be more difficult (Kalla and Broockman 2021). At the other end of the attitude distribution, pro-immigration individuals strongly respond to changes in immigration coverage by significantly increasing their likelihood of remaining on the extreme left-hand side of the distribution rather than returning to moderate positions. Second, compared to Baysan (2022), the use of data at the individual level allows us to characterize switchers as mainly coming from the middle of the attitude distribution. When immigration coverage on TV increases, anti-immigration moderates become more anti-immigration (Figure 3, panel C), while pro-immigration moderates become more pro-immigration (Figure 3, panel B).

Overall, we find that an increase in the coverage of immigration has no effect on average attitudes toward immigration but that this null effect masks a shift in the distribution of attitudes toward both extremes, as individuals with initially moderate attitudes become more likely to report extremely positive and negative attitudes. This asymmetric change results from the heterogeneity in initial beliefs; those who were initially moderately positive become extremely positive, while those who were initially moderately negative become more concerned about immigration. As news coverage of immigration increases, attitudes become more polarized.

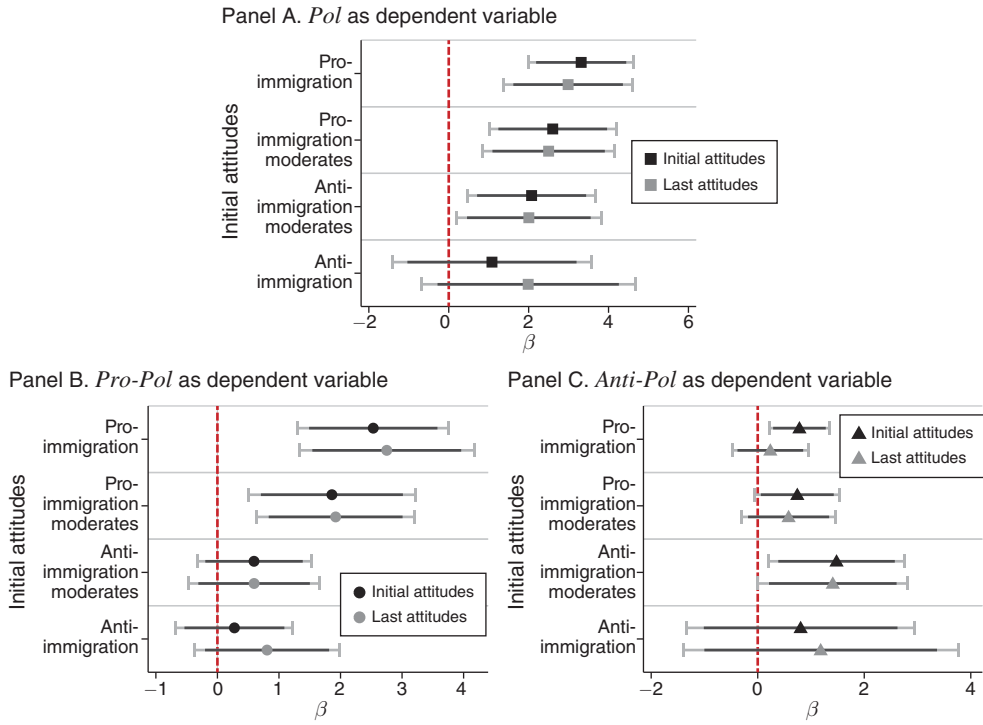


FIGURE 3. COVERAGE OF IMMIGRATION INTERACTED WITH PREEXISTING ATTITUDES

Notes: The figures show the marginal effect of $ShareSubj_{ct-1}$ on Pol , $Anti-pol$ and $Pro-pol$, conditional on preexisting attitudes defined either in the last wave or at baseline, and estimated separately from equation (3). All estimates include wave, individual, and channel fixed effects. The vector of time-varying controls includes age, education, employment status, marital status, number of children, household size, a dummy for blue-collar and income categories. Robust standard errors are clustered at the individual level. Confidence intervals are presented at the 95 percent and 90 percent levels.

Sources: Authors' elaboration on INA and ELIPSS data.

B. Identification

As discussed in Section IIB, a legitimate concern in our analysis is that our previous results capture the perfect adjustment of channels to the attitude of their audience (Gentzkow and Shapiro 2010). Indeed, individual fixed effects absorb the impact of any time-invariant individual characteristics on immigration views but not the effects of shocks correlated with these characteristics, and a channel covering of an immigration-related event could be based on how interested its viewers are likely to be in this event. Despite the lack of an experimental setting, we provide below several additional tests that mitigate these concerns, in addition to the use of coverage variations in the month preceding the measured attitudes. In online Appendix C11, we also report additional 2SLS estimates that rely on news pressure to predict exogenous coverage of immigration, following Eisensee and Strömberg (2007); Durante and Zhuravskaya (2018); Djourelouva and Durante (2022). The estimated

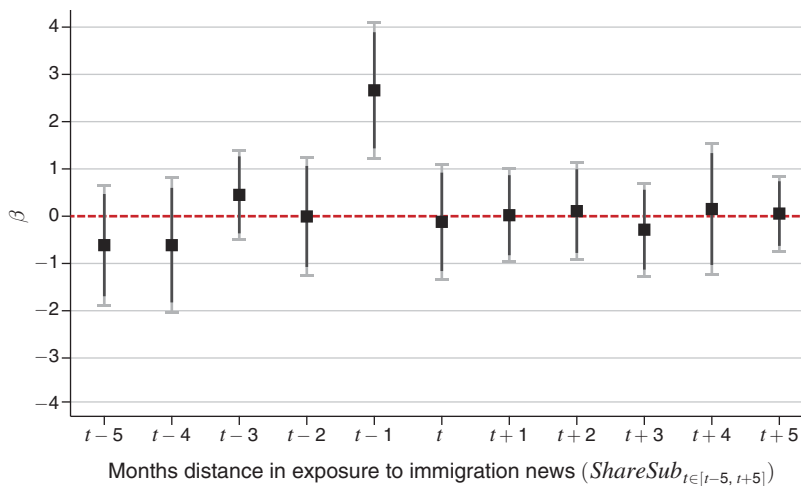


FIGURE 4. LEADS AND LAGS OF THE COVERAGE OF IMMIGRATION

Notes: The figure shows the marginal effects of $ShareSub_{ct-1}$ as well as its lagged and leading values on Pol estimated in a single regression. All estimates include wave, individual, and channel fixed effects. The vector of time-varying controls includes age, education, employment status, marital status, number of children, household size, a dummy for blue-collar and income categories. Robust standard errors are clustered at the individual level. Confidence intervals are presented at the 95 percent and 90 percent levels.

Sources: Authors' elaboration on INA and ELIPSS data.

2SLS coefficients concur with our benchmark results, despite having lower precision than the OLS estimates.

Timing Falsification.—To mitigate potential confounding factors stemming from channels anticipating attitudinal changes among their viewers and strategically adjusting their immigration coverage accordingly, we regress our dependent variable of polarization on leads and lags of media coverage of immigration in Figure 4. To account for serial correlation in immigration coverage, we estimate all leads and lags within a single equation. Reassuringly, the non-significance of the lead variables shows that future coverage of immigration at time $t + 1$ does not predict contemporaneous views on immigration at time t .²⁶ This test also allows us to assess the persistence of our estimated effect, revealing that it is only influenced by coverage from the previous month, as previous lags have no impact. This is consistent with recent findings by Angelucci and Prat (2024), which show that individual knowledge of news significantly declines over time. Note that this short-term effect does not diminish the significance of the findings. Migration is a heavily covered topic in France during election season, and given that the effect on attitudes toward migration can also translate into political attitudes (see Section IIIC), it has the potential

²⁶Lead estimates are also nonsignificant when using *Anti-pol* or *Pro-pol* as dependent variables, as reported in online Appendix C8.

to influence election results and thus the migration policy that newly elected officials will implement.

Individual-Channel Fixed Effects.—Individuals' preferred channels for political information have previously been treated as time-invariant in our main specification, even though those who joined the panel in 2013 may have updated their channel preference by 2016. To address the concern that increased immigration coverage may be the result of channel switching triggered by attitude changes, we extend our benchmark specification with individual-by-channel fixed effects. The identifying variability with this new fixed effects structure is solely based on the correlation between monthly fluctuations in immigration coverage on a specific French television channel and the attitudes toward immigration of a given individual watching this channel. We report the result of our three benchmark tables presented in Section III in online Appendix C9, which show that all of our conclusions remain unchanged under this alternative specification. This is not surprising given the strong loyalty that viewers show to their preferred news channels over the four years covered by our analysis, as discussed in Section IA.

Placebo Estimates on Non-TV Viewers.—In the presence of reverse causality bias, non-TV viewers should be also affected by the treatment assuming a parallel evolution in their attitudes to that witnessed among TV viewers. Thus, in online Appendix C13, a television channel is assigned to individuals who do not list TV as one of their primary sources of political information, either randomly or by matching them with a TV viewer based on a broad set of observable characteristics. Placebo estimates on non-TV viewers are reported in online Appendix Table C16. The main coefficient of interest remains nonsignificant and lower than the benchmark coefficient. This provides further evidence that the results truly capture the direct impact of television on attitudes and that the effect we identify is solely driven by channel-specific changes in migration news broadcasting.

Placebo Estimates on Concerns about Alternative Topics.—To rule out the possibility that any other changes at the channel level confounded the estimates, we conduct additional placebo regressions that either replace the dependent variable with polarization dummies on non-immigration topics in online Appendix Tables C17 and C18 or the independent variable with news coverage on the same non-immigration topics in online Appendix Table C19.²⁷ Reassuringly, the results report no significant effects for gender inequality, homosexuality, or environmental issues.²⁸ This test also speaks against reverse causality if individuals' attitudes on different dimensions co-evolved and channels adjusted their coverage on these dimensions.

²⁷Despite the low frequency of non-immigration-related questions in our data, we report a significant benchmark coefficient on immigration concerns across all reduced samples, as shown at the bottom of online Appendix Tables C17 and C18.

²⁸This holds even though we find that gender and environmental news may affect general attitudes toward homosexuality and climate change in additional results available upon request.

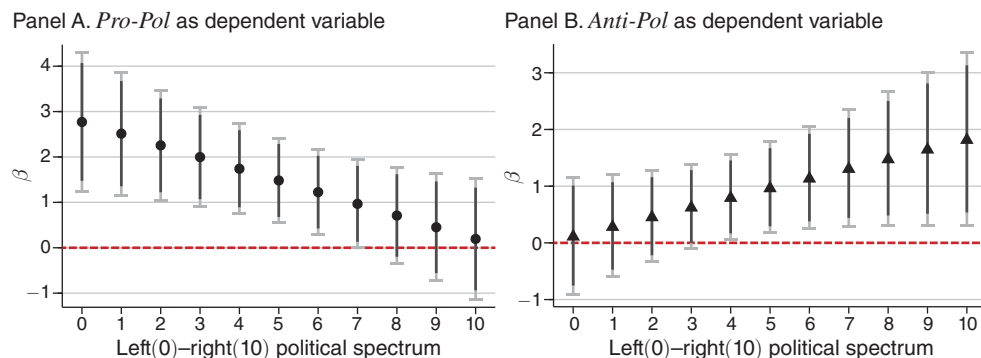


FIGURE 5. COVERAGE OF IMMIGRATION INTERACTED WITH POLITICAL AFFILIATION

Notes: The figures report the marginal impact of an increase in the coverage of immigration, conditional on levels of political affiliation, on *Pol*, *Pro-pol*, and *Anti-pol*. All estimates include wave, individual, and channel fixed effects. The vector of time-varying controls includes age, education, employment status, marital status, number of children, household size, a dummy for blue-collar and income categories. Robust standard errors are clustered at the individual level. Confidence intervals are presented at the 95 percent and 90 percent levels.

Sources: Authors' elaboration on INA and ELIPSS data.

Oster's Methodology and Ideological Controls.—The issue of selection on time-varying unobservables can also be addressed using a control variables approach. Online Appendix Table C15 provides evidence that self-selection is unlikely to drive our results to the extent that selection on unobservables is sufficiently correlated with selection on observables. We follow the methodology proposed by Oster (2019) and compute δ , the degree of selection on unobservables relative to observables required to make the coefficient of interest equal zero. As reported by Oster (2019), concerns about self-selection on unobservables can be ruled out as long as $\delta > 1$. In our benchmark specification, $\delta = 2.06$. This means that the selection on unobservables would have to be two times greater than the selection on observables to change the nature of the findings.

Following Facchini, Mayda, and Puglisi (2017), we also provide evidence in online Appendix C10 that the main results are robust to including time-varying ideological controls such as political interest, a 10-point left-right self-reported scale on political orientation, and TV viewing time, measured as the number of days per week that an individual watches television.²⁹ Nevertheless, these results must be interpreted with caution, because these variables are jointly determined with political attitudes toward immigration and could thus be considered “bad controls” (Angrist and Pischke 2008).

²⁹Facchini, Mayda, and Puglisi (2017) rely on a similar source of variation with cross-sectional data in the United States and find that Fox News viewers are more likely to report negative attitudes toward illegal immigrants than CBS viewers.

C. Political Affiliation

This section investigates how the polarization in attitudes from increased immigration coverage interacts with individuals' political affiliations. We conduct this analysis using additional questions from the ELIPSS survey on political affiliation. First, we employ a self-assessed measure of individuals' political positions on a continuous 10-point scale ranging from zero (for respondents endorsing far-left ideologies) to ten (for respondents endorsing far-right ideologies). Figure 5, panel A and panel B report the marginal impact of increased immigration coverage on the likelihood of left or right polarization, conditional on different levels of political affiliation, and thus mirror previous estimates presented in equation (3).³⁰ The closer individuals are to the left (right), the greater the magnitude and significance of pro-immigration polarization (anti-immigration polarization). For instance, individuals who do not have a strong initial position either on the right or left of the political spectrum (score of 5) have a 1.6 pp. lower probability of polarizing toward extreme attitudes than individuals with a strong political leaning (score of zero in Figure 5, panel A and ten in Figure 5, panel B, respectively). This confirms that the direction of polarization for moderates strongly aligns with initial beliefs and political leaning.

Second, we extend the analysis by focusing on party affiliations. Although the ELIPSS survey does not ask about voting intentions or preferred party, it does record respondents' likelihood of voting for each French political party on a 10-point scale.³¹ Based on their position on the political spectrum, political parties are classified into the following political groups: far-right, right, center, left, and far-left as reported in online Appendix Figure D1. Respondents who report a high likelihood of voting for far-right parties are more likely to be anti-immigration, whereas those who report a high likelihood of voting for the left are more likely to be pro-immigration.³² Anti-immigration moderates are more likely to be aligned with the right, whereas pro-immigration moderates are more likely to be aligned with the center.³³ Online Appendix Figure D2 investigates whether there is a polarization to more extreme political groups by employing the same estimation strategy as previously described. A rise in immigration coverage significantly increases the likelihood of individuals with a high probability of voting for the right in the last wave voting for far-right parties (online Appendix Figure D2b). At the other end of the political spectrum, such a rise increases the likelihood that individuals who previously expressed a high probability of voting for the center will vote for the left (online Appendix Figure D2d).

³⁰The same figure for overall polarization is reported in online Appendix Figure D3.

³¹Due to a reorganization of the French political landscape near the end of the survey, questions were not asked for all parties in every survey wave. As a result, the analysis is restricted to major historical political parties with a sufficient number of observations over time (at least six waves).

³²The left is composed of the socialist and green parties, the two parties with the highest correlation with pro-immigration attitudes in online Appendix Figure D1.

³³According to online Appendix Table D1, an increase in immigration coverage does not significantly increase the average likelihood of voting for a particular party or voting more to the left or right, although the coefficients on each political group suggest a clear pattern toward more right-leaning and less left-leaning positions after an increase in immigration coverage.

Media coverage of immigration can thus polarize not only attitudes toward immigration but also electoral preferences toward parties that hold more radical stances on immigration. These findings resonate with those of Colussi, Isphording, and Pestel (2021), who show that an increase in the salience of immigration has an asymmetric impact on voters' electoral preferences in the German context. Using our individual panel data matched to our television data, we can provide evidence on the specific role of the media in increasing the salience of a contentious topic and identify the switchers driving the effect.

D. Framing of Immigration News

This section explores which types of framing within immigration news contribute to polarization. To this end, we break down our measure of coverage of immigration in equations (2) and (3) into tones and topics.³⁴

Topic Analysis.—We apply an unsupervised Latent Dirichlet Allocation algorithm (LDA) to the complete corpus of immigration news to identify topics within our period of analysis. The LDA generative process aims to discover uncorrelated topics in migration subjects and assign each migration subject to a mutually exclusive category.³⁵ We uncover nine distinct subject clusters related to migration during the analysis period, namely migration burden (17.3 percent); French politics (13.1 percent); refugee camps in France (12.7 percent); the Syrian conflict (11.7 percent); terrorism and attacks (10.8 percent); the refugee crisis in the Mediterranean (9.9 percent); the United States (8.9 percent); the European Union (8.3 percent); and Germany (7.3 percent).³⁶ Information is then aggregated at the channel-month level, and online Appendix E provides descriptive statistics on the evolution of topics across channels and over time.

To mitigate the issue of low variability in the topic data that may impede the precise estimation of these patterns, topics are classified into three broader, more consistent groups: (i) subjects pertaining to immigrant integration and associated costs in France—"migration burden," "French politics," or "refugee camps in France"—(ii) subjects concerning immigration in foreign host countries—"Germany," "European Union," or "United States"—and (iii) other subjects related to sudden shocks—"Syrian conflict," "terrorism and attacks," or "refugee crisis in the Mediterranean."³⁷ The results are depicted in Figure 6, panel A. Subjects addressing immigration in France exhibit a polarization effect, whereas subjects addressing immigration in

³⁴For immigration coverage in Germany, Gehring, Adema, and Poutvaara (2022) shows that average changes in sentiment are primarily attributed to changes in topics rather than changes in sentiment within topics.

³⁵Given that we restrict the topic analysis to immigration-related subjects, we opt for an unsupervised LDA that uncovers topics rather than a semisupervised LDA that requires topics to be specified ex-ante using a seed word dictionary and that generates a residual category.

³⁶We adopt the methodology proposed by Deveaud, SanJuan, and Bellot (2014) to determine the optimal number of LDA topics. The nine topics are labeled based on their top words, which are detailed in online Appendix Table E1. The cross-correlation between topics is low, as illustrated in online Appendix Figure E1, which rules out concerns of collinearity.

³⁷This grouping results not only from thematic similarities, but also from the fact that when isolating topics one by one in online Appendix Figure E5, their estimates point in the same direction.

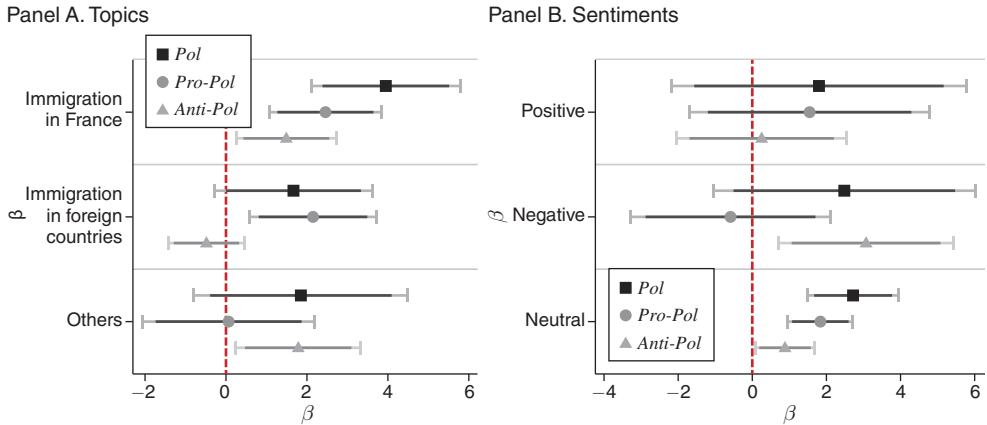


FIGURE 6. TOPIC AND SENTIMENT ANALYSIS

Notes: The figures show the marginal effect of $ShareSubj_{ct-1}$ on *Pol*, *Pro-pol*, and *Anti-pol* for specific topics and sentiments. All estimates include wave, individual, and channel fixed effects. The vector of time-varying controls includes age, education, employment status, marital status, number of children, household size, a dummy for blue-collar and income categories. Robust standard errors are clustered at the individual level. Confidence intervals are presented at the 95 percent and 90 percent levels.

Sources: Authors' elaboration on INA and ELIPSS data.

other contexts outside the national territory tend to foster pro-immigrant attitudes. This suggests that concerns among natives about immigration are notably shaped by economic and psychological costs linked to hosting immigrants, with the latter arising only when welcoming them into one's own country.³⁸ Online Appendix Figure E4 confirms that these heterogeneous reactions depend on initial attitudes. Respondents with initially moderate views tend to become more negative as media coverage of immigration in France increases, whereas those with initially positive views are more likely to report highly positive attitudes. The coverage of immigration in France thus widens the gap between those with differing initial attitudes. When it comes to immigration in foreign countries, we find that pro-immigration viewers drive the empathy effect the most. Finally, while other subjects seem to be associated with an increase in anti-immigrant sentiments, additional robustness checks reveal that it is entirely driven by the coverage of terrorist attacks in France during the period of analysis.

Sentiment Analysis.—To capture the tone expressed in migration subjects, we run a sentiment analysis on the complete corpus of migration subjects. This exercise proves particularly challenging within our context. First, the regulatory authority for audiovisual and digital communication in France (ARCOM, formerly CSA) aims to maintain channels' neutrality (Philippe and Ouss 2018), which may limit variations over time and across channels compared to the US media market (DellaVigna and

³⁸This echoes findings by Bordalo, Tabellini, and Yang (2020), who show that the end of the Cold War increased the salience of domestic issues, translating into higher perceived polarization and partisanship.

Kaplan 2007), for instance. However, some recent studies have shown that French TV channels' neutrality is not completely absolute (Cagé et al. 2022). Second, unlike existing studies that predominantly focus on press articles, the lack of written transcripts of the broadcasted content means that our analysis relies on descriptions provided either directly by INA employees or by the Kantar society, which are fundamentally shorter and more neutral than the original content. Third, some negative terms, such as "shipwreck," may be perceived as ambiguous in the context of migration and may elicit diverging reactions from the population. With these limitations in mind, we rely on the French Expanded Emotion Lexicon (Abdaoui et al. 2017), which is, to our knowledge, the lexicon of reference for sentiment analysis in French, to identify positive and negative words in each subject. We first compute the share of positive (negative) words in the total number of words for each subject.³⁹ Then, we classify a subject as positive or negative if its share of positive or negative words exceeds the seventy-fifth percentile of the subject distribution. Of the migration subjects, 11.41 percent and 16.47 percent are classified as positive and negative, respectively. All other subjects are classified as neutral (72.13 percent).⁴⁰ The information is again aggregated by computing the share of positive, negative, and neutral immigration subjects at the channel-month level. Online Appendix F provides descriptive statistics on the evolution of sentiment across channels and over time. Interestingly, sentiments and topics do not overlap, as shown in online Appendix Figure F2, with the two highest correlations being between terrorism and the share of negative subjects at 0.30, and between French politics and the share of positive subjects at 0.26.

The results are reported in Figure 6, panel B. Polarization at both ends of the distribution is primarily driven by subjects who are neither extremely positive nor extremely negative. Instead, neutral subjects increase the likelihood of polarization toward both pro- and anti-migration sentiments. Online Appendix Figure F6c confirms that an increase in immigration coverage with a neutral framing increases both the likelihood of pro-immigration moderates reporting extremely positive attitudes and anti-immigration moderates reporting extremely negative attitudes. Two additional patterns emerge for viewers whose initial attitudes are pro- or anti-migration. On the one hand, Figure 6, panel B indicates that negative framing may increase the likelihood of polarization toward extremely negative attitudes, and online Appendix Figure F6b shows that it is driven by pro-immigration individuals who can reverse their attitudes when they are exposed to extremely negative events, such as terrorist attacks.⁴¹ On the other hand, online Appendix Figure F6a demonstrates that a positive

³⁹We remove from the sentiment analysis words that have already been used in the migration lexicon.

⁴⁰Online Appendix Figure F1 depicts the most frequent positive and negative French words in the most positive and negative subjects, respectively. A small number of emotionally charged immigration subjects (1.5 percent) were initially classified as both positive and negative. To ensure that our classification is exclusive, we reclassify subjects as positive if the number of positive words within the subject is greater than the number of negative words and vice versa. The results remain robust when excluding these subjects from the analysis or not reclassifying them. Our conclusions remain unchanged when using the fiftieth percentile as a threshold, but it reduces the number of neutral subjects to 33.32 percent, as reported in online Appendix Figure F5.

⁴¹This effect echoes the positive coefficient for the topic "Other" in online Appendix Figure E4. When removing terrorism from the "Other" topic, the coefficient becomes nonsignificant and close to zero. Shifts from pro- to anti-immigration are thus only driven by the coverage of terrorist attacks in France during our analysis period.

framing that contradicts their initial beliefs can cause anti-immigration viewers to hold their negative attitudes even more strongly.

IV. Mechanisms

This section investigates three possible mechanisms by which individuals with moderate attitudes toward immigration are more likely to report extreme attitudes in a direction that depends on initial perceptions as media coverage of immigration increases, namely motivated reasoning and backlash, persuasion, and salience.⁴²

A. *Persuasion versus Salience*

In a world with Bayesian learning, the preferences of TV viewers may be updated based on the types of news they see. Polarization could occur as a result of TV viewers self-selecting into different channels based on their initial beliefs and thus being exposed to different biased information sets, leading them to update their attitudes in different directions. If this is the case, pro(anti)-immigration moderates will shift to extremely positive (negative) attitudes as their exposure to positive (negative) immigration news increases. This interpretation of the results would echo the literature on the persuasive power of the media (DellaVigna and Gentzkow 2010), but several findings contradict such an interpretation of our results. Instead, a more plausible interpretation of the results is that increased immigration coverage increases the prominence of this subject in the minds of TV viewers, causing them to place greater emphasis on the immigration topic when forming their opinion, thereby amplifying their initial position on the distribution of attitudes from moderate to extreme. This salience interpretation aligns with findings by Alesina, Miano, and Stantcheva (2022) and Colussi, Ispording, and Pestel (2021), among others.

First, we examine how the effect varies based on the bias in immigration news coverage. According to previous results in Figure 6, a rise in exposure to migration news about the same topic (e.g., immigration in France) or with a neutral framing leads pro-immigration moderates to have an increased likelihood of reporting extremely positive attitudes, while anti-immigration moderates have an increased likelihood of reporting extremely negative attitudes. Contrary reactions to an increase in immigration coverage by pro- and anti-moderates, despite being exposed to news with the same or no bias, provide preliminary evidence against interpreting this result solely through the lens of persuasion.

Second, Bayesian updating theory suggests that extreme viewers should be less likely to update their beliefs due to their existing polarized opinions. However, comparing pro- and anti-immigration viewers at the extremes, we find that an increase in the coverage of immigration significantly affects pro-immigration respondents with no symmetric effect for anti-immigration respondents. This asymmetric impact is consistent with a salience interpretation, as several studies show that

⁴² As ELIPSS is an anonymous self-administered questionnaire that uses a touch-screen tablet instead of face-to-face interviews, it is unlikely that our results reflect an increase in the likelihood of reporting extreme attitudes due to greater social acceptance of extreme positions.

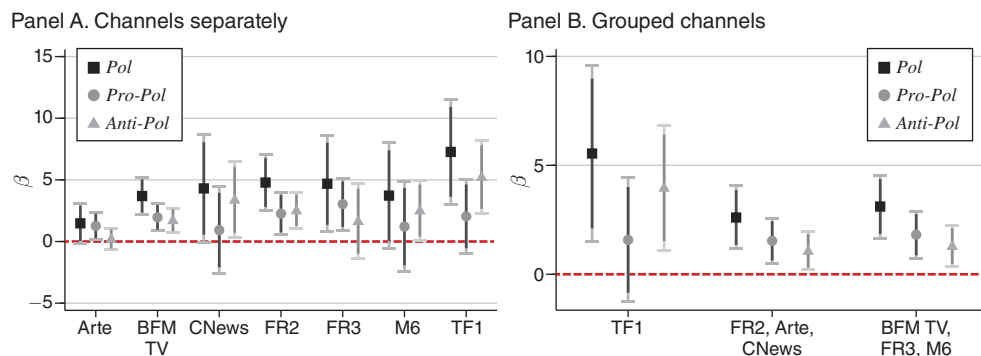


FIGURE 7. COVERAGE OF IMMIGRATION AND ATTITUDES BY CHANNEL

Notes: The figures show the marginal effect of $ShareSubj_{ct-1}$ on *Pol*, *Pro-pol*, and *Anti-pol* conditional on the preferred channel to get political information. All estimates include wave, individual, and channel fixed effects. The vector of time-varying controls includes age, education, employment status, marital status, number of children, household size, a dummy for blue-collar and income categories. Robust standard errors are clustered at the individual level. Confidence intervals are presented at the 95 percent and 90 percent levels.

Sources: Authors' elaboration on INA and ELIPSS data.

anti-immigration respondents regard immigration as a salient topic regardless of media coverage, whereas pro-immigration respondents may only perceive its importance as media coverage increases (Dennison and Geddes 2019; Kustov 2023).

Third, as shown in Figure 4, the polarization effect of immigration coverage has a short-term impact, typically within a month. This also aligns with the reactivation of preexisting prejudices in the context of limited attention, rather than a long-lasting persuasion toward extreme positions.

Finally, we implement a more direct test focusing on within-channel polarization. If the only plausible interpretations of the results were Bayesian updating and persuasion, we would not expect any opposite shifts in attitudes among viewers of the same channel. Instead, viewers' attitudes should converge in the same direction as a result of exposure to the same biased content. To test this hypothesis, we interact exposure to immigration with individuals' preferred TV channel, using the same estimation strategy we followed in equations (3) and (4) for the interaction with preexisting attitudes. Figure 7, panel A shows positive point estimates for both *Anti-pol* and *Pro-pol* for all channels, suggesting that increased immigration coverage amplifies the attitudes of viewers of the same channel in the direction of their initial bias. Polarization is only significant for four of the seven channels studied. However, there are positive and significant coefficients for both *Anti-pol* and *Pro-pol* for BFM TV and France 2, which are the channels with a sufficient number of individual observations (26.50 percent and 22.70 percent of the overall sample, respectively) as well as a sufficient mix of viewers with different initial attitudes.⁴³ Thus, consistent with a salience interpretation, we see that individuals

⁴³ Online Appendix Table A2 shows the number of observations per channel. Online Appendix Figure A6 shows the distributions of attitudes within channels. Because TF1 has a disproportionate number of anti-immigration

exposed to the same information react differently. To enhance the precision of our estimates, we group channels in Figure 7, panel B, based on the overall attitudes of their viewers (TF1 attracts anti-immigrant viewers, France 2, Arte, and CNews attract pro-immigrant viewers, and the other three channels have mixed viewership, as reported in online Appendix Table A3.). These new estimates confirm that viewers exposed to the same coverage can polarize in opposite directions, particularly for channels that attract both positive and mixed viewers. However, the effect on pro-immigration polarization remains nonsignificant for TF1. This is most likely because the distribution of TF1's viewers, which includes a disproportionate number of anti-immigration moderates, does not provide enough statistical power to produce a significant coefficient on polarization toward extremely positive attitudes.

B. *Motivated Thinking and Backlash*

Polarization from moderate to extreme attitudes could be attributed to motivated reasoning if TV viewers selectively seek and accept information that aligns with their preexisting beliefs while discounting or dismissing conflicting information (Taber and Lodge 2006; Bénabou and Tirole 2016). Experimental research has also shown that exposing individuals to information contradicting their initial beliefs may trigger a backlash, reinforcing their initial attitudes toward immigration, even if overall the evidence is scarce (Nyhan and Reifler 2010; Wood and Porter 2019; Guess and Coppock 2020). Our results provide little support for these explanations.

First, if backlash were the main explanation for our results, we would expect viewers to react to news coverage framed in the opposite direction of their initial attitudes, thereby reinforcing their initial attitudes. Online Appendix Figure F6a shows a nearly significant backlash response of anti-immigration viewers to positive immigration coverage, which contradicts their initial beliefs, toward holding more strongly negative attitudes. Other than this effect, we do not find supporting evidence of a backlash effect on other types of viewers. Anti-immigration moderates do not adopt more negative attitudes when exposed to positive news, and pro-immigration viewers, whether moderate or not, do not adopt more positive attitudes when exposed to negatively framed immigration news.

Second, if motivated reasoning were the main explanation for our results, we would expect viewers to respond to information framing that confirms their initial beliefs but not to information that contradicts them. However, online Appendix Figures F6a and F6b reveal null coefficients for pro-immigration moderates exposed to positive coverage and for anti-immigration moderates exposed to negative coverage. Although online Appendix Figure F6a indicates that pro-immigration individuals are more likely to maintain extremely favorable attitudes when exposed to positive information, online Appendix Figure F6b shows that pro-immigration

viewers, it only reports a significant and positive coefficient for anti-immigration polarization. Arte, on the other hand, has a disproportionate number of pro-immigration viewers and thus has only a significant and positive coefficient for pro-immigration polarization.

individuals still do not dismiss negative information about migration and that such negative information may cause a shift in their attitudes toward the opposite end of the distribution, driven here by migration topics related to terrorism.

Finally, the overall lack of changes in the attitudes of anti-immigration individuals following an increase in the coverage of immigration in our baseline results also suggests that motivated reasoning is unlikely to explain all of our results. In contrast, it is consistent with a salience mechanism if immigration is always salient for individuals with strong anti-immigration priors but not for others, as suggested in the literature (Dennison and Geddes 2019; Kustov 2023). We provide strong support for a salience mechanism in the previous subsection.

To conclude, the findings in this section suggest that motivated reasoning and backlash can be at work for viewers who already have extremely positive or negative attitudes, as these strategic adjustments require strong initial attitudes (Swire et al. 2017). For viewers with moderate attitudes, however, the effect appears to be driven by a salience mechanism and the reactivation of latent prejudices. Because polarization is mainly driven by these viewers moving toward the extreme, salience plays an important role in explaining the polarization effect observed following an increase in media coverage.

V. Conclusions

This paper investigates how increased media coverage of immigration affects natives' attitudes toward immigration. It combines INA data on French television news programs with ELIPSS monthly individual panel data on attitudes from 2013 to 2017. Connecting all respondents to immigration coverage on their preferred channel for political information, we find that increases in the coverage of immigration shift moderate individuals' attitudes toward both extremes of the distribution in the short run. In particular, natives with moderately positive attitudes adopt highly positive attitudes, whereas those with moderately negative attitudes become very concerned about immigration. Interestingly, this main result is at odds with most of the literature on the impact of media on attitudes toward immigration, which usually finds that priming immigration mainly drives natives' attitudes in a specific direction. This paper therefore highlights the importance of looking beyond average effects when studying how exposure to the same information affects attitudes and beliefs. Additional results in the paper point to a salience mechanism driving the effect, i.e., increased exposure to immigration raises the topic's prominence in viewers' minds, leading to a disproportionate influence of the latter on subsequent decisions.

These findings highlight the role of the media, particularly television in our context, in polarizing attitudes. They have important implications for how the media covers issues such as immigration because they imply that, regardless of how the topic is framed, the mere mention of immigration can change the preferences of moderate individuals. Finally, the results also show that priming immigration influences not only attitudes but also voting decisions, which is especially important when considering media coverage during election seasons. All of these observations call for future research on media regulation policies to mitigate potential adverse effects, such as the possible manipulation of the political agenda by political leaders of extreme parties.

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