

# WHAT'S NOT TO LIKE?

## Political polarization on Facebook in the U.S. and Belgium

*Increasing levels of political animosity worldwide invite speculation about whether polarization extends to all aspects of our daily life. However, empirical study about the relationship between political ideologies and lifestyle choices is limited by a lack of comprehensive data. This research combines survey and Facebook Like data from more than 7,500 respondents to test whether polarization permeates society or if it is more limited to strictly political domains among politically active individuals. This article compares ideological disunity in political and non-political domains in Belgium (a multi-party political system), to the U.S. (a two-party system). The results indicate that, as expected, polarization is present in page categories that are related to politics and news, but it is noticeably lower in Belgium than in the U.S. On the other hand, no evidence is found of polarization in other domains, including sports, food, and music. On the individual level, people who are more politically active are less likely to endorse ideologically diverse pages across categories, and compared to the U.S., fewer individuals in Belgium are being exposed to large amounts of highly polarized content. The evidence, drawn from large-scale digital trace data, adds nuance to the narrative of widespread polarization across lifestyle sectors, and it suggests domains in which cross-cutting preferences are still observed.*

**Stiene Praet** (Department of Engineering Management, University of Antwerp)

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### Keywords:

Political polarization;  
lifestyle preferences;  
social platforms;  
Facebook Likes.

### Introduction

Billie works at a drift store, she lives in a multicultural neighborhood where she gets around on a vintage bike, and she drinks vegan champagne and oat milk. Benjamin is a real estate broker, he drives a BMW, and is always wearing a suit - except when he is playing paint ball with his friends. In the satirical program "Billie vs Benjamin", Billie portrays a stereotypical left-wing girl, whereas Benjamin impersonates an archetypal right-wing boy.<sup>1</sup> They appear not only to hold opposing ideological opinions but also very different lifestyle preferences.

"Lifestyle politics" is the idea that political and ideological divisions extend to leisure activities, consumption choices, aesthetic taste, personal morality and other aspects of daily life.<sup>2</sup> This seeming intersection between political and lifestyle preferences is not only material for satirical programs but also a prime concern in light of growing political polarization.<sup>3</sup>

In the United States, athletes and sports leagues have found themselves at the crosshairs of political controversy, as symbolic demonstrations of racial solidarity in

<sup>1</sup> Dries Vos and Tim Van Aelst, *Billie vs Benjamin*, 2022.

<sup>2</sup> Daniel DellaPosta, Yongren Shi, and Michael Macy, "Why do liberals drink lattes?" *American Journal of Sociology* 120, no. 5 (2015): 1473–1511.

<sup>3</sup> Shanto Iyengar, Gaurav Sood, and Yphtach Lelkes, "Affect, not ideology: a social identity perspective on polarization," *Public opinion quarterly* 76, no. 3 (2012): 405–431; Yphtach Lelkes, "Mass polarization: Manifestations and measurements," *Public Opinion Quarterly* 80, no. S1 (2016): 392–410.

the form of kneeling protests have become increasingly commonplace, sometimes revealing divides between players and their fans. These episodes are an especially vivid illustration of how seemingly apolitical domains — including sports, but also food, artistic and cultural preferences, and consumer decisions — can become caught in the partisan currents of the larger society. More specifically for the focus of this study, they also demonstrate the importance of social media as an arena where lifestyle preferences in all their dimensions can intersect with politics. Given growing concern that political polarization is permeating society, this study asks to *what extent* this phenomenon is reflected in other realms. Widespread polarization across lifestyle domains would have serious implications because cross-cutting pressures in formally apolitical spheres may be critical for maintaining social harmony in otherwise highly polarized political systems.<sup>4</sup>

By combining survey and Facebook Likes data from respondents in the United States and Belgium, this study tests directly whether pages belonging to more “political” categories will be liked by more polarized audiences and whether individual-level characteristics are associated with liking pages in more polarized categories. Average page ideology and audience homogeneity are calculated and averaged over categories and users to answer two main questions: How ideologically homogeneous are political and lifestyle categories on Facebook? (RQ1) and which characteristics are associated with a greater likelihood of “liking” ideologically homogeneous pages? (RQ2).

Lastly, results in Belgium are compared to the U.S. Urman shows that the levels of polarization on social media platforms can vary depending on countries’ electoral rules and party systems, with higher levels of polarization in two-party compared to multi-party systems.<sup>5</sup> Belgium has a fragmented multi-party system with large coalition governments, while the U.S. is a two-party majoritarian system.

## Polarization, lifestyle, and social media

More recently, scholarly attention has shifted to the affective dimension of polarization — the dislike or distrust towards people from other political parties. It is rooted in an understanding of partisanship as a social identity.<sup>6</sup> This aspect of polarization, distinct from specific attitudes, is particularly important for understanding how personal and emotional attachments formed in the political arena could potentially carry over to other domains. Such a process is suggested by the “oil spill” model of polarization, in which clusters of initially disparate issues — including cultural and moral issues — become connected in a belief system.<sup>7</sup> The potential for polarization to spread beyond strictly political settings is also suggested in a conception of partisan attachment as reflecting a shared understanding of constituent social groups.<sup>8</sup> Related conceptions have likewise been proposed for understanding ideologies as a basis for group identification.<sup>9</sup>

4 Diana C. Mutz, *Hearing the other side: Deliberative versus participatory democracy* (Cambridge University Press, 2006); Thomas F. Pettigrew, “Intergroup contact theory,” *Annual review of psychology* 49, no. 1 (1998): 65–85.

5 Aleksandra Urman, “Context matters: political polarization on Twitter from a comparative perspective,” *Media, culture & society* 42, no. 6 (2020): 857–879.

6 Lilliana Mason, *Uncivil Agreement: How Politics Became Our Identity* (University of Chicago Press, 2018); Shanto Iyengar et al., “The origins and consequences of affective polarization in the United States,” *Science* 370, no. 6516 (2020): 533–536.

7 Daniel DellaPosta, “Pluralistic collapse: The “oil spill” model of mass opinion polarization,” *American Sociological Review* 85, no. 3 (2020): 507–536.

8 Donald P. Green, Bradley Palmquist, and Eric Schickler, *Partisan hearts and minds: Political parties and the social identities of voters* (Yale University Press, 2004).

9 Pamela Johnston Conover and Stanley Feldman, “The origins and meaning of liberal/conservative self-identifications,” *American Journal of Political Science*, 1981: 617–645; Lilliana Mason, “Ideologues without Issues: The Polarizing Consequences of Ideological Identities,” *Public Opinion Quarterly* 82, no. S1 (2018): 866–887.

Research similarly suggests a nuanced understanding of how social media reflects these patterns. A large study of retweet networks found much more ideological homogeneity between users tweeting about political topics than about nonpolitical topics, such as the 2013 Boston Marathon bombing in its initial aftermath and the 2014 Super Bowl.<sup>10</sup> But the marathon bombings themselves became politicized over time, and polarization in these retweet networks increased as a result. How topics can come to be seen as “political” or not is itself a challenging question, as Settle argues in the context of Facebook’s News Feed.<sup>11</sup> In Settle’s theory, politically inattentive Facebook users come to make inferences about their more political friends by observing their posts and endorsements (including via likes). Through this process, associations come to form between political identities and lifestyle preferences. This is vividly illustrated in the book by the example of Chick Fil-A, which became a flashpoint in America’s culture wars over the issue of same-sex marriage, which the chain’s owner publicly opposed. To some, the choice of fast-food chain for a quick meal may not reflect political preferences, but such decisions can nonetheless take on a larger symbolic meaning to outside observers.

Settle’s argument raises the question of whether social media, and Facebook specifically, is accelerating the process of politicizing lifestyle choices and preferences so that they more closely map onto the partisan political divide. Since this data provide a snapshot in time, this study cannot specifically answer this question, though it sheds light on the baseline levels of polarization across different areas of society. However, evidence is accumulating for the specific mechanisms likely at play, namely inferences due to apolitical cues.<sup>12</sup>

### Data collection

In collaboration with researchers at New York University and the University of Antwerp, Facebook data of more than 1,200 participants in the U.S. (2016) and 6,500 participants in Flanders (2018) *Annual Review of Political Science* 22 (2019): 129–146; Eli J. Finkel et al., “Political sectarianism in America were collected.<sup>13</sup> Participants in both countries provided access to their Facebook Likes<sup>14</sup> and answered several questions about their ideology and party affiliation. Of course, these data were collected and processed with respect for the privacy of the participants. The data are not fully representative for the entire population, but they do show a wide diversity in terms of gender, age, and education level of the participants.

The dataset consists of 387,671 unique Facebook pages in the U.S. and 595,994 unique pages in Flanders. However, the majority of these pages are liked by fewer than 5 respondents in the dataset. To ensure that the results are not being impacted by small numbers of people liking particular pages, the analysis is restricted to pages that are liked by at least 30 respondents each. These individual pages are divided into three main groups:<sup>15</sup>

10 Pablo Barberá et al., “Tweeting From Left to Right: Is Online Political Communication More Than an Echo Chamber?” *Psychological Science* 26, no. 10 (2015): 1531–1542.

11 Jaime E. Settle, *Frenemies: How Social Media Polarizes America* (Cambridge University Press, 2018).

12 E.g., Amber Hye-Yon Lee, “How the Politicization of Everyday Activities Affects the Public Sphere: The Effects of Partisan Stereotypes on Cross-Cutting Interactions,” *Political Communication*, 2020, 1–20.

13 Stiene Praet et al., “What’s Not to Like? Facebook Page Likes Reveal Limited Polarization in Lifestyle Preferences,” *Political Communication*, 2021: 1–28; Stiene Praet et al., “Predictive modeling to study lifestyle politics with Facebook likes,” *EPJ Data Science* 10, no. 1 (2021): 50

14 This refers to *Public Page Likes*, i.e. the public Facebook pages that a user likes and that show up as being liked in the About section of that person’s profile.

15 For more details on the data and the categories, see: Praet et al., “What’s Not to Like?”; Praet et al., “Predictive modeling with Facebook likes.”

1. **Politics.** Facebook pages of politicians, political parties, political content, political communities and government organizations. For example “Barack Obama” and “Bart De Wever”.
2. **News & Media.** Facebook pages of news and media sources. For example “Fox News” and “De Standaard”.
3. **Lifestyle.** All other pages, including music, movies, culture, sports, etc. For example, “Harry Potter” or “Radiohead”. All lifestyle categories and their description can be found in Table 1. Note that these categories are not mutually exclusive, for example, LeBron James is included in the category Sports as well as Public Figures.

Table 1: Description of the Facebook lifestyle categories

Category	Description
Shopping & retail	Apparel, accessories, fashion, consumer electronics, home decoration, stores, wholesale, etc.
Public Figures	Public figures
Food & Beverage	Food, cooking, restaurants, drinks, spirits, breweries etc.
Entertainment	Entertainment, games, humor, amusement, comedy etc.
Music	Music, bands, producers, record labels, albums, awards, concerts, music festivals etc.
Tv Shows	TV shows, episodes, channels, TV awards
Movies	Movies, actors, directors, movie characters, cinema and awards
Services	Marketing, advertising, legal, finance, consulting, etc.
Beauty & Health	Cosmetics, healthcare, medical
Civil Society	Nonprofit organizations and labor unions (formal organizations)
Arts & Culture	Arts, culture, photography, museums, artists, musicals, theater, literature, libraries, writers, etc.
Sports	Sports, teams, athletes, leagues, games, gym
Travel	Travel, tour agencies and tourism
Research & Education	Schools, universities, student organizations, educational programs, (non-)scientific research

## Methods

The ideology and homogeneity of individual Facebook pages are measured based on the liking behavior of the respondents and averaged over categories and individuals. In the following discussion, consider Facebook page Z, self-reported individual ideology score  $k$  ranging from 0 (very liberal/left) to  $k_{max}$  (very conservative/right),<sup>16</sup> and ideology class  $c$  that groups these ideology scores  $k$  into three groups (where 0 = liberal/left, 1 = moderate/center, and 2 = conservative/right).

**Measuring page ideology (I)** Using like behavior and self-reported ideology of the respondents, the ideologies of Facebook pages are mapped. The self-reported ideology scores ( $k$ ) of respondents who liked Facebook page Z are averaged to calculate the page ideology score ( $I$ ) of Facebook page Z, which ranges from 0 to 1. To adjust for uneven partisan distribution, a correction factor is added to each page's ideology score.<sup>17</sup>

16 For the U.S. data  $k_{max}$  is 4, because respondents were asked to indicate their ideology on a scale of 0 to 4. For the Belgian data  $k_{max}$  is 10 because respondents were asked to indicate their ideology on a scale of 0 to 10.

17 For the U.S. data, liberals outnumber conservatives in the dataset. Therefore, the average ideology score across all Page Likes turns out to be less than 0.5 (i.e. 0.44). As a result, a Facebook page that is liked at the same rate by liberals, moderates, and conservatives in the sample would have a page ideology of 0.44. Therefore, a correction factor of 0.06 is added to each page's ideology score. For example, the page ideology of the Facebook page “Independent Voter” is 0.46 without the correction factor and becomes 0.52 when applying the correction. In Belgium a correction factor is added using the same method. Note that this correction factor shifts the distribution of page ideology to center around 0.5 but does not affect the relative distance between different pages' ideologies.

**Measuring page homogeneity (V)** Next, it is calculated how homogeneous (non-diverse) the audience of a Facebook page is in terms of their ideology, as a quantifiable measure of polarization. If the page is only liked by left-wing/liberal voters or only right-wing/conservative voters then the homogeneity score (V) will be higher than if the audience contains a mix of ideologies. To assess homogeneity, the chi-square statistic is used.

Consider three ideology groups ( $c$ ), i.e., liberal/left, moderate/center, and conservative/right. The fraction of likes from users with ideology  $c$  is equal to  $p_c$ . The chi-square statistic is based on comparing the distribution of ideology groups across users who have liked Facebook page  $Z$  to the distribution across users who have not liked  $Z$ . If both distributions are the same, then knowing whether a user liked Facebook page  $Z$  or not conveys no information about their ideology. If instead the distributions are distinct, then the audience of Facebook page  $Z$  is more ideologically homogeneous than the overall population. To ensure that this value lies between 0 and 1 Cramer's normalization is used. Cramer's  $V$  is a normalized version of the Chi-square statistic and determines the effect size.<sup>18</sup> For one degree of freedom, a Cramer's  $V$  above 0.1 indicates a small association (the audience that likes the Facebook page is somewhat homogeneous), above 0.3 indicates medium association (homogeneous) and above 0.5 indicates a large association (very homogeneous).<sup>19</sup>

Finally, the ideology and homogeneity scores in each category are calculated by averaging the page ideology and homogeneity scores of all pages per category, weighted by the total number of likes per page. The average homogeneity scores per Facebook category provide an answer to RQ1. Similarly, for each user, the homogeneity scores are averaged of all Facebook pages they have liked. A high homogeneity score indicates that the user tends to like more ideologically homogeneous pages. Regression models are built to provide an observational portrait of the individual-level characteristics related to high homogeneity scores. To answer RQ2, age, five-point ideological self-placement, and political news interest are included. As additional control variables, a mix of relevant sociodemographic variables including race, gender, family income, and educational attainment are added. The dependent variable is the individual homogeneity score measured by Cramer's  $V$ . Because of the nature of the dependent variable (between 0 and 1), beta regressions are used.

## Results

First, Figure 1 plots the page ideology distribution of the pages liked by liberal/left, moderate/center and conservative/right leaning respondents. The overlap of the liberal/left and conservative/right distributions ( $OVL$ )<sup>20</sup> is used as a measure of the degree to which users like ideologically similar pages.<sup>21</sup> The higher the overlap, the less polarized the category is.

The distributions show that political pages in the U.S. are highly polarized. The political pages that liberals like on Facebook are completely different from those that are liked by conservatives. A political center is absent in the U.S., since there are only two dominant parties. In Belgium on the other hand, the ideological center brings together left-

18 For a mathematical description of the Chi-square statistic and Cramer's  $V$  used in this work, see: Praet et al., "What's Not to Like?"

19 Jacob Cohen, *Statistical power analysis for the behavioral sciences* (Routledge, 2013).

20 The *Overlap* package in R is used to calculate the area lying under both of the density curves. See: Mike Meredith and Martin Ridout, "Overview of the overlap package," *R. Proj.* 2014: 1–9.

21 See Gregory Eady et al., "How many people live in political bubbles on social media? Evidence from linked survey and Twitter data," *Sage Open* 9, no. 1 (2019): 1–21.

wing, center and right-wing voters. Therefore, the overlap between the distributions in Belgium is much higher than in the U.S. In other words, political pages in Belgium are less polarized than in the U.S. These findings are in line with expectations and reflect to some extent the differences between a two-party and a multi-party system.<sup>22</sup>

More strikingly, news pages are relatively polarized in the U.S. There is some overlap, but liberals tend to follow different news sources on Facebook than conservatives. This is in contrast to estimates of the same statistic for news consumption through website visits on desk-top, laptop and mobile devices, which appear to be much less polarized.<sup>23</sup> This could possibly be explained by the fact that like behavior on Facebook may include motivations for identity signaling and affirmation in addition to simply seeking out information.<sup>24</sup> This could lead to a relative absence on social media of the potentially moderating influence of news portals, aggregators, and popular mainstream website homepages, resulting in a relatively polarized news environment. Again, news pages are much less polarized in Belgium. While there are smaller news sources that attract a more left- or right-wing audience, the vast majority of media pages appeal to voters with different ideological leanings. In Belgium, news sources seem to be trusted (or at least liked on Facebook) across the ideological spectrum.

Meanwhile, for lifestyle-related pages on Facebook, the distributions almost completely overlap, both in Belgium and in the U.S. This could indicate that lifestyle pages do not exhibit a strong ideological divide. Oddly, the overlap between distributions for lifestyle pages in Belgium are slightly lower than for news pages, and also lower than in the U.S. In the following subsection, the ideological homogeneity of different lifestyle categories is analyzed in more detail.

### Facebook categories

Table 2 summarizes the average homogeneity scores of the Facebook pages in each category. The higher the average homogeneity, the more polarized this category is.<sup>25</sup> In both countries, the category **Politics** has of course the highest homogeneity score, although it is remarkably lower in Belgium. In the U.S., a few other categories are relatively polarized as well: **News**, **Civil society**, and **Public figures**, which are very little polarized in Belgium. All other lifestyle categories show little to no polarization across ideological lines. These pages are liked at almost equal rates by liberals, moderates, and conservatives.

A more detailed analysis of the individual pages per category sheds light on the most and least polarizing pages. In the U.S. (see Figure 2a), the Democratic and Republican political candidates hold the highest homogeneity scores, e.g., Barack Obama ( $V = 0.39$ ) and Mitt Romney ( $V = 0.43$ ). Some government organizations such as NASA ( $V = 0.05$ ) and the National Park Service ( $V = 0.01$ ) are liked by a heterogeneous audience, but overall the number of pages with low homogeneity in this category is low. Similarly, in Belgium (see Figure 2b), left and right political parties and candidates hold the highest homogeneity scores (e.g., Groen ( $V = 0.29$ ,  $I = 0.55$ ) and NVA ( $V = 0.29$ ,  $I = 0.55$ )). In contrast however, there are large pages located towards the center. The Facebook page of the Christian Democratic party CD&V ( $V = 0.04$ ,  $I = 0.55$ ) is not only liked by center voters but also by left and right voters.

22 Urman, "Context matters."

23 Andrew M. Guess, "(Almost) Everything in Moderation: New Evidence on Americans' Online Media Diets," *American Journal of Political Science* 65, no. 4 (2021): 1007–1022.

24 Settle, *Frenemies*.

25 Remember from Section 4 that a Cramer's  $V$  above 0.1 indicates a small association (the audience that likes the Facebook page is somewhat homogeneous), above 0.3 indicates medium association (homogeneous) and above 0.5 indicates a large association (very homogeneous)

Remarkably, despite the fact that they can't vote for him – or maybe it is because of that – Barack Obama ( $V = 0.00$ ,  $I = 0.53$ ) is by far the most popular politician in Belgium and he can persuade both the political left and right.

With regard to news pages in the U.S., Figure 2c shows that Facebook audiences for news outlets are often heavily right (Fox News ( $V = 0.38$ ,  $I = 0.77$ ) and Conservative Daily ( $V = 0.34$ ,  $I = 0.76$ )) or left-leaning (The New York Times ( $V = 0.19$ ,  $I = 0.36$ ) and NPR ( $V = 0.28$ ,  $I = 0.32$ )), with relatively few outlets attracting people with different ideologies (CNN ( $V = 0.06$ ,  $I = 0.45$ ), Meaww ( $V = 0.01$ ,  $I = 0.51$ ), and The Los Angeles Times ( $V = 0.00$ ,  $I = 0.51$ )). In contrast, Figure 2d shows that besides some heavily left or right leaning news sources (e.g., De Wereld Morgen ( $V = 0.00$ ,  $I = 0.53$ ) and SCEPTR ( $V = 0.22$ ,  $I = 0.78$ )), the majority of newspapers in Belgium is concentrated in the center with relatively low homogeneity scores. The public broadcaster, VRT ( $V = 0.03$ ,  $I = 0.52$ ) attracts a balanced audience of left, center and right voters.

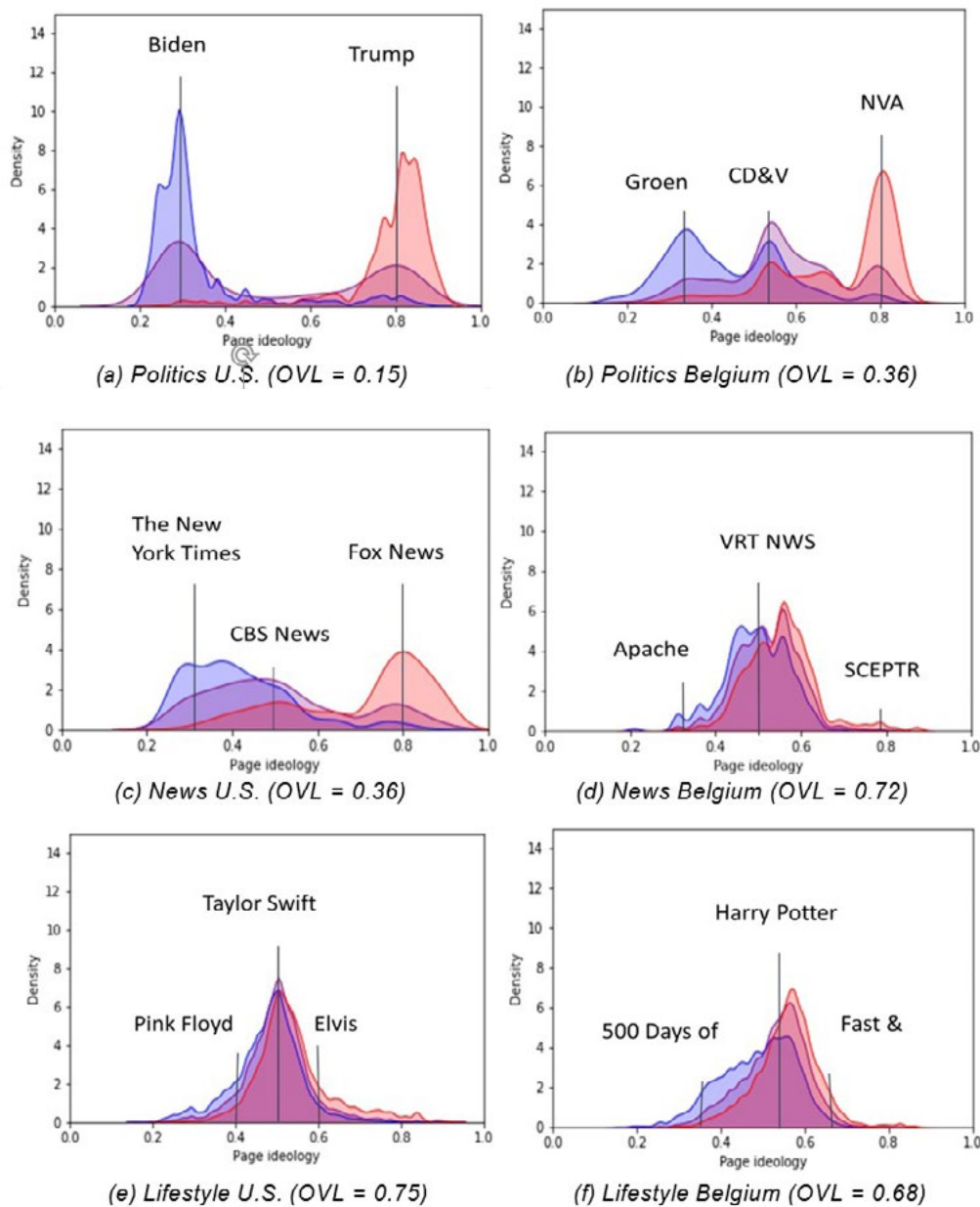


Figure 1: Page ideology distribution for liberal/left (blue), moderate/center (purple) and conservative/right (red) respondents when taking into account political pages, news pages, and lifestyle pages; and the overlapping coefficient (OVL) for the left and right distribution.

Table 2: Weighted average (and standard deviation) for homogeneity, measured by Cramer's V, for the Facebook categories in the U.S. and Belgium.

Category	U.S.	Belgium
<b>Politics</b>	<b>0.22 (0.09)</b>	<b>0.09 (0.08)</b>
News	0.15 (0.10)	0.06 (0.05)
Civil Society	0.12 (0.09)	0.06 (0.05)
Public Figures	0.10 (0.09)	0.04 (0.03)
Arts & Culture	0.07 (0.06)	0.05 (0.03)
Tv Shows	0.07 (0.05)	0.03 (0.02)
Entertainment	0.07 (0.05)	0.04 (0.03)
Research & Education	0.06 (0.04)	0.03 (0.02)
Music	0.06 (0.03)	0.04 (0.02)
Movies	0.06 (0.04)	0.03 (0.02)
Sports	0.05 (0.03)	0.04 (0.03)
Services	0.05 (0.04)	0.05 (0.03)
Beauty & Health	0.04 (0.02)	0.04 (0.03)
Travel	0.04 (0.02)	0.03 (0.01)
Shopping & retail	0.04 (0.02)	0.04 (0.03)
Food & Beverage	0.04 (0.02)	0.03 (0.02)
Total	0.07 (0.07)	0.04 (0.04)

Indeed, recent research confirms that the VRT succeeds in providing balanced and impartial news to the public.<sup>26</sup>

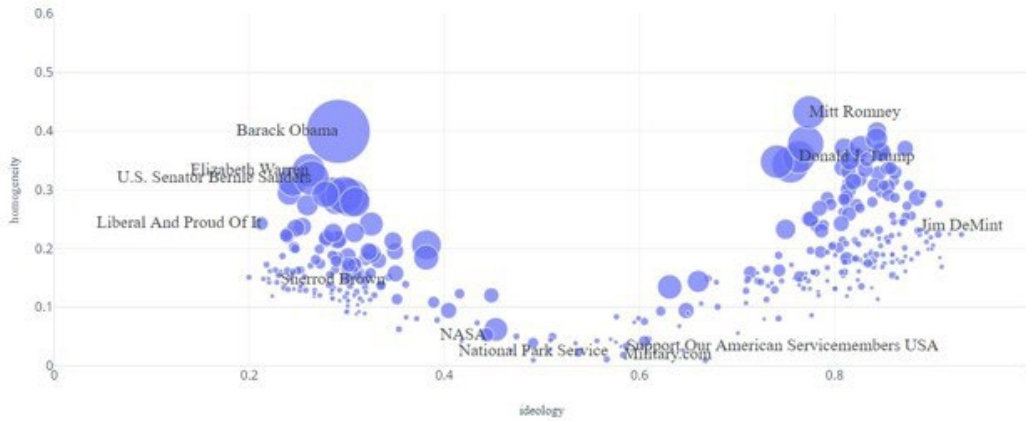
All lifestyle categories are predominantly heterogeneous, although individual pages with high homogeneity scores do exist. For example, looking within the **Food & beverage** category in the U.S., Figure 2e shows that, as the discussion by Settle suggests, Chick-fil-A ( $V = 0.17, I = 0.61$ ) does have a relatively high homogeneity score in addition to its more conservative ideology rating. As Settle recounts, the chain encountered controversy in 2012 about its owner's (and charitable arm's) support for anti-gay organizations, after which activists (mainly liberals) announced a boycott of the restaurant, and others (mainly conservatives) began a counter-boycott.<sup>27</sup> In this way, Chick-fil-A became a politicized topic such that, apparently, by the time of the data collection in 2016, liking the Facebook page of the fast-food chain could be seen as an endorsement of the political views of the company. In the opposite sense, the ice-cream brand Ben & Jerry's openly promotes progressive values and expresses support for social and environmental justice initiatives around the country. Though homogeneity is low ( $V = 0.09, I = 0.36$ ), it is relatively high compared to other pages in the food category, and the brand is predominantly liked by liberal users. Similarly, in Belgium some examples of polarizing pages are found within the **Food & beverages** category (see Figure 2f). EVA ( $V = 0.17, I = 0.33$ ), an organization that promotes vegetarian alternatives, does have a relatively high homogeneity score in addition to its left ideology rating. Plant-based food is put forward as an important part of the solution to our environmental issues, and the environment can be considered a predominantly left theme.

26 Tim Raats et al., De onpartijdigheid van het VRT-aanbod, *technical report* (Vrije Universiteit Brussel en Universiteit Antwerpen, January 2021), They examined the impartiality of the public broadcaster based on an analysis of their content, production and public perception.

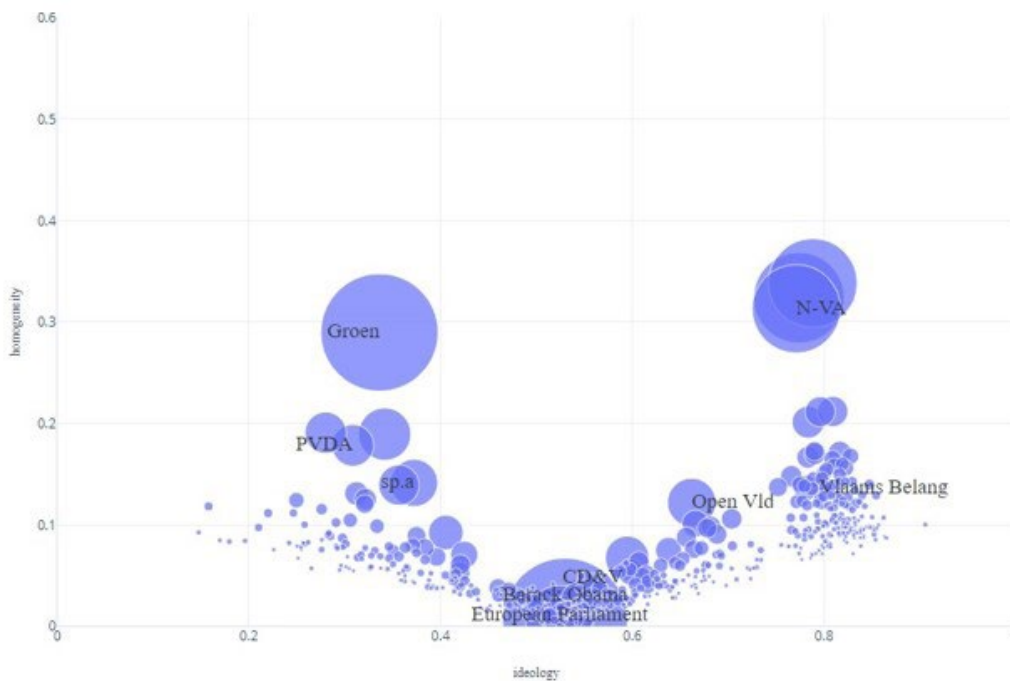
27 Settle, *Frenemies*.



It is therefore little surprising that McDonald's ( $V = 0.08, I = 0.65$ ) is situated at the other end of the spectrum. Besides these few examples, ideological homogeneity in the food category is in fact limited. And whatever our dietary or political preferences, we all shop food at Albert Heijn ( $V = 0.00, I = 0.53$ ).

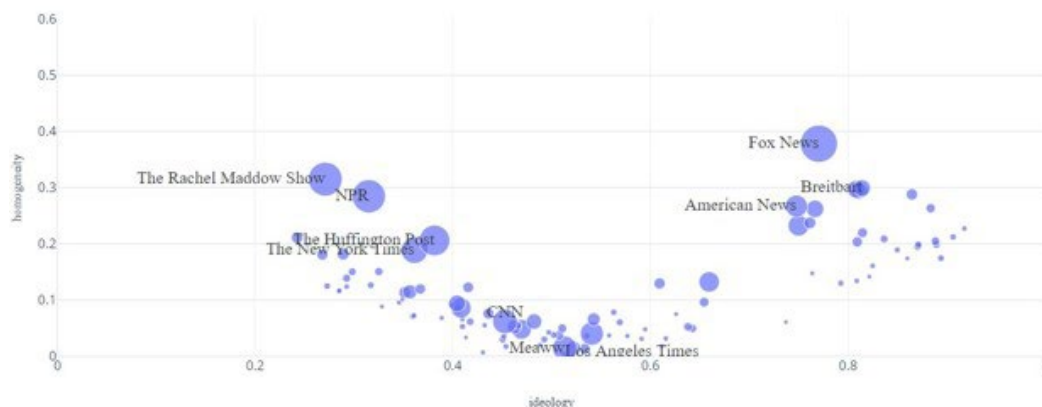


(a) Politics U.S.

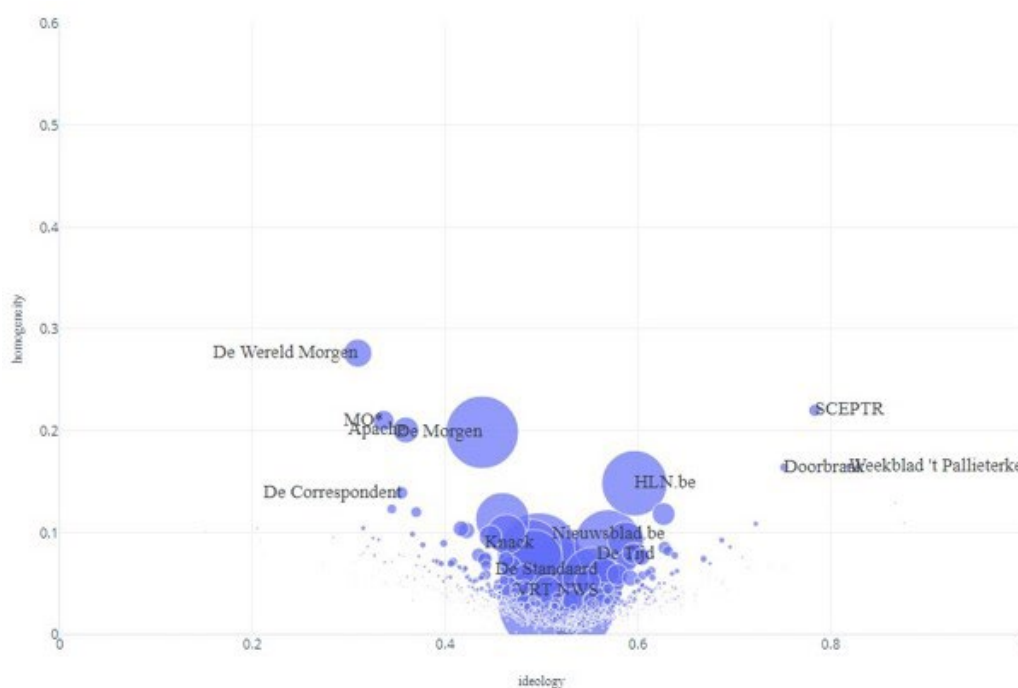


(b) Politics Belgium

Figure 2: Ideology and homogeneity scores for the Facebook pages per category. The magnitude of the circle represents the total number of likes of the Facebook page.

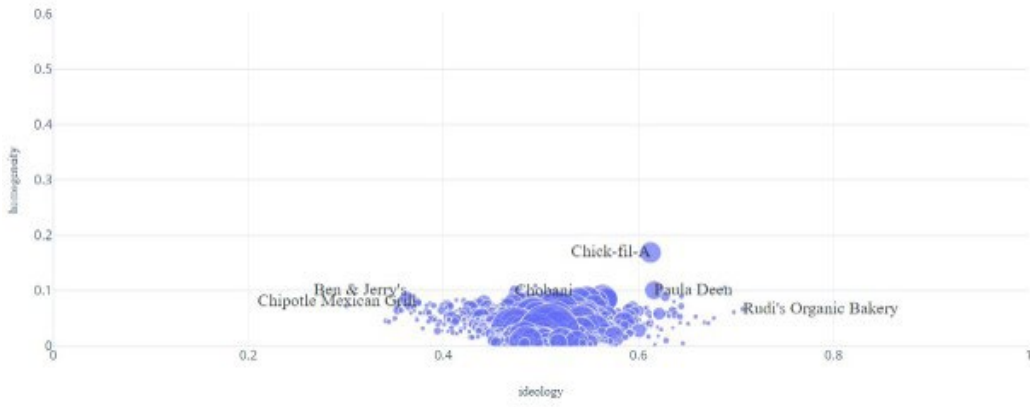


(c) News U.S.

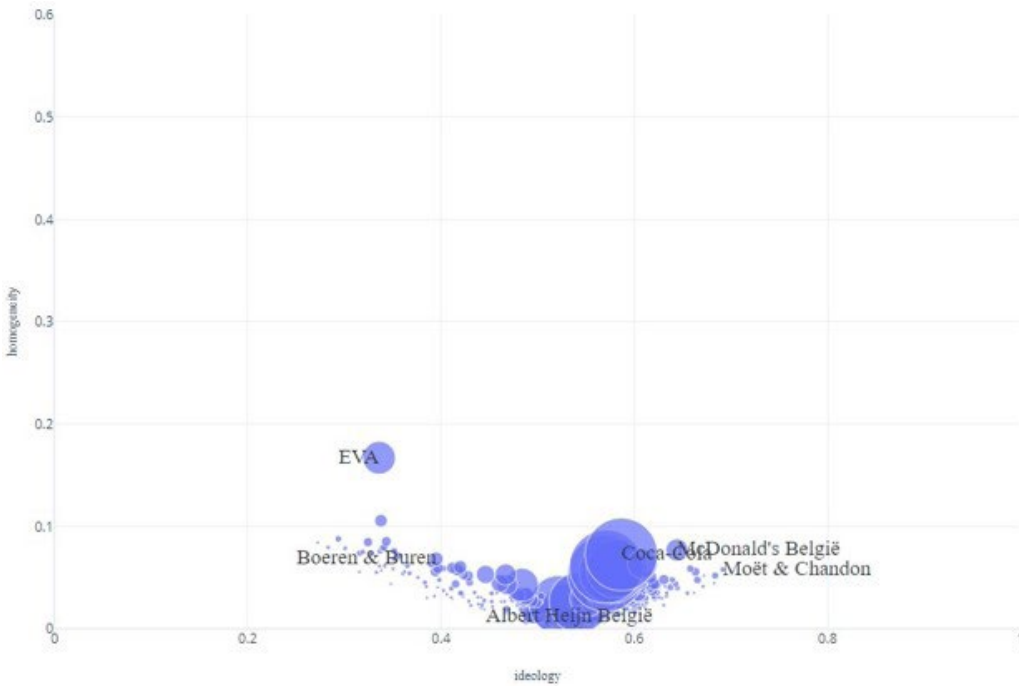


(d) News Belgium

Figure 2: (Continued) Ideology and homogeneity scores for the Facebook pages per category. The magnitude of the circle represents the total number of likes of the Facebook page.



(e) Food & Beverages U.S.



(f) Food & Beverages Belgium

Figure 2: (Continued) Ideology and homogeneity scores for the Facebook pages per category. The magnitude of the circle represents the total number of likes of the Facebook page.

### User-level analysis

Figure 3 zooms in on the individual homogeneity scores of the participants. For political pages in Belgium, right voters have slightly higher homogeneity scores than left and especially center voters. For news and lifestyle pages, the majority of homogeneity scores is low (below 0.1) regardless of ideology. This is in sharp contrast to the U.S., where the proportion of participants with higher homogeneity scores is much higher, especially for political pages but also for the other categories (see Table 3). Less individuals in Belgium are exposed to highly homogeneous content.

**Table 3: Proportion of respondents with individual homogeneity score higher than 0.1**

	U.S.	Belgium
Politics	0.71	0.23
News	0.44	0.06
Lifestyle	0.18	0.00

To gain a more complete understanding of individual-level determinants of Page Like homogeneity, a beta regression is performed that includes sociodemographic variables in addition to ideological self-placement and political news interest as predictors. Total number of Page Likes is also included as a control variable to account for individual-level differences in engagement with the platform.

The results for the U.S. are shown in Table 4. Conservatives (whether strong or not) are more likely to like homogeneous pages regardless of category. For liberals this is true for those who are the strongest liberals, except for the lifestyle category, where liberals (whether strong or not) are also more likely to like homogeneous pages.<sup>28</sup> Higher political news interest is also associated with higher individual homogeneity scores across all categories. These results suggest that polarization of Page Likes in non-political domains remains limited to more politically active individuals.

Furthermore, older age is predictive of greater homogeneity in Page Likes, but only for news and lifestyle pages. The results for news pages are consistent with Guess et al., who find – using the same underlying data source as this analysis – that conservatives and people over the age of 65 were more likely to share “fake news” on Facebook in 2016, all else equal.<sup>29</sup> This suggests that page liking patterns may be part of a process in which online misinformation reaches people’s social media feeds, thereby increasing the likelihood of engaging with it and sharing it with one’s social connections.<sup>30</sup>

The analysis in Table 4 reveals other relationships worth exploring in future research. Individuals with higher educational attainment are more likely to like more homogeneous lifestyle pages but not more likely to like homogeneous political or news pages, a pattern consistent with research finding that highly educated people are more likely to make consumer decisions that reflect their political leanings.<sup>31</sup> Similarly, gender only has a significant effect within lifestyle pages, but the effect could vary depending on the lifestyle subcategories.

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28 Moderate is the reference category for ideology.

29 Andrew Guess, Jonathan Nagler, and Joshua Tucker, “Less than you think: Prevalence and predictors of fake news dissemination on Facebook,” *Science advances* 5, no. 1 (2019): 4586.

30 E.g., Nir Grinberg et al., “Fake news on Twitter during the 2016 US presidential election,” *Science* 363, no. 6425 (2019): 374–378

31 Benjamin J. Newman and Brandon L. Bartels, “Politics at the checkout line: Explaining political consumerism in the United States,” *Political Research Quarterly* 64, no. 4 (2011): 803–817.

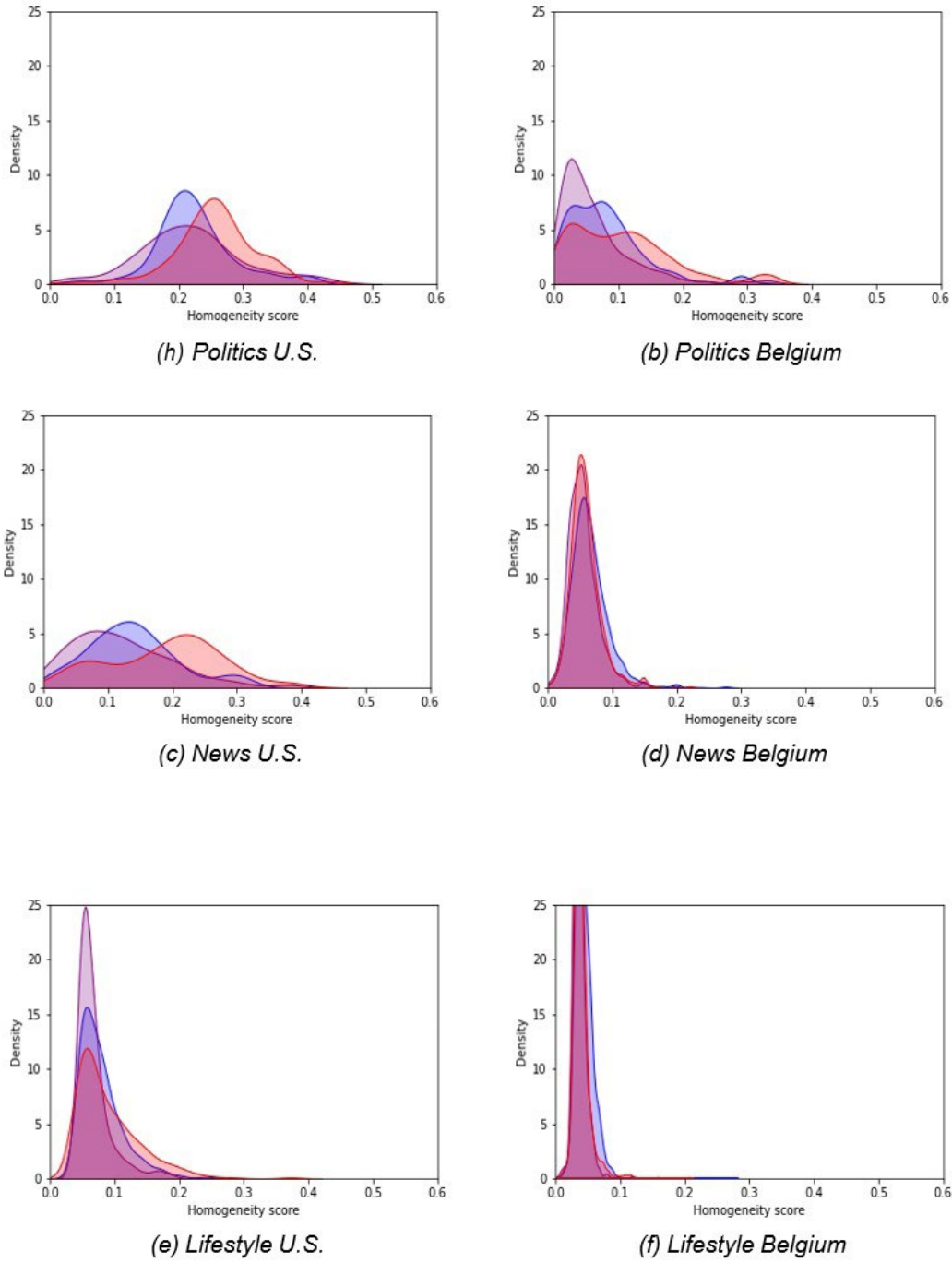


Figure 3: Average homogeneity distribution for liberal/left (blue), moderate/center (purple) and conservative/right (red) respondents when taking into account political pages, news and media pages, and lifestyle pages.

Table 4: Determinants of individual homogeneity per category (U.S.)

	Politics	Political news	Hardnews	Lifestyle
Age: 30-44	-0.094 (0.058)	0.116 (0.085)	-0.035 (0.093)	-0.012 (0.045)
Age: 45-65	-0.060 (0.055)	0.149* (0.080)	0.018 (0.087)	0.034 (0.043)
Age: Over 65	-0.002 (0.062)	0.283*** (0.087)	0.202** (0.095)	0.265*** (0.048)
Black	0.007 (0.055)	-0.347*** (0.076)	-0.360*** (0.086)	-0.141*** (0.042)
Hispanic	-0.096 (0.067)	-0.175** (0.089)	-0.265*** (0.098)	0.038 (0.050)
Other Race	-0.169** (0.066)	-0.355*** (0.086)	-0.427*** (0.098)	-0.107** (0.049)
Female	0.008 (0.032)	-0.024 (0.042)	-0.071 (0.047)	-0.117*** (0.025)
Income	0.007* (0.004)	-0.005 (0.005)	0.003 (0.006)	0.003 (0.003)
Education	-0.019 (0.011)	0.013 (0.015)	0.027 (0.017)	0.021** (0.009)
Very Liberal	0.087* (0.048)	0.047 (0.064)	0.175** (0.072)	0.168*** (0.037)
Liberal	0.021 (0.046)	-0.039 (0.062)	0.061 (0.069)	0.074** (0.036)
Conservative	0.208*** (0.044)	0.278*** (0.057)	0.302*** (0.066)	0.154*** (0.034)
Very Conservative	0.158*** (0.058)	0.491*** (0.069)	0.549*** (0.079)	0.200*** (0.044)
Political news interest	0.092*** (0.023)	0.181*** (0.031)	0.190*** (0.034)	0.132*** (0.017)
Number of likes	-0.00002** (0.00001)	-0.00002* (0.00001)	-0.00001 (0.00001)	-0.00003*** (0.00001)
Constant	-1.055*** (0.087)	-1.556*** (0.120)	-1.689*** (0.133)	-2.394*** (0.067)
N	826	774	740	1,085
Pseudo R <sup>2</sup>	0.074	0.189	0.195	0.273

\*p &lt; .1; \*\*p &lt; .05; \*\*\*p &lt; .01

Beta regressions with survey weights applied. Reference categories are Age: 18-29, White race, Male gender and Moderate ideology.

Income ranges from 1 to 31, Education from 1 to 6, and political news interest from 1 to 4.

Table 5: Determinants of individual homogeneity per category (Belgium).

	All pages	Political	News	Lifestyle
Age: 25-55	0.079*** (0.009)	0.063** (0.026)	0.047*** (0.013)	0.057*** (0.008)
Age: 55+	0.175*** (0.014)	0.351*** (0.039)	0.035* (0.021)	0.048*** (0.013)
Female	-0.048*** (0.009)	-0.061** (0.026)	-0.036*** (0.013)	-0.044*** (0.008)
Education	0.006* (0.003)	-0.052*** (0.009)	0.010** (0.005)	0.017*** (0.003)
Very Left	0.204*** (0.014)	0.358*** (0.040)	0.209*** (0.021)	0.216*** (0.012)
Left	0.118*** (0.010)	0.148*** (0.031)	0.119*** (0.015)	0.129*** (0.009)
Right	0.059*** (0.011)	0.268*** (0.031)	0.032** (0.016)	0.010 (0.010)
Very Right	0.211*** (0.017)	0.671*** (0.046)	0.111*** (0.027)	0.098*** (0.016)
Political news interest	0.071*** (0.004)	0.122*** (0.012)	0.052*** (0.006)	0.044*** (0.004)
Number of likes	0.00000 (0.00001)	-0.00001 (0.00002)	0.00001 (0.00001)	0.00001 (0.00001)
Constant	-3.396*** (0.019)	-2.719*** (0.057)	-3.030*** (0.028)	-3.462*** (0.017)
N	5,573	3,981	5,186	5,557
Pseudo R <sup>2</sup>	0.176	0.139	0.055	0.136

\*p < .1; \*\*p < .05; \*\*\*p < .01

Beta regressions. Reference categories are Age: 25-, Male gender, and Center ideology Education ranges from 1 to 7, and political news interest from 1 to 5.

Belgium (see Table 5), left and right voters are more likely than center voters to like homogeneous pages regardless of category. The effect is larger for stronger ideologies. For political pages, especially (very) right voters are more likely to like homogeneous pages, a finding that is confirmed by the homogeneity distribution for right voters in Figure 3b. Conversely, for the news and lifestyle category, left voters are more likely to like homogeneous pages (again confirmed by Figure 3f). This is in contrast to the U.S., where for all categories, conservatives are more likely to like homogeneous content. Higher political news interest is also associated with higher individual homogeneity scores across all categories. These results thus suggest that, similar to the U.S., polarization of Page Likes in "non-political" domains remains limited to more politically active individuals, but in contrast to the U.S., it seems more tied to the political left.

Furthermore, male gender and older age are predictive of greater homogeneity in Page Likes. However, in contrast with the findings in the U.S., the oldest age category is not more likely to like more homogeneous news pages. Since Belgians traditionally have had high trust in mainstream media, the older generation may also fall back on these mainstream sources on social platforms. In contrast, Facebook users between 25 and 55 are possibly exploring more alternative news sources. Finally, individuals with higher educational attainment are more likely to like more homogeneous news and lifestyle pages but not more likely to like homogeneous political pages.

In both countries, different results are found for explicitly and implicitly political pages – where news pages in Belgium are considered as implicitly political pages since the average homogeneity in this category is very low. Liking explicit political content on Facebook is a form of political participation or endorsement, while liking lifestyle pages may seem apolitical at first sight. The findings suggest that the characteristics of individuals who exhibit high levels of ideological homogeneity

are different for explicitly and implicitly political pages. While most research on polarization and echo-chamber dynamics has focused on networks around explicit political content, an analysis of these lifestyle categories reveals a subtler form of political homophily.

## Conclusion

In light of increasing discussions about political divides, this article explores polarization in political and traditionally “non-political” domains on social media. The results from analyzing Facebook Like data suggest that, as expected, ideological divides in political domains are much less outspoken in Belgium compared to the U.S. This is arguably due to the presence of a political center that unites voters with different ideologies. Indeed, Urman also finds polarization on social media to be higher in two-party compared to multi-party systems.<sup>32</sup> In the same line, news pages on Facebook are much more polarized in the U.S. Whereas in Belgium, mainstream news sources are trusted along ideological lines.

With regard to lifestyle categories, no evidence is found of strong polarization in neither of the countries. The findings show that polarization does not permeate society as a whole: lifestyle endeavors still offer cross-cutting spaces and polarization, when it does emerge, seems limited to a narrow set of politicized examples. This means that most of us still interact with people with different political ideologies on social media, thanks to these shared interests. Considering that Facebook users primarily engage with non-political Facebook pages, the findings add nuance to debates about the divisive nature of social platforms.

At the individual level, it can be concluded that compared to the U.S., less individuals in Belgium are at the danger of being exposed to highly homogeneous content only. Additionally, for both countries, polarization in page liking patterns is more associated with politically active individuals. If political polarization were thoroughly permeating society, the results would not indicate a higher likelihood among respondents with stronger ideological preferences and political interest of endorsing more homogeneous lifestyle pages. Furthermore, in Belgium, the oldest age category is not related to liking homogeneous news pages, which was an important predictor in the U.S. and could also be related to the likelihood of sharing fake news. This could possibly be explained by high mainstream media trust among the older population in Belgium.

Given these findings, then, why do narratives of enduring political divides in non-political domains persist? One explanation is that people draw inferences on the basis of vivid but unrepresentative examples, as the analysis of Chick-fil-A suggests.<sup>33</sup> Similarly, people have exaggerated perceptions of the differences between the parties, both in terms of demographic composition and lifestyle tendencies.<sup>34</sup> Social media itself may drive these misperceptions by fueling cycles of engagement with content that promotes disparagement of partisan outgroups.<sup>35</sup>

Future research should consider how users' online social endorsements interact with these dynamics over time, especially as a possible window into the politiciza-

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32 Urman, “Context matters.”

33 This is also borne out in polling, which tends to emphasize these vivid examples in addition to brands known to be polarizing, such as media organizations. See Morning Consult Polling, “The Most Polarizing Brands in America”, *Morning Consult*, January 25, 2018, <https://morningconsult.com/polarizing-brands-2018/> (accessed October 15, 2019).

34 The New York Times' recent feature asking readers to guess people's vote preferences from the contents of their refrigerators illustrates the limited predictive value of partisan stereotypes. See John Keefe, “Quiz: Can you tell a Trump fridge from a Biden fridge”, *New York Times*, October 27, 2020, <https://www.nytimes.com/interactive/2020/10/27/upshot/biden-trump-poll-quiz.html> (accessed October 15, 2019).

35 E.g., Barberá et al., “Tweeting From Left to Right”



tion of figures and brands. As Settle illustrates, the process by which one's political preferences come to influence seemingly distinct consumer and lifestyle choices can emerge unexpectedly as a result of both elite actions and mass mobilization.<sup>36</sup> Eventhough these cases are shown to be the exception, they demonstrate how the coexistence of political and other identities on social media leaves users vulnerable to mechanisms of social polarization. An effective strategy to dampen political polarization and maintain social harmony on social platforms could therefore be to recommend Facebook pages with a diverse ideological audience. Facebook's recommendation algorithm could be adapted to prioritize pages with low homogeneity scores.

Social media data offer a rich source of information about individuals' revealed social and lifestyle preferences, at a resolution that would be difficult to attain with traditional survey techniques. At the same time, the collection of online behavioral data comes with its own set of ethical and privacy challenges.<sup>37</sup> Drawing inferences from online data should be performed with cautionsince ignoring offline behavior may leave us with a distorted view. Still, linking digital trace data with survey data helps us to understand the relationship between lifestyle preferences and politics and to map the landscape of political culture — both its fault lines and its areas of overlap. ●

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36 Settle, *Frenemies*.

37 Sebastian Stier et al., "Integrating Survey Data and Digital Trace Data: Key Issues in Developing an Emerging Field," *Social Science Computer Review* 38, no. 5 (2019): 503–516.

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