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Testing popular news discourse on the "echo chamber" effect: Does political polarisation occur among those relying on social media as their primary politics news source?
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Abstract

Since 2016, online social networks (OSNs), especially their "big data" algorithms, have been intensively blamed in popular news discourse for acting as echo chambers. These chambers entrap like-minded voters in closed ideological circles that cause serious damage to democratic processes. This study examines this "echo chamber" argument through the rather divisive case of EU politics among EU citizens. Based on an exploratory secondary analysis of the Eurobarometer 86.2 survey dataset, we investigate whether the reliance on OSNs as a primary EU political news source can lead people to more polarisation in EU-related political beliefs and attitudes than a reliance on traditional media. We found little evidence for this polarisation, lending credence to a rejection of social media's "echo chamber" effect.

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Introduction

The negative impact of online social networks (OSNs) on democracy has been a subject of intensive and extensive news coverage since the two seismic political events of 2016, the British vote to leave the EU and the American decision to send Donald Trump to the White House. At the centre of such misgivings and fears is the belief that OSNs function as "echo chambers" where like-minded voters, through self-selection and big data-based customised algorithms, gather to consume and share ideologically agreeable news and information, including a vast quantity of mis-information and dis-information (*e.g.*, Bartlett, 2016; Benton, 2016, Preston, 2016; Sillito, 2016, Tait, 2017; *Economist*, 2017a; *Economist*, 2017b; Wolff, 2016). Such narrow circles of like-minded peers are formed, as this argument goes, at the expense of a comprehensive, multi-perspectival and evidence-based understanding of public affairs, ultimately leading to political polarisation between ideologically ingrained and/or emotionally charged segments of the public. The right-wing ideological polarisation among anti-establishment segments of the public, which was seen as the key factor behind Brexit and Trump's presidency, has been attributed to customisation algorithms on social platforms such as Facebook and the way they were maliciously used for political marketing by the like of the now notorious and default Cambridge Analytica. As a telling example, one of the few research firms that correctly predicted both Brexit and Trump's presidency was a novice South African data-mining company called Brandseye, whose methodology was based entirely on analysing social media posts to algorithmically rate voter sentiments about politicians (Reuters, 2016).

This paper sets out to demonstrate that as logical as it might sound at first glance, such news discourse around the politically polarised "echo chamber" on social media deserves a closer inspection. We will first review and assess this discourse's underlining assumption to prove that it has received more rejection than support from recent empirical research that is based on more nuanced theoretical perspectives. To add to this body of research evidence, we then present data from a secondary analysis of the 2016 EU Barometer survey, which we used to probe for the existence of the "echo chamber" in the case of EU politics. In particular, we asked whether reliance on social media as the primary source of EU politics news engenders more political polarisation in EU beliefs and attitudes than that on four traditional media (radio, television, printed newspapers and non-OSN news Web sites). The results provide little evidence to support the "echo chamber" effect of social media.

"Echo chamber" in popular news discourse: A democratic disaster in the making?

The idea of social media acting as an "echo chamber" is nothing too strange to news media. Eli Pariser (2011) received substantial news coverage after publishing a rather alarming book on the rise of the so-called ideological "filter bubble" in

digital media — which many today use interchangeably, although not correctly, with "echo chamber" (Bruns, 2017) — and its potential harms to the ways we live and operate. Andrew Keen (2007) warned of a future in which increasing reliance on personalised social networks such as Facebook would lead people eventually to trust their friends and crowds of amateurs more than people with professional expertise and talent such as journalists, with disastrous consequences to public life.

It was, however, not until the aftermath of the Brexit vote and then the Trump election that journalists started to intensively sound the alarm and continuously express deep misgivings and anxieties about the "insidious" long- and short-term harms of social networks' "echo chambers" (*e.g.*, Benton, 2016; Tait, 2017; *Economist*, 2017a; *Economist*, 2017b). In the eyes of newspeople, as voters are entrapped in narrow circles of like-minded peers enabled by Facebook algorithms and the like, they feel more "liable to interact" with like-minded content, thus less exposed to and more insulated from ideas and perspectives not resonant with their values and beliefs. In such close circles, moderate views can be turned into extreme ones, leading to polarisation. An editorial by the *Economist* (2017a) quoted Zeynep Tufekci as saying: "It's like you start as a vegetarian and end up as a vegan"

This resembles what Bartlett (2015) calls a "self-brainwashing" process, "where certain ideas are repeated so often and with no contrary or alternative point of view that it fulfils the classic definition of brainwashing." As Bartlett (2016) later wrote in the *New York Times*, "those who inhabit this world live in a kind of bubble sometimes called 'epistemic closure', where they won't believe many things taken for granted by people who get news from other sources." This is particularly disturbing for journalists, polarisation has proved to be a catalyst for mis-information and dis-information — especially "fake news" — on social networks. The former editor of the *Guardian*, Peter Preston (2016), lamented that the first casualty of the post-truth world is the further erosion of public trust in quality news. Using the "epistemic closure" concept, Preston feared that the increasingly polarised political world might lead people to abandon quality journalism "in favour of partisan reporting or no reporting at all." As he wrote:

> (An) epistemic closure, succoured by algorithmic selection, trusts only what it sees plonked in front of it. Trust what Facebook and Google put on your plate. Trust the view of the world that most fits your needs. Trust what you see as "yourself." No kitemark is going to offer a different sort of closure there. The whole concept of trust is changing. How do you deal with fairness and balance in an era of post-factual politics?

Meanwhile, Amelia Tait (2017) called attention to other, non-political but crucial, factors. As she argued, although self-brainwashing has long taken place among American viewers of Fox News and British readers of the *Daily Mail* or the *Sun*, it is happening on a much larger scale today because social platforms "give people the illusion of being more informed in a way that a cursory glance at headlines never could." This extraordinary influence, for Tait, comes in part from the economics of a largely unregulated social media industry: their business model relies on user engagement as the currency, thus "it's not in [their] best interests to remove news stories that resonate with their readers — even if they are untrue." This explains why, for example, teenagers from a small Macedonian village made handsome money from faking and sharing pro-Trump stories on Facebook. The *Economist* (2017b) echoed this point in more detail in an editorial:

> They [social media] make their money by putting photos, personal posts, news stories and ads in front of you. Because they can measure how you react, they know just how to get under your skin. They collect data about you in order to have algorithms to determine what will catch your eye, in an "attention economy" that keeps users scrolling, clicking and sharing — again and again and again. ... It would be wonderful if such a system helped wisdom and truth rise to the surface. But ... truth is not beauty so much as it is hard work — especially when you disagree with it. Everyone who has scrolled through Facebook knows how, instead of imparting wisdom, the system dishes out compulsive stuff that tends to reinforce people's biases.

As logical and coherent as it might sound, however, such popular news discourse about the "dark power" of social media becomes rather problematic, both theoretically and empirically, when placed in the context of recent research.

"Echo chamber" in research literature: A mixed bag of evidence

To some extent, the "echo chamber" concept receives from support from the decades-long theory of selective exposure, which posits that information users selectively choose to be exposed to messages that are congenial to their views while avoiding incongruent opinions (Sears and Freedman, 1967). In the past, when the number of available news channels was still limited, research found selective exposure in information seeking did not "typically arise in situations of mass persuasion" [1]. With the arrival of the Internet, however, users have greater access to a vast amount of information and can customise what they want, therefore are more selectively exposed to content (Garrett, 2009; Sunstein, 2007; Tewksbury, 2005). OSNs seem to have brought this to a new height thanks to their combined ability to allow users to interact with news in unprecedented ways and to use complex user-tracking algorithms to feed them with ideologically congruent information (Beam and Kosicki, 2014; Spohr, 2017).

On a closer inspection, however, the premise of the echo chamber concept should be scrutinised and challenged. At the very basic level, it tends to subsume social news audiences to a very passive role — merely as "lumps of clay" easily moulded by algorithms. This, as decades of audience research has shown, is at least oversimplified and unhelpful for us to understand the complex socio-psychological dynamics of public reception of, and connection to, news and media content. More importantly, popular discourse about the echo chamber ignores an emerging body of empirical research in direct contradiction with this notion.

Social media uses, for instance, have been shown to either have a limited influence (Dimitrova, *et al.*, 2014) or a significant positive effect (Gil de Zúñiga, *et al.*, 2012) on political knowledge. Further, social media are only one of the many possible media-related factors that contribute to political polarisation. In a large cross-national survey in 10 countries, for example, Yang, *et al.* (2015) found that general online news consumption — rather than "social news" use *per se* — consistently predicted polarization on controversial political issues that were high on the agenda of the studied countries. Turcotte, *et al.* (2015) found from an experiment that although exposure to news shared by friends on social media increases users' trust in and intention to use a respective media outlet, the strength of this relationship depends largely on whether the recommender is perceived as an opinion leader.

Moreover, and importantly, there is a body of research evidence that, as much as they could engender political homogeneity

and uniformity, OSNs can also foster political heterogeneity and diversity. Messing and Westwood (2014) found that social news users are more likely to read the news their friends share even if that news does not match their political ideologies. According to Barberá (2015) and Barberá, *et al.* (2015), online networks not only mirror off-line networks but also give more space for the formation and strengthening of weak ties and can, therefore, accommodate more political diversity. Even when ideological homogeneity exists, the modal outcome in the social media environment is still exposure to discordant content (Vaccari, *et al.*, 2016). Accordingly, users may select to be exposed to content from news sites that share their political views, but the amount of self-selected exposure through intentional choices of certain news outlets or political groups represents a small proportion of online activities. Further, a substantial part of news exposure through social media is incidental and can lead users into contact with a more diverse range of news and views (Kim, *et al.*, 2013).

More recent research (*e.g.*, Bruns, 2017; Dubois and Blank, 2018; Fletcher and Neilsen, 2017) adds further supportive evidence. Bruns (2017) analyzed a comprehensive dataset of 225,000 Twitter accounts with more than 1,000 followers to find limited evidence of the emergence of echo chambers in the Australian Twittersphere. These 225,000 Twitter accounts form different clusters, but there are still strong interactions between these clusters. Dubois and Blank (2018), based on results from a national survey in Britain, found that individuals who are interested in politics and those who consume news from a variety of sources tend to be able to avoid echo chambers. As such, they argued, the fears of politically partisan segregation or the emergence of echo chambers may be exaggerated.

Early research into the events of 2016 also suggests that it is a leap of faith to attribute the rise of right-wing, anti-establishment populist politics to the polarisation effect of social media. Allcott and Gentzkow (2017) found from a post-election survey in the U.S. that, even though network homogeneity (*i.e.*, "echo chamber" effect) was positively associated with polarized beliefs in fake election news, OSNs were the "most important" election news source for only 14 percent of American voters. Another early study (Benkler, *et al.*, 2017) pointed to deeply ingrained socio-political and structural factors (*e.g.*, party affiliation) rather than ideological homogenization on OSNs as the key driver of Trump's victory. Meanwhile, Groshek and Koc-Michalska (2017) even found that, contrary to the popular press, heavier OSN users were *less* likely to vote for Trump.

In the Brexit case, Bossetta, *et al.* (2017) examined commenting activities over an 18-month period of two million users who engaged with political stories in Facebook pages run by mainstream news outlets and with referendum posts on Facebook pages operated by campaigners. They found that only a minority of users commented on Facebook stories and campaign posts and, more importantly, Leave supporters showed a more ideologically diffuse cross-posting pattern than Remain advocates. In other words, contrary to what journalists believe, the echo chamber, if it existed at all during the Brexit campaign, was indeed more prevalent among supposedly sober, pro-establishment Remain voters, than their supposedly angry anti-establishment Leave counterparts. In a follow-up study, Bossetta, *et al.* (2018), sentiment-analysing 770,000 public comments from three major Facebook campaign pages (Stronger In, Vote Leave and LeaveEU), reaffirmed previous findings: while Leave supporters were more likely to express anger, they were "overwhelmingly active" in cross-posting — *i.e.*, they commented on the other side's campaign posts rather than retreated into their own ideological, emotionally charged cocoon.

That is not to say that evidence has been conclusive enough to dismiss popular news discourse about an echo chamber effect. For example, using data from a survey conducted two months after the U.S. presidential election in 2016, Justwan, *et al.* (2018) found that Republican supporters who were immersed in an echo chamber — *i.e.*, those who self-reported high frequencies of both "comment(ing), post(ing) or discuss(ing) government and politics with others on social media" and "agree(ing) with the political opinions or political content [their] friends post on social media" — tended to feel more satisfied with American democracy. The authors argued that post-election polarisation resulted in noted differences between voters of the winning and losing parties. Bae (2017) analysed data from a survey of social media users to find that the use of social media influences South Koreans' beliefs in those political rumors that are in line with their beliefs, which he also attributed to "echo chambers." Del Valle and Bravo (2018) found that even Twitter communication flows between Catalan politicians were polarized along party and ideological lines. In particular, the largest division was seen in relations networks (follower/following) of Catalan parliamentarians and their peers on Twitter, with those of the same political parties following one another more often. There was, however, more cross-party and cross-ideologies interactions in mention networks.

In short, the portrayal of social media's "echo chamber" effect in popular news discourse has received a mixed body of empirical support, with the weight of evidence tending to lean towards a rejection of this effect. The rest of this paper will contribute to this debate by examining the "echo chamber" effect of social media in the case of EU politics. EU politics are heated and have recently become more divisive among EU citizens (as seen in the Brexit vote and the surge of the far-right anti-EU political parties in the Netherlands, France, Germany and Austria). Marie Le Pen's *Rassemblement national* (National Rally), for example, became the second largest political party in the 2017 French election thanks to its populist policies that, among other things, privileged French over foreigners and aimed to take back powers from the EU to boost France's global position. In this study, we examine whether there was a polarisation in specific EU beliefs and attitudes among those EU citizens who relied the most on OSNs, rather than mainstream media, for EU political news. If the overwhelming pattern of evidence against the echo chamber effect continues in this case, we would expect to find little evidence for the following hypotheses:

> *H1*: Among EU citizens with a negative predisposition toward the EU, those relying the most on online social networks for EU politics news are substantially more negative in their beliefs and attitudes regarding specific EU issues than those relying the most on any mainstream media for that news.

> *H2*: Among EU citizens with a positive predisposition toward the EU, those relying the most on online social networks for EU politics news are substantially more positive in their beliefs and attitudes regarding specific EU issues than those relying the most on any mainstream media for that news.

Data for this study

In order to probe for the evidence — or the lack thereof — of the hypotheses, we performed an exploratory secondary data analysis of the Eurobarometer 86.2 survey in 2016. Conducted by TNS Opinion & Social (Belgium) at the request of the European Commission, Eurobarometer surveys have been conducted on a regular basis since 1973 to measure public opinion in EU member states and candidate countries on numerous issues that shape EU politics and daily life such as,

among others, sources of news and information about EU politics, perceptions of and attitudes to the EU's roles and functions, its economic and social well-being, healthcare systems and immigration flows. In this paper, we focused on the 28 EU member states, not candidate countries.

The data for the Eurobarometer 86.2 study were based on interviews with 27,705 EU participants. In each member state, a representative sample of around 1,000 citizens aged 15 or older was selected through multi-stage random sampling procedures (Germany and U.K. had larger sample sizes, while Luxembourg, Cyprus and Malta had fewer respondents). The fieldwork was done during 3–16 November 2016. This was an interesting data collection period as it coincided with the peak of the U.S. presidential election, when many EU citizens, still puzzled by Brexit and its underlining populist politics, might have been shocked by Trump's victory on 9 November. Although this might have caused some irregularities in some responses about political news on OSNs, the dataset is useful for this research because the months following Brexit and leading up to Trump's victory (June to November 2016) saw social media intensively exposed and critically scrutinised for their potential capacities to engender political polarization and to foster ideologically driven fake news. The central variable of interest is based on the following question:

> "Where do you get *most* of your news on EU political matters? Firstly?" [2] (our emphasis)

Of all participants, 887 chose OSNs firstly — instead of television, radio, the written press or non-OSN news Web sites. While this is a small minority (3.2 minority of the whole sample), the mere size of this OSN-first subsample created a rare opportunity for meaningful statistical analyses that could provide early insights into a potential future when more people, as some (Keen, 2007; Preston, 2016) envision, would depend on social media for news. Purely for brevity purposes, we used the "OSN-first" label to refer to those who rely on OSNs as the first primary source of EU political news. To the best of our knowledge, no other public dataset offered such a subsample of OSN-first news users.

In terms of characteristics, this central subsample of 887 OSN-first users of EU political news illustrated no statistically significant difference from the rest of the sample in terms of sex, political leaning and political interest (Table 1). They are statistically significantly younger, have a higher social-class status and live in more urbanized areas, but in practical terms, age was the only factor with a large effect (33.8 vs 51.9 years, Cohen's *d* = 1) [3].

Table 1: Demographic and political differences between OSN-first users of EU politics news and the rest (t-tests for differences in means and proportions, with effect sizes)

	OSN-first users	Other users	Effect size (Cohen d)
Sex (proportion being a male)	.42	.45	N/A
Age (years)	33.8	51.9***	1.00
Living area[a]	2.04	1.97**	-.09
Social class[b]	2.51	2.33***	-.17
Political leaning[c]	5.23	5.25	.01
Political interest[d]	1.29	1.33	.05

a.   1= Rural area/small village; 2 = Small/middle town; 3 = Large town
b.   1 = Working class; 2 = Lower middle class; 3 = Middle class; 4 = Upper middle; 5 = Higher class
c.   Ten-point left-to-right scale
d.   Mean index of three original items measuring the frequency of discussing local, national and/or European political matters when getting together with friends/relatives (0 = Never, 1 = Occasionally, and 2 = Frequently); Cronbach's Alpha = 0.89;
** $p < 0.01$; *** $p < 0.001$

Other key variables of interest measured political beliefs and attitudes regarding 17 specific EU issues — *e.g.*, its operation model, key issues (*e.g.*, immigration, red tape) and future prospects. For brevity, the specific operational measurement for each variable is embedded in the tables below, and those that are not self-explanatory will be further elaborated during the analysis. In addition, a variable measuring an individual's predisposition towards the EU was based on the following: "In general, does the EU conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?" This variable was recoded into positive, neutral and negative categories to allow for comparison between distinctive groups of EU predisposition.

In order to investigate whether those relying on OSNs as the primary EU political news source displayed any extreme difference in their political beliefs and attitudes to the EU than those on four other specific media (TV, radio, written press and non-OSN Web sites), two-way ANOVA tests for 17 specific EU beliefs and attitudes were performed across the five media and among the two groups with negative (*H1*) and positive (*H2*) preposition towards the EU.

Findings

H1 posits that among voters with a negative predisposition towards the EU, those relying the most on OSNs for news about EU politics would display a substantially more negative pattern of specific EU attitudes and behaviours than those relying on four traditional media. Our ANOVA results, with the eta squared values representing effect sizes — *i.e.,* the substantive/practical differences (not statistically significant differences) between the five media at stake — were not supportive. As seen in Table 2, although differences across the five media types were statistically significant in 12 of the 17 EU beliefs and attitudes, eta squared values in all cases were very small. This means, among users with a negative predisposition towards the EU, whatever medium they relied on the most for EU political news did not make any substantive difference in their beliefs and attitudes regarding specific EU issues. They remained consistently more negative, or less positive, about various aspects of the EU, *regardless of the medium that they rely on the most for EU political news*.

To probe this issue further, we ran post-hoc tests, using Bonferroni correction measures, for all ANOVA tests in Table 2. The results (data not shown) depicted a clear pattern: there was hardly any discernible difference between OSN-first users and those who relied the most on the other five sources for EU political news. In fact, of the total 85 comparisons across the five media for the 17 EU-related variables in question, TV-first users with a negative EU predisposition exhibited significantly negative perceptions and attitudes for 11 issues. OSN-first users, on the other hand, were significantly more negative than their counterparts in only two of the 17 EU issues.

Table 2: Specific EU attitudes and behaviours by five media sources used the most for EU politics news (ANOVA among those with a general *negative* predisposition toward the EU)

	Most used news source for EU politics						
	OSNs	Non-OSN websites	Radio	Print	TV	F-test	Eta²
Conception about the EU[a]							
Modern	2.23	2.23	2.22	2.18	2.26	1.48	.001
Democratic	2.14	2.08	2.21	2.11	2.19	4.27**	.003
Protective	2.02	2.00	2.15	2.04	2.05	2.46	.002
Efficient	1.79	1.71	1.81	1.72	1.81	4.74**	.003
Technocratic	2.73	2.78	2.66	2.75	2.62	5.50***	.005
Forward-looking	2.23	2.23	2.22	2.18	2.26	1.48	.001
Attitudes to immigration and freedom of movement							
Immigration of people from other EU member states[b]	2.51	2.60	2.50	2.54	2.35	18.18***	.014
The right for EU citizens to live in every member state of the EU[c]	2.48	2.61	2.52	2.47	2.43	10.19***	.007
The right for EU citizens to work in every member state of the EU[c]	2.47	2.66	2.52	2.52	2.46	12.55***	.009
The right for EU citizens to live in [your country][c]	2.40	2.54	2.46	2.40	2.35	10.97***	.008

The right for EU citizens to work in [your country][c]	2.33	2.55	2.45	2.45	2.34	12.72***	.009
Attitudes to the role and function of the EU[d]							
The EU is creating the conditions for more jobs in Europe	2.11	2.13	2.08	1.96	2.08	3.53**	.003
The EU makes doing business easier in Europe	2.60	2.57	2.67	3.70	2.49	9.55***	.007
The EU generates too much red tape	3.36	3.40	3.43	3.49	3.36	3.54**	.003
The EU needs a clearer message	3.29	3.43	3.40	3.55	3.39	6.52***	.005
Forward-looking perspectives on the EU							
At the moment, would you say that things are generally going in the right direction or the wrong direction in the European Union?[e]	1.13	1.15	1.25	1.17	1.20	2.43	.002
How optimistic would you say that you are about the future of the European Union?[f]	1.87	1.88	2.00	1.95	1.94	3.30	.003

a.   Please tell me for each of the following words if it describes very well, fairly well, fairly badly or very badly the idea you might have of the EU? (1 = Very badly; 4 = Very well).

b.   Please tell me whether each of the following statements evokes a positive or negative feeling for you (4 = Very positive, 3 = Fairly positive, 2 = Fairly negative, 1 = Very negative).

c.   For each of the following statements, please tell me if you think that it is a bad thing, neither a good or a bad thing, a good thing (1 = Bad, 2 = Neither good nor bad; 3 = Good)

d.   Please tell me to what extent you agree or disagree with each of the following statements (1 = Totally disagree; 4 = Totally agree)

e.   1 = Wrong; 2 = Neither right nor wrong; 3 = Right

f.   1 = Very pessimistic; 2 = Fairly pessimistic; 3 = Fairly optimistic; 4 = Very pessimistic

**p < .01; ***p < .001

Using the same test procedures for *H2*, we found a very similar pattern among those with a positive predisposition towards the EU (Table 3): users were consistently more positive, or less negative, across the 17 specific EU belief and attitude variables, whatever medium they relied on the most for EU political news. Of the 85 post-hoc comparisons on the background, OSN-first users with a positive general predisposition to the EU were significantly more positive in only one of the 17 specific EU perception and attitude variables, below all other media (13 more positive incidents among Web site-first, nine among TV-first, eight among radio-first, and six for print-first users).

Table 3: Specific EU attitudes and behaviours by five media sources used the most for EU politics news (ANOVA among those with a general *positive* predisposition towards the EU)

| | Most used news source for EU politics | | | | | | |
	OSNs	Non-OSN websites	Radio	Print	TV	F-test	Eta^2
Conception about the EU[a]							
Modern	3.20	3.03	2.93	2.87	3.04	27.26**	.012
Democratic	3.15	3.10	3.04	3.02	3.10	5.07**	.002
Protective	3.06	2.97	2.90	2.93	2.96	4.00*	.002
Efficient	2.92	2.67	2.55	2.54	2.78	42.25**	.019
Technocratic	2.98	2.96	2.89	2.95	2.95	1.24	.001
Forward-looking	3.20	3.03	2.93	2.87	3.04	27.26**	.012
Attitudes to immigration and freedom of movement							
Immigration of people from other EU member states[b]	3.05	3.08	3.03	3.08	2.90	28.39**	.006
The right for EU citizens to live in every member state of the EU[c]	2.87	2.89	2.76	2.77	2.80	13.99**	.004
The right for EU citizens to work in every member state of the EU[c]	2.86	2.91	2.82	2.83	2.83	8.93**	.006
The right for EU citizens to live in [your country] [c]	2.82	2.86	2.76	2.76	2.75	13.30**	.006
The right for EU citizens to work in [your country][c]	2.81	2.86	2.77	2.75	2.75	13.48**	.003
Attitudes to the role and function of the EU[d]							
The EU is creating the conditions for more jobs in Europe	3.14	3.07	2.95	2.98	3.02	6.76**	.008
The EU makes doing business easier in Europe	3.32	3.31	3.27	3.35	3.20	18.34**	.005
The EU generates too much red tape	2.87	2.90	3.06	3.06	3.01	10.55**	.007
The EU needs a clearer message	3.05	3.20	3.25	3.36	3.23	14.94**	.007
Forward-looking perspectives on the EU							
At the moment, would you say that things are generally going in the right direction or the wrong direction in the European Union?[e]	3.08	2.96	2.90	2.91	2.96	7.72**	.003
How optimistic would you say that you are about the future of the European Union?[f]	2.26	2.14	2.01	2.00	2.20	14.01**	.007

a. Please tell me for each of the following words if it describes very well, fairly well, fairly badly or very badly the idea you might have of the EU? (1 = Very badly; 4 = Very well).

b. Please tell me whether each of the following statements evokes a positive or negative feeling for you (4 = Very positive, 3 = Fairly positive, 2 = Fairly negative, 1 = Very negative).

c. For each of the following statements, please tell me if you think that it is a bad thing, neither a good or a bad thing, a good thing (1 = Bad, 2 = Neither good nor bad; 3 = Good)

d. Please tell me to what extent you agree or disagree with each of the following statements (1 = Totally disagree; 4 = Totally agree)

e. 1 = Wrong; 2 = Neither right nor wrong; 3 = Right

f. 1 = Very pessimistic; 2 = Fairly pessimistic; 3 = Fairly optimistic; 4 = Very pessimistic

**p < .01; ***p < .001

To illustrate this in a more easily observable way, we visualised the ANOVA results for the first six variables in Table 2 and Table 3 (the conception of the EU as modern, democratic, protective, efficient, technocratic and forward-looking). As can be seen in Figure 1, most of the graphs are rather flat, indicating that, given respondents' EU predisposition, reliance on a particular media type made very little difference to specific EU beliefs and attitudes. It is also noteworthy that the highest/lowest scores for the six variables did not always occur among those relying the most on OSNs for EU political news. This visual pattern did not change in the other 11 EU variables (graphs not shown). In sum, as expected, there was little evidence to support either *H1* or *H2*.

Figure 1: Graphical representation of two-way ANOVA results for six aspects of EU conception by most-used media for EU politics news, across three different EU predisposition groups
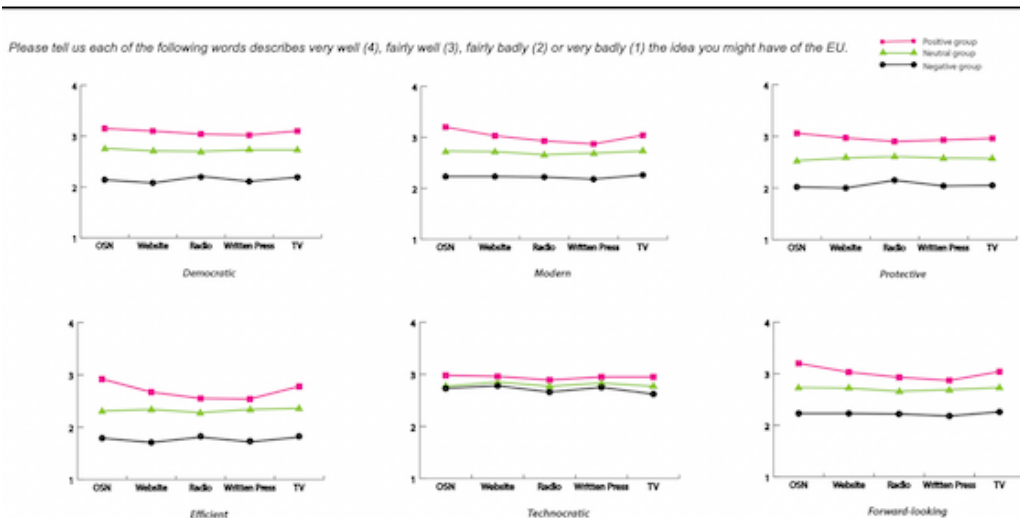
Note: Larger version available here.

Concluding notes

Some usual caution should be taken over the limitations of self-reported survey questionnaires as well as the very exploratory nature of the data in this paper. Some statistical information may have been lost in the recoding of the key variable measuring predisposition towards the EU from an original five to three categories. However, in taking advantage of a precious sample of citizens who have turned to OSNs as their primary platform for political news, this study demonstrated that the "echo chamber" concept may be overrated, at least in the case of EU politics. There was little evidence in the sample that people using OSNs largely for EU political news would form more polarized beliefs and attitudes to EU matters than those doing so with radio, television, the written press or non-OSN Web sites. In other words, the reliance on OSNs as a primary EU political news source did not strengthen and consolidate users' political attitudes to the EU and its issues. Instead, as our results indicate, it was the general predisposition of users towards the EU, not their primary source of EU political news, that influenced their attitudes and beliefs regarding specific EU characteristics, issues and prospects.

On that note, we must stress that, while rejecting the argument that algorithmic curation on OSNs engenders more political polarisation than traditional media, this study does not deny the existence of such polarization in general. Our findings seem to assert the superseding effect of general political predispositions on specific political beliefs and attitudes: the popular saying that "haters gonna hate" and "lovers gonna love," regardless of which media they rely on the most, is a more accurate description of what we found. The classic phenomenon of "confirmation bias" might be at play here: wherever they are, people tend to seek and interpret news messages to confirm and support, rather than to challenge and reject, their own pre-existing beliefs. As some social media research has shown (Bruns, 2017; Bossetta, *et al.*, 2017; Bossetta, *et al.*, 2018), even when online citizens are conscientious enough go beyond their own social circles to interact with "the other side", confirmation bias might still occur, intentionally or unintentionally. Some, for example, might "reach out" not to broaden their mind, but to gather "ammunition" to ultimately sharpen their own ways of thinking and/or to reject the opposing side. This confirmation bias, however, is not necessarily more versatile on social media as recent news discourse and some academic research (Feller, *et al.*, 2011; Prior, 2013; Sunstein, 2007) have posited. It could be used, for example, to explain the aforementioned self-brainwashing process and "epistemic enclosure" among Fox News users in the U.S. or *Daily Mail* or *Sun* readers in the U.K.

All in all, the substantial, although exploratory, data of our study can be added to a rich and growing body of evidence that discredits popular news on social media's echo chamber effect as the main culprit of recent socio-political upheavals (*e.g.*, Benker, *et al.*, 2017; Bruns, 2017; Bossetta, *et al.*, 2017; Bossetta, *et al.*, 2018; Dubois and Blank, 2018; Messing and Westwood, 2014). Of course, we must be deeply concerned and disturbed by the many problems that opaque social media, especially Facebook, pose to the news landscape and the public sphere in general. At the same time, however, it is crucial to realise that the core threat might not lie in the "dark power" of OSNs as "echo chambers" as some recent events might make us believe. Some might argue that contemporary news discourse on the "echo chamber" effect represents just another moral panic (*e.g.*, Carlson, 2018), one in which OSNs are scapegoated for some deeper, more disturbing, but yet to

be fully understood, issues of our contemporary media-politics ecosystem. In fact, the affordances of social media to allow users to filter out incongruent messages have met with a favourable political climate of increasing partisanship which has seen decades of audiences being segmented into different groups along their political ideologies (Andris, *et al.*, 2015). The rise of right-wing populism, for instance, has been attributed to not simply the "fake news revolution" in the echo chamber but to more latent developments such as an excessive long-term shift of the right to "vulgarity and bluster", one that is embraced by its own clicks — and ratings — obsessed media (Sykes, 2017). At the same time, some might argue that the media's increasing lean towards the left, with its shift from fact-based objective reporting to value-based "progressive journalism" in the past six or seven decades (Kuypers, 2014), has created a large gap for echo chambers. It is these more deeply rooted issues that journalists and anyone working for a sustainable future of democratic life should be more concerned. ▓

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Notes

1. Zaller, 1992, p. 139.

2. A follow-up question — "Where do you get most of your news on EU political matters? Secondly?" — was also asked but we were only interested in OSNs as the first primary source of EU political news.

3. The critical value (alpha level) for statistical significance was set at .01 in all our data analysis.

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