

Partisan Selective Exposure: The Role of Party, Ideology and Ideological Extremity Over Time

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The preference for media that confirms prior attitudes and beliefs is problematic in democratic societies based on dialogue and joint deliberation. Over the last decades, partisan selective exposure (PSE) is argued to have increased along with other indices of polarization. We address the question of the increase in PSE, and possible differences by party, ideology and ideological extremity. Using data from the Pew Research Survey, we analyzed self-reported media consumption in 8 nationally representative surveys from the period 2000–2012 ($n = 23,381$). We relied on previous research on ideological classification of media outlets to conduct confirmatory factor analyses establishing the existence of 2 different variables, conservative and liberal media consumption. We predicted latent variables of media consumption using Item Response Theory models and analyzed the trajectories running latent growth curve models. An unconditional growth model revealed a general and sustained increase in PSE across ideological groups over time. Republicans showed a greater increase over time than did Democrats, after controlling for demographics. Introducing ideological extremity in the model revealed no differences in the trajectories of PSE between liberals and extreme liberals, whereas subjects identified as “very conservative” show a much steeper increase in PSE than any other group, whereas conservatives showed the lowest growth over time. We discuss theoretical implications for ongoing debates about political polarization and ideological asymmetry.

What is the significance of this article for the general public?

This study reveals an increasing pattern in people choosing to watch media outlets that confirm their political beliefs (partisan selective exposure). Our findings suggest that different political groups show this trend to varying degrees. Although all political groups show this behavior partisan selective exposure, individuals self-identified as “very conservative” show the most pronounced increase in media isolation over time. Exposure to different media sources with differing ideological bents can result in political partisans having different factual beliefs, which in turn can make compromise and negotiation more difficult and contribute to political polarization and conflict.

Keywords: selective exposure, political bias, media bias, polarization, ideology

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Lack of exposure to alternative views is problematic for any democratic political system based on deliberation and rational dialogue and thus identifying factors associated with a tendency to preferentially attend to politically congenial information is of crucial practical importance for understanding political thought and behavior. This paper examines selective exposure to partisan news, relying on eight high quality, national representative survey collected between 2000 and 2012.

Selective Exposure

In the context of Cognitive Dissonance Theory, selective exposure is the tendency to prefer proattitudinal over counterattitudinal information (Festinger, 1957; Metzger, Hartsell, & Flanagin, 2015; Shaw & Constanzo, 1982). According to theory, individuals are motivated to avoid those information sources that challenge their prior decisions, beliefs and attitudes, and attend instead to those sources that confirm them. Psychologists have documented this pattern of information seeking for decades (Frey, 1986; Hart et al., 2009; Smith, Fabrigar, & Norris, 2008). However, after an incisive critique of ongoing research by Sears and Freedman (1967), interest in selective exposure decreased for many years. These authors argued that most selective exposure studies were actually documenting *de facto selectivity*: although groups of people often have greater access to proattitudinal than counterattitudinal information, this does not imply necessarily that those individuals are actively motivated to seek out information that is congenial to their preexistent ideas. Recently, however, there has been a revival of selective exposure research (Bakshy, Messing, & Adamic, 2015; Smith et al., 2008). Technological changes have transformed our access to information. Having a wide diversity of information platforms available, as well as a 24-hr continuous feed of news, makes plausible the assumption that individuals *do select* the information they want to see, and not just what is available to them (Stroud, 2008), as the *de facto selectivity* hypothesis argued.

A growing body of research has addressed selective exposure in different media, such as national TV networks (Mutz & Martin, 2001; Slater, 2004) and cable news (Coe et al., 2008; Stroud & Lee, 2013), as well as on Twitter and

Facebook (Bakshy et al., 2015; Conover, Ratkiewicz, & Francisco, 2011; Himelboim, McCreery, & Smith, 2013). Moreover, recent political and social events have consolidated the perception that political groups' isolated echo chambers shape their worldviews and political opinions (Manjoo, 2015; Matthews, 2016).

Is Partisan Selective Exposure Increasing Over Time?

Partisan selective exposure (PSE) has been broadly defined as the "selection of politically like-minded media outlets" (Garrett, 2009; Stroud, 2010). Questions about PSE have become more relevant in the context of the increasing political polarization in the United States (e.g., Layman, Carsey, & Horowitz, 2006). Survey data show that both American citizens and political elites have been growing ideologically more distant over the last 20 years (Fiorina & Abrams, 2008; Pew Research Center, 2014b). This distinction between elite polarization and mass polarization is not trivial in trying to explain the dynamics of increasing polarization. One of the frequent explanations in the literature is that political elites have tended to polarize their views and political behaviors, leading to mass polarization (Abramowitz & Saunders, 2008; Andris et al., 2015; Druckman, Peterson, & Slothuus, 2013; Layman et al., 2006; Lelkes, 2016). More polarized audiences behave accordingly, by actively seeking proattitudinal information sources, while avoiding challenging news outlets. In this line of reasoning, PSE would be an *effect* of polarization, and not its cause. Alternatively, diverse experimental studies have shown that exposure to proattitudinal news does reinforce prior political attitudes, tightening subjects' previous ideological positions. This effect is shown to be particularly strong for extreme partisans, who even increase their polarization watching cross-cutting media (Levendusky, 2012). Accordingly, Levendusky argues that mass polarization, via PSE, is the *cause* of elite polarization (Levendusky, 2013). Further studies, however, have shown that these effects are mainly limited to people who usually do not watch news shows and those with lower levels of need for cognition (Arceneaux, Johnson, & Cryderman, 2013; Arceneaux, Johnson, & Murphy, 2012). The causal dynamics of PSE and

political polarization are likely complex, and still subject to debate, but a key component of understanding those dynamics is the question of whether PSE is increasing, decreasing or remaining stable over time.

Is Selective Exposure Bipartisan?

Considering PSE in the context of ideological differences adds a further layer of complexity to the analysis. Unlike other domains in which selective exposure has been studied—for example, consumer behavior, health habits—political contents may be associated with more basic psychological processes. Is the tendency to selectively expose oneself to politically congenial information equivalent across the political spectrum?

Since the foundational studies of Adorno and colleagues (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950) there are reasons to believe that political attitudes are associated with psychological “elective affinities” (Jost, Federico, & Napier, 2009). The basic notion is that underlying ideological attitudes are psychological differences that drive support for a more or less specific system of beliefs and values. A host of studies following this tradition have shown, for example, that in comparison to liberals, individuals who identify themselves as politically conservative score higher in conscientiousness and lower in neuroticism and openness to experience (Caprara, Schwartz, Capanna, Vecchione, & Barbaranelli, 2006), present higher levels of need for cognitive closure (Chirumbolo, Areni, & Sensales, 2004) and are more sensitive to threat and less tolerant of uncertainty (Jost et al., 2007), just to name a few individual differences. In this line of reasoning, there is a fundamental *asymmetry* in the psychological underpinnings of political attitudes. Many of these psychological differences would seem to suggest that conservative tendencies toward avoidance and closure would manifest in a greater proclivity toward PSE among conservatives than liberals.

However, other scholars have argued that liberals and conservatives have similar psychological processes, regardless of their ideological contents. Rokeach (1954) argued that tendencies toward rigidity and authoritarianism were present in extreme partisans of both the left and the right. Research inspired by this ideological *symmetry* view has shown that several mechanisms supposedly distinctive of conservatism operate across ideological differences with equivalent intensity,

such as tough-mindedness (Eysenck, 1956), dogmatism (Rokeach, 1954), motivated reasoning (Taber & Lodge, 2006) and prejudice (Brandt, Reyna, Chambers, Crawford, & Wetherell, 2014; Crawford, Brandt, Inbar, Chambers, & Motyl, 2017). Specifically addressing selective exposure, Frimer et al. analyzed individuals’ unwillingness to engage in a crosscutting ideological conversation and found that ideology does not significantly moderate this effect (Frimer, Skitka, & Motyl, 2017, see Figure 6). Thus, this view predicts that the tendency to prefer ideologically consistent to inconsistent information should be equally pronounced in liberals and conservatives.

Based on this context, the question is whether PSE is one of the psychological features asymmetrically affected by ideological content, or a basic process evenly distributed across the political spectrum. There is relatively scarce research directly addressing ideological differences in PSE. Numerous studies on selective exposure include political orientation, not as an independent variable or as a moderator that would allow to test for differences across political groups, but only as a covariate (e.g., Knobloch-Westerwick & Meng, 2009). The few studies that have examined hypotheses regarding ideology show contradictory results. Some studies show greater PSE among conservatives (Barberá, Jost, Nagler, Tucker, & Bonneau, 2015), yet others among liberals (Bakshy et al., 2015), and some show no ideological differences at all (Himelboim et al., 2013). For example, a series of laboratory studies found no significant differences between conservatives and liberals in the willingness to be exposed to a segment of a cross-ideological news show (Arce-neaux et al., 2012), but online experimental studies showed that labeling an online news source as Fox News had a disproportionately stronger attraction for conservatives, than the attraction of the label MSNBC on liberals (Iyengar & Hahn, 2009). Additional research on the role of political orientation in PSE is clearly needed.

Is PSE Associated With Ideological Extremity?

Research on ideological extremity has shown its association with various psychological processes, such as perceived belief superiority (Toner, Leary, Asher, & Jongman-Sereno, 2013), attitude resistance (Pomerantz, Chaiken,

& Tordesillas, 1995), belief in conspiracy theories (van Prooijen, Krouwel, & Pollet, 2015), negative affect toward the outgroup (van Prooijen, Krouwel, Boiten, & Eendebak, 2015) and intergroup intolerance (Crawford & Pilanski, 2012; van Prooijen & Krouwel, 2016). For extreme partisans, political problems seem to be more simple and straightforward (Lammers, Koch, Conway, & Brandt, 2016) and they tend to hold more polarized views of political elites (Westfall, Van Boven, Chambers, & Judd, 2015). This body of research suggests an association between PSE and ideological extremity. We hypothesize that PSE trajectories over time for regular partisans and for strong partisans will differ substantially. Thus, analyzing PSE over time requires taking into account possible differences in the ideological extremity of individuals.

Media Outlets and Ideological Orientation

An assumption in our reasoning about PSE is that there is such a thing as “conservative” and “liberal” media outlets. Citizens’ perception coincides with this claim, as research on perceptions of media bias has shown (Pew Research Center, 2012). But subjective claims of bias in the media are not sufficient to determine rigorously the ideology of a set of news sources, nor therefore, to define PSE. Relying on objective methods, previous research has repeatedly shown that there are significant ideological differences associated with media outlets, particularly in TV networks, radio shows, and more recently, in websites and blogs (Groeling, 2013). Even media outlets that are usually regarded as *mainstream* or politically neutral show patterns that may be associated with a particular ideological slant (Bennett & Iyengar, 2008; Groeling, 2008).

In general, communication researchers have used two different methods to determine how conservative or liberal a given media outlet is: audience-based and content-based methods of analyses (Budak, Goel, & Rao, 2016; Groeling, 2013). *Audience-based* studies proceed under the assumption that news watchers tend to obtain their news from the outlet that better fits their ideological views. Accordingly, this method pairs news outlets with the ideological composition of their respective audiences, via political attitude surveys (Gentzkow & Shapiro,

2011; Pew Research Center, 2014a), comparing voting records (Flaxman, Goel, & Rao, 2013) or counting shared social media content (Bakshy et al., 2015; Lawrence, Sides, & Farrell, 2010). On the contrary, *content-based* methods analyze texts and transcripts from the news outlets, either by human coders (Budak et al., 2016; Groeling, 2008; Groseclose & Milyo, 2005), text analysis software (Holtzman, Schott, Jones, Balota, & Yarkoni, 2011) or machine-learning algorithms (Budak et al., 2016; Zhou, Resnick, & Mei, 2011), yielding a series of ideological scores for each outlet analyzed. Even though both methods have raised methodological concerns, there is enough convergent evidence to support the claim that some news outlets are more conservative (liberal) than others (Groeling, 2013), providing a sound base to carry on our research on PSE.

Our Study

In this study, we are interested in examining the historical trajectory of PSE through the observation of patterns in media consumption between the years 2000 and 2012. The presence of growth or decline in the extent of national PSE would present new insights in the discussion on American political polarization in the beginnings of the twenty-first century. To our knowledge, this pattern has not been systematically studied using repeated, nationally representative surveys, which could yield important insights about the nature and scope of PSE. Furthermore, we are interested in analyzing these historical trends in PSE with respect to political ideology, in the context of the political psychological discussion on selective exposure. Although correlational, our results could provide valuable contributions to the debates on political polarization, ideological symmetry and extremity.

Specifically, we conducted secondary data analyses of the Pew Biennial News Consumption Survey and the Pew Political Typology Survey. Pew surveys are characterized for having high-quality sampling procedures that generate national samples from diverse demographic backgrounds (Pew Research Center, 2016). These surveys were conducted every other year from 2000 to 2012, as well as the year 2011, using roughly equivalent measures of news consumption, party identification, and

political ideology. Relevant to our research, the surveys also inquire about participants' media consumption habits, referencing specific news outlets that have been ideologically sorted in previous studies. We decided to organize participants' media consumption responses into two main factors: conservative and liberal media. To do that, we first confirmed the existence of these two factors using confirmatory factor analyses, then, we used item response theory (IRT) to predict the values of the latent variable (conservative/liberal media) underlying the categorical data. With these continuous scores, we were able to compare ideological media consumption across years, party identification and ideological orientation and extremity.

We hypothesized that PSE has increased overall between 2000 and 2012, to a similar extent among different political groups. We also expected to find a greater level of PSE for ideologically extreme participants. We should note in advance that the correlational nature of this study does not warrant any causal claims nor possible mechanisms that could explain these results. However, we believe that our analyses can yield relevant insights to understand the interplay of PSE and political ideology over time.

Method

Participants

We retrieved raw data from about 23,381 participants ($M_{\text{age}} = 49.36$, Female = 54.4%) in seven iterations of the *Biennial Media Consumption Survey* conducted by the Pew Research Center every other year (from April to June) between 2000 and 2012. To increase the number of time points in our study, we also included Pew's Political Typology Survey from 2011, which also reported our variables of interest. In each survey, roughly 3,000 participants were randomly selected from state telephone lists and contacted. If they agreed to participate, respondents answered a questionnaire read by trained interviewers. Responses of each participant were weighted based on household size, landline versus cell phone availability, gender, age, education, region, race, Hispanic origin and population density (see [Pew Research Center, 2016](#) for further details). Depending on the year, the surveys had two or four

versions with different questions about news outlets, which led us to divide the eight survey years into 16 individual subsamples (see Table S1 for detailed demographics per subsample).

Ideological Classification of Media Outlets

Since our study addresses the question of how frequently individuals watch or listen to ideologically labeled news sources, it would have been circular to use audience-based methods of ideological classification of media bias. Thus, we only considered content-based methods ([Budak et al., 2016](#); [Groeling, 2008](#); [Groselose & Milyo, 2005](#); [Holtzman et al., 2011](#)). We collected the outcomes of these studies and integrated them in a tabulation of liberal/conservative media. The final table included 6 conservative news sources and 15 liberal media outlets (see Table S2).

Measures

Media outlets. All surveys included several questions regarding cable news (e.g., Fox News, CNN, MSNBC), nightly news shows from mainstream TV networks (e.g., ABC, CBS, NBC), public media (NPR, PBS) and specific TV shows (e.g., *The O'Reilly Factor*, *Hardball*) or radio hosts (e.g., Rush Limbaugh, Lou Dobbs). Subjects were asked to report how often they watched each of these outlets (1 = *Never*, 2 = *Hardly Ever*, 3 = *Sometimes*, 4 = *Regularly*). The list of outlets varied slightly across year and survey version, leaving each subsample with a unique list of outlets. In all versions, there were at least two outlets per ideological perspective (see Table S2 and supplemental material for a detailed description).

Party affiliation. Participants were asked to declare their political party identification ("In politics TODAY, do you consider yourself a Republican, Democrat, or independent?"). Respondents who chose the categories "Independent," "Other Party," or "No Preference" were merged into one category.

Ideological orientation. Participants were also asked to rate themselves in terms of political ideology ("In general, would you describe your political views as . . ." 1 = *Very Conservative*, 2 = *Conservative*, 3 = *Moderate*, 4 = *Liberal*, 5 = *Very Liberal*).

Demographics. Participants were asked to report their age, gender, race/ethnicity, level of

education (7-pt. scale), religious affiliation, and US state of residence.

Results

Data Preparation

Confirmatory factor analyses. To test empirically whether the a priori classification of liberal and conservative media fit the Pew data, in each subsample we conducted confirmatory factor analyses testing a one-factor model versus a two-factor model. This test would show if grouping the media outlets in two variables according to their ideology (conservative media and liberal media) provides a better fit than grouping them all in one variable. We found that all two-factor models have an acceptable fit, most of them significantly improving the fit of one-factor models (see Table S3 for estimates and technical discussion).

Media and PSE variable construction. To analyze these data with parametric tests assumes that all items are equally measuring the latent variable of media consumption, whereas different media outlets are more or less ideologically slanted. That is, to report watching *The Daily Show* and ABC News “regularly” should have different values in terms of measuring liberal media consumption, because the former show has been shown to be much more liberal in content than the latter (Pew Research Center, 2014a). Our concerns were that ordinal self-reports of different media cannot be taken numerically at face value, rather our model should account for their different degrees of conservative (liberal) media consumption.

Thus, we constructed a standardized continuous measure of conservative-liberal media consumption in three steps: IRT modeling (Bartolucci, Bacci, & Gnaldi, 2016; Thissen & Steinberg, 2009), standardization and Selective Exposure definition. IRT models can estimate how much each item and each response option within each item contributes to an assumed latent variable θ . We took all conservative (liberal) items per survey version, ran the models and predicted latent values of θ for all participants. To allow comparisons, we next standardized the scores within subsamples and then created PSE scores, defined as the difference between proattitudinal and counterattitudinal

media consumption scores (see supplemental material for details).

As a result of this process, we obtained a standardized measure of conservative and liberal media consumption for each participant, able to be compared across different versions of the questionnaire and survey years and two sets of selective exposure scores, matching the ideology of the subjects and the media.

Media Consumption

Table 1 shows the means and standard deviations of the scores of conservative and liberal media consumption for each party and ideological group, adjusted by population weights. As expected, Republicans showed significantly higher consumption of conservative media ($M = .399$, $SD = 1.161$) than Democrats ($M = -.196$, $SD = .862$, $t_{(14476)} = 31.17$, $p < .001$, Cohen’s $d = .582$) and subjects not identified with either party ($M = -.088$, $SD = .929$, $t_{(15004)} = 25.16$, $p < .001$, Cohen’s $d = .463$). Conversely, Democrats scored higher in the consumption of liberal media ($M = .226$, $SD = .997$) than Republicans ($M = -.151$, $SD = .979$, $t_{(14476)} = 19.78$, $p < .001$, Cohen’s $d = .382$) and subjects not identified with either party ($M = -.064$, $SD = .972$, $t_{(15004)} = 15.33$, $p < .001$, Cohen’s $d = .294$).

Dividing the sample by ideology rather than party identification, we find a similar pattern: respondents self-identified as very conservative

Table 1
Sample Sizes, Means and Standard Deviations of Media Consumption, by Party and Ideology (Adjusted by Population Weights)

Political group	<i>n</i>	Liberal media		Conservative media	
		Mean	<i>SD</i>	Mean	<i>SD</i>
Party					
Republican	6,841	-.151	.979	.399	1.161
Independent/No preference/Other	8,165	-.064	.972	-.088	.929
Democrat	7,637	.226	.997	-.196	.862
Ideology					
Very conservative	1,558	-.229	1.054	.569	1.194
Conservative	7,271	-.078	.965	.268	1.102
Moderate	8,523	.093	.975	-.085	.898
Liberal	3,357	.178	.989	-.277	.840
Very liberal	1,112	.129	1.047	-.377	.774

show the highest consumption of conservative media ($M = .569$, $SD = 1.194$), higher than the conservative group ($M = .268$, $SD = 1.102$, $t_{(8827)} = 8.26$, $p < .001$, Cohen's $d = .262$). This group, in turn reported watching significantly more conservative media than Moderates ($M = -.085$, $SD = .898$, $t_{(15792)} = 19.22$, $p < .001$, Cohen's $d = .352$), who scored higher than Liberals ($M = -.277$, $SD = .840$, $t_{(11878)} = 9.35$, $p < .001$, Cohen's $d = .221$). Finally, the group self-identified as Liberal watched slightly more conservative media than the Very Liberal group ($M = -.377$, $SD = .774$, $t_{(4467)} = 3.01$, $p = .003$, Cohen's $d = .124$; see Figures S1 and S2 for predicted values over time).

Overall Levels of PSE

From an ideal perspective, a balanced media diet would be operationalized as having equivalent levels of exposure to proattitudinal and counterattitudinal media. However, whether defined by party or by ideology, all groups showed significant levels of PSE, as shown in Figure 1.

Analyzing by party, Republicans showed a slightly higher level of PSE than Democrats ($M_{diff} = 0.129$, $t_{(14476)} = 5.90$, $p < .001$, Cohen's $d = 0.111$). In terms of ideological groups, taken as a whole, liberals showed marginally higher PSE than did conservatives did ($M_{diff} = 0.042$, $t_{(13296)} = 1.75$, $p = .08$, Cohen's $d = 0.036$), though this difference was not statistically significant.

However, as can be seen in Table 2 and in Figure 1, when breaking down the samples further in ideological levels, there was a significant difference between the Very Conservative and

conservative groups ($M_{diff} = 0.452$, $t_{(8827)} = 10.24$, $p < .001$, Cohen's $d = 0.337$), whereas there was no significant difference between Very Liberal and Liberal groups ($M_{diff} = 0.051$, $t_{(4467)} = 1.17$, $p = .243$). Interestingly, conservative respondents displayed an overall divergence in selective exposure according to their ideological extremity: Very Conservative respondents exhibited significantly greater levels of selective exposure than all other groups, including Liberal ($M_{diff} = .343$, $t_{(4913)} = 7.37$, $p < .001$, Cohen's $d = .270$) and Very Liberal participants ($M_{diff} = .292$, $t_{(2668)} = 5.19$, $p < .001$, Cohen's $d = .230$). In contrast, Conservatives exhibited reduced levels of selective exposure compared to all other groups, including Liberal ($M_{diff} = .110$, $t_{(10626)} = 4.08$, $p < .001$, Cohen's $d = .096$) and Very Liberal participants ($M_{diff} = .161$, $t_{(8381)} = 3.89$, $p < .001$, Cohen's $d = .141$).

Selective Exposure Over Time

Multilevel modeling techniques were used to model selective exposure and change over time (year). Specifically we tested a two-level multilevel model of change over time: the Level-1 model (fixed effects model) calculated the common trajectory of selective exposure over time for all individuals, while the Level-2 model (random effect model) calculated and partitioned the variability around this trajectory between cohorts of individuals (Singer & Willett, 2003). As our data consists of independent repeated cross-sections rather than true panel data, modeling population change over time necessitates the organization of participants into "cohorts" based on fixed characteristics

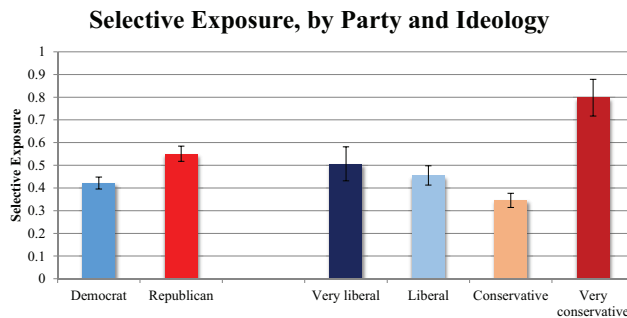


Figure 1. Selective exposure scores, divided by party identification ($n = 14,478$) and ideological orientation ($n = 13,298$). See the online article for the color version of this figure.

Table 2
Mean Difference Between Observed Values and No Selective Exposure (PSE = 0), by Party and Ideology (Adjusted by Population Weights)

Political group	Mean difference from PSE = 0			
	Difference	SD	<i>t</i>	Cohen's <i>d</i>
Republican	.551	1.264	31.94***	.436
Democrat	.422	1.030	31.31***	.410
Very conservative	.798	1.433	19.36***	.557
Conservative	.345	1.201	21.76***	.288
Liberal	.455	1.084	21.02***	.420
Very liberal	.506	1.120	13.26***	.452

Note. PSE = partisan selective exposure.

*** $p < .001$.

(Deaton, 1985; Verbeek & Nijman, 1992). We chose to define cohorts based on participants' state of residence, further grouped into one of nine US Census Divisions (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain and Pacific). Cohort sample sizes ranged from $n = 1,212$ – $4,589$, meeting the minimum cohort size recommended by previous research (Verbeek & Nijman, 1992).

Unconditional growth models. In order to determine the best fitting base model, we estimated unconditional linear, quadratic, and cubic growth models for PSE both by party and ideology, which were then compared to analogous unconditional means (no-growth) models. Quadratic and cubic growth models build off linear estimates of growth by including quadratic and/or cubic predictors in the regression equation, while still retaining the predictors of the previous model. Linear, quadratic, and cubic terms are added in a stepwise polynomial fashion and compared based on their model's fit, which was assessed through comparing Bayesian information criteria (BIC). As seen in Table 3, quadratic models best fit the growth of both forms of PSE over time ($BIC_p = 106353.3$; $BIC_I = 103235.9$). Thus, in the remainder of the analyses we estimated quadratic growth curves for both party-based and ideological selective exposure.

Examination of the unconditional (time-only) quadratic growth models for both types of PSE revealed significant linear and quadratic effects of time (see Figure 2). For PSE by party, time

exerted a positive linear effect ($b = .090$, $p < .001$) as well as a reduced but still significant quadratic effect ($b = -.003$, $p < .001$), indicating the general growth of partisan selective exposure between 2000 and 2012 and its deceleration over time. This same pattern emerged when predicting PSE by ideology: time exerted a positive linear effect ($b = .075$, $p < .001$) as well as a reduced quadratic effect ($b = -.002$, $p = .008$), indicating the growth of PSE over time and its gradual deceleration.

Conditional growth models. In order to test for variations in the growth of PSE over time, we created three conditional quadratic growth models. While all models contained the same random effects, they differed in their treatment of fixed effects: Model 1 includes only party affiliation/political orientation and the linear/quadratic effects of year as fixed effects, Model 2 adds fixed effects for demographic covariates (i.e., education), and Model 3 adds fixed effects for variable interactions.

As in the initial cross-sectional analyses of PSE, Republicans displayed greater overall levels of selective exposure compared to Democrats, controlling for both growth over time (Model 1) as well as relevant covariates (Model 2). However, Model 3 revealed the presence of a significant Party \times Year interaction ($b = .022$, $p = .005$). As shown in Figure 3, Republican growth in selective exposure over time has been steeper and more lasting than the similar growth over time for Democrats (see Table S4 for full results).

In contrast, the results for PSE growth over time are more mixed with respect to ideology.

Table 3
Summary of Model Information Criteria

Model type	<i>N</i>	BIC
Selective exposure by party	13,315	
Unconditional means		107358.4
Linear		106379.9
Quadratic		106353.3
Cubic		106362.7
Selective exposure by ideology	12,069	
Unconditional means		104053.7
Linear		103238.5
Quadratic		103235.9
Cubic		103243.5

Note. BIC = Bayesian information criteria. Smaller values indicate better model fit.

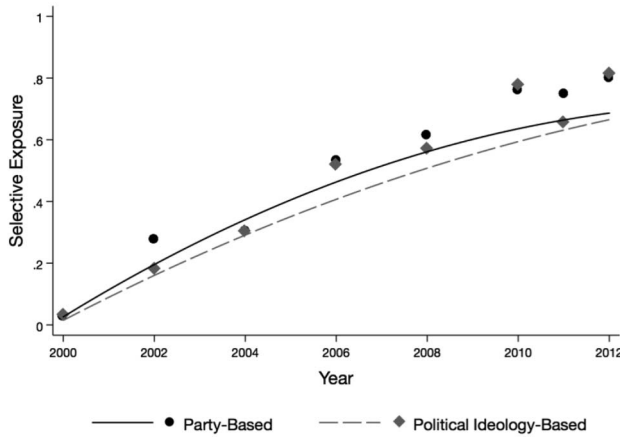


Figure 2. Average predicted trajectory of selective exposure over time based on party identification ($n = 13,315$) and political ideology ($n = 12,069$). Coordinates indicate yearly means.

When controlling for growth over time, Liberals and Conservatives displayed no difference in selective exposure ($p = .290$). However, after adjusting for the fixed effects for demographic variables (Model 2), Conservatives were shown to have overall reduced selective exposure scores compared to Liberals ($b = -.069, p = .032$). In addition, participants that identified as having strong ideologies (i.e., very liberal/conservative), as opposed to simply liberal/conservative) displayed significantly higher overall selective exposure than nonstrongly ideological participants ($b = .329, p < .001$).

In order to examine further the nature of these differences, a three-way interaction between

Ideology (conservative/liberal), Ideological Extremity (extreme/not extreme), and Time was tested in Model 3 (Table S5). Results indicated the presence of a significant three-way interaction ($b = .056, p < .001$), which is depicted in Figure 3B. Liberal and Very Liberal participants displayed similar trajectories in selective exposure growth over time ($\chi^2_{(1)} = .01, p = .905$), as well as similar mean levels of selective exposure across time ($\chi^2_{(1)} = 1.36, p = .243$). In contrast, those participants identifying as Conservative or Very Conservative displayed a divergent pattern of growth over time: planned contrasts revealed that the PSE of Very Conservative participants grew more rapidly than any

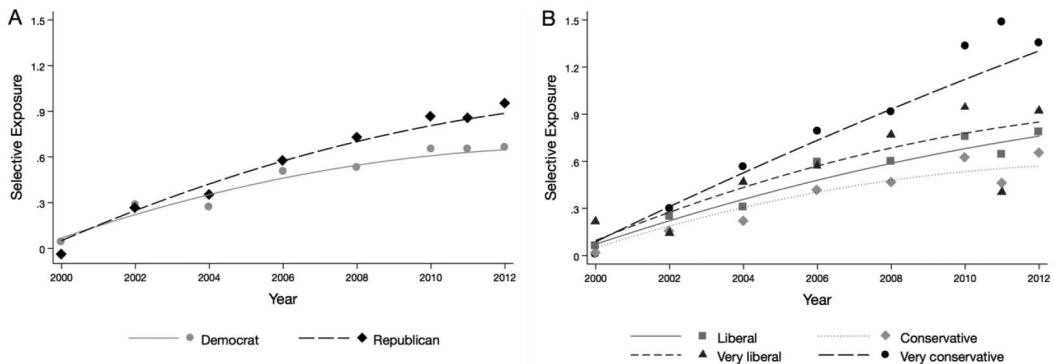


Figure 3. Predicted trajectory of selective exposure by (A) party and (B) ideology. Coordinates indicate yearly means.

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other group during this period ($\chi^2_{(1)}s > 11.51$, $ps < .001$), while the selective exposure of Conservative participants grew at a rate comparable to those of Liberal/Very liberal participants ($\chi^2_{(1)}s < 3.79$, $ps > .05$).

Discussion

Trajectories of PSE Over Time

The growth curve models we report here suggest that PSE has increased over the years along the whole American political spectrum, whether defined by party or by ideological orientation. Unconditional growth models suggest that the historical trajectory of PSE by party fits optimally in a quadratic curve, with steeper growth in the first half of the period and a slightly less pronounced increase in the second half, whereas the trajectory of PSE by ideology describes a less marked quadratic curve (see Figure 2). Conditional growth models revealed that Republicans' growth curve started at similar levels of PSE as Democrats, but from 2006 shows a stronger increase. The PSE conditional model by ideology though shows a similar departure, but only for those identifying as Very Conservative while the pattern for other ideological groups is similar (Figures 3A-B).

These time patterns are consistent with previous research about polarization in American politics (Johnston, Manley, & Jones, 2016; Pew Research Center, 2014b; Prior, 2013), and thus our findings contribute to the body of evidence revealing increasing patterns of ideological segregation. In general terms, it can be argued that since 2000 liberals and conservatives have progressively tended to retreat into informational "echo chambers," concentrating their media consumption on proattitudinal news outlets and shows.

A key question raised by our findings concerns whether PSE is a symptom of underlying polarization or a source of it. According to Azzimonti's index of political polarization, there has been an pronounced increase in elite polarization starting around 2007 (see Azzimonti, 2013, Figure 1). Our modeled data show sustained increase, with a slight moderation at about 2006. Such comparison suggests that PSE was already growing when elite polarization drastically accelerated. The precedence of mass polarization before elite polarization would bol-

ster Levendusky's hypotheses of the causal role of PSE in increasing mass polarization (Levendusky, 2012). As noted above, however, we cannot draw causal conclusions from our correlational findings. Besides, temporal antecedence of PSE does not imply necessarily a causal connection to elite polarization (post hoc proper hoc fallacy; Grimes & Schulz, 2002).

Otherwise, there are other possible mechanisms to make sense of our findings. An alternative explanation could be related to cohort effects. In various age-cohort-period analyses, Twenge and colleagues have shown that younger generations (e.g., Millennials) have less trust in others and institutions than earlier cohorts (e.g., GenXers, Boomers; Twenge, Campbell, & Carter, 2014). More interestingly, Millennials show more ideological polarization and less party affiliation than previous cohorts, after controlling for age and period effects (Twenge, Honeycutt, Prislina, & Sherman, 2016). Therefore, it could be argued that the PSE trends we found here could be explained by cohort replacement effects (Brooks & Bolzendahl, 2004; Elias, Fullerton, & Simpson, 2015). Although our analyses included age as a covariate for our conditional model growth analyses (see Tables S4 and S5), we cannot discriminate whether the variance accounted for age reflected a cohort effect or a developmental-related age effect (Firebaugh, 1997).

PSE Across the Aisle

Along with the effects of time, we found a moderator effect of party and ideology, as PSE scores were significantly higher in Republicans and strong conservatives than in Democrats, moderate conservatives, moderate liberal and strong liberals. Furthermore, growth models revealed significantly different trajectories among individuals on the left and right sides of the aisle, with Republicans and strong conservatives showing sharper increases in PSE than Democrats moderate conservatives, moderate liberals and strong liberals. Contrary to what asymmetrical views of ideological differences would predict, however, both left and right-leaning groups, whether divided by ideology or party, showed similar patterns of PSE in the first years covered by this study. According to the asymmetrical view, PSE should be particularly acute among conservatives. Thus, we should

have found a higher PSE baseline-level for conservatives/Republicans, which we did not.

However, all groups had small-to-medium effect sizes in terms of PSE. These findings suggest a middle-way conclusion between symmetrical and asymmetrical accounts of ideology. Although the present data suggest that PSE is a bipartisan tendency, increased levels of PSE may be associated with particular psychological characteristics of stronger versions of conservatism, such as higher needs to reduce uncertainty and manage threat (Jost et al., 2007), higher authoritarianism (Lavine, Lodge, & Freitas, 2005), or higher need for closure (Chirumbolo et al., 2004). Since the Pew surveys do not measure psychological constructs, it is not possible to draw conclusions about mechanisms from our data. Notwithstanding, our findings suggest that PSE is a general psychological process, not limited to a specific political group or ideological orientation. Many recent studies have yielded similar evidence of ideological symmetry, in domains of moral reasoning and debate (Frimer et al., 2017; Frimer, Tell, & Motyl, 2016), political engagement (Skitka, Hanson, & Wisneski, 2016), prejudice and intergroup antipathy (Crawford et al., 2017; Crawford, Mallinas, & Furman, 2015), ideological fit (Chopik & Motyl, 2016) and intragroup polarization (Keating, Van Boven, & Judd, 2016). In general terms, these studies support the hypothesis that many psychological processes involved in moral and political attitudes and behaviors operate in essentially similar ways across the political spectrum. This does not mean that all ideological groups have equivalent effect sizes in all psychological processes, but only that the general template of psychological differences in ideologies are similar.

In fact, the magnitude of certain effects in our studies did differ somewhat across political groups, roughly consistent with asymmetrical accounts of ideological differences (Jost, Glaser, Kruglanski, & Sulloway, 2003b). The conditional growth model introducing levels of ideology (Table S5) showed that the groups Conservative and Very Conservative had significantly different trajectories, whereas Liberal and Very Liberal did not differ. Moreover, the model reveals that the Conservative group had the weakest increase in PSE (though not statistically weaker than the two Liberal groups), whereas the Very Conservative group showed a

stronger increase in PSE over time than all others. This contradicts the symmetrical view, by showing a special tendency of at least strong conservatives to selectively expose themselves to proattitudinal information. There are two possible ways to explain this finding. First, as noted above, ideological extremity has been associated with various psychological processes also linked with PSE. Consistent with these studies, our data show that ideological extremity was associated with a steeper trajectory in the increase of PSE. We cannot rule out that these differences may be another expression of the psychological processes related to ideological extremity. Again, our findings offer no insight regarding causality: extreme conservatives can be actively selecting proattitudinal media, or partisan media can be turning them into extremes. But, why did strong conservatives show the effect while strong liberals did not? This explanation cannot make sense of our findings as a whole. Alternatively, we need to consider that in two-party political systems, parties are broad coalitions that give shelter to a more or less heterogeneous group of factions (Noel, 2016). The coexistence of different political groups under the same political label could be, then, associated to specific psychological processes. In a study using latent class analyses, Weber and Federico found at least six different “ideological classes” – consistent liberals, inconsistent liberals, libertarians, moderates, social conservatives, consistent conservatives—with idiosyncratic preferences in terms of fiscal and social policy (Weber & Federico, 2013). Similarly, many studies have shown that Right-Wing Authoritarianism (Altemeyer, 1988), a popular measure of conservatism, confounds different ideological leanings (Duckitt & Bizumic, 2013; Duckitt, Bizumic, Krauss, & Heled, 2010), such as Traditionalism, Conventionalism or Aggressive Authoritarianism. In this context, it is plausible to hypothesize that the different trajectories of PSE we see between the Very Conservative and Conservative groups could be explained by the existence of two ideologically different groups (e.g., regulars vs. ideologues; Noel, 2016), who share an ideological label but have qualitatively different psychological processes. The recent political events and the rise of the radical movements within the Republican Party (e.g., tea-party, alt-right) could be another expression of this phenomenon. Though a main

question remains about the extremity of liberals: our data show no different trajectories, which does not imply that liberals are an homogeneous group of citizens (Noel, 2016). Dissimilarity of patterns suggest that, even though PSE is a generalized psychological process, it does have a specific interaction with extreme conservatives (see the notable debate on rigidity of the right and ideological rigidity; Greenberg & Jonas, 2003; Jost, Glaser, Kruglanski, & Sulloway, 2003a). Further replications of this interplay between ideology and extremism should lead to developing a more complex theoretical articulation of the symmetrical and asymmetrical views of political psychology.

Limitations

Our study has several limitations. First, there are a number of issues concerning the nature and structure of the data that could threaten our conclusions. The publicly available data from Pew Research Center about media consumption are limited to the 2000–2012 period. Numerous recent political events (e.g., Obama’s second term, rise of the Tea Party, Government shutdown, 2016 elections) may have altered in some way the trajectories of PSE that we detected in this study. Moreover, the Pew data, originally collected for public opinion research, does not include psychological variables, which restrains the discussion of possible mechanisms underlying these effects. Besides, due to the nature of the data, our analyses work under the assumption that ideological slants of the media outlets we examined are consistent over time. Although only longitudinal studies could show how different outlets maintain, reinforce or switch their ideological perspectives over time, it should be noted that the evidence on which we based the ideological classification of media do not describe any outlet or program that changed ideological sides over time. Our dichotomous definition of the ideological slant of the media outlets, therefore, accounts for the recent literature on media bias (Groeling, 2013), even though it does not consider possible dynamics of polarization or intensification of the bias in a particular TV channel.

Nevertheless, we are confident that our latent variable predictions based on IRT models are a reasonable way of overcoming many of these problems. Furthermore, to calculate the PSE

values we used a difference score method, which can be regarded as problematic for eliminating values that tie. Although we cannot deal adequately with this problem with the present data, using multiple media sources and weighting their contribution to the latent variable makes it highly unlikely to have tying scores. In fact, less than 2% of the participants per year had standardized scores between -0.01 and 0.01 . Besides, the IRT model allows the inclusion of overlapping measures, such as self-report of watching MSNBC and watching “Hardball with Chris Matthews”, which is broadcasted by MSNBC. These two items are estimated in terms of the relative information provided by each category. This is, reporting watching MSNBC or “Hardball with Chris Matthews” “sometimes” will yield different scores in the composite variable “Liberal Media Consumption.”

Our CFA results based on Pew data provided satisfactory results, showing that in different subsamples two-factor solutions based on ideological slants fit better than a general one-factor solution. Additionally, we used IRT models to predict media consumption by ideology, transforming several ordinal items into one continuous variable. Descriptive statistics suggest that our data treatment was adequate—Republicans/conservatives watched more conservative media than Independents/moderates, and Democrats/liberals, and vice versa for liberal media—yet further research on convergent validity is needed to consolidate this method as a valid transformation of ordinal measures of media consumption into continuous variables. Even though the nationally representative sampling strategies provide excellent high-quality samples, self-report measures of media consumption can be associated with misestimation of past behaviors or self-presentational concerns. In this perspective, it would be ideal to replicate these findings measuring actual behavior, either in experimental studies (Arceneaux et al., 2012; Garrett & Stroud, 2014) or using big data methods (e.g., Bakshy et al., 2015; Barberá et al. 2015).

Second, as mentioned, the correlational nature of the study precludes us from making causal statements. Do liberals watch The Daily Show *because* it is liberal? Or does watching it *make* people more liberal? Besides, we cannot rule out that preferences for a given show or

media are associated with nonpolitical motivations. Perhaps conservatives are more drawn to CNBC than liberals because it covers topics of their interest, and not necessarily because of its ideological slant. As mentioned above, our ideological classification assumed a dichotomous and static view of the media outlets, whereas their biases could have changed over time in intensity.

Third, our study examined only TV and radio shows. It seems clear that TV is becoming a much less important source of political information over time (Lotz, 2014), and future studies should expand analyses to focus more on social media and other potential sources of political information on the Internet. The question of whether selective exposure patterns are generalizable across different media is still open (Stroud, 2008).

Finally, our study focused on only the U.S. population and media. American politics and media constitute a quite specific case of how political individuals, groups, and institutions are articulated (Wilson, 1997). Thus, any generalizability of these findings requires further replications in different countries and cultural contexts. Diverse historical and cultural variables of political systems, as well as cross-cultural variation in social psychological processes could moderate or even neutralize the effects we found here.

Conclusions

Our secondary analyses of national surveys support the notion that both sides of the political aisle in the U.S. have increased in their tendency to rely primarily on like-minded media outlets since the turn of the millennium. These findings have wide societal implications. The overwhelming variety of media choices available to citizens today does not necessarily improve deliberative democratic processes. As long as partisan individuals are predominantly exposed to proattitudinal news sources, their existing attitudes and, most importantly, their factual beliefs will be reinforced. This “fact gap” between liberals and conservatives in the U.S. makes compromise and negotiation more challenging (Ditto & Liu, 2016). When members of opposing political groups begin with differing sets of facts, it can reinforce stereotypes that members of the political outgroup are

unintelligent, emotionally manipulated, or at the very least, misinformed (Gaines, Kuklinski, Quirk, Peyton, & Verkuilen, 2007). Thus, democratic deliberation becomes less viable. The fact that these effects are not constrained to one political group or ideological orientation is particularly troubling.

Any translational effort to apply psychological findings to concrete policies assume that policymakers and voters are adequately informed and have a critical view that let them analyze different perspectives. However, our findings reveal that partisans engage predominantly with like-minded information sources, narrowing their perspectives, and jeopardizing the very possibility of translational projects (Campbell & Kay, 2014; Cohen, 2003). We believe that scientific efforts toward a better understanding of public debate will never be sufficient without a stronger awareness of the psychological mechanisms underlying political disagreement. Such research can help us learn that our primary adversary is not the person across the political aisle, but our own human limitations.

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