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Understanding the democratic role of perceived online political micro-targeting: longitudinal effects on trust in democracy and political interest

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ABSTRACT

With the increasing availability of big digital voter data, there are rising concerns that online political micro-targeting (PMT) may be harmful for democratic societies. However, PMT may also be beneficial to democracy because it targets voters with content that matches with their predispositions, potentially increasing political interest. For both, harmful and beneficial outcomes of PMT, we lack empirical evidence on the side of citizens. In a two-wave panel survey study, we tested the reciprocal relationships over time between perceived online PMT, trust in democracy, and political interest. We found that perceived online PMT leads to a decrease of trust in democracy, but also to an increase in political interest. The effect on political interest was independent from age. No reciprocal effects of trust in democracy and political interest on perceived PMT were observed. Overall, the results suggest that the democratic implications of PMT are more nuanced than previously assumed.

KEYWORDS

Personalized political ads; democracy; political interest; trust in democracy

Starting in the early 2000s, online political micro-targeting (PMT) has become a major component in political campaigning in the US throughout the last years (Holman, Schneider, & Pondel, 2015; Hu, 2020; Stromer-Galley, 2014; Turow, Delli Carpini, Draper, & Howard-Williams, 2012) and across the globe. Political parties use digital data in order to cater advertising campaigns to the right audiences at the right times (Hu, 2020; Papakyriakopoulos, Hegelich, Shahrezaye, & Serrano, 2018; Turow et al., 2012). Even though European parties are more restricted in the use of personalized data due to legal frameworks as well as institutional, cultural, and financial aspects, micro-targeted political campaigns are on the rise in several European countries (Bennett, 2016; Papakyriakopoulos et al., 2018; Zuiderveen Borgesius et al., 2018).

Providing campaigners and advertisers with the ability to reach small segments of the audience, PMT refers to the use of digital big data in order to tailor messages which are designed to directly influence specific voter groups or individual voters (Anstead, 2017; Bodó, Helberger, & de Vreese, 2017; Dylko et al., 2017; Hu, 2020; Ridout, 2009; Ryu & Park, 2020). While policy-related issues and societal threats have been prominently discussed in the literature (Hu, 2020; Papakyriakopoulos et al., 2018), we

lack empirical data on the side of the citizens. The few available studies have mainly focused on individuals' reactions toward PMT (see e.g. Hersh & Schaffner, 2013; Kruikeimeier, Sezgin, & Boerman, 2016; Ribeiro et al., 2019; Ryu & Park, 2020). Research has shown that individuals react differently to PMT in terms of approving, identifying, or reporting the messages (Ribeiro et al., 2019), supporting politicians and their policies (e.g. Holman et al., 2015), or their intentional voting behavior (e.g. Broockman & Green, 2014; Hersh & Schaffner, 2013). Kruikeimeier et al. (2016) demonstrated that reactions toward micro-targeted ads depend on individuals' capacities to recognize the sponsored character of a message. Therefore, voters' perceptions of PMT are of great relevance when examining the outcomes of such personalized persuasive techniques on voters Figure 1.

Despite this first empirical evidence, it is still unclear how perceived PMT affects democracy aside from approval ratings of political parties. In fact, scholars have expressed great concerns that PMT can be harmful for democracy and democratic representation (Bodó et al., 2017; Hu, 2020; Kruikeimeier et al., 2016; Zuiderveen Borgesius et al., 2018). However, PMT may also be beneficial to democracy because it targets voters with content that they are interested in

(Zuiderveen Borgesius et al., 2018). This leads to a kind of paradox: On the one hand, voters may get the impression that perceived PMT harms the electoral process because of typical associations such as false claims, purchased political ads by suspicious foreign institutions or countries, and economical power. This should arguably decrease trust in democracy. On the other hand, perceived PMT is likely to signal citizens that they get content they are interested in, that is, content that matches with their predispositions (see Dobber, Trilling, Helberger, & de Vreese, 2019). Furthermore, knowing about the prevalence of PMT might additionally increase citizens' attention to political content, which could strengthen political interest among citizens (see e.g. Strömbäck & Shehata, 2010). In fact, one of the foundational assumptions of democratic theory is that the public must be sufficiently interested in political matters in order to learn about political alternatives (Thompson, 1970; see also Lecheler & de Vreese, 2017; Leonhard, Karnowski, & Kümpel, 2020). As Prior (2010) has put it, "political interest is typically the most powerful predictor of political behaviors that make democracy

work" (p. 747), and especially in election contexts, interest can significantly shift over time (Strömbäck & Shehata, 2010).

Against this background, our study centers around the impact of perceived PMT on two key preconditions of democracy: Trust in democracy and political interest. Recent theoretical work highlights the importance to discuss the democratic implications of the consequences of PMT (see e.g. Zuiderveen Borgesius et al., 2018). Yet, to our knowledge, no study has ever jointly investigated trust in democracy and political interest as outcomes of perceived PMT. This is surprising, because previous studies from commercial advertising research support the notion that personalization makes content more relevant and informative to recipients (Bleier & Eisenbeiss, 2015a, 2015b), thus increasing interest. At the same time, personalization negatively influences trust (Miyazaki, 2008; Stanaland, Lwin, & Miyazaki, 2011). With a two-wave panel study, our aim was to advance the existing body of literature by testing the effects of perceived PMT on the electorates' trust in democracy and political interest over time.

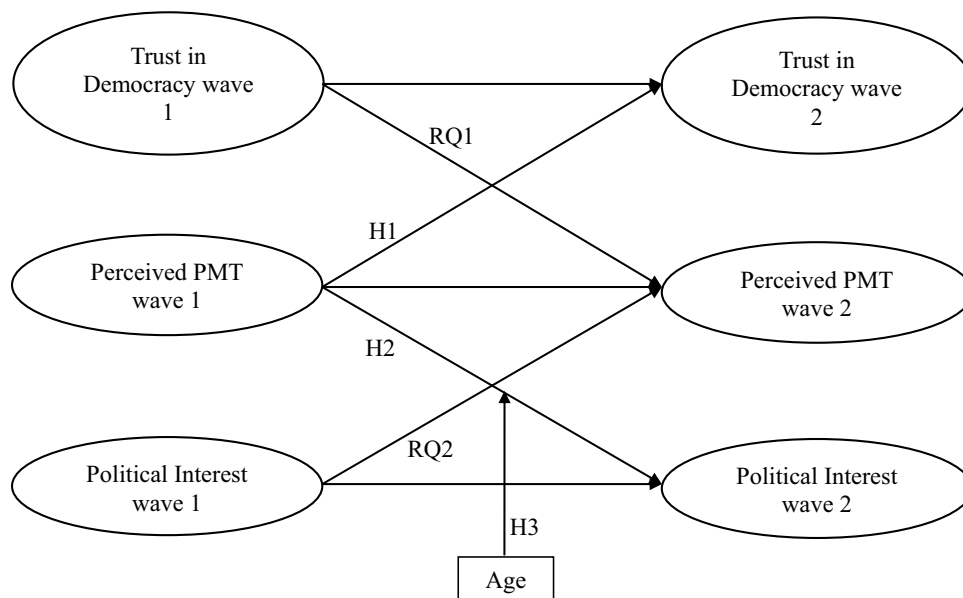


Figure 1. Hypothesized structural equation model. Note: PMT = political micro-targeting; controls, measurement errors, and covariances not shown for clarity reasons

Micro-targeted advertising in political campaigning

In the research literature, scholars have used different terms, such as PMT, personalized political advertising, or data-driven campaigning (Bodó et al., 2017; Kruikemeier et al., 2016; Ryu & Park, 2020; Zuiderveen Borgesius et al., 2018). We use the term PMT to describe the gathering and processing of personal data in order to distribute tailored messages to specific individuals or groups. PMT procedures see people as the “targets as well as the source of the information for targeting” (Turow et al., 2012, p. 5). Targeting does not only imply sending specific content and messages to selected individuals, the success and influence of different messages are analyzed as well, which then leads to further targeting (Baldwin-Philippi, 2017). This strategy involves initial targeting in a first step, which implies that personal data are being analyzed to decide who should see a message, how and when it should be spread as well as why individuals or groups of individuals should be exposed to a persuasive message (Turow et al., 2012). In a second step, tailored messages are created to fit an individual or a group of the population. This is based on the results of what the initial targeting reveals concerning the interests and attitudes of a person (Turow et al., 2012).

When behavioral targeting is used for political purposes, it implies the decision of who is targeted with what kind of messages based on information about demographics or “consumer and lifestyle habits” (Gorton, 2016, p. 62; Zuiderveen Borgesius et al., 2018). In fact, campaigners decide which voters to address and which ones to neglect (Barocas, 2012; Endres & Kelly, 2018). For this purpose, it is of relevance which voters can still be reached and influenced with persuasive messages (Endres & Kelly, 2018). Three main criteria have been defined for the processes of targeting and tailoring in a political context: First, the likelihood that the voter votes; second, the likelihood that the voter supports a party or a candidate; and third, personal stances on certain topics (Barocas, 2012).

So far, a rising share of studies has dealt with the effects of PMT on outcomes relevant to persuasion and democratic behavior. While personalization seems promising to political advertisers, it also involves pitfalls that could backfire in a campaign. For instance, Kruikemeier et al. (2016) found that individuals that identify a political ad as sponsored tend to activate their persuasion knowledge and, in turn, lower their intentions to react to or share the message on social media. However, other scholars have demonstrated mixed effects (Broockman & Green, 2014) or even positive effects of targeting practices for the evaluation of political candidates (Holman et al., 2015) and election turnout (Haenschen & Jennings, 2019). While party preferences and voting intentions were in the spotlight of previous studies, we still lack knowledge about other outcomes of democratic relevance. In this study, we focus on two key outcomes that are relevant to democratic theory, trust in democracy and political interest.

Trust in democracy

On the one hand, some scholars have argued that PMT may not necessarily influence democracy in a negative way (Baldwin-Philippi, 2017). Hersh (2015), for instance, pointed out that micro-targeting might not be more influential compared to the usage of public records for campaigning purposes (see Baldwin-Philippi, 2017). On the other hand, however, there are a number of reasons for why PMT may pose a threat to democracy. One negative consequence of PMT might be a fragmentation of societal and democratic public debates (e.g. Barocas, 2012; Ribeiro et al., 2019). That is, when voters are only confronted with selected worldviews and contents due to PMT, they may not be aware about the variety of considerations that exist about an issue or during an election campaign (Barocas, 2012). This may lead to so-called echo-chambers or filter bubbles (Ribeiro et al., 2019), and as a consequence, whole segments of the population may be singled out from a certain debate because they are not considered as relevant to be targeted and are therefore neglected throughout a campaign (Barocas, 2012). This may have negative effects on the functioning of modern democracy since classical gatekeepers may be circumvented by political

parties and campaigners (Jamieson, 2013), leaving free space for the spreading of sensitive or even disdainful contents to susceptible or receptive groups (Ribeiro et al., 2019).

In addition, the perception of PMT may also affect citizens' trust in democracy. First, among other factors, individuals' perceptions of political processes and electoral integrity strongly matter for trust in political institutions (Citrin & Stoker, 2018). If voters perceive that elections were influenced by negative practices such as deception through false claims, electoral fraud, or vote stealing, this delegitimizes the elected officials in the eyes of citizens (Norris, 2014). Similarly, if individuals perceive that the practice of personalization serves to manipulate certain shares of the public, this could negatively reflect on individuals' trust in the democratic decision-making process and the legitimacy of its outcome (Bennett, 2016). The more individuals perceive political personalization practices to take place, the more they might question the electoral integrity and therefore distrust democracy.

Second, people might get the impression that personalized advertisements are not influencing themselves, but others. This perception is based on the third-person effect (Davison, 1983). The perception that media content is affecting others, but not necessarily oneself has been shown in a wide range of studies, for offline and online media (Chen & Ng, 2016). Focusing on online behavioral advertising, one study demonstrated that subjective persuasion knowledge regarding online behavioral advertising was positively correlated with the perception that these advertisements are affecting others (Ham & Nelson, 2016). However, this study focused broadly on online behavioral advertising, not on PMT. Similar effects have already been witnessed in the case of media exposure – when individuals perceive media reporting to be unbalanced, they are more likely to decrease their trust in democracy as they may infer that others are influenced by the skewed reporting (Tsfati & Cohen, 2005). Drawing on these findings, we theorize that perceived PMT may lead to a decrease in trust in democracy because people may conclude that others might be affected by these advertisements. This conclusion may be independent of the actual exposure to

PMT, it could be entirely built upon the perception of PMT taking place. Such effects may be perceived to disturb a fair electoral process, because PMT can be orchestrated and paid for by foreign actors with interests hostile to the values of citizens (Tenove, Buffie, McKay, & Moscrop, 2018). In other words, individuals who perceive PMT taking place might also be afraid of the effects that such practices can have on others and their decision making.

Importantly, we focus on perceived PMT, because when voters do not realize that they were targeted with PMT, a negative effect on trust in democracy is rather unlikely. In line with that argument, research on misinformation suggests that the mere perception of prevalent misinformation can make individuals less trustful about information (e.g., Van Duyn & Collier, 2019).

No study, as far as we are aware of, has investigated such outcomes of perceived PMT. More importantly, there is a strong need to move beyond cross-sectional designs, because perceived PMT and trust in democracy may be reciprocally related, and therefore, the establishment of causal order is important. Thus, we assume:

H1: Participants' perception of PMT negatively affects trust in democracy over time.

Political interest

Perceived PMT might also critically affect individuals' interest in political information. As for trust in democracy, there are two different lines of argumentation. On the one hand, so-called chilling effects may cause voters to restrain from informing themselves about (political) topics online because of their fear that sensitive data is being collected from these activities (see Barocas, 2012; Dobber et al., 2019). Turow et al. (2012), for instance, found in a survey among Americans that 77% of the participants would avoid visiting a website again if they knew that the website was sharing personal information with political advertisers. Since voters generally become more engaged in political affairs the more they inform themselves about politics (Strömbäck & Shehata, 2010), such chilling effects may dampen political interest.

Again, chilling effects may be entirely driven by perceptions of PMT. However, there is no evidence for that in the research literature.

On the other hand, tailoring ads to individuals' specific needs and interests also holds promise for enhancing individuals' interest in politics. There are in particular two reasons for that. First, actual targeting practices can increase individuals' exposure to political content that is relevant to them. Personalized political ads reach citizens where they are: In the case of the US, 58% consume TV news, while 72% of the public use online sources to inform themselves about news (Jenkins & Graves, 2019). While more and more citizens tend to retreat from offline news consumption, presenting political content in social media newsfeeds can help parties to reach otherwise less involved shares of the electorate (Zuiderveen Borgesius et al., 2018). Especially young voters who are often difficult to target via traditional media and campaigning strategies can be mobilized through online ads, as a recent field experiment on voter turnout in local elections has demonstrated (Haenschen & Jennings, 2019). Because current empirical evidence shows that PMT strategies try to tackle voters' complexity with fine-grained strategies (Pilditch & Madsen, 2021), also those who otherwise choose to tune out of politics can be reached. Therefore, we can expect that, by and large, exposure to PMT also sparks interest in politics (Dobber et al., 2019). While of course PMT strategies still bear the risk of mistargeting citizens by not reflecting their interests or political leanings (Endres, 2020), we still assume a general effect of exposure to political content on interest (Strömbäck & Shehata, 2010). In this regard, a study already showed that even targeting citizens with incongruent messages can have minimal effects on voting behavior (Endres, 2020). Following this line of argumentation, PMT increases interest because more citizens, for example younger age groups (Haenschen & Jennings, 2019), are reached with relevant content compared to classical forms of campaigning.

Second, going beyond prior findings on exposure, we argue that not only exposure, but also perceptions of PMT could affect citizens' political interest: Those who are aware that political parties use targeting practices to reach them might be more

attentive toward political posts on social media. Based on in-depth interviews, Van den Broeck, Poels, and Walrave (2020) find that citizens expect personalization and see it as an overall positive feature on social media, as it helps them to arrive at relevant and useful content. Especially when targeted advertising matches individuals' needs and when they "feel like they understand why they are seeing it" (Hinds, Williams, & Joinson, 2020, p. 6), social media users perceive targeting as beneficial instead of harmful. Prior studies show that when individuals know that advertisers use targeting practices online and understand the practice, they are also more likely to assign relevance and benefits to targeted content (Ham, 2017). As a result of expecting targeting and knowing about its benefits, citizens might become more likely to approach instead of avoid political content on social media. Once the political ads come to their attention, voters may be mobilized and motivated to participate politically regarding the agendas they really care about and are interested in (Barocas, 2012; Zuiderveen Borgesius et al., 2018).

However, even if individuals are negatively predisposed toward PMT, perceiving that parties use PMT could increase attention to political messages and therefore further interest in politics. Once individuals learn that PMT is an integral part of political campaigning, they might pay closer attention to political messages in their social media feeds to cope with potential persuasive attempts according to the persuasion knowledge model (Friestad & Wright, 1994). This may lead to greater scrutiny of the message and a closer examination of the proposed arguments. Through this increased attention to the campaign, citizens interest might be positively affected by PMT perceptions over time (Strömbäck & Shehata, 2010; Weaver & Drew, 2001).

For these reasons, we can clearly predict that perceptions of PMT may have the potential to increase voters' interest in politics. Thus:

H2: Participants' perception of PMT positively affects political interest over time.

One may argue that the effects of perceptions of PMT on political interest are more pronounced for younger than for older voters. The reason to

assume this is twofold: First, when looking at exposure, younger adults are more likely to be exposed to PMT, as they rely more heavily on online and social media as an information source (Newman, Fletcher, Kalogeropoulos, & Nielsen, 2019). This exposure may increase the perception of PMT. Due to young adults' high online media use, online media becomes the most important provider of political information during, for instance, an election campaign (Ohme, de Vreese, & Albaek, 2018). Even though also older adults increasingly use social media, evidence suggests that especially younger adults are more likely incidentally exposed to political content on social media (Fletcher & Nielsen, 2018). In this regard, it has been found that seeing political information on online media helps especially younger voters to understand political information and makes them more certain of their vote choice (Ohme et al., 2018). It is therefore more likely that younger voters are perceiving PMT.

Second, as argued by Moeller, Shehata, and Kruike-meier (2018), young people's political interest – along with their personal, social, and political identity – is still developing. As a consequence, the potential for a change in political interest is much higher compared to older generations (Moeller et al., 2018; see also Hidi & Renninger, 2006). In line with this argument, research on online behavioral advertising (i.e., as a form of personalized advertising) demonstrates that younger people are more likely to be affected by targeted advertising compared to older ones (Boerman, Kruike-meier, & Zuiderveen Borgesius, 2017). Taken together, young adults' overall social media environment and their changeability with respect to political interest leads us to the following assumption:

H3: The effect of perceptions of PMT on political interest is stronger for younger as compared to older respondents.

Method

We conducted a two-wave online panel survey during the campaign period of the Austrian national election in the year 2019. The participants of this study were recruited by the professional polling company

Dynata. Participants were recruited from Dynata's online-access panel according to their nationality and pre-defined quotas. Dynata incentivizes participants through points which can be traded in for small monetary compensations or vouchers. We used a quota sample based on the distribution of age (ranging from 18 to 81 years, $M = 49.40$, $SD = 15.28$) and gender (49.4% of the participants were female) in Austria. Participants' education level was heterogeneous with 49.2% of participants who held a high school diploma and 22.7% who finished higher education. All in all, 1105 participants completed the survey questionnaire in wave one, from 24 July to 6 August 2019. The second wave took place before the Austrian national elections, from 13 September to 21 September 2019. 564 participants finished the survey in wave two, which implies a typical retention rate of 51% between wave one and wave two. To secure the quality of our data, we chose a threshold of more than 10 minutes as necessary completion time of the 25-minute-long survey, therefore our final sample consisted of 524 participants in total. Data are available under OSF (https://osf.io/fwt4p/?view_only=e62315c235a84715973fb9286ef6a00e)

Measures

If not stated differently, we employed a seven-point Likert scale, ranging from 1 (I do not agree at all) to 7 (I totally agree) for the measurement of all below-stated variables.

Perceptions of PMT

Based on Kim and Han (2014) and similar to Shanahan, Tran, and Taylor (2019), we measured participants' perception about personalized political advertising. Participants were asked how strongly they agreed with the following statements regarding the current election campaign: "Parties use personalized advertising on the Internet or on social media, which is based on my personal data that I left behind on the Internet"; "Political ads on the Internet or on social media are tailored to me personally, because I have left behind traces on the Internet"; "Parties engage in personalized advertising on the Internet or on social media, using my personal data" (wave 1: $\alpha = .88$, $M = 3.71$, $SD = 1.63$; wave 2: $\alpha = .87$, $M = 3.68$, $SD = 1.62$). It is important

Table 1. Zero-order-correlations.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Gender (T1)	1.00												
2. Age (T1)	-.28***	1.00											
3. Education (T1)	.09*	-.22***	1.00										
4. Left-Right Alignment (T1)	-.18***	.16***	-.16***	1.00									
5. Political Distrust (T1)	-.05	.07	-.16***	.08	1.00								
6. Political Media Use (T1)	-.16***	.29***	.01	.02	-.06	1.00							
7. Political Social Media Use (T1)	-.01	-.07	.06	-.04	-.04	.32***	1.00						
8. Perceived PMT (T1)	.04	-.27***	.06	-.11*	.04	-.03	.26***	1.00					
9. Perceived PMT (T2)	.03	-.29***	.11*	-.11*	.03	.02	.25***	.61***	1.00				
10. Trust in Democracy (T1)	-.12*	.18***	.15**	-.05	-.27***	.32***	.14**	-.02	-.04	1.00			
11. Trust in Democracy (T2)	-.10*	.23***	.13**	.00	-.27***	.37***	.07	-.14**	-.06	.80***	1.00		
12. Political Interest (T1)	-.17***	.16***	.11*	.00	-.02	.46***	.44***	.03	.05	.33***	.28***	1.00	
13. Political Interest (T2)	-.17***	.14**	.09*	-.06	-.05	.46***	.46***	.09	.12*	.34***	.33***	.89***	1.00

Note. $N_{T2} = 524$; T1 = Time 1; T2 = Time 2; PMT = Political Micro-Targeting; * $p < .05$, ** $p < .01$, *** $p < .001$

to note that the items refer to the individual participant, by stating “my personal data”, “I left behind traces”, and “data I left behind”.

Trust in democracy

We measured participants’ trust in democracy with two standard items adapted from previous research by Wagner et al. (2018), namely “I trust democracy in Austria” and “I am satisfied with democracy in Austria” (wave 1: $\alpha = .88$, $M = 4.28$, $SD = 1.60$; wave 2: $\alpha = .89$, $M = 4.29$, $SD = 1.60$).

Political interest

Participants’ political interest was based on Wagner et al. (2018) and measured with two widely used standard items by asking to what extent they agreed to the following two statements: “I am very interested in politics” and “Politics is an interesting topic to me” (wave 1: $\alpha = .95$, $M = 4.55$, $SD = 1.90$; wave 2: $\alpha = .95$, $M = 4.50$, $SD = 1.95$).

Control variables

We controlled for participants’ demographics (i.e. age, gender, education level) as well as their left-right alignment (wave 1: $M = 4.72$, $SD = 2.14$) asking respondents to rank themselves on a 10-point Likert scale ranging from “left” to “right”. To control for one of the main sources of trust in democracy, we measured political distrust (wave 1: $\alpha = .74$, $M = 5.37$, $SD = 1.20$) with three statements, namely “Politicians in Austria rarely keep their promises made to the population”; “Politicians in Austria care more about their party strategies than about

actual content”; “Politicians in Austria are not honest with the voters” (see Pinkleton & Austin, 2004, for similar measures). We also added political media use (wave 1: $\alpha = .61$, $M = 3.93$, $SD = 1.71$) with four items asking the amount of days on an average week that individuals use for certain types of media online or offline to inform themselves about political issues (i.e., quality newspapers, free-sheets, a tabloid newspaper, and a national broadcaster; ranging from 1 = 0 days to 8 = 7 days). Participants’ political social media use (wave 1: $\alpha = .96$, $M = 3.22$, $SD = 1.94$) was measured with two items. Participants were asked to indicate how often they use social media, such as Facebook, Instagram, Twitter or YouTube, to get information about (a) party politics and elections as well as (b) political issues in general (1 = never, 7 = very often).

Data analysis

We conducted Structural Equation Modeling with full information maximum likelihood procedure to estimate the missing values. To determine the goodness-of-fit of our model, we calculated the comparative fit index (CFI), the Tucker-Lewis-Index (TLI), the chi-squared to degrees of freedom ratio (χ^2/df), and the root mean square error of approximation (RMSEA). We also controlled for all autoregressive relationships. Zero-order correlations between all constructs are shown in Table 1. To estimate latent variable interactions, we used a latent-product term approach (see Jaccard & Wan, 1995) involving mean-centered indicators.

Results

Measurement invariance

Before testing our hypotheses, we checked for longitudinal metric measurement invariance of all latent variables (Vandenberg & Lance, 2000). Measurement invariance is important to rule out that the observed relations may stem from changes in meaning over time. For each construct, we constrained all factor loadings of the latent variables at T1 and T2 as equal to test for measurement invariance. The model fit of the constrained model revealed a good model fit: CFI = 0.99; TLI = 0.98; $\chi^2/df = 1.48$, $p < .001$; RMSEA = 0.03, 90%-CI [0.23; 0.39]. When comparing the constrained model to the unconstrained model, we found no significant difference in model fit ($p = .857$). Thus, metric invariance over time was established and the substantial relationships can be interpreted as over time effects.

Hypotheses tests

Confirming H1, the findings showed that perceptions of PMT at T1 negatively predicted trust in democracy at T2, $b = -0.098$, $SE = 0.034$, $\beta = -.105$, $p = .004$. The data also supported H2: There was a positive effect of perceptions of PMT at T1 on political interest measured at T2, $b = 0.07$, $SE = 0.032$, $\beta = .058$, $p = .029$. Explained variance was very high for trust in democracy (67%) and political interest (80.7%).

Table 2. Results of the structural equation model based on the full information maximum likelihood procedure.

Predictor	Trust in Democracy (T2)		Political Interest (T2)		Perceived PMT (T2)	
	b	SE	b	SE	b	SE
Gender (T1)	.051	.102	-.093	.097	-.119	.136
Age (T1)	.006	.004	.002	.004	-.016**	.005
Education (T1)	.108	.103	-.069	.097	.161	.136
Left-Right Orientation (T1)	.022	.024	-.054*	.022	-.021	.031
Political Media Use (T1)	.109**	.033	.053	.031	.075	.044
Social Media Use (T1)	.018	.024	.015	.023	.012	.032
Political Distrust (T1)	-.084*	.043	-.034	.040	.034	.056
Perceived PMT (T1)	-.098**	.034	.070*	.032	.574***	.048
Trust in Democracy (T1)	.741***	.046	.042	.037	-.042	.053
Political Interest (T1)	-.023	.031	.877***	.032	.019	.041
Age* Exposure to PMT	.001	.002	-.002	.004	-.002	.003
R ²	.670		.807		.401	

Note. PMT = political micro-targeting, T1 = Time 1, T2 = Time 2 * $p < .05$, ** $p < .01$, *** $p < .001$.

H3 found no support in the data: The interaction of age and perceptions of PMT did not yield any over time effects on trust in democracy ($b = 0.001$, $SE = 0.002$, $\beta = .009$, $p = .781$) or political interest ($b = -0.002$, $SE = 0.004$, $\beta = -.021$, $p = .393$). There were also no main effects of age on political interest and trust in democracy (see Table 2)

As for the controls, it is not surprising that political distrust was found to be a negative ($b = -0.084$, $SE = 0.043$, $\beta = -.067$, $p = .049$) and political media use ($b = 0.109$, $SE = 0.033$, $\beta = .124$, $p = .001$) a positive predictor of trust in democracy.

Additional analyses

We also explored reciprocal relationships between perceptions of PMT and trust in democracy as well as political interest. However, we did not find any evidence for reverse relationships. Neither trust in democracy ($b = -0.042$, $SE = 0.053$, $\beta = -.038$, $p = .430$) nor political interest ($b = 0.019$, $SE = 0.041$, $\beta = .022$, $p = .642$) measured in wave 1 explained perceived exposure to PMT at T2. Explained variance for perceptions of PMT was 40.1%.

Regarding the controls, older individuals were less likely to perceive PMT compared to younger ones ($b = -0.016$, $SE = 0.005$, $\beta = -.150$, $p = .001$), however, frequency of political social media use as well as political media use were entirely unrelated to PMT perceptions (see Table 2 and Figure 2).

Discussion

The present study sought to demonstrate that perceptions of PMT can have detrimental and beneficial effects for democracy at the same time. Using an autoregressive structural equation model with full metric invariance, our data suggest that perceptions of PMT dampens citizens' trust in democracy on the one hand, while it fosters political interest on the other. When citizens realize they are targeted with PMT, they may conclude that parties also target other individuals (see also Ham & Nelson, 2016). According to the third-person effect, citizens expect stronger media effects for others as compared to themselves (Chen & Ng, 2016), and such strong effects on others may disturb a fair electoral

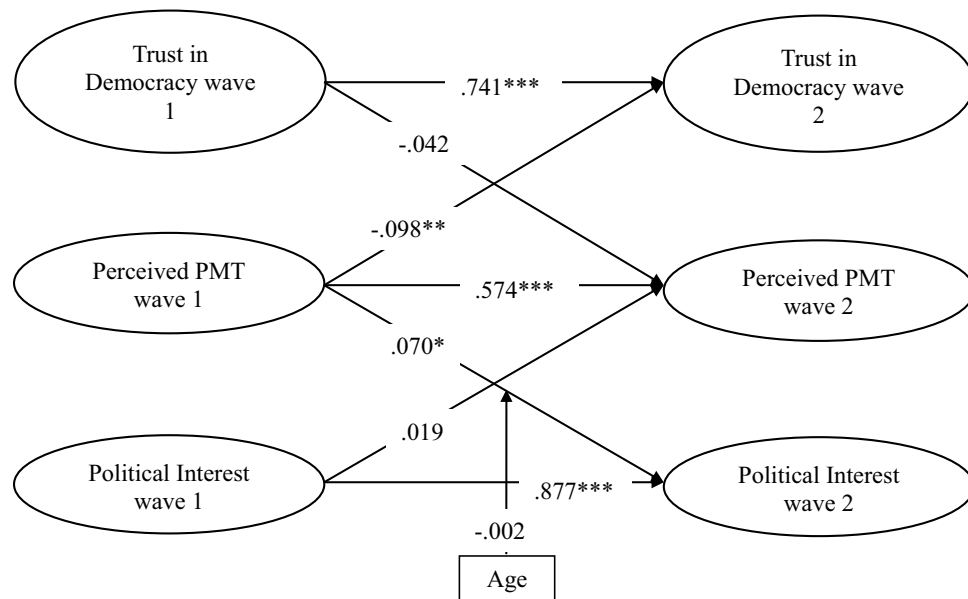


Figure 2. Model showing the results. *Note:* $N = 524$. PMT = political micro-targeting; controls, measurement errors, and covariances not shown for clarity reasons. * $p < .05$; ** $p < .01$; *** $p < .001$.

process in the eyes of citizens, especially since foreign actors can use PMT to influence national voting decisions (Tenove et al., 2018). It is important to note that in Austria, parties have to disclose online PMT practices, so citizens are enabled to clearly recognize the personalized nature of an ad.

However, positive effects on political interest occurred at the same time, suggesting that individuals that perceive PMT might be more attentive toward political messages and possibly perceive them as more relevant. This is in line with previous studies on personalization of advertising for consumer goods, which demonstrate a heightened sense of relevance and usefulness of personalized content on the side of the recipient (Bleier & Eisenbeiss, 2015a, 2015b). As another explanation for this effect, perceiving PMT might increase individuals' attention to a message even for those who criticize the persuasive tactic, because they might elaborate more strongly on the message arguments to scrutinize them (Friestad & Wright, 1994). In summary, both individuals that are favorable or opposed to PMT might attend to campaigns more strongly, which can spark greater political interest (see e.g., Weaver & Drew, 2001). Interestingly, the effect of perceptions of PMT on political interest was independent from respondents' age, although it can be expected from previous research that this

effect should be more pronounced with decreasing levels of age. That is, although older individuals are more skeptical toward PMT than younger ones (see Turow et al., 2012), this may not alter the psychological mechanism that personalization leads to increased perceptions of relevance. However, more and especially experimental research is needed to corroborate this claim.

As indicated in Table 1, trust in democracy and political interest were significantly positively correlated, yet they differently related to perceptions of PMT. If one variable is positively affected and the other one negatively, it may be an overall zero-sum game. This, ultimately, begs for the question of what is more important for modern democracy, trust or interest? Of course, the answer to this question depends on the specific democratic theory one consults (see Althaus, 2012; Habermas, 1996; Strömbäck, 2005; Teorell, 2006), and our data are unable to provide a comprehensive answer. Still, trust and interest differ when it comes to the democratic outcomes they typically explain. On the one hand, both concepts are strongly related to all kinds of participatory outcomes, such as online and off-line engagement or voting (see Lecheler & de Vreese, 2017; Tsfati & Cohen, 2005). On the other hand, however, a lack of trust in democracy has been found to increase support for anti-democratic

actions, attacks on electoral integrity, or the radical right (Citrin & Stoker, 2018; Fieschi & Heywood, 2004). Such relationships, to the best of our knowledge, have not been found for political interest. Also, once trust in democracy is eroded, it is very hard to restore (Citrin & Stoker, 2018). By contrast, there is an abundance of evidence that those politically uninterested can be re-involved, as for instance, via political entertainment (Bartsch & Schneider, 2014). This may suggest that the effects on trust in democracy are more consequential in terms of democratic theory than those of political interest. Clearly, more evidence and additional data, involving a richer array of outcome variables explained by PMT, are needed to convincingly answer this question.

It is important to note that we did not observe any evidence for reverse causal order. That is, political interest as well as trust in democracy did not predict perceptions of PMT over time, ruling out potential spiraling effects. Also, with the exception of age, none of the predictors was able to significantly explain PMT perceptions. In particular, people on the left-wing political spectrum were as likely to feel targeted by PMT as people leaning toward right-wing political ideology. This opens up a myriad of research questions regarding citizens' motivations and capacities to understand and detect PMT practices. PMT perceptions may crucially depend on the specific nature of the personalized ads, that is, the degree of personalization, the utility, and invasiveness of the ads, the fit of an ad with the target population, but also on the specific disclosure practices, citizens' campaign-related political knowledge, as well as their general advertising literacy. Also, some respondents may try to opt-out of PMT altogether, by avoiding specific websites, channels, or applications.

Limitations and future research

Some limitations have to be acknowledged. Most importantly, our study did not take the actual content of the personalized political ads into account. Although PMT practices are disclosed for each ad, some personalized ads may be more likely to be recognized and recalled than others, and therefore, we cannot generalize our findings to the entire spectrum of PMT. This would

require a systematic content analysis covering all major and minor parties' PMT campaigns during the time frame of the panel study, which is arguably impossible in practical terms, simply because such data are not publicly available. With experiments, the content of the personalized ads can be systematically varied, but it is rather unrealistic to mock PMT in an artificial setting. Thus, mobile experience sampling may be used to systematically analyze how citizens react to PMT. Yet self-reports about PMT ultimately only measure perceptions, not exposure.

Future research should also explore the actual mechanisms behind the relations we have observed here. This is especially important for trust in democracy. Citizens may have a myriad of different associations with PMT shaping their judgments about trust in democracy, and these associations need to be measured and treated as potential mediators. Survey research could employ more fine-grained perceptual attributes of PMT (i.e. ethical; perceived harms and benefits; third-person perceptions) and these should be included in multi-wave panel designs.

We employed perceptual measures to gauge exposure to PMT. Although PMT needs to be disclosed for each ad in Austria and disclosures strongly correlate with perceptions, perceptual measures can still be criticized because they are unable to tell us something about the actual degree to which citizens were targeted with personalized political messages. Furthermore, there may be systematic perceptual biases. However, we have argued that perceptions can greatly matter for democratic outcomes (Bennett, 2016; Norris, 2014). While some outcomes (i.e. attitude change) may be best predicted by actual exposure, perceptions of PMT are a prerequisite for other outcomes such as trust in democracy. If citizens do not realize the practice of PMT, trust in democracy cannot arguably be affected. For political interest, this is less clear, and future research should explore whether awareness of PMT is necessary to foster interest. Also, most perceptual biases can be traced back to political ideology, a variable that we have statistically controlled for in the present study. Finally, we observed no reciprocal effects which speaks against explaining our findings by

perceptual biases. Nevertheless, a validation of this study with non-perceptual measures is needed, as for instance, with experiments.

Our study was conducted in the context of a national European election, with significant legal restrictions for micro-targeting practices. We therefore need to replicate our findings in other countries, ideally using comparative designs involving countries with different PMT regulations and political systems. Multilevel survey data models relating macro-level variables to individual level effects seem highly promising. Finally, despite the strengths of performing autoregressive panel analyses controlling the prior states of perceived PMT, trust in democracy, and political interest, our panel was only comprised of two waves, making it impossible to formally estimate change processes over time. Future research should employ four or more panel waves.

Conclusion

Our study was the first to demonstrate that perceptions of PMT can be beneficial and harmful to democracy at the very same time. We believe our findings bear great relevance for our understanding of the democratic role of PMT. Our findings point to what we could call a paradox of PMT: Perceptions of PMT may be perceived as useful to one's personal interests, but as harmful for the society at large. When we put these findings into a broader context, we believe that perceptions of PMT are not necessarily overly bad. However, given the tremendous importance of trust in democracy for a healthy society, political parties, campaign managers, and advertisers have a great responsibility to generate transparent, fair, and truthful personalized political ads in order to foster informed and elaborated voting decisions.

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Data availability statement

Data are available from OSF https://osf.io/fwt4p/?view_only=e62315c235a84715973fb9286ef6a00e.

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