ERASMUS UNIVERSITY ROTTERDAM
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Master's Thesis Behavioural Economics

The impact of affective polarization on the voter turnout: A case study of Poland's general elections from 1997 to 2011

ABSTRACT

This thesis examines the impact of affective polarization on voter turnout in Poland's general elections from 1997 to 2011. It also explores the role of political sophistication as a potential moderator of this relationship. The study utilizes data from the Comparative Study of Electoral Systems and employs logistic regression analysis to investigate the research objectives. The findings reveal that affective polarization has a positive influence on voter turnout. Additionally, political sophistication appears to have a positive impact on turnout, although the causality remains unclear. By studying Poland, this thesis contributes to the existing literature on affective polarization and its effects on voter behaviour, as previous research has not extensively explored this context. Furthermore, it sheds light on the moderating effect of political sophistication on the relationship between affective polarization and voter turnout. The results suggest that affective polarization may influence voting behaviour among Polish individuals, particularly the younger demographic. Moreover, higher levels of political knowledge seem to enhance the impact of affective polarization on voter turnout in general elections. However, caution is advised due to the potential issues of reverse causality and endogeneity regarding the political sophistication variable. In conclusion, this research provides partial answers to the research question and offers insights into the surge in voter turnout during general elections in Poland since 2015. Future studies should consider addressing the limitations of the political sophistication variable and further investigate the underlying mechanisms that drive the relationship between affective polarization and voter turnout.

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1 INTRODUCTION

Elections are an essential tool for citizens to exercise their political rights and impact the direction of their nation in democracies. The percentage of eligible voters who cast ballots in an election, or the voter turnout, is a key indicator of how vibrant and healthy a democracy is. Consequently, scholars have long been interested in understanding the factors that affect voter turnout. A significant issue that has received more attention in recent years is emotional polarization, a phenomenon that is defined by the escalation of negative emotions and tension between political factions. Deep-seated party differences, hostility, and the breakdown of trust all fall under the umbrella of affective polarization, which frequently inspires a sense of "us versus them" among the general public. This division may have serious effects on democratic procedures, including possible effects on voter turnout.

This study examines the impact of affective polarization on voter turnout in Poland, a nation where political and affective polarization has recently increased. The widening gap between the conservative Law and Justice (PiS) party and opposition parties has influenced Poland's political landscape, as seen in the public discourse, media narratives, and the growth of social movements and grassroots activism.

Scholars argue that the governing populist party PiS, with its politics and rhetoric, has fuelled increasing polarization (Tworzecki, 2019), which in turn contributes to democracy erosion, including affective polarization, as supported by existing literature (McCoy et al., 2018). The observed democratic backsliding since the PiS party's victory in the 2015 general election is evident in various indices. The Freedom House democratic index for Poland declined from 8 in 2015 to 6.5 in 2020, and The Economist democracy index decreased from 7.47 to 6.85 during the same period. The observed increase in voter turnout during recent elections, visible in Table 1, has raised questions regarding the potential influence of affective polarization on electoral participation.

Table 1 Voter turnout in elections and age in Poland in the years 2011-2020

Age group	General 2011	General 2015	Presidential 2nd turn	General 2019	Presidential 1st turn 2020	Presidential 2nd turn 2020
18-29	47.1	46.4	48.2	46.4	62.3	67.2
30-39	47	60.3	58.3	60.3	62.9	66.6
40-49	51.4	75.7	64.8	75.7	68.1	74.9
50-59	51.4	59.6	60.5	59.6	71.2	76.3
60+	48.2	66.2	52.6	66.2	56.1	64.2

Source: Ipsos, exit polls: 2011, 2015, 2019, 2020

This thesis seeks to address the following research question: To what extent does affective polarization influence voter turnout in Poland? With particular reference to the electoral and political situation in Poland, the purpose of this study is to offer insight into the relationship between affective polarization and democratic participation. To accomplish this goal, The Comparative Study of Electoral Systems (CSES) survey data is subjected to quantitative analysis. This research holds significance for the broader domain of behavioural and political science and will assist in understanding the impact of affective polarization on voter turnout which can provide valuable insights into the challenges faced by contemporary democracies. Moreover, the findings of this study may support policymakers and different government actors in their efforts to address the consequences of polarization and promote democratic processes combating it. Subsequent chapters will delve into the existing literature on affective polarization, voter turnout as well as political sophistication, analyze the methodological framework guiding this study, present and discuss empirical findings, and offer conclusions and recommendations for further research. This examination aims to contribute to the growing body of literature about affective polarization and its implications for democratic participation in Poland and beyond.

2 LITERATURE REVIEW

Voter turnout is a critical aspect of democracy, as it determines the legitimacy of electoral results and the representation of citizens' interests. Understanding what motivates or discourages voters from participating in elections is an essential question for researchers and policymakers. This section aims to analyze the current findings on the correlates of individual voter turnout. First, an overview of the most frequently studied correlates will be presented. Next, the effect of political sophistication on voter turnout based on current literature will be examined. Furthermore, the correlation between affective polarization and voting behaviour will be analysed. Lastly, existing evidence on the differences in voting behaviour between different age groups will be overviewed. Based on the review below, hypotheses will be constructed to answer the research question of this thesis.

2.1 CORRELATES OF INDIVIDUAL VOTER TURNOUT

The topic of individual voter turnout has accumulated a vast amount of research papers that studied it from different perspectives through various independent variables and controls. First, from a socio-demographic point of view, age, education, and income were found to have a consistent and strong positive effect on turnout (Geys, 2006; PLUTZER, 2002; Smets & van Ham, 2013). Gender and ethnicity, though less common, are still relevant predictors (Geys, 2006; Smets & van Ham, 2013). Smets and Ham (2013) in their meta-analysis of individual-level research on voter turnout have also distinguished strong factors like age squared, marital status, region of residency, home ownership, socio-economic status, and if an individual is pre or post-World War 2 generation. Furthermore, previous voting behaviour is one of the most significant predictors. Individuals who have voted before are more likely to continue voting in the future (GERBER et al., 2008; PLUTZER, 2002; Smets & van Ham, 2013). Social influence and mobilization have been found to affect political participation as well. Bond et al. (2012) found that individuals who received messages from friends encouraging them to vote were more likely to participate in the election. One study explored the rational choice theory to explain individual voter turnout (Aldrich, 1993). The study found that the costs and benefits of voting influence an individual's decision to vote. The perceived benefits of voting, such as the feeling of civic duty, are more critical than the actual costs of voting. Another key factor

determining individual voter turnout is ideological polarization and perceived party polarization. Ideological polarization has been empirically proven to affect voter turnout by energizing the electorate and stimulating political participation (Abramowitz & Saunders, 2008). Research on perceived party polarization gave varying results as it increases turnout for centrist voters who face more divergent policy options but decreases turnout for extreme voters who face less divergent policy options (Moral, 2017). Lastly, the effects of these factors may vary across countries and elections. Several authors have found that the effects of various factors on voter turnout can be influenced by the country's electoral system, the level of political mobilization, and other socioeconomic factors (Blais & Dobrzynska, 1998; Blais, 2000; Geys, 2006; POWELL, 1986). Thus, it is vital to use the controls that are relevant in the setting of interest of this thesis – Poland. One of the most distinctive factors for this country is church attendance as around 80-83% of Poles declared themselves as religious from 1997 to 2020 (Bożewicz Marta, 2020) and it was found to influence the voting possibility as it is often encouraged by a priest during masses (Gerber et al., 2016)

2.2   POLITICAL SOPHISTICATION AND INDIVIDUAL TURNOUT

According to (Luskin, 1987) political sophistication refers to an individual's ability to understand and engage in political processes, institutions, and issues. It is a complex construct that is influenced by a variety of factors which include: political knowledge, interest in politics, cognitive ability, and political behaviours such as voting, political engagement, and activism. Due to accessibility, it is recommended to measure factors such as interest in politics, knowledge of it, and education as it is easy to collect them through surveys and then quantify them.

For the effect on turnout, it is argued that political sophistication increases the probability of voting by enhancing citizens' sense of civic duty, interest in politics, efficacy, and identification with parties or candidates. According to this perspective, more sophisticated voters are more motivated and capable to participate in elections because they perceive them as meaningful and consequential for their lives. Empirical studies support this argument by showing a positive relationship between political knowledge or education (as proxies for sophistication) and voter turnout across different countries and contexts (Blais, 2000; Rolfe, 2012; Stockemer, 2017). However, other studies challenge this view by suggesting that political sophistication may also

have a negative or null effect on turnout under certain conditions. For instance, some scholars argue that more sophisticated voters may be more aware of the costs and benefits of voting and decide to abstain if they perceive their vote as irrelevant or ineffective (Blais & St-Vincent, 2011; Rogowski, 2014). Moreover, some studies find that the effect of political sophistication on turnout varies depending on other factors such as party system complexity, electoral rules, media exposure, or social context (Boonen et al., 2017; Rapeli, 2018). Additionally, it was found that political sophistication moderates the effect of party polarization on turnout only for extreme voters, such that more sophisticated extreme voters are more likely to turn out when they perceive high party polarization (Moral, 2017).

All things considered, evidence on the positive effect of political sophistication on individual voter turnout dominates contrary proof. This leads to the construction of the first hypothesis of this thesis:

H1: Political sophistication has a positive effect on electoral turnout in Poland.

2.3   AFFECTIVE POLARIZATION AND INDIVIDUAL TURNOUT

First, to distinguish affective polarization from other forms of polarization Abramowitz and Webster (2017) examine the relationship between ideological and affective polarization. They argue that affective polarization is closely connected to ideological polarization, which they define as the extent to which supporters of the two parties differ in their policy preferences. Whereas affective polarization can be described as the tendency of viewing opposing partisans negatively and co-partisans positively (Iyengar et al., 2018; Levendusky & Malhotra, 2016; Phillips, 2022; Webster & Abramowitz, 2017). Affective polarization is thus based on social identity rather than policy preferences or ideological positions. It implies that individuals evaluate parties and candidates not only on their substantive merits but also on their symbolic associations with different social groups. One possible consequence of affective polarization is its impact on voter turnout. Turnout at the individual level can be influenced by various factors like motivation, resources, or mobilization (Smets & van Ham, 2013). Affective polarization may impact turnout by affecting some of these factors directly or indirectly.

One way that affective polarization may increase turnout is by enhancing group identity among partisans. Affective polarization implies that individuals identify strongly with their party and

view it as an important source of self-esteem and social belonging (Huddy et al., 2018). This may increase their sense of civic duty and loyalty towards their party and motivate them to participate in elections as a way of expressing their group membership and supporting their in-group interests (Rogowski & Sutherland, 2016).

Another way that affective polarisation may increase turnout is by fostering negative emotions towards out-groups. Affective polarisation implies that individuals dislike opposing parties and their supporters and view them as threatening or immoral (Iyengar & Westwood, 2015). This may trigger emotions such as anger or fear that can stimulate political involvement and mobilization (Huddy et al., 2015; Valentino et al., 2011). Moreover, negative out-group feelings may increase the perceived stakes of electoral competition and make individuals more likely to vote to prevent undesired outcomes or inflict losses on out-groups (Wagner, 2021; Ward & Tavits, 2019). Furthermore, as a result of previous effects, affective polarisation may increase turnout by increasing conflict among partisans. Affective polarisation implies that individuals see politics through a lens of group conflict and view opposing parties as enemies rather than competitors (Harteveld et al., 2022). This may as well heighten political awareness and interest among partisans which impacts voting behaviour. All information presented above led to the construction of the second hypothesis:

H2: Affective polarization has a positive effect on electoral turnout in Poland.

Lastly, (Harteveld & Wagner, 2023) provide evidence that the increased turnout effect of affective polarisation was not restricted to politically sophisticated. What is more, they found a stronger effect for individuals that were the least interested in politics. They argue that affective political affairs attract low-informed voters more effectively than ideological disputes as they require less attention, motivation, and information for understanding. Together with evidence that political sophistication moderates the effect of ideological polarization on voters' turnout (Moral, 2017) third hypothesis is constructed:

H3: Political sophistication moderates the positive effect of affective polarization on electoral turnout in Poland.

2.4 DIFFERENCES IN VOTING BEHAVIOUR ACROSS AGE GROUPS

Researchers declared unanimously that age is positively correlated with individual voter turnout. As a result, a large amount of academic work has focused on turnout among young

voters. One of the discoveries was that voting is a habit formed through casting a vote, meaning that turning up for elections significantly enhances the probability of future turnout (Fowler, 2006; Gerber et al., 2003; Górecki, 2013; PLUTZER, 2002). In addition, Fowler (2006) found that the habit formation process is stronger for younger voters than for older ones, suggesting that early life experiences have a lasting impact on voting behaviour. The most common characteristics which lead young adults to first and further elections were found to be a college education, political knowledge, and engagement in politics (PLUTZER, 2002). The author notes that these characteristics are strongly dependent on parental resources. (Highton & Wolfinger, 2001) argue that residential stability, owning a home, labor force status, high school education, and gender impact the probability of turnout as well.

Other literature dedicated to youth abstention from voting attributed it to factors like political apathy (Dahl et al., 2018), alienation from the political scene (Dahl et al., 2018; Robertson, 2009), and distrust and cynicism towards politics and politicians (Dermody et al., 2010). On the other hand, political sophistication has been found to moderate cynicism and distrust. Thus, implying that cynical, distrustful, and politically sophisticated youth is more likely to vote compared to the cynical, distrustful, and not politically sophisticated youth. This leads to the construction of the first part of the last hypothesis:

H4a: Political sophistication has a stronger effect on voter turnout for younger voters than for older ones.

Looking at other age groups, results indicate that turnout and age function resembles an inverted U where the turnout starts to fall when voters reach the age of retirement (Bhatti & Hansen, 2012; Fowler, 2006; Gerber et al., 2003; Górecki, 2013; PLUTZER, 2002; Wass, 2007), which is around age 65-67 (Bhatti & Hansen, 2012). Thus, supporting the usage of the age-squared variable. The most significant factors affecting senior voter turnout were found to be living alone, being widowed, and being employed.

Most common characteristics explaining middle-aged voters' turnout do not extend beyond the factors described in section 2.1. Lastly, while political sophistication has been found to have a significant impact on young voters' turnout the similar effect of affective polarization on turnout has neither been proven nor covered in current literature. (Phillips, 2022) provides evidence that the degree of individual affective polarization increases with age. Thus, implying that affective polarization is more probable to affect older voters which leads to the construction of the second part of the last hypothesis:

H4b: Affective polarization has a stronger effect on voter turnout for older voters than for younger ones.

2.5 AIM AND INTENDED CONTRIBUTION TO THE LITERATURE

This thesis aims to examine the influence of affective polarization on individual voter turnout, building on existing research in this field. Furthermore, this thesis will contribute to the literature by comparing the differential impact of affective polarization on young adults and the rest of the population. Additionally, this thesis will explore how political sophistication moderates the effect of affective polarization on both age groups and the general population. Finally, this thesis will enhance the current understanding of individual voting behaviour and affective polarization among Polish citizens.

3 METHODOLOGY AND DATA

3.1 DEPENDENT VARIABLE

To study the voting behaviour of Polish citizens declared turnout is used as a binary dependent variable which is derived from the survey question which asked whether the respondent cast a ballot in the election considered. This does not consider a situation in which the vote was not valid.

3.2 INDEPENDENT VARIABLES

Independent variables consist of political sophistication score, affective polarization measure, and interaction between the two of them.

3.2.1 Political sophistication

Political sophistication in turnout studies was constructed in several ways. The paper by Lachat (2008) operationalizes political sophistication as an index that combines political interest and education level, based on the web search results. Political knowledge, measured by factual questions about politics, is the indicator of political sophistication used by Dalton & Russell (2021). Weitz-Shapiro & Winters (2017) conceptualize political sophistication as "the ability to understand and evaluate political information" and uses a composite measure that includes education level, political interest, and media exposure. Due to the above and the availability of data in the CSES dataset political sophistication in this thesis is measured as an additive score of education attained (from 0 to 3) and number of correct answers in the questionnaire about politics (from 0 to 3).

3.2.2 Affective polarization

One of the challenges in studying affective polarization is how to measure it at the individual level. Multiple studies have used different indicators of affective polarization, such as most common like-dislike scores for parties or candidates (Wagner, 2021; Ward & Tavits, 2019), feeling thermometers for partisans or groups (Iyengar et al., 2018; Phillips, 2022), or survey items measuring partisan animosity or social distance (Iyengar & Westwood, 2015; Rogowski & Sutherland, 2016). This thesis uses like-dislike scores for parties ranging from 0 to 10 as it is the only indicator provided by the CSES dataset. It is crucial to note that like-dislike scores of parties do not capture the negative or positive feelings towards other partisans directly. Different approaches mentioned before are more suitable for measuring this.

Another significant difficulty arises when affective polarization is measured in the multiparty political systems which is the case for Poland. In a case of a two-party system such as the United States, affective polarization is captured by the difference in voters' feelings towards the party they support and the party they oppose as well as their supporters. Thus, affective polarization encapsulates the degree of the "us-versus-them" perception of the voter. To measure the affective polarization in a multiparty system the method has to represent the feelings of individual voters towards all of the political parties. To achieve that, it needs to expand on the binary system of the party liked and disliked the most by including all parties available in the analyzed party system. Current literature suggests a few methods to deal with the problem in question. (Huddy et al., 2018) in their analysis of the Swedish multi-party system group parties into two coalitions and average their like-dislike scores. In doing so they were able to use the same method that is used for a two-party system, which is the difference in two averaged scores. On the other hand, (Wagner, 2021) proposes measuring affective polarization as a spread of like-dislike scores which is the method this thesis uses. He argues that it is an appropriate measure for affective polarization in a multi-party system as it accounts for positive or negative affect towards more than two parties. This method is based on existing measures of perceived ideological polarization of the parties (Dalton, Russell J., 2008; Ezrow, 2007). The last crucial aspect of the spread measure is whether to treat all the parties equally or weigh them in accordance with their vote share as a relevant measure. The second measure is argued by Wagner (2021) to be a preferred one and is calculated as follows:

Equation 1 Affective polarization

$$Affective\ polarization_i = \sqrt{\sum_{p=1}^{p} v_p * \left(like_{ip} - \overline{like_i}\right)^2}$$

where p is the party, I is the individual respondent, $like_{ip}$ is the like-dislike score assigned to each party p by individual i, and v_p is the vote share of each party. The mean affect for each individual is weighted itself and is calculated as follows:

Equation 2 Weighted like-dislike mean

$$\overline{like_i} = \sum_{p=1}^{p} (v_p * like_{ip})$$

To support the usage of weighted measure Wagner (2021) gives an example of two voters. Both support one party and dislike all others but they differ in the size of the party they support. Using unweighted measure would result in the same spread for both voters. However, the weighted measure assigns a higher affective polarization score to the voter that supports a larger party as the whole party system is more divided for that individual. A further example, an individual likes one large party, dislikes another large party, and is indifferent toward other small parties. Again, the weighted measure would assign a higher affective polarization score to that voter as the party system is more divided to them. What is more, such a measure could reflect a situation where a voter has strong positive and negative affects towards larger parties but lacks information on the smaller parties as they are less relevant, have no significant impact on the political scene, or have low media exposure.

3.3   CONTROL VARIABLES

It is crucial to distinguish between the affective and other types of polarization or partisanship to find the unique effect of affective polarization. To do so various controls have to be introduced. The most vital ones are perceived party polarization, ideological extremity, and party identification. Furthermore, it was found that perceived party polarization is a vital correlate of affective polarization (Wagner, 2021; Ward & Tavits, 2019). Thus, to check for multicollinearity specific tests will be conducted and their results presented together with descriptive statistics of the data. Additionally, robustness checks using models without highly correlated variables will be presented.

3.3.1   Perceived party polarization

To differentiate emotional polarization from ideological polarization perceived party ideological polarization is included as a control variable as it was found to stimulate turnout significantly (Moral, 2017). Wagner (2021) in his study of affective polarization in multi-party systems uses an identical method for calculating ideological polarization as for the affective one with the sole difference of exchanging the like-dislike score measure for the ideological placement of the party by the respondent on the left-right scale ranging from 0 to 10. Thus, the equation is:

Equation 3 Weighted perceived party polarization

$$Perceived\ party\ polarization = \sqrt{\sum_{p=1}^{p} v_p * \left(position_{ip} - \overline{position_i}\right)^2}$$

And the mean position is equal to:

Equation 4 Weighted ideological position mean

$$\overline{position_i} = \sum_{p=1}^{p} (v_p * position_{ip})$$

3.3.2 Ideological extremity

Individual ideological extremity is measured as the absolute difference between an individual's self-placement on a left-right ideology scale and its neutral point, which is 5, as the scale ranges from 0 to 10. It is assumed that extremists are more involved in politics which results in a higher probability of turnout. Thus, it is a vital control that will potentially increase the accuracy of explanatory variables.

3.3.3 Party identification

Partisanship is measured with a binary variable derived from the question from the CSES dataset asking "Do you usually think of yourself as close to any particular party?". Party identification is a part of affective polarization but affective polarization should enhance the probability of turnout beyond the identification with the party as it also includes negative feelings towards out-parties (Harteveld & Wagner, 2023).

3.3.4 Other controls

Based on the previous research discussed in section 2.1. other continuous control variables include age, age squared, household income, and categorical control variables are gender, ethnicity, marital status, region of residency, home ownership, socio-economic status, church attendance, and previous turnout. Additionally, due to the analysis of 5 different elections, yearly fixed effects for the years 1997, 2001, 2005, 2007, and 2011 are included.

3.4 STATISTICAL METHOD AND EQUATION

Respondents in the CSES dataset change with every election which renders it impossible to conduct a time series analysis. Thus, binomial logistic regression is employed to study the impact of affective polarization and political sophistication on individual voter behaviour as it

is a common statistical method in recent studies on the topic of individual turnout (Harteveld & Wagner, 2023; Pacheco, 2008). The equation for the analysis of the general population is as follows:

Equation 5 Turnout model

$$turnout_i = \beta_0 + \beta_1 * affpolar_i + \beta_2 * soph_i + \beta_3 * affpolar_i * soph_i + \beta_4 * ppp + \beta_5 * extreme + \beta_6 * partisan + \beta_7 * age_i + \beta_8 * age_i^2 + \beta_9 * hhincome_i + \beta_{10} * gender_i + \beta_{11} * marstatus_i + \beta_{12} * residency_i + \beta_{13} * howner_i + \beta_{14} * sestatus_i + \beta_{15} * church_i + \beta_{16} * votedbefore_i + yearfixed + \varepsilon_i$$

3.5 AGE GROUPS

First, the effects on the general population are examined but to study the differential effects of affective polarization between young voters, and rest of the population analysis is divided into 2 parts. The second part involves the sample being divided into two subsamples, where the first represents respondents in the age group 18-29 and the second respondents 30 years old or older. Both subsamples use identical explanatory variables and controls as in the general population analysis. Using statistical regression both subsamples are compared which concludes the second part of the analysis.

3.6 DATA

To measure the impact of affective polarization on voter turnout this thesis uses the dataset CSES INTEGRATED MODULE DATASET PHASE 3 provided by The Comparative Study of Electoral Systems (CSES). CSES dataset focuses on respondents' behaviour and attitudes, with emphasis on voting and turnout, during the time of a national election. Each CSES Module consists of a country-specific post-election survey with variables relevant to each nation and period. For this thesis, the dataset is filtered to contain data only specific to Poland which was originally collected by Polish National Election Study (PGSW) around the national elections which took place in 1997, 2001, 2005, 2007, and 2011. The filtered dataset consists of 389 variables and 9935 observations which are spread evenly between 5 national elections. Variables can be split into 4 categories: Country identification, demographics, micro-level, and macro-level.

In the next step, 50 variables are filtered out including previously mentioned ones as well as like-dislike scores and ideology thermometers which are needed to construct the affective

polarization and perceived political polarization measures. The answers to like-dislike and ideology questions that state "Don't know" are treated as missing. After recoding of the dataset most crucial variables were constructed: affective polarization, political sophistication, perceived political polarization, partisanship, and extremism. In the last step observations with missing values were excluded to present the dataset which will be used in the regressions as during the computation such observations are automatically discarded. Descriptive statistics of the dataset before discarding are included in the appendix. Due to discarding, the dataset does not contain observations for the year 1997 as data for two significant variables – previous turnout and socio-economic status – was not collected that year. Furthermore, affective polarization and perceived political polarization measures lack a significant amount of values due to a large number of answers stating "Don't know" to the like-dislike scores and ideology thermometers. Table 1 and Table 2 provide descriptive statistics of the final dataset which contains 3194 observations and 17 variables of which 12 are continuous and 5 are categorical. Column "Mean diff" presents the difference in means of variables in the dataset before and after discarding observations with missing values. Positive differences show that on average a variable has higher values in the final dataset. The mean of turnout is higher by 10.9 percentage points in the final dataset which could mean that respondents who did not give answers in the questionnaire are less politically engaged than those who did answer. A similar conclusion can be drawn for the variables Extremist, Partisan, and Political sophistication. Respondents in the final sample are on average more probable to have extreme views, feel closer to some political party, and be more politically sophisticated. There is no significant change in the means of affective polarization and perceived political polarization measures, as well as church attendance. Moreover, individuals in the final sample are on average wealthier, older, and more probable to have a white-collar job. Lastly, in the final sample observations from the year 2007 are almost 2 times more common but yearly fixed effects included in the model should prevent an occurrence of any related bias. On the other hand, significant changes in the means of variables of interest could mean that the final dataset is not fully representative of the population which could potentially lead to less accurate coefficients, false predictions, and wrong conclusions.

Table 2 Summary statistics – continuous variables

Variable	Mean	Mean diff.	Median	Std. Dev.	Min	Max
Turnout	0.706	0.109	1	0.456	0	1
Aff. pol.	2.590	-0.010	2.584	1.092	0	4.993
Perceived pol.	2.602	-0.118	2.635	0.982	0	4.995
Previous turnout	0.811	0.055	1	0.392	0	1

Age	49.58	2.177	50	15.44	18	92
Church attendance	0.739	-0.003	1	0.439	0	1
Hh income	3.149	0.199	3	1.416	1	5
Extremist	0.253	0.044	0	0.435	0	1
Partisan	0.544	0.097	1	0.498	0	1
Political soph.	3.890	0.550	4	1.380	0	6

Table 3 Summary statistics - categorical variables

Variable	Count	Percent	Count before	Percent before
Year	**3194**		**9935**	
...1997			2003	20.2%
... 2001	668	20.9%	1794	18.1%
... 2005	621	19.4%	2402	24.2%
... 2007	1121	35.1%	1817	18.3%
... 2011	784	24.5%	1919	19.3%
Gender	**3194**		**9935**	
... female	1615	50.6%	5539	55.8%
... male	1579	49.4%	4396	44.2%
Marital status	**3194**		**9903**	
... divorced	159	5%	439	4.4%
... married	2178	68.2%	6092	61.5%
... single	484	15.2%	2005	20.2%
... widowed	373	11.7%	1367	13.8%
Residency	**3194**		**9935**	
... city	639	20%	2160	21.7%
... suburbs	192	6%	643	6.5%
... town	1373	43%	3675	37%
... village	990	31%	3457	34.8%
Socio-economic status	**3194**		**7211**	
... farmer	282	8.8%	854	11.8%
... selfemployed	217	6.8%	471	6.5%
... white collar	1319	41.3%	2605	36.1%
... worker	1376	43.1%	3281	45.5%

3.7 CORRELATIONS

As previously mentioned in section 3.3 possible collinearities will be first investigated using a correlation matrix which is presented in Table 3. As predicted, affective polarization is moderately correlated with perceived political polarization, extremism, and partisanship. The first correlation is in line with the previous research where it was found that ideological polarization fuels affective polarization (Rogowski & Sutherland, 2016). Being an extremist may affect both affective as well as ideological polarization, while partisanship is most probably a component of affective polarization as it was found to be significantly correlated with it (Banda & Cluverius, 2018). What is more, partisanship has a much stronger correlation with affective polarization than an ideological one. Presented variables will be kept in the final model as it is expected that affective polarization will have a distinct and stronger effect than ideological polarization, partisanship, and having extreme views combined. Nevertheless,

robustness checks with different combinations of these variables will be presented in the results section together with VIF tests to furtherly investigate the possible multicollinearity.

Table 4 Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)
Aff. pol. (1)	--				
Perceived pol. (2)	0,4024*	--			
Extremist (3)	0,2975*	0,3263*	--		
Partisan (4)	0,3575*	0,1676*	0,2456*	--	
Political soph. (5)	0,0567*	0,0420*	0,0000	0,1170*	--

* $p < 0.05$

4   RESULTS

In this section results from different logistic regressions will be presented. First, hypotheses 1-3 will be tested using results from main regression using a full final sample. Next, differences in political sophistication and affective polarization effects between age groups 18-29 and 30+ will be investigated. Lastly, various robustness checks will be discussed. First, to check whether significant differences in the results occur when highly correlated control variables are excluded from the equation. Secondly, to compare separate effects of affective polarization and perceived political polarization on turnout.

4.1   GENERAL POPULATION

First, logistic regression is conducted using the full dataset and equation 5. Due to coefficients of logistic regression being difficult to interpret, average marginal effects are computed and presented in Figure 1. Full logistic regression results are presented in the appendix. Average marginal effects already include the interaction between affective polarization and political sophistication.

Affective polarization both with political sophistication have a strong and significant effect on turnout as on average an increase of 1 unit respectively increases the probability of turning up for voting by 6.38 and 4.29 percentage points ceteris paribus. This effect differs across affective polarization levels where at the lowest score of 0 it is equal to 10.55 percentage points and 4.32 percentage points at maximum score of 5. To elaborate, let's assume that there are 3 parties with vote shares of 0.4, 0.4, and 0.2 and two identical individuals A and B. They only differ in their like-dislike scores where the vector of individual A is equal to (5,5,5) and individual B to (4,6,5). Thus, their respective affective polarization scores are 0 and 0.9. According to marginal effects, individual B's probability of voting is higher by around 10 percentage points. Although, as mentioned, this likelihood is diminishing with the affective polarization score rising. Vector of like-dislike scores of (2,8,5) with identical vote shares results in an affective polarization score that is closer to the sample mean. To increase this score by 1 and the turnout of an individual by around 6.38 percentage points vector of like-dislike scores would have to change, for example, to (1,9,5) keeping other variables constant. From another perspective, suppose

that model explains the reality correctly and the sample is representative of the population studied. Overall turnout in the 2011 general election was equal to 48.92% (15 050 027 voters out of 30 762 931 eligible ones[1]). If affective polarization score of every eligible voter increased by 1 across the population the turnout would be closer to 55.3% (17 011 901 voters out of 30 762 931 eligible ones). Such a change could have a significant impact on elections and the direction to which the nation is headed. On the other hand, the political sophistication score ranges from 0 to 6 and consists of political knowledge and education measure. Every 1-point increase in education or political knowledge of an individual translates to a 4.29 percentage points increase in the likelihood of voting. All in all, the results above support hypothesis 1, which states that political sophistication has a positive effect on electoral turnout in Poland, and hypothesis 2 which states that affective polarization has a positive effect on electoral turnout in Poland. Perceived political polarization and extremism effects on turnout are much lower and not significant which is possibly due to the high correlation with affective polarization. On the other hand, partisanship is also highly correlated with affective polarization even though its average marginal effect is strong and highly significant.

**Figure 1** Average marginal effects on turnout

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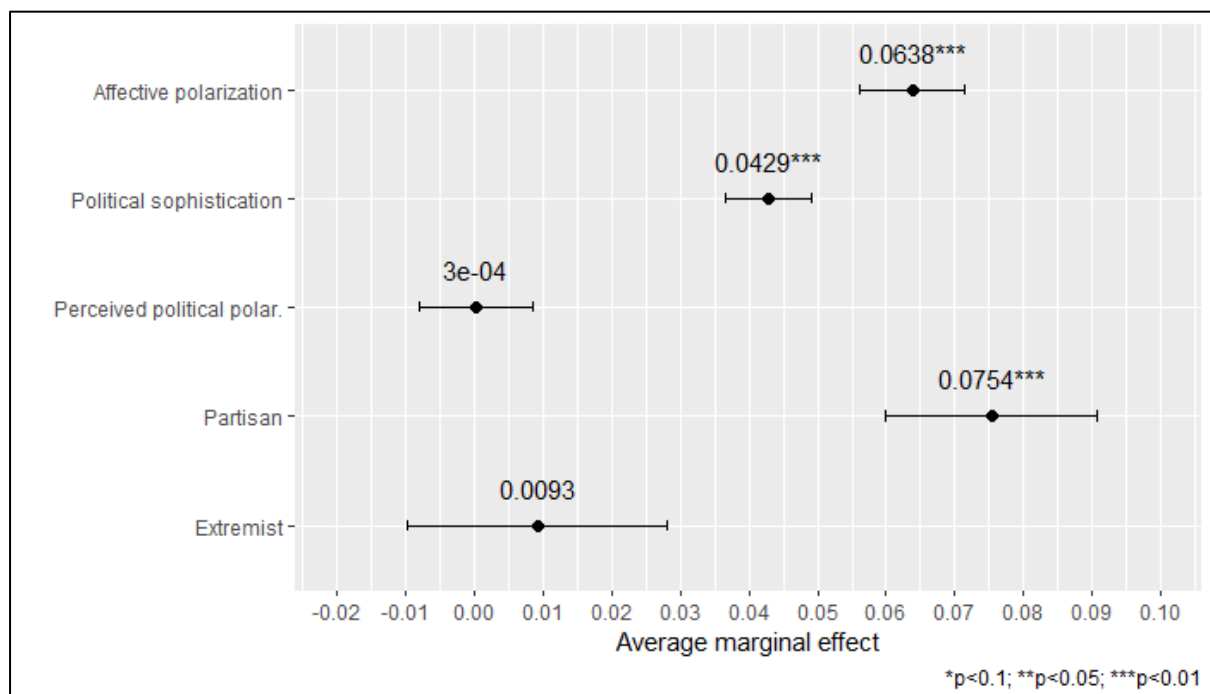
[1] Frekwencja (pkw.gov.pl) accessed 16.06.2023

4.1.1 Perceived political polarization and affective polarization

To further investigate the possible biases introduced by the correlation between two types of polarization two alternative regressions have been conducted. The first removes the perceived political polarization variable from the main model, while the second discards affective polarization together with the interaction with political sophistication. Figure 2a and Figure 2b present the results of two alternative regressions in the form of average marginal effects. Results practically do not differ between Figure 1 and Figure 2a which could mean that affective polarization completely absorbed the effects of perceived political polarization. Figure 2b supports this statement as without affective polarization in the equation the second type of polarization has an economically and statistically significant effect on turnout as it on average increases the probability of turning up for voting by 2.12 percentage points ceteris paribus. This effect is more than 3 times weaker than this of affective polarization. All of the above supports the statement that affective polarization affects turnout significantly and this effect vastly differs from the effect of perceived ideological polarization. Next, the political sophistication effect does not differ significantly whereas the partisanship variable has a much stronger effect as it is almost 4 percentage points higher than in Figure 1. A stronger partisanship effect on turnout could be explained by it being absorbed by the affective polarization variable in the main model.

Figure 2a & 2b Alternative average marginal effects on turnout
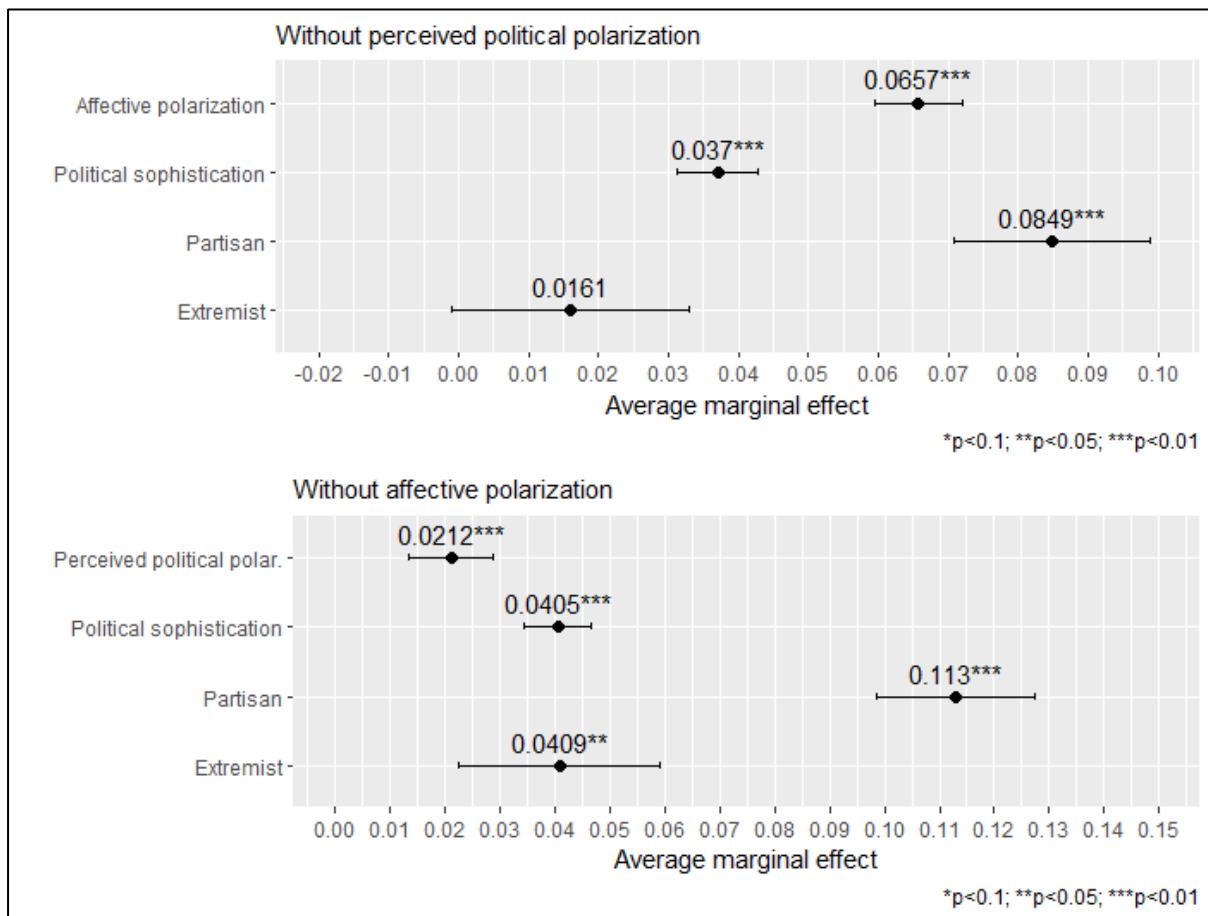
4.1.2   Affective polarization and political sophistication

To test the third hypothesis marginal effects of affective polarization at different levels of political sophistication have to be analyzed. Essential results are plotted in Figure 3. Only at the lowest level of political sophistication affective polarization effect is not significant. At the second lowest level of political sophistication marginal effect of affective polarization is equal to 4.59 percentage points and it is significant. With every next level of political sophistication, the effect of affective polarization increases but the increase diminishes resembling a logarithmic function. At the highest level of political sophistication, which is 6, the average marginal effect on the turnout of affective polarization is equal to 7.18 percentage points. Which means that an additional point in the measure of affective polarization, while political sophistication is equal to 6, on average increases the probability of voting by 7.18 percentage points. Political sophistication measure consists of two components: education and political knowledge. Latter factor could suffer from reverse causality bias as individuals could become more knowledgeable the more they are polarized. To test this possible bias two additional plots

are presented in Figure 4. It is visible that the effect of affective polarization does not differ significantly across different education levels and the political knowledge factor is solely responsible for the enhancing effect of political sophistication. Nevertheless, the presented results reject hypothesis 3 which states that political sophistication moderates the positive effect of affective polarization on electoral turnout in Poland. Additionally, the actual effect of political sophistication is unclear as political knowledge could suffer from reverse causality bias. If assumed that it is not the case, knowledge enhances the positive effect of affective polarization which would oppose the findings of Harteveld and Wagner (2023). Furthermore, the findings of Moral (2017) stating that political sophistication moderates ideological polarization are supported by the results in this thesis. Using an alternative model without affective polarization, a similar plot has been constructed in Figure 5 using perceived political polarization instead of affective one. It can be observed that perceived political polarization is moderated by political sophistication and their function is closer to linear one.

Figure 3 Marginal effect of affective polarization at different political sophistication levels
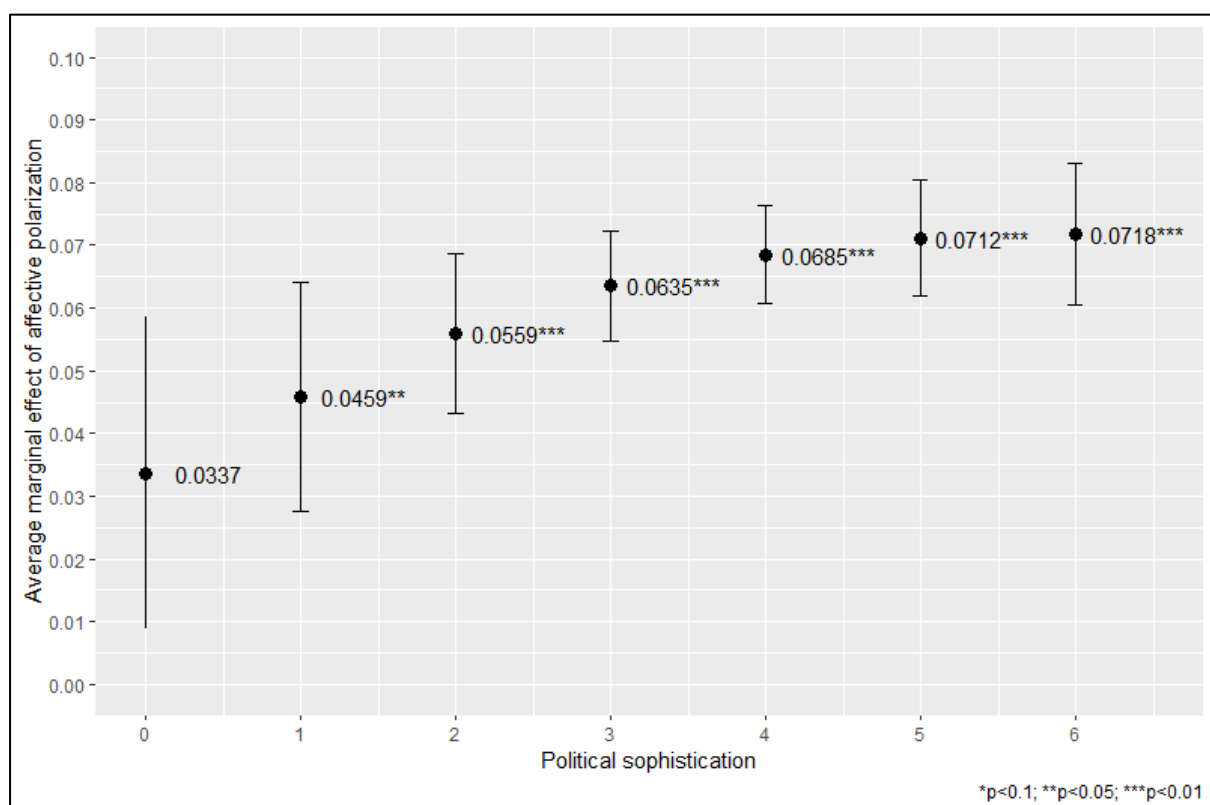
Figure 4 Average marginal effects of affective polarization at education and political knowledge levels
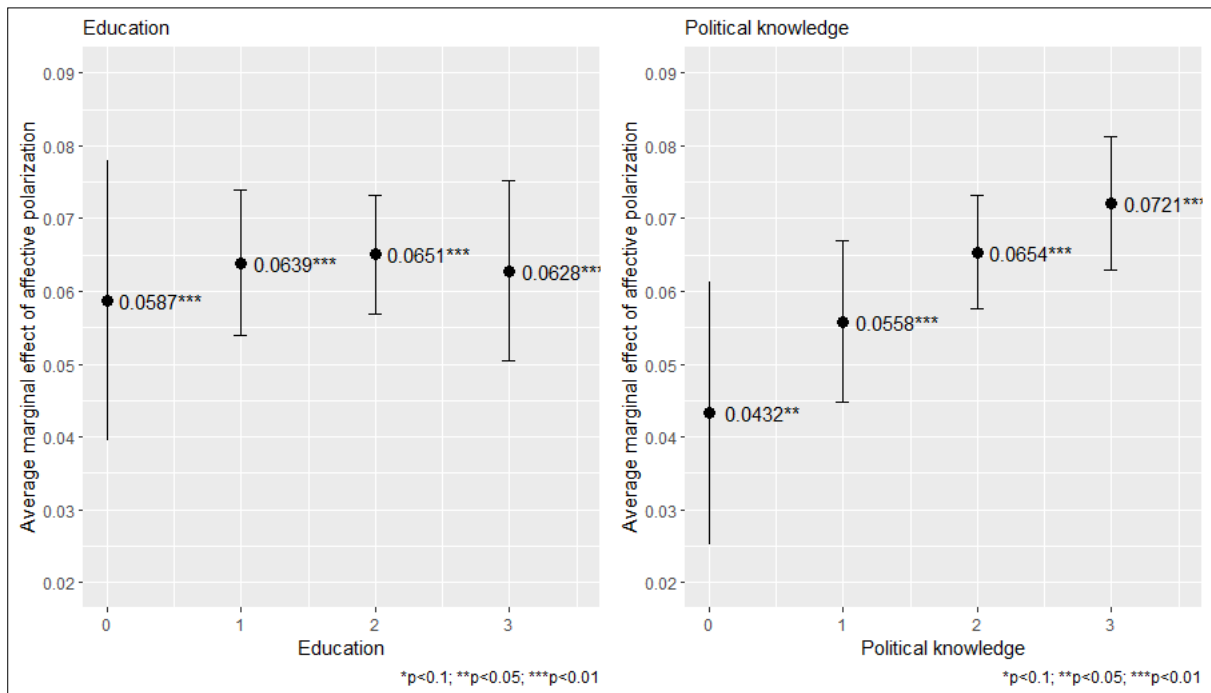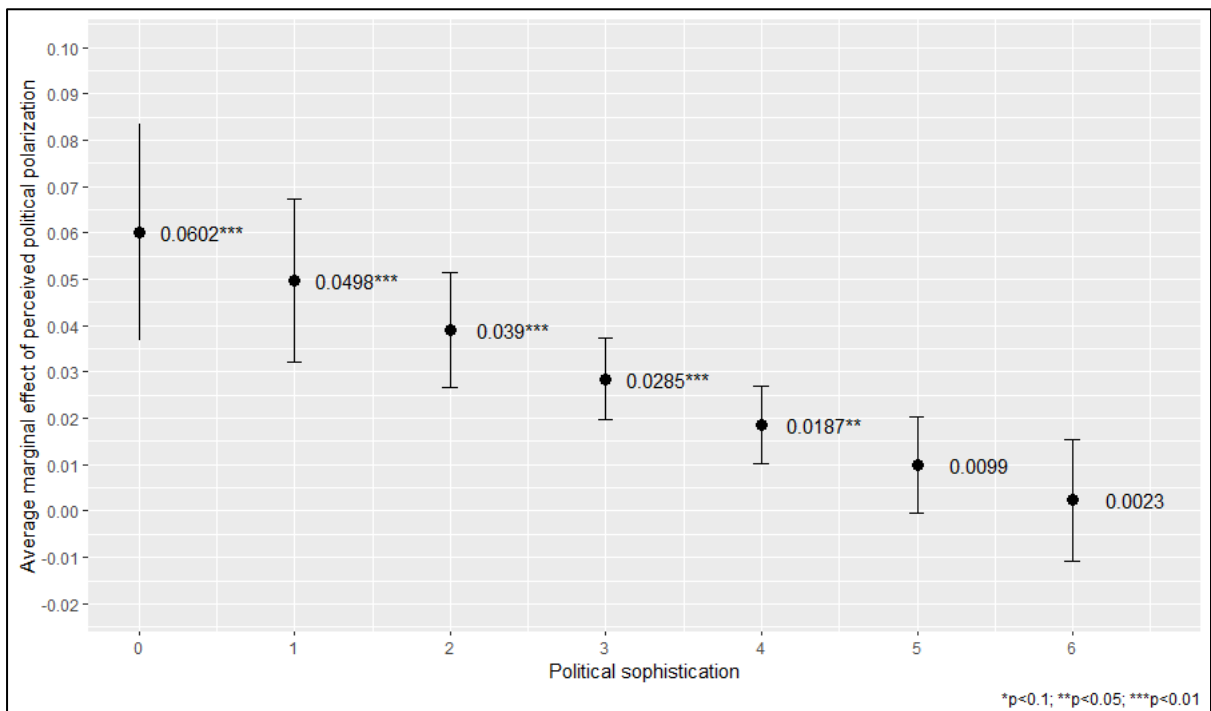

Figure 5 Marginal effect of perceived political polarization at different political sophistication levels

4.2 AGE GROUPS

The last step of the analysis involves comparing two age groups. The first one consists of respondents between 18-29 years old and the second one of individuals 30 years old or older. Regressions use equation 5 which is used by the main model and their results are presented in Figures 6a and 6b. Both political sophistication and affective polarization play an important role in the voting process of two groups, although, both effects are significantly stronger for the younger demographic. First, the increase of 1 unit in the political sophistication measure increases the probability of turning up for voting on average by 6.76 percentage points. In comparison, for the age group of 30 or above this probability increase is equal to 3.91 percentage points. Thus, supporting the *hypothesis 4a* which states that political sophistication has a stronger effect on voter turnout for younger voters than for older ones. An increase of 1 unit in the affective polarization measure increases on average the probability of turning up for voting by 8.19 percentage points for the younger age group. This probability is equal to 6.14 percentage points for the older group which means that older respondents are significantly less susceptible to the effect of affective polarization on voting behaviour. This finding opposes hypothesis 4b which states that affective polarization has a stronger effect on voter turnout for older voters than for younger ones.

Figure 6a & 6b Average marginal effect on turnout across two age groups groups
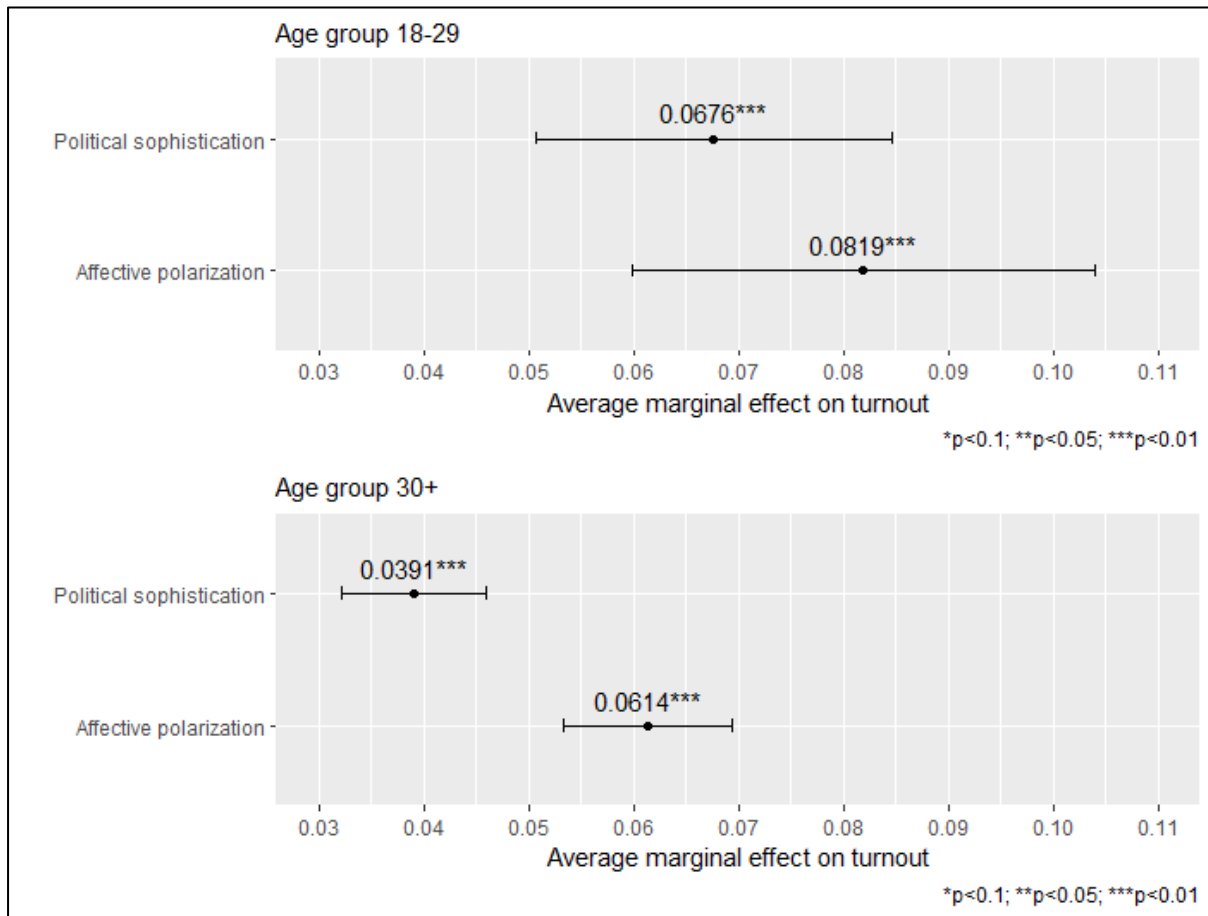
4.3 ROBUSTNESS CHECKS

Apart from the robustness check performed in section 4.1.1, there are other possible scenarios that ought to be tested for potential biases.

4.3.1 Collinearity between affective and perceived political polarization

First, to further investigate possible multicollinearity in the main model between two types of polarization, extremist and partisan variables, a variance inflation factor test has been conducted. VIF scores exceeding 5 are considered proof of high collinearity. In the conducted test, no variable exceeds the VIF score of 2, where affective polarization and perceived political polarization have respective scores of 1.325 and 1.357. The only exception is the age variable as it is strongly correlated with the age-squared variable. With the exclusion of age squared variable, its VIF score is equal to 1.1. Summarizing all robustness checks considering multicollinearity of two types of polarization there is no proof of multicollinearity or

collinearity that would be detrimental to the performed analysis. A table with the full results of the VIF test is included in the appendix.

Table 1 *VIF results*

Variable	VIF
Affective polarization	1.325
Political sophistication	1.571
Perceived political polarization	1.357
Extremist	1.195
Partisan	1.204

4.3.2 Alternative dataset

The chosen methodology is strict as answers to ideology thermometers and like-dislike scores stating "don't know" are treated as missing. This leads to the discarding of more than 2000 observations and to test whether this decision affects the conclusions significantly robustness check is conducted. For that reason, an alternative dataset is constructed where all answers to ideology and like-dislike questions stating "don't know" are treated respectively as "center" and "indifferent". With that approach, the alternative dataset has 5286 observations which are around 2000 more than the one used in the main analysis. Figure A1 presents the average marginal effects of the regressions identical to the ones presented in Figures 1, 2a, and 2b but based on an alternative model. The effects do not differ notably from the main results neither statistically nor economically as their coefficients and p-values are mostly similar. Thus, the main conclusions stay unaltered. The only worth noting difference is the significance of the variable indicating extremism.

4.3.3 Alternative models

To extend the robustness check performed in section 4.1.1 additional regressions have been performed and compared. Figure A2 presents 6 different regressions where on the left side are regressions without interaction with political sophistication. Models plotted on the right side of the figure include interaction with political sophistication measure. Additionally, in the full model and alternative one without perceived political polarization interaction involves affective polarization and political sophistication whereas in the alternative model without affective polarization political sophistication interacts with perceived political polarization. Results imply that including interaction terms does not alter the results significantly.

Figure A3 presents Figure 3 together with the marginal effects of affective polarization of the alternative model without perceived political polarization and with interaction. Results do not differ significantly implying that the presence of perceived political polarization variable in the model does not affect the conclusions of this analysis.

Furthermore, two additional regressions are conducted to check whether results differ significantly when variables partisanship and extremist are excluded from the model. The effect of affective polarization is increased by around 1.2 percentage points whereas political sophistication and perceived political polarization do not change significantly. Effects of affective polarization across different political sophistication measures are higher on average by 1 to 1.2 percentage points compared to the main model plot. Results are presented in Figures A4 and A5 in the appendix. Compared to the results of the main regression it can be assumed that the partisan variable absorbs part of the affective polarization effect.

Lastly, additional regression is performed to check whether a large reduction of observations from the starting dataset, due to missing values from control variables, alternates the conclusions. It is based on an alternative model without previous turnout, socio-economic status, and household income variables. This regression uses a dataset that consists of 5480 observations compared to the final dataset which consists of 3194. It is on account of the exclusion of mentioned variables which have multiple missing values. Around 4500 observations still had to be discarded due to missing values from affective polarization and perceived political polarization variables. Coefficients of affective polarization, political sophistication, and partisan variables increase as they absorb parts of the discarded variables' effects. Coefficients of perceived political polarization and extremist variables do vary slightly although are still insignificant. Thus, even though the magnitude of the effects increases the conclusions of the analysis do not alter.

5 DISCUSSION

The main objective of this study is to answer how affective polarization impacts individual voter turnout in general elections. The results obtained in the performed analysis do not overlap completely with the findings in the current literature. Both affective polarization and political sophistication are highly and significantly correlated with individual turnout which is in line with Blais (2000), Rolfe (2012), Wagner (2021) Ward & Tavits (2019), and Stockemer (2017). Furthermore, the affective polarization effect is robust and distinct from perceived political polarization as the average marginal effect of the latter is almost three times smaller which supports the findings of Harteveld & Wagner (2023). These findings could serve as a possible explanation for the rapid increase in voter turnout in Poland since 2015 as growth in affective polarization was observed since that year (Tworzecki, 2019).

On the other hand, Harteveld & Wagner (2023) also stated that political sophistication moderates the effect of affective polarization on turnout whereas findings of this thesis suggest that the mobilizing effect of affective polarization increases with political sophistication levels in a manner resembling logarithmic function. Cited authors studied turnout in countries of Spain, Netherlands, and Germany which could explain the variation in findings as country-specific factors play a key role in determining turnout (Blais & Dobrzynska, 1998; Blais, 2000; Geys, 2006; POWELL, 1986). One of the said factors could be the communist regime which lasted for 37 years and affected current Polish society and how they perceive the government and politicians. The prediction of Harteveld & Wagner (2023) about the moderating effect of political sophistication on affective polarization was drawn from the findings of Moral (2017). He studied the effect of ideological polarization on turnout and found that political sophistication moderates the positive effect of ideological polarization. Alternative analysis conducted in this study supports the findings of Moral (2017) which further depicts the difference between perceived political polarization and affective one.

The last objective of this thesis was to study the differential effects of affective polarization and political sophistication on turnout between two age groups. Results have shown that both effects were more pronounced for respondents in the age group of 18-29. While the political sophistication effect matches the assumption based on the literature - affective polarization does not. Based on the findings of Phillips (2022) that the degree of affective polarization increases with age it was assumed that the effect of affective polarization on turnout would be

stronger for older respondents. Rejection of that hypothesis does not necessarily imply that older respondents have a lower degree of affective polarization. Another explanation could be that there are unobserved variables that absorb the effect of affective polarization for older age groups or that habitual voting impacts future turnout with an intensity greater than anticipated. All in all, this thesis does not provide a plausible answer to why turnout for youngest voters increased significantly only in the 2020 elections whereas turnout for the age group of 30+ increased intensively already in the 2015 elections.

5.1 LIMITATIONS

Part of the limitations have been already tested through various robustness checks to verify if they could significantly alter the conclusions of this study. However, certain limitations were not examined within this thesis such as external validity given that only respondents from Poland were analyzed. Due to the influence of country-specific factors, the results obtained could differ significantly from those derived from an identical analysis employing a dataset from a different country. There is no ideal solution as every country would require a specifically designed model which would match its political and socioeconomic factors. Although to provide higher explanation power one could conduct a comparative study akin to one performed by Harteveld & Wagner (2023) using countries with similar historical backgrounds and corresponding political and socio-economic factors. Furthermore, the employed dataset does not consider elections after the year 2011 at which turnout surged drastically and a rise in affective polarization has been noticed by scholars. Including these years could yield additional insight that could alter the conclusions of this study. Another concern is that this study considers only general elections, which differ substantially in complexity and comprehensibility from alternative elections such as presidential elections, where voters are tasked with selecting specific individuals rather than political entities. Thus, caution should be exercised when applying the findings of this study to elections other than general ones. Lastly, the limited dataset allowed the construction of political sophistication measure that consisted of education and political knowledge factors. Results show that such a measure is a poor indicator of the actual effect of political sophistication on affective polarization. Education variable barely alters affective polarization effect on turnout and political knowledge could suffer from reverse causality bias. Moreover, this measure is, most probably, correlated with the error term as it could include additional factors like political interest, political engagement,

and activism, thus making it endogenous. The latter indicates an additional limitation of this model which is an omitted variable bias. All in all, the findings indicate that affective polarization and political sophistication are related to voting behaviour. However, multiple assumptions and discussed drawbacks suggest a limited or modest causal connection between the explanatory variables, particularly the political sophistication one, and the dependent variable.

6 CONCLUSIONS

Polarization has been found to be a significant correlate of voter turnout in the current literature. This thesis examines the relationship between turnout and a specific type of polarization – an affective one. It refers to the phenomenon of citizens possessing strong positive feelings towards supported political party and negative feelings towards out parties, their members, and partisans. Based on the significant increases in voter turnout and affective polarization in Poland since 2015 and the current literature presented in Chapter 2 it was assumed that having strong and varying feelings towards different political parties motivates individual voters to turn up for elections. Results presented in Chapter 4 confirmed that prediction. Moreover, the presumption based on literature that political sophistication moderates the effect of affective polarization on voting behaviour was rejected as findings show that political sophistication enhances the said effect. On the other hand, alternative analysis has shown that political sophistication is capable of moderating the effects of ideological polarization on turnout. Lastly, it was shown that the effects of affective polarization and political sophistication are magnified for individual voters in the age group of 18-29 compared to older voters. Thus, in addressing the research question of this thesis, it appears that affective polarization may have some influence on voting behaviour among Polish individuals, especially the younger demographic. Furthermore, there appears to be a correlation between higher levels of political knowledge and a potentially greater impact of affective polarization on voter turnout in general elections. Although, caution is recommended as political sophistication variable could suffer from reverse causality and endogeneity. Moreover, the answer to the research question can be partially applied to a question as to why turnout in general elections in Poland surged since 2015. To elaborate on whether affective polarization influenced voting behaviour in Poland since then few recommendations are provided. First, further research should employ the current dataset with the addition of data from elections from 2015 onwards to have a direct insight into political and socioeconomic factors amongst the respondents when turnout and affective polarization increased. Secondly, affective polarization before and after the year 2015 ought to be compared to detect whether affective polarization increased amongst the population. Lastly, the effect of affective polarization on turnout should be compared before and after the year 2015. This would allow to detect whether increased turnout was due to a rise in affective polarization, the effect of affective polarization on turnout, both or neither.

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8 APPENDIX

Table A1 *Descriptive statistics before discarding observations with missing values*

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
turnout	9850	0.597	0.491	0	0	1	1
extremist	9935	0.209	0.407	0	0	0	1
partisan	9935	0.447	0.497	0	0	1	1
age_squared	9914	2546	1733	324	1089	3600	9604
pol_soph	9935	3.34	1.54	0	2	4	12
active_labour	9935	0.436	0.496	0	0	1	1
aff_polar	7202	2.6	1.14	0	1.79	3.45	5
ppp	6200	2.72	1.04	0	2	3.48	5
age	9914	47.4	17.4	18	33	60	98
church_att	9753	0.742	0.438	0	0	1	1
hh_income	7980	2.95	1.42	1	2	4	5
prev_turnout	7060	0.756	0.429	0	1	1	1
year	9935						
... 1997	2003	20.2%					
... 2001	1794	18.1%					
... 2005	2402	24.2%					
... 2007	1817	18.3%					
... 2011	1919	19.3%					
gender	9935						
... female	5539	55.8%					
... male	4396	44.2%					
mar_status	9903						
... divorced	439	4.4%					
... married	6092	61.5%					
... single	2005	20.2%					
... widowed	1367	13.8%					
residency	9935						
... city	2160	21.7%					
... suburbs	643	6.5%					
... town	3675	37%					
... village	3457	34.8%					
se_status	7211						
... farmer	854	11.8%					
... selfemployed	471	6.5%					
... white collar	2605	36.1%					
... worker	3281	45.5%					

Table A2 *VIF results*

	GVIF	Df	GVIF^(1/(2*Df))
aff_polar	1,325489	1	1,151299
pol_soph	1,571078	1	1,253426
ppp	1,357466	1	1,165104
extremist	1,195053	1	1,093185

partisan	1,203748	1	1,097154
age	39,33201	1	6,271524
age_squared	38,99887	1	6,244907
hh_income	1,317105	1	1,147652
gender	1,18433	1	1,088269
mar_status	1,971977	3	1,119825
residency	1,489002	3	1,068602
church_att	1,159185	1	1,076654
se_status	1,894621	3	1,112381
prev_turnout	1,051982	1	1,025662
year	1,59923	3	1,081397

Figure A1 *Robustness checks conducted on the dataset where answers stating "Don't know" to the ideology and like-dislike questions are recoded to value 5 which states indifference*
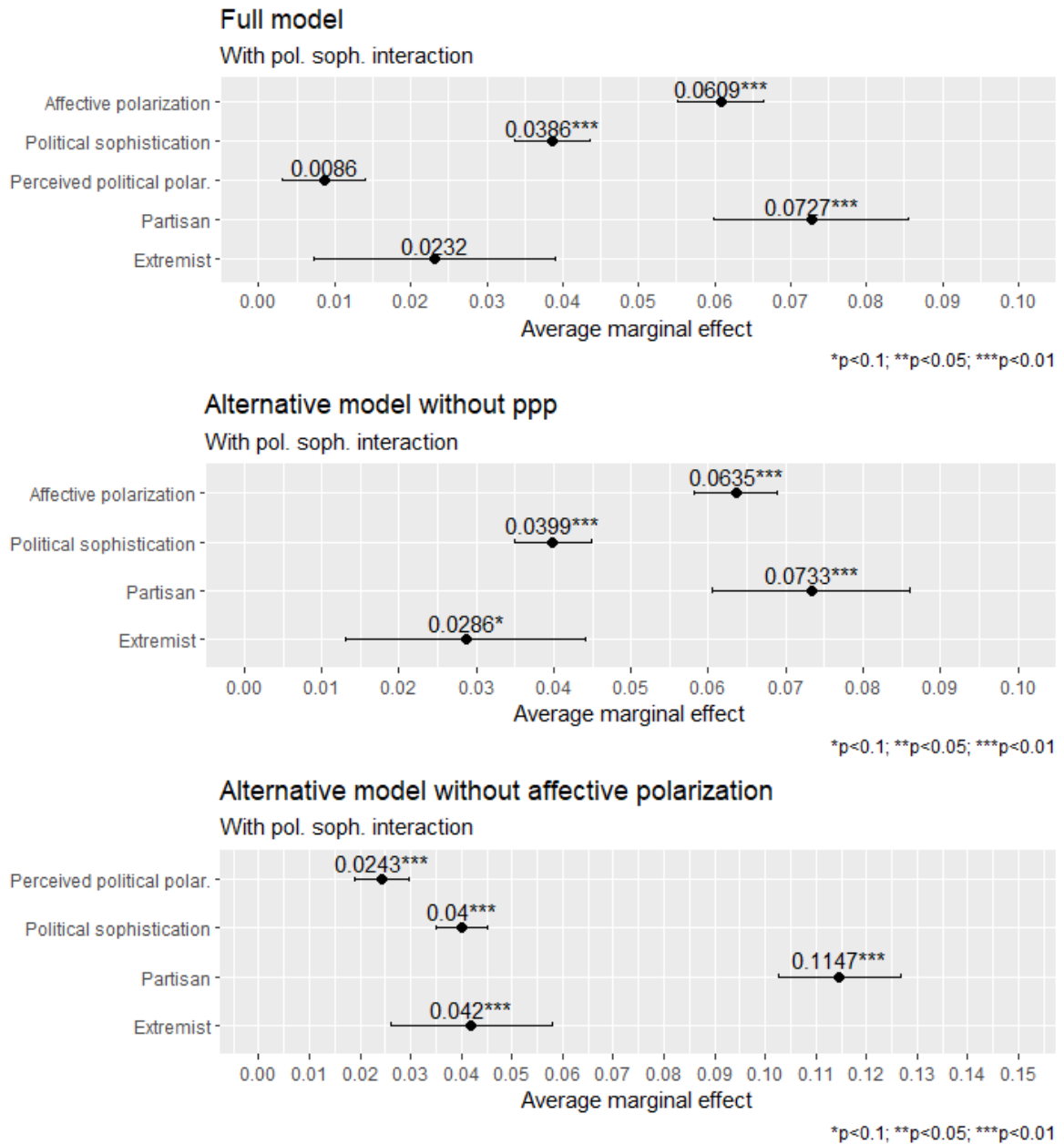
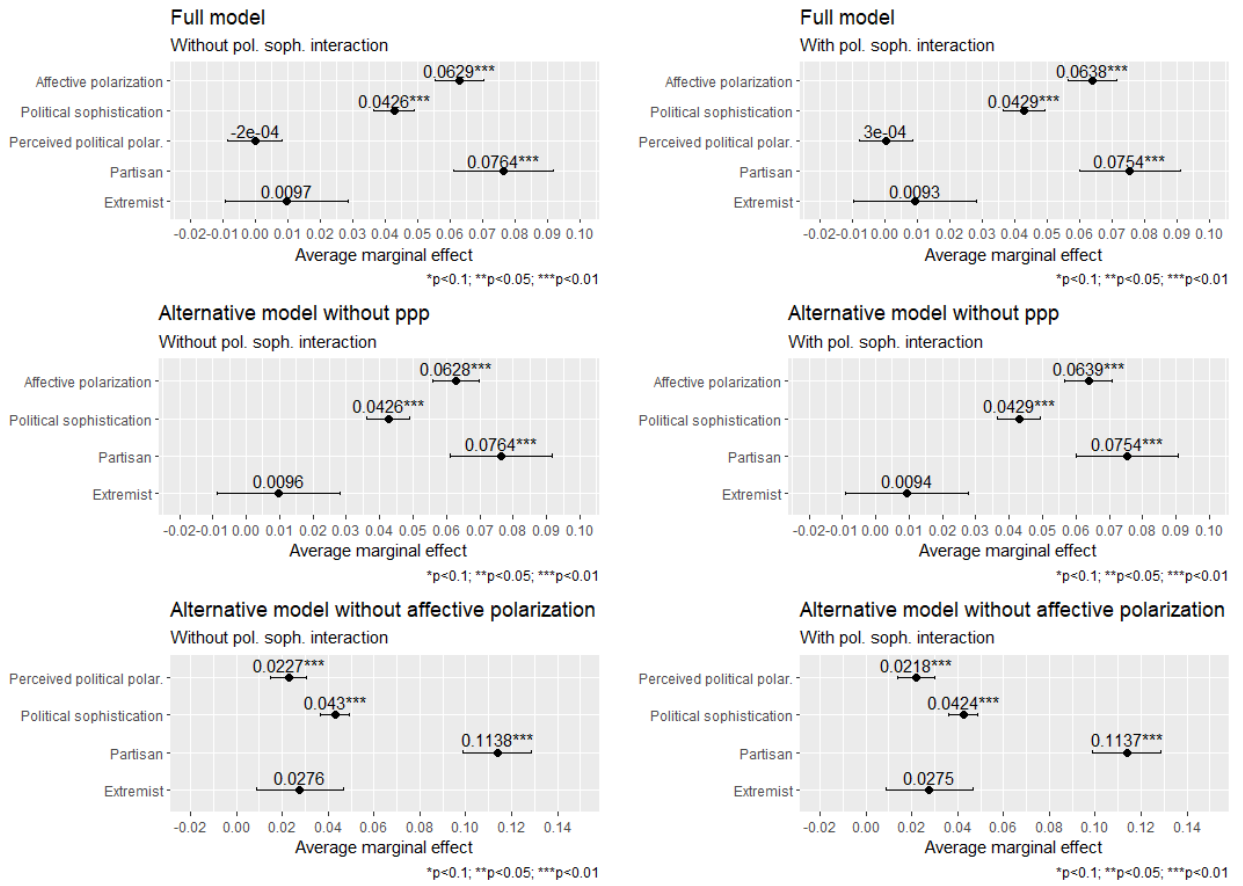**Figure A2** *Marginal effects of main regression and 5 alternative regressions*

Figure A3 *Marginal effects of affective polarization using main and alternative models*
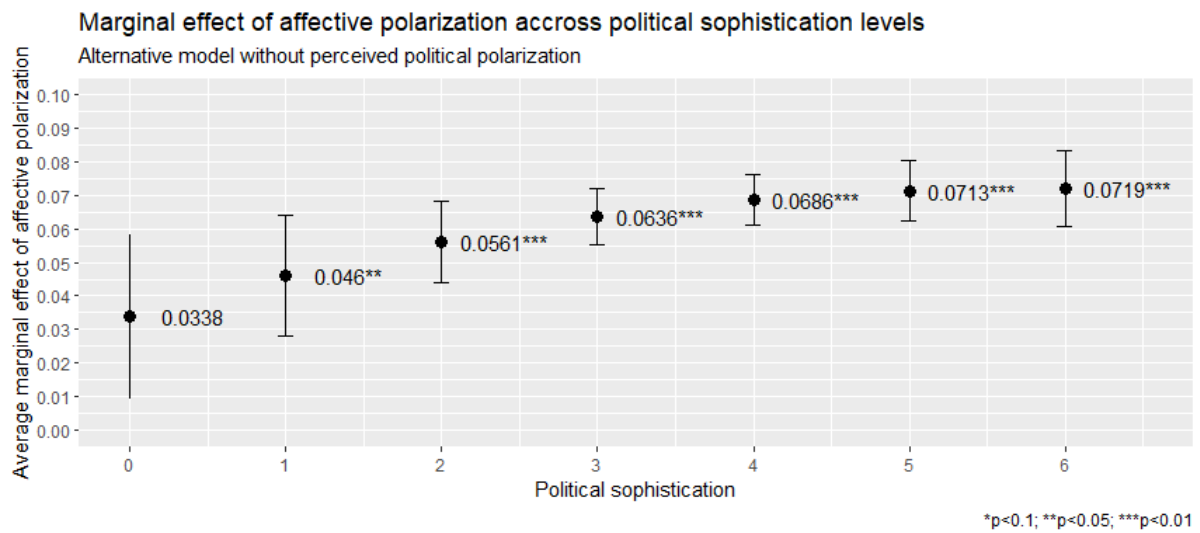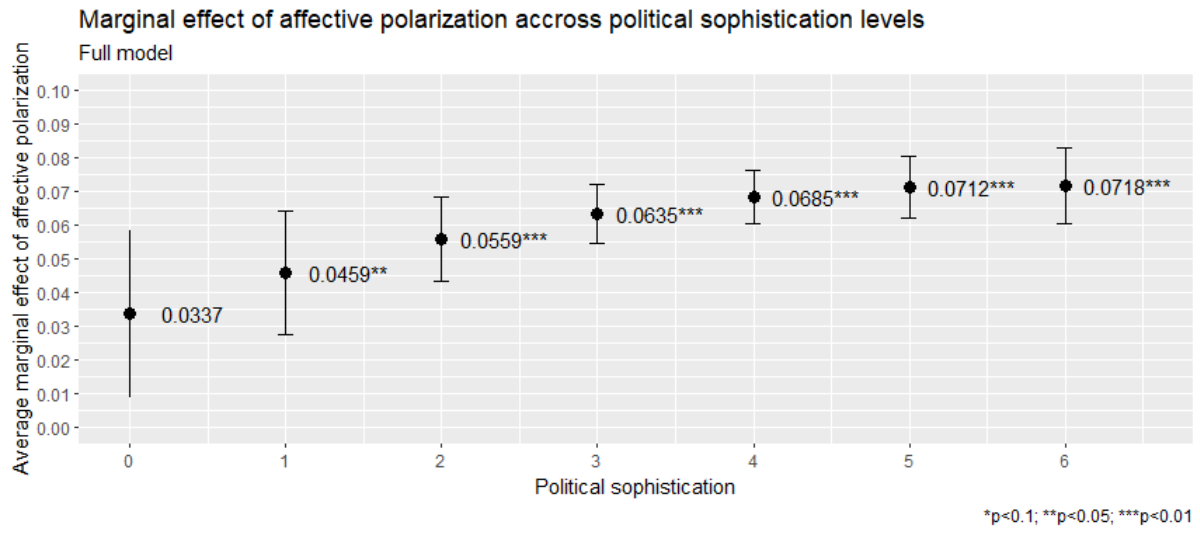

Marginal effect of affective polarization accross political sophistication levels
Full model

*p<0.1; **p<0.05; ***p<0.01

Marginal effect of affective polarization accross political sophistication levels
Alternative model without perceived political polarization

*p<0.1; **p<0.05; ***p<0.01

Figure A4 Regressions results without partisan and extremist variables
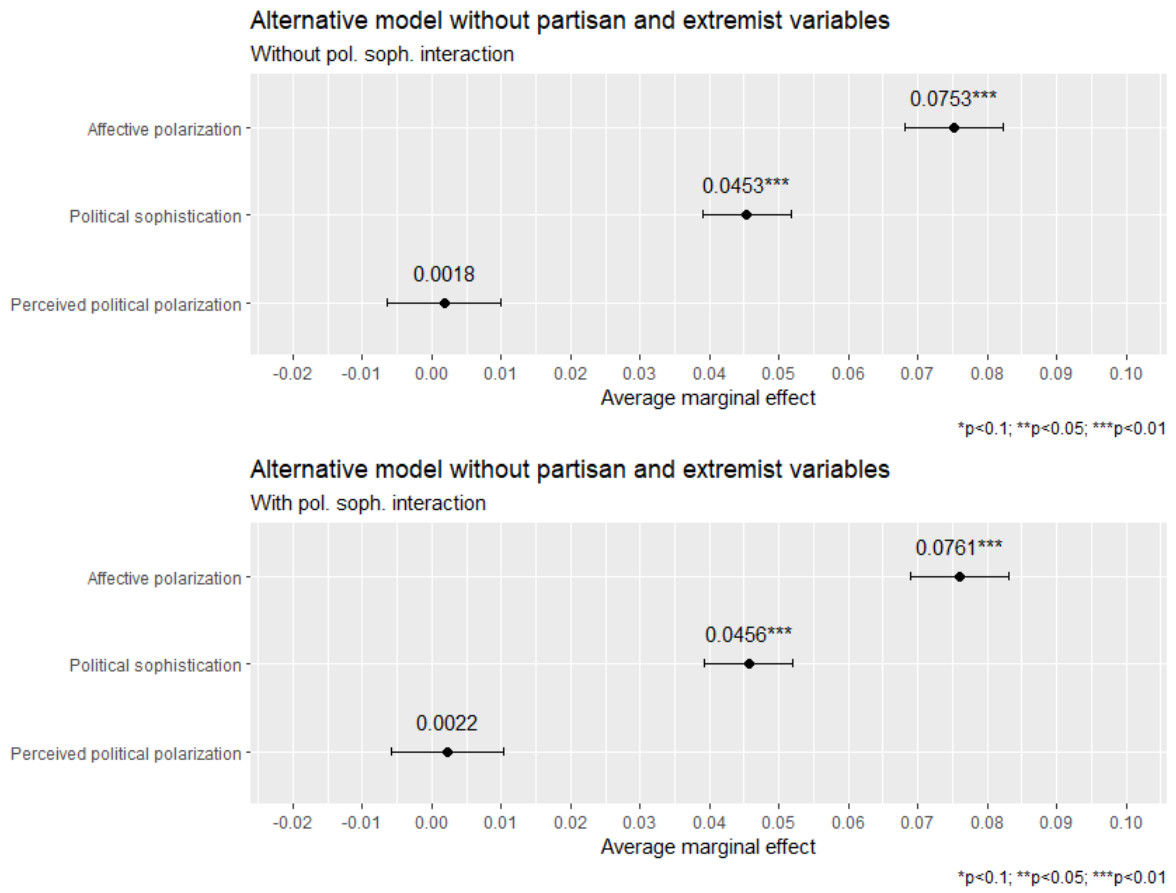
Figure A5 *Marginal effect of affective polarization using alternative model*

Marginal effect of affective polarization accross political sophistication levels
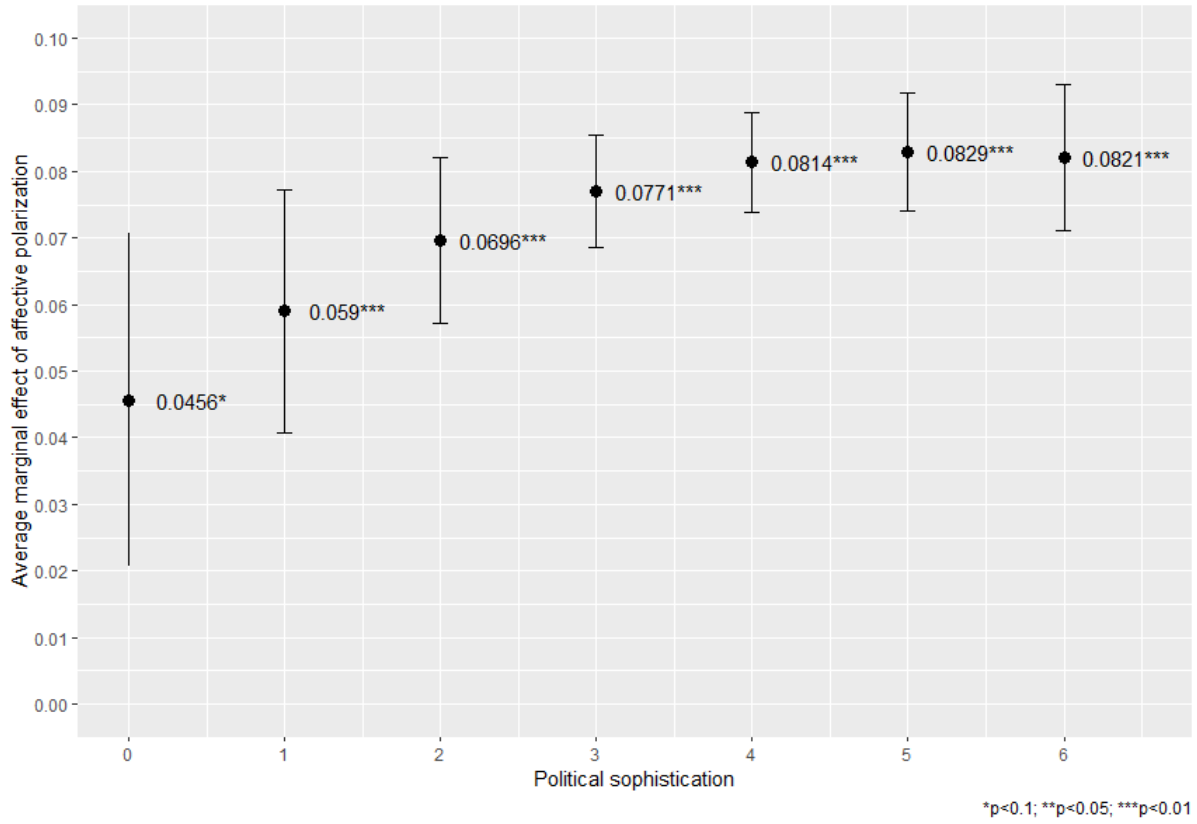Alternative model without partisan and extremist variables

*p<0.1; **p<0.05; ***p<0.01

Figure A6 *Regression results without previous turnout, socio-economic status and household income variables*

Alternative model with interaction
Without previous turnout, socio-economic status and household income