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The Polarization Effect: Mass Ideological Polarization as fuel for Belief in Election Fraud

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The Polarization Effect: Mass Ideological Polarization as fuel for Belief in Election Fraud

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BSc Thesis

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Introduction

One of the pillars of a healthy democracy is the belief and confidence in free and fair elections. When there is widespread belief in election fraud or a lack of belief in election legitimacy this could cause reduced trust and trigger mass protest or even violence (Grant et al., 2021). Mass protest and violence has manifested prominently in the United States (U.S.) on the 6th of January 2021, when the Capitol was stormed. The storming of the Capitol caused the deaths of five people and left many more injured, now widely regarded as an attack on democracy (Healy, 2021). This case of mass violence was caused by the wide-spread belief that the national elections, that took place in November of 2020, were fraudulent. Although a couple hundred of Trump supporters stormed the Capitol, 39% of Americans believed the elections were rigged despite the absence of substantial evidence in support of fraud (Mauk & Grömping, 2023). The U.S. was now divided and staring each other in the eyes, disagreement no longer limited to legislative issues but the most important pillars of democracy. How did we get here?

The storming of the Capitol on January 6th, 2021, has established the violent outcomes belief in election fraud can have if left to itself. Unsubstantiated electoral fraud claims have corrosive effects on the public's trust in the election system (Berlinski et al., 2023, p. 34). Though the effects are moderate, higher belief in election fraud can even discourage citizens from participating in the democratic process (Fraga et al., 2024). Understanding the mechanisms behind such unsubstantiated beliefs may be the key to preventing violent outbursts, like the one on January 6th, in the future. The link between mass ideological polarization and increasing beliefs in election fraud could provide context to the reason why the public is driven to these violent actions. Belief in election fraud is higher among the losers of an election, due to the winner effect (Reller, Anderson & Kousser, 2022, p. 2). According to the winner effect supporters of a losing candidate will have greater doubt about the

electoral fairness of an election thanks to cognitive dissonance between their personal regards of the candidate and the reality of the outcome of the election (Grant et al., 2021).

Additionally, the winner effect is influenced by perceived mass ideological polarization, causing the gap in confidence regarding the electoral fairness of an election between winners and losers to increase (Janssen, 2023, pp. 455-456). An enhanced winner effect essentially leads more supporters of the losing candidate to question electoral fairness (Janssen, 2023, pp. 455-456). What is not known however, is whether this relationship leads to an overall increase in belief in election fraud among the public. Besides, previous research regarding the topic of belief in election fraud has focused on the U.S., research on affective and ideological polarization outside the context of the U.S. being scarce to some extent (Iyengar, Lelkes, Levendusky, Malhotra, & Westwood, 2019; Janssen, 2023, p. 471). Regarding the results of these studies, generalizability is thus mostly limited to a U.S. context. While ample attention has been paid to the U.S. and belief in election fraud among losers, the net effects of belief in election fraud outside of the U.S. warrants further investigation: *Do higher levels of mass ideological polarization lead to more belief in election fraud?*

Using existing literature, I argue that mass ideological polarization can amplify the winner effect, a process through which winners and losers of an election arrive at different perceptions of electoral legitimacy (Reller et al., 2022, p. 2). Relying mostly on data from the World Value Survey, I find that although there is a positive relationship between mass ideological polarization and belief in election fraud, this relationship is not statistically significant. These results emphasize the need for further research regarding the domain of electoral fraud beliefs as well as the need to bridge the increasingly polarized gap that is driving the public apart.

The following pages will investigate the existing body of literature, defining both mass ideological polarization and belief in election fraud. After which will be argued that an

increase in mass ideological polarization will lead to an increase in belief in election fraud caused by an augmented winner effect. Following this, the methodology will be explained after which the results will be shown and discussed. Finally, concluding remarks will be made, limitations and implications will be acknowledged, and possibilities for future avenues of research are proposed.

Miscount or misconduct: people, fraud, and its definitions

Conventional understandings of electoral fraud usually center around fraud committed by powerful people, influencing the availability and weight of votes for the public (Schedler, 2002). However, definitions held by the public regarding election fraud can be divided into two different categories. Individual actions, a bottom-up type of election fraud, and institutional actions, a top-down type of election fraud. The bottom-up view of election or voter fraud encompasses action which can be taken by individuals to influence elections, such as voting more than once, voting without the proper identification, or using someone else's vote (Sheagley & Udani, 2021, pp. 9-10). The top-down view of election misconduct is comprised of actions which can be taken by the elite, being an institutional kind of election misconduct (Sheagley & Udani, 2021, pp. 9-10). Electoral misconduct at the institutional level can further be divided into four categories. Fear or coercion, corrupt inducements, fraud, and systemic procedural violations. Electoral misconduct by fear or coercion refers to the intimidation of voters to induce them to vote for a particular party or candidate (Sutter, 2003, p. 434; Ziblat, 2009, p. 4). Corrupt inducements, also known as vote-buying, regards the bribing or buying of voters (Sutter, 2003, p. 435). Fraud refers to the dishonest taking or counting of votes (Sutter, 2003, p. 435). The last category, systemic procedural violations concern the early closing of polling stations, manipulation of voter registration rolls, or failing to advertise elections or distribute ballots (Ziblat, 2009, p. 4).

Besides a division at the individual and the institutional level, fraud can also differ based on the presence or absence of its affects. When an election is deemed fraudulent by virtue of the action this means that fraud is not dependent on a change in election outcome (Sutter, 2003, p. 435). In contrast, elections can also only be deemed fraudulent if and only if the election outcomes were actually influenced by the electoral fraud (Sutter, 2003, p. 435).

Evidently, not all fraud definitions are the same, partisanship and party affiliation, among other factors, are responsible for how a person defines electoral fraud (Sheagley & Udani, 2021, pp. 9-10; Edelson, Alduncin, Krewson, Sieja, & Uscinski, 2017, p. 935). In the U.S. for example, Republicans are more likely to define voter fraud as bottom-up, putting more weight on the individual actions of electoral fraud, such as the belief that there is a large group of undocumented immigrants who vote illegally (Sheagley & Udani, 2021, pp. 9-10). While Democrats are more likely to define electoral fraud in the top-down manner, putting more weight on the institutional actions of electoral fraud, believing that state legislators and officials make it harder for some minority groups to vote (Sheagley & Udani, 2021, pp. 9-10; Edelston et al., 2017, p. 935).

Despite personal differences in the definition of electoral fraud, for the purpose of analysis, election fraud will generally be defined as, the ‘introduction of bias into the administration of elections’ (Schedler, 2002, p. 105). This definition accounts for both bottom-up as well as top-down fraud definitions, as well as considering that electoral fraud might at times not violate any formal laws but democratic norms of free and fair elections (Ziblatt, 2009, p. 4).

Seeds of doubt: why do people believe in election fraud?

Belief in election fraud is often an irrational response, not a response to actual electoral fraud. Cases of actual fraud and the public’s belief in it are unrelated (Edelston et al., 2017, p. 935).

The public's belief in election fraud is often much higher than actual election fraud, which can happen in democracies but rarely does (Hill, Sobolewska, Wilks-Heeg, & Borkowska, 2017, p. 772). Voter ID laws, designed to decrease electoral fraud, may for example actually increase the belief in electoral fraud, showing its irrationality (Edelston et al., 2017, p. 935). Although belief in election fraud is often irrational and unfounded, there are still different processes that can account for this type of irrational behaviour. The reasons for believing in electoral fraud can be broadly split into two categories: psychological reasons and contextual reasons.

Psychological reasons for belief in election fraud

Everybody wants to win, nonetheless not everybody can win. Democracy knows winners and losers and is highly dependent on widespread acceptance of the legitimacy of election result (Reller et al., 2022, p. 2). Those experiencing an electoral loss exhibit more doubt in the legitimacy of the election. This 'winner effect' leads to declining trust in governments and those on the winning and losing side to come to different levels of electoral legitimacy (Reller et al., 2022, p. 2). According to motivated reasoning theory people process political stimuli dependent on their prior beliefs (Flynn, Nyhan, & Reifler, 2017, p. 132). Motivated reasoning can therefore be directional and lead people to seek out evidence that supports their prior beliefs or counterargues other beliefs (Flynn et al., 2017, p. 132). It can even lead people to find evidence that supports the ingroup more believable than evidence that supports the outgroup (Flynn et al., 2017, p. 132). Feelings of a losing candidate's supporters are dissonant with their positive view of the candidate. Because of this cognitive dissonance supporters of a losing candidate engage in directionally motivated reasoning leading them to question the legitimacy of the election (Grant et al., 2021). Cognitive dissonance also affects the reasoning and belief in the election of supporters of a winning candidate (Grant et al., 2021). Besides

legitimacy of elections, the citizens that voted for the party that won during the elections exhibit overall greater trust in their democratic institutions than their losing counterparts (Nadeau, Daoust, & Dassonneville, 2021, p. 483). Both winners and loser engage in motivated reasoning when they are confronted with the election results. Contrary to the supporters of the losing candidate, supporters of the winning party will seek out information confirming their win and the freeness and fairness of the election. While supporters of the losing party will, as already established, do the opposite (Nadeau et al., 2021, pp. 485-486).

Besides the winner effect, conspiratorial thinking is also believed to influence why people belief in election fraud (Edelson et al., 2021, p. 939). Conspiratorial thinking is a world view in which circumstances are the product of a conspiracy. Conspiracy theories usually use disconfirming evidence or a lack of evidence as support for the conspiracy (Edelson et al., 2021, p. 936). Especially for election fraud the lack of evidence of election fraud is used as an argument to show how widespread and concealed it is. Those who engage in conspiratorial thinking are more inclined to believe in conspiracies and may also be more inclined to view elections with a sceptical eye (Edelson et al., 2021, p. 936). Although the relationship between conspiratorial thinking and the belief in election fraud is linked to partisanship it also effects belief in election fraud independently of party affiliation (Edelson et al., 2021, p. 936). This predisposition for conspiratorial thinking though interesting, should only cautiously be generalized to a wider array of countries since the data of the study refers exclusively to U.S. politics. Despite the US centric focus of Edelson et al. (2021), there does seem to be evidence in support of the influence of conspiratorial thinking in the political understanding of Europeans (Onderco & Stoeckel, 2023, pp. 183 – 185) and Latin Americans (Caycho-Rodríguez et al., 2022).

Contextual reasons for belief in election fraud

The contextual reason for electoral fraud beliefs centers around the role of one group, namely the elite. The demographic of a country can be split into multiple levels, one of which being the elite. The elite can sometimes purposefully use pre-existing cleavages among the public when it favours them (Arabalti & Rosenberg, 2020). Elites have previously made claims of electoral fraud to cast doubt on the election results when the outcome does not favour them (Berlinski et al., 2023, pp. 35-36). During the 2018 elections of Brazil, Jair Bolsonaro communicated his fear of electoral fraud to the public. Although the outcomes were yet to be announced, he cast doubt on a potential unfavourable election outcome, leading to increased doubt with respect to the legitimacy of the election (Berlinski et al., 2023, pp. 35-36). Additionally, the elite has the ability to influence the public through cues, influencing the way in which the general public takes decisions and evaluates arguments (Druckman, Peterson & Slothuus, 2013).

Belief in fraud as a mirror of mass ideological polarization: The role of mass ideological polarization

The following question emerges from reviewing the reasons why people believe in electoral fraud: how does mass ideological polarization play into this? While there seems to be a consensus in the literature that the losers of an election are more sceptical about electoral fairness, the extent to which this happens in an increasingly polarized world does not garner this same consensus. I argue that increasing mass ideological polarization has an amplifying effect on both the winner effect and conspiratorial thinking, while elite- and affective polarization mediate this relationship.

Mass ideological polarization is a form of political polarization. Polarization is the manner in which observations are distributed, where polarization refers to a bimodal distribution (Fiorina & Abrams, 2008, pp. 566-567). This bimodal distribution often comes with the implicit assumption that the distribution must be centred around two extremes (Fiorina & Abrams, 2008, pp. 566-567). Mass political polarization can be categorized in two types of polarization: ideological polarization and affective polarization. Affective polarization pertains to polarization on the basis of opinions regarding political allies and adversaries, while ideological polarization pertains to the values and beliefs of the public. (Kubin & von Sikorski, 2021, p. 188). The bigger the discrepancies between the extremes, the more polarized an environment or group of individuals is (Bértoa & Rama, 2021). There are two main characteristics of political polarization. The first aspect of mass political polarization being inter-group heterogeneity, meaning that the differences between groups become increasingly large (Arbatli & Rosenberg, 2020, p. 287). The second characteristic of mass political polarization is an increase in the similarity of members belonging to a group, also called intra-group homogeneity (Arbatli & Rosenberg, 2020, p. 287). Thus, a polarized society consist of groups that are very different, while the people that are in those groups are the same.

Amplifying psychological reasons of belief in election fraud

The gap between winners and losers' belief in election fraud is bigger when both affective and (perceived) mass ideological polarization is higher (Janssen, 2023, p. 455). Mass polarization can decrease losers' willingness to comply with the election outcome. Polarized voters care more about who wins and who loses and view the opponent in a more negative light, making it harder to accept the loss, thus making the gap between winners and losers' belief in election fraud bigger (Janssen, 2023, p. 455). In mass ideologically polarized societies those who

support a losing candidate are more sceptical of the electoral fairness of an election than the supporters of a losing candidate in a less mass ideologically polarized society.

A smaller gap between the winners and losers of an election is a key feature to a healthier democracy. The size of the winner effect, the gap between winners and losers, is context dependent (Nadeau et al., 2021, pp. 485-486). Depending on the individual psychological process, the level of motivated reasoning and differences in the environment of the media. Countries with a higher or better functioning democratic process, or better democracies in general, experiences much smaller gaps between the winners and the losers (Nadeau et al., 2021, pp. 485-486). In countries with higher functioning democracies losers are more content or satisfied with the process and winners react less emphatically to their victory (Nadeau et al., 2021, pp. 485-486). High functioning democracies in this case refer to democracies in which electoral democratic standards are fulfilled (Nadeau et al., 2021, p. 489). Information environments differ highly between low and high functioning democracies. In low quality democracies loser will have more exposure to media questioning the elections than in high quality democracies, thus questioning the validity of the fairness of the election more than in the information environment of the high-quality democracy, where this information is absent (Nadeau et al., 2021, pp. 485-486).

Likewise, mass ideological polarization has the ability to exacerbate conspiratorial beliefs in addition to the winner effect, moving political discourse away from moderation and towards polarization (Sutton & Douglas, 2020, p. 119). Conspiracy theories often imply that a small group, the elite, are very powerful and that institutions that should provide checks and balances fail to do so. Thus, mainstream civic and political institutions are not reliable, and it would make sense for the public to withdraw from the mainstream and move to the extremes (Sutton & Douglas, 2020, p. 119). Additionally, conspiratorial thinking can make it more

difficult for the losing side of a debate to accept the reality of their loss, enhancing and exacerbating the ‘winner effect’ (Sutton & Douglas, 2020, p. 119).

Contextual reasons as mediators

Besides the general population the elite can also be polarized, aptly called elite polarization. Elite polarization can be defined as “high levels of ideological distance between parties and high levels of homogeneity within parties” (Druckman et al., 2013, p. 57). Thus, often referring to a select group of elites. Polarization of the elite can occur separate from the level of polarization among the public. Their ability to alter the decision-making process is dependent on the level of mass polarization in an environment in combination with the separate level of polarization among the elite. According to partisan motivated reasoning theory, partisans will be more affected by the frames supported by their own party than those supported by the opposing parties (Druckman et al., 2013, p. 59). The tendency to only seek out information that confirms already existing beliefs and find evidence to support existing beliefs more compelling explains why elite polarization and a highly mass polarized environment alters the public's decision-making process. Druckman et al. (2013) find that when elites polarize in an already highly mass polarized general environment party cues become more important for decision making than substance. The public is thus more likely to follow party cues in highly mass polarized environments even if the substance of the argument of other parties is more compelling (p. 70). Conversely, when the elite polarizes in environments with lower levels of mass polarization party cues are only important when arguments of both sides of the debate are deemed to be of equal strength (p. 70). In this manner, the level of elite polarization in a highly mass polarized society could mediate the effects of the mass ideological polarization on belief in election fraud. Mass polarization could also mean that policy signals and partisan identifiers are communicated more clearly

(Robison & Mullinix, 2016, pp. 261-264). This could increase the tendency of the public to engage in partisan motivated reasoning, thus relying on party cues more heavily as well. Even when mass polarization is framed negatively, leading people to evaluate the argument of the opposing parties more favourable, the extent to which people follow their party's policy endorsement does not change (Robison & Mullinix, 2016, pp. 261-264). If a party were sceptical of the election results and communicates that to their supporters, in an environment that is more mass polarized this could mean that supporters are more likely to believe such messages, since party cues becoming increasingly important for decision-making in highly mass- and elite polarized environments.

Although the focus in this study lies on mass ideological polarization, affective polarization may still influence the relationship between mass ideological polarization and the belief in election fraud. When the elite is polarized the gap of affective polarization in the public between their own and opposing parties enlarges (Banda & Cluverius, 2018). It appears that elites encourage partisans to dislike members of other parties when they are polarized. Elite environments that are more highly polarized should produce cues that are both more frequent and clearer than in elite environments that are less polarized (Banda & Cluverius, 2018). To partisans this suggests that the opposing party is a threat to their social identity. An electoral victory of the opposing party is more threatening in an elite environment that is highly polarized since there is a larger difference in parties' agendas when the elite are more polarized (Banda & Cluverius, 2018). Thus, it would make sense for those who's social identity is threatened to believe in claims of election fraud. Affective polarization, through elite polarization, also has the ability to mediate the effect mass ideological polarization has on electoral fraud beliefs. Additionally, mass ideological polarization is also found to increase affective polarization. (Iyengar et al., 2019). Since affective polarization also influences mass

ideological polarization (Banda & Cluverius, 2018), this may in turn become some kind of self-reinforcing loop.

The winner effect, conspiratorial thinking, and the elite all play a role in the relationship between ideological polarization and the belief in election fraud. At the core of this relationship lies the winner effect. The winner effect explains why people believe in election fraud. Stating that the losers of an election will exhibit greater doubt about the legitimacy of the election because the outcome of the election will cause the feelings of supporters of the losing candidate to be dissonant with the way in which they view the candidate (Reller et al., 2022, p. 2). The bigger the winner effect, the bigger the part of the public that believes in election fraud. When ideological polarization increases, the winner effect is thought to increase alongside it (Janssen, 2023, pp. 455-456). Polarized voters care more deeply about the outcome of the election and often view opponents in an increasingly negative light (Janssen, 2023, pp. 455-456). This makes it harder for the supporters of the losing side to accept the democratic claims of the election (Janssen, 2023, pp. 455-456). This means that the losing side of an election will exhibit greater belief in electoral fraud than the winning side. Thus, it would follow that when ideological polarization increases, the winner effect also increases and the belief in election fraud has the potential to increase, especially in multiparty systems, where there are more losers than winners. Although the possibility of the increasing belief in election fraud among the losers of an election and the decreasing belief in election fraud among the winners of an election do have the possibility of averaging out to zero, a review of the literature leads to the following hypothesis:

H1. When mass ideological polarization increases belief in election fraud will also increase.

Research Design

To test the hypothesis, a cross-country study will be done, focusing on democratic countries. Most of the existing research on this topic focuses exclusively on the U.S., it would therefore be interesting to broaden the study of this topic in space (Iyengar et al., 2019; Janssen, 2023, p. 471). The reason for a focus on democratic countries instead of countries with other regimes such as autocracies is because belief in election fraud in democratic countries is more meaningful than in autocratic countries. Since free and fair elections and free speech are integral parts of democratic countries and not necessarily of autocratic countries, belief in election fraud among the public in autocratic countries will not be representative of reality. Consequently, any results coming from this study will not be representative of autocratic countries. The data that is used for the analysis stems from the 7th wave of the World Values Survey (WVS). Random probability representative samples from the adult population were used by all countries. Most of the data was collected through face-to-face interviews, collecting data on either an electronic device or paper (Haerpfer et al., 2022). Although all the data from the WVS is gathered over 66 countries or territories, the data from 32 countries out of the data will be used, refer to Appendix A for a detailed list of the selected countries. Using V-Dem report (Boese et al., 2022) which analyses and categorizes regime types between 2011 and 2021 and sorts them based on the regime type in 2021, the democratic countries to be used as cases were selected. The V-Dem report was used for all countries except Northern Ireland and Macau, which were not present in the report. To determine if Northern Ireland was democratic, the 'Freedom in the world 2021' report from Freedom House and the Freedom House index for the United Kingdom was used (Repucci & Slipowitz, 2021). According to this report and the index for the United Kingdom, Northern Ireland is a free democratic territory, thus it was included in the analysis. Sources on the political system of Macau are scarce as the territory is not included in either the V-Dem report or the Freedom House report.

However, since Macau is an administrative region of the People's Republic of China, characterized by a lack of democratic elements Macau was excluded from the analysis (LO, 2011). Any countries present in the WVS dataset that were categorized as either liberal democracies or electoral democracies in the V-Dem report (Boese et al., 2022) were selected. The sample size of each of the countries that were used in the analysis was roughly a thousand respondents.

Mass ideological polarization, and its increasing presence, is a modern and recent problem (Bértoa & Rama, 2021, pp. 1-3). Hence, it would make most sense to focus on the most recent data available. The most recent wave of the World Values Survey is the 7th wave which ranges from 2017 to 2021, this timeframe will be used. Mass ideological polarization has risen with the advent of social media as a form of news among other things, although this process started before the timeframe that will be used it has increased much more from 2010 up until today (Bértoa & Rama, 2021, pp. 1-3). The number of votes for anti-establishment parties (AEP), has exponentially increased in the past 20 years, but especially in the past ten years (Bértoa & Rama, 2021, pp. 1-3). Seeing as the data is not current, but from two years ago, not much can be said about the state of this relationship as it is today. However, if a relationship is established inferences can be made, about the present and possibly about the future.

The dependent variable – Belief in election fraud

Because of the criminal nature of election fraud, the data on it is limited and even so, probably does not show a realistic picture of actual numbers of election fraud since the data is only available regarding the cases that are caught and not those that are not, thus a survivorship bias would occur. The dependent variable will therefore focus on the belief in election fraud instead of election fraud. The variable will be measured using data from the questionnaire

from the WVS where respondents are asked whether they believe ‘Votes are counted fairly’, ‘Voters are bribed’, ‘Election officials are fair’, and ‘Rich people buy elections’ (Haerpfer et al., 2022). Respondents are asked to answer these questions on a scale from 1 to 4, where 1 means ‘very often’ and 4 means ‘not at all often’ (Haerpfer et al., 2022). Since belief in election fraud can be defined as ‘introduction of bias into the administration of elections’ (Schedler, 2002, p. 105), the four prompts will be used to measure belief in election fraud. All four of the prompts above will be averaged to create an index on belief in election fraud. The goal of the index is to create a measure, which can be aggregated to a country-level and in which higher values indicate more belief in election fraud. Because of the formulation of the questions, two out of the four variables that attributed to the index were recoded so that a higher value of the index means a higher belief in election fraud. Although the original variables from the WVS are ordinal, because an index was used, the dependent variable can be considered continuous.

The independent variable – Mass ideological polarization

The independent variable, mass ideological polarization, will be measured using data from one of the questions from the questionnaire from the WVS asking respondents ‘In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?’ (Haerpfer et al., 2022). This scale ranges from 1 to 10, where 1 means ‘left’ and 10 means ‘right’ (Haerpfer et al., 2022). This scale by itself does not translate to measure of polarization. Thus, a bimodality index will be used, with which polarization will be measurable. To measure bimodality kurtosis can be used (Willis, 2017). When there is a higher level of consensus among the public kurtosis is positive. The more polarized the public the more negative kurtosis becomes, reaching bimodality at a kurtosis of -2 (Willis, 2017). Kurtosis as a measure for the level of mass ideological polarization can be considered

as a continuous variable. Although levels of mass polarization are harder to measure than trends of mass polarization because of the implicit assumption of extremity of mass polarization (Fiorina & Abrams, 2008, pp. 566-567), for the purpose of feasibility and availability of data, mass ideological polarization will be measured in levels of mass ideological polarization between countries.

Statistical Model

To analyse the relationship between the dependent and the independent variable a regression analysis will be used (sample size, $n = 32$). Regression analyses are used to find relationships between variables and since this is the aim of the research question a regression analysis is appropriate. The independent variable, mass ideological polarization measured through a kurtosis value, is a continuous variable. The dependent variable, belief in election fraud, is measured using an index compiled of four questions of the WVS, also making it continuous variable. Thus, a linear regression analysis using the OLS (Ordinary Least Squares) method is most appropriate for this research design. The relationship will be tested using one model, testing the relationship between the dependent and the independent variable including the control variables. The assumptions for the linear regression were all met. Refer to the Appendix B for further detail and discussion on this.

Controls

To limit the influence of confounding variables, three controls will be introduced into the model. The level of income inequality within a country could be a confounding variable, therefore being added as a control. Winkler (2019) finds that when the level of income inequality rises, the probability of a person supporting parties at the extremes of the ideological spectrum increases (pp. 159-160). Atkeson & Saunders (2007) find that income is

positively associated with voter confidence (p. 658). Meaning that those with a higher income tend to have more confidence in the electoral system. Thus, a higher level of income inequality, with a larger percentage of the population around or under the poverty line would insinuate a lower level of voter confidence. In this manner the level of income inequality in a country can be a confounding variable. The Gini-coefficient is the most popular measure of income inequality, because of the ability to generate one single statistic for the income distribution in a country (De Maio, 2007, p. 850). The main weakness affecting the Gini-coefficient is that it is not able to differentiate between different types of income inequality (De Maio, 2007, p. 850). However, since a single statistic for the level of income inequality per country is needed to control for income inequality the Gini-coefficient is an appropriate measure. Because there is no data on income inequality available from the WVS, data for the Gini-coefficient per country was used from the World Inequality Database (2024). Since the data from the WVS ranges between 2017 and 2022, the Gini-coefficient of 2022 was used for each country, except Northern Ireland and Andorra. For which the World Inequality Database did not have any relevant data. For these two countries the Gini-coefficient was gathered from another source and another year, although still within the time range of the 7th wave of the WVS. For Andorra, the datapoint was gathered from the International Monetary Fund (2024), the Gini-coefficient stemming from 2020. For Northern Ireland the datapoint was gathered from Doorley, Gubello, & Tuda (2024), the Gini-coefficient stemming from 2019. Because the Gini-coefficient is already a country level variable, there is no need to aggregate the data.

Confidence in institutions also influences both ideological polarization and belief in election fraud. Banda & Kirkland (2018) find that when citizens legislature and out-parties are increasingly ideologically polarized citizens feel that the institutions of their political system cannot aptly act on behalf of them, leading to declining trust in institutions (p. 623).

Furthermore, confidence in institutions is negatively affected by an increased inclination to

conspiratorial thinking. Those who believe in conspiracies have more antigovernmental associations and have decreased political efficacy (Enders, 2019, p. 510). When people feel the government is able to meet their expectation, confidence can be formed (Llewellyn, Brookes, & Mahon, 2013, p. 2). To measure the confidence people have in their political system, question 252 from the WVS is used. Here, respondents were asked ‘On a scale from 1 to 10 where “1” is “not satisfied at all” and “10” is “completely satisfied”, how satisfied are you with how the political system is functioning in your country these days?’ (Haerpfer et al., 2022). Like with the other variables, this data is aggregated per country to account for geographically clustered data.

In addition to both income inequality and confidence in institutions, the number of parties in a party system may also be a confounding variable and will thus be introduced as a control. A fragmented party system can fragment basic consensus and increasing ideological cleavages in society (Sartori, 1966, p.159). A greater number of parties could also mean that there are more losers in election, subsequently leading to a greater ‘winner effect’ and a larger belief in election fraud (Jansen, 2024). The number of parties per country was gathered from the WVS (Haerpfer et al., 2022), which lists out the number of parties present per country at the time of taking the surveys.

Despite having the capability to influence ideological polarization, affective polarization and elite polarization were not incorporated into the research design of this study. The relationship might be mediated through elite and affective polarization and should therefore not be controlled for (Rohrer, 2018). Additionally, elite and affective polarization can have an amplifying effect on ideological polarization, but do not directly cause belief in election fraud, thus not making for a good control variable (Rohrer, 2018). Moreover, since the number of observations is not large, to not overfit the model only a limited number of controls were introduced. For linear regression models per predictor, roughly 10 to 15 cases

should be needed to limit the bias in the model (Babyak, 2004). In accordance with this, 3 control variables were added, excluding elite and affective polarization due to limited availability of data and limited applicability of the variables as controls.

Results

To test the hypothesis, one model including the dependent, independent and control variables was conducted. H1 stated that when mass ideological polarization increased, belief in election fraud would increase alongside it because of the increased winner effect an increase in mass ideological polarization creates. Table 1 shows the results stemming from the linear regression that was ran.

Table. 1 Linear Regression Model predicting belief in election fraud

	Model 1
(Constant)	2.482 *** (0.474)
Mass Ideological Polarization	-0.178 (0.116)
Confidence in Institutions	-0.223 *** (0.054)
Number of Parties	-0.009 (0.010)
Income Inequality	1.808 *** (0.486)
R^2	0.836

Adjusted R^2	0.698
N	32

*Note: OLS Regression coefficients with standard errors in round brackets. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$*

Table 1 shows that the coefficient for mass ideological polarization is negative, this may make it seem like there is a negative relationship between mass ideological polarization and belief in election fraud. However, the opposite is true. The coefficient for mass ideological polarization is -0.178. Which means that for every one-point increase in the measure for mass ideological polarization, belief in election fraud is expected to decrease by 0.178 points. Recall that kurtosis was used as a measure for the level of polarization. Positive values of kurtosis indicate that the independent variable is not polarized, negative values of kurtosis indicate that the independent variable is polarized. Also recall that when kurtosis reaches a value of -2, observations reach bimodality (Willis, 2017). Thus, when observations become less polarized, belief in election fraud decreases. In accordance with H1, if belief in election fraud increases then mass ideological polarization also increases. Based on the results of the model, one would expect that countries that are on the minimum of mass polarization, and are thus least polarized, would have an average belief in election fraud of 1.69 (belief in election fraud ranging from 1 to 4, 4 being high belief in election fraud) and countries that are on the maximum of mass ideological polarization, and are thus the most polarized, would have an average belief in election fraud of 3.16. Between the minimum and the maximum observed values for mass ideological polarization there is an 86.98% increase in the expected values for belief in election fraud. This relationship is, nonetheless, not statistically significant. However, this statistical insignificance is not very surprising since small sample

sizes often obtain statistically insignificant coefficients (Leppink, Winston, & O'Sullivan, 2016). Considering the high statistical insignificance of the relationship, the null hypothesis in accordance with H1 cannot be rejected.

The statistical insignificance does not render the relationship obsolete. Presently the stakes of politics are high, any increase in belief in electoral fraud could have dire consequences for democracy as we know it. Not only does increasing belief in election fraud lead Republicans to endorse political violence (Piazza, 2024, p. 633), but it also leads to an increase in demobilized voters (Fraga et al., 2024) and even leads to doubt and a decrease in support for democratic processes (Berlinski et al., 2023, p. 34). Needless to say, despite being statistically insignificant the proposed relationship could still possibly have societal significance. The positive relationship also brings new light to the extent of the winner effect, showing that it can perhaps lead to an overall increase in belief in election fraud. Nevertheless, any inferences made should be approached with caution due to the lack of statistical significance. Although not statistically significant the results of the regression are in line with previous literature and highlight the need for more extensive research with respect to the relationship between belief in election fraud and mass ideological polarization.

Discussion and Conclusion

This study has aimed to explore whether an overall increase in mass ideological polarization will also lead to an increase in the belief in election fraud. Belief in election fraud has been shown to incite decreasing trust in democratic institutions and mass protest including violence (Grant et al., 2021). Although an increase in election fraud has been observed with the supporters of a losing candidate during an election (Jansen, 2024), such a relationship was not yet proven to have a net effect on overall belief in election fraud. Using a linear regression model to test this relationship over 32 countries, the results show that there is a positive

relationship between mass ideological polarization and belief in election fraud, albeit a statistically insignificant relationship. These results are compelling in light of previous research, showing that the winner effect could possibly have a more widespread influence than was thought, although this cannot yet be said with certainty. These preliminary results do bring an important implication with respect to electoral and political support. When, instead of a firm belief in the democratic system, citizen's political support is based on contextual factors, the level of electoral and political support can change heavily depending on the outcome of an election (Janssen, 2023, pp. 471-472). This makes the electoral landscape volatile and uncertain, shaking one of the pillars of democracy.

Yielding interesting results, this study faces some limitations. Firstly, while the aim of this study was to broaden the sample size regarding the field of belief in election fraud to countries other than the U.S., more should be done in this aspect. Due to time constraints and limited availability of data, 32 countries were used in the analysis. Because of this small sample size, there may not be sufficient power to distinguish a relationship between the variables. Since small sample sizes often fail to obtain statistically significant results, this can lead to results that may be falsely negative (Leppink et al., 2016). Future research should focus on including data from more countries to further increase generalizability and establish a relationship on more solid grounds.

Secondly, belief in election fraud is dependent on the self-reporting of respondents. Consequently, the levels of belief in election fraud might actually be higher than what was reported by respondents due to social desirability bias. Free and fair elections are one of the pillars of a healthy functioning democracy. When one admits to believing in widespread electoral fraud, this means undermining one of these core democratic values. Backlash is seen as the reaction of dominant members of a group to anyone who challenges their values, in effort to maintain existing power arrangements (Bishin, Hayes, Incantalupo, & Smith, 2015,

p. 626). Often, people want to look more charitable than they are in reality. The tendency of people to reject doing any socially undesirable actions and admit to ones that are socially desirable is called the social desirability bias (Chung & Monroe, 2003, pp. 292 - 292).

Surveys are for instance known to overestimate the number of people who have voted due to social desirability bias. Respondents can intentionally misreport that they voted when they did not in order to adhere to social democratic standards, because voting is seen as a valuable behaviour in democracies (Holbrook & Krosnick, 2010, p. 41). It would therefore be negligent to deny the possibility that the values regarding the belief in election fraud are lower than they are in reality due to the social desirability bias. Respondents of the WVS may have underreported their belief in election fraud in fear of backlash and admitting to socially undesirable beliefs. Future works should therefore focus on limiting the effects of the social desirability bias, through for example anonymising respondents' answers.

Lastly, limitations regarding the types of variables used should be addressed. This study has not investigated individual-level factors in the relationship between belief in election fraud and mass ideological polarization, such as for example the tendency to engage in conspiratorial thinking, which is thought to have an amplifying effect on mass ideological polarization and thus also belief in electoral fraud (Sutton & Douglas, 2020, p. 119). There remains a lack research on the individual-level, though it is often stated as a factor mediating the magnitude of the winner effect (Nadeau, Bélanger, & Atikcan, 2021, pp. 80-81).

Moreover, the use of aggregated data has implications. Aggregated data focuses on the median voter, limiting its ability to say anything about the relative views of individual people. Thus, not being able to capture differences in preference among citizens (Seimel, 2024). Future research should focus on including individual-level variables, such as personal characteristics and emotions in their analysis.

This study highlights a positive yet statistically insignificant relationship between the belief in election fraud and mass ideological polarization. Both phenomena have the ability to shake the grounds on which our democratic institutions stand. Belief in election fraud causing decreasing trust in democratic institutions (Grant et al., 2021), while mass ideological polarization can make cooperation and public discourse increasingly violent and hard (Krochik & Jost, 2010, p. 164). The interplay of these phenomena has the ability to threaten democratic values, which makes the study of their relationship increasingly urgent. The findings of this study contribute to the literature of the winner effect, expanding on the scarce presence of research on mass ideological polarization outside of the U.S (Iyengar et al., 2019; Janssen, 2023, p. 471). Yet, the complexity of this relationship requires more investigation as the knowledge on the dynamics of belief in election fraud could help increase global democratic resilience.

Bibliography

- Arbatli, E., & Rosenberg, D. (2020). United we stand, divided we rule: how political polarization erodes democracy. *Democratization*, 28(2), 285–307.
<https://doi.org/10.1080/13510347.2020.1818068>
- Atkeson, L. R., & Saunders, K. L. (2007). The effect of election administration on voter confidence: a local matter? *PS Political Science & Politics*, 40(4), 655–660.
<https://doi.org/10.1017/s1049096507071041>
- Babiyak, M. A. (2004). What you see may not be what you get: a brief, nontechnical introduction to overfitting in Regression-Type models. *Psychosomatic Medicine*, 66(3), 411–421. <https://doi.org/10.1097/01.psy.0000127692.23278.a9>
- Banda, K. K., & Cluverius, J. (2018). Elite polarization, party extremity, and affective polarization. *Electoral Studies*, 56, 90–101.
<https://doi.org/10.1016/j.electstud.2018.09.009>
- Banda, K. K., & Kirkland, J. H. (2018). Legislative party polarization and trust in state legislatures. *American Politics Research*, 46(4), 596–628.
<https://doi.org/10.1177/1532673x17727317>
- Berlinski, N., Doyle, M., Guess, A. M., Levy, G., Lyons, B., Montgomery, J. M., Nyhan, B., & Reifler, J. (2021). The effects of unsubstantiated claims of voter fraud on confidence in elections. *Journal of Experimental Political Science*, 10(1), 34–49.
<https://doi.org/10.1017/xps.2021.18>
- Bértoa, F. C., & Rama, J. (2021). Polarization: What do we know and what can we do about it? *Frontiers in Political Science*, 3. <https://doi.org/10.3389/fpos.2021.687695>
- Bishin, B. G., Hayes, T. J., Incantalupo, M. B., & Smith, C. A. (2015). Opinion backlash and public attitudes: Are political advances in gay rights counterproductive? *American Journal of Political Science*, 60(3), 625–648. <https://doi.org/10.1111/ajps.12181>

- Boese, V. A., Alizada, N., Lundstedt, M., Morrison, K., Natsika, N., Sato, Y., Tai, H., & Lindberg, S. I. (2022). Autocratization changing nature? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4052548>
- Caillier, J. (2010). Citizen trust, political corruption, and voting behavior: connecting the dots. *Politics & Policy*, 38(5), 1015–1035. <https://doi.org/10.1111/j.1747-1346.2010.00267.x>
- Caycho-Rodríguez, T., Ventura-León, J., Valencia, P. D., Vilca, L. W., Carbajal-León, C., Reyes-Bossio, M., . . . Petzold, O. (2022). What is the support for conspiracy beliefs about COVID-19 vaccines in Latin America? A prospective exploratory study in 13 countries. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.855713>
- Chung, J., & Monroe, G. S. (2003). Exploring social desirability bias. *Journal of Business Ethics*, 44, 291–302.
- De Maio, F. G. (2007). Income inequality measures. *Journal of Epidemiology and Community Health* (1979), 61(10), 849–852. <https://doi.org/10.1136/jech.2006.052969>
- Doorley, K., Gubello, M., & Tuda, D. (2024, October). *Drivers of income inequality in Ireland and Northern Ireland*. <https://doi.org/10.26504/rs196>
- Druckman, J. N., Peterson, E., & Slothuus, R. (2013). How elite partisan polarization affects public opinion formation. *American Political Science Review*, 107(1), 57–79. <https://doi.org/10.1017/s0003055412000500>
- Edelson, J., Alduncin, A., Krewson, C., Sieja, J. A., & Uscinski, J. E. (2017). The effect of conspiratorial thinking and motivated reasoning on belief in election fraud. *Political Research Quarterly*, 70(4), 933–946. <https://doi.org/10.1177/1065912917721061>
- Enders, A. M. (2019). Conspiratorial thinking and political constraint. *Public Opinion Quarterly*, 83(3), 510–533. <https://doi.org/10.1093/poq/nfz032>

- Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). London: SAGE Publications.
- Fiorina, M. P., & Abrams, S. J. (2008). Political Polarization in the American Public. *Annual Review Of Political Science*, 11(1), 563–588. <https://doi.org/10.1146/annurev.polisci.11.053106.153836>
- Flynn, D., Nyhan, B., & Reifler, J. (2017). The Nature and Origins of Misperceptions: Understanding False and Unsupported Beliefs About Politics. *Political Psychology*, 38(S1), 127–150. <https://doi.org/10.1111/pops.12394>
- Fraga, B. L., Peskowitz, Z., & Szewczyk, J. (2024). Can elite allegations of election fraud demobilize supporters? *Political Behavior*. <https://doi.org/10.1007/s11109-024-09952-8>
- Grant, M. D., Flores, A., Pedersen, E. J., Sherman, D. K., & Van Boven, L. (2021). When election expectations fail: Polarized perceptions of election legitimacy increase with accumulating evidence of election outcomes and with polarized media. *PLoS ONE*, 16(12), e0259473. <https://doi.org/10.1371/journal.pone.0259473>
- Haerpfer, C., Inglehart, R., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano J., M. Lagos, P. Norris, E. Ponarin & B. Puranen et al. (eds.). 2022. World Values Survey: Round Seven – Country-Pooled Datafile 6.0. Madrid, Spain & Vienna, Austria: JD Systems Institute & WVSA Secretariat. doi.org/10.14281/18241.1
- Healy, J. (2021, January 11). These are the 5 people who died in the Capitol riot. *The New York Times*. Retrieved from <https://www.nytimes.com>
- Hill, E., Sobolewska, M., Wilks-Heeg, S., & Borkowska, M. (2017). Explaining electoral fraud in an advanced democracy: Fraud vulnerabilities, opportunities and facilitating mechanisms in British elections. *The British Journal of Politics and International Relations*, 19(4), 772–789. <https://doi.org/10.1177/1369148117715222>

- Holbrook, A. L., & Krosnick, J. A. (2010). Social desirability bias in voter turnout reports: Tests using the item count technique. *Public Opinion Quarterly*, 74(1), 37–67. <https://doi.org/10.1093/poq/nfp065>
- International Monetary Fund. (2024, March). *Principality of Andorra: Staff Concluding Statement of the 2023 Article IV Mission* (IMF Country Report No. 24/57) (Vol. 2024, p. 1). Washington D. C. <https://doi.org/10.5089/9798400267680.002>
- Iyengar, S., Lelkes, Y., Levendusky, M., Malhotra, N., & Westwood, S. J. (2019). The origins and consequences of affective polarization in the United States. *Annual Review of Political Science*, 22(1), 129–146. <https://doi.org/10.1146/annurev-polisci-051117-073034>
- Janssen, L. (2023). Sweet victory, bitter defeat: The amplifying effects of affective and perceived ideological polarization on the winner–loser gap in political support. *European Journal of Political Research*. <https://doi.org/10.1111/1475-6765.12625>
- Krochik, M., & Jost, J. T. (2010). Ideological Conflict and Polarization A Social Psychological Perspective. In *Intergroup Conflicts and Their Resolution* (pp. 145–174). https://www.researchgate.net/profile/Daniel-Bar-Tal-2/publication/360250423_Intergroup_conflicts_and_resolution/links/626b377105d79a3968aa7522/Intergroup-conflicts-and-resolution.pdf#page=167
- Kubin, E., & Von Sikorski, C. (2021). The role of (social) media in political polarization: a systematic review. *Annals Of The International Communication Association*, 45(3), 188206. <https://doi.org/10.1080/23808985.2021.1976070>
- Leppink, J., Winston, K., & O’Sullivan, P. (2016). Statistical significance does not imply a real effect. *Perspectives on Medical Education*, 5(2), 122–124. <https://doi.org/10.1007/s40037-016-0256-6>

- Llewellyn, S., Brookes, S., & Mahon, A. (2013). *Trust and confidence in government and public services*. <https://doi.org/10.4324/9780203548349>
- LO, S. S. H. (2011). Consultative governance, legitimacy problem and democracy deficit in Macau. *Academic Journal of One Country Two Systems*, 7(7), 90–97.
- Mauk, M., & Grömping, M. (2023). Online disinformation predicts inaccurate beliefs about election fairness among both winners and losers. *Comparative Political Studies*, 57(6), 965–998. <https://doi.org/10.1177/00104140231193008>
- Nadeau, R., Bélanger, É., & Atikcan, E. Ö. (2021). Emotions, cognitions and moderation: understanding losers’ consent in the 2016 Brexit referendum. *Journal of Elections Public Opinion and Parties*, 31(1), 77–96. <https://doi.org/10.1080/17457289.2019.1604528>
- Nadeau, R., Daoust, J., & Dassonneville, R. (2021). Winning, losing, and the quality of democracy. *Political Studies*, 71(2), 483–500. <https://doi.org/10.1177/00323217211026189>
- Onderco, M., & Stoeckel, F. (2023). Conspiratorial thinking and foreign policy views: evidence from Central Europe. *Journal of Elections, Public Opinion and Parties*, 33(2), 182–196. <https://doi.org/10.1080/17457289.2020.1814309>
- Piazza, J. A. (2024). Allegations of Democratic election fraud and support for political violence among Republicans. *American Politics Research*, 52(6), 624–638. <https://doi.org/10.1177/1532673x241263083>
- Reller, C., Anderson, A., & Kousser, T. (2022). Are elite cues necessary to drive the “Winner Effect” on trust in elections? *Electoral Studies*, 80, 102541. <https://doi.org/10.1016/j.electstud.2022.102541>
- Repucci, S., & Slipowitz, A. (2021). Freedom in the World 2021: Democracy Under Siege. *Freedom House*. Retrieved

- from https://freedomhouse.org/sites/default/files/2021-02/FIW2021_World_02252021_FINAL-web-upload.pdf
- Rohrer, J. M. (2018). Thinking clearly about correlations and causation: Graphical causal models for observational data. *Advances in Methods and Practices in Psychological Science*, 1(1), 27–42. <https://doi.org/10.1177/2515245917745629>
- Sartori, G. (1966). European Political Parties: the case of polarized pluralism. In *Princeton University Press eBooks* (pp. 137–176). <https://doi.org/10.1515/9781400875337-006>
- Schedler, A. (2002). The nested game of democratization by elections. *International Political Science Review*, 23(1), 103–122. <https://doi.org/10.1177/0192512102023001006>
- Seimel, A. (2024). Elite polarization — The boon and bane of democracy: Evidence from thirty democracies. *Electoral Studies*, 90, 102801. <https://doi.org/10.1016/j.electstud.2024.102801>
- Sheagley, G., & Udani, A. (2020). Multiple meanings? The link between partisanship and definitions of voter fraud. *Electoral Studies*, 69, 102244. <https://doi.org/10.1016/j.electstud.2020.102244>
- Sutter, D. (2003). Detecting and Correcting Election Fraud. *Eastern Economic Journal*, 29(3), 433–451. Retrieved from http://college.holycross.edu/RePEc/eej/Archive/Volume29/V29N3P433_451.pdf
- Sutton, R. M., & Douglas, K. M. (2020). Conspiracy theories and the conspiracy mindset: implications for political ideology. *Current Opinion in Behavioral Sciences*, 34, 118–122. <https://doi.org/10.1016/j.cobeha.2020.02.015>
- Willis, J. L. (2017). *Culture wars? : applying categorical variation measures to the study of sociocultural and political polarization* (Thesis). Colorado State University. Retrieved from <https://www.proquest.com/docview/1978158715/fulltextPDF/21F4F97173E44737PQ/1?accountid=12045&sourcetype=Dissertations%20&%20Theses>

Winkler, H. (2019). The effect of income inequality on political polarization: Evidence from European regions, 2002–2014. *Economics and Politics*, 31(2), 137–162.

<https://doi.org/10.1111/ecpo.12129>

World Inequality Database (WID.world) (2024) – with major processing by Our World in Data. “Gini coefficient (Pretax) (Estimated)” [dataset]. World Inequality Database (WID.world), “World Inequality Database (WID)” [original data]. Retrieved December 11, 2024 from <https://ourworldindata.org/grapher/gini-coefficient-before-tax-wid>

Ziblatt, D. (2009). Shaping democratic practice and the causes of electoral fraud: the case of Nineteenth-Century Germany. *American Political Science Review*, 103(01), 1–21.

<https://doi.org/10.1017/s0003055409090042>

Appendix A

List of countries used in the analysis

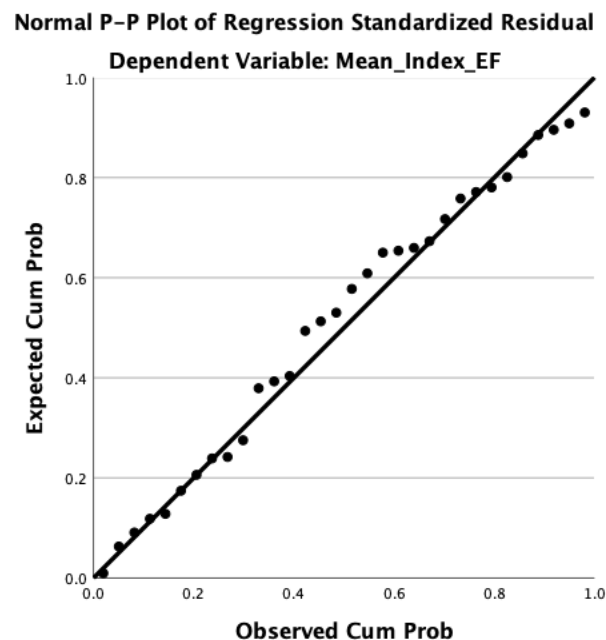
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- Argentina
- Armenia
- Australia
- Bolivia
- Brazil
- Canada
- Chile
- Colombia
- Cyprus
- Czechia
- Ecuador
- Germany
- Greece
- Great Britain
- Guatemala
- Indonesia
- Japan
- Maldives
- Mexico
- Mongolia
- Netherlands
- New Zealand

- Northern Ireland
- Peru
- Romania
- Slovakia
- South Korea
- Taiwan
- Ukraine
- United States
- Uruguay

Appendix B

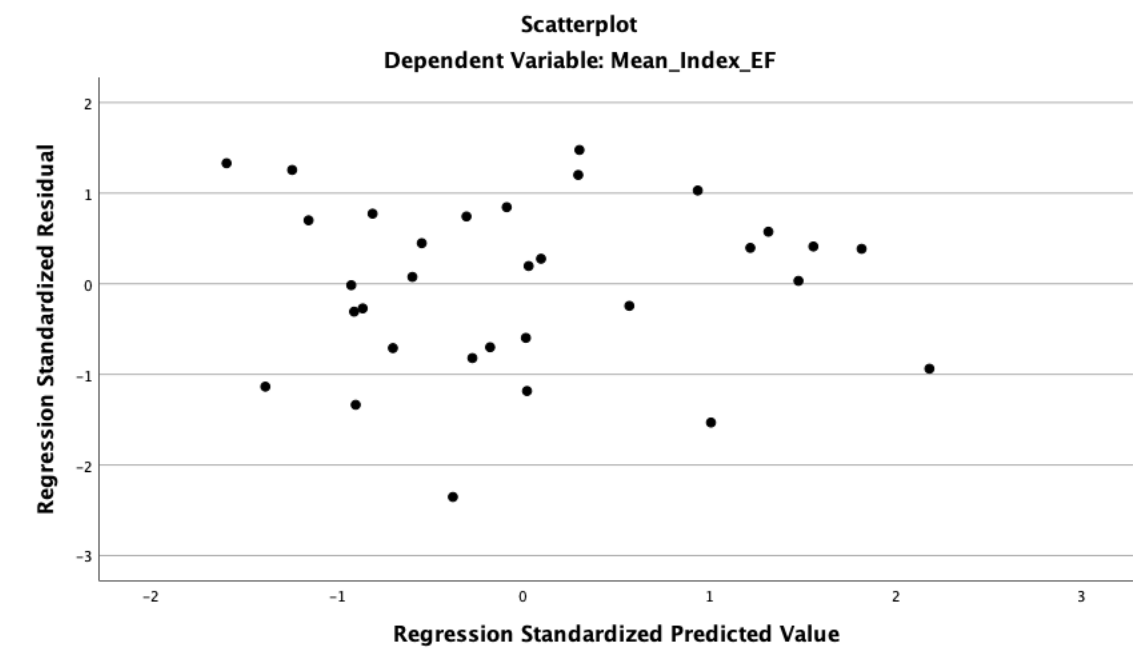
Linear regression assumptions

Normality – P-P Plot



The normal P-P plot of standardized residuals in the figure (above) shows that the data consists of approximately normally distributed data. Although the data diverges from the normality line at some points, they still generally follow it.

Homoscedasticity and Linearity



The figure above is a scatterplot with the standardized residual values and standardized predicted values. There does not seem to be a problem with homoscedasticity and linearity with the data. The graph does not seem to funnel out or curve in any way, thus assumptions of homoscedasticity and linearity seem to be met (Field, 2018, p. 357)

Multicollinearity

According to Field (2018) VIF values above 10 should be cause for concern and any tolerance values below 0.1 should be cause for concern (Field, 2018, p. 534). Table 4 shows the VIF and tolerance outputs for the model. Since neither are present, the assumption of multicollinearity is not violated.

Table. 4 *VIF and tolerance*

	Tolerance	VIF
Mass Ideological Polarization	.848	1.179
Confidence in institutions	.850	1.177
Number of Parties	.889	1.124
Income Inequality	.722	1.386