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Political polarization has become a defining feature of contemporary democratic politics, affecting policymaking, civil discourse, and institutional functioning (Abramowitz & Saunders, 2008, p. 542; Galston, 2010, p. 6; Iyengar et al., 2012, pp. 405–406; Reiljan et al., 2024, p. 654). Polarization manifests itself in multiple dimensions, including ideological polarization, defined as the widening gap between opposing political ideologies, and affective polarization, which centres on emotional and social divisions. The latter occurs when partisans develop intense loyalty to their political in-group and deep-seated hostility toward out-groups (Iyengar et al., 2019). Unlike ideological disagreements that focus on policies, affective polarization generates animosity at the personal and societal levels, transforming political opponents into perceived threats (Iyengar et al., 2019, p. 130).

The rise of affective polarization is concerning for several reasons. First, it undermines the functioning of democratic institutions by fostering legislative gridlock and reducing opportunities for bipartisan cooperation (McCoy et al., 2018, pp. 30–31). Second, it erodes trust in political systems, leading citizens to view their opponents as existential threats to democracy itself (Ward & Tavits, 2019, pp. 2–3). Third, it exacerbates social divisions, as partisans are increasingly unwilling to engage with or even tolerate those who hold differing views (Iyengar et al., 2012, p. 407). While earlier research on affective polarization predominantly focused on its effects within the United States, more recent studies have identified its prevalence across diverse democratic contexts, including multiparty systems in Europe, where societal cleavages and partisan hostility have increasingly intensified (Gidron et al., 2023; Gidron et al., 2020; Reiljan, 2020; Wagner, 2021).

Because of its detrimental effects, recent scholarship has also explored political and institutional mechanisms that might mitigate polarization, with a couple of scholars pointing to compulsory voting as a potential solution (Galston, 2010; Oprea et al., 2024). Compulsory voting, by mandating citizen participation, broadens electoral participation and can lead to more centrist political platforms (Birch, 2008, p. 65; Lijphart, 1997, p. 3). While Oprea et al. (2024) discuss the role of compulsory voting in reducing polarization at the party level, Galston (2010) focuses on its implications for polarization at the mass level. Specifically, Galston (2010) argues that higher voter turnout, which compulsory voting promotes, could reduce polarization among the public by incorporating moderate non-voters into the electoral fold (pp. 6–7). This mechanism may also have downstream effects on elite polarization, as less polarized voters might incentivize elites to adopt fewer extreme positions.

However, while Galston (2010) makes a compelling theoretical argument about compulsory voting's potential to mitigate mass polarization, he does not provide empirical evidence to test this hypothesis. This gap highlights an important area for further research. To address this, the present study aims to be the first empirical investigation of the effects of compulsory voting on affective polarization, a question that has not yet been systematically explored in the existing literature (Birch, 2008, p. 65; Galston, 2010; Lijphart, 1997, p. 3; Oprea et al., 2024). Specifically, it examines whether broader electoral participation through compulsory voting can reduce the emotional divide between political groups by investigating the following research question: *What are the effects of compulsory voting on affective polarization?*

Understanding why compulsory voting is significant in this context is essential. Unlike deeply entrenched factors influencing affective polarization—such as partisanship or socio-cultural divisions, which are resistant to change—compulsory voting stands out as an institutional mechanism that can be adjusted through policy. This makes it a particularly intriguing focus for research, as it has the potential to serve as a practical tool to mitigate affective polarization if its effects are demonstrated to be substantial. At a time when polarization threatens democratic stability and social cohesion, examining modifiable mechanisms like compulsory voting is vital for policymakers seeking to promote more inclusive and less polarized political systems.

Drawing on existing research, I posit that compulsory voting, by mandating participation, may broaden electoral inclusivity and reduce partisan hostility, thereby addressing affective polarization's root causes. This proposition is grounded in earlier findings that compulsory voting can moderate political extremism by increasing voter turnout and incorporating less polarized citizens into the electoral process (Galston, 2010; Lijphart, 1997; Oprea et al., 2024). By shifting the electorate toward the centre, this mechanism may also encourage political elites to moderate their positions, ultimately reducing affective divisions (Galston, 2010, pp. 6–7).

This argument is tested using data from the Comparative Study of Electoral Systems (CSES). I draw on the methodology developed by Reiljan et al. (2024), who introduce innovative measures of affective polarization, namely Party Affective Polarization (PAP) and Leader Affective Polarization (LAP), calculated using weighted like-dislike scores for parties and leaders. The analysis reveals partial support for the hypotheses. While weak enforcement of compulsory voting reduces PAP, the effects on LAP are more complex, with no enforcement associated with higher LAP. These findings suggest that the impact of compulsory voting on affective polarization is uneven, with the potential to reduce hostility toward political parties but less consistent effects on leader-based divides.

The following paper first reviews prior literature on affective polarization, focusing on its causes, manifestations, and consequences for democratic governance. It then introduces the concept of compulsory voting and its theorized impact on electoral participation and polarization. Building on these foundations, the paper outlines the research design, drawing on quantitative analyses to assess the relationship between compulsory voting and affective polarization. Finally, the results are presented, followed by a discussion of their broader implications for democratic stability and policymaking.

Political Polarization

Political polarization has emerged as a central concern in the study of democratic politics, as it profoundly influences governance, societal cohesion, and institutional stability. Political polarization refers to the process by which political actors, parties, and the electorate become increasingly divided across multiple dimensions, such as ideology, partisanship, and social identity. It encompasses not only ideological divergence but also affective polarization, where opposing groups harbour deep-seated animosity toward one another, impeding constructive dialogue and cooperation (Lelkes, 2016, p. 393). This movement often creates heightened conflict, undermining consensus-building and reducing the capacity for cooperative governance (Abramowitz & Saunders, 2008, p. 542). Scholars emphasize that while polarization is not inherently detrimental, its most extreme manifestations can have severe consequences for democratic institutions.

One of the most significant consequences of entrenched polarization is legislative gridlock. As political actors adopt rigid and uncompromising positions, the likelihood of bipartisan cooperation diminishes. McCarty et al. (2005) emphasize that legislative polarization hampers the ability to pass critical policies, delaying responses to urgent societal issues and creating governance inefficiencies (pp. 24–25). This dynamic is particularly evident in contexts where polarization aligns with institutional checks and balances, such as the U.S. system of divided government. Here, polarized legislatures exacerbate partisan stalemates, undermining the effectiveness of governance.

Beyond legislative dysfunction, polarization fosters adversarial politics, where parties view one another as competitors to be defeated rather than collaborators in governance (Ward & Tavits, 2019, pp. 2–3). Hetherington and Rudolph (2015) argue that polarization undermines trust in government, as strong partisan distrust discourages ideological compromises necessary for effective policymaking. This dynamic prevents consensus on key public policies, weakening public faith in democratic institutions and fuelling disengagement (Hetherington & Rudolph, 2015, pp. 3–5).

Additionally, polarization deepens social divisions, as individuals become increasingly unwilling to engage with or even tolerate those who hold opposing views. Iyengar et al. (2012) highlight that this animosity not only erodes interpersonal relationships but also undermines the possibility of collective problem-solving across partisan lines (p. 407). Such divisions entrench partisan identities, making political reconciliation increasingly difficult.

These patterns of dysfunction and division underscore the importance of distinguishing between two primary forms of polarization: ideological polarization and affective polarization. These forms are distinct but interconnected, with ideological differences often fuelling emotional and social divides, and vice versa (Reiljan, 2020, pp. 381–383).

Ideological Polarization

Ideological polarization refers to the divergence of political preferences and beliefs between individuals or groups. It reflects a widening gap in policy preferences, ranging from economic issues to social and cultural values (Fiorina et al., 2005). Ideological polarization can enhance political engagement by offering voters distinct choices and stimulating debate. However, when it becomes too pronounced, it can entrench divisions, making compromise difficult and increasing the stakes of electoral outcomes (Galston, 2010, pp. 6–7).

Notably, ideological polarization often interacts with institutional factors. For example, majoritarian electoral systems, which emphasize a winner-takes-all dynamic, tend to exacerbate ideological divides by encouraging parties to prioritize their core bases rather than seeking broad-based support. By contrast, proportional representation systems, which incentivize coalition-building, may moderate ideological extremism among parties and, consequently, reduce polarization at the elite level (Gidron et al., 2020, pp. 8–9).

Affective Polarization

While ideological polarization has been the subject of extensive research, its focus on policy differences often overlooks the emotional and social dimensions of political conflict. Scholars have increasingly turned their attention to affective polarization instead, which captures the emotional hostility and distrust between partisan groups, regardless of substantive policy disagreements (Iyengar et al., 2012, p. 406). Unlike ideological polarization, which centres on policy disagreements, affective polarization is driven by animosity and distrust between opposing political groups. Iyengar et al. (2012) describe affective polarization as the increasing tendency for partisans to view members of the opposing party not only as political adversaries but as social outgroups to be distrusted and disliked. This emotional hostility is manifested in a growing unwillingness to engage with members of the opposing party, whether in personal relationships or political discourse (Iyengar et al., 2012, p. 407). Studies have shown that affective polarization can weaken democratic norms and reduce the legitimacy of democratic institutions by fostering perceptions that political opponents are not only wrong but morally corrupt or dangerous (Iyengar et al., 2019, p. 132).

Reiljan et al. (2024) provide a comparative framework for understanding affective polarization across multiple democratic contexts. Their findings suggest that while affective polarization is prevalent across most democracies, its intensity varies depending on political systems, electoral rules, and the degree of party fragmentation. For instance, majoritarian electoral systems tend to exacerbate affective polarization due to their winner-takes-all dynamics. In contrast, proportional representation systems create more opportunities for diverse political identities, potentially reducing emotional divides among voters (Reiljan et al., 2024, p. 667). However, they do not examine the effects of compulsory voting specifically.

While much of the literature on affective polarization has focused on the United States, recent research has broadened its scope to include multiparty democracies, revealing significant variations in how partisan hostility manifests across political systems. Gidron et al. (2023) show that in 20 Western democracies, the intensity of affective polarization is closely tied to elite policy disagreements, particularly over cultural issues such as immigration, multiculturalism, and national identity (p. 1000). Cultural cleavages have become increasingly salient, overshadowing traditional economic divisions in driving partisan hostility. For example, in countries where debates over immigration dominate public discourse, affective polarization tends to escalate as political elites adopt starkly opposing positions (Gidron et al., 2023, p. 1000).

Their findings also highlight the moderating role of coalition politics in shaping affective relationships between parties. Governing coalition partners often exhibit warmer interparty relations, as shared governance responsibilities foster trust and reduce mutual hostility. This "coalition bonus" demonstrates how institutional arrangements in proportional representation systems can temper affective divides (Hahm et al., 2024, p. 72). However, this effect is not universal. For instance, radical-right parties, even when included in governing coalitions, continue to elicit intense hostility from other parties and voters, reflecting their outsider status and polarizing rhetoric (Gidron et al., 2023, p. 1008).

The Measurement Challenge

The literature on affective polarization highlights the challenges of measuring it, especially in multiparty systems. Traditional measures of polarization, which often focus on binary party systems, may fail to capture the complexities of voter sentiments in multiparty contexts (Reiljan, 2020; Reiljan et al., 2024; Wagner, 2021). Wagner (2021) and Reiljan (2020) argue that in multiparty settings, voters may express varied emotional responses toward a range of parties, making it difficult to measure affective polarization accurately using standard methods.

Reiljan et al. (2024) address these limitations by proposing a comprehensive framework for measuring affective polarization that accounts for the varied emotional responses voters may have toward multiple parties. Moreover, Wagner (2021) reinforces the importance of considering emotional responses in affective polarization by showing that larger, more influential parties elicit stronger emotional responses—both positive and negative—compared to smaller, less prominent parties (p. 7). This finding highlights the importance of party size and salience in shaping affective polarization. Reiljan et al. (2024) similarly emphasize that traditional binary measures fail to capture such dynamics in settings where voters engage with multiple parties simultaneously (p. 654).

Traditional definitions of affective polarization focus on inter-group hostility, typically measured through feelings toward political parties or supporters of opposing groups (Reiljan et al., 2024; Iyengar et al., 2012). However, recent scholarship has introduced the concept of leader affective polarization (LAP), or the polarized feelings voters hold toward political leaders. For example, Bordignon (2020) and Garzia and Ferreira da Silva (2021) identify patterns of leader-specific affective polarization in both the United States and European democracies.

This connection is significant because evidence suggests that mass-level affective polarization often arise at the elite level (Banda & Cluverius, 2018; Rogowski and Sutherland, 2016). As leaders increasingly embody their parties' identities and agendas, they may serve as focal points for polarization, amplifying affective divides across the electorate. Understanding LAP, therefore, could illuminate broader dynamics of party affective polarization (PAP) (Reiljan et al., 2024, p. 655).

Compulsory Voting

As of 2021, compulsory voting existed in various forms in twenty-seven countries or regions worldwide (Dassonneville et al., 2023, p. 1). The terms "compulsory", "mandatory" and "obligatory" voting are used interchangeably throughout the literature to describe a system in which citizens are legally required to participate in elections (Birch, 2008, p. 3). The term "compulsory voting" has gained predominance in more recent literature and will be used here for consistency. More specifically, compulsory voting is typically defined as the legal obligation for eligible citizens to attend polling stations on election day and fulfil their civic duty by casting a vote. However, the scope of this obligation often stops short of requiring citizens to vote for a specific candidate or policy. Most compulsory voting systems allow individuals to spoil their ballots or submit blank votes, thus preserving their autonomy and freedom of choice within the voting process (Birch, 2008, pp. 3–5; Brennan & Hill, 2014, p. 17; Chapman, 2019, p. 102).

Although there is a consensus in the literature in the use and definition of the term, Brennan and Hill (2014) argue that compulsory voting, in fact, refers only to compulsory turnout, since democracies only require that citizens cast a vote, regardless of if it is a valid vote or not (p. 17). If instead, citizens were legally required to cast a valid vote, it would not be possible to have the secret ballot, which would interfere with the legitimacy of elections (Chapman, 2019, p. 102).

The adoption of compulsory voting has been influenced by a variety of political, social, and historical factors, which differ across states and time periods but share common elements. Birch (2008) highlights that its introduction often coincides with periods of political upheaval or democratization, as seen in waves of adoption following World War II and during the post-1974 democratization era. Compulsory voting is also frequently bundled with broader electoral reforms, such as franchise expansion, proportional representation, or the introduction of the secret ballot, as part of efforts to enhance democratic quality (Birch, 2008, pp. 27–28).

The political motivations behind the adoption of compulsory voting have varied. In earlier cases, it was often championed by conservative parties as a means of mitigating the impact of franchise expansions and mobilizing new voter groups perceived as more inclined to support socialist policies (Birch, 2008, p. 28). However, as empirical data later revealed that working-class voters were less likely to participate voluntarily, support for compulsory voting increasingly shifted toward left-leaning parties (Birch, 2008, p. 29). Additionally, it has been adopted as a practical measure to reduce electoral abuses and ensure turnout without placing an undue financial burden on political parties (Birch, 2008, p. 28).

While the principle of compulsory voting is relatively simple (requiring eligible voters to participate in election), the implementation and enforcement of this requirement vary significantly across different countries. Gratschew (2004) distinguishes between strict and weak enforcement of compulsory voting laws, though in practice, no country enforces these laws in a truly strict manner (pp. 26–27). Even in Belgium and Australia, countries which are often cited as examples of "strict" enforcement, enforcement is generally lenient, since in Australia voters can use a broad number of excuses not to vote, and, similarly to Belgium, there has been little enforcement in recent elections (Dassonneville et al., 2023, p. 15).

Compulsory Voting and Affective Polarization

Compulsory voting has been extensively studied for its impact on voter turnout and its potential to reshape the political landscape. Research by Lijphart (1997) shows that compulsory voting significantly increases turnout rates, especially among less politically engaged citizens, leading to a more representative electorate that reduces extreme partisan polarization and encourages more centrist political outcomes (pp. 13-15). Singh (2017) notes that this increased turnout helps narrow the socio-economic gap by mobilizing marginalized groups who would otherwise abstain (pp. 116–117). Furthermore, Jaitman (2013) found that compulsory voting laws can boost voter turnout by 18 percentage points, particularly benefiting unskilled citizens, thereby highlighting the potential of compulsory voting to reduce socio-economic disparities in political participation (p. 80). Similarly, Birch (2008) found that compulsory voting compels participation from more moderate and centrist voters, reducing the influence of ideological hardliners, which can lead to a more balanced political discourse, characterized by a greater focus on consensus-building and less emphasis on extreme or polarized viewpoints. This shift in discourse can also push political parties toward the centre, as they seek to appeal to a broader and more diverse electorate (p. 65).

While the link between compulsory voting and increased voter turnout is well-established, the question of whether compulsory voting can also reduce political polarization has received less attention. One potential mechanism by which compulsory voting might reduce polarization is its effect on party competition. Oprea et al (2024) argue that political parties tend to target their campaigns toward ideologically extreme voters in voluntary voting systems, because these individuals are more likely to turn out to vote. In contrast, compulsory voting forces parties to appeal to the median voter, resulting in more centrist party platforms. Their research suggests that by encouraging political parties to moderate their positions, compulsory voting could help reduce party polarization (Oprea et al., 2024, p. 1953). However, this research focuses on party polarization and does not empirically examine how compulsory voting might affect the more emotional and personal dimension of polarization—affective polarization.

Compulsory voting may also influence elite behaviour in ways that foster less adversarial politics. By expanding the electorate and increasing voter diversity, compulsory voting incentivizes parties to engage with broader segments of society, encouraging more collaborative and less hostile elite interactions. Birch (2008) argues that the moderation of party platforms driven by compulsory voting reduces the intensity of partisan competition, creating an environment conducive to more balanced discourse (pp. 65–66). In multiparty systems, compulsory voting can facilitate coalition-building by requiring elites to accommodate diverse voter interests.

Moreover, compulsory voting may indirectly temper elite hostility by reducing affective polarization among voters. Galston (2010) theorizes that higher voter turnout driven by compulsory voting diminishes the influence of ideologically extreme groups, creating an environment where elites feel less pressure to adopt polarizing rhetoric (pp. 6–7). This aligns with findings from Gidron et al. (2023) who argue that partisan hostility is tied to elite policy positions on cultural issues like immigration and national identity. Their study demonstrates that when elites adopt less adversarial stances on these divisive issues, both elite and public hostility diminish (p. 1000). Although their work does not directly address compulsory voting, it highlights the potential for mechanisms that broaden political engagement to reduce affective polarization.

Additionally, recent work on affective polarization by Reiljan et al. (2024) highlights the role of institutional contexts in shaping emotional divides among voters. Their comparative analysis shows that proportional representation systems, which often overlap with compulsory voting regimes, are associated with lower levels of affective polarization due to their emphasis on coalition-building and inclusivity (Reiljan et al., 2024, p. 655). While Reiljan et al. (2024) do not explicitly examine compulsory voting, their findings suggest that institutional mechanisms promoting broad-based participation can have a moderating effect on partisan hostility.

Wagner (2021) adds that the amplitude of voter participation in multiparty systems dilutes the emotional intensity of partisan divides, as voters are less likely to align rigidly with a single party or ideological block (p.3). Compulsory voting, by ensuring widespread electoral engagement, reinforces this dynamic, potentially reducing the salience of in-group favouritism and out-group hostility that characterize affective polarization. Compulsory voting could also address the personalization of politics, particularly LAP. By compelling participation from voters less swayed by elite rhetoric and identity politics, compulsory voting might mitigate the effects of polarized feelings toward political leaders on broader PAP. This institutional mechanism could help counteract the intensifying emotional divides driven by the centralization of party identities around leaders. However, leaders are frequently the face of identity-based appeals and elite rhetoric. Compulsory voting may dilute the impact of such appeals by involving fewer partisan voters, but the deep-seated emotional divides tied to leaders' personas are harder to neutralize (Reiljan et al., 2024, p. 656).

Taken together, while much of the research on compulsory voting focuses on its ability to boost voter turnout, its implications for reducing polarization and fostering warmer elite relations are increasingly relevant. By broadening electoral participation, moderating party platforms, and fostering coalition-building, compulsory voting holds promise for mitigating affective polarization. These effects may vary depending on contextual factors such as the nature of the electoral system and the depth of existing political divides. Nonetheless, the potential for compulsory voting to create a more collaborative political environment merits further exploration. Unlike deeply ingrained factors such as partisanship, which are resistant to change, compulsory voting represents an institutional mechanism that can be modified. This makes compulsory voting particularly relevant as a potential policy lever to address affective polarization, especially if evidence demonstrates its efficacy and reducing polarization is deemed a priority. Based on the literature reviewed, this thesis posits the following hypothesis regarding the potential impact of compulsory voting on affective polarization:

H1: Affective polarization is lower in countries with compulsory voting than in countries without it.

Research Design and Methodology

I hypothesize that compulsory voting negatively affects affective polarization. To test this hypothesis, I require data on both compulsory voting and affective polarization. This section discusses the sources of this data. This study adopts a comparative cross-national quantitative research design, building on and supplementing the dataset developed by Reiljan et al. (2024). Reiljan et al.'s (2024) dataset, constructed from the Comparative Study of Electoral Systems (CSES), provides a foundation for analysing affective polarization. The CSES is a cross-national dataset covering voter behaviour, political attitudes, and electoral systems across numerous democracies from 1996 to 2021. The dataset includes standardized survey questions, such as like-dislike scales for parties and leaders, enabling the calculation of Party Affective Polarization (PAP) and Leader Affective Polarization (LAP).

The data within CSES is collected through national-level surveys, and each participating country's survey is tailored to reflect its own electoral system and political environment. In most cases, respondents are interviewed via face-to-face interviews, telephone surveys, or online methods, depending on the country's available infrastructure and survey practices. These methods allow for the collection of both individual-level data on political attitudes and behaviours and country-level data on institutional characteristics, such as compulsory voting laws and electoral systems.

While the CSES dataset provides a comprehensive set of variables for this study, there are some limitations that must be acknowledged. One potential limitation is the differences in data collection methods across countries, which could introduce biases or inconsistencies in the responses. For example, countries that rely on online surveys may have different demographic characteristics compared to those relying on in-person interviews, leading to non-response bias or other forms of measurement error. Another limitation is the variation in the timing of data collection, as political attitudes and behaviours can shift rapidly in response to events such as elections, political crises, or changes in government. Perhaps most relevant is if affective polarization spikes around election time. Singh and Thornton (2024) highlight the impact of partisan competition salience on affective polarization, suggesting that short-term political dynamics can influence outcomes. The study addresses this issue by focusing on a relatively long timeframe (1996–2021) to capture a broad range of electoral cycles, but the influence of short-term political events may still pose challenges to the interpretation of the results.

Dependent Variable: Affective Polarization

The dependent variable in this study is affective polarization, which is defined as the emotional divide between individuals' feelings toward their own political in-group (their preferred party or leader) and the opposing out-group (opposing parties or leaders)

(Reiljan et al., 2024, p. 661). This research will focus on two forms of affective polarization: Party Affective Polarization (hereafter PAP) and Leader Affective Polarization (hereafter LAP), in line with the methodology developed by Reiljan et al. (2024). I will use their data, which provides these indicators.). Reiljan et al. (2024) used CSES data, which includes two different like-dislike scales (from 0 to 10), one where respondents rate their feelings toward political parties, and the other where respondents rate their feelings towards political leaders.

To calculate PAP, the difference between a respondent's evaluation of their in-party (the party they support) and the out-party (the opposing party) is calculated (Reiljan et al., 2024, p. 661). This is done by taking the weighted average of these differences, where the weight is the electoral size of the parties. This weighting accounts for the varying significance of different political parties based on their size in the electoral system, ensuring that larger, more salient parties have a greater influence on the PAP score (Reiljan et al., 2024, p. 661).

$$\mathrm{API} = \sum_{n=1}^{N} \left[\sum_{\substack{m=1 \\ m \neq 1}}^{N} \left((\mathrm{Like_n} - \mathrm{Like_m}) \times \left(\frac{\mathrm{Vote\ share_m}}{1 - \mathrm{Vote\ share_n}} \right) \right) \times \mathrm{Vote\ share_n} \right].$$

Similarly, to measure LAP, the difference between a respondent's evaluation of the leader of their preferred party and the leaders of opposing parties is calculated (Reiljan et al., 2024, p. 661). Like PAP, this is done by calculating the weighted average of these differences, again adjusting for the electoral size of the parties the leaders represent. This measure allows for a direct comparison between the emotional evaluations of party leaders across different political systems (Reiljan et al., 2024, p. 661).

Reiljan et al.'s (2024) dataset provides data on 111 elections conducted between 1996 and 2021. To enhance the analysis of affective polarization—particularly in contexts with compulsory voting systems—and improve the representativeness of the dataset, this study incorporates 11 additional elections from Argentina, Belgium, Brazil, Chile, and Thailand.[1]

Reiljan et al. (2024) excluded Belgium[2] and Thailand because their elections, while parliamentary, were not decisive for selecting the prime minister or president (p. 660). This study incorporates these countries to explore the impact of compulsory voting even in such electoral contexts. The reasons for excluding Argentina, Brazil, and Chile from Reiljan et al.'s (2024) dataset remain unclear, as these countries meet the criteria for inclusion, such as electoral competitiveness and leadership decisiveness. However, Chile (1999), Belgium Flanders (1999), Belgium Wallonia (1999), and Brazil(2006) are excluded from this study's analysis due to the absence of leader-specific like-dislike data in the CSES dataset.

For the calculation of these new cases, this study adopts Reiljan et al.'s (2024) adjustment of defining the in-party based on vote choice rather than partisan identification (p. 660). For consistency, vote choice data from lower house elections was used to determine the in-party. Data availability and comparability across the CSES dataset for lower house elections made it the most reliable source for operationalizing in-party identification. This study excludes responses from individuals who do not express a clear partisan alignment. Respondents who answered "didn't know," "refused," or provided non-partisan responses in the like-dislike or vote choice variables were coded as missing data and excluded from the calculation of PAP and LAP. This exclusion is in line with the approach outlined by Reiljan et al. (2020), which states that only those with a defined partisan identity can contribute to the measurement of affective polarization, as affective attitudes are inherently tied to specific political groups (p. 281).

[1] The exact calculation of PAP and LAP for the additional cases is provided in the supplementary material.

[2] It is important to note that the CSES data for Belgium accounts for the division of the country into two regions: Flanders and Wallonia. The Belgian elections included in the study are, therefore, treated as separate cases (Belgium-Flanders and Belgium-Wallonia). Consequently, each region had its own calculation of the PAP and LAP, as both regions have different political parties.

Table 1. Frequency table of affective polarization variable

Compulsory Voting		PAP	LAP
Yes, Strictly Enforced Sanctions	Mean	4.2863	3.9984
	Std. Deviation	0.35640	0.33047
	N	8	8
Yes, Weakly Enforced Sanctions	Mean	3.7340	3.3587
	Std. Deviation	2.46793	2.15340
	N	12	12
Yes, Without Sanction for Violation	Mean	4.0019	3.5839
	Std. Deviation	1.00957	0.93206
	N	10	10
No	Mean	4.0502	3.5098
	Std. Deviation	0.84897	0.95229
	N	91	91
Total	Mean	4.0304	3.5332
	Std. Deviation	1.09373	1.09309
	N	121	121

The affective polarization variable ranges from -1.38 to 5.72 for PAP and from -0.72 to 4.77 for LAP.[3] As shown in Table 1, PAP scores were higher on average than LAP scores across all cases of both compulsory and non-compulsory voting. Interestingly, the PAP score for Argentina's 2015 election and the LAP score for Brazil's 2010 election are negative. This indicates that respondents gave higher like-dislike ratings to out-group parties and leaders than to in-group parties and leaders.

Independent Variable: Compulsory Voting

The independent variable in this study is compulsory voting, which refers to legal frameworks mandating electoral participation for eligible citizens. In the CSES, countries are classified into four distinct categories according to the degree of enforcement of compulsory voting laws. These categories are: (1) countries where voting is strictly

[3] See Appendix C for a complete frequency table of all individual cases.

enforced, with consistent application of sanctions for non-voters; (2) countries where voting is weakly enforced, meaning legal mandates exist but enforcement is minimal or penalties are rarely imposed; (3) countries where voting is compulsory but no sanctions are applied for non-compliance; and (4) countries where voting is not compulsory, indicating no legal requirements for participation.

As shown in Table 1, the three categories of compulsory voting each have relatively small sample sizes. Nonetheless, given that the existing literature classifies compulsory voting based on levels of strictness of enforcement (Birch, 2008; Gratschew, 2004), it remains pertinent to include this variable in the analysis. Accordingly, two models are employed: the first recodes the categorical variable for compulsory voting into dummy variables to facilitate statistical analysis and enable comparisons across different levels of enforcement; the second utilizes a binary variable (0 = No Compulsory Voting, 1 = Compulsory Voting).

Mediators and Controls

Based on the literature, partisanship may mediate the relationship between compulsory voting and affective polarization. Studies show that stronger partisan identities correlate with higher affective polarization (Iyengar et al., 2012; Mason, 2015; Reiljan & Ryan, 2021; Wagner, 2021). Compulsory voting could affect polarization by expanding the electorate and shifting partisan dynamics. However, controlling for partisanship in this analysis could distort results by interfering with the mechanism linking compulsory voting to affective polarization.

At the same time, certain variables need to be controlled to isolate the explanatory relationship properly.[4] Party system fragmentation is an essential control variable. It will be measured using the Effective Number of Electoral Parties (ENEP) index (Laakso & Taagepera, 1979, p. 8), which captures the degree of fragmentation in the party system

[4] See Appendix A for further detail on the control variables.

by accounting for the relative size and number of political parties and is present as a variable in CSES.[5] Highly fragmented systems often lead to more polarized political environments, as smaller parties can amplify ideological extremes (Reiljan et al., 2023, pp. 12–13). Therefore, the ENEP index will be used to account for the potential influence of party fragmentation on affective polarization, ensuring that the analysis isolates the effect of compulsory voting from the impact of the broader political environment.

The electoral system is another crucial control variable. Different electoral systems—proportional, majoritarian, or mixed—shape party competition and voter behaviour in ways that influence polarization (Lijphart, 1997, pp. 8–10). Proportional systems, for instance, may encourage coalition-building and lead to more moderate political positions, potentially reducing polarization. In contrast, majoritarian systems can exacerbate adversarial dynamics and increase the likelihood of polarization, as parties are incentivized to adopt more extreme positions to win a majority. By controlling for the electoral system, the study ensures that the observed effects on affective polarization are not confounded by variations in how elections are structured.

Furthermore, turnout rates will be controlled, as compulsory voting systems may have varying degrees of enforcement across countries. The rate of voter turnout can significantly influence the composition of the electorate, as higher turnout rates may bring in more ideologically diverse or less engaged voters, potentially impacting the level of affective polarization (Birch, 2008, pp. 45–47). By controlling for turnout, this study will account for the percentage of eligible voters who actually participate in elections, ensuring that any observed effects on affective polarization are not confounded by differences in voter engagement across countries or electoral contexts.

[5] Taiwan was excluded from the original dataset due to the lack of Effective Number of Electoral Parties (ENEP) data.

Statistical Model

This study employs two distinct multilevel linear regression frameworks, referred to as Analysis 1 and Analysis 2, to examine the relationships between the independent variables and the two dependent variables: PAP and LAP. [6] Both dependent variables are treated as continuous, with values measured along a defined spectrum. Separate regressions are conducted for each dependent variable and each model.

In Analysis 1, the binary compulsory voting variable serves as the primary independent variable. The first model (Model 1) includes only the binary compulsory voting variable and the dependent variables. The second model (Model 2) extends this analysis by incorporating the control variables: voter turnout (continuous), the Effective Number of Parties (ENEP, continuous), and election type (categorical, recoded into dummy variables).

In Analysis 2, the compulsory voting variable is treated as a categorical variable, recoded into dummy variables. Model 3 in this framework includes the categorical compulsory voting variable, the dependent variable (DV), and all the control variables, as outlined in Analysis 1.

Given the cross-national scope of the study and the variations in sampling designs used across countries, the methodology accounts for critical issues such as differences in selection probability, clustering, and stratification. To ensure accurate estimation and robust standard errors, the models treat the country as the clustering variable. This approach accounts for the hierarchical structure of the data, with elections nested within countries, thereby mitigating potential biases from within-country correlations.

Results

Recall that my hypothesis states that affective polarization is lower in countries with compulsory voting than in countries without it, as measured through two dimensions:

[6] The assumptions have been tested using an OLS regression, see Appendix B for further detail.

PAP and LAP. The hypothesis suggests that compulsory voting, by increasing electoral participation and reducing partisan exclusivity, should attenuate emotional and ideological divides between voters. To evaluate this claim, three regression models were estimated. Models 1 and 2 use a binary variable indicating whether compulsory voting is present.

Model 3 introduces a categorical variable that captures enforcement levels—no enforcement, weak enforcement, and strict enforcement—to assess the nuanced impact of varying degrees of compulsory voting. The dependent variables are PAP and LAP. A negative coefficient for either of the 'Compulsory Voting' categories would be consistent with this hypothesis.

Table 2. Multilevel regression models of PAP

	Model 1	**Model 2**	**Model 3**
Intercept	4.133***	4.792***	4.823
	(0.188)	(0.691)	(0.704)***
Compulsory Voting Binary (Ref. = No compulsory voting)	-0.332	-0.348	
	(0.286)	(0.287)	
Compulsory Voting (Ref. = No compulsory voting)			
No Enforcement			-0.292
			(0.343)
Weak Enforcement			-0.900
			(0.562)
Strict Enforcement			0.350
			(0.735)
Turnout		-0.003	-0.004
		(0.008)	(0.009)
ENEP		-0.081	-0.075
		(0.042)+	(0.042)+
Electoral System (Ref. = Proportional)			
Majoritarian		-0.368	-0.529
		(0.568)	(0.574)
Mixed		-0.115	-0.088
		(0.415)	(0.409)
AIC	278.036247	282.357072	284.197653
BIC	289.219409	304.723397	312.155559
N	121	121	121

Note: Multilevel linear regression coefficients with standard errors in brackets.
***p < 0.001, **p < 0.01, *p < 0.05, + p < 0.1

PAP

Binary Variable Analysis (Models 1 and 2)

In the binary framework, the presence of compulsory voting has a consistent negative effect on PAP. Model 1, which does not include control variables, estimates a coefficient of -0.332 (SE: 0.286). This indicates that, on average, countries with compulsory voting experience a 0.332-point reduction in PAP compared to countries without compulsory voting. Model 2 introduces control variables, including electoral system proportionality (ENEP) and voter turnout. The effect of compulsory voting becomes slightly stronger, with a coefficient of -0.348 (SE: 0.287). This robustness suggests that the observed relationship holds even after accounting for confounding factors.

The negative coefficients align with the hypothesis that compulsory voting reduces affective polarization. However, the effect size is relatively modest, raising questions about its substantive significance. For example, while the models predict reductions in PAP, the small magnitude implies that compulsory voting alone may not be sufficient to produce profound shifts in partisan attitudes. Instead, it may function as one of several mechanisms influencing polarization.

Categorical Variable Analysis (Model 3)

Model 3 explores the role of enforcement intensity by categorizing compulsory voting into three levels: no enforcement, weak enforcement, and strict enforcement. The results reveal a more complex, non-linear relationship. Compared to the baseline category (no compulsory voting), weak enforcement reduces PAP by -0.900 (SE: 0.562). This effect is about three times larger than the reduction observed under "No Enforcement" (-0.292) and is the largest observed effect across enforcement levels. In contrast, strict enforcement corresponds to a small positive effect of 0.350 (SE: 0.735). However, none of the effects is statistically significant.

The increasing standard errors across enforcement categories reflect growing uncertainty in the estimates, particularly for strict enforcement. This variation may stem from smaller sample sizes in the strict enforcement group or greater heterogeneity in political contexts.

LAP

Binary Variable Analysis (Models 1 and 2)

The relationship between compulsory voting and LAP presents a contrasting pattern compared to PAP. In Model 1, compulsory voting has a small positive effect on LAP, with a coefficient of 0.116 (SE: 0.697). This suggests that, in the absence of controls, compulsory voting is associated with a slight increase in leader-based polarization. However, this effect diminishes when controls are introduced in Model 2, where the coefficient drops to 0.019 (SE: 0.305), effectively becoming negligible. Unlike PAP, the binary approach to LAP provides limited support for the hypothesis. These findings suggest that compulsory voting does not systematically reduce leader-based polarization in the binary framework. The lack of statistical significance further undermines the hypothesis' validity in this context. The small coefficients and their inconsistency across models suggest that the binary measure of compulsory voting may mask important variations in enforcement levels or voter behaviour.

Categorical Variable Analysis (Model 3)

Model 3 reveals more pronounced differences in LAP across enforcement levels. Weak enforcement demonstrates the strongest depolarizing effect (-0.694, SE: 0.526), consistent with the hypothesis. The magnitude of this effect is approximately twice as large as those observed under "No Enforcement" and "Strict Enforcement," both of which yield identical positive coefficients (0.336, SE: 0.391).

Unlike PAP, the standard errors for LAP are more consistent across enforcement levels, suggesting less variability in the estimates. However, the substantive significance of these findings remains uncertain. While weak enforcement appears to reduce LAP, the effect size is moderate and there is no statistical significance. Control variables, such as

ENEP (-0.003, SE: 0.049) and voter turnout (-0.013, SE: 0.010), show minimal effects, reinforcing the idea that compulsory voting's impact on LAP may be context dependent.

Table 3. Multilevel regression models of LAP

	Model 1	**Model 2**	**Model 3**
Intercept	3.625***	3.148***	2.864***
	(0.169)	(0.754)	(0.784)
Compulsory Voting Binary (Ref. = No compulsory voting)	0.116	0.019	
	(0.697)	(0.305)	
Compulsory Voting (Ref. = No compulsory voting)			
No Enforcement			0.336
			(0.391)
Weak Enforcement			-0.694
			(0.526)
Strict Enforcement			0.336
			(0.391)
Turnout		0.10	-0.013
		(0.009)	(0.010)
ENEP		-0.024	-0.003
		(0.048)	(0.049)
Electoral System (Ref. = Proportional)			
Majoritarian		-0.097	-0.125
		(0.515)	(0.536)
Mixed		-0.118	-0.088
		(0.377)	(0.380)
AIC	301.701917	307.928830	309.193927
BIC	312.885079	330.295155	337.151833
N	121	121	121

Note: Multilevel linear regression coefficients with standard errors in brackets.
***p < 0.001, **p < 0.01, *p < 0.05

General Discussion and Conclusion

This thesis set out to address the question of whether compulsory voting affects affective polarization in democratic systems, focusing on both PAP and LAP. The study was motivated by the increasing concern over political polarization's detrimental effects on democratic governance, trust, and societal cohesion (Abramowitz & Saunders, 2008, p. 542; Iyengar et al., 2012, p. 407). Drawing on the CSES dataset and methodologies advanced by Reiljan et al. (2024), I explored the effects of compulsory voting on PAP and LAP using multilevel regression models.

The findings revealed nuanced effects. Weak enforcement of compulsory voting laws significantly reduced PAP, supporting the hypothesis that compulsory voting can mitigate partisan hostility by broadening electoral participation and incentivizing moderation (Birch, 2008, p. 65; Galston, 2010, p. 6). However, the effects on LAP were more inconsistent, with weak enforcement yielding a moderate depolarizing effect but strict enforcement showing negligible or even positive relationships with LAP. These results underscore the complexity of compulsory voting's impact, highlighting distinctions between PAP and LAP. This section reflects on the study's limitations, identifies avenues for future research, and discusses the broader implications of these findings for democracy.

Several limitations must be acknowledged. First, there is a limited number of elections available for evaluation due to constraints in the existing data. While the dataset includes valuable cross-national longitudinal observations, it lacks sufficient representation of elections in countries with compulsory voting, which limits the generalizability of the findings. Second, only a small number of countries in the world currently enforce compulsory voting, further constraining the scope of analysis and introducing challenges in assessing broader patterns across diverse political systems.

Additionally, the small sample size for countries with strict compulsory voting enforcement likely contributed to the variability in results, particularly for LAP. Expanding the dataset to include more cases—or leveraging simulated datasets based on theoretical models—could address these limitations. For example, exploring data from regional or municipal elections within countries with compulsory voting laws might provide additional observations and mitigate sample size concerns.

Third, the relationship between PAP and LAP warrants closer examination in the context of compulsory voting. The findings suggest that compulsory voting has a positive effect on affective polarization rather than a consistently negative one. This unexpected result highlights the need to explore how these two dimensions of polarization interact under different enforcement regimes and cultural contexts. Understanding the mechanisms driving these relationships would provide more nuanced insights into the role of compulsory voting.

The findings of this thesis carry significant implications for democratic governance. Scholars and policymakers often view affective polarization as a threat to democratic norms. By demonstrating that compulsory voting can mitigate PAP under weak enforcement regimes, this study highlights the potential of institutional mechanisms to address one of democracy's most pressing challenges. On the other hand, some critics argue that compulsory voting merely forces disengaged citizens to participate, potentially diluting the quality of democratic decision-making (Brennan & Hill, 2014, p. 17). However, the results suggest that broadening participation reduces partisan exclusivity, fostering a more representative and less polarized electorate. This finding challenges the notion that mandatory participation undermines democratic norms; instead, it suggests that compulsory voting can enhance inclusivity without exacerbating emotional divides.

The contrasting results for PAP and LAP also underscore the importance of differentiating between types of polarization when evaluating democratic reforms. While PAP reflects broad societal divisions, LAP often centres on the personalization of politics, which may be less responsive to institutional interventions like compulsory voting (Reiljan et al., 2024, p. 656). This distinction has practical implications for policymakers. For example, while compulsory voting may be effective in reducing partisan animosity, additional measures—such as campaign finance reforms or restrictions on negative advertising—may be needed to address leader-based polarization.

From a theoretical perspective, this thesis contributes to debates about the role of institutions in shaping democratic behaviour. Institutionalists argue that well-designed electoral rules can incentivize moderation and cooperation, thereby mitigating the risks of polarization (Lijphart, 1997, p. 8). The findings lend partial support to this view, demonstrating that compulsory voting—particularly under weak enforcement—can temper PAP. However, the limited effects on LAP caution against overgeneralizing the efficacy of institutional interventions. Effective reforms must account for the diverse and context-specific drivers of polarization.

Finally, the study raises broader questions about the global applicability of compulsory voting. Why do some democracies adopt compulsory voting while others do not? Historical, cultural, and political factors likely influence these decisions, as demonstrated by Birch's (2008) analysis of compulsory voting's historical adoption during periods of democratization. Understanding these dynamics could inform efforts to tailor compulsory voting systems to specific political contexts, maximizing their potential to reduce polarization while minimizing unintended consequences.

In conclusion, this thesis provides evidence that compulsory voting has the potential to reduce affective polarization, particularly PAP, by broadening electoral participation and fostering moderation. However, the uneven effects across enforcement regimes and the contrasting results for LAP underscore the complexity of compulsory voting's impact. These findings highlight both the promise and the limitations of institutional reforms in addressing democratic challenges. By critically reflecting on the methodological and theoretical implications of the study, I have identified avenues for future research and emphasized the importance of context in shaping the outcomes of democratic innovations. Ultimately, while no single reform can fully resolve the issue of polarization, this thesis demonstrates that compulsory voting offers a promising, albeit partial, solution for promoting more inclusive and less polarized democracies.

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Appendix A

Control Variables

- **Effective Number of Electoral Parties (ENEP)**

  ENEP was measured by the variable with same name, which quantifies the level of party system fragmentation. This variable reflects the competitiveness and diversity of a country's party system, considering both the number and electoral strength of parties. ENEP values range from 0.00 to 150.00, with specific codes: 997.00 for presidential-only elections where ENEP is not applicable.[7] ENEP is treated as a continuous variable Data were complete for all cases in this study, ensuring consistency in regression analysis. (Mean = 2.10 Standard Deviation = 0.632).

- **Electoral System**

  The electoral system was measure by the variable electoral formula, which indicates whether a country employs a majoritarian, proportional, or mixed electoral system across its electoral tiers. Majoritarian systems are characterized by winner-takes-all dynamics, requiring candidates to secure a plurality or majority of votes. Proportional systems aim to allocate seats in proportion to votes, utilizing mechanisms such as party lists or single transferable votes. Mixed systems combine features of both, often applying distinct rules across different electoral tiers. This variable is coded categorically: 1 for majoritarian, 2 for proportional, 3 for mixed. The information is derived from CSES Macro Reports, supplemented by research from Matt Golder's database on democratic electoral systems worldwide. Data were available for all countries in the study (Mean = 10.7713; Standard Deviation = 75.892).

[7] All elections included in the analysis were at least parliamentary, ensuring that the ENEP variable was present for all cases.

- **Electoral Turnout**

Electoral turnout was measured by the percentage of the voting age population (VAP) who voted in the most recent lower house election. VAP is defined as all citizens above the legal voting age, though it does not account for legal or systematic exclusions such as non-citizens or those disenfranchised for other reasons. The data are presented as a percentage ranging from 0.00% to 100.00%, with a value of 999 indicating missing data. For the purpose of this analysis, the variable was treated as continuous, given the range of percentage values. The data were sourced from the International Institute for Democracy and Electoral Assistance (IDEA) Voter Turnout Database. Data were available for all countries in the study (Mean = 67.005; Standard Deviation = 13.147).

Appendix B

Linear Regression Assumption Checks[8]

Independent Errors

This analysis uses cross-national survey data from the Comparative Study of Electoral Systems (CSES), which poses specific challenges to the assumption of independent errors. Sampling designs vary significantly across countries, as they are tailored to ensure a minimum effective sample size while accounting for each country's unique demographic and geographic characteristics. Consequently, countries exhibit differences in selection probabilities, variability, and clustering.

If factors such as weighting and clustering are not properly accounted for, standard errors may be underestimated, leading to overly confident model estimates and biased hypothesis tests. To address these challenges, this analysis employs multilevel linear regression, which appropriately accounts for hierarchical data structures and ensures more accurate standard error estimates.

Multicollinearity

In regression analysis, multicollinearity occurs when independent variables are highly correlated with one another, leading to inflated standard errors of the coefficients. This inflation can make it difficult to assess the individual effect of each predictor. To detect multicollinearity, Variance Inflation Factor (VIF) and tolerance statistics are typically used. A VIF greater than 5 suggests potential multicollinearity, with values above 10 generally indicating a severe issue. Tolerance values below 0.2 indicate high correlation with other variables, suggesting significant multicollinearity.

In both analyses, multicollinearity is not a concern, since all VIF values for both PAP and LAP are below 5. All tolerance values for both PAP and LAP are also above

[8] The assumptions were tested by fitting a linear regression model separately, without multilevel data.

0.2. Table 3 below provides detailed VIF and tolerance statistics for all variables included in the models for PAP and LAP in both analyses.

Table 4. VIF and tolerance levels PAP and LAP (Analysis 1 – Binary IV)

	VIF	Tolerance
Turnout	1.189	0.841
ENEP	1.192	0.839
Compulsory Voting (Ref. = No compulsory voting)	1.187	0.843
Electoral System (Ref. = Proportional)		
Majoritarian	1.196	0.836
Mixed	1.169	0.855

Table 5. VIF and tolerance levels PAP and LAP (Analysis 2 – Categorical IV)

	VIF	Tolerance
Turnout	1.460	0.685
ENEP	1.284	0.779
Compulsory Voting (Ref. = No compulsory voting)		
No Enforcement	1.032	0.626
Weak Enforcement	1.267	0.789
Strict Enforcement	1.598	0.626
Electoral System (Ref. = Proportional)		
Majoritarian	1.505	0.665
Mixed	1.181	0.847

Outliers & Influential Cases

Outliers are data points with unusually high residuals that could potentially affect the model's accuracy, but no significant concerns arise here. Influential cases, determined by Cook's distance, also show no problematic influence, as all values are below 1.

Analysis 1 (Binary IV)

In this analysis, there are 5 outliers for PAP and 7 for LAP, with around 2.48% of the cases having standardized residuals above 2 for PAP and around 4.13% for LAP, indicating some deviation from predicted values. Regarding influential cases, the maximum Cook's distance is 0.335 for PAP and 0.220 for LAP, well below the threshold of 1, suggesting that no case has a disproportionate impact on the model. While there are some outliers, they do not significantly affect the results, and there are no issues with influential cases.

Analysis 2 (Categorical IV)

In this analysis, there are 5 outliers for PAP and 7 for LAP, with around 2.48% of the cases having standardized residuals above 2 for PAP and around 4.13% for LAP, indicating some deviation from predicted values. Regarding influential cases, the maximum Cook's distance is 0.656 for PAP and 0.203 for LAP, well below the threshold of 1, suggesting that no case has a disproportionate impact on the model. While there are some outliers, they do not significantly affect the results, and there are no issues with influential cases.

Linearity

Ordinary Least Squares (OLS) regressions assume a linear relationship between the independent and dependent variables. Therefore, it is essential to ensure that the data does not exhibit any clear non-linear patterns. Figures A1 and A2 display scatterplots of standardized predicted values against standardized residuals for PAP and LAP, respectively in Analysis 1. Figures A3 and A5 display the scatterplots for Analysis 2. Neither of these scatterplots reveals any evident non-linear patterns, suggesting that the assumption of linearity is met. As a result, it is appropriate to apply an OLS regression in this analysis.

Figure A1 *Scatterplot of standardized residual errors by standardized predicted values for PAP (Binary IV)*

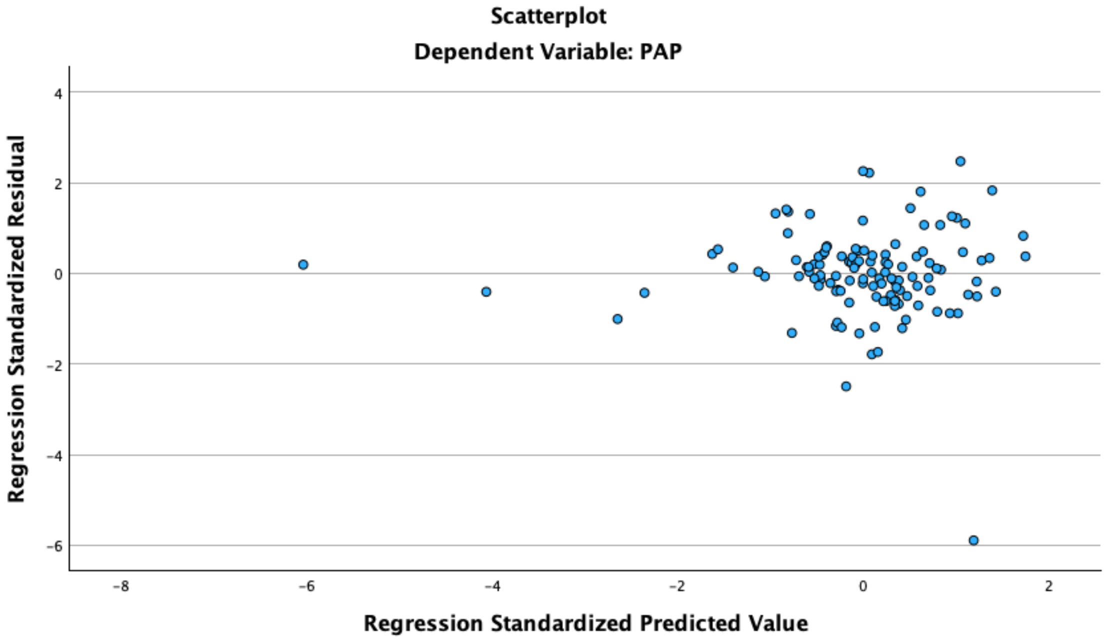


Figure A2 *Scatterplot of standardized residual errors by standardized predicted values for LAP (Binary IV)*

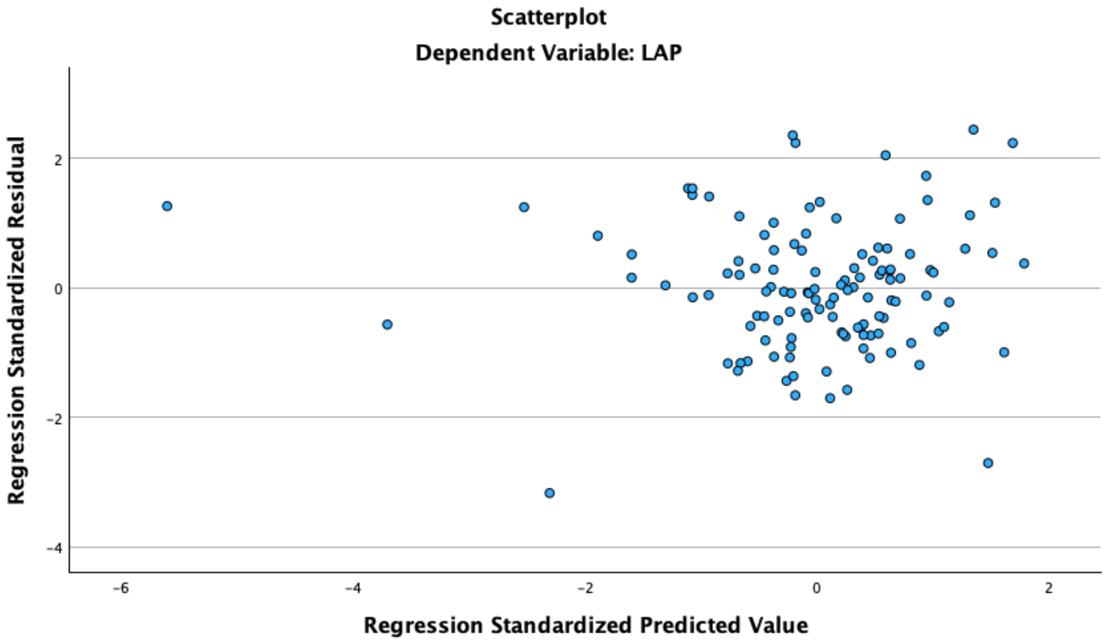


Figure A3 *Scatterplot of standardized residual errors by standardized predicted values for PAP (Categorical IV)*

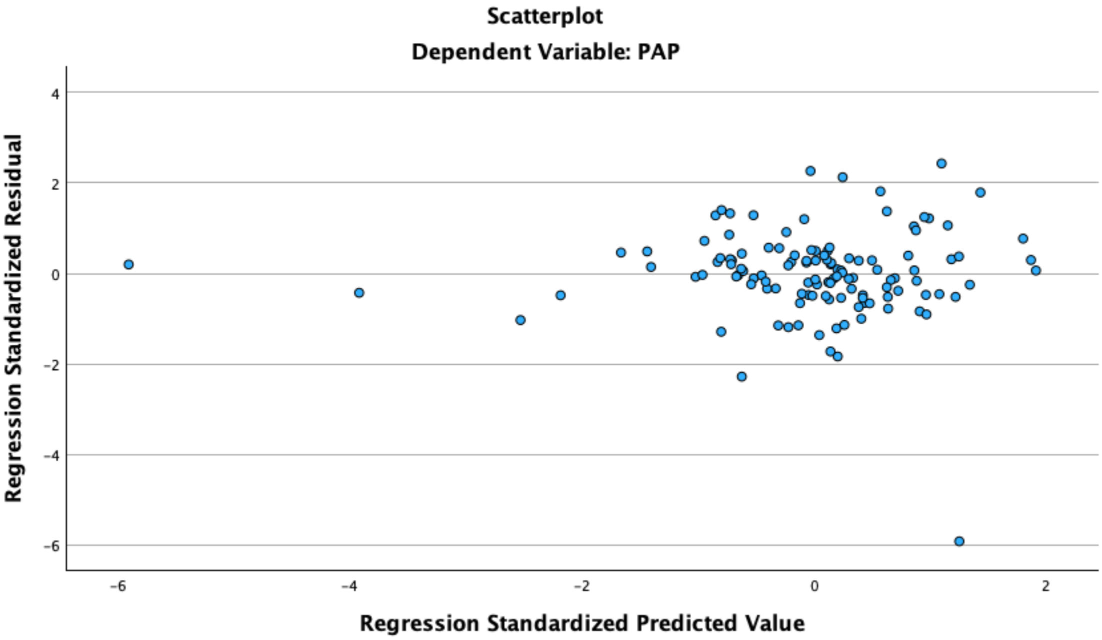
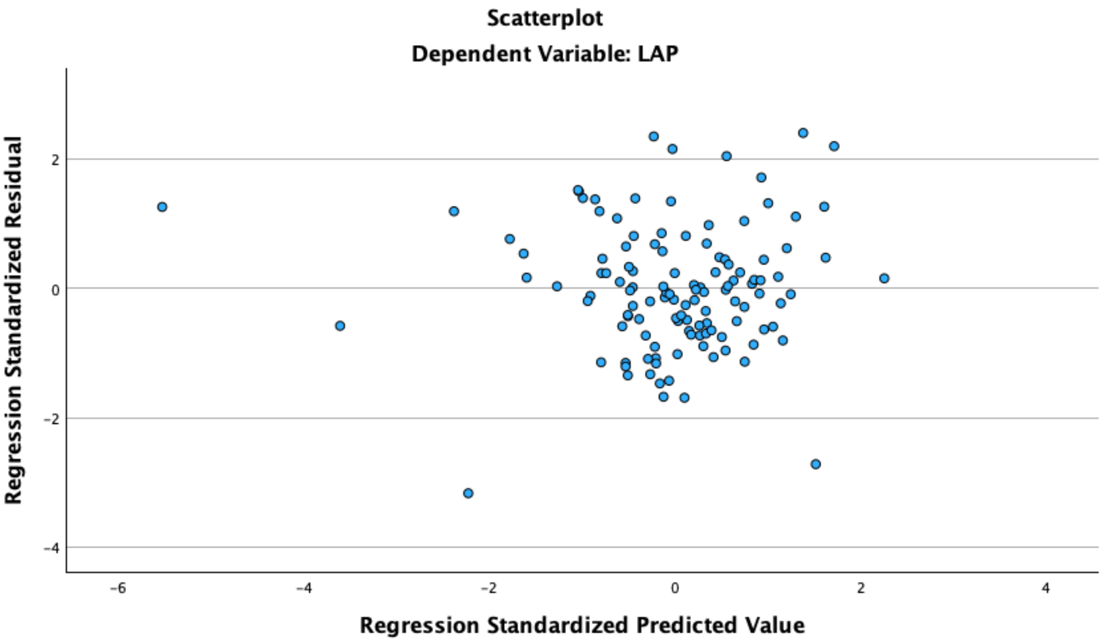


Figure A4 *Scatterplot of standardized residual errors by standardized predicted values for LAP (Categorical IV)*



Homoscedasticity

To assess whether there is a violation of the assumption of homoscedasticity, i.e., whether the variance of the residuals is constant across levels of the independent variables, the standardized residuals of the model were plotted against the standardized predictions, as shown in Figures A1, A2, A3, and A4. The patterns in the plots suggest that the observed heteroskedasticity is due to differences in variance between groups defined by categorical predictors, coded as dummy variables. While this indicates some cases fit the model better than others, using a multi-level linear regression model accounts for group-specific variance and mitigates concerns about robustness, effectively addressing potential violations of this assumption.

Normally Distributed Errors

The normal P-P plot of standardised residuals in Figures B1 and B2 (Analysis 1), as well as the ones in Figures B3 and B4 (Analysis 2), indicates that the data contains approximately normally distributed errors. Even though it shows points that slightly deviate from the normality line, the points generally follow and are close to the normality line.

Figure B1 *Normal P-P Plot of Regression Standardized Residua for PAP (Binary IV)*

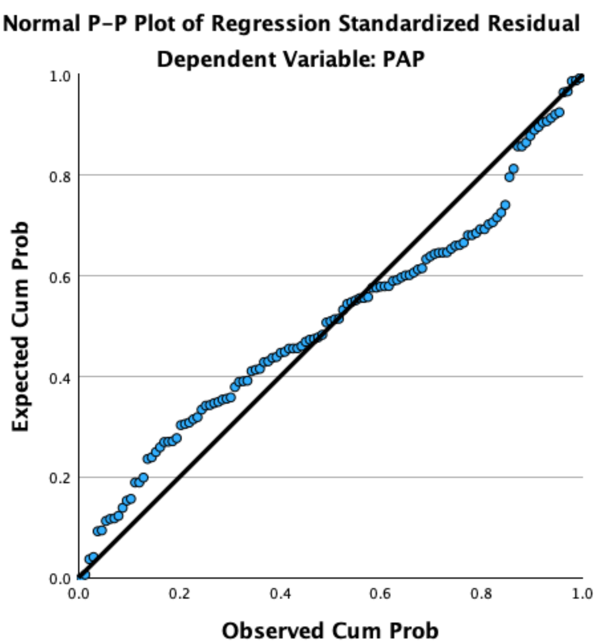


Figure B2 *Normal P-P Plot of Regression Standardized Residua for LAP (Binary IV)*

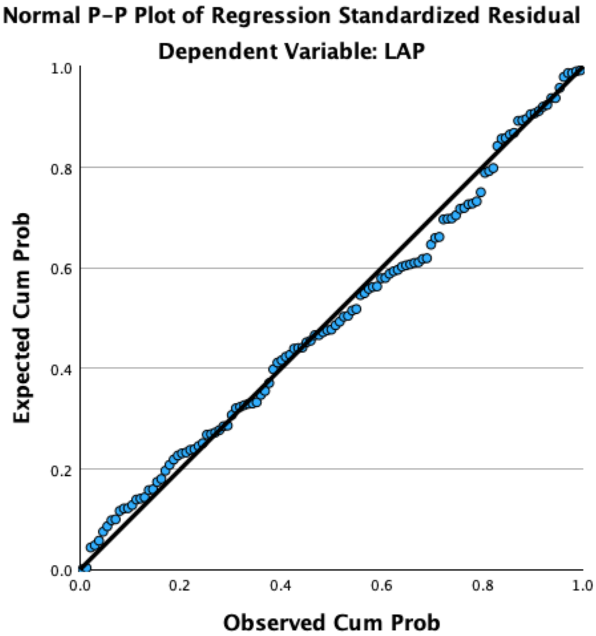


Figure B3 *Normal P-P Plot of Regression Standardized Residua for PAP (Categorical IV)*

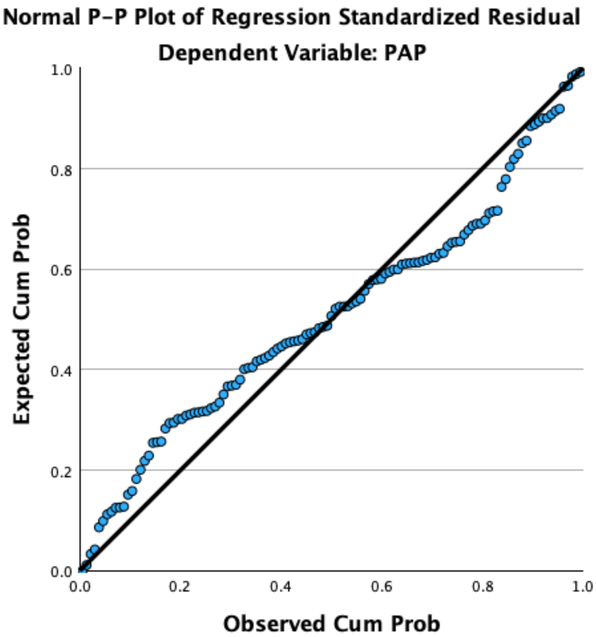
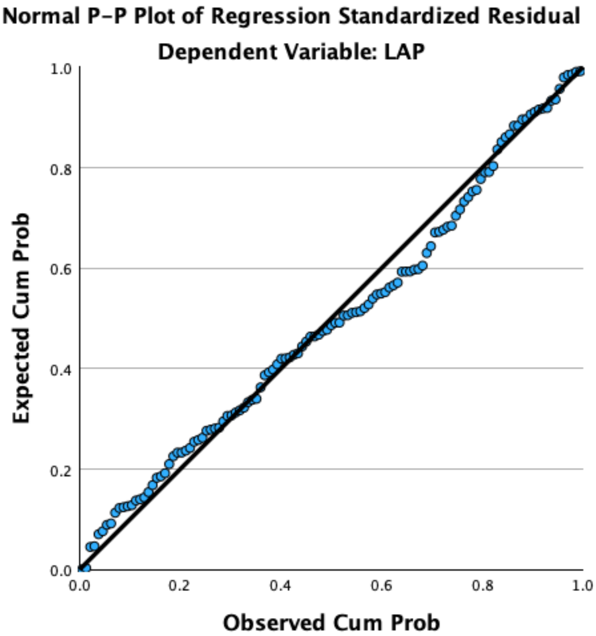


Figure B4 *Normal P-P Plot of Regression Standardized Residua for LAP (Categorical IV)*



Appendix C

Frequency Table

Table 5. Frequency table

Country	Election Years	N	Compulsory Voting	PAP Score	LAP Score
Argentina	2015	1	Yes, Weakly Enforced Sanctions	-1.38	1.42
Australia	1996	5	Yes, Strictly Enforced Sanctions	4.22	3.98
	2004			4.20	4.05
	2007			4.51	4.07
	2013			4.30	3.57
	2019			4.24	3.76
Austria	2013	2	No	3.99	3.32
	2017			4.25	3.94
Belgium Flanders	2019	1	Yes, Weakly Enforced Sanctions	3.80	3.44
Belgium Wallonia	2019	1	Yes, Weakly Enforced Sanctions	4.54	3.67
Bulgaria	2014	1	No	6.30	5.73
Brazil	2010	3	Yes, Weakly Enforced Sanctions	1.78	-0.72
	2014			1.73	1.32
	2018			1.42	2.35
Canada	1997	2	No	3.89	3.37
	2008			3.68	3.35
Switzerland	1999	3	No	3.57	2.50
	2007			4.56	3.09
	2011			4.33	2.51
Chile	2009	2	Yes, Without Sanction for Violation	1.42	4.77
	2017		No	2.50	3.69
Czech Republic	1996	4	No	5.21	4.90
	2006			5.49	4.94
	2010			5.09	4.36
	2013			4.93	4.52

Table 5. Continued

Country	Election Years	N	Compulsory Voting	PAP Score	LAP Score
Germany	1998	5	No	3.54	3.28
	2005			3.79	3.42
	2009			3.47	3.00
	2013			3.64	3.01
	2017			3.51	2.99
Denmark	1998	2	No	4.39	3.68
	2007			4.19	3.34
Spain	1996	3	No	3.61	3.31
	2000			4.08	3.40
	2008			4.91	4.71
Estonia	2011	1	No	4.20	3.98
Finland	2007	3	No	3.31	2.33
	2011			3.77	2.86
	2015			3.67	2.68
France	2007	1	No	3.98	3.96
Great Britain	1997	2	No	3.84	3.21
	2015			4.01	3.05
Greece	2009	4	Yes, Without Sanction for Violation	4.28	3.23
	2012			4.84	4.42
	2015			4.59	4.24
	2015			4.50	3.82
Croatia	2007	1	No	3.99	3.62
Hungary	1998	2	No	5.03	4.61
	2018			6.31	5.84
Ireland	2007	3	No	3.57	3.02
	2011			3.74	2.63
	2016			4.45	3.60
Iceland	1999	6	No	3.54	2.70
	2007			3.59	2.79
	2009			3.59	2.75
	2013			3.50	2.64
	2016			3.65	2.87
	2017			3.99	3.44

Table 5. Continued

Country	Election Years	N	Compulsory Voting	PAP Score	LAP Score
Israel	1996	2	No	4.18	3.65
	2013			3.71	3.35
Italy	2018	1	No	5.07	4.63
Japan	1996	3	No	2.72	2.11
	2007			2.67	2.28
	2013			2.80	2.05
Republic of Korea	2000	4	No	2.26	1.95
	2008			3.52	1.92
	2012			3.68	3.03
	2016			2.89	1.76
Lithuania	2016	1	No	3.84	3.52
Latvia	2010	3	No	4.02	2.99
	2011		Yes, Without Sanction for Violation	4.67	3.61
	2014			4.36	3.07
Mexico	1997	3	Yes, Without Sanction for Violation	3.52	2.04
	2009			3.52	2.25
	2012			4.31	4.39
Montenegro	2012	2	No	5.74	5.71
	2016			6.14	5.88
Netherlands	1998	3	No	2.35	1.84
	2006			2.72	2.05
	2010			2.34	2.00
Norway	1997	5	No	3.89	2.92
	2005			3.79	3.13
	2009			3.84	3.13
	2013			3.51	2.88
	2017			4.28	3.43
New Zealand	1996	5	No	3.90	3.65
	2008			4.32	4.34
	2011			4.47	4.06
	2014			4.54	4.14
	2017			4.16	3.77

Table 5. Continued

Country	Election Years	N	Compulsory Voting	PAP Score	LAP Score
Peru	2011	2	Yes, Strictly Enforced	3.80	3.86
	2016		Sanctions	4.01	4.00
Poland	1997	4	No	4.81	4.23
	2005			4.09	3.35
	2007			4.41	4.22
	2011			5.00	4.42
Portugal	2002	3	No	4.08	3.81
	2009			4.51	4.10
	2015			5.65	5.34
Romania	2012	1	No	5.41	4.70
Serbia	2012	1	No	4.42	4.17
Slovakia	2016	1	No	4.55	4.56
Slovenia	1996	3	No	3.53	2.88
	2008			3.46	2.90
	2011			3.90	3.41
Sweden	1998	3	No	4.05	2.96
	2006			4.06	3.06
	2014			4.10	3.51
Thailand	2007	3	Yes, Weakly Enforced	4.37	4.17
	2011		Sanctions	5.72	3.31
	2019			3.54	2.91
Turkey	2011	3	Yes, Weakly Enforced Sanctions	6.53	6.56
	2015			7.02	6.62
	2018			5.75	5.26
Taiwan	2012	1	No	3.21	3.61
Uruguay	2009	1	Yes, Strictly Enforced Sanctions	5.00	4.70
United States of America	1996	3	No	3.00	3.04
	2008			3.57	3.32
	2016			3.88	4.40
South Africa	2009	2	No	5.67	5.55
	2014		No	5.22	4.75