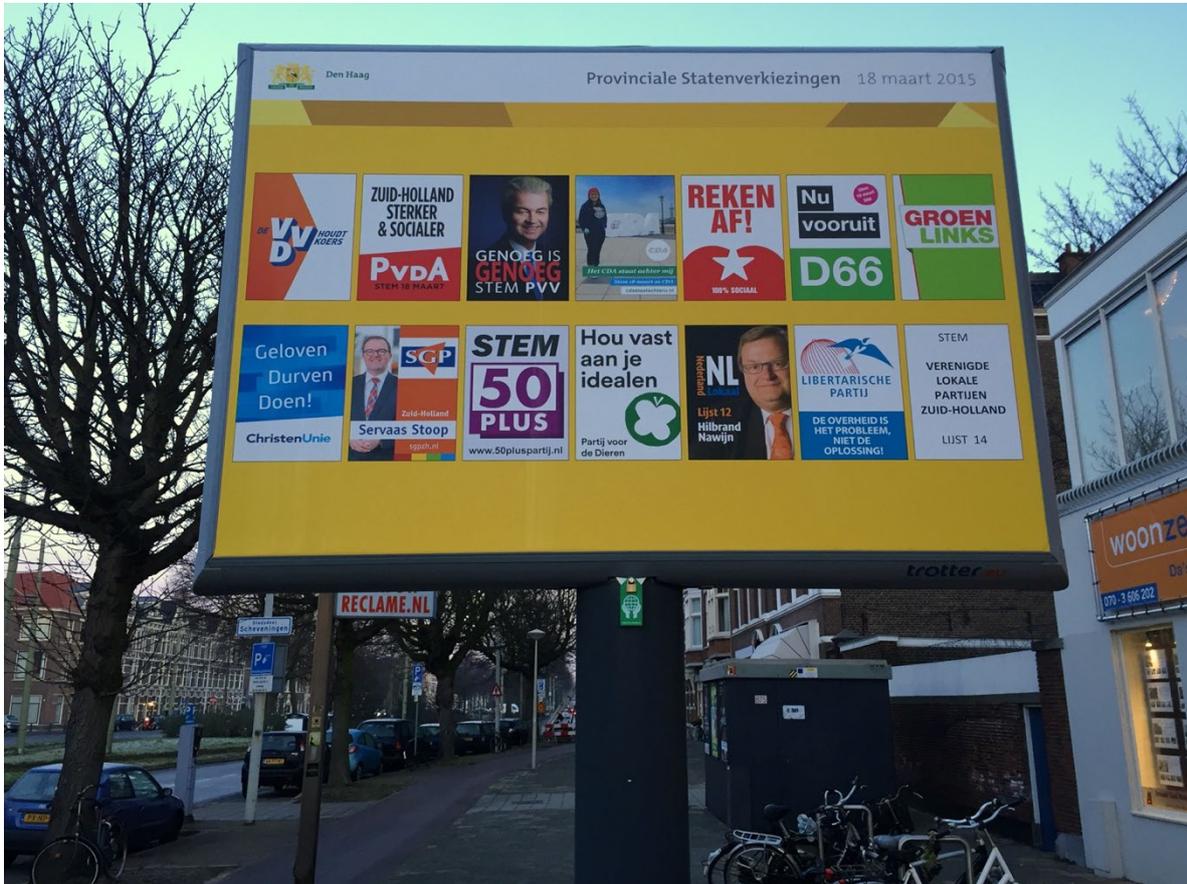


Who to blame?

The role of political parties in electoral turnout



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Abstract

The last Dutch local election in March 2022 had relatively low turnout compared to earlier years. In the media, but also in academia, a new debate rose about the role of political parties in turnout. This thesis tries to address the question to what extent do political parties play a role in electoral turnout. From the party system literature, a theoretical model, consisting of three broad criteria, was designed to address the role of parties most completely. The three criteria are the number of parties, the competition between parties, and the distinctiveness of the party system. These three broad and interlinked criteria in this theoretical model were then tested on the Dutch local election of 2018. Using aggregated polling station data to the neighborhood level, combined with several other party and neighborhood statistics, several multilevel linear regression analyses were run. This thesis finds that parties play a role in electoral turnout, especially the number of parties and the distinctiveness of the party system. More specifically, the number of parties, perceived party polarization and, in certain cases, local party types have a negative significant effect on turnout. Actual party polarization has a positive significant effect on turnout. No effect was found on short-term competition, or the presence of populist parties on the election list on turnout.

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List of abbreviations

Abbreviation	Meaning
AIC	Akaike information criterion
CBS	Statistics Netherlands
CDA	Christian Democratic Appeal
CU	Christian Union
D&B	Department Democracy and Government
D66	Democrats 66
FNP	Frisian National Party
FvD	Forum for Democracy
ICC	Intra-Class Correlation
Kiesraad	Voting Council
LISS	Longitudinal Internet studies for the Social Sciences
NCPN	New Communist Party of the Netherlands
NKO	National Election Study
OPA	Elderly Politically Active
PvdA	Labour Party
PvdD	Party for the Animals
PvdO	Party of the Elderly
PVV	Party for Freedom
SGP	Reformed Political Party
SP	Socialist Party
VCP	United Communist Party
VNG	Association of Dutch Municipalities
VVD	People's Party for Freedom and Democracy

1. Introduction

The latest municipality election in the Netherlands in 2022 sparked a discussion about the low turnout (e.g., Van den Berg & Smit, 2022). Only 50% of the electorate showed up to the polling stations. This is almost a 5 percent point drop in turnout compared to the turnout of the local elections of 2018. Low turnout can damage the legitimacy of the political system and bring a risk of, even more, unequal representation (Lijphart, [1997]; 2008). Furthermore, the other forms of political participation, such as protesting and contacting politicians are highly unequal compared to voting, because they are, among other things, easier for people with higher resources. Voting is the option to partially balance this inequality in political participation.

The Minister of the Interior and Kingdom Relations announced an investigation into the low turnout of the local election (“Historische lage opkomst”, 2022). This investigation will most likely show that we already know. Namely at the individual level, that a higher age and a higher level of education increase turnout (Smets & Van Ham, 2013). Furthermore, less residential mobility and the region somebody is living in has a positive effect on turnout. Also, mobilization by both partisan and non-partisan, and media have a positive influence on turnout. A vote in a previous election has a positive effects turnout. Finally, higher levels of party identification, higher levels of political interest, less distrust in politics and political knowledge of elections are most likely to increase turnout (Smets & Van Ham, 2013)¹. At the aggregate level, compulsory voting, importance of elections and small population size are most likely to lead to higher turnout (Stockemor, 2017).

What was however new in this debate about turnout in the last elections, was a discussion about the role of political parties in turnout (e.g., “Partijen moeten oorzaak”, 2022). No single national party participated in every municipality. This was especially prevalent for the radical right parties, such as Forum for Democracy who only participated in 50 municipalities. Furthermore, the campaigning done by political parties was modest compared to earlier years. This was in part due to the war in Ukraine (“Historische lage opkomst”, 2022). The question that thus arises: is it correct to blame the low turnout all on voters?

This is where the first problem with the turnout literature comes in. The extensive literature on turnout focuses mostly on the demand side: voters or institutions that enable voters to vote. However, voters need something to vote for before they can decide to vote or not to vote. The neglected focus on the supply side, namely political parties, in turnout is puzzling. Most researchers seem to agree, considering that the research on political parties in relation to turnout is on the rise since 2010. But it still has received far less attention and the field is rather fragmented. Researchers of political parties and turnout have looked at specific parts, such as types of parties (e.g., Leiniger & Meijers, 2021) or competition between parties (e.g., Moral, 2017), but no study to date has combined all the elements. This lack of combining result seems to be an overall problem with turnout literature (Smets & Van Ham, 2013; Stockemor, 2017). This lack of combining findings also leads to problems, because it is still unknown what of political parties drives turnout and how all these separate elements relate to each other.

¹ The exception is distrust in politics. Distrust in politics is often insignificant in the quantitative studies (Smets & Van Ham, 2013), but is often found in the qualitative studies when asked about why people do not turnout (e.g., Dekker & Den Ridder, 2021, p. 31).

This thesis addresses this problem. The thesis asks the following question: *What is the role of political parties in turnout?*

To ensure that all parts of the political party are taking into account, this thesis will make use of the party system literature (Sartori [1976], 2005; Dalton 2008). Party system literature will provide three broad but interlinked criteria that allow for designing this thesis' hypotheses and can already be combined with the current party turnout literature. These criteria are the number of parties, distinctiveness, and competition. This will lead to the most complete test of political parties in relation to turnout. Using the party system literature, three sub-questions can be asked to assess the relation between turnout and political parties:

1. *In how far does the number of parties influence turnout?*
2. *In how far does the distinctiveness of the party system present influence turnout?*
3. *In how far does the competition in the party system influence turnout?*

These three questions will be tested on a specific case, namely the Dutch local elections in 2018, including the redivision elections. For scientific reasons, the local elections, political parties, and turnout are interesting. First, a large problem with the turnout literature is that it looks at elections separately, but often forgets the relationship between election types (Cancela & Geys, 2016). The Dutch case is especially interesting in this sense, given that it has one of the largest differences in turnout between the national election (around 80% turnout) and local elections (around 55% turnout) in Europe (Gendźwiłł & Kjaer, 2021). In other words, there is an electorate that chooses to vote during the national election but not to vote during the local election. To what extent do the differences in political parties and party system between the local and national election play a role in this choice to go out and vote.

Furthermore, national political parties compete at both elections, and it is assumed that voters watch these parties both from a national and local viewpoint (cf. Lefevere & Van Aelst, 2014). A focus on political parties in local elections will allow for more understanding of how these elections relate to each other. Finally, most research on political parties and turnout is cross-national out of variation reasons but with risks of confounders. Local elections will bring in variation within a single country, thus less risks of confounders.

Local elections, political parties and turnout are also interesting from a practical point. First, it would help provide evidence for the requested research on turnout of the last local election by the Minister of the Interior. Second, more insight on turnout can also be helpful in the possible implementation of recommendations recently undertaken by the State Committee on the Parliamentary System (*Commissie Remkes*) to increase voter turnout in elections (State Committee on the Parliamentary System, 2018). The implementation of the recommendations of the State Committee is described in the coalition agreement of 2021-2025 (People's Party for Freedom and Democracy (VVD), Democrats 66 (D66), Christian Democratic Appeal (CDA) and Christian Union (CU), 2021).

Furthermore, the strategic knowledge agenda of the department Democracy and Government (D&B), from the Ministry of the Interior and Kingdom Relations advises to look more into the role of local parties in the local democracy (2016, pp. 24-25). Even more, a further look at the changes in the local and regional party system is advised (*ibid.*, p. 25). This thesis can address these questions in relation to what these parties and party systems mean for turnout. Furthermore, D&B advises to look at the effects of increased volatility and fragmentation of the party system (2016, p. 25). One of these proposed effects is on turnout.

This thesis will also contribute to turnout literature on the data side. Most research is done either at the individual level, via survey data, or at the aggregate or macro level, via country data (Smets & Van Ham, 2013; Cancela & Geys, 2016). This thesis will make use of a rather new type of data to come to its conclusions, namely aggregated polling station data to the neighborhood level, enriched with several other datasets. Using this meso level data will allow for strong control of confounders and will not overestimate turnout, as survey research often does (Sciarini & Goldberg, 2016).

This thesis will start with a theoretical framework on a summary of what is missing in the political party turnout literature. It will follow up with a short summary of the party system literature, which will then be critically combined with the current political party turnout literature to draw hypotheses. Finally, a short summary will be provided on the link of the control predictors that will be used in the models and how these affect turnouts. This chapter will be followed by a chapter about the case selection, data, variables, and method. Considering that around eleven datasets will be combined, some extra time will be spent explaining how the dataset for the analysis is structured. This chapter will be followed by the analysis, in which the main findings will be given. Furthermore, this chapter will conclude with a discussion about the results and how these findings relate to the literature. This thesis will conclude with a summary of the research and further generalize. Finally, some recommendations are made for future research.

2. Theoretical framework

2.1 Turnout

Turnout is one of the most researched topics within political science. The studies can be summarized twofold, those who look at aggregated turnout (for a summary on the research, see Cancela & Geys, 2016; Stockemor, 2017) or individual level turnout (see Smets & Van Ham, 2013). In the literature three groups of factors for turnout can be found (Eichhorn & Linhart, 2021). First, are the socio-economic factors, which in turn explain what kind of resources, in the most abstract sense, explain turnout. These resources are for example age and education. Second, are the institutional explanations, which explain the institutions that provide an incentive structure to vote, such as the electoral system and compulsory voting. Third, are the situational factors, such as when the election takes place and what the weather was.

Most of these explanations focus on the supply-side, namely what motivates people to vote or not to vote. While it seems logical to focus on the voters, considering they determine the turnout; they show up to vote or they do not show up. It is also important to look at what could be voted for (the demand-side). Voters need something to vote for, before turnout can happen. More and more researchers have begun to look at how political parties influence turnout. The research of the link between political parties and turnout can be summarized as the following. First, some researchers have looked at if a party type, such as populist, is present or not and how this influences turnout (e.g., Leiniger & Meijers, 2020). Others have looked at the competition between parties during a single election (short-term competition) (e.g., Eichhorn & Linhart, 2021) or over several elections (long-term competition) (e.g., Wilford, 2017) and how this affects turnout. Finally, many have looked at the role of the number of parties on turnout (e.g., Robbins & Hunter, 2012).

The field remains rather fragmented when addressing the issue of political parties. Research from this perspective focuses on one-part of the role of political parties on turnout. Number of parties measures the number of (relevant) voting choices. Short-term competition measures if an election is close or not. Long-term competition provides the range of voting choices. Finally, the types of political parties provide the actual voting choices.

Considering that all these elements measure different things of political parties in relation to turnout, it seems strange that these elements have not been combined. A more complete aim would focus more on the supply of parties as presented in a party system. This is first, because it is until now unknown which element of the political parties is most important for turnout. The question is, is turnout related more to the number of party choices or are the choices of a specific party present that determines turnout more? Or is it about the competition between parties that make elections close, which in turn increases turnout the most? Or is it all the above? All these parts need to be combined to provide an answer to the question: what of a political party drives turnout.

Second and even more important, these elements seem related to each other to a certain degree. For example, why go out to vote if you have sufficient voting options, but these options are all the same? Or, why vote when you have a sufficient range of voting options, but your preferred type of party is not present? Thus, it seems strange that these parts are not combined yet, because a full model will also allow us to see the relationship between turnout and political parties.

How could this thesis be sure that political parties in relation to turnout are fully assessed? The best way, this thesis would argue, is by looking at party systems. Party systems will provide a complete overview of what political parties entail and how they can increase or decrease turnout. As will be proven down below, the original party system literature will provide three broad criteria that can be researched. The largest strength of party systems is that these criteria are all connected and necessary for understanding party systems. Furthermore, these three criteria; number of parties, competition, and distinctiveness, already fit with the existing literature on turnout and political parties and thus it is possible to draw hypotheses from the literature. Using these criteria an overall model can be designed to test the effect of political parties on turnout in every election type. Which in the thesis case, will be local elections (see chapter 3.1 for an explanation on the case selection).

2.2 Party systems

The “classical” literature used the party system as a way to classify different democracies, compare countries, and compare two party systems against multiparty systems (Mair, 1997, p. 200). Within the literature the measurement of party systems can be summarized as twofold: Focusing on the number of parties and focusing on how these parties compete (*ibid.*, p. 199). This idea to focus both on the number of parties and intercompetition between parties stems from Sartori ([1976], 2005), who would focus on developing a framework for party systems on a cross-national scale.

The number of parties is according to Sartori (2005, p. 267) a way to measure fragmentation of the party system. To him size is however less important than relevance. The rules for counting parties should not be counting all the parties but be based on coalition potential and/or blackmail potential (*ibid.*, p. 267). This potential is measured in relation to achieving majorities (*ibid.*, p. 281). For Sartori (2005) interparty competition is about long-term competition. Two party system party and multiparty systems with no anti party (i.e., moderate multiparty system) would fight over the middle (centripetal) and have little ideological difference, while a multiparty system with an antiparty (i.e., polarized pluralist multiparty system) move away from the center (centrifugal) and have larger ideological differences (Evans, 2002, p. 157). It is important to note that competition is not only the battle between parties, but it can also be translated as *diversity of choices* (Dalton, 2008, p. 915). There need to be differences between parties before the competition can happen.

To measure a party system, at least three criteria are to be met:

1. Number of parties
2. Competition
3. Diversity

These criteria will now be assessed individually in relation to turnout, in which this thesis will start with the number of parties and move towards diversity. Even though these criteria are discussed separately for readability, the relationship of one criterion with other criteria will be discussed.

2.3 Number of parties and turnout

While the number of parties was initially used for categorizing countries, it also obtained much attention by the scholars of electoral turnout. It is theorized that a higher number of

parties increases turnout, because it gives voters a higher chance that to identify with a political party (Robbins & Hunter, 2012, p. 920). Party identification has a strong positive effect on turnout (Smets & Van Ham, 2013). On the contrary, more parties lead to higher information costs, thus it can have a negative effect on turnout. In aggregate level meta-studies of turnout, a positive effect for the number of parties is found, but most tests seem insignificant (Cancela & Geys, 2016; Stockemor, 2017). At the individual level, which contains only 4 studies in 2013, Smets & Van Ham (2013) find in their meta-analysis a 50% study success rate. They find a negative effect on turnout overall, as opposed to a positive effect.

However, the operationalization of effective number of parties could hold three problems in regards with turnout: it is often an *ex-post* measurement, it is only measured short term and in itself it is not that useful. First, it is an *ex-post* measurement. The effective number of parties follows from voting, but the studies look at it the other way around (Eichhorn & Linhart, 2021; Robbins & Hunter, 2012). In statistical terms, we are violating one of the assumptions, namely X (number of parties) must happen before the Y (turnout). An example of a solution to this problem is using polling data to predict the number of parties or taking the first-round number of parties, to explain turnout in the second round (De Paola & Scoppa, 2014).

The second problem has to do with the fact that the number of parties, both how measured and the mechanisms, are aimed at the number of parties at a single point in time. According to the party system literature, the current measurement of number of parties is incorrect. Sartori (2005), and others, seemed to use the number of parties more as a long-term measurement, not short term. For this reason, the number of parties should be measured in the long term. For a party system researcher, the difference between 6 or 7 effective number of parties would not make much of a difference. But for turnout it might matter, 1 extra effective party is either extra information costs for voters or an extra voting option. For turnout it is more interesting to look at the number of parties in the short term than in the long term. Furthermore, while there is no research on long-term measurement of the number of parties, there is some research on the electoral system. Two party systems mostly stem from a majoritarian electoral system and a multiparty from a proportional electoral system. Almost all researchers do not find an effect at both the aggregate and individual level for the relationship between proportional system and turnout (Stockemor, 2017, p. 705; Smets & Van Ham, 2013).

The third problem is that the number of parties is in itself not a useful predictor (Wilford, 2017, p. 1402), which might also explain the contradicting evidence. It only looks at the number of choices, but it does not show if these options are distinct or not. If there are six parties present, but they are all socialist, what do you really have to choose? This does not mean that number of parties is a completely useless predictor, however something about distinctiveness has to be added.

Thesis expects that the number of parties, when distinctiveness is added, has a negative effect on turnout, because of the rise in information costs. The following hypothesis can be made:

H1: *Higher number of effective parties leads to lower turnout.*

Considering that the number of parties alone is not that useful, it is important to look at the other parts of the party system, namely competition and distinctiveness. Competition can be divided between long and short competition in the turnout literature. Sartori (2005) meant long-term competition, however short-term competition is also highly relevant in relationship

with turnout. It is theorized that close elections can increase turnout, because of three reasons. First, following a rational choice theory, if elections are close, the chance that your vote matters more is considerably higher, thus you have a higher reason to vote (Eichhorn & Linhart, 2021). Furthermore, parties are more motivated to mobilize voters to win the close election. Third, there is some expressive benefits to belong to the winning party of the electorate, thus voters are more likely to vote if they feel like they can win (Bönisch, Geys & Michelsen, 2019).

2.4 Short-term competition and turnout

The current meta-studies find very different success-rates at both the aggregate and individual level for short-term competition. For example, the aggregate level finds a success rate from 69% to 44% (Cancela & Geys, 2016; Stockemor, 2017). How can these relatively large differences in success be explained? First, again the argument comes into play that competition alone is not that useful; it matters a lot how many candidates or parties are selected (Stockemor, 2015). If only a few candidates are chosen, there is “more to lose”. Even more, in multiparty systems it might be more relevant to look at the difference between two blocs, as opposed to the difference between two parties (Eichhorn & Linhart, 2021, p. 608). The difference in blocs is more important in multi-party systems because voters care about coalition potential. If the first and second party in seats are both left-wing the closeness might be less interesting than if a left-wing and right-wing party compete. All these measures are however *ex post* and thus require that voters somehow can expect the closeness of elections.

To address short-term competition again some ex-ante must be considered, and a different measurement should be made if a system is multiparty as opposed to a two party system. The following hypothesis can be made:

H2: A higher competition between coalition and opposition leads to higher turnout.

Next to short-term competition there is also long-term competition, or as Dalton (2008) calls it: the nature or internal dynamics of the competition. While this is competition, it measures something different than short-term competition. Long-term competition, usually measured through party polarization, measures the degree of ideological differentiation among political parties in a system as opposed to closeness of an election (Dalton, 2008). In other words, party polarization is in essence a measure to measure the “range” (rather than the number) of choices that matter to voters. In essence it thus not only measures competition, but also distinctiveness. It is theorized that higher party polarization increases turnout, because it allows for a greater number of choices that might align with your preferences (Wilford, 2017).

2.5 Long-term competition, distinctiveness and turnout

Most research does seem to find that the relationship between high party polarization and turnout holds true (Moral, 2017; Wilford, 2017, p. 1393). Considering that party polarization in relation to turnout is somewhat less researched, there could be a few gaps and problems. First, all research until now has focused on either the United States or cross-national elections. Second, party polarization can be measured through expert surveys or party manifesto’s (Wilford, 2017; Dalton & McAllister, 2015). These measurements somewhat lose the link with voters. It is about how voters *perceive* the party system and how this translates into voting or not. Dalton (2008) originally used the left-right placement of the party *by voters*. Moral (2017) finds that both perceived and actual party polarization increases turnout in a

multiparty system, even when included in the same model. If there are sufficient distinct party policy options, voters will show up, no matter if they are politically sophisticated or unsophisticated (Moral, 2017).

This thesis will address both types of party polarization (perceived and actual) to see if these findings hold up.

H3a: *Perceived higher party polarization leads to higher turnout.*

H3b: *Actual higher party polarization leads to higher turnout.*

Wilford (2017) argues that polarization should be combined with the number of parties. High polarization with a low number of parties, would result in distinct choices but also low chance of all parties being in coalition, thus stark competition. This would in turn result in higher turnout. On the other hand, a high number of parties combined with low polarization would decrease turnout, because coalition potential is high and there is thus less at stake for voters (Wilford, 2017, p. 1394).

H4a: *High party polarization with a low number of effective parties increases turnout.*

H4b: *Low party polarization with a high number of effective parties decreases turnout.*

2.6 Party types and turnout

With party polarization, it is impossible to distinguish with long-term competition and distinctiveness, because it measures both. Another measurement is added to measure diversity. Party types can be an ideal measurement because it can measure actual voting options as opposed to range of choices, as party polarization does. The research on party types and turnout is limited, some research has been done on turnout and populist parties (Huber & Ruth, 2017; Immerzeel & Pickup, 2015; Leininger & Meijers, 2020), immigrant parties (Kranendonk, Lekkerkerker, Michon, & Vermeulen, 2018, p. 15), leftwing parties (Wilford, 2019) and regional parties (Henderson & McEwan, 2010; Schakel, 2013). However, most research does not add sufficient other party variables (except for Wilford, 2019) to control for confounders.

The types of parties taken into the model might differ for each election type. It is important to note that adding all parties as a dummy would not be valid. because a theoretical reason is necessary to explain why a certain party would increase turnout. It is for example difficult to explain why liberal parties might increase turnout and why this might be different to socialist parties. Two types of parties are going to be taken into thesis' model, namely populist and local parties.

2.6.1 Populist parties and turnout

The reason populist parties might increase turnout is because they might emphasize issues previously ignored by other parties (Leininger & Meijers, 2020, p. 669). Furthermore, populist parties might mobilize non-voters by their unconventional and simple language (*ibid.*). They make it much clearer what their stance is, which might attract those who are less interested in politics. Finally, Immerzeel & Pickup (2015) bring forth and prove a different hypothesis, namely that populist parties increase the turnout of those who strongly oppose populist radical right, namely the higher educated and more politically interested.

However, most of the time no-effect is found for populist parties on turnout, no matter how measured (Huber & Ruth, 2017; Leiniger & Meijers, 2020). Even more, the argument that populist parties might attract non-voters does not seem to hold if non-voters and populist voters are compared. In Germany, it is found that non-voters and populist voters are not that much alike as originally thought (Koch, Meléndez & Rovira Kaltwasser, 2021). For example, while both non-voters and populist voters are less satisfied with democracy, populist voters still demand more direct democracy tools to supplement representative democracy, while non-voters do not (*ibid.*, p. 13).

A gap in the research is however that all these tests of populist parties on turnout are done at the (cross-)national level and with time-series data. The Dutch local elections might provide some opportunity to the link between populist parties and turnout somewhat better. In the Dutch local elections, the Party for Freedom (PVV) only participated in 30 local elections. This allows for a test of populist parties on turnout without possible time and country confounders. Even more, PVV is already well established in national politics, thus there is less information necessary for possible populist voters and anti-populist voters to obtain. This paper will test the following hypothesis:

H5: The presence of a populist party on a local election list increases turnout.

Another reason populist parties might increase turnout has to do with the fact that they bring in external threat, namely Islam. There is sufficient proof that emotions, especially fear, can have an effect on political behavior (see Robbins, Hunter & Murray, 2013, pp. 448-449). The perceived threat, together with the emotions, heightens the importance of an election, which in turn can lead to higher turnout (*ibid.*, p. 449). Robbins, Hunter & Murray (2013) find that a positive relationship between terrorism and turnout. White (2016) finds that stricter immigration policies can have positive effect on turnout for Latino's, because they feel threatened with their undocumented friends, families or neighbors being evicted.

While having a mosque in a neighborhood might be considered a lesser threat than terrorism or being evicted, populist radical right seems effective in making it a *perceived* threat. Mosques are put forward as nativist threats to Western values and culture because they symbolize the incursion of a foreign, incompatible culture (Gravelle, Medeiros & Nai, 2021). Gravelle, Medeiros & Nai (2021) find that the proximity to a mosque leads to increased support for the PVV in the Netherlands. It is unknown if this also leads to increased turnout, thus the following hypothesis will be test:

H6: The presence of a populist party on a local election list and a mosque in the neighborhood increases turnout

2.6.2 local parties and turnout

Another type of party that might increase turnout are independent local parties. Until now no research has been done on the relationship between local parties and turnout. They could increase turnout, because of several reasons. First, local parties are said to be more responsive to local issues than national parties, and thus also more likely to pick up issues that national parties do not (Boogers & Voermans, 2010, p. 79). This larger responsiveness to local issues, could lead to higher party identification by voters, which in turn is a strong predictor for turnout (Smets & Van Ham, 2013). Furthermore, local parties can behave as and be perceived as protest parties, in which they protest politics in general (Boogers & Voermans, 2010, p.

80). The infamous landslide success of Pim Fortuyn's Liveable Rotterdam could be an example of this phenomenon. A small rise in turnout could be seen in Rotterdam in 2002 and 2006, as opposed to stable turnout levels at the national level (Municipality Rotterdam: Research and Business Intelligence, 2018, p. 11; Ministry of the Interior and Kingdom Relations, n.d.)

Furthermore, not only their policy-stance could increase turnout, but they are also very active in the community, to obtain a party program as representative as possible (Boogers & Voermans, 2010, pp. 83-84; Boogers & Voerman, 2020, p. 39). Local parties, compared to national parties, are also better in selling that they are rooted in the local community. Local parties might increase turnout, because they are more active (or are perceived as such) in the community, which in turn makes it easier to mobilize their electorate.

Considering that nearly all local elections have a local party on the list (Van Biezen & Waling, 2021), it would be more interesting to look at the different types of local parties and their relationship with turnout. In the literature on Dutch local parties, three types of local parties can be found (Boogers & Voerman, 2010, Euser, 2015; Otjes, 2021b). In theory and practice, more typologies can be found, but these three are the most locally oriented types. First are the localist parties, which are generally apolitical and focus on the local administration and politics (Boogers & Voerman, 2010, p. 85). Second, are the protest parties. These parties protest (local) political administration or certain issues (Boogers & Voerman, 2010; Otjes, 2021b). Finally, there are the one issue parties, which focus on a specific group of residents, such as youth, students, or older residents (Boogers & Voerman, 2010, p. 85). This classification is not completely exhaustive. For example, there are also personal list parties and ideological local parties, which are sometimes a combination with a national and local party.

All three could theoretically increase turnout. Localist parties could increase turnout, based on responsiveness to local issues, leading to higher party identification. Protest parties follow somewhat of the same mechanism, but also have the chance to mobilize voters that want to protest the national or local politics. The one-issue parties can increase turnout for specific groups that feel unheard on the specific issue by the other political parties. All types could increase turnout based on closer ties with their community. The following hypotheses can be made:

H7a: The presence of a localist local party increases turnout.

H7b: The presence of a protest local party increases turnout.

H7c: The presence of a one issue local party increases turnout.

2.7 Other predictors of turnout

Next to the party elements the analysis will also include many controls. Based upon the standard literature this thesis will control for the following elements: education, age, income, descent, redivision elections, population size, population density and number of polling stations. In this chapter, this thesis will summarize what the relation between these predictors and turnout is. Normally, this chapter will not be included in the theoretical framework and all (control) variables will be explained in the methods section. However, considering that several datasets are combined, many datasets and the main variables require extra explaining; the method chapter will already be crowded. An explanation of the relationships to turnout is also important because not all predictors are easy to understand at a glance (for example,

population size). All the variables that stem from these predictors, can be found in chapter 3.3 and appendix 2.

Education is the most important predictor for turnout, some would even argue that the relation between education and turnout is causal (see, Sondheimer & Green, 2010). The two most given mechanisms, that are not exhaustive, is that the higher educated have higher interest and knowledge of politics, and that the higher educated tend to have a social network that is also highly politically interested, which in turn leads to higher social pressure to vote (ibid., 168). Age is also a strong predictor for turnout. Smets and Van Ham (2013) find in their meta study a 75% study success rate in 65 studies that bring in age as variable to explain turnout. The effect of age is curvilinear. Overall, how higher the age, the more likely somebody is to vote. At a certain age this linear relationship between age and turnout does not hold anymore. This is somewhat logical, because at a certain age it becomes harder to move out the house due to health problems for example.

Another socio-economic, which is less successful but still successful, to explain turnout is income (Smets and Van Ham, 2013). A negative effect for lower income can be found, even when controlling for education, on turnout. A lack of financial resources can, in turn, reduce somebody's attention and time for politics and thus lower turnout (Lahtinen, Mattila, Wass and Martikainen, 2017, p. 392). Even more, the number of immigrants living a neighborhood negatively influences turnout. This results mostly from the fact that immigrants have lower average resources, such as income and education, have a lower likelihood of speaking the language, and are more likely to be more interested in the politics of the home country instead of country of residence (Baretto, 2005, pp. 79-80).

An ongoing debate within the literature is about the negative effect of municipality size, mostly measured in population size, on election turnout (See Van Houwelingen, 2017). There are several mechanisms given in the literature that might explain why a smaller population increases turnout. In smaller communities, politicians are seen as easier talk to, tend to reflect community values better, politicians can respond to the needs of the residents easier and less information has to be gathered about important issues (Tavares & Raudla, 2018, p. 2; Van Houwelingen, 2017, p. 424). Furthermore, from a rational choice perspective, there is a greater chance that your vote is the decisive one in smaller municipalities than in larger, thus increasing the incentive to go vote (Gendzwill & Kjaer, 2021, 14). Finally, in smaller communities there is a greater sense that all people know each other, leading to increased social pressure and perceived duty to go out and vote (Tavares & Raudla, 2018, p. 2).

The size of the municipality can change between the national and local elections through a merger. Amalgamations may have a negative effect on turnout because they may decrease citizen's knowledge of local politicians, citizens' understanding of local issues and their sense of attachment to their municipality (Bhatti & Hansen, 2019, p. 700). These effects of municipality size might also be moderated by population density. Higher density areas, which are often more urban, allows for living more anonymously and thus reducing the effect of social pressure to go out and vote (Tavares & Raudla, 2018).

Finally, the number of polling stations has a positive effect on turnout (Orford, Railings, Trasher & Borisjuk, 2011). The more polling stations the easier it becomes to vote.

3. Data & methods

This chapter will explain the case, the data and method used for the analysis. This chapter will start first with the case selection. The chapter will follow by describing how the dataset was built out of 11 eleven different datasets. Finally, the variables and the method will be explained.

3.1 Case selection

The Dutch local election of 2018 will be used to test the theoretical framework. This election is a most-likely case for turnout by political parties; if they cannot increase turnout here, it is unlikely they will do anywhere else. This thesis uses a most-likely case because this thesis is interested in *what* of political parties influences turnout (see research question, chapter 1). A most-likely case will show larger effects for the parts of political parties that influence turnout, which makes it easier for us to spot it. On the other side, if a certain element of a party system does not influence turnout in this case, it will be most unlikely that the party system will influence turnout in another case (e.g., national elections).

There are several reasons why the Netherlands is a most-likely case. The first reason, that will be discussed in this chapter, is that political parties are highly institutionalized in the Netherlands. The second part and reason will explain why local elections are interesting; they bring in variation of party systems within a single country and there is an electoral base present. The third reason that will be discussed is that there are few other confounders in the Netherlands. Fourth, some comments are made about second-order elections and how it is useful in this case. Finally, this chapter will conclude by bringing all these arguments together.

3.1.1 Political parties in the Netherlands

The first reason the Netherlands is a most likely case, is because of its rich history of many different party families. The Netherlands has many different party families which obtained seats in parliament, such as populist, liberal-conservative and one-issue, such as animal welfare. These parties in the Netherlands are highly institutionalized in both national and local level (for the local level, see Van Ostaaijen, 2019). Furthermore, even parties that do not compete at the national level, can obtain a higher percentage of seats at lower levels. For example, local parties receive around 30 percent of the vote in the Netherlands, while in other countries such as Denmark this is much lower (around 3%).

These high numbers of different party families can be mainly attributed to the open and proportional system of the Netherlands, which is also present at the local level. There are little legal and strategic barriers for participating by political parties. Even more, what makes these parties interesting for voters, is that all parties have coalition-potential. No party is automatically excluded for whatever reason in the Netherlands in 2018 (c.f. Mair, 2008). Because no party is excluded, voters can vote for the party they like the most and there is little risk that a voter will stay home because their party is excluded in advance.

In sum, the political party families are well known by voters (i.e., institutionalized) and all parties can in theory expect votes at all election levels.

3.1.2 Local elections

The local election as a case fits with the idea of being a most likely case. No national party participates in all local elections (Jansen & Boogers, 2018, p. 11). Parties seem to strategically choose in which municipality they want to compete and are most likely to find voters. This has an effect for voters. For voters this means that they can either vote for their own party, must choose a new party because their party is not present or abstain from voting.

This variation in parties present at each local election and how voters respond to it, allows for comparing party systems within a single country. Most other research on political parties and turnout compares cross-national, with high risks of country or time confounders. The number of parties and the party type differs per municipal elections, meaning that the party system per municipality is different. This allows for a test of the role of political parties on turnout within a single country on the same date. Local elections can thus serve as a quasi-natural experiment.

Furthermore, the Dutch local election has one of the largest differences in turnout between the national election (around 80% turnout) and local elections (around 55% turnout) in Europe (Gendźwiłł & Kjaer, 2021). This means that turnout could be much higher, and we know how much higher it can be. There is a group of 25% of the electorate that chooses to not vote in the local election, but votes in the national election. To what extent do parties not participating in a local election contribute to this.

To summarize, there is variation of party systems within a single country, which we expect voters to react to. Furthermore, there is an electoral base present at the local election that should relatively be easier to mobilize.

3.1.3 The Netherlands

For a most likely case, it is important that political parties are one of the main drivers of turnout. The Dutch context is ideal for this. The Netherlands has very little risk of other confounders, because the major variation will mostly be found between neighborhoods and party systems and not somewhere else. The Netherlands is relatively small, densely populated and very urbanized. There is also no standing urban-rural cleavage, that might explain strong abstaining from voting out of protest (cf. Harteveld, Van der Burg, De Lange & Van der Meer, 2021).

These low risks of confounders can also be directly attributed to turnout. First, voters are automatically registered to vote for the local elections if they have Dutch citizenship and reach the age of eighteen or live for more than five years in the Netherlands and are eighteen years or older. There is no overestimation of turnout, out those that could vote, but choose not to register (Stockemor, 2017). Furthermore, the election does not take place at the same time of another more important elections that could boost turnout (Cancela & Geys, 2016). There are, to my knowledge, only two other external elements (e.g., Covid-19 or a democratic crisis) that could have affected turnout. The local election (excluding the redivision elections) did happen at the same time of a referendum, which might have led to very limited increased turnout for the local elections (Jacobs, 2018). Even more, since 2015 several tasks were decentralized to the municipalities (e.g., Participation Act and youth services). Voters hold municipalities responsible for these tasks (Broekema, Fenger & Van der Waal, 2018, p. 43). This is first elections that voters could hold municipalities responsible for their policies on

these decentralized tasks through elections, which could increase turnout as opposed to earlier local elections (Park, Frantzeskakis & Shin, 2019). However, this will only affect the turnout relatively little.

3.1.4 Second order elections

The fact that voters care less about these elections also contributes to their most likelihood. Local elections are often considered to be second-order elections (Lefevere & Van Aelst, 2014)². The second-order concept follows from the influential work of Reif & Schmidt (1980), who argue that all other elections are subordinate to the national elections. Considering voters care less, they are less likely to turnout. Voters need to be mobilized or motivated a bit more to vote, as compared to the national election where almost everybody votes no matter what. Parties can be one of these mobilizing factors for voters to go out and vote.

For example, if a party a voter votes for during the national election is not present during the local election, they might abstain from voting. Voters are less inclined to gather information about the election and thus a party they know or identify with can be the difference in voting or not voting. This can for example be proven from the fact that around half of all voters only take 1 party in consideration in the local election, as opposed to one-fifth during the national election (Jansen & Boogers, 2018, p. 12). For those voters that take multiple parties in consideration, the party system must be distinct enough that a voter has several voting options, otherwise the voters might abstain. In sum, because voters care less about these local elections, voters will not automatically vote as during the national election, political parties play much more of a role in mobilizing voters.

Another reason to use local elections, next to being a most likely case, is that it provides some ex-ante elements that are necessary for researching the role of political parties and turnout. As seen in the literature, many party characteristics require some ex-ante. From a second-order perspective, it has some ex-ante built in, because local elections are seen as subordinate to national elections. For example, local politics are often viewed from a national frame, that is often present in the news reporting about the local elections (e.g., de Vries, Meindersma & De Jong, 2018; “Lokale partijen winnen”, 2018). It is either about “the rise” of local parties, how much the coalition parties have won or lost and how well national “anti-establishment” parties have done. Furthermore, the TV-debate on national television about the local elections was with national party leaders, instead of local party leaders.

To bring all these arguments given above together. The Dutch local election is a most-likely case. Political parties have more influence on turnout in local elections than at other election levels. First, this is because one of the biggest variations between local elections can be found between party systems. This is because political parties choose not to participate in all elections, even though they could participate in all local elections theoretically. There are no other larger elements or confounders (e.g., democratic crisis) that could hinder turnout at the local level in the Netherlands. Second, there is an electoral base present that is easy to mobilize; most of these voters have voted before and should thus be easier to mobilize. These voters care less about the election and are thus not automatically inclined to go out and vote.

² Lefevere & Van Aelst (2014) argue that local elections in the Netherlands are not real second-order elections (more one and three-quarters order election) compared to the European elections. Voters tend to find the local elections still somewhat important, but less so than the national elections.

Political parties can be one of these mobilizing factors for voters to vote or not vote. If political parties influence turnout, they should do it here.

3.2 Data

All hypotheses of the theoretical framework will be tested using eleven unique combined datasets, which are mostly publicly available.³ For an overview of all data sets used, see table 3.2. The main datasets are the publicly available election results per polling station of the municipal election of 2018, the redivision elections in 2017, and the redivision elections in 2018 (Kiesraad, 2017a, Kiesraad 2018a, Kiesraad, 2018d). The polling station data is collected by the municipalities, who hand over this data to the Voting Council (*Kiesraad*), who combines the data. However, not all municipalities hand over the data in a correct manner and/or provide all the necessary and correct information, making the datasets far from complete. Most of the time, postal codes of polling stations are missing. This data was filled with the website *whereismypollingstation* (*Waarismijnstemlokaal*) (an initiative from the Ministry of Interior Affairs, Association of Dutch Municipalities (VNG), Open State Foundation and Civity), through contacting municipalities, and using google maps.

The polling stations in the datasets are given a neighborhood level-code from Statistics Netherlands (CBS) (see CBS, n.d.), through linking the postal code from a polling station with the neighborhood level-code. Using the neighborhood code, the data is aggregated to the neighborhood-level. Using neighborhood level for determining turnout is rather new, however it is already used for party choice (e.g., Hartevelde, Van der Burg, De Lange & Van der Meer, 2021). In appendix 1 a discussion for this type of data is provided. In sum, the biggest strength of this type of data is that it does not overestimate turnout (as survey research often does) and allows for strong control of confounders.

Table 3.2 Overview of the datasets

Dataset	General overview	Year of collection	Source
2018 local election results	Elections result of local election 2018 at polling station level.	2018	Kiesraad (2018d)
2017 municipal redivision elections	Elections result of redivision election 2017 at polling station level.	2017	Kiesraad (2017a)
2018 municipal redivision elections	Elections result of redivision election 2018 at polling station level.	2018	Kiesraad (2018a)
Neighborhood level code	Dataset containing postal codes and neighborhood level codes.	2018	CBS (n.d.)
City Council March 21, 2018: Distribution of seats in all municipalities	The distribution of the seats per municipality after the local election 2018.	2018	Kiesraad (2018b)

³ Two datasets used are not publicly available, thus the combined or complete dataset is not publicly available but can be viewed by contacting the author.

City Council November 22, 2017: Distribution of seats in all municipalities	The distribution of the seats per municipality after the redivision election 2017.	2017	Kiesraad (2017b)
City Council November 21, 2018: Distribution of seats in all municipalities	The distribution of the seats per municipality after the redivision election 2018.	2018	Kiesraad (2018c)
Repository for “In the Shadow of the Tower: Spatial Proximity to Mosques, Visible Diversity, and Support for the Radical Right	Location of all mosques in the Netherlands.	2018	Nai, Medeiros & Gravelle (2021a).
Dutch Parliamentary Election Study 2017	Survey of a representative sample after Dutch National election 2017.	2017	NKO (2018)
Key figures districts and neighborhoods 2018	Statistics of all neighborhoods and districts in the Netherlands.	2018	CBS Statline (2018)
Population aged 15 to 75; education level; districts and neighborhoods	Statistics of all education levels from the population aged 15 to 75 at the neighborhood and district level.	2019	CBS Statline (2019)
Where are local parties? The programmatic positioning of local parties	The placement of all parties on several position of all parties in the local election of 2018 on their party program.	2018	Otjes (2021a)

Using the neighborhood code, the neighborhood statistics (CBS Statline 2018, 2019) were attached to the dataset. These datasets stem from CBS and provide all neighborhood and municipality statistics, such as education levels per neighborhood and the population size. For the neighborhood education statistics, the year 2019 was used, because 2018 was unavailable. A municipality code (first four numbers of the neighborhood code) was used to combine the seat distribution data and the local party positioning data (Kiesraad, 2017b, 2018b, 2018c; Otjes, 2021a) with the aggregated polling station dataset. The location of mosques (Nai, Medeiros, & Gravelle, 2021a) was given a neighborhood level code through their postal codes and attached to the aggregated polling station dataset.

3.3 Variables

From these datasets, several variables were made to test the relationship between political parties and turnout. Furthermore, several control variables are included. This part will explain how these variables are build and how they are distributed. This part contains 3 different sub-chapters. The first part (chapter 3.3.1) explains the how the dependent variable is designed. The second part (chapter 3.3.2) and third part (chapter 3.3.3) explain how the independent (control) variables are designed.

3.3.1 Dependent variable

The turnout per neighborhood is used as the dependent variable in the analysis. Turnout is measured at the neighborhood level from aggregated polling station data. This is measured as the difference in the total number of votes cast in all polling stations in a neighborhood and the total number of eligible voters of all polling stations in the neighborhood, in percentages.

Table 3.3.1 Descriptive dependent and independent variables

Statistic	N	Mean	St. Dev.	Min	Max	Mean NL ¹⁾
Turnout	4,653	54.61	11.05	16.18	87.20	54.97
Effective number of parties	4,653	5.86	2.68	0.34	11.44	
Short-term competition	4,653	21.84	15.68	2.56	100.00	
Populist party	4,653	0.22	0.41	0	1	
Local party - localist	4,653	0.46	0.50	0	1	
Local party - protest	4,653	0.24	0.43	0	1	
Local party - one issue	4,653	0.18	0.39	0	1	
Local party - localist and missing	4,653	0.77	0.42	0	1	
Party polarization - perceived	4,653	3.23	2.53	0.00	13.62	
Party polarization - actual	4,653	3.90	3.17	0.00	17.41	

Note: Descriptive statistics are after control for statistical assumptions
1) Source: Kiesraad, 2018

3.3.2 Independent variables

Effective number of parties

The effective number of parties was calculated by the Laakso and Taagepera (1979) index. This is still the most used method for measuring the number of parties (Stockemor, 2017).

Short-term competition

Short-term competition is measured by the difference in percentage of seats between coalition parties at the national level and none-coalition parties (local parties and opposition parties at the national level). This method was also used by Eichhorn & Linhart (2021) for multiparty systems.

Populist parties

Populist parties are defined as parties that are considered populist at the national level, which are PVV and Forum for Democracy (FvD) (Meijers & Zaslove, 2021).⁴ Populist party is coded as a dummy variable, in which a 1 entail that a party type is present in that local election and a 0 that this party is not present. Furthermore, an interaction variable is made between populist party and a mosque. The mosque variable is coded as a dummy variable, in

⁴ Voters will most likely perceive these parties as populist. There is no measurement of populism of parties at local level, however PVV seems to score much higher on anti-elitism compared to other parties in party manifestos (Otjes, 2021b, pp. 67-68).

which a 1 entails that a mosque is present in that neighborhood and a 0 that a mosque is not present in that neighborhood.

Local party types

Local party is defined as a party that has no link with a national political party in name (thus a combination of a local party with a national party is also excluded) and did not participate in another local election or other election type (for example, this excludes the Frisian National Party (FNP) and Party of the North, which both have seats at the provincial level).⁵ This follows the definition of Otjes (2021b), except for no informal link with national parties, because this would be too time consuming to find out. The different local party types are selected by using the names of the political parties, which more often done in research (for example: Otjes, 2021; Boogers & Voerman, 2020) and the easiest way to place around 800 local parties.⁶

Three different local party types are coded as dummy variables, in which a 1 entails that a party type is present in that local election and a 0 that this party is not present. The local parties are exclusively placed in the following order: national parties, protest local parties, localist local parties, one-issue (including personal list), and finally ideological (not used in the analysis). Not all parties could be placed using the name (36% of all parties), these parties are placed in the localist local party type in a separate variable, after some additional tests.⁷

Party polarization - perceived

Long-term competition is measured through party polarization, which is measured through the formula of Dalton (2008):

$$PI = \text{SQRT}\{\sum(\text{party vote share}_i) * ([\text{party L/R score}_i - \text{party system average L/R score}] / 5)^2\},$$

in which *i* resembles individual parties and L/R the left-right score of parties.

Perceived party polarization is calculated for national parties by using the left-right placement of national parties at the national level.⁸ This is because it is assumed that voters place the national parties the same on both the local and national level. The left-right placements of national parties by voters were collected from the National Election Study (NKO) 2017. This data is collected by the LISS (Longitudinal Internet studies for the Social Sciences) panel administered by Centerdata (Tilburg University, The Netherlands). The scores were the following:

Table 3.3.2 Perceived left-right of political parties by voters during the Dutch National election 2017

Party	N	Mean	St. Dev.
VVD	1668	7.807	2.194
PvdA	1678	3.380	2.359

⁵ This means that parties in parliament in 2018, Elderly Politically Active (OPA), FNP, Forza, New Communist Party of the Netherlands (NCPN), NIDA, Party of the Elderly (PvdO), Party of the North, Party of Unity, Proud on the Netherlands (*Trots op Nederland*), United Communist Party (VCP), and United Senior Party are not classified as local parties.

⁶ For a discussion on how this is done, see appendix 1.

⁷ For a discussion on how this is done, see appendix 1.

⁸ For a discussion on why this is done, see appendix 1.

PVV	1654	8.094	2.805
CDA	1640	6.075	1.851
SP	1616	2.312	2.286
D66	1631	5.046	1.928
CU	1521	5.687	2.171
Green Left	1667	2.085	1.968
SGP	1452	6.493	2.578
PvdD	1460	3.772	2.699
50PLUS	1404	5.735	2.370
DENK	1275	5.097	3.680
FvD	1275	7.640	2.718

Source: NKO, 2018

Note: VVD = People's Party for Freedom and Democracy; PvdA = Labour Party; PVV = Party for Freedom; CDA = Christian Democratic Appeal; SP = Socialist Party; D66 = Democrats 66; CU = Christian Union; SGP = Reformed Political Party; PvdD = Party for the Animals; FvD = Forum for Democracy.

The scores from local parties are taken from the means of the local party types on their left-right placements by their party programs (Otjes, 2021a).⁹ Overall, the exclusive placement of local parties into types was used, as opposed to the non-exclusive placement of Otjes (2021b). The local parties that could not be placed by name were given the mean of the localist type. The other category in table 3.3.3 includes the national parties with no seats in parliament or regional parties.¹⁰ The ideological local party is split up by Christian, liberal and left-wing local parties, because these differ too much in mean to group them together and differ too much with other local party types to place them with the other types. The coding of these ideological local parties was done by Otjes (2021b). Finally, the parties that were a combination list between several national parties or national parties with local parties were given the average mean between those parties (e.g., a combination list of Green Left and PvdA was given the score 2.733 $((3.380 + 2.085)/2)$).

Table 3.3.3 Perceived left-right placement of local party types

Party type	N	Mean	St. Dev
Localist	184	4.840	0.901
Protest	82	4.595	1.150
One issue	57	4.408	1.114
Ideological			
Christian	5	6.204	1.623
Liberal	26	5.044	0.737
Left	57	3.559	2.923
Other	35	4.357	4.610

Party polarization - actual

Actual party polarization is measured by the left-right score based on the party programs of all parties during the local election, measured by Otjes (2021b). The left-right scores of parties should be between 0 and 10. Local party programs are, in certain cases, less detailed than

⁹ For a discussion on why this is done, see appendix 1.

¹⁰ Elderly Politically Active (OPA), FNP, Forza, New Communist Party of the Netherlands (NCPN), NIDA, Party of the Elderly (PvdO), Party of the North, Party of Unity, Proud on the Netherlands (*Trots op Nederland*), United Communist Party (VCP), and United Senior Party are not classified as local parties.

national party programs thus scores below 0 and 10 were found (102 cases out of 2254). If the score was below 0 the score 0.1 was given and if the score was above 10, the score 10 was given¹¹.

3.3.3 Control variables

The following control variables are brought forward in the model: education, age, income, descent, redivision elections, population size, population density and number of polling stations. For a detailed description of all variables see appendix 2.

Table 3.3.2 Descriptive independent variables

Statistic	N	Mean	St. Dev.	Min	Max	Mean NL ¹⁾
% 15 to 25 years	4,653	11.76	3.91	0.00	71.37	12.33
% 65 years or older	4,653	20.51	8.62	0.00	102.38	18.86
% Higher educated	4,653	28.68	13.37	0.00	84.91	26.07
% Lower educated	4,653	28.59	9.41	0.00	91.30	24.57
% Lower income	4,653	37.20	14.90	5.90	94.20	40.00
% Non-Western	4,653	9.77	12.13	0.00	83.33	13.05
Number of polling stations (corrected)	4,653	0.12	0.14	0.01	2.00	
Redivision election	4,653	0.12	0.32	0	1	
Number of citizens	4,653	116,248.30	187,832.00	1,132	854,047	1,290.55
Population density	4,653	1,315.61	1,552.71	29	6,459	838.61

Note: Descriptive statistics are after control for statistical assumptions

1) Source: CBS, 2018, 2019; Kiesraad, 2018

Education (low and high), income (low), descent (Non-Western) and age (15 to 25-years and 65 years or older) are all measured as percentage living in a neighborhood. Population size and population density are measured at the municipality level as integer. The number of polling stations is measured as integer and measured at the neighborhood level. The number of polling stations is divided by the amount of hundred citizens per neighborhood to account for the fact that larger neighborhoods have more polling stations. Redivision election is a dummy variable, in which a 1 entails that this election was a redivision election, and 0 entails that this was not the case.

Almost all control variables stem from CBS StatLine (except for redivision election and number of polling stations, which come from the Kiesraad data). The CBS StatLine data is incomplete for various reasons.¹² This data is further completed using (deterministic) hot-deck imputation, which is a method to fill missing data with existing data within the dataset

¹¹ For a discussion on why this could be done, see appendix 1.

¹² Data was either missing, because it could not be connected through the neighborhood code or because the neighborhood contained not enough people to have datapoint. For example, a neighborhood needs at least 100 households to report household income.

(Andridge & Little, 2010). The missing values of a respondent, in this case neighborhoods (the recipient), are filled with datapoints of respondents that are similar in characteristics (the donor). In this case several neighborhood characteristics were used. The imputation was done by the StatMatch Package in R and the “base” script was designed by Naomi Schalken (Researcher at Statistics Netherlands). Before imputation happened, several checks were done to check if the missing values were random (in other words did not follow a pattern), to prevent bringing in biases in the data. For the distance “Exact” was chosen because it gave the most reliable results as compared to “Gower” and “Manhattan”.¹³ The maximum number of times a datapoint might be taken from a donor was set to 1, to prevent all data to be taken from a single group of donors. The after-imputation variables were used as donors to fill in further recipients. The order of imputation are the rows of table 3.3.4, from top to bottom. Finally, a check was done to see if the data did not differ too much after imputation, as seen in table 3.2, the mean and standard deviation of the variables stayed almost the same.

Table 3.3.4 Descriptive of variables before and after hot deck imputation.

Variable	Before imputation				After imputation			
	Mean	St. Dev.	Complete cases	Missing cases	Mean	St. Dev.	Complete cases	Missing cases
% Household income 40% Lowest	37.81	0.223	4836	228	37.62	0.218	5064	0
% Household income 20% highest	20.8	0.164	4836	228	20.87	0.160	5064	0
% Education High	29.30	0.203	4779	285	29.18	0.196	5064	0
% Education Middle	42.31	0.128	4779	285	42.42	0.125	5064	0
% Education low	28.39	0.144	4779	285	28.40	0.140	5064	0

Note: Distance: Exact; Maximum number of donors: 1.

Variables used for imputation (all measured on neighborhood level): Population density, Urbanization, Average income of citizen, % Dutch, % Western, % Non-Western, % Age 15 to 25 year, % Age 25 to 45 years, % 45 to 65 years, % 65 years or older, % Higher educated, % Middle educated, % Lower educated.

3.4 Method

All models that will be designed from these variables are calculated using a multilevel mixed-effects linear regression analysis. Regression analysis is the most common way to explain the relationship between two variables, while controlling for others (Huntington-Klein, 2021). A multilevel is used to account for the fact that neighborhoods are nested within a municipality and can control for this. Furthermore, multilevel allows to bring in both level 1 (neighborhood) and level 2 (municipality) variables into the model. The estimation method is

¹³ The distance “Exact” is normally chosen for character variables. Exact gave the best result and thus all variables were perceived as character, even if they were numeric.

maximum likelihood, because this thesis more interested in fixed regression parameters and wants to compare models (Field, Miles & Field, 2012, p. 879)

This thesis does not mean-center its predictors, which could be important for multilevel regression analysis for several reasons (see Paccagnella, 2006). In this case mean-centering predictors for the multilevel models would be unnecessary. This thesis is interested in the individual effects, not in the group-level effects of the individual level characteristics, meaning that mean-centering does not add much (Paccagnella, 2006, p. 83). Even more, this thesis is mostly interested in level 2 predictors (political party predictors are the municipality level). Level 2 predictors can only be grand-mean centered, opposed of group-mean centered. Grand-mean centered predictors do not change the coefficients; thus it would be unnecessary to center them (Field, Miles & Field, 2012, p. 872)¹⁴.

¹⁴ Appendix 4, table A4.4 contains a replicated model 9 (which is used for the analysis) in which all the predictors are grand mean centered, as opposed to “raw” predictors as with the “normal” model 9. As can be seen by this model with mean-centered predictors, it is nearly identical to the none-mean centered model 9. Furthermore, another reason for mean-centering is to have a better interpretable intercept, because the intercept will be determined using the mean scores of the predictors as opposed to setting all predictors to the value of 0 (Field, Miles & Field, 2012, p. 872). However, appendix 4, table A4.4 shows that the intercepts does not really change much when using mean-centered predictors. Overall, this all further proves that mean-centering is not necessary.

4. Analysis

This chapter will discuss the results of the analysis. Also, some short comments will be made on the robustness of the models. Finally, this chapter will follow with a discussion of these result on both how it relates to the literature and how valid these results are.

4.1 Results

This part will discuss the results of the analysis. All multilevel regression models have the turnout of a neighborhood in the Dutch local election as the dependent variable. The levels in the models are neighborhood (level 1) and municipality (level 2). All models, except for model 0, all contain % 15 to 25 years, % 65 years or older, % lower educated, % higher educated, % lower income, % Non-Western, number of polling stations (corrected), redivision election, number of citizens and population density as independent variables. All complete models can be found in appendix 4.

4.1.1 Control models

Before an assessment can be made of the effect of political parties on turnout, it is important to look at control models beforehand. Model 0 contains no variables, only the dependent variable turnout. This model exists to check the data structure. Around 30% (Intra-class correlation (ICC) is 0.3) can be explained by municipalities. Model 1 contains only the control variables, which are the predictors that are well known, in most cases, to affect turnout. From now on model 1 will be often called the “base” model. This model is a significant improvement of model 0 ($\chi^2_{\text{change}} = 1978$, $DF_{\text{change}} = 10$, $P < 0.05$).

Model 1 seems to find most significant effects that are expected out of the literature. Higher percentage 65 years or older, lower percentage Non-Western and higher percentage higher educated living in a neighborhood both result in higher turnout. Furthermore, an effect is found for income when controlling for other predictors, corroborating the statement from Lahtinen, Martikainen, Mattila, Wass, & Rapeli (2019) that survey research underestimates this effect. Both higher population density and holding a redivision election result in lower turnout.

No effect is however found for the number of polling stations, percentage lower educated and municipality size. The percentage lower educated is not significant at the $P < 0.05$ but would be significant at $P < 0.1$. For number of polling stations, this might be explained because it is not the number but the difference in polling stations between election types that explains turnout.¹⁵ The relationship between municipality size and turnout is still highly debated, especially when adding control predictors (Górecki & Gendźwiłł, 2021, p. 58). Finally, the most interesting effect is that the percentage 15 to 25 years is positive, as of theorized negative. Bivariate the effect is negative (not shown), but when adding control variables this effect becomes positive.

Table 4.2 Multilevel regression analysis models

¹⁵ See earlier research done with this data by the author for CBS, <https://www.cbs.nl/nl-nl/longread/statistische-trends/2022/het-verschil-in-opkomst-tussen-tweede-kamerverkiezingen-en-gemeenteraadsverkiezingen>

	Model 0	Model 1
<i>Predictors</i>	<i>Estimates</i>	<i>Estimates</i>
(Intercept)	56.44 *** (0.36)	53.27 *** (1.23)
% 15 to 25 years		0.31 *** (0.04)
% 65 years or older		0.24 *** (0.02)
% Lower educated		-0.04 (0.02)
% higher educated		0.17 *** (0.02)
% Lower income		-0.15 *** (0.01)
% Non-Western		-0.27 *** (0.02)
Number of polling stations (corrected)		0.67 (0.83)
Redivision election		-10.03 *** (0.78)
Number of citizens		-0.00 (0.00)
Population density		-0.00 *** (0.00)
Random Effects		
σ^2	82.84	55.20
τ_{00}	35.16 Municipality	15.24 Municipality
ICC	0.30	0.22
N	337 Municipality	337 Municipality
Observations	4653	4653
Marginal R ² / Conditional R ²	0.000 / 0.298	0.430 / 0.553
AIC	34337.923	32435.011

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

4.1.2 The effect of political parties on the base model

(No models used in this paragraph)

Now that it is possible to conclude that the control variables and models provide a correct basis, it is possible to move towards the relationship between political parties and turnout. The assumption is that political parties have an effect on turnout. To test this assumption this thesis compares the base model (model 1) with models in which party variables are added to the base model. Four variables, or groups of variables, are added independently to the base model: the effective number of parties, short-term competition, party polarization and party types. Furthermore, an assessment is also made for a final model, which includes all the party variables and control variables together. To assess the models, this thesis uses four indicators. This thesis uses the Akaike information criterion (AIC), the (marginal) R^2 , the DF change and χ^2 change. The AIC is a corrected log-likelihood and is one of the most used methods to compare multilevel models. A lower score on AIC indicates a better fitted model. DF change and χ^2 change allow for calculating if a model with a party variable added is a significant better fit compared to the base model (again, the model with the control variables). Finally, the R^2 allows for some interpretation of the explanatory power of the models. A higher score indicates higher explanatory power.

Table 4.1.1 compares the models. All models, except for the model in which short-term competition is added as only party variable, are an improvement compared to the base model. In all cases, except for the models in which short-term competition is added, the AIC is lower as compared to the base model. Again, a lower score on AIC indicates a better fitted model. The improvement cannot only be concluded for the AIC, but also from the DF change and χ^2 change. All the same models are a significantly better compared to model 1 (see column “P” in table 4.1.1). This is except for the model which only adds short-term competition.

Table 4.1.1 Party models compared to the base model

Model	Adds to base model	AIC	R^2	χ^2_{change}	DF _{change}	P
1	-	32360	0.430			
2	Number of parties	32349	0.427	13.136	1	0.000
3	Short-term competition	32361	0.433	1.511	1	0.219
6	Party polarization	32356	0.436	8.006	2	0.018
7	Party types	32357	0.432	10.923	4	0.027
9	Everything	32345	0.439	31.793	8	0.000

Note: Significant results in bold

Finally, the (marginal) R^2 shows that most models have a larger explanatory power as the base model, apart from the model which only adds number of parties. A larger R^2 indicates better explanatory power. The marginal R^2 (takes only the fixed effects into account, not the random eff) shows only a very small improvement in variance explained when adding all party variables (improvement of 0.009). These results must be understood with caution. Nakagawa & Schielzeth (2013) have developed this R^2 for multilevel models to have somewhat of a same, well researched, R^2 that exists for “simple” linear regression. However, this multilevel R^2 still needs more testing to see if it as reliable as the simple linear regression R^2 .

Testing the contribution of the party systems measures in such a manner is of course just a beginning. To determine the actual effects of the party system on turnout this thesis will look at the coefficients of the party variables in the models. A shortened version of model 9 can be found in table 4.1.2. Again, model 9 is the full model with all party and control variables

added. This shortened version does not show the coefficients from the control variables, which are % 15 to 25 years, % 65 years or older, % lower educated, % higher educated, % lower income, % Non-Western, number of polling stations (corrected), redivision election, number of citizens, and population density. All other models and the full model 9 with the coefficients of the control variables can be found in appendix 4.

Table 4.1.2 Multilevel regression analysis model 9

<i>Predictors</i>	Model 9 <i>Estimates</i>
(Intercept)	57.57 *** (1.66)
Number of effective parties	-0.59 ** (0.19)
Short-term competition	-0.03 (0.01)
Party polarization - perceived	-0.48 *** (0.14)
Party polarization - actual	0.32 ** (0.12)
Local party - localist and missing	-0.05 (0.56)
Local party - protest	-0.77 (0.62)
Local party - one issue	-1.15 (0.70)
Populist party	-0.05 (0.97)
...	
Control variables included?	Yes
Random Effects	
σ^2	55.20
τ_{00} Municipality	13.31
ICC	0.19
N Municipality	337
Observations	4653
Marginal R^2 / Conditional R^2	0.439 / 0.548

Note: For full model see appendix 4

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

4.1.3 Findings

Effective number of parties

The first hypothesis concerns the effect of the effective number of parties on turnout. The first hypothesis anticipates that the number of parties will have a negative effect on turnout (H1). Effective number of parties is measured by the Laakso and Taagepera (1979) formula for effective number of parties. In principle the measurement does not have a scale, but in this case, it ranges from 0.34 to 11.44 (see table 3.3.1). A higher value indicates more parties in the party system.

Two models are run to test the effect of effective number of parties on turnout. First, a model with effective number of parties with the control variables (see appendix 4, table A4.1, model 2) and a model with effective number of parties and all other party system and control variables (see table 4.1.2). Again, the control variables are % 15 to 25 years, % 65 years or older, % lower educated, % higher educated, % lower income, % Non-Western, number of polling stations (corrected), redivision election, number of citizens, and population density. In both models a significant negative effect is found for the effective number of parties. Model 2 (see appendix 4, table A4.1) shows a decrease of 0.61 percent point of turnout with a one unit increase in effective number of parties, when holding all other predictors constant. Model 9 (see table 4.1.2) finds that a single unit increase in effective number of parties decreases turnout with 0.59 percent point, when holding all other predictors constant. As such, this thesis finds support for the first hypothesis. The more political parties in a party system, the less likely voters turn out to vote.

Short-term competition

The second hypothesis is concerned with the effect of short-term competition on turnout. Hypothesis 2 expects that higher competition will lead to higher turnout. Short-term competition is measured by calculating the difference in seats in percentages between the coalition parties in government and all other parties. A smaller difference between seats indicates higher competition. In table 3.3.1 it can be seen that short-term competition ranges from 2.56 to 100.

The same empirical strategy is applied. A model is run with short-term competition and the control variables (see appendix 4, table A4.1, model 3) and a model is run with short-term competition, the other party system, and control variables is run (see table 4.1.2). A negative coefficient (i.e., a greater difference between seats means lower competition) was found. However, the effect is not statistically significant. This is the case for the model including on the measure of short-term competition (see appendix 4, table A4.1, model 3) and the full model (model 9). The second hypothesis can thus not be supported. A higher level of competition between coalition and other parties does not lead to higher turnout.

Party polarization

Another type of competition was long-term competition, measured by party polarization. In hypothesis 3 a distinction between actual (H3b) and perceived party polarization (H3a) is

made. Hypothesis 3 anticipates that both higher party polarization perceived and actual lead to higher turnout. Perceived party polarization is measured by the left-right placement of parties by voters on the national level and the means of party manifestos of the party types that are not present at the national level. This measures how voters perceive the distinctiveness of the party system. Actual party polarization is measured by the left-right placement of parties based on their local party manifesto. This measures the actual distinctiveness of the party system. For both actual and perceived party polarization a higher value indicates higher polarization. Both forms of party polarization do not have a range. In this instance, actual party polarization ranges from 0.001 to 17.41 and perceived party polarization from 0.001 to 13.62 (see table 3.3.1)

Four models are run to test the third hypothesis. One model with perceived party polarization, one model with actual party polarization, one model with both perceived and actual party polarization (see appendix 4, table A4.1, models 4, 5 & 6), and one model with all party system predictors (see table 4.1.2). As of before, all models include the control variables. For actual party polarization a positive significant effect is found in model 6 (see appendix 4, table A4.1) and model 9 (see table 4.1.2). Somewhat interesting, no significant effect was found when actual party polarization was added as only party variables to the control variables (model 5). In model 9 a one unit increase of actual party polarization increases turnout with 0.32 percent point, *ceteris paribus*.

For perceived party polarization a significant effect is also found in models 6 and 9. As seen with actual party polarization, no significant effect is found when perceived party polarization is the only party system predictor added (see appendix 4, table A4.1, model 4). However, in this case the effect is negative. In model 9 turnout decreases with 0.48 percent point when perceived party polarization increases with one point, *ceteris paribus*.

This thesis finds support for H3b: the more the actual party polarization leads to higher turnout. No support is however found for H3a. Perceived party polarization leads to lower, as opposed to hypothesized higher, turnout.

Party polarization x Effective number of parties

In our theory this thesis expects an interaction effect between party polarization and effective numbers of parties. In other words, this thesis anticipates that the effect of party polarization will be conditioned by the effective number of parties. Two directions are anticipated and hypothesis 4 is split up between two parts. First, high polarization with a low number of parties, would result in higher turnout (H4a). Second, low polarization with a high number of parties, would result in lower turnout (H4b).

This is measured through an interaction effect between effective number of parties and perceived party polarization. To test the hypothesis two model are run. A model is run in which effective number of parties and perceived party polarization are added as grand-mean centered predictors to all other party system and control variables (see shortened version in table 4.2, model 10; full version in appendix 4, table A4.2). Another model is run in which the interaction is added to the centered predictors, all other party system and control variables (see shortened version in table 4.2, model 10; full version in appendix 4, table A4.2).

In model 10 the same coefficients and significance are found for the centered predictors as seen in model 9 (see table 4.1.2). In model 11 no significant effect is found for the interaction

effect. As such no support for H4a and H4b is found. An interaction between party polarization and effective number of parties does not increase turnout.

Table 4.2 Multilevel regression analysis models with interaction effects

	Model 10	Model 11
<i>Predictors</i>	<i>Estimates</i>	<i>Estimates</i>
(Intercept)	52.58 *** (1.42)	52.59 *** (1.42)
Number of effective parties (centered)	-0.59 ** (0.19)	-0.59 ** (0.19)
Party polarization - perceived (centered)	-0.48 *** (0.14)	-0.44 ** (0.14)
....		
Populist party	-0.05 (0.97)	-0.09 (0.97)
Mosque	-0.14 (0.56)	-0.63 (0.67)
.....		
Populist party x Mosque		1.49 (1.13)
Number of effective parties x Party polarization - perceived		0.04 (0.04)
....		
Control variables included?	Yes	Yes
Random Effects		
σ^2	55.20	55.18
τ_{00}	13.32 Municipality	13.25 Municipality
ICC	0.19	0.19
N	337 Municipality	337 Municipality
Observations	4653	4653
Marginal R ² / Conditional R ²	0.439 / 0.548	0.439 / 0.548
AIC	32430.349	32433.977

Note: For full model see appendix 4

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Party types

This thesis expects that diversity of the party system increases turnout. Since party polarization measures both competition and distinctiveness, separate measurements are included to measure diversity of the party system alone. To assess the effect of diversity of the party system on turnout several models are run with the presence of different party types. A model is run in which the presence of populist party, localist local party, protest local party and one-issue local party are added to the control variables (see appendix 4, table A4.1, model 7). Another model is run in which the presence of populist party, localist local party including those that could not be placed (see chapter 3.3.1), protest local party and one-issue local party are added to the control variables (see appendix 4, table A4.1, model 8). Finally, a model is run in which all party types are added to the party system and control predictors (see table 4.1.2).

The first hypothesis (H5) anticipates that the presence of a populist party increases turnout. This is measured by a dummy which is coded 1 when the PVV or FvD is present on the voting list. No significant effect is however found in all models. This thesis finds no support for H5. The presence of a populist party does not appear to increase turnout.

It is however possible that populist parties in a specific context might have more of an effect. Thus, a populist party in the presence of a mosque may increase turnout. There is some proof that emotions, especially the idea of a perceived threat, might increase turnout. Furthermore, populist parties obtain more votes in neighborhoods with a mosque (Gravelle, Medeiros & Nai, 2021). Hypothesis 6 anticipates that populist parties increase turnout in neighborhoods that have a mosque. Two models are run to test this hypothesis. A model in which the presence of a mosque and the presence of a populist party are added to the party system and control variables (see table 4.2, model 10) and a model in which the interaction effect between a mosque and a populist is added to previous model 10 (see table 4.2, model 11) (full versions of the models can be found in appendix 4). The presence of a mosque is measured the same as the presence of a populist party. A one entails that a mosque is present, while a zero entails it is not present.

No significant effect is found for both the presence of a mosque or the presence of a populist party on turnout in model 10. Also, no significant effect is found for the interaction effect between a populist party and mosque in model 11. A populist party does not increase turnout in neighborhoods with a mosque, meaning that H6 cannot be supported.

Finally, the last hypotheses focus on the presence of local parties. This thesis anticipates that the three main types of local parties; localist, protest and one-issue can increase turnout. This is measured by three dummy variables¹⁶, which measure if these local parties were present based on the voting list. All three main types are separated in hypothesis 7 between localist (H7a), protest (H7b) and one-issue (H7c). In model 7 (see appendix 4) a significant effect is found for one-issue and protest local parties, while no significant effect is found for localist local parties. This effect is however negative, as opposed to positive. The presence of a one issue local party decreases turnout with 1.41 percent point in model 7, *ceteris paribus*. Turnout is also decreased by 1.24 percent point when a protest local party is present in model 7, *ceteris paribus*. The effects are however not significant when other party variables are present in

¹⁶ Actually, four variables. Those parties that could not be placed were added to the localist type (see appendix 1) for one variable and one variable these missing were excluded. Both times, when missing were or were not included with localist local parties, no effect was found (see appendix 4, model 7 and 8).

model 9. We find no support for H7a, H7b, and H7c. The presence of localist parties does not seem to increase voter turnout.

4.2 Robustness checks

Before a discussion can be had about what these findings mean and how this relates to the literature, it is important to see if the models are non-biased. If the models are biased, the results might stem from the bias. The data was severely checked on statistical assumptions. For detailed discussion about how this was done, see appendix 3. All statistical assumptions were met, apart from normality of the independent variable. Considering that the N is large, this will not be a problem (Li, Wong, Lamoureux & Wong, 2012). Even more, two extra checks were done to spot potential biases in the data.

First, the analysis is done on a representative sample. This also means that the dataset does not contain all neighborhoods or polling stations. To assess if the adding of more cases to the dataset would lead to different results, a 40% random-pooled test dataset was made from the dataset. From this random-pooled dataset a new complete multilevel model was run and compared with model 9. In both models the same effects were found. It is safe to assume that adding more cases will not lead to different results. Second, the number of parties present in each municipality is not completely normally distributed. Larger municipalities have overall more parties (Jansen & Boogers, 2018). To test if this mediation might influence the results, a separate model is analyzed with only neighborhoods in municipalities of 100 000 citizens or more. This model is then compared with model 9. Overall, the same significant relationships between the predictors and turnout are found. Only party polarization seems mediated by municipality size. Some caution is advised when interpreting the results of party polarization. For a more detailed discussion on these tests, see appendix 3.

4.3 Discussion

In this part the larger implications of these findings will be discussed. Overall, it can be concluded that political parties have an influence on turnout. The effect of political parties on turnout seems mostly negative as opposed to positive. The number of effective parties, perceived party polarization and certain party types have a negative relationship with turnout. Overall, it seems the case that if voters perceive that there are more parties to choose, they will be less likely to turnout. However, if voters do not perceive it as such, having different options seems to have a positive effect on turnout. A positive effect on actual party polarization is found on turnout. A small side note to these findings is that these effects are found for an open multiparty system, thus it does not automatically mean that a two-party system (i.e., less parties) is best for turnout.

This chapter will discuss the findings per party variable: the effective number of parties, short-term party competition, party polarization, and party types, separately for readability. The relationship between these predictors will however still be discussed in these chapters.

4.3.1 Effective number of parties

In the literature two opposing mechanisms are given for the effect of the effective number of parties on turnout. The first mechanism states that the increased voting options increases turnout, while the other mechanism states that the increased information costs with extra parties decreases turnout (Robbins & Hunter, 2012, p. 920). In all models at the meso-level a

negative effect for number of parties is found, which is in line with the individual level studies of number of parties and turnout (Smets & Van Ham, 2013), but goes against the aggregate findings (Cancela & Geys, 2016; Stockemor, 2017). It might be the case that the number of parties at the aggregate level is an ecological fallacy, considering a different result is found at the lower level (Kittel, 2006). This seems to imply that that the more parties there are present, the more information people must gather, the less likely they are to turnout. This can be further proven by the fact that a negative effect is found for the local party types.

Another argument in the literature about effective number of parties, is that number of parties in itself is not a useful predictor for turnout (Wilford, 2017, p. 1402). This thesis would argue however differently. Adding the effective number of parties seems almost mandatory when researching the relationship between parties and turnout. Effective number of parties is a strong control for confounders. For example, when adding local party types to the model, without adding the effective number of parties, local parties might measure *the amount* of voting options as opposed to *a* voting option. The number of effective parties might be a mediator for the effects of local party types, which might explain why a significant effect is found for local party types when the effective number of parties is not present in the models. In model A1 (see appendix 4) the local party types and effective number of parties are added as only party variables to the control variables. The significant effects of local party types disappear in model A1 when number of parties is added as only party variable next to the control variables, which proves the mediation of effective the number of parties.

4.3.2 Party competition

While the number of parties seems to be a useful predictor to include, short-term competition does not. The success-rate of short-term competition in other studies was already very different (Cancela & Geys, 2016; Stockemor, 2017). This difference in success might be mostly explained in differences between party systems (Eichhorn & Linhart, 2021). While turnout in two-party systems benefits from strong competition, multiparty systems does not. The main reason for this might be because voters have more to lose if only a few parties are selected (Stockemor, 2015).

Eichhorn & Linhart (2021) developed a measurement for competition in a multiparty system, namely measuring the difference in blocs. This measurement was significant (at $P > 0.1$) in their study. This measurement was redesigned for local elections, but it did not result in a significant effect. To further conclude if it is not the design of the variable but competition in itself has no effect, an extra analysis was run. Model A3 (appendix 4) measures short competition using the original measurement, namely the difference in seat percentages between the first and second party (Eichhorn & Linhart, 2021). A lower score indicates, higher competition (i.e., a lower difference in seats) and this variable ranges from 0 to 100. Model A3 (appendix 4) contains all other party variables and control variables, next to the alternative measurement of competition. No significant effect was however found. This further proves that short-term competition does not increase turnout in multiparty systems.

4.3.3 Party polarization

Next to short-term competition, party polarization was included to test the effects of long-term competition. This thesis is the first to research the effects of party polarization on the local level. For both perceived and actual party polarization a positive effect was hypothesized, based on the earlier findings in cross-national research (Moral, 2017; Wilford,

2017). In most cases party polarization is significant, which is in line with other studies of party polarization and turnout. It is fruitful to include party polarization when researching the relationship between turnout and political parties.

The negative effect for perceived party polarization on turnout is however unexpected. The positive effect for perceived party polarization is however often found at the national level, an election which voters find more important. Considering that a negative effect for certain party types is found, it might be the case that the perceived increased range of voting options might discourage voters to vote because of increased information costs. The positive effect for actual party polarization might be explained from the fact that voters want different options, but do not want to perceive it. It is however impossible to cross-check this result with other research because this is the first research that measures party polarization at the local level. Even more, the way party polarization is measured is somewhat different compared to earlier research (see appendix 1 and 3). Future research should further dive in this contradicting effect of perceived party polarization on turnout between the national and the local level.

Another way this research differs from earlier research on party polarization is that no effect is found between the interaction effect between number of parties and party polarization. A reason no effect is found, might be because that the formula of Dalton (2008), which this thesis uses, already accounts for party seats. Adding the number of parties in the interaction does not really add something in the interaction, because the number of seats is already accounted for. Wilford (2017) who originally made the claim to add the interaction, does not directly account for the seats when calculating party polarization in his research. This might explain why Wilford (2017) does find a significant effect for the interaction.

4.3.4 Populist parties and local party types

Since party polarization cannot distinguish between competition and diversity, several party types were added in the models. First, for populist parties no effect was found. The idea that populist parties might be good for democracy by attracting the disengaged voters does not really hold up (Koch, Meléndez & Rovira Kaltwasser, 2021). This research proves this even further by finding no effect at the local level, which is very much in line with the national level research (Huber & Ruth, 2017; Leiniger & Meijers, 2020). This thesis also looked at different ways populist parties might increase turnout, mainly through emotions. Populist radical right parties can gather votes in neighborhoods with a mosque (Gravelle, Medeiros & Nai, 2021), but these voters seem to come from other parties as opposed from non-voters that choose to go vote.

Another party type that was researched, were the local party types. This was the first-time that the relationship between local parties and turnout was researched. The negative effect found for party local types on turnout is interesting. In certain cases, the presence of a certain party can have a negative effect on turnout. The question arises, if this negative effect is due to the measurement or because certain local parties have an actual negative effect on turnout? This thesis measures local party types via an exclusive measurement (a party is either protest, localist or one-issue, never more than one). Using a nonexclusive measurement for local party types, as Otjes (2021b) did, should not make a difference. To test for this, model A2 and model A3 (see appendix 4) include nonexclusive placed local parties based on their names, as done by Otjes (2021b) (e.g., a party can be both protest and localist). Model A2 contains only the party types and the control variables, while model A3 contains the party types, all other party variables, and control variables. Again, these party types are measured as dummy, in

which an one entails that a party is present and a zero that a party is not present. A negative effect is again found for protest and one-issue local parties in model A2. What is however more interesting, is that when adding all party predictors, such as effective number of parties, there is still a significant negative effect for one-issue parties (Appendix 4, model A3). The presence of a one-issue party decreases turnout by 2.15%, *ceteris paribus*.

One-issue parties consist of both youth and elderly parties. In model A4 (appendix 4) one-issue local party is further distinguished between those two groups. A dummy variable is made for youth one-issue local parties and a dummy variable for one-issue senior local parties. Again, an one entails that a party is present and a zero that the party is not present. Model A4 (appendix 4) adds these dummies to all other control and party variables. For youth one-issue local parties no significant effect is found, but for senior one-issue local parties there is a significant effect. The presence of elderly local party decreases turnout with 2.42%, when holding all other predictors constant. It seems to be the case that the effect of one-issue local parties stems from the elderly local parties.

How might this negative effect be explained? For one-issue local parties this seems to stem mostly from elderly parties. It could be theorized that if those parties obtain a seat (these are only included in the model), will lead to younger voters moving away from the voting booth. It might give these younger voters the idea that voting does not matter, because their more progressive issues will not be heard (c.f. Rekker, 2021). These elderly parties overall defend the protected position of the elderly on the welfare state and the labor market against the younger generations (Otjes & Krouwel, 2018, p. 42). Keep in mind, this is only theorized and cannot be concluded from the data. The data does however show that the presence of certain parties does not only attract voters, but also might disengage voters.

To summarize, this thesis combined many different parts of the political parties on turnout, which were until now kept separated, to find relationships between those parts. The key findings are first, while arguing that the number of parties is a less useful predictor, it is an important predictor to add when researching types of parties with the relationship on turnout. It seems that the number of parties accounts very well for the confounding mechanism of extra voting options when bringing in types. In other words, when not adding the number of parties when researching types, there is a risk that types of parties measure the number of parties instead. Second, short-term competition does not add much to the models in multiparty systems. Third, adding party polarization to the models seems fruitful to measure long-term competition and/or distinctiveness of the party system. In most models and studies, a significant effect is found, thus it seems an important addition when researching parties and turnout. Finally, the presence of certain party types can not only have a positive effect on turnout, but also a negative effect. One-issue local parties focusing on the elderly have a negative effect on turnout.

5. Conclusion

This thesis tried to answer the question: *What is the role of political parties in turnout?* To answer this question all elements of the political party were combined. Or in other words, this thesis looked at the role of the party system on turnout. Using the party system literature, a closer analysis was made to check if the number of parties, the competition, and/or the distinctiveness drives turnout. This thesis used the Dutch local elections of 2018 as the case to research the relationship between the elements of the party system and turnout. Using aggregated polling station data to the neighborhood level with several other datasets, several multilevel regression analyses models were analyzed.

Overall, the role of political parties seems to have a more negative effect on turnout as opposed to positive. This thesis finds that the number of parties in and the distinctiveness of a party system are the main drivers of turnout in a multiparty system. Competition has no effect on turnout in the multiparty system. The number of parties, perceived party polarization and, in certain cases, local party types have a negative significant effect on turnout. Actual party polarization has a positive significant effect on turnout. No effect is found in the analysis on short-term competition or the presence of populist parties on the election list on turnout.

These results are generalizable for multiparty systems at other election levels. First, because even while national elections play a part in local elections, local elections are still their own election. Even more, because the research was conducted in a single country, as opposed to cross-country, there are lower risks of time or country specific confounders. The effect for political parties on turnout might however be much smaller at other election levels. This thesis argues that the Dutch local election is a most-likely case for research on the relation between turnout and political parties. The party system is one of the biggest, and almost only, variation between local elections and there is an electorate present that wants to vote. If these parties cannot influence turnout here, it is most unlikely that they will in other types of elections.

To strengthen this argument, two avenues for further research can be advised. First, future research should dive into the question of how far voters have sufficient cues to know about the political parties and their competition in (local) elections. The number of cues necessary is still a highly debated topic (see Dancy & Sheagley, 2013, p. 313). The local election case is especially interesting because these elections do not have adequate polling (Louwerse, 2017)¹⁷ and receive far less media attention.

One might argue that this goes against the idea that the Dutch local elections are a most likely, because voters might know less about the election and thus most parts of political parties will be underestimated as opposed to argued overestimated. This thesis argues that underestimation is not found in the analysis. If underestimation was present this should most likely be found in competition. For voters to notice strong competition you need to have sufficient cues and knowledge about the election (e.g., good polling). However, underestimation is not found with competition during this local election. First, the results of competition on turnout found in the analysis is very much in line with results found at the national level. Second, as theoretically argued, voters might not know the competition at the local level, but they compensate this by bringing in the missing information from the national

¹⁷ There are polls available, however these measure the voting percentage for parties or party groups for the entire country. There is not often polling per municipality available. For example, see: https://www.ioresearch.nl/wp-content/uploads/2019/10/IO-Research-peiling-februari-2018_DEF.pdf

level. This follows the idea that voters watch the local election from a second-order perspective.

The second avenue for further research is that the designed theoretical political party turnout model of this thesis should be tested for other election levels. This could show potential differences in the relationship between political parties and turnout on different levels.

These findings also have implications for future research on political parties and turnout. Future research on turnout and political parties should include indicators of both the number of effective parties and distinctiveness of the party system to best address the role of parties. These indicators are both often significant and decrease risks of confounders (especially, number of parties). There are also implications for researchers on political parties. This thesis showed that certain political parties can repel voters. Researchers on political parties mostly focus on what attracts voters, but a focus on what repels them might also be interesting.

For party types in relationship with turnout much more knowledge can be gained. This thesis focused on local parties at the local level, but at other levels more can be gained. What can niche parties do at the national level or regional parties at the regional level for turnout? This focus should not only be on the positive effects of party types on turnout, but there also might be negative effects on turnout. Finally, more research should be done on local parties. Not only is there little knowledge about issues these parties might own, but it is even impossible to place them all. Future research should also dive in the demand side of local parties. How do voters perceive these parties and who votes on what type?

To go back to the new debate about the role of political parties in turnout, after the relatively low turnout of the Dutch local election of 2022. While there is still much research necessary on this election, the idea that parties played a role seems correct. It would not be a bad idea to start moving beyond voters and institutions that enable voting when researching turnout and start looking at political parties.

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Appendix 1: Discussion data and variables

This appendix discusses some theoretical and practical objections for some datasets and variables. While no dataset is perfect, for these datasets there are some valid criticisms that need to be addressed. Furthermore, in certain cases choices were made that were grounded and need to be explained but would crowd chapter 3 too much if added there. Three points are discussed. First, the limitations of and the reason for using polling station data for determining turnout on the neighborhood level. Second, a discussion on local party types and how the coding was done. Finally, some discussion how party polarization was measured at the local level and why this was done on this way.

A1.1 Discussion turnout data

There will be some noise in the polling station data, because not everybody votes in the neighborhood where they live. Some people vote at the train station or in a neighboring neighborhood. However, this will not be a large problem, because most people vote at their nearest polling station (cf. Orford, Railings, Trasher & Borisjuk, 2011) and neighborhoods are not a segregated entity; there are some similarities expected between neighboring neighborhoods (cf. Sleutjes, de Valk & Ooijevaar, 2018). Furthermore, most of the “special” polling stations (e.g., train stations, mobile polling stations, hospitals) will be filtered out, because they have no postal code, no assigned eligible voters attached to them or are too much of a statistical outlier.

Considering the small issues with this data type, why use this data? The only other option for researching turnout within a country at the local level is using survey data or municipality level data. Municipality level data will lead to information loss by being more aggregated data, and in turn worse control on confounders. Within the municipality it will be unknown if the turnout is almost equal in all neighborhoods or if a single high and low turnout neighborhood balances each other out. Using survey data would require a very large number of cases to address the differences between municipalities in parties and party systems correctly, while allowing strong control for confounders. To my knowledge, this data does not exist for local elections. Another problem with survey data for turnout, is that it overestimates turnout, due to overrepresentation of actual voters among survey respondents and vote overreporting by actual nonvoters (Sciarini & Goldberg, 2016). Which in turn leads to biases. The currently used neighborhood level data will not overreport turnout and it being at meso level will allow for less loss of information.

A1.2 Discussion local party types

Local party types were selected using wording. The words on which parties were coded in R stem from Otjes (2021a). Using general words around 64% of all local parties can be classified (see below). A few adjustments were made to this coding list. Personal lists were added to the one issue party types, because as one issue parties, they are explicitly voted on for a single issue or person. This also includes all blank list (parties that did not provide a party name to the Voting Council), because these parties cannot campaign on party names. All further changes are italicized in the table. All parties are coded exclusive (only one label). The coding was done in the following sequence: national parties, one-issue, protest local parties, localist local parties, and finally ideological.

Table A1.1 Local party types

Local party type	Name parts ¹	N	%	Percentage found in Otjes (2021b) ²	Percentages found in Boogers & Voerman (2020) ³
Localist	General, city, village, independent, interest, local	273	33%	42%	59%
Protest	Liveable, democratic, <i>Fortuyn</i> , public, <i>awake</i> , <i>realistic</i> , <i>better</i> , <i>new</i> , transparent, <i>Group de Mos</i>	115	14%	15%	16%
One-issue	Student, youth, senior, <i>Islam</i> , <i>list blank</i> .	64	8%	5%	8%
Ideological	Liberal, social, green, employer, employee, safety, progressive, Christian, progressive, alternative	74	9%	17%	12%
(Could not be placed)		296	36%	38%	Not reported

Note:

1. All name parts are translated to English, but were originally in Dutch, for the entire list see the R script pdf.

2. This thesis uses an exclusive classification, in other words all parties are classified only once, while Otjes (2021b) does not. Furthermore, there are small changes in coding which explain the differences in percentages.

3. Boogers & Voermans (2020) only place 261 local parties and use the coding of Otjes (2021), which explain the differences in percentages.

Not all parties can be placed using the names. Placing 296 parties manually would be too time constraining. Using software, 29 parties that could not be placed were randomly selected and categorized based on their website and party program, see Table A1.2. The categorization could determine if all parties could be placed in the same group. The categorizing was most often done on the 2022 election programs and websites, but it is expected that most parties do not shift positions. Parties were categorized on the basis of personal judgement. If a party critiqued the local coalition or the Hague, they were classified as protest party. If a party had a detailed or developed local program, they were classified as localist. Certain parties ceased to exist or merged and were thus impossible to categorize. In certain cases, it was hard to distinguish between localist and protest, because these parties had well developed and detailed party programs, but also critiqued the past-coalition very strongly. 16 out of 25 parties (64%)

that could be placed, were localist. After this check, it was chosen to add these parties to the localist type in a separate variable.

Table A1.2 Manual coding of 29 local parties

Municipality	Party	Local party type
De Ronde Venen	Lijst 8 Kernen	One-issue (youth)
Zoetermeer	Zo! Zoetermeer	Localist
Baarle-Nassau	BAARLE!	Localist
Best	Best Open	Localist
Steenwijkerland	CPB	Ideological
Houten	Houten Anders!	Localist/protest
West Maas en Waal	FD Partij Beneden-Leeuwen	Localist
Tiel	ProTiel	Localist
Eersel	Kernbeleid	Localist
Haaren	Samenwerking '95	Ceased to exist
Sint-Michiëlgestel	Plaatselijke Politieke Alliantie (PPA)	Localist
Gooise Meren	Hart voor BNM	Localist
Scherpenzeel	PRO Scherpenzeel	Ideological
Zeist	Seyst.NU	Protest
Berg en Dal	V.O.L.G.	Ceased to exist
Lingewaard	Lingewaard.NU	Localist
Tiel	Krachtig Tiel	Protest
Medemblik	BAMM	Ceased to exist
Katwijk	DURF	Protest
Zwijndrecht	Zwijndrechtse Plus Partij	Localist
Albrandswaard	Echt voor Albrandswaard (EVA)	Protest
Westland	Westland Verstandig	Protest
Tilburg	Voor Tilburg	Localist/protest
Echt-Susteren	LIJST SAMENWERKING	Localist
Almere	Respect Almere	Protest
Cranendonck	Cranendonck Actief!	Localist/Protest
Sittard-Geleen	DNA Partij	Ceased to exist
Ameland	Ameland 82'	Localist
Laren	LARENS BEHOUD	Localist

A1.3 Discussion party polarization

To measure party polarization, it requires the left-right placement of parties. For the local level left-right placement is never done, except for Otjes (2021b) with the use of party programs.

For perceived, the placement of left-right has to be done by voters, but these datasets do not exist at the local level. From a second-order argument, it is expected that voters place national parties in the local election almost the same as during the national election. For example, a voter expects that a liberal party on the national level is also liberal on the local level. Considering that not many differences are assumed, the national elections left-right placements by voters were used to place national parties on the local level. For local parties this is more difficult because they were never placed by voters. These parties were given the

means of their left-right placement of their type based on their party programs. These numbers seem to be fitting, considering that local parties are difficult to place (Boogers & Voerman, 2010, p. 85). A score between 4 and 5 would be expected for the localist. The scores from the party manifestos of ideological local parties match the scores of their national counterparts.

Using party programs to measure left-right placement and calculating party polarization is a valid option (Wilford, 2017). Furthermore, at this moment this is also the only option to measure left-right placement of parties at the local level. Party programs on the local are less developed than at the national level. Some extra checks were done to spot potential problems. First, it would be expected that a type of party scores a certain score (e.g., right wing scores right wing). This seems to be the case. Almost no party scores above or under than 2 of the means of their type of party (e.g., localist, protest, VVD, D66, etc.). The number 2 was chosen, because it lies close to 1.96 (statistical number) and the number 2 was most often found as the standard deviation of the self-placement in the NKO (2018).

This is also somewhat expected, considering the method that was chosen for the left-right placement. All party programs were grouped on their specific local groups (e.g., VVD, CDA, local) and this group was given a priori assumption what it would score based on mostly national programs. All these programs of the same group were then compared with each other and given a left-right score based on others in the same group (see Laver, Benoit & Garry, 2003). This mostly inductive method of placing parties (as opposed to a priori placement with certain words) is especially useful in this context, because less is known of less developed local party programs, and it is difficult to translate national or regional programs to the local level.

For the parties that score above 10 or below 10, a check was done what type of party this was:

- Below 0: Green Left 21 times, PvdD 18 times, SP 12 times, Localist 4 times, PvdA 1 time, left wing local party 2, other 5 times.
- Above 10: PVV 29 times, SGP 8 times, VVD 1 time, other 1 time.

These are somewhat expected cases. The parties above 10 were re-given the score 10. The parties below 0 were re-given the score 0.1.

Even though the left-right placement seems somewhat valid, some carefulness needs to be in place with interpreting the results of party polarization. This was also further advised by prof. Otjes in personal communication.

Appendix 2: Variables

Table A2.1 Variables

Variable name	Operationalization	Measurement	Level	Dataset
% 15 to 25 years	Percentage of 15 to 25 years living in a neighborhood	%	Neighborhood	CBS (2018)
% 65 years or older	Percentage of 65 years or older living in a neighborhood	%	Neighborhood	CBS (2018)
% High educated	Percentage of high educated as opposed to all other education levels in a neighborhood. A person is high educated as the highest enjoyed education at the level of HBO or WO.	%	Neighborhood	CBS (2019)
% Low educated	Percentage of low educated as opposed to all other education levels in a neighborhood. A person is low educated as the highest enjoyed education at the level of primary education, pre-vocational secondary education, the first 3 years of havo/vwo or the assistant training (MBO-1).	%	Neighborhood	CBS (2019)
% Low income	Percentage of households in a neighborhood that belong to the lowest at 40% income in the Netherlands.	%	Neighborhood	CBS (2018)
Local party – localist	A local party, type localist participated at the election	Byte	Municipality	Kiesraad (2017b;

				2018b; 2018c).
Local party – one issue	A local party, type one issue participated at the election	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c).
Local party – protest	A local party, type protest participated at the election	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c).
Local party – localist (Otjes, 2021)	A local party, type localist participated at the election, as measured by Otjes (2021b).	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c), Otjes (2021a)
Local party – one issue (Otjes, 2021)	A local party, type one issue participated at the election, as measured by Otjes (2021b).	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c), Otjes (2021a)
Local party – protest (Otjes, 2021)	A local party, type protest participated at the election, as measured by Otjes (2021b).	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c), Otjes (2021a)
Local party - one issue; senior (Otjes, 2021)	A local party, type one issue; senior participated at the election, as measured by Otjes (2021b).	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c), Otjes (2021a)
Local party - one issue; youth (Otjes, 2021)	A local party, type one issue; youth participated at the election, as measured by Otjes (2021b).	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c), Otjes (2021a)
Mosque	Neighborhood contains a mosque	Byte	Neighborhood	Nai, Medeiros, & Gravelle, 2021
Number of citizens	Number of citizens in a municipality	Integer	Municipality	CBS (2018)
Number of effective parties	Calculated by the Laakso and Taagepera (1979) index: $N = \frac{1}{\sum_{i=1}^n p_i^2}$	Integer	Municipality	Kiesraad (2017b; 2018b; 2018c).

Number of polling station (controlled)	Number of polling stations divided by thousand citizens per neighborhood	Integer	Neighborhood	Kiesraad (2017a; 2018a; 2018d)
Party polarization – actual	The degree of ideological differentiation among political parties in a system measured by the left-right placement of the party programs of these parties	Integer	Municipality	Kiesraad (2017b; 2018b; 2018c), Otjes (2021)
Party polarization – perceived	The degree of ideological differentiation among political parties in a system measured by the left-right placement by voters on national parties for the national elections or by the means of the left-right placement of party programs for local parties	Integer	Municipality	Kiesraad (2017b; 2018b; 2018c), NKO (2018), Otjes (2021)
Population density	Number of citizens per squared kilometer	Integer	Municipality	CBS (2018)
Populist party	PVV or FvD participated at the local election	Byte	Municipality	Kiesraad (2017b; 2018b; 2018c).
Redivision election	The election was a redivision election or not	Byte	Municipality	Kiesraad (2017a; 2018a; 2018d)
Short-term competition (%)	Difference in seats, in percentages, between coalition parties in the national list (including combination lists) and none-coalition parties.	Percentage	Municipality	Kiesraad (2017b; 2018b; 2018c).

Short-term competition (difference first-second party)	Difference in seats, in percentages, between the first and second biggest party.	Percentage	Municipality	Kiesraad (2017b; 2018b; 2018c).
Turnout (%)	The difference in the total amount of votes cast in all polling stations in a neighborhood and the total amount of eligible voters of all polling stations in neighborhood, in percentages.	%	Neighborhood	Kiesraad (2017a; 2018a; 2018d)

Appendix 3: Statistical assumptions.

The original dataset consisted of 5064 cases. First all cases were removed with less than 50 civilians in a neighborhood. Which are most often industrial areas or hospitals. The turnout is mostly correct for these types of neighborhoods, which mostly stems from the fact that citizens from other neighborhoods vote in these places and municipalities estimate the correct number of eligible voters for these polling stations. However, the neighborhood characteristics do not match the expected voters. For example, many hospitals attract thousands of voters, but the neighborhood characteristics stem from 30 people living in proximity. To prevent biases, these 32 neighborhoods are removed.

Considering this type of data is rather new, this thesis will be strict on the statistical assumptions. This type of data can have risks on biases, because, as explained above, the neighborhood characteristics do not always match those that are expected to go to the polling station. The following things were checked:

1. Linearity.
2. Residuals are normally distributed.
3. Homoscedasticity.
4. Outliers and influential cases.
5. Normality of the dependent variable.
6. Multicollinearity.

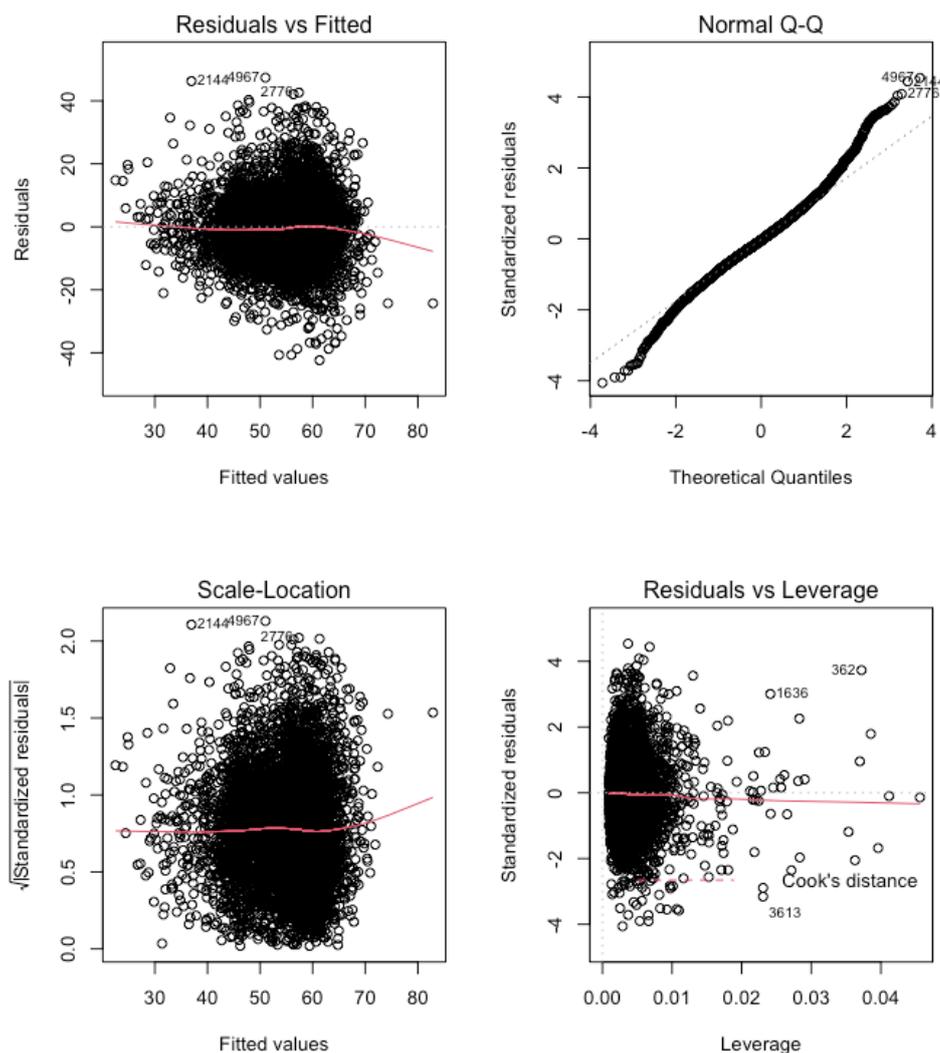
Normality of the dependent variable is not that important considering the large N (Li, Wong, Lamoureux & Wong, 2012), but will be checked anyway. Furthermore, the check on multicollinearity will be strict; no VIF-score above 5 will be allowed. There is a high risk that neighborhoods with for example a high percentage of low educated are also neighborhoods with high percentage low income or high percentage Non-Western.

The first four points will be checked first. The following figure A1 describes how the dataset looks before potential changes to the dataset. To summarize what each figure is and should look like (from left to right) (Kassambara, 2018):

1. *Residuals vs Fitted*: Test on linearity. A horizontal line, without distinct patterns, should be expected.
2. *Normal Q-Q*: Test of residuals are normally distributed. The expectation is that all residuals follow the dashed line.
3. *Scale location*: Test on the homogeneity of variance of the residuals (homoscedasticity). A horizontal line with equally spread points is a good indication.
4. *Residuals vs leverage*: Check on influential cases. Little to no values under the Cook's distance line and the red line should be horizontal.

As can be seen all four assumptions are not met. This seems however to be a problem with influential cases and outliers.

Figure A1: Model before removal of cases



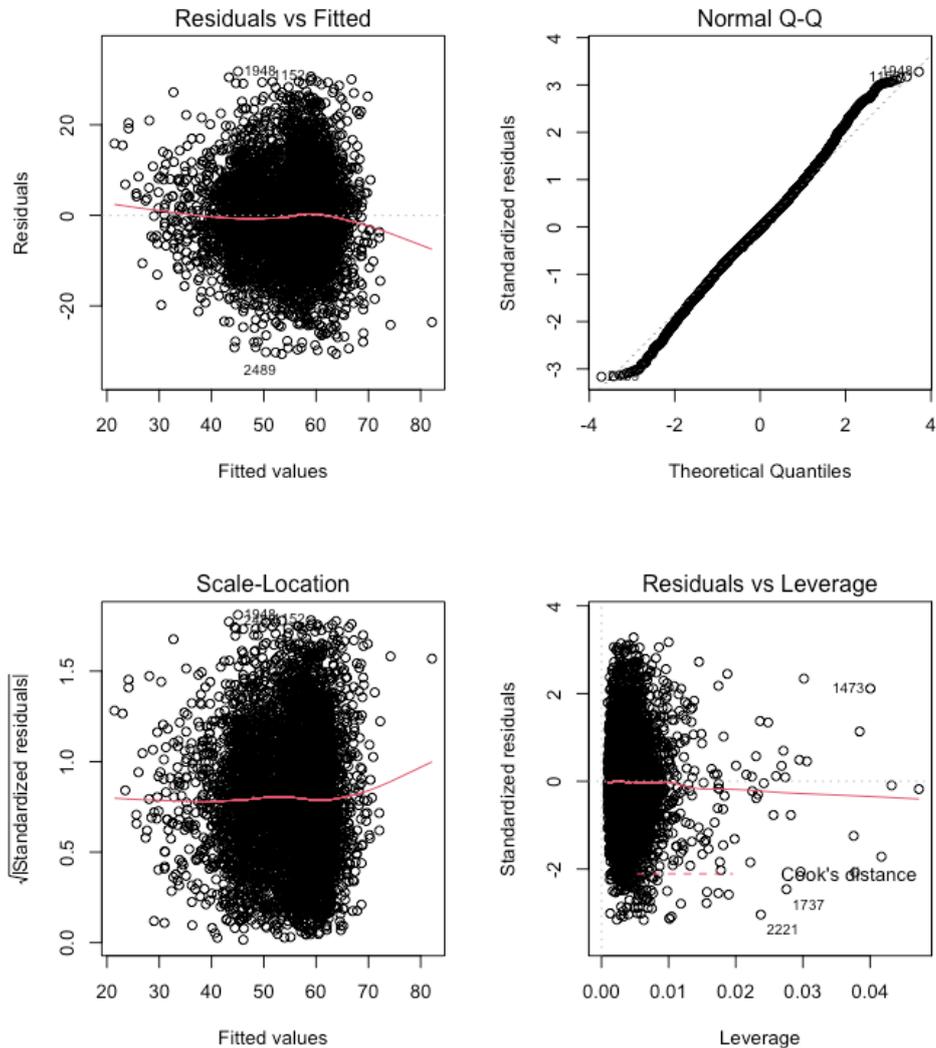
To test the effect of outliers, a check was done on the distribution of the standardized residuals. These follow the normal distribution. The following is expected: Cases larger than 3.29 should be about 0.1 percent of all cases, all cases larger than 2.58 should be about 1 percent of all cases, and all cases larger than 1.96 should be around 5 percent of all cases. Currently this is:

Table A3.1 Distribution of the standardized residuals

Group	Total (in %)	Should be (in %)
>3.29	0.81	0.1
>2.58	2.05	1.0
>1.96	5.68	5.0

Outliers seem to be a problem, thus all standardized residuals above 3 are removed (rule of thumb) to test if this improves the model. In total 50 cases are removed. As seen below, this improves the model significantly, especially on the normality of the residuals. Furthermore, the dependent variable is now barely normally distributed (Shapiro-Wilk test, $p = 0.07$). There still seems to be a problem with influential cases.

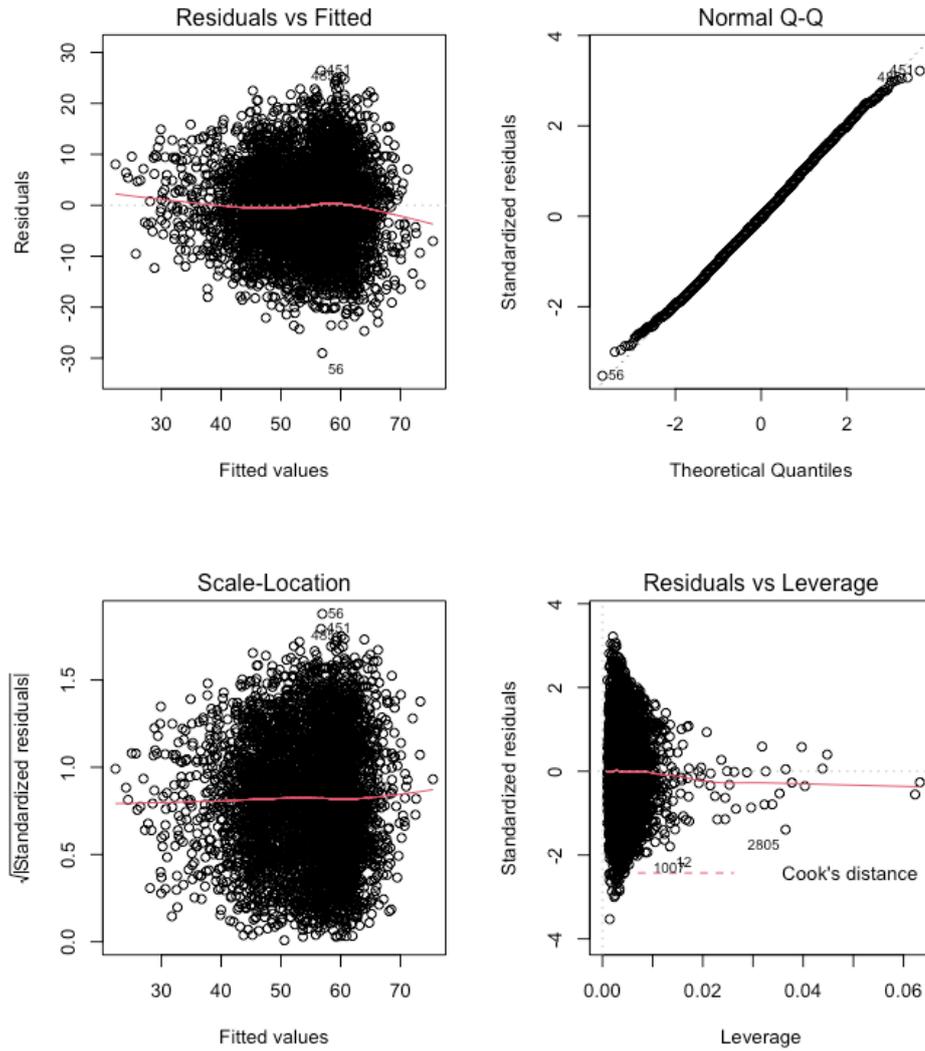
Figure A2: Model after removal of outliers



The Cook's distance was used to determine the influential cases (Cook, 1979). Cook's Distance tests the influence of each case in a regression analysis. The traditional cut off $4/N$ was chosen (Cook, 1979). Again, this cut off is a rule of thumb.

After removing 319 influential cases, the model seems significantly improved (see below, figure A3). Linearity is nearly there. It cannot be improved by making the dependent variable logarithmic (not shown). The residuals are normally distributed. In "Scale-Location" a horizontal line with equally spread points can be seen, thus no problems with heteroscedasticity. Finally, no case comes below the Cook's distance line.

Figure A3: Model after removal of outliers and influential cases



The dependent variable is however not normally distributed anymore (Shapiro-Wilk test, $p = 0.00$). Considering that the N is large, this will not be a problem (Li, Wong, Lamoureux & Wong, 2012). Finally, a check was done on multicollinearity. A score of 10 indicates a problem with multicollinearity, a score above 5 requires further checks. However, no score above 5 was found.

Table A3.2 VIF scores of variables in the model

Variable	VIF-score
% 15 to 25 years	1.449693
% 65 years or older	1.709339
% High educated	3.384290
% Low educated	3.245337
% Low income	1.986219
% Non-Western	2.885511
Local party - localist	1.134234

Local party - protest	1.264921
Local party – one issue	1.194573
Mosque	1.144058
Municipality size	3.585035
Number of effective parties	3.956198
Number of polling station (corrected)	1.056782
Party polarization - actual	2.393355
Party polarization - perceived	2.374842
Population density	3.123653
Populist party	2.142674
Redivision election	3.022062
Short-term competition	1.126067

Nearly all statistical assumptions seem to be met, however there are still some potential risks for biases. Considering that not all neighborhoods are in the model; this thesis only has a large sample, it could be that influential cases are missing or the cases that are present steer towards a certain result. To assess partially for these risks, a separate dataset is made by randomly selecting 40% of the total cases (1861 out of 4653 cases). Using this 40% random pooled dataset a separate model is made that can be compared with the full model to assess if these are somewhat the same. The random pooled model contains thus the same variables, all party and control variables, as the full model (model 9). If the same effects are found in both models, it can be concluded that the addition of an extra case does nothing to the effects.

Furthermore, the number of political parties is not completely randomly distributed. Larger municipalities have on average more parties than smaller municipalities (Jansen & Boogers, 2018). To address this, a separate model is analyzed with only neighborhoods in municipalities of 100 000 citizens or more (28 municipalities in this model). This model can then be compared to the complete model to assess if the same direction of effects and significance is found. Again, this model is the same as model 9 in regard to variables added. If the same effects are found in both models, it can be concluded that the municipality does not mediate the effects.

The large city model, random pooled model, and model 9 (complete model) can be found in table A3.3. The effects between the random pooled model and model 9 are almost the same. Furthermore, the same variables seem significant in both models, with the exception for party polarization (not significant in random pooled) and short-term competition (significant in random pooled). However, comparing significance must be done with some caution, because random pooled has less cases, thus more likelihood that certain cases influence the significance. Overall, it can be concluded that adding more neighborhoods will not influence the effects.

The same can be said for the large city model, compared with model 9. Overall, the same direction of effects is found, with the exception of party polarization and local party types. The effect for party polarization – perceived is negative in model 9, but positive for the large city model. The other way around for party polarization – actual. These variables are however

still significant, so it seems that there is some moderation between municipality size and party polarization.¹⁸ Some caution is thus advised when interpreting the result of party polarization.

Table A3.3 Multilevel regression analysis models (test models)

	Large city model	Random pooled model	Model 9
<i>Predictors</i>	<i>Estimates</i>	<i>Estimates</i>	<i>Estimates</i>
(Intercept)	50.98 *** (4.33)	56.55 *** (2.30)	57.57 *** (1.66)
Number of effective parties	-1.21 * (0.50)	-0.60 ** (0.22)	-0.59 ** (0.19)
Short-term competition	0.05 (0.05)	-0.04 * (0.02)	-0.03 (0.01)
Party polarization - perceived	1.34 ** (0.41)	-0.32 (0.17)	-0.48 *** (0.14)
Party polarization - actual	-0.50 * (0.21)	0.21 (0.14)	0.32 ** (0.12)
Local party - localist and missing	2.91 (1.50)	0.16 (0.68)	-0.05 (0.56)
Local party - protest	2.40 (1.41)	-0.73 (0.74)	-0.77 (0.62)
Local party - one issue	1.77 (1.00)	-1.26 (0.84)	-1.15 (0.70)
Populist party	-2.04 (1.18)	-0.67 (1.15)	-0.05 (0.97)
% 15 to 25 years	0.30 *** (0.05)	0.32 *** (0.06)	0.30 *** (0.04)
% 65 years or older	0.27 *** (0.03)	0.24 *** (0.03)	0.24 *** (0.02)
% Lower educated	-0.03 (0.04)	-0.03 (0.03)	-0.04 (0.02)
% higher educated	0.23 *** (0.03)	0.19 *** (0.03)	0.17 *** (0.02)

¹⁸ A further test was done on the mediation: a separated model was run with an interaction effect between party polarization -perceived and number of citizens (not shown), but no effect was found for the interaction-effect.

% Lower income	-0.15 *** (0.02)	-0.14 *** (0.02)	-0.15 *** (0.01)
% Non-Western	-0.21 *** (0.02)	-0.25 *** (0.02)	-0.27 *** (0.02)
Number of polling stations (corrected)	-0.64 (1.93)	-0.46 (1.29)	0.61 (0.83)
Redivision election	-24.34 *** (4.18)	-13.87 *** (1.55)	-13.42 *** (1.28)
Number of citizens	0.00 ** (0.00)	0.00 (0.00)	0.00 (0.00)
Population density	-0.00 ** (0.00)	-0.00 * (0.00)	-0.00 ** (0.00)
Random Effects			
σ^2	54.50	53.03	55.20
τ_{00}	3.34	14.25	13.31
	Municipality	Municipality	Municipality
ICC	0.06	0.21	0.19
N	28	320	337
	Municipality	Municipality	Municipality
Observations	1302	1861	4653
Marginal R ² / Conditional R ²	0.566 / 0.591	0.457 / 0.572	0.439 / 0.548
Deviance	8936.303	12935.902	32302.555
AIC	9042.927	13051.937	32429.089

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Appendix 4

Table A4.1 Multilevel regression analysis models

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
<i>Predictors</i>	<i>Estimates</i>									
(Intercept)	56.44 *** (0.36)	53.27 *** (1.23)	56.45 *** (1.50)	53.68 *** (1.27)	53.83 *** (1.27)	53.19 *** (1.27)	53.58 *** (1.28)	53.42 *** (1.25)	53.80 *** (1.29)	57.57 *** (1.66)
Number of effective parties			-0.61 *** (0.17)							-0.59 ** (0.19)
Short-term competition				-0.02 (0.02)						-0.03 (0.01)
Party polarization - perceived					-0.16 (0.09)		-0.41 ** (0.14)			-0.48 *** (0.14)
Party polarization - actual						0.02 (0.08)	0.28 * (0.12)			0.32 ** (0.12)
Local party - localist [1]								0.42 (0.50)		
Local party - localist									-0.31 (0.56)	-0.05 (0.56)

and missing
[1]

Local party -
protest [1]

Local party -
one issue
[1]

Populist
party [1]

% 15 to 25
years

% 65 years
or older

% Lower
educated

% higher
educated

% Lower
income

% Non-
Western

Number of
polling

							-1.24 *	-1.29 *	-0.77
							(0.61)	(0.60)	(0.62)
							-1.41 *	-1.39	-1.15
							(0.72)	(0.72)	(0.70)
							-0.75	-0.73	-0.05
							(0.95)	(0.95)	(0.97)
	0.31 ***	0.30 ***	0.31 ***	0.31 ***	0.31 ***	0.31 ***	0.31 ***	0.31 ***	0.30 ***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
	0.24 ***	0.24 ***	0.24 ***	0.24 ***	0.24 ***	0.24 ***	0.24 ***	0.24 ***	0.24 ***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
	0.17 ***	0.17 ***	0.17 ***	0.17 ***	0.17 ***	0.17 ***	0.17 ***	0.17 ***	0.17 ***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
	-0.15 ***	-0.14 ***	-0.15 ***	-0.15 ***	-0.15 ***	-0.15 ***	-0.15 ***	-0.15 ***	-0.15 ***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	-0.27 ***	-0.27 ***	-0.27 ***	-0.27 ***	-0.27 ***	-0.27 ***	-0.27 ***	-0.27 ***	-0.27 ***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
	0.67	0.68	0.66	0.66	0.67	0.65	0.61	0.60	0.61
	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)

stations
(corrected)

Redivision election	-10.03 *** (0.78)	-13.25 *** (1.16)	-10.18 *** (0.78)	-10.06 *** (0.78)	-10.04 *** (0.78)	-10.20 *** (0.77)	-9.91 *** (0.77)	-9.86 *** (0.77)	-13.42 *** (1.28)
Number of citizens	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Population density	-0.00 *** (0.00)	-0.00 ** (0.00)	-0.00 *** (0.00)	-0.00 *** (0.00)	-0.00 *** (0.00)	-0.00 *** (0.00)	-0.00 *** (0.00)	-0.00 *** (0.00)	-0.00 ** (0.00)

Random Effects

σ^2	82.84	55.20	55.21	55.22	55.19	55.20	55.17	55.20	55.20	55.20
τ_{00}	35.16	15.24	14.36	15.04	15.11	15.24	14.89	14.59	14.57	13.31
	Municipality									
ICC	0.30	0.22	0.21	0.21	0.21	0.22	0.21	0.21	0.21	0.19
N	337	337	337	337	337	337	337	337	337	337
	Municipality									
Observations	4653	4653	4653	4653	4653	4653	4653	4653	4653	4653
Marginal R ² / Conditional R ²	0.000 / 0.298	0.430 / 0.553	0.427 / 0.546	0.433 / 0.554	0.431 / 0.553	0.430 / 0.554	0.436 / 0.556	0.432 / 0.550	0.430 / 0.549	0.439 / 0.548
Deviance	34331.742	32334.347	32321.212	32332.836	32331.572	32334.296	32326.342	32323.424	32323.801	32302.555
AIC	34337.923	32435.011	32425.825	32442.101	32437.137	32440.174	32436.350	32428.090	32428.253	32429.089

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table A4.2 Multilevel regression analysis models with interaction effects

	Model 10	Model 11
<i>Predictors</i>	<i>Estimates</i>	<i>Estimates</i>
(Intercept)	52.58 *** (1.42)	52.59 *** (1.42)
Number of effective parties (centered)	-0.59 ** (0.19)	-0.59 ** (0.19)
Short-term competition	-0.03 (0.01)	-0.03 (0.01)
Party polarization - perceived (centered)	-0.48 *** (0.14)	-0.44 ** (0.14)
Party polarization - actual	0.32 ** (0.12)	0.31 ** (0.12)
Local party - localist and missing	-0.05 (0.56)	-0.03 (0.56)
Local party - protest	-0.77 (0.62)	-0.76 (0.62)
Local party - one issue	-1.15 (0.70)	-1.11 (0.70)
Populist party	-0.05 (0.97)	-0.09 (0.97)
mosque	-0.14 (0.56)	-0.63 (0.67)
% 15 to 25 years	0.30 *** (0.04)	0.30 *** (0.04)
% 65 years or older	0.24 *** (0.02)	0.24 *** (0.02)
% Lower educated	-0.04 (0.02)	-0.04 (0.02)
% higher educated	0.17 *** (0.02)	0.17 *** (0.02)
% Lower income	-0.15 *** (0.01)	-0.14 *** (0.01)

% Non-Western	-0.27 *** (0.02)	-0.27 *** (0.02)
Number of polling stations (corrected)	0.60 (0.83)	0.60 (0.83)
Redivision election	-13.42 *** (1.28)	-13.42 *** (1.27)
Number of citizens	0.00 (0.00)	0.00 (0.00)
Population density	-0.00 ** (0.00)	-0.00 * (0.00)
Populist party x Mosque		1.49 (1.13)
Number of effective parties x Party polarization - perceived		0.04 (0.04)
Random Effects		
σ^2	55.20	55.18
τ_{00}	13.32	13.25
	Municipality	Municipality
ICC	0.19	0.19
N	337	337
	Municipality	Municipality
Observations	4653	4653
Marginal R ² / Conditional R ²	0.439 / 0.548	0.439 / 0.548
Deviance	32302.496	32299.771
AIC	32430.349	32433.977
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$		

Table A4.3 Multilevel regression analysis models (alternative models)

<i>Predictors</i>	Model A1 <i>Estimates</i>	Model A2 <i>Estimates</i>	Model A3 <i>Estimates</i>	Model A4 <i>Estimates</i>
(Intercept)	55.94 *** (1.53)	53.43 *** (1.25)	57.11 *** (1.89)	57.45 *** (1.65)
Number of effective parties	-0.53 ** (0.18)		-0.61 ** (0.21)	-0.57 ** (0.18)
Short-term competition				-0.03 (0.01)
Short-term competition (difference first-second party)			-0.03 (0.04)	
Local party - localist	0.62 (0.50)			
Local party - protest	-0.65 (0.63)			
Local party - one issue	-1.19 (0.71)			
Local party - localist (Otjes, 2021)		0.27 (0.50)	0.29 (0.49)	0.20 (0.49)
Local party - protest (Otjes, 2021)		-1.46 * (0.60)	-0.93 (0.61)	-0.88 (0.60)
Local party - one issue (Otjes, 2021)		-2.22 ** (0.82)	-2.15 ** (0.81)	
Local party - one issue; senior (Otjes, 2021)				-2.42 ** (0.87)
Local party - one issue; youth (Otjes, 2021)				-0.48 (1.44)
Party polarization - perceived			-0.47 *** (0.14)	-0.48 *** (0.14)
Party polarization - actual			0.33 ** (0.12)	0.31 ** (0.12)

Populist party	-0.07 (0.96)	-0.58 (0.94)	-0.03 (0.96)	-0.02 (0.96)
% 15 to 25 years	0.30 *** (0.04)	0.31 *** (0.04)	0.30 *** (0.04)	0.30 *** (0.04)
% 65 years or older	0.24 *** (0.02)	0.24 *** (0.02)	0.24 *** (0.02)	0.24 *** (0.02)
% Lower educated	-0.04 (0.02)	-0.04 (0.02)	-0.04 (0.02)	-0.04 (0.02)
% higher educated	0.17 *** (0.02)	0.17 *** (0.02)	0.17 *** (0.02)	0.17 *** (0.02)
% Lower income	-0.15 *** (0.01)	-0.15 *** (0.01)	-0.14 *** (0.01)	-0.14 *** (0.01)
% Non-Western	-0.27 *** (0.02)	-0.27 *** (0.02)	-0.27 *** (0.02)	-0.27 *** (0.02)
Number of polling stations (corrected)	0.65 (0.83)	0.64 (0.83)	0.66 (0.83)	0.63 (0.83)
Redivision election	-12.73 *** (1.24)	-9.92 *** (0.77)	-13.37 *** (1.41)	-13.40 *** (1.23)
Number of citizens	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Population density	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 * (0.00)	-0.00 * (0.00)

Random Effects

σ^2	55.20	55.19	55.16	55.19
τ_{00}	14.09	14.37	13.40	13.05
	Municipality	Municipality	Municipality	Municipality
ICC	0.20	0.21	0.20	0.19
N	337 Municipality	337 Municipality	337 Municipality	337 Municipality
Observations	4653	4653	4653	4653
Marginal R ² / Conditional R ²	0.430 / 0.546	0.433 / 0.550	0.438 / 0.548	0.442 / 0.549
Deviance	32315.357	32319.318	32300.495	32296.618
AIC	32423.790	32423.820	32424.875	32422.606

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table A4.4 Multilevel regression analysis model 9 with centered predictors

<i>Predictors</i>	<i>Model 9 (centered)</i> <i>Estimates</i>
(Intercept)	56.73 *** (0.58)
Number of effective parties (centered)	-0.59 ** (0.19)
Short-term competition (centered)	-0.03 (0.01)
Party polarization - perceived (centered)	-0.48 *** (0.14)
Party polarization - actual (centered)	0.32 ** (0.12)
Local party - localist and missing	-0.05 (0.56)
Local party - protest	-0.77 (0.62)
Local party - one issue	-1.15 (0.70)
Populist party	-0.05 (0.97)
% 15 to 25 years (centered)	0.30 *** (0.04)
% 65 years or older (centered)	0.24 *** (0.02)
% Lower educated (centered)	-0.04 (0.02)
% higher educated (centered)	0.17 *** (0.02)
% Lower income (centered)	-0.15 *** (0.01)
% Non-Western (centered)	-0.27 *** (0.02)

Number of polling stations (corrected) (centered)	0.61 (0.83)
Redivision election	-13.42 *** (1.28)
Number of citizens (centered)	0.00 (0.00)
Population density (centered)	-0.00 ** (0.00)
Random Effects	
σ^2	55.20
τ_{00} Municipality	13.31
ICC	0.19
N Municipality	337
<hr/>	
Observations	4653
Marginal R ² / Conditional R ²	0.439 / 0.548
Deviance	32302.555
AIC	32429.089
<hr/> <hr/>	
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$	