DEMOCRACY AND REPRESENTATION FOR PUBLIC GOODS

How democracies create conditions for provisions of public goods

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Abstract

Purpose. The purpose of this thesis is to investigate if it is reasonable that democracies create conditions for provisions of public goods. Democracies are argued to create conditions for public goods provisions by aggregating citizens preferences through representation. But there is little empirical evidence in the literature that citizens preferences are represented in democracies. Hence, the research question: are citizens preferences represented by political representative actors in democracies? *Methods.* Climate change mitigation policies are used as a case for public goods in this thesis. Citizens' preferences about whether they consider climate change a serious world problem are compared with how much parties devote to environmental protection in their party manifestos using a cross-section panel data analysis with fixed effects estimators. Climate change mitigation policies are argued to be found within the concept of environmental protection. *Results.* A significant positive relationship is presented between citizens' climate change preferences with one-year lag and how much parties devote to environmental protection in party manifestos the same year as elections. *Conclusion.* With the findings, it appears realistic that citizens preferences are represented by political representative actors in democracies and with the theory in mind it appears reasonable that democracies create conditions for public goods provisions.

Key words: Public goods, democracy, preference aggregation, representation, climate change mitigation

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1. Introduction

Calling for global school strikes, Greta Thunberg tries to bring political attention to the problem of climate change. She argues that those with political power have not been attentive enough to citizens' concerns about the issue and many along with Greta Thunberg do not feel represented about their political preferences regarding climate change mitigation policies (CNN 2019; The Guardian 2019). These strikes and the sense of misrepresentation about preferences for climate change mitigation policies can be considered an outcry for provisions of public goods. Public goods are defined as benefits to everyone in societies that no one can be excluded from (Olson 1965).

On the topic governance, there is an established literature comparing democracies with autocracies regarding provisions of public goods. Bättig and Bernauer (2016) concludes that democracies are in general better at supplying public goods related to climate change mitigation than autocracies. Deacon (2009) and Lake and Baum (2001) associated democracies with a higher provisions of roads, education, drinkable water, sanitation, and healthcare than autocracies. Barrett and Graddy (2000) and Neumayer (2002) argue that the political freedoms that come with democracy provide more environmental protection and commitment to dealing with environmental problems. In one way or the other, the common denominator in the literature democracies should create conditions for public goods provisions by accounting for citizens' political preferences (see Bueno de Mesquita 2003; Dahl 1971, 1989; Deacon 2009; Fredriksson and Wollscheid 2007; Lake and Baum 2001; Neumayer 2002; Olson 1993). One of the more recognized democracy scholars, Robert Dahl (1989) argues that democracy aggregates the preferences of its citizens. In turn, it minimizes societal inequalities and maximizes the chances for public goods to be pronounced in a large pluralist society. The reason for this is that all preferences are weighed equally in democracies. When everyone is part of the decision process on an equal basis (as in the case of voting) there is a higher chance that decisions are made to benefit everyone and there is a lower risk of exclusion of citizens. The arguments around provisions of public goods by democracies follow a quite similar pattern - 'In democracies, provision levels of public goods

are influenced much more strongly by the preferences of the median voter or, in a more open formulation, prevailing interests among the electorate' (Bättig and Bernauer 2016: 286).

The aggregation of citizens' preferences would not be possible without representation of citizens preferences and citizens want to be represented because they want to have a say in decisions that concern their lives (Dahl 1971, 1989). Moreover, it is important for people because it is a form of contracting that provides stability to society as it minimizes the disagreements to decision-making (Pitkin 1967). Furthermore, it is argued that representation is made possible through the inclusive and competitive institutions that come with democracy; 'elected officials', 'free and fair elections', 'inclusive suffrage', 'right to run for office', 'freedom of expression', 'alternative information' and 'associational autonomy' (Dahl 1989: 221). Citizens use these institutions to put pressure on political representative actors, such as parties (Dalton 1988; Neumayer 2002; Payne 1995; Weiss and Jacobson 1999).

The above may seem as the way that democracy should work; citizens preferences are accounted for through representation and, in turn, aggregated to become the fundament for decision-making that allows for public goods provisions. However, in the above literature these principles of democracy are axioms used as theoretical point of departure to compare levels of public goods provisions between democracies and autocracies (e.g. Bättig and Bernauer 2016; Deacon 2009; Neumayer 2002). But no-one has so far shown that these principles work. To further explain, the literature connecting democracies to public goods provisions by, in one way or the other, using the arguments that citizens preferences are foundations for decision-making has not investigated whether citizen preferences really are represented in democracies. At least not to my knowledge.

Furthermore, the above literature disregarded scholars that include the more sceptical views on democracy. For example, Achen and Bartels (2016) argue that citizens are not as politically informed as they are assumed to be. Arguably, being politically informed is important to put pressure on political representative actors. Moreover, Wren and McElwain (2009) claim that political representative actors often are unaware about citizens' political preferences because preferences have become more individualized and therefore it is difficult to keep track on them. The literature supporting the assumption that democracies provide conditions for public goods provisions by aggregating preferences through representation does not consider that some public goods may be related to conflicted issues. Therefore, there are interests that compete and try to overrule one another. In the end it may be one preference

that is represented on the expense of another (Hix and Høyland 2011; Matland 1995). Climate change is an example of a conflicted issue where financial interests of oil businesses competes with political preferences for climate change mitigation policies (Mann 2016).

With this in mind, it is under-researched whether citizens' preferences are represented in democracies and this is the research gap that I intend to investigate with the research question: *are citizens preferences represented by political representative actors in democracies?* If citizens' preferences are represented in democracies, they should be aggregated among political representative actors so that they may compose the foundational frameworks for decision-making to provide public goods. Hence, the general purpose is to investigate whether democracies create conditions for public goods.

This is an important matter to investigate because it relates to the democratic legitimacy of political representative actors. Deriving from an attempt to define democratic legitimacy as 'government by the people' and 'government for the people' (Scharpf 1999, Jagers et al. 2016: 3), it is reasonable that political representative actors should be responsive to citizens' preferences. If they are not, it would undermine both the term 'government by the people' by not representing citizens' preferences and by not doing so political representative actors cannot deliver goods that are in line with the preferences of people and it is difficult to see how 'government for the people' should be applied. If there is no link between citizens' preferences and what is represented by political representative actors, the assumption that democracy creates conditions for public goods provisions may lead to false conclusions about democratic legitimacy.

In this thesis, I use climate change mitigation policies as a case for representation of public goods. Climate change is a conflicted issue that has competing interests related to climate change mitigation policies (Mann 2016). Moreover, climate change exists in all countries and is politically addressed with climate change mitigation policies. Climate change mitigation policies are considered public goods because they provide benefits that are free for everyone to enjoy.

I execute the investigation with the help of a cross-section panel data regression using fixed effects estimators. In the investigation, I attempt to connect citizens' preferences about whether they consider climate change a serious world problem and the degree to which parties devote their party manifestos to environmental protection. Climate change mitigation policies

should be found within the concept of environmental protection. The findings show a significant positive relationship between citizens' preferences about climate change one year before elections and how much parties devote to environmental protection in their party manifestos. With the logic of the theory, parties increase their emphasis on climate change mitigation policies in their party manifestos to represent citizens. I conclude that there is a realistic possibility that political representative actors represent citizens' preferences in democracies. The assumption that democracies create conditions for public goods provision seem reasonable from with the findings given in this thesis.

I structure the following parts in this thesis into five sections. In section two, I present the purpose and research question. In section three, I clarify concepts and delimit the thesis to the sole use of parties as referring to political representative actors. But more importantly, I present the existing literature as theory on why citizens' preferences should be expected to be represented in democracies creating conditions for public goods provisions. In the end of the section, I present possible challenges to this expectation. In section four, I start by presenting the case of climate change and climate change mitigation policies. Furthermore, I present my research design along with the variables used to conduct the regression. In section five, I present the results in the form of a regression and by evaluating it. In section 6, I conclude.

2. Purpose and research question

The literature suggests that democracies create conditions for public goods provisions because citizens' preferences are aggregated by political representative actors and it would not be possible without representation. But there is little empirical evidence that citizens' preferences are represented by political representative actors. Therefore, the purpose is to investigate if it is reasonable that democracies create conditions for public goods. To proceed with this purpose, I seek to answer the research question:

- *Are citizens' preferences represented by political representative actors in democracies?*

3. Existing literature and theory

To initiate this section, I define the concepts of public goods along with political preferences and interests. Moreover, I delimit the study to the use of national parties as refereeing to political representative actors (See section 3.1)

The thesis problem is founded on the literature claiming that the principles of democracy creates conditions to provide public goods and this is done by preference aggregation through representation. Therefore, I present the theory by describing the previous literature (See section 3.2).

Furthermore, since representation of citizens' preferences is an assumption that is put to the test in this thesis, I proceed by arguing for why political representative actors may not be representing citizens' preferences. (See section 3.3)

3.1 Definitions and delimitations

3.1.1 Public goods

Mancur Olson (1965) defines public goods as goods that are non-excludable from anyone and provide a collective benefit to everyone. Public goods are important for a society, because they give a sense of inclusion among citizens. That is, society is not meant to benefit just a small set of citizens, but rather the larger portion or the whole population (Kallhoff 2014).

This is a widely used definition of public goods (e.g. Bättig and Bernauer 2016; Deacon 2009) and it is the definition I use in this thesis.

3.1.2 Political preferences and interests.

Preference is defined as 'the fact that you like something […] more than another thing […]' (Cambridge Dictionary n.d.). A political preference should be when someone prefers a political option over another. Furthermore, interests are defined as 'the feeling of wanting to give your attention to something […]' (Cambridge Dictionary n.d.). A political interest should be when someone wants to give attention to a political issue or solution. These words are commonly used in the literature, even though they never seem to be defined. However, they appear to refer to the same thing. Namely, political attitudes or opinions that are given more attention by citizens than others (see Bättig and Bernauer 2016; Hix and Høyland 2011; Salas, McCall Rosenbluth, and Shapiro 2016). Since they appear to refer to the same thing, I use these words interchangeably because it allows me to preserve some of the original terms, such as *preference aggregation* and *competing interests*.

3.1.3 Parties as political representative actors

In previous century, politics have been characterized by parties in both new and old democracies (Mair 1995). Even though criticised as 'mischief of faction' (Dalton and Weldon 2005: 932, referring to Ignazi 1996), parties have been so influential in democracies that the

expression 'party government' has been coined (Dalton and Weldon 2005; Mair 1995; Rohrschneider and Miles 2015). In a sense, it is almost difficult to talk about democracy without talking about parties. Furthermore, there is a stark majority of citizens in advanced industrial democracies who hold the perception that it is unthinkable to have democracy without parties (Dalton and Weldon 2005).

Reasonably parties are important actors in democracies, why I refer to parties as political representative actors.

3.2 Why democracies should be expected to create conditions for public goods provisions by preference aggregation through representation

3.2.1 Democracy as a basis for legitimacy

For any society, legitimacy is a fundament to maintain stability. Illegitimate decision-making by public officials is to be considered as rule by force and shall be opposed by citizens. With continuous illegitimate rule there is a risk of violence - 'legitimacy provides them [the citizens subjected to power] with moral grounds for cooperation and obedience' (Beetham 2013: 26). In this respect, legitimacy translates into accepting an authority to have the right to exercise power. Legitimacy by itself is desirable in any state, at least to some degree to maintain stability (Beetham 2013; Tyler 2006).

However, legitimacy takes a broader shape in democracies. Democracy translates into the rule of the people suggesting that authority ideally should lie in the hands of the citizens. Legitimacy should be seen as an end goal where the state is meant to serve the citizens (Beetham 2013; Dahl 1971). An attempt to define democratic legitimacy in this context is 'government by the people' and 'government for the people' (Scharpf 1999, in Jagers, Matti, and Nordblom 2016: 3). *Government by the people* aims at the input legitimacy where citizens present their preferences through elections and appoint parties. For the citizens, voting is a matter of giving away the power to make decisions. It is to be equated with saying who should have the rightful ability to exercise power. *Government for the people* aims at output legitimacy considering what citizens receive back from governance. To become legitimate, the citizens must be convinced that decisions are made for their benefit (Jagers, Matti, and Nordblom 2016). This is important for citizens to accept, as well as, to trust the ruling parties as legitimate decision-makers when they have given away power to make decisions.

Considering that citizens must be convinced that decisions are made to their benefit, the right foundations for decision-making must be generated. In the next section, I explain how this foundation is generated and why it is public goods that aspire to be the product that is providing citizens with benefits.

3.2.2. Preference aggregation makes democracies legitimate

Preference aggregation is the democratic process from which the foundation for decision-making is generated. Benefits to citizens are made possible from the outcome of this process.

To explain the concept, citizens have preference profiles that are sets of preferences. Preference aggregation occurs when preference profiles are merged into one social preference and it is this social preference that is the foundation for decision-making (Austen-Smith 2009). Normally this is done through voting for the party that matches ones preference profile to greatest degree - 'The voting choice between parties aggregates the individual preferences of the electorate for political leadership, thereby converting public opinion into specific political decisions' (Dalton 1988: 127). For citizen to vote, parties must represent citizens. It is this representation of political preferences that is aggregated. The political platform to which the preferences are aggregated does not imply an absolute aggregation of preferences. It is only the most prevalent, or common preferences that are accounted for by parties since preferences may be too many and parties cannot represent for all preferences citizens hold (Austen-Smith 2009; Easton 1957).

Public goods are products of preference aggregation because the most prevalent, or common preferences are represented and preferences among citizens are weighed equally. When everyone is part of the decision process on an equal basis (as in the case of voting) there is a higher chance that decisions are made to benefit everyone and there is a lower risk of exclusion of citizens. This strongly refers to the provision of what is defined as public goods (Austen-Smith 2009; Dahl 1971, 1989) – goods that are not excludable from anyone and provide benefits to everyone (Olson 1965)

Preference aggregation constitutes the ground before decision-making in a democracy. That is, preferences are aggregated into the social preference from which political decisions are made. Public goods should come as natural products from decision-making since it is the most prevalent preferences that are represented by parties altogether and all preferences are weighed equally. Through the perspective of preference aggregation, democracy appear to be legitimate – it adopts citizens' preferences and turns them into public goods that assumedly

are accommodated by as many citizens as possible. However, it is still possible to wonder why parties should aggregate citizens' preferences in the first place. I provide an answer to this in the next section.

3.2.3. Accountability as a reason for preference aggregation

Expressed by Mancur Olson (1993), parties in democracies cannot be driven by self-interest, which is most likely the case by leaders under an autocratic and authoritarian rule. It would put democratic parties in position where they face the risk of being replaced. If democratic parties want to keep their positions, they must provide public goods for their citizens in the best way possible (Olson, 1993). More specifically, political parties are held accountable to voters and consequently parties account for citizens interests (Barrett and Graddy 2000; Bättig and Bernauer 2016; Deacon 2009; Neumayer 2002; Payne 1995). Accountability is therefore a key property of democracy that should ensure that parties provide public goods.

But accountability is only possible if democratic inclusive and competitive institutions are provided to society (Dahl 1971, 1989; Deacon 2009). These institutions are 'elected officials', 'free and fair elections', 'inclusive suffrage', 'right to run for office', 'freedom of expression', 'alternative information' and 'associational autonomy' (Dahl 1989: 221). The mentioned institutions are used in the literature as theoretical reasoning when investigating the democratic performance. For example, it is argued in Neumayer (2002) and Payne (1995) that freedom of expression and a broad range of information contributes to informed citizens who form preferences. In turn, citizens put pressure on parties through organisation and mobilisation when they can associate freely. If citizens are not satisfied with the rule, they elect another party or create their own party.

These democratic institutions create competition for political office and provide a larger electorate than in autocracies. There is competition because the cost (e.g. punishment or violence) for removing a party from office is low (Lake and Baum 2001) and the electorate is larger than autocracies because everyone are able to participate. Parties in democracies must therefore convince a large part of the population of their worthiness to hold legitimate decision-power while competing with other parties. In autocracies, parties must at the very most convince a small elite. Accordingly, representation becomes inevitable to gain citizens support (Bueno de Mesquita 2003). Parties must represent citizens to convince them about parties' worthiness to hold legitimate decision-power. Representation is why citizens'

preferences are aggregated by parties and in turn why democracies should provide public goods.

3.2.4 Representation as a precondition for legitimacy and preference aggregation

As Hanna F. Pitkin would define representation '[…] a substantive acting for others' (Pitkin 1967: 209), it is reasonable to wonder why representation matters to citizens.

To answer this, one of the more established aspects of representation is that it has a liberal property. As Robert Dahl (1971; 1989) argues in his work about democracy, citizens want to be included in decisions that concern their own lives, and this is a matter of self-realisation. Representation is just like that. It is the foundation for being the voice for citizens interests, where citizens strive for self-fulfilment (Pitkin 1967).

Yet, the liberal idea of representation for self-realisation may appear as an ideological conviction. To further argue for the point, there are several examples in history where icons or citizens have come to speak for others without mandate. 'Nobody elected Bono […]' (Dryzek and Niemeyer 2008: 481), neither did anyone elect Emma Watson, nor Greta Thunberg. But these citizens represent discourses that make sense to citizens. This kind of representation works to ensure that citizens have a voice when citizens are unable to be part of the deliberative conversation that affects their lives. But more importantly, citizens agree to the unelected representation (Dryzek and Niemeyer 2008) and, in the same way, citizens should agree to the parties they elect.

It is telling that citizens want to be represented for reasons that concern their own lives. Furthermore, it is related to legitimacy – the lack of a voice that aims to fulfil citizens' preferences could lead to low acceptance and to low trust in parties. This is because it is unlikely that parties pick up on citizens' preferences when they do not listen to citizens, and therefore it is unlikely that parties work for the citizens. In the long run, it may lead to instability (Beetham 2013). But, in a democratic society it seems more likely that these parties do not receive citizens' votes.

Furthermore, according to Thomas Hobbes, representation has a mediating effect for the stability within a society which can be directly linked to what is said about support for a political system. The worst-case scenario for Hobbes, is what he calls the *state of nature*. It entails everybody's war against each other – a state where there is complete anarchy and there is no trust. The social contract may be the most recognized tool of Hobbes to pave the way

out of the state of nature, but a little less known instrument discussed in his work the *Leviathan* is representation. Hobbes suggested that representation is a way of contracting that creates a commonwealth. The commonwealth is when everyone agrees, and one can represent everyone as if the actions of one where the actions of them all. It minimizes disagreement to decision-making and maintains stability. Citizens want to be represented because it entails stability to society (Pitkin 1967). With the same logic, the actions of parties should be viewed as the actions of them all. Parties gain support by convincing citizens that they act on citizens' behalf that they will provide citizens with benefits.

With accountability and the above reasoning about representation, there should be a causal link between the interests of citizens and what is accounted by parties in democracies (see figure 1.). Intuitively, parties cannot aggregate citizens' preferences without representing citizens. Moreover, citizens want to be represented because it is a matter of self-realisation and because it minimizes the disagreement about decision-making and maintains stability, making representation a precondition for legitimacy.
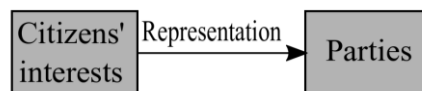
Figure 1. Representation as a mechanism for what is accounted for by parties

Deducing from the above, it is possible to say that representation is a mechanism for what is accounted for by parties. Moreover, it is a key for parties to become elected as parties try to convince citizens about their worthiness to rule. Consequently, it is the preferences that parties represent that are aggregated into the social preference which is the foundation for decision-making within democracies. To this thesis representation serves as a theoretical basis for why citizens interests should affect parties who aggregate them, creating conditions for public goods.

3.3. Challenging the view about citizens' preferences being represented in democracies

3.3.1. The behaviour of citizens and voters

The literature claiming that the democracies create conditions for providing public goods by aggregating preferences through representation may appear to be an ideal type on how

democracy should work. One objection to the this view of democracy is that it requires 'instrumentally rational, enlightened, politically aware, and issue-orientated voters making independent reasoned choices among candidates and parties' (Dryzek, 1990: 168-169). But there is little evidence that voters should be as informed as assumed (Ashworth and Bueno de Mesquita 2014). Yet, voters still vote, and parties are still accountable. It would be unreasonable to think that citizens vote randomly, so there must exist some form of representation by parties. However, Cristopher Achen and Larry Bartels (2016) argue that citizens are more likely to use their identities when they vote rather than their preferences. For example, citizens vote for parties that historically have been associated with a certain social class because they identify themselves with it. Additionally, citizens vote with use of smaller sets of information they have collected about parties over the years. But these sets of information are often basic without specific details about party policies. Meanwhile, what the parties actually represent in specific issues about public goods is not a determinant for what citizens use when they vote (Achen and Bartels 2016; Lupia 1994). Therefore, parties may represent their own interests, or the interests of someone else and this questioning the view about accountability.

Another argument that may stand in opposition to the representation of citizens is that the connection between parties and citizens has changed. Historically, there has been a strong connection between citizens and parties, where parties have been sources to political information and education (Lipset and Rokkan 1990). Today, political information is easily accessible through other sources than parties. Moreover, the level of education has increased in democracies and citizens are not as dependent on parties as they once have been. As a result, preferences have become more individualised than before. This is problematic because it becomes harder to detect citizens' preferences. Consequently, it becomes harder to represent citizens' preferences (Dalton and Weldon 2005; Mair 1995; Wren and McElwain 2009). Thus, preference aggregation where the most prevalent preferences are represented appears less likely. With this argument, parties represent preferences, but there are possible gaps where no party represent a specific preference that could possibly be common among citizens.

Individualised preferences are argued to have caused old mass parties to start changing their party programmes and move towards centre of the socio-economic *left-right* scale[1] where they think they may appeal to as many voters as possible. But moving to the centre of the scale involves giving up on some of the initial, or core voters, because the preferences represented in the centre are not compatible with the preferences represented on any of the end of the scale (Dalton and Weldon 2005; Mair 1995; Wren and McElwain 2009). The representation of the initial voters is lost when parties are insecure about where citizens political interests lie. Even if parties would reach out to a broader audience at the centre of the left-right scale, the citizens with preferences towards the ends of the scale are not represented and these citizens together may be a large part of the population.

On the other hand, new parties enter the political competition as they take advantage of the situation by addressing issues that are not addressed by the old mass parties. This is especially more frequently seen in proportional systems (Wren and McElwain 2009). These new parties certainly represent some citizens as they are seen to be growing, but there is no research saying that these parties accurately are filling the gaps where the old parties do not represent.

3.3.2. Conflicted issues and competing interests

What is never mentioned in the literature arguing that citizens' preferences are represented in democracies and, in turn, creating conditions for public goods is that interests may compete with each other. There may be issues where most citizens agree to a solution with the same goal, yet it is argued by Simon Hix and Bjørn Høyland (2011) that interests from one group of citizens often are opposed by another group of citizens in a pluralist society.

Conflict occurs when the objectives within democratic societies are clashing. Moreover, conflict occurs when there is disagreement on how an issues should be solved even though the objectives are settled among groups of citizens (Matland 1995). It is a plurality of understandings about objectives and solution that makes citizens interests compete with each other.

When preferences are aggregated the most prevalent preferences should be represented. So, competing interests appear not to be a problem for representation in a democracy at first sight.

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[1] Where parties on the left side of the scale have represented workers' interests and parties on the right side of the scale have represented capitalist interests (Lipset and Rokkan 1990).

But when interests compete against each other one interest tries to diminish the other (Matland 1995). In these cases, it is often small groups of citizens that are represented in the end. The reason is that it is easier for small groups to mobilize and organise their preferences, while larger groups suffer from difficulties to coordinate their preferences into one uniform preference (Olson 1965, in Hix and Høyland 2011). With this argument, it should be easier for parties to represent the interests of small groups when citizens' preferences are generally hard to detect. Parties listen to the smaller groups because they are able to clearly express their preferences. There is a risk that the interests of smaller groups of citizens override the interests of larger groups of citizens and it is the smaller groups that are represented by parties.

Moreover, citizens' interests are not always in line with the interests of businesses or lobbies. Conflict of interest does not necessarily occur between the interests of citizens, it may as well be between citizens interests and the interest of interest groups e.g. businesses, lobbies, social movements organisations, and unions (Ainsworth 2019; Burnstein and Linton 2002; Mair 1995). The literature presenting the arguing for preference aggregation and representation of citizens does not account for the influence of these actors.

If there is a low degree of understanding about what parties specifically stand for, parties may be able to act above the heads of citizens. Parties are still accountable to citizens, but this should provide some room for interest groups to get their interests represented by parties. But why would parties represent someone else than citizens, or their own interests? Interest groups often provide some form of benefit to parties, this can be information or help with public relations. Not to mention that some countries allow interest groups to fund electioneering communication or whole election campaigns (Ainsworth 2019). Parties are accountable to citizens, but they may balance the interests of citizens with the interests of interest groups as payback to interest groups.

4. Research design

In the first part of this section, I explain that I use climate change mitigation policies as a case for public goods to proceed with the investigation. Here, I argue for why climate change mitigation is a public good and why it is a prevalent interest among citizens. I anchor climate change to the theoretical framework where parties should represent citizens' preferences.

Moreover, I explain why citizens' preferences about climate change mitigation may not be represented (See section 4.1.).

In the second part of this section, I explain the course of action. This is a description how I proceed with the investigation. This part contains a description of the operationalization, the hypothesises, and a description on the regressions that I use (See section 4.2.).

In the final part of this section, I present a description of the variables along with variable diagnostics. Furthermore, I present limitations of the data that I use (Section 4.3.).

4.1. The case of climate change and representation of climate change mitigation policies

In this thesis, investigate climate change mitigation policies as a case of public goods.

Climate change has become a problematic phenomenon in recent decades. Increasing amounts of greenhouse gases are emitted into the atmosphere causing the global temperatures to rise. Consequently, there are changes to the climate, e.g. extreme weather including storms and droughts, as well as melting glaciers, forest fires and a general rise in sea-levels. With a continuing rise in global temperatures, climate change may have devastating effects to humankind (Mann 2016). It seems reasonable that many citizens should be concerned about the seriousness of climate change, therefore it is important to investigate the representation climate change mitigation policies as public goods.

The definition of public goods involves goods that no one can be excluded from and everyone can benefit from (Olson 1965). Climate change mitigation policies are difficult to exclude anyone from and everyone can benefit from them if they are implemented. For example, it is not only some citizens who enjoy the effects policies against greenhouse gas emissions from factories, but everyone. Therefore, climate change mitigation policies are public goods that can be provided by states.

The climate is a useful case because it is not tied to any borders. Moreover, climate change is something that can be considered a problem in most countries. To further explain by comparing it with another public good, not all democracies experience problems with the lack of streetlights and therefore less citizens have preferences about streetlights because they are taken for granted. But climate change may be something that worries citizens in most democracies. A majority of the respondents answered that the impacts of climate change will

be bad in a report from the European social survey in 2018 (ESS 2018). Moreover, 75% of survey respondents in the U.S.A., along with 73 % in Russia and 87 % in Canada perceive climate change to be a serious problem that will have dangerous consequences (Weber 2010). These findings are consistent with the ones in other articles (e.g. Leiserowitz et al. 2013; Lorenzoni and Pidgeon 2006). Therefore, there is a possibility that climate change mitigation policies are prevalent interests among citizens.

Previous research about parties' representation of climate change mitigation policies has concluded that climate change mitigation policies is an ideological matter for parties. Parties to the left of the ideological *left-right* scale seem to represent climate change mitigation policies to a further degree than parties to the right (Farstad 2018). More so, climate change as a concern along with support for environmental protection policies appear to be an ideological matter for citizens with the same patterns as parties. Citizens to the left are more concerned about climate change and are more in favour of pro-environmental protection policies than citizens to the right (Harring, Jagers, and Matti 2017; Tobler, Visschers, and Siegrist 2012). Moreover, preferences on environmental protection has been connected with political representation in study conducted in the U.S.A. by Johnson, Brace, and Arceneaux (2005). Tjernström and Tietenberg (2008) finds that democracies where more citizens have preferences concerning the seriousness of climate change are associated with lower levels of greenhouse gases.

All the above literature is relatable to the representation of citizens' preferences concerning climate change. It seems reasonable that there should be a representative connection when citizens and parties to the left are more concerned about climate change and would like to see more climate change mitigation policies. Moreover, the study by Johnson, Brace, and Arceneaux (2005) may not specifically talk about climate change mitigation policies, but climate change mitigation policies comprised within the concept of environmental protection. What is interesting is that this study connects citizens preferences with political representation similar to what I intend to do in this thesis. Though, the study is only conducted within some states of U.S.A. and has not and is therefore not generalized over democracies. Even though, preferences about the seriousness about climate change are relates to less greenhouse gas emissions in Tjernström and Tietenberg (2008), they do not connect preferences to actual policies or party representation in democracies.

I provide a contribution to the above literature by analysing the connection between citizens preferences and the party representation of climate change mitigation policies. By analysing this gap, I also aim to fulfil the purpose of this thesis; investigating whether it is reasonable that democracy creates conditions for public goods provisions through preferences aggregation by representing citizens.

If climate change mitigation policies are prevalent interests among citizens in democracies, these interests should also be represented in democracies. Reasonably, citizens want to be represented with climate change mitigation policies because climate change is an issue that can impact on their lives, or, with an altruistic sense, impact the lives of others to whom one can relate. Citizens preferences about climate change mitigation policies are weighed equally with other prevalent preferences in a democratic society and parties must represent citizens' preferences because they will otherwise put themselves in the risk of losing their power. Therefore, prevalent preferences about climate change mitigation policies are aggregated. Moreover, the more prevalent the preferences about climate change mitigation policies the more they are represented by parties. In the end, conditions for climate change mitigation policies as a public good are created.

On the other hand, climate change is a conflicted issue and climate change mitigation policies have competing interests. For example, some businesses have an interest in undermining citizens' interests for climate change mitigation policies. The reason is that citizens' interests are not in line with the financial interests of businesses from e.g. fossil fuel industries, food industries, pharmaceutical industries, etc. Climate change mitigation policies may involve loss of revenue or costs for interest groups because such policies often entail measures such as tax or switch to renewables energies. Counteractions are taken to silence the interests of those who would like to see more climate change mitigation policies such as campaign-funding and providing parties with information that can be of benefit. Furthermore, these interest groups are known to mobilize small groups such as climate change deniers to attack representatives of climate change mitigation policies (Ainsworth 2019; Anderson 2009; Grundmann 2007; Mann 2016; Pidgeon 2012). These are all mentioned challenges to the representation of citizens' preferences. Parties bay balance the representation of citizens with representing the interests of e.g. the fossil fuel industry if this interest group provides parties with benefits. Moreover, small groups such as climate change deniers could possibly hamper the

representation of citizens preferences since they are a small group that can easily organize into one uniform preference.

> He [James Hansen, scientist at NASA] said that 'in my opinion the greenhouse effect has been detected, and it is changing our climate now'. [...] He was soon attacked by sceptics who described the whole issue as a 'global warming scare'. Sceptics gained enormous visibility given their relatively small number (Grundmann 2007: 419)

4.2. Course of action

In this thesis, I attempt to draw a link between citizens' interests for public goods and what is accounted for by by parties in democracies. I argue that representation is the mechanism for whether parties account for citizens' interests. To further explain, the more prevalent the interest among citizens is for specific public goods, the more parties should emphasise on these by representing citizens' interests.

The purpose is to be able to generalise whether it is reasonable that democracies provide conditions for public goods provisions by preferences aggregation through representation. The main reasoning why this should be, is that parties are accountable to citizens and citizens want to be represented. Therefore, parties must represent citizens. Altogether, parties aggregate the most prevalent preferences among citizens into a social preference. Since everyone's preference weighs equally in democracies it is likely that the most prevalent preferences among citizens, are those who benefit everyone, and everyone can enjoy. In the end, conditions for public goods provisions are created.

I use climate change mitigation policies as a case of a public goods in which there may be a prevalent interest among citizens in democracies. According to the model, parties should be more prone to talk about climate change mitigation policies if more citizens have an interest for them and this to be considered a sign of representation.

Though, there are no data on citizens' interests about climate change mitigation policies, but it is still possible to investigate parties' representation of citizens considering climate change mitigation policies. The Eurobarometer provides data about citizens' preferences on whether they consider climate change a serious world problem (European Commission 2018). These data can be compared with how much parties devote their party manifestos to environmental protection. Environmental protection is a concept that includes climate change mitigation policies (Volkens et al. 2018). If there are more citizens who consider climate change a

serious world problem, parties may devote more of their party manifestos to environmental protection. Possibly, parties are representative to citizens' preferences regarding climate change mitigation policies; it seems reasonable that few people are interested in climate change mitigation policies without considering climate change a problem. This is how I structure this investigation and the hypothesis follows:

H_1 The more citizens who consider climate change a serious world problem, the more parties devote party manifestos to environmental protection

Carrying out the investigation, I use a regression analysis to display the increase or decrease in a dependent variable with the increase in one or more independent variables. For example, if there is an increase in the percentage of citizens who regards climate change as a serious problem, there may be an increase in the percentage devoted to environmental protection in party manifestos. Due to the formation of the data used in this thesis and to increase the sample size, I conduct a cross-section panel data analysis since the observations for party manifestos are coded by election year, and data on whether citizens consider climate change a serious problem is retrieved from cross-section data that is collected every second year.

Additionally, I use a fixed effects models within the frames of panel data analysis. Fixed effect provides the advantage of reducing the problem with omitted variable bias, where one or more unmeasured variables are influencing the variables in the regression models. By using fixed effects any omitted variable that has a constant value over time is acknowledged by putting all omitted variables into one variable. This is because fixed effects models subtract the observation values for each time point in each country in all variables with the average observation value across time points in each country for all variables. If a variable does not vary over time, the variable will end up with the same value on both sides of the subtraction. Consequently, these variables take themselves out and therefore they are accounted for, so that they do not influence the other variables in the model (Mehmetoglu and Jakobsen 2017). This is beneficial since I am not able to control for all the variables that may affect the prevalence of environmental protection in party manifestos.

Since the purpose of this thesis is to examine whether democracy provides conditions for public goods provisions through representation, I want to be able to generalise over democracies. Therefore, I aggregate the values for party manifestos to the mean percentage for each country and year. The same thing is done with preferences about climate change,

where I receive the percentage of citizens in each country and year who considers climate change serious world problem. This is also necessary, because panel data analysis requires respondents to be fixed over time (Bernard et al. 2011; Deaton 1985). Countries are fixed over time, while citizens in the survey data used and parties in countries are not.

On the topic of generalization over the democracies, I am restricted to the EU-member states since I use the Eurobarometer. Though, I do not consider this to be a problem, because a large portion of the world's advanced democracies are located within the EU.

I use an exclusionary strategy where I add control variables onto a focal relationship (the relationship between the main independent variable and the dependent variable). The control variables create noise to rule out uncertainty about the significance of a focal relationship. To further explain, suppose that the focal relationship is significant in a bivariate regression (a regression with only the dependent and one independent variable). If there is no significant relationship left when the control variables are applied onto the focal relationship it is further unclear whether the significance of the focal relationship is true. The significance of the focal relationship can only be estimated as likely if the significant relationship persists and estimate does not remotely differ in magnitude[2] from previous regression models (Aneshensel 2013).

Moreover, since I argue that citizens are not aware of what parties stand for in specific issues in the existing literature and theory, I conduct interaction on whether the effect of climate change preferences is contingent on more public political engagement. When citizens vote, they tend use their identity, such as whether they are from the working class or if they are academics. Moreover, they use reasoning about simple information they have collected about parties over the years. But the knowledge about where parties stand in specific issues is low. This may be problematic for the accountability of parties. Though, these are generalisations made on data primarily conducted within the borders of the U.S.A. (Achen and Bartels 2016). However, there are societies where citizens are more engaged in politics than others. Intuitively, political engagement should provide citizens with more knowledge where parties stand in specific issues. Therefore, I include an investigation on whether a possible relationship between more citizen preferences regarding the seriousness of climate change

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[2] Magnitude refers to coefficients in the regressions.

and how much parties devote to environmental protection in party manifestos is contingent on more public political engagement.

H$_2$ The correlation between more citizens who consider climate change a serious world problem and parties devoting party manifestos to more environmental protection is contingent on more public political engagement among citizens

In this thesis, I include six fixed effects regression models. Model 1 and 4 are bivariate regression models with the focal relationship. Thus, they are presenting the separate correlation in countries over time between the percent of citizens who consider climate change a serious problem and how much parties devote to environmental protection in party manifestos. Model 2 and 5 are multivariate regression models where control variables are included to rule out any spurious significance that may have been presented in the bivariate regression models. In model 3 and 6, I include the interaction term, where I examine a possible interaction effect between citizens' attitudes about climate change and public political engagement on how much parties devote their party manifestos to environmental protection.

If there is any causality between citizens' preferences and what parties represent in their party manifestos, it is reasonable that citizens' preferences occur before parties change their manifestos. Taking this into account, I present the first three models with independent variable data from the previous year (See model 1, 2 and 3) and in the last three models I use independent variable data from two years before (See model 4, 5 and 6). These *lags* enables me to control for whether there is a correlation between the representation of environmental protection in party manifestos and data for all the independent variables in previous years (Mehmetoglu and Jakobsen 2017).

The regressions are simply explained by a unit increase in the value of one or more independent variables (x) followed by an increase or decrease in the dependent variable (y) with the value of the coefficient (β). The constant (β$_0$) is the value of the dependent variable (y) when the independent variable (x) is equal to 0. ε$_{it}$ is the error term representing unobserved variables that vary over time. α$_i$ is the error term representing the unobserved variables that hold constant values over time. The independent variables are examined within each country (i) and in each year (t). The lagged effects are presented with either -1 for one-

year lag, or -2 for two-year lag (Mehmetoglu and Jakobsen 2017). The interaction terms are marked by parenthesises around the independent variables that are included.

To explain the interactions, values of observations in the focal independent variable are multiplied with values of observations in the interaction variable (moderating variable). When the product is compared with the values of observations in the dependent variable it enables an estimated interaction coefficient seen in front of the parenthesises in model 3 and 6. The interaction coefficient presents how much the correlation coefficient between the focal independent variable and the dependent variable increases or decreases with the unit increase in the interaction variable.

To calculate the effect of the interaction on the dependent variable, the coefficient value given by the focal independent variable is either added or subtracted with the value of the interaction coefficient, which is multiplied with the unit of the interaction variable. Addition is used if the interaction coefficient is positive and subtraction is used if the interaction coefficient is negative (Aneshensel 2013).

*Coefficient of focal independent variable +/- (Interaction coefficient * Unit of interaction variable) = Change in dependent variable*

For example, if the coefficient given by the focal independent variable is equal to 2, the interaction coefficient is equal to -3 and there is a 2 unit increase in the interaction variable, the change in the dependent variable is equal to -4, (2-(3*2) = -4).

Regression coefficients are fitted estimates of observations plotted over the values of independent variables compared with the values of a dependent variable. The estimates are either positive as they increase, or negative as they decrease. However, I consider the estimates non-significant if the estimates are neither positive nor negative with a probability greater than 0.1. The reason is that I cannot claim with 90% certainty that the coefficient is not equal to 0, and it is further unknown whether the non-significant independent variable has any positive or negative correlation with the dependent variable. Therefore, I only accept estimates that are not equal to 0 with 90% confidence.

$$y_{it} = \beta_0 + \beta_1 x_{1i,t-1} + \alpha_i + \varepsilon_{it} \qquad\qquad (1)$$

$$meanofenvir1_{it} = \beta_0 + \beta_1 avsercc_{it} + \alpha_i + \varepsilon_{it}$$

$$y_{it} = \beta_0 + \beta_1 x_{1i,t-1} + \beta_2 x_{2i,t-1} + \beta_2 x_{2i,t-1} + \beta_3 x_{3i,t-1} + \tag{2}$$

$$\beta_4 x_{4i,t-1} + \beta_5 x_{5i,t-1} + \beta_6 x_{6i,t-1} + \beta_7 x_{7i,t-1} + +\alpha_c + \varepsilon_{ct}$$

$$meanofenvir1_{it} = \beta_0 + \beta_1 avsercc_{i,t-1} + \beta_2 v2x\_corr_{i,t-1} + \beta_3 mad\_gdppc_{i,t-1} +$$

$$\beta_4 fhp\_mcei5_{i,t-1} + \beta_5 v2x\_polyarchy_{i,t-1} + \beta_6 year_{i,t-1} + \beta_7 v2dlengage_{i,t-1} + \alpha_i + \varepsilon_{it}$$

$$y_{it} = \beta_0 + \beta_1 x_{1i,t-1} + \beta_2 x_{2i,t-1} + \beta_3 x_{3i,t-1} + \beta_4 x_{4i,t-1} + \tag{3}$$

$$+\beta_5 x_{5i,t-1} + \beta_6 x_{6i,t-1} + \beta_7 x_{7i,t-1} + \beta_7 x_{7i,t-1} + \beta_8 (x_{1i,t-1} * x_{7i,t-1}) \alpha_i + \varepsilon_{it}$$

$$meanofenvir1_{it} = \beta_0 + \beta_1 avsercc_{i,t-1} + \beta_2 v2x\_corr_{i,t-1} + \beta_3 mad\_gdppc_{i,t-1} +$$

$$\beta_4 fhp\_mcei5_{i,t-1} + \beta_5 v2x\_polyarchy_{i,t-1} + \beta_6 year_{i,t-1} + \beta_7 v2dlengage_{i,t-1} +$$

$$\beta_8 (avsercc_{i,t-1} * v2dlengage_{i,t-1}) + \alpha_i + \varepsilon_{it}$$

$$y_{it} = \beta_0 + \beta_1 x_{1i,t-2} + \alpha_i + \varepsilon_{it} \tag{4}$$

$$meanofenvir1_{it} = \beta_0 + \beta_1 avsercc_{i,t-2} + \alpha_i + \varepsilon_{it}$$

$$y_{it} = \beta_0 + \beta_1 x_{1i,t-2} + \beta_2 x_{2i,t-2} + \beta_2 x_{2i,t-2} + \beta_3 x_{3i,t-2} + \tag{5}$$

$$\beta_4 x_{4i,t-2} + \beta_5 x_{5i,t-2} + \beta_6 x_{6i,t-2} + \alpha_i + \varepsilon_{it}$$

$$meanofenvir1_{it} = \beta_0 + \beta_1 avsercc_{i,t-2} + \beta_2 v2x\_corr_{i,t-2} + \beta_3 mad\_gdppc_{i,t-2} +$$

$$\beta_4 fhp\_mcei5_{i,t-2} + \beta_5 v2x\_polyarchy_{i,t-2} + \beta_6 year_{i,t-2} + \beta_7 v2dlengage_{i,t-2} + \alpha_i + \varepsilon_{it}$$

$$y_{it} = \beta_0 + \beta_1 x_{1i,t-2} + \beta_2 x_{2i,t-2} + \beta_2 x_{2i,t-2} + \beta_3 x_{3i,t-2} + \tag{6}$$

$$\beta_4 x_{4i,t-2} + \beta_5 x_{5i,t-2} + +\beta_6 x_{6i,t-2} + \beta_7 x_{7i,t-2} + \beta_8 (x_{1i,t-2} * x_{7i,t-2}) + \alpha_i + \varepsilon_{it}$$

$$meanofenvir1_{it} = \beta_0 + \beta_1 avsercc_{i,t-2} + \beta_2 v2x\_corr_{i,t-2} + \beta_3 mad\_gdppc_{i,t-2} +$$

$$\beta_4 fhp\_mcei5_{i,t-2} + \beta_5 v2x\_polyarchy_{i,t-2} + \beta_6 year_{i,t-2} + \beta_7 v2dlengage_{i,t-2} +$$

$$\beta_8 (avsercc_{i,t-2} * v2dlengage_{i,t-2}) + \alpha_i + \varepsilon_{it}$$

```
Focal independent variable          Dependent variable
(avsercc), all models               (meanofenvir1)


              Moderating variable
              (v2dlengage), model
              3 and 6


      Control variables
      (v2x_corr, v2x_polyarchy,
      fhp_mcei5, mad_gdppc, v2dlengage,
      year), model 2, 3, 5 and 6
```
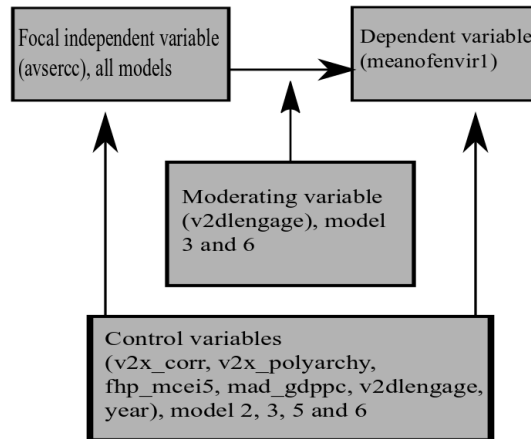
Figure 2. Visual of the models, including the focal relationship, the disturbance of control variables pointing to the focal independent variable and the dependent variable, and the interaction variable pointing between the focal independent variable and the dependent variable

4.3. Modelling the variables and diagnostics

4.3.1. The focal relationship

Prevalence of environmental protection (Dependent variable) – meanofenvir1

The dependent variable measures the mean of how much parties in each year of parliamentary election in each country assign to environmental protection in their party manifestos. Climate change mitigation policies should be included in the concept of environmental protection (Volkens et al. 2018). Therefore, if citizens' preferences about climate change correlates with how much parties devote climate change mitigation policies in party manifestos, there is a chance that there is an increase to how much is devoted to environmental protection in party manifestos.

The dependent variable data is collected from the Manifesto Project's Comparative Manifesto Database. Experts have coded content of party manifestos into the proportion of how much parties assign to each political subject (Facchini, Gaeta, and Michallet 2017; Werner, Lacewell, and Volkens 2014). The purpose is to provide the possibility to '[study] the programmatic supply of parties' (Manifesto Project n.d.). This is useful for my thesis because it provides quantified data on what parties aim to supply.

Originally, the variable measures the percentage of how much each party devotes to environmental protection in their manifestos in each year of parliamentary election (Facchini,

Gaeta, and Michallet 2017). Yet, I want to generalise over democracies why I aggregate the values of all parties in each country and year of election by the mean. Thus, the data points are by country and year, but the original scale from 0 to 100 is preserved. 0 means no environmental protection in party manifestos and 100 means that party manifestos are entirely devoted to environmental protection.

One of the countries in the comparative manifesto database, Greece, had two elections in 2012. This is not compatible with the data that I merge because the merged data has only one observation for each country and year. To solve this, I create a grand mean for the two elections in 2012.

Percentage of 'Climate change is a serious problem' (focal independent variables) - avsercc
The focal independent variable measures whether citizens consider climate change one of the most serious world problems, aggregated by EU member state and year.

The variable is collapsed from two variables questions. The first is asking what respondents consider the most serious world problem. The respondent must choose between several possible world calamities where climate change is one of the options (See table 1 in appendix for the other choices). The second is asking if there is any other of the options that the respondent would consider a serious problem (European Commission 2013, 2017). Respondents having to choose between what they consider the most serious world problem is beneficial for this thesis, because it puts preferences about climate change in competition with other preferences. Combining it with a follow up question, the variable detects whether the respondent really feel that climate change is a serious problem. It is therefore likely that it should be an outspoken interest among citizens if there is a pronounced part of the population who consider it to be a concern. Consequently, it is something that parties should emphasise more in their manifestos if hypothesis 1 is right.

The variable is initially coded as a dummy on an individual level (European Commission 2013, 2014, 2017, 2018; European Commission and European Parliament Brussels 2017). I aggregate these individual responses to the percentage of citizens who considers climate change a serious problem within each country and year. The observations are at this point country per year on an interval scale from 0 to 1. 0 means no respondents consider climate change a serious problem and 1 means that all respondent consider climate change a serious problem.

The Eurobarometer started their collection of data on global warming and climate change in 2008. Since then, data has been collected in 2009, 2011, 2013, 2015 and 2017 (European Commission 2013, 2014, 2017, 2018; European Commission and European Parliament Brussels 2017). Consequently, there is only data from every second year from 2009 and onwards. Meanwhile, the comparative manifesto database presents manifesto data from elections between these years. This is problematic for a small-N dataset since data points are lost. To fill the gaps, I let the values from the Eurobarometer be valid for the following year where there is no data. For example, the value from 2009 makes up the missing values for 2010. 23 cases were missing data points were filled.

The data is collected through face-to-face interview surveys. The ideal sample size is 1000 respondents per country. 27718 respondents were interviewed in all EU-member states in the survey collected in May to June in 2015 (European Commission 2018). The Eurobarometer may provide reliable observations on climate change preferences for each country and year as the number of respondents is high.

To make a suggestion about the estimation of the variable, attitudes about climate change should be positively correlated with prevalence of environmental protection in party manifestos if the variable is significant. To further argue, in the theoretical framework it is suggested that parties should be representative to citizens' interests. In this way the parties should be receptible to citizens' preferences considering climate change as a serious problem, in their manifestos.

4.3.2. Control variables and interaction variable

The control variables are used to create noise to examine whether the significance of the focal relationship persists. The interaction variable is used to examine whether the effect of the percent of citizens consider climate change a serious problem on the prevalence of environmental protection is conditional to the public political engagement.

Using the Varieties of Democracy-dataset from 2018 (V-Dem), I control for political corruption and the level of democracy. Political corruption and the level of democracy are both variables that may affect the deliberative discussion among citizens, whether parties choose to listen to the citizens and the ability to hold parties accountable. If a country is highly corrupt or less democratic, citizens may be less inclined to express their thoughts because they would not be able to affect political decisions anyway. Additionally, there are

few incentives for parties to listen to citizens because they are not accountable to voters. In corrupt societies, parties tend to put more attention their own interests, and/or the interests of elites who provide benefits or hold them in power (Bueno de Mesquita 2003; Olson 1965, 1993). In previous research, more democratic countries have been associated with better conditions for environmental protection (e.g. Fredriksson and Wollscheid 2007; Neumayer 2002). Therefore, I expect there to be a positive relationship between higher levels of democracy and the prevalence of environmental protection in party manifestos. Moreover, environmental protection is often not the first interest among parties and the elites in corrupt countries (Rafaty 2018). Reasonably there should be a negative correlation between more political corruption and the prevalence of environmental protection in party manifestos.

Political corruption is measured with the political corruption index (v2x_corr) and the level of democracy is measured with the electoral democracy index (v2x_polyarchy). Both variables are measured on an interval scale from 0 to 1, where 0 means less corrupt and less democratic and 1 means highly corrupt and highly democratic (Coppedge et al. 2018; McMann et al. 2016; Teorell et al. 2016).

Furthermore, I control for 'Economic influence over media content (2008-2016)' (fhp_mcei5) (Teorell et al. 2019: 293) and real GDP/capita (mad_gdppc). Economic influence over media content relates to whether interest actors have an economic influence over media content. Reasonably, if such actors have control over media, they can provide benefits to parties by giving room for campaigns and diminish others. Therefore, parties balance the interests of citizens with interests of actors proving parties with benefits (Ainsworth 2019; Mann 2016). Moreover, it is possible that these actors direct questions that parties must answer to in interviews and debates. Consequently parties adjust their manifestos to answer to these questions (Strömbäck 2011; Strömbäck and van Aelst 2013). Possibly, this can disturb the representative relationship between parties and citizens.

As a proxy for the economic situation within each country and year, real GDP/capita may become a distraction for parties which is relatable to a competing interest. Parties may put more focus on repairing the economy when it is weak. Possibly, this may compromise with how much parties devote to environmental protection in party manifestos even though most citizens' consider climate change a serious problem (Anderson 2009; Fairbrother 2013; Kim and Wolisnky-Nahmias 2014; Rohrschneider and Miles 2015).

These variables are found in the 2019 Quality of Government time-series dataset (QoG). 'Economic influence over media content (2008-2016)' (Teorell et al. 2019: 293) is originally retrieved from Freedom House. The variable presents itself on an interval scale between 0 and 20, where 0 means that there is no economic influence on media content and 20 means that there is very much influence on media content (Freedom House 2018; Teorell et al. 2019). Real GDP/capita is originally retrieved from the Maddison Project Database from 2018 (Maddison Project Database version 2018 2018; Teorell et al. 2019).

In the models, I include the year as a control for any event that may be influential to the prevalence of environmental protection in party manifestos in each country and election year, as well as, the year before the election (Mehmetoglu and Jakobsen 2017). Year is retrieved from QoG (Teorell et al. 2019)

Continuing to the interaction, I use public political engagement as a moderating variable (v2dlengage). If citizens are further politically engaged, they should be more politically aware and more inclined to hold parties accountable in specific political matters. Therefore, a positive correlation between preferences about climate change and how much parties devote to environmental protection in party manifestos is contingent on public political engagement. This moderating variable is included as a control variable in model 2 and model 5. The variable is organised on an interval scale between -5 to 5. Towards -5 means less public political engagement among citizens and towards 5 means more political engagement among citizens. This scale is standardized, suggesting that the mean of original data lies somewhere around 0. The variable is collected from V-Dem (Coppedge et al. 2018; Pemstein et al. 2018).

4.3.3. Diagnostics of variables

There are outliers with high leverage and deviation in both the models. More specifically, they are further away from the main cluster of observations (See graph 8 to 11 in appendix) (Mehmetoglu and Jakobsen 2017). Some of these observations are influential to the estimates of the regression models. These are Sweden, Portugal, Netherlands and Greece in the one-year lagged models (See graph 6 in appendix), and Greece Portugal and Sweden in the two year lagged models (See graph 7 in appendix). To deal with these observations, I use robust regression to weigh these observations with the other observations in the data. This counterbalances their influential effects (Mehmetoglu and Jakobsen 2017).

In panel data analysis, heteroscedasticity is often a problem. It means that the variance among observations is less fitted in one of the ends of one or more variables. To further confirm that this is a problem, the Breusch-Pagan/Cook-Weisberg test is significant, meaning that there is a problem with heteroscedasticity in a model without robust standard errors. But, because I use robust standard errors this is already accounted for (Mehmetoglu and Jakobsen 2017).

The data is unbalanced suggesting that some data points are missing when there is no data for all countries in every time unit (Mehmetoglu and Jakobsen 2017). This comes natural since countries do not hold election every year and it is something that I cannot correct.

4.3.4. Limitations of the data

In the dependent variables, I use data that is based on content. Content data can face criticism because it is coded with subjective interpretations. Even though coders follow a content categorisation matrix, hesitations may occur when a sentence is not specifically aimed at something (Gemenis 2013). For example, it is difficult to interpret whether a party urges for more renewable energy because it is environmentally friendly, or because it serves an economic end, or both (Farstad 2018). Yet, the comparative manifesto database is widely used and recognised for research about party programmes (e.g. Allen and Bara 2019; Close 2016; Kostadinova 2015), why I choose to rely on it.

The Eurobarometer used for the focal independent variable is built on data from face-to-face interviews. Face-to-face interviews face possible risk of biased responses as a product of interaction between the interviewer and the respondent compared to normal survey questionnaires. For example, the respondent's answer may depend on how the questions are presented by the interviewer, where language-use can have a deciding influence (Suchman and Jordan 1990). Nonetheless, the Eurobarometer is commonly used in research (see Meyer 2016; Schmitt 1989; Wallace and Pichler 2007) and I consider it a reliable dataset in this thesis.

As described earlier about the variable "percentage of 'Climate change is a serious problem'", data points from the Eurobarometer in the previous year are used to fill in the gaps where data points were missing in 2010, 2012, 2014 and 2016. It is questionable whether the data really is transferable from one year onto the upcoming year – preferences may change to the next year because of critical junctures such as migration or economic fluctuations. I acknowledge that there is a risk that estimates are presented as non-significant because values of the

observations filling in missing data may not be consistent party manifestos in years that I measure. However, in a small-N study it is necessary to make use of as many observations as possible. Therefore, I choose to proceed by using data in the "percentage of 'Climate change is a serious problem'" from previous year.

5. Results

In the first part of this sections, I present the results by describing the main regression table (table 1.). Furthermore, I display and describe marginal effects plots concerning the results of the focal relationship (figure 4. and 5.) and the interaction (figure 6. And 7.) (see section 5.1.).

In the second part of this section, I discuss the implications of the results. I answer to the hypothesis and the research question, as well as, discuss what the results mean to the purpose of the thesis. Moreover, I reason around the significance of other variables (see section 5.2.).

In the third part of this section, I present an additional estimation. As the results appear to provide significant focal independent variables closer to elections, I test if the focal relationship is significant in the same year as elections (see section 5.3.).

In the final part of this section, I discuss limitations to the results (see section 5.4.).

5.1. Description of results

Table 1. Fixed effects regression estimates of the prevalence of environmental protection in party manifestos with one-year lag and two-year lag on independent variables

VARIABLES	1	2	3	4	5	6
	Prevalence of Environmental protection in party manifestos					
Percentage of 'Climate change is a serious problem', 1-year lag	13.547***	19.415***	13.374**			
	(2.596)	(6.240)	(5.615)			
Political corruption index, 1-year lag		-12.882***	-15.438***			
		(4.100)	(5.378)			
Real GDP per Capita, 1-year lag		-0.0004	-0.0004			
		-0.0003	-0.0003			
Public political engagement, 1-year lag		-0.114	-2.512			
		(0.769)	(2.239)			
Economic influence over media content (2008-2016), 1-year lag		-0.459*	-0.473*			
		(0.229)	(0.233)			
Level of democracy, 1-year lag		-29.538***	-28.824***			
		(8.447)	(8.633)			
Year, 1-year lag		0.073	0.127			
		(0.302)	(0.326)			
Percentage of 'Climate change is a serious problem' 1-year lag##Public political engagement, 1-year lag			4.338			
			(3.736)			
Percentage of 'Climate change is a serious problem', 2-year lag				4.751	6.042	3.987
				(3.895)	(5.704)	(4.067)
Political corruption index, 2-year lag					-16.690**	-17.803*
					(6.964)	(8.881)
Real GDP per Capita, 2-year lag					-0.0004	-0.0004
					-0.0003	0.0003
Public political engagement, 2-year lag					1.459*	0.667
					(0.790)	(2.195)
Economic influence over media content (2008-2016), 2-year lag					-0.702	-0.709
					(0.432)	(0.441)
Level of democracy, 2-year lag					-35.109**	-34.051***
					(13.344)	(11.904)
Year, 2 year lag					0.000	0.014
					(0.342)	(0.363)
Percentage of 'Climate change is a serious problem', 2 year lag##Public political engagement, 2 year lag						1.575
						(3.709)
Constant	-1.680	-107.666	-212.474	2.348	48.160	21.672
	(1.254)	(599.293)	(644.982)	(1.914)	(672.716)	(713.326)
Observations	57	57	57	52	52	52
Within-R^2	0.318	0.462	0.48	0.061	0.206	0.208
Number of countries	27	27	27	27	27	27

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Referring to table 1, the "percentage of 'Climate change is a serious problem'" is presented to have significant estimates in all of the models with one-year lag (p<0.01 in model 1 and 2. p<0.05 in model 3). Moreover, political corruption index (p<0.01), economic influence over media content (2008-2016) (p<0.1), and level of democracy (p<0.01) are significant in model 2 and 3.

For a whole step on the scale (0 to 1) on the percentage of citizens who considers climate change is a serious problem, the prevalence of environmental protection in party manifestos increases by 13.55 percentage points (SE: 2.59) in the bivariate model 1. In model 2, the the focal independent variable is followed by an increase in the prevalence of environmental protection in party manifestos by 19.41 percentage points (SE: 6.24), and 13.37 percentages (SE: 5.61) in the multivariate model 3.

In the opposite direction, the prevalence of environmental protection in party manifestos decreases by 12,88 percentage points (SE: 4.1) for a whole step on the scale (0 to 1) on the political corruption index in model 2, and 15.44 percentage points (SE: 5.3) in model 3. Similarly, the prevalence of environmental protection in party manifestos decreases by 29.54 percentage points (SE: 8.44) with a whole step on the scale (0 to 1) on the level of democracy in model 2. Moreover, a whole step on the scale on the level of democracy is followed by a decrease in the prevalence of environmental protection in party manifestos by 28.82 percentage points (SE: 8.63) in model 3. Regarding "Economic influence over media content (2008-2016)", one step on the scale between -5 and 5 decreases the prevalence of environmental protection in party manifestos by 0.45 percentage points (SE: 0.22) in model 2 and 0.47 percentage points (SE: 0.23) in model 3.

Even though the coefficient for the "percentage of 'Climate change is a serious problem'" increases in the multivariate model 2 compared with the bivariate model 1, it does not drastically change the results when the control variables are added into the model. I consider it a drastic change if the coefficient changes direction, goes from very small to very large, or from very large to very small. The coefficients presented in model 1, model 2, and model 3 are consistently large. Therefore, the focal relationship appears to be steady. This increases the chances that the correlation between the percentage of citizens who consider 'Climate change is a serious problem' and the prevalence of environmental protection in party

manifestos is true. Because the control variables used do not appear to disturb the relationship.

In the first three models, the variance explained within each country (within-R^2) is rather high. The first model has a within-R^2 value of 0.318, the second model has a within-R^2 value of 0.462, and the third model has a within-R^2 value of 0.48. It means that the variance explained within countries is 31.8% in model 1, 46.2 % in model 2, and 48 % in model 3. Since the first model already has a high within-R^2 it seems reasonable that the percentage of citizens who consider 'Climate change is a serious problem' accounts for a large portion of the within-R^2 in model 2 and 3 as well. With this reasoning, the percentage of citizens who consider climate change a serious world problem seem explain much of the variance for the prevalence of environmental protection in party manifestos in each country.

Proceeding to the last three models with two-year lag on the independent variables. The focal relationship is not significant in nether model 4, model 5, nor model 6. However, political corruption index ($p<0.05$ in model 5. $p<0.1$ in model 6) and the level of democracy ($p<0.05$ in model 5. $p<0.01$ in model 6) remain significant. Moreover, public political engagement is significant ($p<0.1$) as a control variable in model 5.

With the whole step on the scale (0 to1) for the political corruption index, the prevalence of environmental protection in party manifestos decreases by 16.7 percentage points (SE: 6.96) in model 5, and 17.80 percentages (SE: 8.88) in model 6. Similarly, the prevalence of environmental protection in party manifestos decreases by 35.11 percentage points (SE: 13.34) with a whole step on the scale (0 to 1) for level of democracy in model 5 and decreases by 34.05 percentages (SE: 11.90) in model 6. On the other hand, for each step on a scale (-5 to 5) for public political engagement, the prevalence of environmental protection in party manifestos increases by 1.46 percentage points (SE: 0.79).

Since the focal relationship is not pointing to any significant correlation, it is still unknown whether there is a relationship between the percentage of citizens who considers climate change a serious world problem and the prevalence of environmental protection in party manifestos in the models with 2-year lag. However, the models where the control variables are included appear to have within-R^2 values of moderate degree. Model 5 presents a within-R^2 value of 0.206 and model 6 presents a within-R^2 value of 0.208. Meaning that the 20.6 % of the variance is explained within countries in model 5 and 20.8 % of the variance is

explained within countries in model 6. Yet, only 6.1 % of the variance is explained within countries (within-R^2 value of 0.061) in the bivariate model 4.

The coefficients for the percentage of citizens who consider climate change is a serious world problem are somewhat difficult to interpret if they are not put into context. One unit increase for this variable means an increase over the whole scale as the scale goes from 0 to 1. It is similar to going from 0 % to 100 %. Countries with either 0 % or 100 % citizens who considers climate change a serious world problem seems unlikely. It is more likely that observations fall in between. To further clarify these coefficients, I divide them by 100. It means that a one-unit increase, e.g. going from 9% of citizens who considers climate change a serious world problem to 10%, is followed by an increase in the prevalence of environmental protection in party manifestos with 0.194 percentage points in model 2 and 0.135 percentage points in model 1. This is further shown in figure 3 and 4. Figure 3 is the marginal effects plots of model 2 when all the other variables are held at their mean values. Figure 4 is the same but for model 5. In figure 3, the difference between 30 % (0.3) of citizens who considers climate change a world problem and 40 % (0.4) is a 1.94 percentage point increase on the prevalence of environmental protection in party manifestos. In figure 4, the difference between 30 % (0.3) of citizens who considers climate change a world problem and 40 % (0.4) is a 0.6 percentage point increase on the prevalence of environmental protection in party manifestos. Moreover, it is possible to see the that the relationship is non-significant in model 5 as the confidence intervals are overlapping each other.

Marginal effects for percentage of 'Climate change is a serious problem' 1-year lag with 95% CI
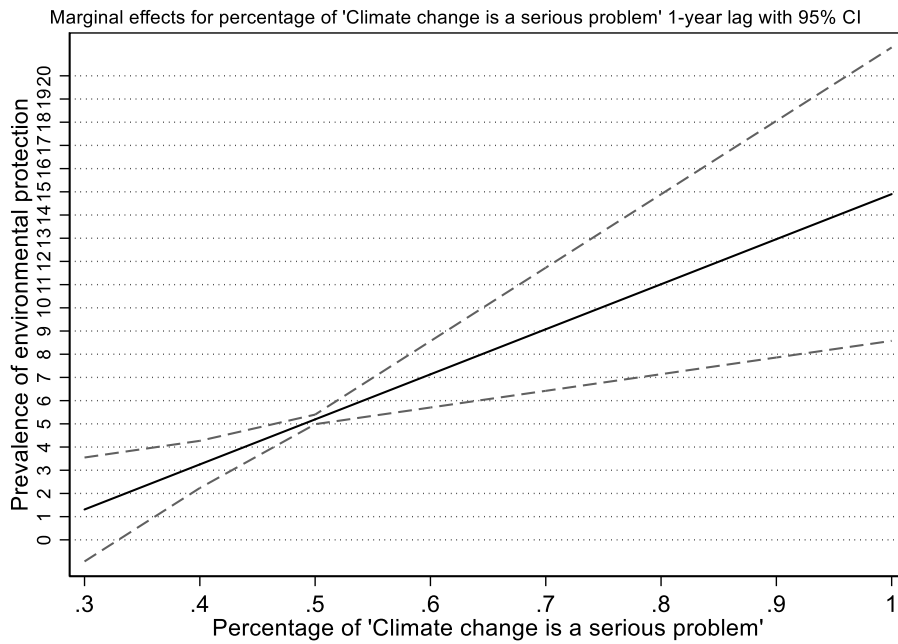
Figure 3. The effect of the percentage of citizens who considers climate change is a serious world problem with one-year lag on the prevalence of environmental protection in party manifestos within countries

Marginal effects for percentage of 'Climate change is a serious problem' 2-year lag with 95% CI
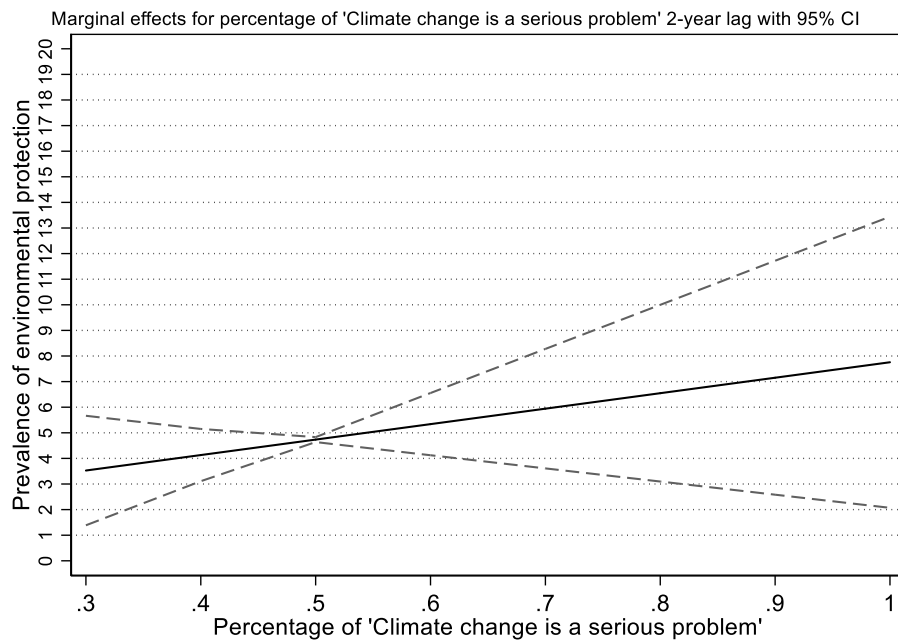
Figure 4. The effect of the percentage of citizens who considers climate change is a serious world problem with two-year lag on the prevalence of environmental protection in party manifestos within countries

Considering the interaction models (model 3 and model 6), none of the interactions are presented as significant in table1. It indicates that it is still unknown if citizens must be politically engaged for parties to account for citizens' preferences about climate change. This is further visualised in the marginal effects plots in figure 5 and figure 6. The relationship between the "percentage of 'Climate change is a serious problem'" and the prevalence of environmental protection stays the same with the unit increase of public political engagement. This is seen at values of 30% and 80% of citizens who consider climate change a serious problem where the confidence intervals are overlapping.
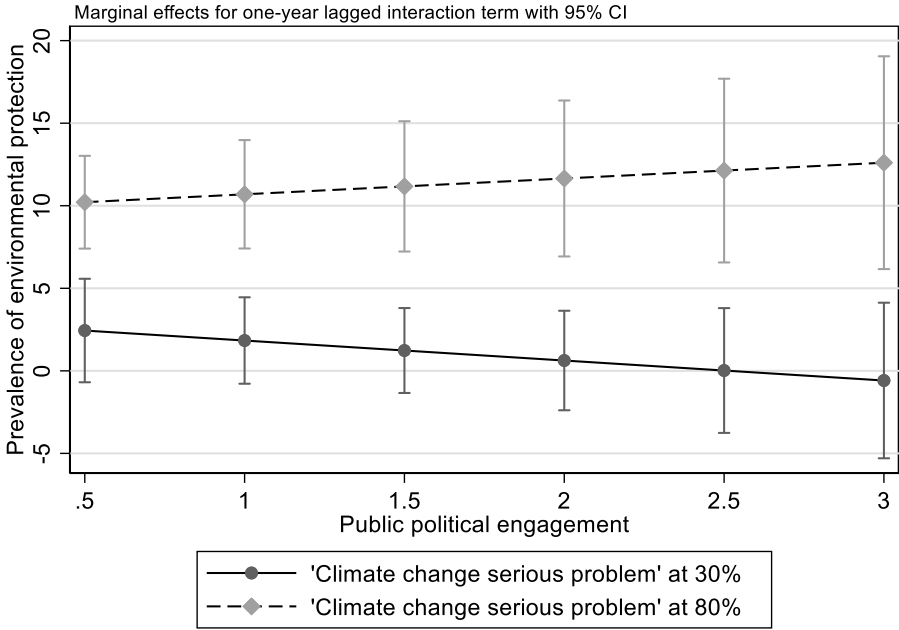

Marginal effects for one-year lagged interaction term with 95% CI

'Climate change serious problem' at 30%

'Climate change serious problem' at 80%

Figure 5. Marginal effects plot. One-year lag interaction between the "percentage of 'Climate change is a serious problem'" and the level of public political engagement on the prevalence of environmental protection in party manifestos

Marginal effects for two-year lagged interaction term with 95% CI

Figure 6. Marginal effects plot. Two-year lag interaction between the "percentage of 'Climate change is a serious problem'" and the level of public political engagement on the prevalence of environmental protection in party manifestos
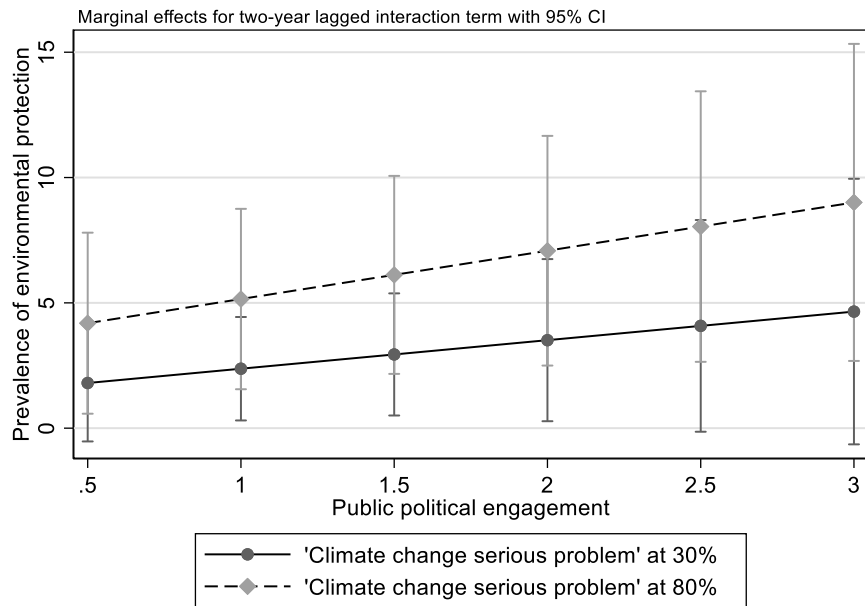
5.2. Implications and discussion

The results present a positive relationship between percentage of citizens who considers climate change a serious world problem and the prevalence of environmental protection in party manifestos in the models with one-year lagged independent variables (the first three models). Therefore, the first hypothesis is given support in the one-year lagged models; The more citizens who consider climate change a serious world problem, the more parties devote party manifestos to environmental protection.

On the other hand, there is no significant correlation between the percentage of citizens who considers climate change a serious world problem and the prevalence of environmental protection in party manifestos in the models with 2-year lagged independent variables. Therefore, it is not possible to lend support to the first hypothesis with the results in the 2-year lagged models. Perhaps the observations in the two-year lagged models are too far back in time from the election year to provide a significant correlation. The degree of how much parties devote to environmental protection in party manifestos may have moved during the time period.

However, to connect the one-year lagged models to the broader theoretical context of this thesis, I answer to the research question:

- *Are citizens' preferences represented by political representative actors in democracies?*

There appears to be a connection between citizens' preferences and what is represented by parties in democracies with the case of climate change mitigation policies. With humbleness about that this concerns only one case of representation, there seems to be support for claim that citizens' political preferences are represented by political representative actors in democracies.

With the theory in mind, there seems reasonable that democracies provide conditions for public goods provisions because citizens appears are represented and aggregated among parties. When preferences about climate change are common among an increasing number of citizens, parties appear to put more emphasis on environmental protection where climate change mitigation policies are included. Citizens want to be represented about climate change mitigation policies because climate change is a matter that concerns citizens' lives. Parties represent climate change mitigation policies because they are accountable to voters. Moreover, parties want to prove their worthiness for holding political power by representing citizens' preferences. By representing citizens. preferences about climate change are aggregated by parties. When more citizens consider climate change a problem and want climate change mitigation policies, it should be more common among parties to put more emphasis on climate change mitigation policies in party manifestos. In the end, climate change mitigation policies are within the frames of what can be provided as public goods. Therefore, it appears reasonable that democracies create conditions for provision of public goods by aggregating preferences through representation.

Reviewing the control variables, the level of democracy is presented with a negative correlation with the prevalence of environmental protection in party manifestos throughout the models. This is a surprise, because more democratic countries are generally associated with more environmental protection than less democratic ones (e.g. Fredriksson and Wollscheid 2007; Neumayer 2002). It is difficult to say what may be the reason for this. Perhaps, parties in more advanced democracies represent more interests in general than parties in less advanced democracies. Therefore, environmental protection takes up a smaller

portion of party manifestos; when the level of democracy increases the prevalence of environmental protection in party manifestos decreases due to the plurality of subjects in manifestos.

Moreover, political corruption is presented to be negatively correlated with the prevalence of environmental protection in party manifestos. This was expected because in corrupt societies, parties tend to represent their own interests, and/or the interests of elites who promote parties. Environmental protection is often not a top priority among corrupt parties and the elites supporting them (see Rafaty 2018).

In the models with one-year lag, economic influence over media content is presented with a significant negative correlation with the prevalence of environmental protection in party manifestos. Again, it is difficult to say why, because there are many things that can influence media content with financial means. But, departing from what I have reasoned around this variable, economic influence comes from interest actors. It possible that parties adjust their manifestos to questions they must face in media interviews and debates. Therefore, there could be less emphasis put on environmental protection in party manifestos in cases where there is a financial influence on media content from actors who do not have an interest for environmental protection.

Public political engagement is positively correlated with the prevalence of environmental protection in party manifestos in the two-year lagged model where control variables are introduced. Intuitively, public political engagement does not make citizens want more climate change mitigation policies or environmental protection by itself. But if there is a prevalent interest among citizens for climate change mitigation policies or environmental protection and citizens are politically engaged, citizens may put pressure on parties regarding these interests. However, neither of the models with interactions between citizens' preferences considering climate change a serious world problem and the public political engagement within countries present a significant correlation with more prevalence on environmental protection in party manifestos. It is still unknown whether citizens' preferences about climate change related to prevalence environmental protection in party manifestos are contingent to public political engagement. From this perspective it is unclear why there is a positive significant correlation between more public political engagement and the prevalence of environmental protection party manifestos. With this said, I cannot give support to the confirm the second hypothesis: The correlation between more citizens who consider climate change a serious world problem

and parties devoting party manifestos to more environmental protection is contingent on more public political engagement among citizens.

5.2.1. Additional estimations

Considering that the focal relationship is presented as significant in the one-year lagged models while the two year-lagged models are not presented as significant, it is interesting to examine whether there is a significant relationship models without lag. Possibly, the focal relationship is significant closer in time to elections.

In table 2, I present the models without lag. However, in these models I cannot use the variable regarding how much media content is influenced by economic interests. The variable presents a too high variance inflation factor (VIF above 5) (table 3 in appendix), meaning that this variable does not present a coefficient that is separate from the other variables to a sufficient degree in these models (multicollinearity) (Mehmetoglu and Jakobsen 2017). Instead, I use a variable on whether interest groups are allowed to fund broadcasted election campaigns to replace the loss of the variable (v2elpaidig. See appendix table 1 for description and table 4 for variance inflation factor) (Coppedge et al. 2018; Pemstein et al. 2018). If interest groups can provide benefits to parties when they are allowed to fund election campaigns, parties may balance their representation of citizens with representation of interest groups. It becomes a distraction to the representation of citizens' preferences. The reason why this variable is not used in the lagged models is because it does not provide enough comparable observations to the other variables with lag.

Table 2. Regression models without lags

VARIABLES	1	2	3
		Prevalence of Environmental protection	
Percent of 'Climate change is a serious problem'	5.565	6.114	9.892
	(3.271)	(4.799)	(8.321)
Political corruption index		-1.456	-2.028
		(10.297)	(10.308)
Real GDP per Capita		0.00006	0.00009
		(0.0003)	(0.0003)
Broadcasted campaigns funded by interest groups		-0.897	-0.871
		(0.853)	(0.852)
Public political engagement		0.436	1.721
		(0.954)	(3.337)
Economic influence over media content (2008-2016)			
Level of democracy		-2.009	-1.943
		(14.765)	(15.006)
Year		-0.028	-0.054
		(0.236)	(0.259)
Percent of 'Climate change is a serious problem'##Public political engagement			-2.421
			(5.147)
Constant	2.322	57.638	107.741
	(1.603)	(477.770)	(518.543)
Observations	54	54	54
Within-R2	0.0545	0.0863	0.0923
Number of countries	27	27	27

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Reviewing table 2, none of the models present significant estimates. It is difficult to say why this is, but perhaps parties do not have time to update their manifestos to the events occurring the same year as elections. Up to now, it is only the one-year lagged models that provide a significant focal relationship.

However, in all the models used so far in this thesis, I have restricted the number of observations so that cases are comparable over the variables in all the models with the same lag. Naturally it decreases the number of observations when variables have missing data points. But the focal relationship presents a different result in bivariate model without lag when I remove the restrictions of cases (table 3). With an increase in observations the focal

relationship turns significant (p<0.1) with a positive coefficient of 5.87 percentage point over the whole scale (0 to 1). The more citizens who consider climate change a serious problem, the more parties devote their party manifestos to environmental protection. Yet, the variance explained within countries is low (Within-R^2= 0.0652) and I cannot control for any untrue significance since there are no control variables included. Therefore, I am cautious about drawing any further conclusions about this bivariate model. Though, the result is still interesting for future research when more data is available, because there may still be a chance that the models with data from the same year are presented as significant.

Table 3. Regression of the focal relationship not restricted to comparable cases with other independent variables

VARIABLES	1 Prevalence of Environmental protection
Percent of 'Climate change is a serious problem'	5.874* (3.339)
Constant	2.003 (1.625)
Observations	62
Within-R2	0.0652
Number of countries	27

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.2.2. Limitations of the results

The results present large standard errors for the variable "percentage of 'Climate change is a serious problem'". This is somewhat problematic because the actual observations are far away from the predicted estimate and there is higher risk that the estimates are less representative to the population of countries. It is possible that this is due to the small number of observations (Kellstedt and Whitten 2013). However, since the data only allows for an investigation between a constrained set of data points in the dependent variable that are comparable to the data in the independent variable, a small number of observations must be tolerated in this thesis.

Moreover, parties are in some cases argued to affect citizens' political knowledge (Lau and Redlawsk 2007; Lupia 1994). Parties may have affected citizens to consider that climate

change is a serious problem in previous year. Thus, there may be a relationship where parties affect citizens' preferences about climate change, and not citizens' preferences affecting parties. In this thesis, I cannot provide a further answer than that there appears to be a connection between citizens preferences and how much parties devote to environmental protection in party manifestos.

Furthermore, citizens with concerns about climate change may also correlated with concerns about other environmental matters that are unmeasured in this thesis. This is a possible problem for the results. Parties may increase their emphasis on environmental protection in party manifestos because of other environmental preferences that citizens hold along with their preferences about climate change. Therefore, there is a risk that it is not climate change mitigation policies that is increased in party manifestos, but other environmental protection policies. While more data is needed in order to control for other environmental preferences, I can only assume that it is citizens' preferences about climate change that are represented by parties.

Even if parties talk more about climate change mitigation policies in party manifestos when more citizens consider climate change a serious problem, the quantity of what parties say in their manifestos does not speak of the quality. For example, a party may be very concise about what they say regarding climate change mitigation policies and only need a small part of the manifesto to represent citizens' preferences. On the other hand, climate change is a complex problem that overlaps into many societal discussions. To argue for the point, the more parties talk about climate change mitigation, the more solutions they present.

An additional limitation to the results; all the lagged models contain data from the previous year. As I described in the research design, I let the values from the Eurobarometer in 2009, 2011, 2013 and 2015 be valid for the following year where there initially was no data. Therefore, the one-year lagged variable for the "percentage of 'Climate change is a serious problem'" contains some data points from two years back and the two-year lagged variable for the "percentage of 'Climate change is a serious problem'" contains some data points from three years back.

The prevalence of environmental protection in party manifestos during a year of election may be inconsistent with the data on the "percentage of 'Climate change is a serious problem'" from three years back and some of the data from two years back. Consequently, there are too

many inconsistent observations in the independent variable to correlate with dependent variable. Perhaps this is a reason why the two-lagged models are presented as non-significant. Meanwhile, the prevalence of environmental protection in party manifestos during a year of election may be consistent with some other observations from two years back and many of the observations from one year back in the independent variable the "percentage of 'Climate change is a serious problem'". This may be a reason why the one-year lagged models are presented as significant.

With this reasoning, it is difficult to say how well the two-year lagged independent variable "percentage of 'Climate change is a serious problem'" would have correlated with the prevalence of environmental protection in party manifestos if data had been available for all years. Therefore, more data is needed to further investigate the significance of the focal relationship in the two-year lagged model.

6. Conclusion

The purpose throughout this thesis has been to examine whether it is reasonable that democracies create conditions for public goods provisions. The purpose is based on the assumption that citizens' preferences are aggregated through representation by political representative actors in democracies. It is the aggregation of represented preferences that is the foundation for decision-making. This is what should create conditions for public goods provisions. I have examined this by asking:

- *Are citizens' preferences represented by political representative actors in democracies?*

There appears to be support that citizens' preferences are represented by political representative actors in democracies. There is a significant positive relationship when analysing the party representation of climate change mitigation policies in the relations to citizens' preferences one year before elections about climate change as a serious problem.

In the existing literature it is argued that democracies are better suited to provide public goods than autocracies because citizens preferences are aggregated for decision-making. This is made possible through representation of citizens preferences. These preferences must be represented because political representative actors are accountable with the inclusive and competitive institutions that come with democracy (see Bättig and Bernauer 2016; Bueno de

Mesquita 2003; Dahl 1971, 1989; Deacon 2009; Neumayer 2002; Olson 1993). Although, this literature has also disregarded to put the mechanism of representation to the test. This thesis contributes with support to the understanding that citizens preferences are represented in democracies and, further, that these preferences are aggregated by political representative actors. With the literature in mind, it seems reasonable that democracies create conditions for public goods provisions because it is citizens' preferences that are the foundation for decision-making.

This is an important result because it connects of democratic legitimacy. Reasonably, political representative actors represent what they perceive citizens to prefer. Since the aggregation of preferences creates the foundation for decision-making, it appears more likely that citizens are convinced that decisions are made for their benefit. The suggested definition of democratic legitimacy as 'government by the people' and 'government for the people' (Scharpf 1999, Jagers et al. 2016: 3) appears to have a point as it may be the product of citizens' preferences that is provided to citizens.

However, it is still unanswered how well presented policies for public goods correspond to citizens preferences. For example, citizens may have preferences for climate change mitigation policies and therefore climate change mitigation policies are represented in party manifestos. Yet, the climate mitigation policies represented by parties could be far away from living up to the preferences and expectations of citizens. A possible way forward in these matters may to interview citizens about their preferences and analyse party manifestos to see whether policies correspond to citizens expectations.

Moreover, if the axiom that democracy creates conditions for public goods provisions by aggregating citizens preferences through representation is true, it is thinkable that there may be obstacles before decisions about public goods are made. There is still a step between what is aggregated by political representative actors and decision-making, e.g. parliamentary debates (Matland 1995). This is a possible room for influence from other directions, such as from interest groups (Ainsworth 2019; Mann 2016). Future research could compare actual political decisions made political representative with what was initially represented in manifestos.

Finally, I only focus on one case in this thesis. That is climate change mitigation policies as public goods. More research is needed to further generalize more broadly whether democracy

creates conditions for provisions of public goods by preference aggregation through representation of preferences. Even though, this appear to be reasonable with the findings in this thesis.

7. Bibliography

Achen, Christopher H., and Larry M. Bartels. 2016. *Democracy For Realists; Why Elections Do Not Produce Responsive Government*. New Jersey: Princeton University Press.

Ainsworth, Scott. 2019. "Regulating Lobbyists and Interest Group Influence Author (s): Scott Ainsworth Source : The Journal of Politics , Vol . 55 , No . 1 (Feb ., 1993), Pp . 41-56 Published by : The University of Chicago Press on Behalf of the Southern Political Science Ass." 55(1): 41–56.

Allen, Nicholas, and Judith Bara. 2019. "Marching to the Left? Programmatic Competition and the 2017 Party Manifestos." *Political Quarterly* 90(1).

Anderson, Alison. 2009. "Media, Politics and Climate Change: Towards a New Research Agenda." *Sociology Compass* 3(2): 166–82.

Aneshensel, Carol S. 2013. *Theory-Based Data Analysis for the Social Sciences*. 2nd editio. London: SAGE Publications, Inc.

Ashworth, Scott, and Ethan Bueno de Mesquita. 2014. "Is Voter Competence Good for Voters?: Information, Rationality, and Democratic Performance." *American Political Science Review* 108(03): 565–87.

Austen-Smith, David. 2009. "Economic Methods In Positive Political Theory." In *The Oxford Handbook of Political Science*, ed. Robert E. Goodin. Oxford: Oxford University Press, 810–25.

Barrett, Scott, and Kathryn Graddy. 2000. "Freedom, Growth, and the Environment." *Environment and Development Economics*.

Bättig, Michèle B, and Thomas Bernauer. 2016. "International Organization Foundation National Institutions and Global Public Goods : Are Democracies More Cooperative in Climate Change Policy ? Foundation Stable URL : Http://Www.Jstor.Org/Stable/40345935 Linked References Are Available on JSTOR for Thi." *International Organization* 63(2): 281–308.

Beetham, David. 2013. *The Legitimation of Power*. Basingstoke: Palgrave Macmillan.

Bernard, Jean Thomas, Denis Bolduc, and Nadège Désirée Yameogo. 2011. "A Pseudo-Panel Data Model of Household Electricity Demand." *Resource and Energy Economics* 33(1): 315–25.

Bueno de Mesquita, Bruce. 2003. *The Logic of Political Survival*. ed. MIT Press. Cambridge, Mass.; London.

Burnstein, Paul, and April Linton. 2002. "The Impact of Political Parties, Interest Groups, and Social Movement Organizations on Public Policy: Some Recent Evidence and Theoretical Concerns." *Social Forces* 81(2): 381–408.

Cambridge Dictionary. "INTEREST."

https://dictionary.cambridge.org/dictionary/english/interest (July 10, 2019a).

———. "PREFERENCE." https://dictionary.cambridge.org/dictionary/english/preference (July 4, 2019b).

Close, Caroline. 2016. "Parliamentary Party Loyalty and Party Family." *Party Politics* 24(2): 209–19.

CNN. 2019. "Global Climate Strike: Meet the Teenagers Skipping School to Fight for a Greener Planet." https://edition.cnn.com/2019/03/14/world/global-climate-strike-teenagers-school-walkout-greta-thunberg-intl/index.html (April 27, 2019).

Coppedge, Michael et al. 2018. *V-Dem [Country-Year/Country-Date] Dataset V8*. Varieties of Democracy (V-Dem) Project.

Dahl, Robert A. 1971. *Polyarchy: Participation and Opposition*. New Haven and London: Yale University Press.

———. 1989. *Democracy and Its Critics*. New Haven: Yale University Press. http://search.ebscohost.com.ezproxy.ub.gu.se/login.aspx?direct=true&db=nlebk&AN=52831&site=ehost-live.

Dalton, Russell J. 1988. *Citizen Politics in Western Democracies; Public Opinion and Political Parties in the United States, Great Britain, Germany, and France*. ed. Chatham House Publishers. New Jersey.

Dalton, Russell J., and Steven A. Weldon. 2005. "Public Images of Political Parties: A Necessary Evil?" *West European Politics* 28(5): 931–51.

Deacon, Robert T. 2009. "Public Good Provision under Dictatorship and Democracy." *Public Choice* 139(1–2): 241–62.

Deaton, Angus. 1985. "Panel Data from Time Series of Cross-Sections." *Journal of Econometrics* 30(1–2): 109–26.

Dryzek, John S., and Simon Niemeyer. 2008. "Discursive Representation." *American Political Science Review* 102(04): 481–93.

Easton, David. 1957. "An Approach to the Analysis of Political Systems." *Word Politics* 9(3): 383–400.

ESS. 2018. "European Attitudes to Climate Change and Energy." *ESS Topline Results Series* (9).

European Commission. 2013. *Eurobarometer 69.2 (Mar-May 2008)*. ed. TNS OPINION & SOCIAL Brussels [Producer]. GESIS Data Archive, Cologne. ZA4744 Data file Version 5.0.0.

———. 2014. *Eurobarometer 75.4 (2011)*. ed. TNS OPINION & SOCIAL Brussels [Producer]. GESIS Data Archive, Cologne. ZA5564 Data file Version 3.0.1.

———. 2017. *Eurobarometer 80.2 (2013)*. ed. TNS opinion [producer]. GESIS Data Archive, Cologne. ZA5877 Data file Version 2.0.0.

———. 2018. *Eurobarometer 83.4 (2015)*. ed. Brussels [Producer]. TNS opinion. Cologne: GESIS Data Archive ZA6595 Version 3.0.0.

European Commission and European Parliament Brussels. 2017. *Eurobarometer 87.1 (2017).* ed. Brussels [producer] TNS opinion. GESIS Data Archive, Cologne ZA6861 Data file Version 1.2.0.

Facchini, François, Giuseppe Lucio Gaeta, and Benjamin Michallet. 2017. "Who Cares about the Environment? An Empirical Analysis of the Evolution of Political Parties' Environmental Concern in European Countries (1970–2008)." *Land Use Policy* 64: 200–211.

Fairbrother, Malcolm. 2013. "Rich People, Poor People, and Environmental Concern: Evidence across Nations and Time." *European Sociological Review*.

Farstad, Fay M. 2018. "What Explains Variation in Parties' Climate Change Salience?" *Party Politics* 24(6): 698–707.

Fredriksson, Per G., and Jim R. Wollscheid. 2007. "Democratic Institutions versus Autocratic Regimes: The Case of Environmental Policy." *Public Choice*.

Freedom House. 2018. "Freedom of the Press." https://freedomhouse.org/report-types/freedom-press (May 11, 2019).

Gemenis, Kostas. 2013. "What to Do (and Not to Do) with the Comparative Manifestos Project Data." *Political Studies* 61(SUPPL.1): 23–43.

Grundmann, Reiner. 2007. "Climate Change and Knowledge Politics." *Environmental Politics* 16(3): 414–32.

Harring, Niklas, Sverker C. Jagers, and Simon Matti. 2017. "Public Support for Pro-Environmental Policy Measures: Examining the Impact of Personal Values and Ideology." *Sustainability (Switzerland)* 9(5).

Hix, Simon, and Bjørn Høyland. 2011. "The Political System of the European Union." In eds. Simon Hix and Bjørn Høyland. Basingstoke: Palgrave Macmillan.

Ignazi, Piero. 1996. "The Intellectual Basis of Right-Wing Anti-Partyism." *European Journal of Political Research* 29(3): 279–96. http://doi.wiley.com/10.1111/j.1475-6765.1996.tb00653.x (April 23, 2019).

Jagers, Sverker, Simon Matti, and Katarina Nordblom. 2016. "How Policy Legitimacy Affects Policy Support throughout the Policy Cycle." 2473(November): 30.

Johnson, Martin, Paul Brace, and Kevin Arceneaux. 2005. "Public Opinion and Dynamic Representation in the American States: The Case of Environmental Attitudes." *Social Science Quarterly* 86(1): 87–108.

Kallhoff, Angela. 2014. "Why Societies Need Public Goods." *Critical Review of International Social and Political Philosophy* 17(6): 635–51.

Kellstedt, Paul M., and Guy D. Whitten. 2013. *The Fundamentals of Political Science Research.* Second. New York: Cambridge University Press.

Kim, So Young, and Yael Wolisnky-Nahmias. 2014. "Cross-National Public Opinion on Climate Change: The Effects of Affluence and Vulnerability." *Global Environmental Politics* 14(1): 79–106.

Kostadinova, Petia. 2015. "Party Pledges in the News: Which Election Promises Do the

Media Report?" *Party Politics* 23(6): 636–45.

Lake, David A., and Matthew A. Baum. 2001. "The Invisible Hand of Democracy: Political Control and the Provision of Public Services." *Comparative Political Studies* 34(6): 587–621.

Lau, Richard R., and David P. Redlawsk. 2007. "Advantages and Disadvantages of Cognitive Heuristics in Political Decision Making." *American Journal of Political Science* 45(4): 951.

Leiserowitz, Anthony et al. 2013. "Climate Change in the American Mind: Americans' Global Warming Beliefs and Attitudes in April 2013." *SSRN*. https://ssrn.com/abstract=2298705.

Lipset, Seymour M., and Stein Rokkan. 1990. "Cleavage Structures, Party Systems, and Voter Alignments." In *The Western European Party System*, ed. Peter Mair. Oxford: Oxford University Press, 91–138.

Lorenzoni, Irene, and Nick F. Pidgeon. 2006. "Public Views on Climate Change: European and USA Perspectives." *Climatic Change* 77(1–2): 73–95.

Lupia, Arthur. 1994. "Shortcuts Versus Encyclopedias: Information and Voting Behavior in California Insurance Reform Elections." *American Political Science Review* 88(1): 63–76.

Maddison Project Database version 2018. 2018. "Rebasing 'Maddison': New Income Comparisons and the Shape of Long-Run Economic Development." In *Maddison Project Working Paper 10*, eds. Jutta Bolt, Robert Inklaar, Herman de Jong, and Jan Luiten van Zanden. http://www.ggdc.net/maddison/maddison-project/home.htm.

Mair, Peter. 1995. "Political Parties, Popular Legitimacy and Public Privilege." *West European Politics* 18(3): 40–57.

Manifesto Project. "About." https://manifesto-project.wzb.eu/information/documents/information (April 18, 2019).

Mann, Michael E. 2016. *The Hockey Stick and the Climate Wars*. New York: Columbia University Press.

Matland, Richard E. 1995. "Synthesizing the Implementation Literature: The Ambiguity-Conflict Model of Policy Implementation." *Journal of Public Administration Research and Theory* 5(1986): 145–74. https://academic.oup.com/jpart/article/5/2/145/880350/Synthesizing-the-Implementation-Literature-The.

McMann, Kelly et al. 2016. "Strategies of Validation: Assessing the Varieties of Democracy Corruption Data." *V-Dem Working Paper Series*. 23. https://www.v-dem.net/media/filer_public/aa/1c/aa1c7a54-db15-4d80-ae9f-%0A075cf478957d/v-dem_working_paper_2016_23.pdf.

Mehmetoglu, Mehmet, and Tor George Jakobsen. 2017. *Applied Statistics Using Stata*. London: SAGE Publications Inc.

Meyer, Andrew. 2016. "Is Unemployment Good for the Environment?" *Resource and Energy Economics* 45: 18–30. http://dx.doi.org/10.1016/j.reseneeco.2016.04.001.

Neumayer, Eric. 2002. "Environmental Commitment ? A Cross-Country Analysis *." 39(2): 139–64.

Olson, Mancur. 1965. International Organization *The Logic of Collective Action*.

———. 1993. "Dictatorship , Democracy , and Development." *The American Political Science Review* 87(3): 567–76.

Payne, Rodger A. 1995. "Freedom and the Environment." *Journal of Democracy* 6(3): 41–55. http://muse.jhu.edu/content/crossref/journals/journal_of_democracy/v006/6.3payne.html (April 27, 2019).

Pemstein, Daniel et al. 2018. "The V-Dem Measurement Model: Latent Variable Analysis for Cross-National and Cross-Temporal Expert-Coded Data." *University of Gothenburg, Varieties of Democracy Institute: Working Paper* 21.

Pidgeon, Nick. 2012. "Public Understanding of, and Attitudes to, Climate Change: UK and International Perspectives and Policy." *Climate Policy* 12(SUPPL. 1).

Pitkin, Hanna Fenichel. 1967. *The Concept of Representation*. Berkeley, California: University of California Press.

Rafaty, Ryan. 2018. "Perceptions of Corruption, Political Distrust, and the Weakening of Climate Policy." *Global Environmental Politics* 18(3): 106–29.

Rohrschneider, Robert, and Matthew R. Miles. 2015. "Representation through Parties? Environmental Attitudes and Party Stances in Europe in 2013." *Environmental Politics* 24(4): 617–40. http://dx.doi.org/10.1080/09644016.2015.1023579.

Salas, Christian, Frances McCall Rosenbluth, and Ian Shapiro. 2016. "Political Parties in the New Politics of Insecurity." : 1–15.

Scharpf, Fritz W. 1999. *Governing in Europe - Effective and Democratic?* Oxford: Oxford University Press.

Schmitt, Hermann. 1989. "On Party Attachment in Western Europe and the Utility of Eurobarometer Data." *West European Politics* 12(2): 122–39.

Strömbäck, Jesper. 2011. "Mediatization and Perceptions of the Media's Political Influence." *Journalism Studies* 12(4): 423–39.

Strömbäck, Jesper, and Peter van Aelst. 2013. "Why Political Parties Adapt to the Media: Exploring the Fourth Dimension of Mediatization." *International Communication Gazette* 75(4): 341–58.

Suchman, Lucy, and Brigitte Jordan. 1990. "Interactional Troubles in Face-to-Face Survey Interviews." *Journal of the American Statistical Association* 85(409): 232–41.

Teorell, Jan et al. 2019. *The Quality of Government Standard Dataset*. Gothenburg: University of Gothenburg: The Quality of Government Institute.

Teorell, Jan, Michael Coppedge, Svend-Erik Skaaning, and Staffan I. Lindberg. 2016. "Measuring Electoral Democracy with V-Dem Data: Introducing a New Polyarchy Index." *SSRN Electronic Journal* (March).

The Guardian. 2019. "The Greta Thunberg Effect: At Last, MPs Focus on Climate Change."

https://www.theguardian.com/environment/2019/apr/23/greta-thunberg (July 25, 2019).

Tjernström, E., and T. Tietenberg. 2008. "Do Differences in Attitudes Explain Differences in National Climate Change Policies?" *Ecological Economics* 65(2): 315–24.

Tobler, Christina, Vivianne H.M. Visschers, and Michael Siegrist. 2012. "Consumers' Knowledge about Climate Change." *Climatic Change* 114(2): 189–209.

Tyler, Tom R. 2006. "Psychological Perspectives on Legitimacy and Legitimation." *Annual Review of Psychology* 57(1): 375–400. https://doi.org/10.1146/annurev.psych.57.102904.190038.

Volkens, Andrea et al. 2018. Manifesto Project (MRG / CMP / MARPOR) *The Manifesto Data Collection*. Berlin: Wissenschaftszentrum Berlin für Sozialforschung (WZB).

Wallace, Claire, and Florian Pichler. 2007. "Patterns of Formal and Informal Social Capital in Europe." *European Sociological Review* 23(4): 423–35.

Weber, Elke U. 2010. "What Shapes Perceptions of Climate Change?" *Wiley Interdisciplinary Reviews: Climate Change* 1(3): 332–42.

Weiss, Edith Brown, and Harold K. Jacobson. 1999. "Getting Countries to Comply with Internationl Agreements." *Environment: Science and Policy for Sustainable Development* 41(6): 16–20. http://www.tandfonline.com/doi/abs/10.1080/00139159909604641 (April 27, 2019).

Werner, Annika, Onawa Lacewell, and Andrea Volkens. 2014. "Manifesto Coding Instructions (5th Revised Edition)." (March): 1–39.

Wren, Anne, and Kenneth M. McElwain. 2009. The Oxford Handbook of Comparative Politics *Voters and Parties*.

8. Appendix
Table 1. Description of variables

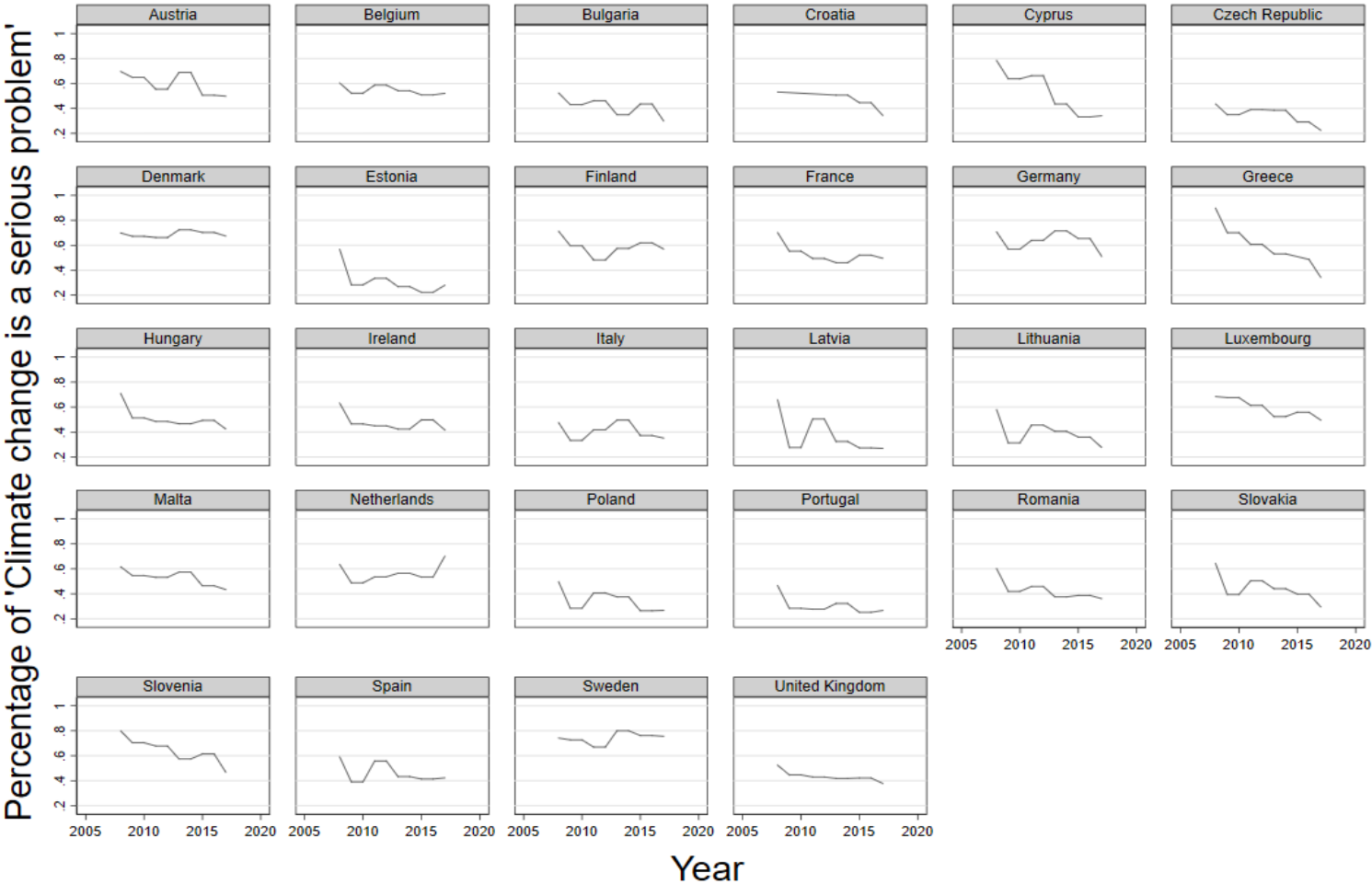| Name	Prevalence of environmental protection	Percentage of 'Climate change is a serious problem'	Political Corruption Index	Real GDP/capita
Code	meanofenvir1	avsercc	v2x_corr	mad_gdppc
Original code	per501	v695 (2008), v374 (2009), V546 (2011), qa1t_1 (2013 & 2015), qc1t_1 (2017)	v2x_corr	mad_gdppc
Scale and definition	Interval from 0 (low) to 100 (high) "Environmental Protection General policies in favour of protecting the environment, fighting climate change, and other "green" policies. For instance: • General preservation of natural resources; • Preservation of countryside, forests, etc.; • Protection of national parks; • Animal rights."	Interval from 0 (low) to 1 (high) First, the respondents were first asked: "In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole? Firstly?" They had to choose between: "1 Global warming* 2 International terrorism 3 Poverty, lack of food and drinking water 4 The spread of an infectious disease 5 A major global economic downturn 6 The proliferation of nuclear weapons 7 Armed conflicts 8 The increasing world population 9 Other (SPONTANEOUS - SPECIFY) 10 DK*" Second, the respondents were asked: "Any others?" or "Which other?" * The phrase global warming was changed after 2009 *DK=Don't know	"Interval from 0 (less corrupt) to 1 (highly corrupt) 'The corruption index includes measures of six distinct types of corruption that cover both different areas and levels of the polity realm, distinguishing between executive, legislative and judicial corruption. Within the executive realm, the measures also distinguish between corruption mostly pertaining to bribery and corruption due to embezzlement. Finally, they differentiate between corruption in the highest echelons of the executive at the level of the rulers/cabinet on the one hand, and in the public sector at large on the other. The measures thus tap into several distinguished types of corruption: both 'petty' and 'grand'; both bribery and theft; both corruption aimed and influencing law making and that affecting implementation."	The real GDP/capita
Reference	(Volkens et al. 2018: 17)	(European Commission 2013: 1172)	(Coppedge et al. 2018: 230; McMann et al. 2016)	(Maddison Project Database version 2018 2018; Teorell et al. 2019)

Name	Broadcasted campaign communication funded by interest groups	Economic influence over media content (2008-2016)	Public engagement in politics	Level of democracy	Year
Code	v2elpaidig	fhp_mcei5	v2dlengage	v2x_polyarchy	year
Original code	v2elpaidig	fhp_mcei5	v2dlengage	v2x_polyarchy	year
Scale and definition	Interval from -5 (Not allowed) to 5 (No restrictions) "In this election, were interest groups and individuals able to run paid campaign ads on national broadcast media?"	"Interval from 0 (low influence) to 20 (high influence) '[...] examines the economic environment for the media. This includes the structure of media ownership; transparency and concentration of ownership; the costs of establishing media as well as of production and distribution; the selective withholding of advertising or subsidies by the state or other actors; the impact of corruption and bribery on content; and the extent to which the economic situation in a country impacts the development of the media."	Interval from -5 (Not engaged) to 5 (Highly engaged) "When important policy changes are being considered, how wide and how independent are public deliberations?"	"Interval from 0 (less democratic) to 1 (highly democratic) 'The electoral principle of democracy seeks to embody the core value of making rulers' responsive to citizens, achieved through electoral competition for the electorate's approval under circumstances when suffrage is extensive; political and civil society organizations can operate freely; elections are clean and not marred by fraud or systematic irregularities; and elections affect the composition of the chief executive of the country. In between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance. In the V-Dem conceptual scheme, electoral democracy is understood as an essential element of any other conception of representative democracy — liberal, participatory, deliberative, egalitarian, or some other."	Dummy variable indicating each year
Reference	(Coppedge et al., 2018: 61; Pemstein et al., 2018)	(Freedom House 2018; Teorell et al. 2019: 293)	(Coppedge et al., 2018: 146; Pemstein et al., 2018).	(Coppedge et al. 2018: 40; Teorell et al. 2016)	(Teorell et al. 2019)

**Table 2. Summary statistics over variables**

	Prevalence of environmental protection	Percentage of 'Climate change is a serious problem'	Political Corruption Index	Public Political engagement	Real GDP/capita (2008-2016)	Economic influence over media content	Level of democracy	Broadcasted campaign communication funded by interest groups
Obs.	63	62	62	62	55	55	62	62
States	27	27	27	27	27	27	27	27
Mean	4.81434	0.4868387	0.191048	1.821396	30410	7.854545	0.8440856	1.289501
Std. Dev.	2.483665	0.1430473	0.1738276	0.5955937	11012.34	3.0757	0.0683352	0.9186106
Min	1.2853	0.223	0.0059285	0.0011055	14797	4	0.6343308	-1.419576
Max	12.441	0.8002	0.7140867	3.168988	56319	15	0.921833	2.769916

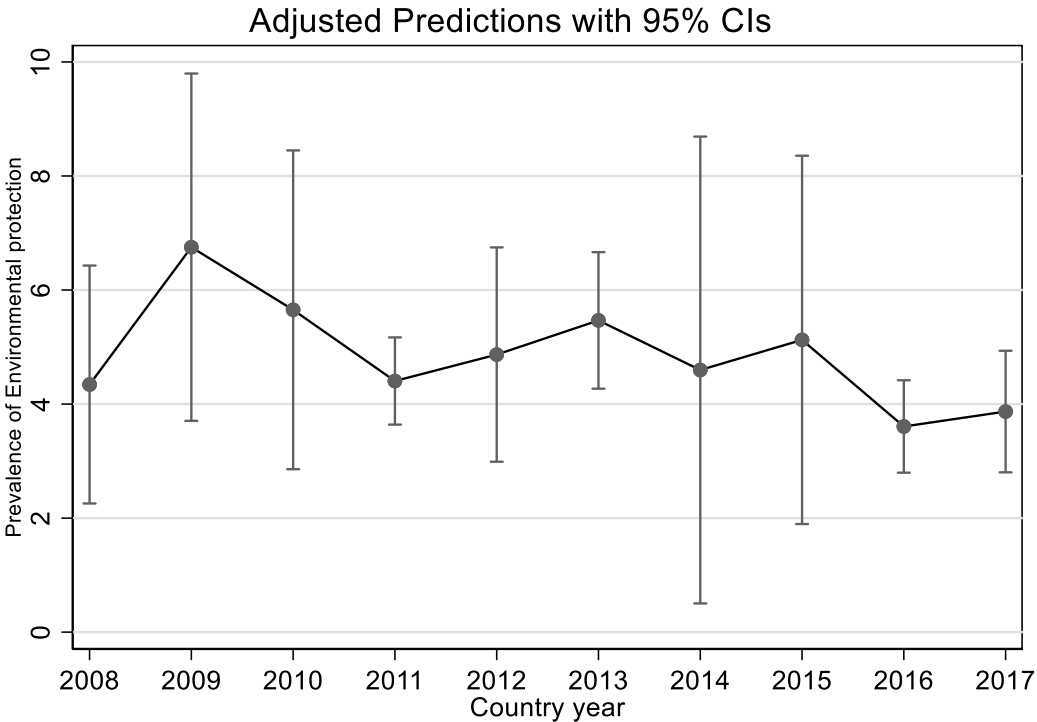**Graph 1. Percentage of 'Climate change is a serious problem' by country over time**

Graphs by Country

Graph 2. Time trend over percentage of 'Climate change is a serious problem'

Adjusted Predictions with 95% CIs
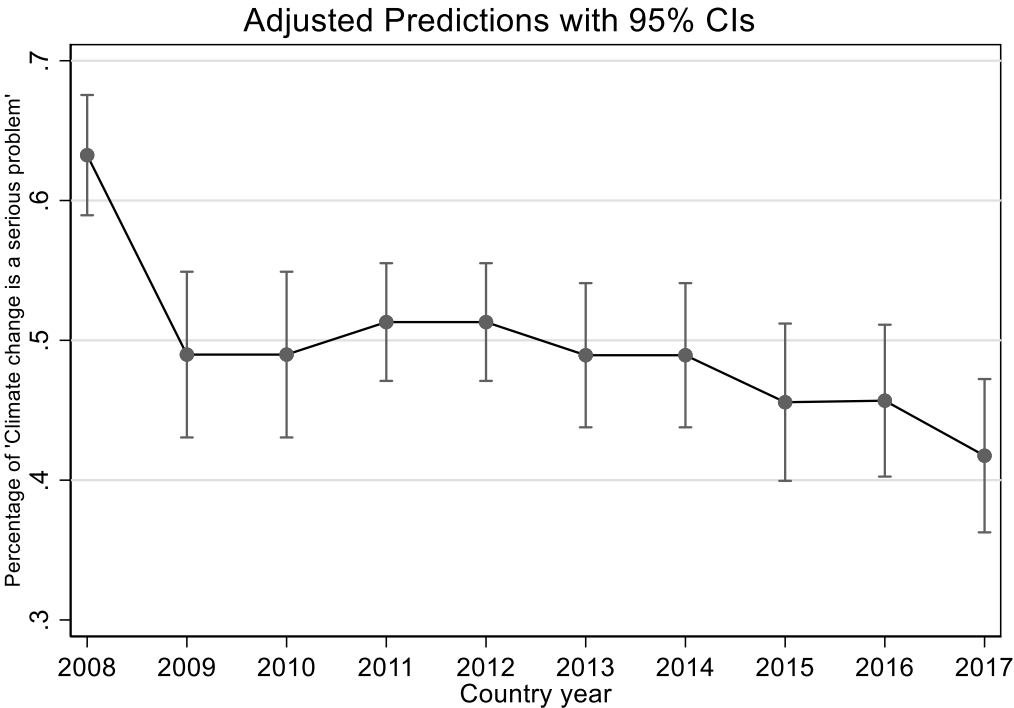
Graph 3. Time trend over prevalence of environmental protection in party manifestos

Adjusted Predictions with 95% CIs
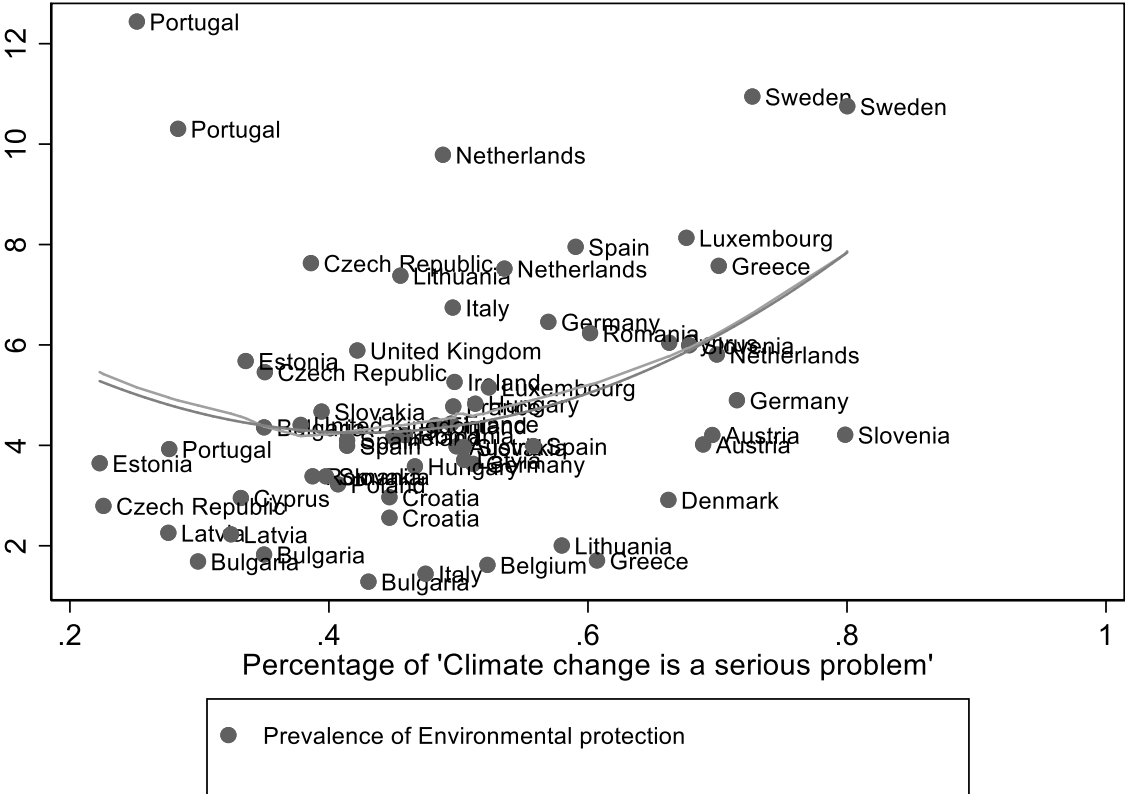
Graph 4. Linearity in the focal relationship

Table 3. Variance inflation factor unlagged model with 'Economic influence over media content (2008-2016)' (Teorell et al. 2019)

Variable	VIF	1/VIF
Economic influence over media content (2008-2016)	5.18	0.193154
Level of Democracy	3.67	0.27231
Political Corruption Index	3.39	0.294866
Real GDP/capita	2.6	0.384537
Percentage of 'Climate change is a serious problem'	1.75	0.570901
Year	1.58	0.632591
Public engagement in politics	1.52	0.657168
Mean VIF	2.81	

Table 4. Variance inflation factor unlagged model with 'Broadcasted campaign communication funded by interest groups' (Teorell et al. 2019)

Variable	VIF	1/VIF
Real GDP/capita	3.26	0.306815
Political Corruption Index	3.05	0.327544
Level of democracy	2.75	0.363149
Percentage of 'Climate change is a serious problem'	1.75	0.570733
Public engagement in politics	1.52	0.657479
Broadcasted campaign communication funded by interest groups	1.48	0.67375
Year	1.37	0.72931
Mean VIF	2.17	

Table 4. Variance inflation factor one-year lagged model

Variable	VIF	1/VIF
Real GDP/capita		
L1.	3.69	0.271302
Economic influence over media content (2008-2016)		
L1.	3.59	0.278534
Political corruption index		
L1.	3.5	0.28549
Level of democracy		
L1.	2.49	0.401911
Percentage of 'Climate change is a serious problem'		
L1.	2.12	0.471585
Year		
L1.	1.5	0.666401
Public political engagement		
L1.	1.48	0.676297
Mean VIF	2.62	

Table 5. Variance inflation factor one-year lagged model

Variable	VIF	1/VIF
Economic influence over media content (2008-2016)		
L2.	3.79	0.26383
Real GDP/capita		
L2.	3.48	0.287262
Political corruption index		
L2.	3.46	0.28905
Level of democracy		

L2.	2.67	0.374675
Year		
L2.	1.68	0.59442
Percentage of 'Climate change is a serious problem'		
L2.	1.61	0.621223
Public political engagement		
L2.	1.6	0.626687
Mean VIF	2.61	

Graph 6. Cook's D one-year lag model
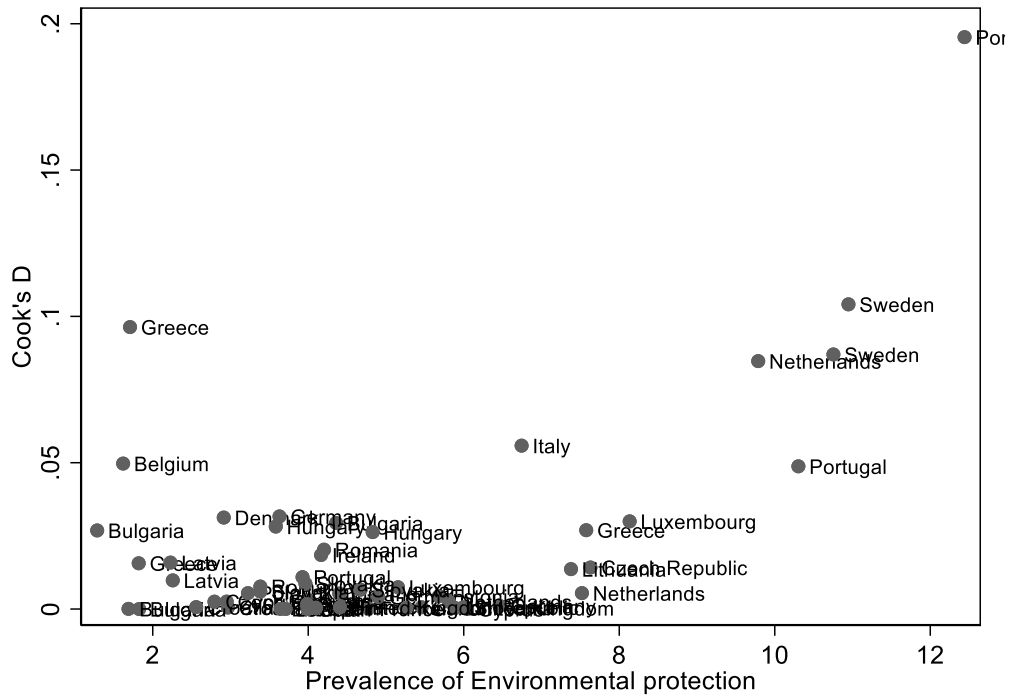
Graph 7. Cook's D two-year lag model
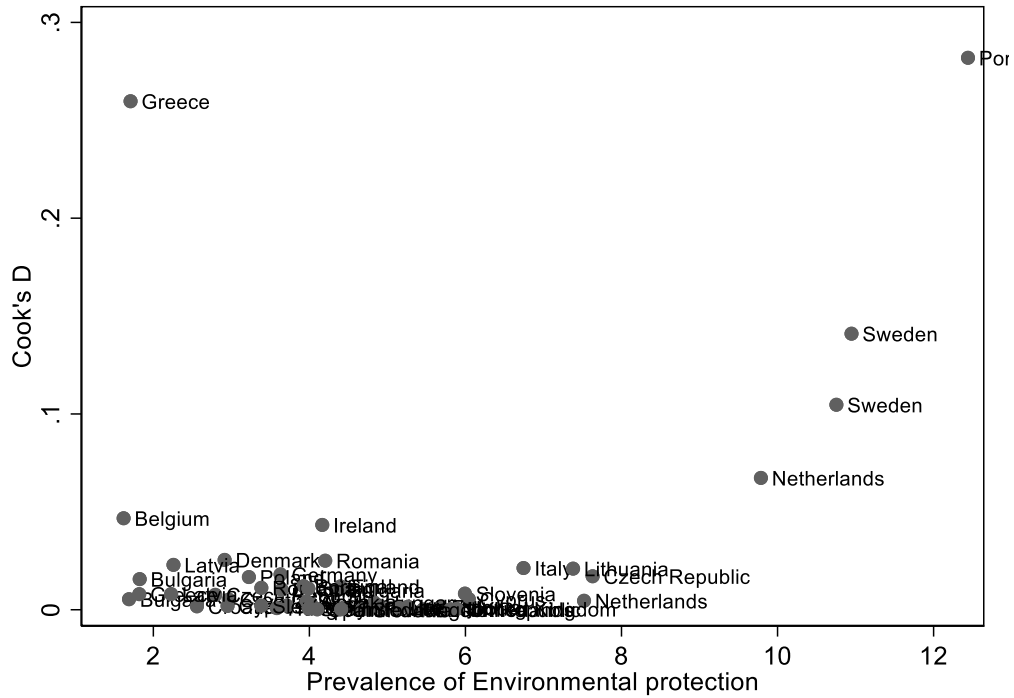
Graph 8. Leverage one-year lag model

coef = 5.5083082, se = 3.0285974, t = 1.82
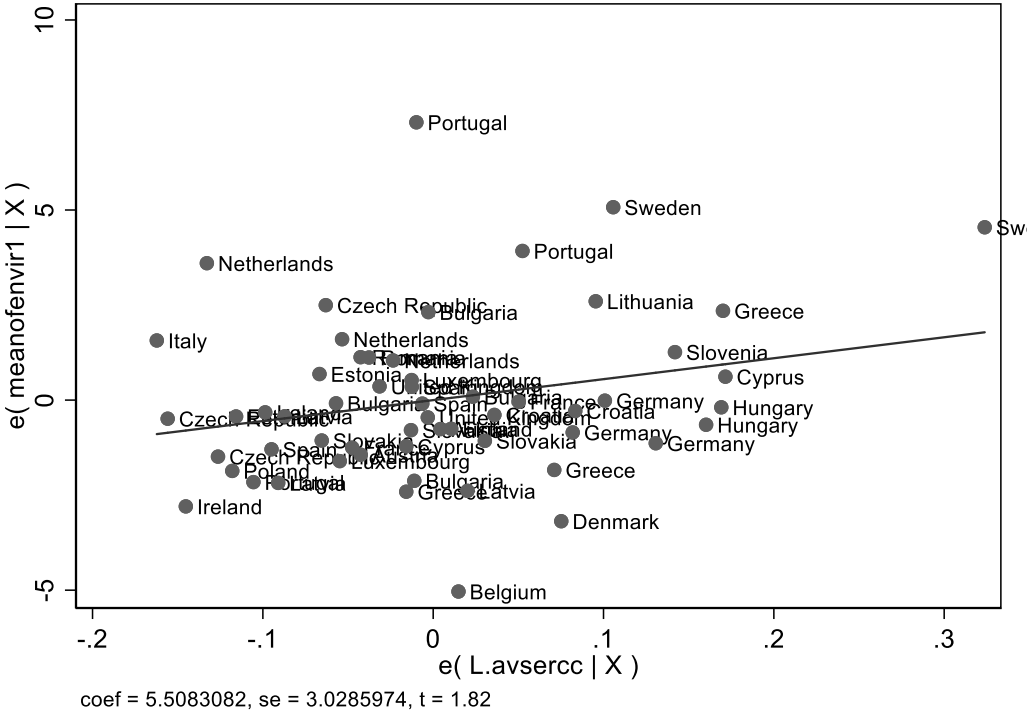
Graph 9. Leverage two-year lag model

coef = -2.0854739, se = 3.0703001, t = -.68
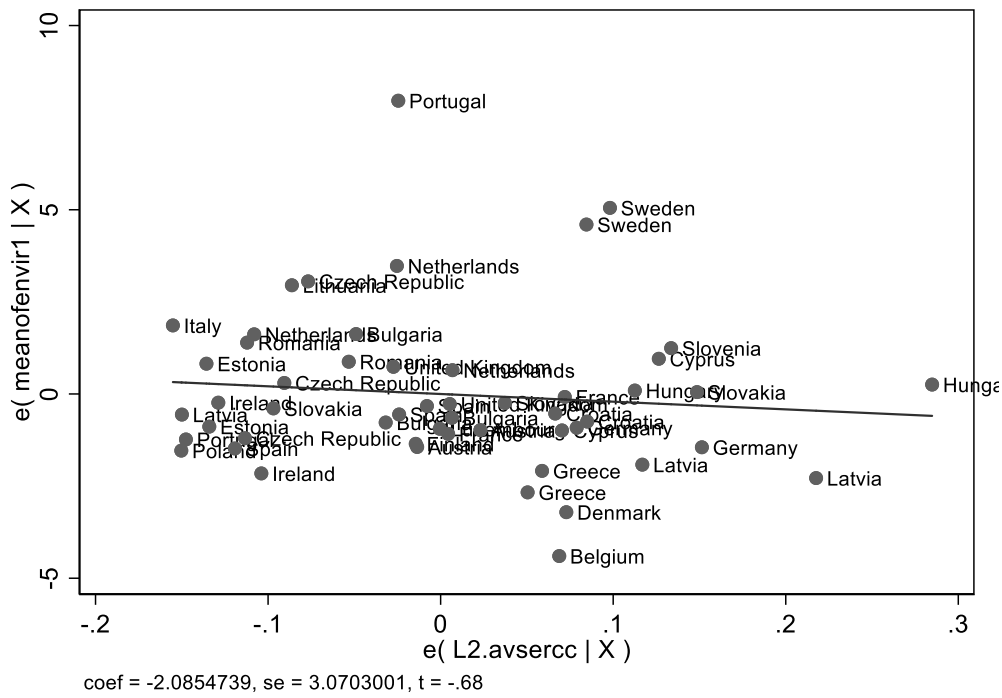
Graph 10. Deviation one-year lag model
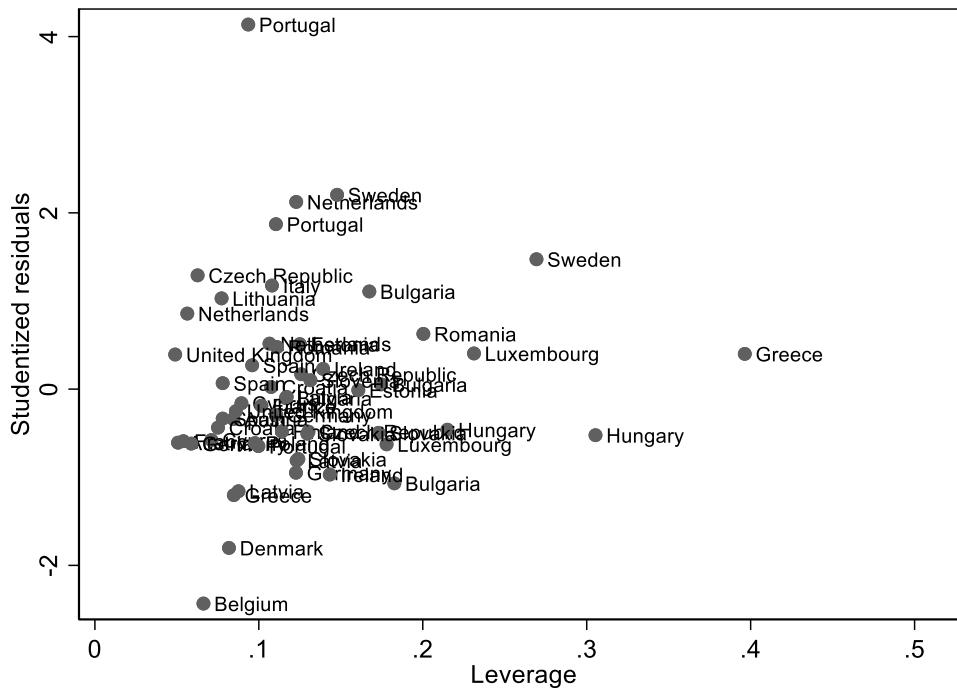
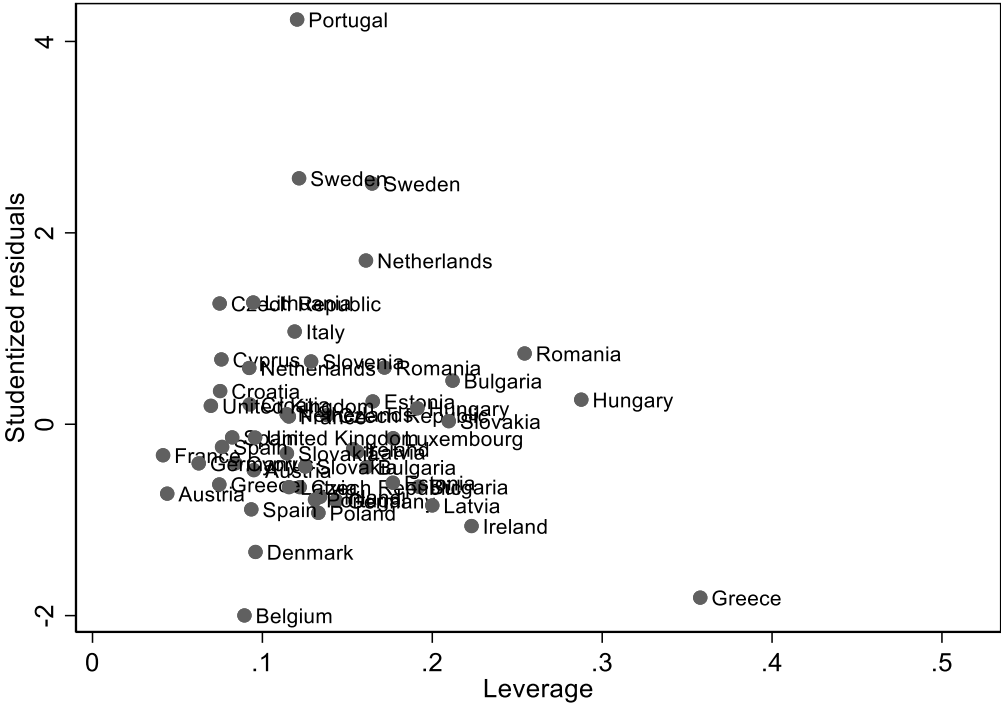**Graph 11. Deviation two-year lag model**

Table 5. Correlation matrix, one-year lagged models

	Prevalence of environmental protection, 1-year lag	Percentage of 'Climate change is a serious problem', 1-year lag	Political corruption index, 1-year lag	Public political engagement, year lag	Real GDP/capita, 1-(2008-2016), year lag	Economic influence over media content (2008-2016), 1-year lag	Level of democracy, 1- Year, 1-year lag
Prevalence of environmental protection, 1-year lag	1						
Percentage of 'Climate change is a serious problem', 1-year lag	-0.122	1					
Political corruption index, 1-year lag	-0.9922	0.1654	1				
Public political engagement, 1-year lag	0.9682	0.0838	-0.9685	1			
Real GDP/capita, 1-year lag	0.6558	0.5636	-0.6668	0.8231	1		
Economic influence over media content (2008-2016), 1-year lag	-0.7722	0.4792	0.8421	-0.742	-0.4495	1	
Level of democracy, 1-year lag	0.853	0.0936	-0.7813	0.7962	0.502	-0.3387	1
Year, 1-year lag	-0.1159	0.9764	0.1332	0.1164	0.6361	0.3569	-0.0101

Table 6. Correlation matrix, two-year lagged models

	Prevalence of environmental protection, 2-year lag	Percentage of 'Climate change is a serious problem', 2-year lag	Political corruption index, 2-year lag	Public political engagement, 2-year lag	Real GDP/capita, (2008-2016), 2-year lag	Economic influence over media content (2008-2016), 2-year lag	Level of democracy, 2-year lag	Year, 2-year lag
Prevalence of environmental protection, 2-year lag	1							
Percentage of 'Climate change is a serious problem', 2-year lag	0.7694	1						
Political corruption index, 2-year lag	-0.5634	-0.2585	1					
Public political engagement, 2-year lag	0.8163	0.7807	-0.8043	1				
Real GDP/capita, 2-year lag	0.9717	0.8612	-0.62	0.9175	1			
Economic influence over media content (2008-2016), 2-year lag	-0.9116	-0.4419	0.5752	-0.6136	-0.8036	1		
Level of democracy, 2-year lag	-0.1623	-0.7509	-0.0878	-0.4268	-0.3498	-0.2574	1	
Year, 2-year lag	-0.1218	0.3442	-0.303	0.4418	0.1153	0.4352	-0.7343	1