

Climate Change Negotiations, National Interests, and the Political Economy of Bargaining Positions

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I investigate the interaction between regimes and lobbies in order to explain the causal relation between domestic interests and the positions countries take at the international climate change negotiations. My theory synthesizes the literature that observes a “democracy–civil society” complex (Bernauer, Böhmelt and Koubi, 2013) as well as a distinction between “domestically benefitting versus internationally benefitting” lobbies (Chaudoin and Urpelainen, 2014). I draw simple utility equilibria that integrate the impact of different types of lobbies and institutions on climate change positions. Accordingly, democratic governments facing domestically concerned lobbies are “trapped” between the effort to reconcile with the interest groups and the foreign pressure to cooperate. Hence, they face higher costs of action than non–democracies. By contrast, democratic countries with internationally concerned lobbies are more cooperative than non–democracies, because together government and lobbies cut the national political costs of climate action. The elicited expectations are tested on an unprecedented dataset of national positions at the United Nations Framework Convention for Climate Change (UNFCCC) with the use of a difference–in–difference research design. The results show that the democracy–interest group link drives climate change bargaining positions along the dimension of domestically versus internationally benefitting lobbies.

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1 Introduction

A few months before the infamous Copenhagen meeting of the United Nations Framework Convention for Climate Change (UNFCCC), the Confederation of Danish Industries approached the government of Lars Rasmussen to propose a public–private partnership in light of the “needed focal point for all business-related activities leading up to the [2009] Climate Change Conference of the Parties (COP)”.¹ The Danish government had little to lose and all to gain from supporting the industries that pioneered wind farming and export more than 90% of the national electricity output.² President Rasmussen then sponsored the creation of Climate Consortium Denmark, an industrial organization promoting Danish clean–technology products in name of climate change responsibility.

Due to the convergence of public and private interests in the climate regime, Denmark is today among the most engaged national actors in international environmental agreements. It is placed at the very top of the Climate Change Performance Index ranking.³ Not for nothing it has facilitated several passages at the negotiation stage of climate policy–making. For example, in Cancun (COP16) and Durban (COP17) it promised resources to allow partner countries to pursue and substantiate the Climate Pledges that were establish in Copenhagen in 2009.⁴

The Danish case is one of a growing body of evidence that shows that business groups in democratic settings are drivers of cooperative bargaining behaviour (Bernhagen, 2008; Newell and Paterson, 1998; Rowlands, 2000; Vormedal, 2008). However, with rare exceptions that I discuss below, the literature that speaks to this point is rather limited and case–specific. This is because we still struggle to understand why some special groups like the Climate Consortium Denmark enhance pro–cooperation, while similar groups that are either operating in other institutional regimes or target other specific audiences may tramp cooperation. Take for example the case of the Honduras Renewable Energy Association.⁵ While the Honduran electric sector developed towards technical distribution and starts competing in global renewable energy markets, the association is still lobbying against further international climate regulations. Similarly, agricultural industry and technology–based farming in mature

¹<http://www.danfoss.com/NR/rdonlyres/C6609688-3612-4EC9-84E0-AB8D82059C1F/0/ClimatConsortium.pdf>

²<http://docs.wind-watch.org/dk-analysis-wind.pdf>

³<http://germanwatch.org/en/download/8599.pdf>

⁴<http://www.smh.com.au/business/carbon-economy/danish-pension-funds-back-developing-nations-climate-efforts-20140114-30rdt.html>

⁵<http://www.powerengineeringint.com/articles/2013/03/central-american-electricity-trading-to-start-next-month.html>

democracies do not seem to work in the same way as industrial lobbies are. [Jamison \(2004\)](#) studies the subtle Danish anti-environmentalist movement and concludes that this is linked to farmers' unwillingness to become "environmental managers" and their "angst for domestic redistributions". While the agricultural lobby is very small in Denmark, it is growing in other countries like Canada, a country that has recently decided to back off from coordinated climate efforts ([Bayer, 2013](#)). What does this make of the relationship between democratic institutions and lobbying groups in the context of climate cooperation? Unfortunately we are a long way to predict which lobbies sponsor which levels of cooperation, which countries take which policy positions, and how democracy intervenes to mitigate or aggravate these positions.⁶

More clear is that the classical industry versus environmental lobbies classification that we use to study the impact of groups on national preferences is fragile and does not fully explain variation in climate cooperation preferences. Bernauer, Böhmelt and Koubi show that below a certain threshold of democracy environmental groups (ENGOS) can press democratic governments to pursue more stringent environmental policies, but that high democracies may not respond to strong environmental groups ([Bernauer et al., 2013](#)). On the business side, Böhmelt (2014) shows that firms' lobbies (BINGOs) predict more cooperation than environmentalist groups, but these lobbies are usually only studied in democracies and not in autocracies ([Böhmelt et al., Forthcoming](#)).

The "noise" in the ENGOS vs BINGOs categories is also discussed in [Böhmelt \(2013a\)](#), who finds that the UNFCCC participation of civil society divided as such is hardly explained by strategic nor structural indicators. The author suggests that "it seems unlikely that business groups are characterized by the same coherence in their activities as environmental groups, and their preferences could well have changed significantly in the recent past" (p. 14) In this paper I take advantage of this puzzle and evaluate alternative ways in which lobbying groups may differently affect climate change cooperation. I then propose a new dimension of lobbying interests that follows the classification in [Chaudoin and Urpelainen \(2014\)](#). I then extend it to argue that domestically and international "benefitting" interests vary national preferences on positions conditional on the regime in place.

⁶I will use the terms 'non-governmental actors', 'special interest organizations', 'lobbying groups', 'non-state actors', and 'special groups' interchangeably. While the paper is rooted in the political economy literature that pays more attention to business groups rather than civil advocacy groups, the argument is meant to speak to all interest groups that have a stake (and a weight) in countries' national position on climate change policy.

The contribution of the paper is three-fold. First, I provide a synthesis between theories on environmental cooperation and strategic interaction by combining both structural and strategic aspects of domestic interests and explain international climate positions. My theoretical framework speaks to the mature literature on democratic interactions but also to the growing scholarship on autocratic regimes in cooperative settings (Mattes and Rodriguez, 2014). Second, I push the literature to focus more systematically on the bargaining stage of climate cooperation, which is the aspect of international interactions that is usually more understudied compared to ratification behaviour and implementation. I take advantage of a new unprecedented dataset of bargaining interests that I generated by performing a careful content analysis of National Communication documents that countries submitted to the UNFCCC before and after the implementation of the Kyoto Protocol. This rich data carries information that well-performs reliability tests and consistency checks and that I index in two general measures of climate cooperation (Genovese, 2014). Third, by using a research design that treats countries on the premise of the institution–lobby interactions, I facilitate the causal interpretation of what drives cooperative national positions. I then draw inferences on bargaining negotiations and national positions that go beyond simple correlations (Imai et al., 2011).

I proceed as follows. In the second section I provide an overview of the arguments proposed with respect to international cooperation lobbies and special interests in climate cooperation. In the third section I present utility descriptions that elucidate the allocation of resources across lobbying groups in democratic and non–democratic countries and discuss how these affect national climate positions. The fourth section presents the data and the statistical tests. The fifth section concludes.

2 The political economy of bargaining positions

A large body of literature emphasizes the presence and strength of lobbies as an explanation for several international phenomena such as climate change negotiations. While some anti–lobbying groups exist in the climate policy context, most scholars expect climate change to create opportunities for resource reallocation across interest groups either at home or internationally (Michaelowa, 1998; Vormedal, 2008). Hence, researchers agree that lobbies represent the possible winners and losers of the policies that countries settle in the name of international cooperation. However, in light of the increasingly active role of corporations at international climate negotiations and the emergence of new business organizations across

the world, there is not yet a consensus on what identifies winning and losing interest groups nor how they produce the climate cooperation “champions” and “foes”.

To respond to this new need of interest group classification and clarification, [Chaudoin and Urpelainen \(2014\)](#) propose a theory of “domestically” versus “internationally” benefitting lobbies, which they set up for strict pro-cooperation lobbies but that de facto applies to all types of lobbies.⁷ If the lobbies are “domestically benefitting” (DBL), they are primarily interested in their own governments’ cooperation and they will impede international efforts when their cooperation preferences are stronger than the preferences of groups in other countries. By contrast, if the lobbies are “internationally benefitting” (IBL), they are mainly interested in ensuring that the foreign government cooperates, thus they will unambiguously improve cooperation. In short, according to Chaudoin and Urpelainen a lobby’s preference is determined by the intrinsic effects that international climate change regulations have on a lobby’s welfare. This may be affected by domestic or foreign policy decisions, based on a lobby’s comparative advantage and ancillary resources.

Chaudoin and Urpelainen qualify their theory with examples that illustrate the strategic choices in a context in which interest groups compete for scarce resources. For instance, in the framework of the Kyoto Protocol they refer to solar technology firms that support emission reduction efforts because subsidies for renewable energy technology often are interlinked with the mitigation targets discussed during the climate negotiations. Evidently, their framework offers an alternative dimension to the distinction of lobbies and interest groups involved in international cooperation efforts. Upon this dimension one can identify two “types” of lobbies opposite each other, i.e. the DBLs and the IBLs.⁸

However, this leads to the discussion on the type of “resource scarcity” and public good provision where DBLs and IBLs may operate. Chaudoin and Urpelainen disregard the implications of their theory in a context in which institutional setups are not homogenous. And yet, the environmental literature has long discussed the effects of institutions and democracy indicators on climate bargaining performance ([Bernauer and Koubi, 2009](#); [Bättig and](#)

⁷Chaudoin and Urpelainen claim that their theory speaks to pro-cooperation lobbies as they are the ones that “prefer mutual policy adjustments to the status quo of discord”. However, I assume that all lobbies that express their climate policy preferences are groups that benefit either commercially or monetarily from climate policies ([Svendsen, 2011](#)). Along similar lines, Vormedal indicates that “fray and reactionary BINGOs have departed from the scene” (2008, p. 40).

⁸Chaudoin and Urpelainen do argue that some lobbies care about what their government does *and* what foreign governments do, so “the domestic-international difference is not black and white”. However, for practical reasons and in view of the empirical tests below I restrict my scope to a dichotomous distinction between DBL and IBL.

Bernauer, 2009). Some scholars agree that liberal political systems encourage the attention on high-quality, rigorous public policy (Congleton, 1992; Bueno de Mesquita et al., 2001; Andonova et al., 2007). Still, the causal link between democracy and environmental standards is relatively blurry (Scruggs, 1999). Fredriksson et al. (2007), for example, argue that higher corruption facilitates the influence of lobbies, because this allows them to convince their governments to ratify international environmental agreements more quickly. Similarly, Keohane and Milner (1996) claims that a government's ability to negotiate international treaties is constrained by the domestic constellation of interests. So, democratic systems with more complex institutional frameworks that are linked to interest group representation should constitute an obstacle to proactive cooperative positions.

One of few broad studies that systematically investigates the democracy–civil society “tension” in the literature is the aforementioned Bernauer, Böhmelt and Koubi (2013). The authors propose an argument according to which we should observe a negative relationship when interacting indicators of democracy and level of activity of civil groups (ENGOS) vis-à-vis international environmental agreements ratification. One main theoretical line raised in Bernauer, Böhmelt and Koubi (2013) fits the discussion raised in Chaudoin and Urpelainen. Namely, Bernauer et al (2013) note that, compared to non-democracies, democratic governments have incentives to provide more public goods *regardless* of having strong or weak ENGOS. As Bueno De Mesquita et al. (2003) posit, democratic political leaders are responsive to a larger winning coalition than non-democracies, but do not reward their comparatively large group of supporters with private goods. Rather, they resort to the provision of public goods (e.g. environmental regulations) to ensure their political support.

In the investigation below I use the conjecture that democratic policy-makers are more committed to climate policy making than non-democratic governors. However, I extend this to scenarios in which lobbies vary across types, in order to describe the interaction between institutions and lobbies across the DBL–IBL dimension. This way I leverage on a more refined and strategic distinction of lobbying groups and propose explanations of national cooperation sentiments beyond purely structural determinants Böhmelt et al. (2013). The expectations that I derive in what follows ultimately align with the Bernauer, Böhmelt and Koubi (2013) prediction, but also model the varying threshold at which interest groups in different types of regime make the difference for international climate change bargaining.⁹

⁹While it appears reasonable that democracies may be more likely to encourage non-governmental representation and therefore predetermine the role of interest group on their own national positions, Chaudoin and Urpelainen remind us that the dimension that underline lobbying groups activities may be determined

3 Actors, Structures and Utilities for Climate Cooperation

The theoretical utilities that I sketch in this section show how distributional conflicts and political tensions arise as a country engages in international climate change negotiations. Consecutively, they show how governments and lobbies settle the allocation of their national bargaining position.

All governmental and non-governmental actors within a country are rational actors who aim at maximizing their aggregated welfare. Thus, they always choose a bargaining position guaranteeing their survival and power. In their decision-making, actors discount the future, which means that they prefer decisions today instead of in the future. On these preconditions, they negotiate the conditions under which they support more or less cooperative positions of their national delegations at the climate change negotiations.¹⁰

Expected Utilities

The net national utility, u_i , that a country receives from climate cooperation is determined by the following terms. A basic benefit term, b_i , is positively increasing in the size of interest groups that lobby over climate politics, L . I assume interest groups to be all engaged in the climate change debate, and that this per se increases a country's benefit from showing responsibility with respect to the climate.¹¹ The utility is also determined by the international economic costs from arranging for cooperation and harmonizing common climate policies, R . Since climate change is a fragmented topic that covers issues from adaptation funds to carbon credits to reforestation eligibility, I assume that different policy positions differ in respect to the cross-country rivalry on that issue, λ_i . This international rivalry parameter declines in the number of more beneficiaries to that policy, $0 < \lambda_i < 1$. Hence, the larger the membership of the UNFCCC, the less the number of countries that will attempt climate cooperation.

The two parameters of interest here are x_i and L_i . The term $x_i \geq 0$ reflects the politi-

by microeconomic factors that are sector-specific rather than country-specific. Similarly, [Gullberg \(2008\)](#) shows that interest groups direct their general lobbying efforts towards all types of countries, independent of their emission track record or institutional flexibility.

¹⁰Note that these positions are minimally salient because after expressing them countries have to vote and approve international climate policies unanimously. Losing the vote may imply relative losses.

¹¹Evidently some lobbies can also be anti-cooperation, technically turning this benefit term into a negative gain. However, lobbies' presence at international negotiations is usually thought to signal an interest in some aspect of the negotiations. So, while some lobbies may antagonize their government's position on a specific issue, generally their participation has been measured as a type of salience in climate change policy-making ([Betzold et al., 2012](#), e.g.).

cal costs that institutional actors have to pay to adopt a more cooperative climate position. These costs emanate from the loss that institutional leaders bear for giving up independent policy making and state sovereignty. Generally speaking, higher political costs are correlated with less preference for international cooperation (Alesina et al., 2001). In the context of climate change, this corresponds to the understanding that democracies have a lower threshold for international binding than non-democracies.

Recent real-world episodes confirm this democracy-autocracy conjecture. For example, the FEMA climate change operation and the redistributive effort to New Jersey companies during the Hurricane Sandy boosted the issue of climate change in the Barack Obama campaign in 2012.¹² However, Typhoon Haiyan has left unchanged the support rates of the Philippines' government, despite questions that have been raised on the management of the 2013 natural disaster.¹³ The cost term x_i should then be lower for democracies compared to autocracies, since democracies have a higher political revenue from engaging in climate change (rhetorically but also practically).¹⁴

$$u_i = b_i L + L_i^{-\lambda} - RL^{-1} + L^{x_i} \quad (1)$$

$L_i \geq 0$ instead represents the power in terms of the type of lobbying actors within a country. Following Chaudoin and Urpelainen (2014), these can either be domestically concerned (DBL) or internationally concerned (IBL). Each group of lobbies is affected by climate change according to how their activity and general audiences are affected by it. For example, mid-chain manufacturers are generally more concerned with their domestic capability to produce while end-product deliveries are concerned with the international consumers' capacity to buy. Similarly, aboriginal group representatives are more concerned with their domestic resilience to climate change, while representatives of transnational climate networks with quota-based memberships are more interested in the international audiences that donate funds based on their emotional attachment to climate change.

The reason why lobbies want to decrease or increase policy engagement in climate

¹²<http://nymag.com/daily/intelligencer/2012/10/hurricane-sandy-playing-right-into-obamas-hands.html>

¹³<http://www.bbc.co.uk/news/world-asia-24928138>

¹⁴If democracies and non-democracies may be differently affected by climate change, vulnerability may bias the political costs as defined here. However, I assume that vulnerability does not prevent nor confound the strategic interactions occurring on the democracy-non-democracy dimension at the climate negotiations. Non-vulnerable countries may in fact want to maintain status quo efforts for climate action but non-vulnerable democracies may still want to protect the environment for moral and post-materialist reasons. Moreover, vulnerability is inherently integrated in the claims of interest groups, and not in the institutional infrastructure per se.

change is here exogenous to the utility definition. In other words, lobbies' preferences are thought to depend on the globalization forces linked to trading preference and historical ties that are not investigated in this paper. Rather, I am interested in the concern that arises in special interest groups depending on the "type" of group they represent (Bechtel and Tosun, 2009; Bechtel and Urpelainen, 2013). I then expect lobbies to respond to the phenomenon of climate change by raising economic concerns or showing political involvement according to their exogenous internal preferences.

According to Chaudoin and Urpelainen (2014), domestically benefitting lobbies will have a higher likelihood to create obstacles to cooperation than internationally benefitting lobbies. This is because internationally benefitting lobbies open up the international bargaining space to an extent that even countries without lobbies can afford. Along the same lines, domestically benefitting lobbies do not worry about foreign retaliation and cooperation for the sake of reciprocity. Hence, they will immobilize and possibly even cut down a national delegation's willingness to cooperate.

Chaudoin and Urpelainen (2014) also stress that DBLs will punish their government more forcefully than IBLs if their interest is not addressed in the government's bargaining position. Against this, it is not surprising that Suncor/Petro Canada has recently become an important player once it threatened to increase sales to the US if Ottawa was not willing to concede some cuts on energy efficiency requirements (Bayer, 2013). This lobby in fact pulled the Harper administration out of the Kyoto Protocol with the argument that "we are investing in projects in wind power and ethanol, as we speak. We're focussed on what we can do as a company about the problem".¹⁵

Figure 1 illustrates the independent effects of these two parameters on a country's utility, which is concave to represent the diminishing marginal returns from the interest groups that lead to national positions. Varying political costs (d_i), which are an exponential term that grows with growing interest groups, change the slope of the utility function. By contrast, the share of interest groups (L_i) change the intercept of the utility function. Subfigure (a) shows the simulative functions when the hypothetical index of democracy (d_i) is decreased by a marginal (.02) factor. Differently, Subfigure (b) shows the impact that a change in size of special domestic interest, L_i .

Figure 1

¹⁵<http://www.canada.com/topics/news/story.html?id=46c73428-7085-4e1e-a8ec-3293d071340d>

But how does the democracy vs autocracy background interact with special interest groups in affecting this national utility? In what follows I argue that democracies seek more international cooperation than autocracies when both their internal players are open to international cooperation. By contrast, I expect democracies to have even less cooperative positions than autocratic regimes if they are both subject to domestically concerned special groups.

On the one hand, democracies are assumed to have a more “vocal” demand side to environmental representation. Hence, following the logic of two-level games (Mo, 1995; Putnam, 1988) DBLs should raise the costs on democratic governments rather than in non-democracies. This is because when internal negotiations begin democratic governments are distracted from the original purpose of unconditional climate change cooperation. It is a well-established expectation in the literature, shown for example in the climate change ratification stage (Bernauer et al., 2013). On the other hand, democracy-based IBLs will prefer giving up the right to “voice” concerns because together with the governments they will share the same goals and audience. IBLs after all are the interest groups that push their government to further a common cause and to exert positive pressure (Gullberg, 2008). Hence, IBLs in democracies will rather stand “loyal” to the cooperation coalition to which their government already belongs, and will not threaten a non-credible exit (Hirschman, 1970).

For consistency, the opposite dynamics should hold true for non-democracies. From the literature we know have ancillary preferences for environmental public good provision that are lower in autocracies (Bueno De Mesquita et al., 2003). There where electorates are less demanding one may expect institutions to be better off even if many DBLs are in place. DBLs may be concerned about their own domestic audience, but will not have enough impact to change non-democratic leaders’ inherent preference. This argument is in line with the claim that autocratic political systems will not be better than democracies at climate action, but they could give the impression that they are – for example because some might have the capacity to quickly build energy infrastructures without being slowed down by democratic due process (Ward et al., 2014). Hence, DBLs will not easily face nor refrain the leading position of governments in China or Saudi Arabia (Yu, 2008; Depledge, 2008).

By contrast, IBLs increase the accountability costs that non-democracies systematically try to avoid. They increase the efforts that autocratic leaders have to take to be credible at the international negotiations. IBLs will then be able to count on their audience in demo-

cratic countries to lobby more effectively in the home autocratic country. This will cost the autocratic government more resources than the one already needed to pursue climate change policy-making in the first place.¹⁶ In sum, I expect that the ability of non-governmental groups to influence policy makers depends on “the degree of access they have to policy makers and relevant documentation” (Yamin, 2001, p. 157). I formally prove this argument in the section below.

Utility Equilibrium Conditions

In this section I draw the conditions under which we should observe certain countries taking more or less cooperative positions on climate change. I define two individual net utilities for two countries, focusing on their regime characteristics and their different lobbies’ profile. I then find the minimum conditions where each country support cooperations on climate change.

Owing to the heterogeneity of preferences towards climate change policy, I assume an ideal case scenario where two countries choose their bargaining positions before bargaining at the UNFCCC. Since the negotiations are public dominion and open to media coverage, I assume countries’ utility will reflect what each country knows about the other in terms of their special interests. Suppose, for example, that the two countries have the same type of interest groups, e.g. an interest group universe mainly populated by DBL. However, they have different institutional set ups, so that country 1 is a democracy (x) while country 2 in an autocracy ($x - 1$ or, if the democratic measure is a binary variable, $\neg x$). In this international scenario L now constitutes the general international group of lobbies across the two countries, while L_i constitute the amount of DBLs that each country has. The net utilities based on the lobby type in each country are the following:

$$u_1 = (b_i L + L_{1_i}^{-\lambda_1} + L_{2_i}^{-\lambda_2} i) - (RL^{-1} - L^{x_i} - L_{2_i}^{-\lambda_2} i) \quad (2a)$$

$$u_2 = (b_i L + L_{2_i}^{-\lambda_2} + L_{1_i}^{-\lambda_1} i) - (RL^{-1} - L^{-x_i} - L_{1_i}^{-\lambda_1} i) \quad (2b)$$

Following the discussion until now, the country with a more dense institutional infras-

¹⁶Ballard-Rosa (2013) draws a similar theory with respect to sovereign debt and food policies in democratic and non-democratic institutional contexts. He finds that, at the same level of risk of economic default, democracies with certain demands for agricultural protection adjust food prices more conservatively than autocracies.

structure is supposed to pay less costs from cooperation, but it will fare worse at dealing with DBLs by bearing more costs for internal redistribution and recompensation. In order to understand how the utility for country 1 will differ to country 2 I take the condition at which each will support cooperation based on the other country's special interests. I then find its minimum, to understand at which level countries do not pursue cooperative positions due to a loss in utility.

The calculations for the one country (in this case, country 1) are reported in the Appendix. These are formally the same if one focuses on country 2 or, alternatively, if one takes into account countries that have a concentration of IBLs. To show how the results translate empirically, I simulate and report the minimum functions in Figure 2.

Subfigure (a) illustrates the different utility losses if we distinguish democracies and autocracies with domestically concerned groups. Subfigure (b) shows the same in the instance of internationally concerned groups. In both figures the point at which the curves cross the reference line ($= 0$) represents the threshold of lobbies' size from which one country would reject cooperation. Put differently, this is the point where they start taking a non-cooperative position. In the first graph one sees that comparing countries with DBLs one sees that a growing number of DBLs will let democracies reach the point of non-cooperation before non-democracies. By contrast, at a higher level of democracy a growing population of internationally benefitting lobbies will not only have much lower minimum than for autocracies, but will also reach the point of non-cooperation only after 20 or more groups. The numerical exercise also illustrates the case in which institutions and the type of lobby will interact when countries choose international positions on cooperation. I therefore expect these conditionality to hold against the real-world data that I present in the next section.¹⁷

Figure 2

¹⁷Evidently one particular country may have a large number of DBL as well as a large number of IBL. This would then lead to as ambiguous predictions as the ones described in the "mixed lobby scenario" as in Chaudoin and Urpelainen (2014). However, the argument developed here is not to predict the position of specific countries but to get a sense of what would determine positions in light of significantly strong players. Moreover, in a world where countries increasingly group in political and economic niches, it is not necessarily flawed to expect countries to have mainly one type of internal lobby.

4 Data and Research Design

New measures of bargaining positions

The data that I use to capture the bargaining positions of countries at the climate negotiations is an original data frame called the UNFCCC Negotiation Dataset. This information is particularly insightful as no other systematic database reports what countries want on the issues of climate cooperation. Hence, this is the first type of large-N data that can be used to study bargaining at the climate negotiations directly.

I collected the data from the so-called National Communications (NCs) that countries submit to the Executive Secretary of the UNFCCC. The data gathering was modelled on large efforts of position measurement such as the Comparative Manifesto Project and the Decision-making in the European Union database. I constructed the data points on several “issues” (topics) discussed at two moments at the climate change negotiations: the meetings before the Kyoto Protocol enforcement (2001-2004) and the post-Kyoto Protocol negotiations (2008-2011). The data was then collected via manual coding as well as quantitative text analysis, and the cross-validation of both methods confirms its external reliability (more on the data in [Genovese, 2014](#)).¹⁸

In this paper I make use of two aggregated products of this rich data collection. The first measure of climate bargaining positions is a score that I generate from a factor analysis of the issue-specific positions that were manually coded (a full list of all the issues is the Appendix A at the end of this paper). I accommodate ordinal and continuous variables in the issue-specific data with [Quinn \(2004\)](#) Bayesian mixed factor analysis estimator. This model is also beneficial because it generates estimates of the latent scores of the factors used to analyze the latent dimensions of the data. In Figure 3 I then plot country estimates of the latent scores of Factor 1 – or what I call the “Main Factor scores” ([Quinn, 2004](#)).

The graph shows that for both periods most developed countries (e.g. Germany and Japan) cluster on the very upper end of the scale. By contrast, the least developed countries (e.g. Madagascar and Nigeria) are located at the low end of the plots. Moreover, the country

¹⁸The dataset focuses on two periods for practical reasons, namely that most National Communications were presented around those two times of the negotiations. However, the theoretical reasoning for why these periods are separate “eras” at the UNFCCC negotiations is discussed in [Gupta \(2010\)](#). For the country-level positions, I collect NCs that were issued by both developed (Annex I) and developing countries (Non Annex I). These are the NC3 and NC5 for the Annex I countries, and NC1 and NC2 for the Non-Annex I countries. For the decision texts I analyzed the Conference of the Parties agreements. The criteria used to identify and scale the issue spaces were generally inspired by the Comparative Manifesto Project. The detailed coding procedure is described in ?.

estimations with little association to either sides of the dimension (close to zero) are nations like Brazil, China and India. Evidently, emerging powers have moderate (or almost neutral) preferences over the climate change issues that I code in the dataset. This supports the qualitative observation that BASIC countries play the role of ‘dynamic brokers’ rather than ‘nay sayers’ at the climate change negotiations ([Michaelowa and Michaelowa, 2012](#)).

The second measure of climate bargaining positions that I use as a dependent variable in this paper is a unidimensional preference scale that I derived with quantitative text analysis. This approach allows me to move away from the inductive measurement of positions and to generate estimates that rely on minimal assumptions about the bargaining space. The technique that I use for the quantitative analysis of the NCs is the automated scaling program called Wordfish. This algorithm generates estimates of policy positions comparing the body of different documents under the assumption that words’ frequencies provide information about the position of each document with respect to others ([Slapin and Proksch, 2008](#)). Ultimately, the goal is to scale texts on a common (and singular) latent dimension, which should reflect the main factor observed in the qualitative data.

The Wordfish estimates capture similar information to the prominent dimension of the Factor scores. In fact the two measures have several similar properties, but also some important differences. They both range between a short, continuous interval $[-2, 2]$. Also, they both identify a strong latent dimension that runs from more developed to less developed countries. Dot plots in the Appendix show that the two sets of variables are strongly correlated at a Pearson r coefficient of 0.7. However, note that the two data generation processes are not equivalent. While the Factor scores aggregate information chosen by human coders, Wordfish captures association of words. Moreover, Wordfish relies on a corpus of NCs written in the English language, while the hand-coding was performed on texts in French and Spanish as well. While this does not necessarily bias the samples, it constraints the latitude of the Wordfish variable. Overall the Factor Score samples for Period 1 and Period 2 count 89 and 84 countries respectively. By contrast, the Wordfish samples for Period 1 and Period 2 count 65 and 63 countries respectively. Finally, some countries submitted their NC for only one period. This makes a total of 60 countries being observed over time ($t=2$) with the Factor score, and 49 for the Wordfish score.¹⁹

Figure 3–4

¹⁹See the list of countries by year of NC submission in the Appendix.

Special Interests and Institutions

I now describe the data that I use to study non-governmental groups and their activities. Many different types of non-governmental groups engage in the negotiations and some have the right to submit documents and express positions in the course of the meetings.²⁰ To date no dataset exists that mirrors the refined content analysis encoded in the UNFCCC Negotiations Dataset. However, there are a few useful databases that track structural information on environmental lobbies and civil society activities around environmental issues (see, e.g. IUCN). The most recent and comprehensive data collection attempt on this front is the data described in Böhmelt (2013a). The database records the composition of state delegations in the UNFCCC regime. It tracks the number of ENGOs and BINGOs that were allowed to join a delegation at each of the annual COPs from 1995 to 2011. More importantly, it records the names of the coded lobbies. This helps re-tracking and possibly re-arranging the lobbies according to different classification of group activity.

To test my theory, I reset the Böhmelt data and follow the definition in Chaudoin and Urpelainen (2014) in order to identify domestically benefitting versus internationally benefitting lobbies. Generally I ignore all groups that are present at the COPs for reasons rather than interest. So I exclude universities, research centres, institutes and media groups (i.e. up to 55% of observations). I identify DBLs and IBLs list wise. The goal of DBL is to serve a national market or political niche regardless of the impact on international behaviour. So they are there to lobby their own governments, as for the case of the Austrian Economic Chamber, the Electric Power Industry of Serbia and the Yokon's First Nations.

By contrast, the goal of IBL is to preserve international reciprocity and trust. Here most of the actors promote energy efficiency and renewable energy through advocacy or business; fund mitigation or adaptation, and promote market innovation. Examples are the Swiss Reinsurance Company (Switzerland) and the Forest Concession Holders (Indonesia). I report a longer list of examples and the way they are originally coded in Böhmelt (2013) in Table A.2 in the Appendix.²¹

The DBL vs IBL data is unique and clearly facilitates the tests that I propose to pursue in this paper. However, the recoding does not come without caveats. First, note that the

²⁰See the UNFCCC Admitted NGO database: <http://maindb.unfccc.int/public/ngo.pl>.

²¹Note that there is some overlap between ENGOs and IBLs in developed countries. However, while one may think that environmentalists are all internationalists and industrialists are isolationists, this is only true to some extent. Table A.2 in the Appendix for example shows that renewable producers are IBLs, while aboriginal groups and indigenous communities that rely on domestic subsidies are DBLs.

these are country–year observations while the “Main Factor” scores and the Wordfish scores are clustered on negotiation ‘periods’. As such, I aggregate the information in Böhmelt by summing up the number of DBLs vs IBLs that each country brought along in the years of each period under analysis. This is not necessarily an ideal data management strategy but incorporates the information for the four country–year observations per period. Second, Böhmelt’s data is inflated with zero, especially in the first 10 of the 16 years under analysis. This is not a problem for the regression analysis that he proposes in his article, but it flattens the observations for the first period of my two–period analysis. It is also possible that the practice to bring delegation groups to the UNFCCC picked up only in the 2000s. So, while we observe many countries with zero lobbies in their delegations up to 2005, this does not mean that DBLs and IBLs were not in place in those years. In fact, at around that time [Gulbrandsen and Andresen \(2004\)](#) write that civil society was appearing at the climate negotiations, but that this was not to say that they were not working closely and collaboratively with governments already.

In order to compensate the possible flaws in the civil society coding, I need to use a second set of data that capture the weight that DBLs and IBLs have on climate change positions. As [Michaelowa \(1998\)](#) already pointed out twenty years ago, some special actors at the UNFCCC are more visible than others because they do not only represent their firm but more generally represent their *sectoral* interest. Take the case of “industrial” unions in highly energy-intensive sectors that have represented several DBLs, from mine workers to coal sequestration companies. Evidently this is because some firms face a collective action problem that is solved by aggregating resources into a “sectoral” representative ([Snidal, 1994](#)). Put differently, sectoral representatives are the “lowest common denominator” in a context where interest groups are too many or too heterogeneous ([Bernauer et al., 2013](#)).

Sectoral productivity elucidates the power of the most significant lobbies, therefore indirectly providing information on which type of special interests operate in a certain type of country. For example, agriculture is a sector that is concerned with the sustainability of natural resources and environmental integrity. Farmers are concerned directly with the domestic action that a government takes instead of the international interactions and reciprocity of emission abatement. In the developing world, family–based agriculture is concentrated on its evolution towards more mechanized farming while adapting to climate change ([Dasgupta et al., 2002](#)). In the developed world, where mechanized farming is already in place, agricultural firms are focused on maintaining their shares of production and their subsidies

(Easterly, 2001).

Following this intuition, the agricultural sector should aggregate many types of DBLs. Based then on the interactions with institutional settings, we should expect agricultural democracies to have a less progressive position on climate cooperation than agricultural autocracies. While this claim may seem to contradict who claims that farmers are the natural “protector” of environmental integrity (Lee and Roland-Holst, 1997), it draws directly from real-world observations. Not long ago India’s farmers faced a period of bad crops that raised their costs of embracing climate policies. This mobilized Indian farming lobbies and arguably had an impact on India’s positions at the UNFCCC, which have become increasingly “hawkish” since the 2008–09 meetings.²²

Inversely, the industrial sector should aggregate a different type of lobbies. This also may appear in contrast to the literature that holds industries in the category of environmental ‘foes’. An increasing body of research proves the increasingly positive role of industrial networks as internationally concerned actors (including Böhmelt, 2013b). The secondary sector does not use primary resources nor do they rely on significant levels of subsidy as agriculture does. Since industries are more trade-prone to begin with, one should expect them to represent IBLs.

Once again, theory and qualitative observations tell us that the role of industry should go in opposite direction between democracies and autocracies. Van der Woerd et al. (2000), for instance, note that firms in non-democratic countries “exemplify an adversarial, legalistic courtroom style towards environmental regulations” (p. 7). On the other side of the spectrum, Holzinger and Sommerer (2011) show that industries in European democracies have increasingly adopted a climate change ‘etiquette’ because it is profitable in the open markets. I then expect this to hold for climate change bargaining positions as well.

For the sector indicators I use the WDI value added (net output as percentage of GDP) of three production sectors. Agriculture (International Standard Industrial Classification code: A–B) includes forestry, hunting, fishing, as well as cultivation of crops and livestock production, while industry (ISIC C–F) includes manufacturing, construction, and utilities. In substitution I operationalize the three sectors’ share of employees, but report the shares of GDP as these are more representative of their power.

Finally, I operationalize two variables for institutional settings. I rely on two main mea-

²²S. Pearlstein. 26/06/09. For the Farm Lobby, Too Much Is Never Enough. *The Washington Post*. http://articles.washingtonpost.com/2009-06-26/opinions/36771369_1_carbon-emissions-carbon-footprint-power-plants. Accessed, 22 August 2013.

surements. One is the [Bormann and Golder \(2013\)](#)’s *regime* measure. This is a categorical variable indicating a country’s regime type, where 0 stands for parliamentary democracy, 1 for semi-presidential democracy, 2 for presidential democracy, and 3 for civilian dictatorship, and so on to military dictatorships and monarchies (e.g. China and Saudi Arabia). To simplify the meaning of this variable collapse the codes to construct a binary indicator that takes the value 1 for democracy (0–2), and 0 otherwise (i.e. value above 2). My second measure of democracy is the Polity 2 score, which comes from the Polity IV project. This ranges from -10 (full autocracy) to +10 (full democracy), which I adjust to 0 and 20 to produce direct marginal effects in the analysis below.

Method

As [Imai et al. \(2011\)](#) claim, observational studies in international cooperation have just started using approaches that facilitate causal interpretation. In order to open up my data to causal analysis, I employ the following generalized difference-in-differences framework:

$$C_{it} = \alpha + \beta_1 D_{it} + \beta_2 L_{it} + \beta_3 D_{it} * L_{it} + \gamma X_{it} + \eta_i + \theta_t + \epsilon_{it} \quad (3)$$

where i indexes each country and t indexes each of the two time periods. C_{it} is the climate change positions from [Genovese \(2014\)](#) discussed beforehand; D_{it} is one of the measures of the extent of democracy described above; L_{it} is one of the two measures of special interests in the form of (1) lobbies participation at the UNFCCC meetings or (2) sectoral power; X_{it} is a vector of control variables, which include log GDP or alternatively CO2 per capita, and logged population (all WDI indicators). β_1 , β_2 , and β_3 are parameters to be estimated; η_i are country fixed effects parameters also to be estimated; θ_t are period fixed effects parameters; and ϵ_{it} is the error term.

I present the ordinary least squares (OLS) estimates of this model and report country-clustered standard errors to account for within-country correlations in the data. The primary hypothesis evaluated here is that the interaction between regime indicators and special interest indicators cause the adoption of systematically different positions on climate change than in the non-treatment scenario ($\beta_3 \neq 0$).

4.1 Test 1: Lobbies' participation

In this section I test the causal link between institutional regimes, the size of lobbies that I coded via Böhmelt and climate bargaining positions. I expect democratic countries with more DBLs to be less cooperative than autocracies with DBLs, due to the costs of recompensation and redistribution that are higher for democracies. By contrast, non-democratic countries with more IBLs should be more cooperative than autocracies with IBLs, because both IBLs and democratic governments seek cooperation after all. Finally, autocracies pay higher costs from being exposed to international accountability and responsibility through their IBLs.

Figure 5 provides a first look at the data. The histograms show that, as I expect, the positions of democracies with at least 2 or more DBLs at the UNFCCC are more skewed towards the low cooperation end (left of the graph). Contrastingly, democracies with IBL are at significantly higher positions than autocracies. While these figures are purely descriptive, they suggest the interesting 2X2 divide between the democracy vs autocracy dimension and the DBL vs IBL dimension. The Wordfish scores in particular seem to qualitatively support the theory.

I report the difference-in-difference estimators as coefficient plots in Figure 6 and Figure 7. Note that the results are inclusive of country and time fixed effects, although I do not report the country coefficients nor the time coefficients. Also, the regressions control for Co2 per capita and country population. The confidence interval, which are at the 90% level, are based on country-clustered standard errors. Further details about the regressions are reported also in the tables in Section B in the Appendix.

Figure 6 shows the results after regressing the variable for DBL activity (size), the Bormann and Golder regime dummy and their interaction on the two dependent variables. The results are relatively small but directly interpretable as marginal effects. Overall the plot shows that a growing democracy with more domestically benefitting lobbies tendentially lowers the likelihood of cooperative positions, although without much significance. This is in line with the finding in [Chaudoin and Urpelainen \(2014\)](#), even to the extent that they predict a less strong impact of DBLs than IBLs. In fact, the coefficients in Figure 7 are a little more significant than for DBL, although still effectively small at the margins.

The regression results are stable across different models specifications. Overall they offer some support to the idea that domestically concerned organizations impose much higher costs on democracies because democratic institutions work more accountably to the service of their domestic lobbies than autocracies. While IBLs have a clear role that clarifies the treatment

effect on climate positions, DBLs may not necessarily. While this may be a problem in the DBL coding, it may also be a result of the fact that most of the groups that participated at the climate negotiations up to the late 2000s were interest organizations that were brought to the UNFCCC for normative and legitimacy reasons rather than for their own lobbying purposes (Betsill and Corell, 2008). As Table B1 in the Appendix shows, the results improve when I regress only on countries with at least 1 DBL in place during the negotiations – although this drops half of the already small sample size from the analysis.

In order to better understand the regression findings, Figure 8 and Figure 9 plot the marginal effects. These more clearly provide the substantive interpretation of the results. According to Figure 8, democracies with up to 8 DBLs are significantly less progressive than non-democracies. By contrast, Figure 9 shows that up to 6 IBLs democracies are significantly more cooperative than autocratic governments. The effects hold similar if I replace the regime variable with the Polity 2 score.

However, as discussed in the above section, the data for DBLs and IBLs may not be an ideal reflection of domestic lobbies' activities across time. To further explore the mechanism investigated in this paper, I now rely on more aggregate yet more substantive structural indicators that reflect the major influence of agricultural and industrial interests.

Figure 5–9

4.2 Test 2: Sectoral power

The second round of analyses that I perform on the climate change bargaining positions is based on the continuous shares of GDP (%) that agriculture and industry have across countries and time. Evidently the sectoral shares of national income are only indirectly related to lobbies. And yet they should still provide a portrayal of which competitive advantages countries may have and therefore which interests they may safeguard when interacting with each other on international policies. Moreover, from a practical standpoint, sectoral shares of GDP are more practical and reliable data to handle compared to the simple counts of lobbies active at the UNFCCC.

The histograms in Figure 10 show again an interesting clustering of countries positions at certain threshold of sectoral shares of income. At agricultural activity covering 20% or more of GDP (e.g. Nigeria, Brazil), the cooperative democracies will be fewer than the cooperative autocracies. By contrast, at 40% or higher levels of industrial shares of GDP (e.g. Japan, UK), manufacturing democracies are generally more progressive than autocracies.

This seems to hold for both scales of preference estimators used in this study.

Moving to the statistical tests, Figure 11 and Figure 12 provide the same type of estimates as the previous sets of regressions for DBLs and IBLs. The results with the agriculture share of GDP show a very significant interaction when this is interacted with democracy levels. More specifically, an increase in agriculture by 5% increases the likelihood of a less progressive position of almost 5 points. The mirror image of this regression line is found when investigating the interaction between industrialization and levels of democracy: Figure 12 shows that more industrialized democracies tend to have a significantly more cooperative position on climate change than non-democracies. These results provide a sound confirmation to the theories that democracy pays more from domestically concerned sectors that represent domestically benefitting lobbies (Buena De Mesquita et al., 2003; Bayer and Urpelainen, 2013). By contrast, they earn more from the converging interests with the more globalized sectors, which representing internationally benefitting lobbies in favour of unconditional climate cooperation.

Once again, marginal plots (Figures 13–15) facilitate the substantive understanding of these results. According to these predictions, a democracy whose agricultural sector increases over 7% will move from a pro-cooperation to a non-cooperation position. By contrast, industrialized democracies will virtually be constantly more progressive than industrialized autocracies. This makes sense if one thinks that countries such as Germany and Japan (GDP from agriculture: <2%, GDP from industry: >30%) are more progressive on average than other Annex I countries like Estonia or Turkey (GDP from agriculture: >5%, GDP from industry: <20%).

It is evident that these results become more blurry when countries have similar levels of agricultural and industrial productivity. While the scope of this paper is to provide the first test to a theory of special interest groups and democratic leadership, it has not provided all the equilibria in which, for example, democracies with mixed DBLs and IBLs will strategize their position. However, the intuitive results seem to corroborate a logical yet rarely tested conjecture according to which countries whose institutions engage with lobbying efforts may significantly shift the bargaining that affects international climate cooperation. More work on the complex mixes of domestic and international preferences and how they play out in cooperation bargaining may well take off from the findings and the data in this paper.

Figure 10–15

5 Conclusion

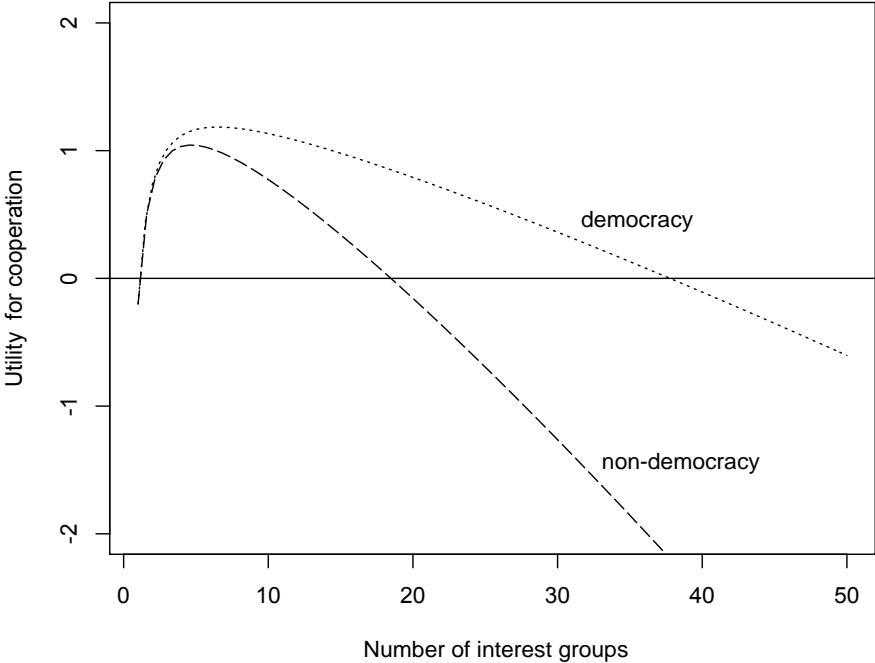
IR scholars have long debated the mechanisms through which democratic institutions affect international cooperation. In parallel, political economy research tells us that lobbies have a significant impact on international policy making. However, little has been said about how the strategic interaction between regimes and sectoral lobbying affects environmental cooperation preferences, in particular at the increasingly salient international climate change negotiations.

In this paper I show that this interaction is an important predictor of climate change bargaining positions. Democracies are more accountable for environmental regulations than non-democracies, but they are bound to face lobbies in a more long-sighted and responsible way than autocracies. Sectoral lobbies are then generally more empowered in democracies. However, lobbies across all regimes can be either winners or losers of international climate policy interactions, based on whether they represent internationally-benefiting or domestically-benefiting sectors (Chaudoin and Urpelainen 2014). Against this landscape, institutions determine climate policy positions by magnifying the preference of the main national lobby. More specifically, I expect democracies to retain non-cooperative positions when they are "trapped" in the politics of domestically-benefiting lobbies, such as coal production organizations in India and subsidy-based farmers in Canada. By contrast, democracies featuring internationally-benefiting sectors, such as technology providers in East Asia and green industry exporters in Northern Europe, enjoy the unrestricted power to act and show more support for climate change cooperation.

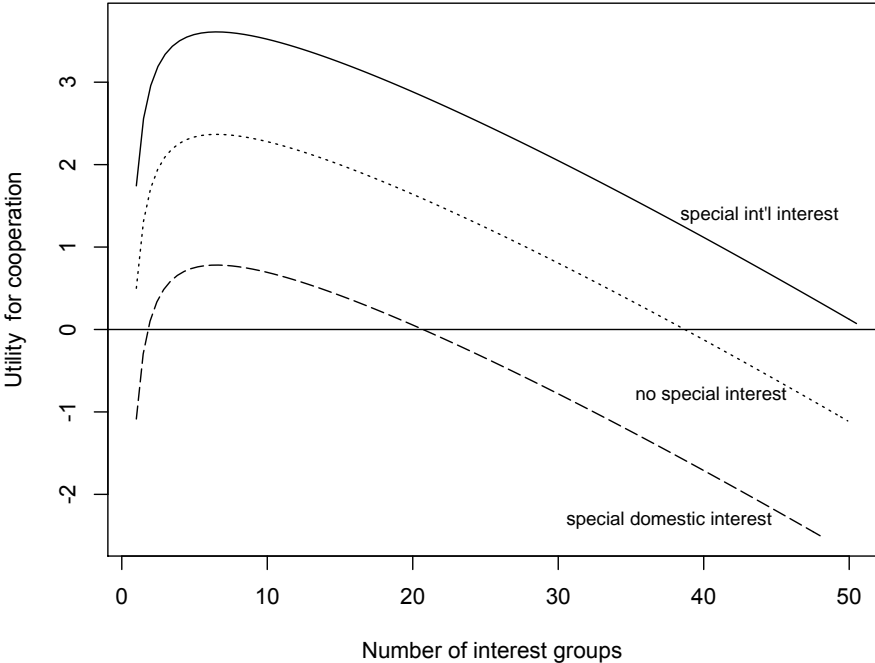
I test these expectations on a new original dataset on national positions at the United Nations Framework Convention on Climate Change (UNFCCC) that I collected with a content analysis of bargaining documents. The results, which hold robust to the quasi-experimental research design as well as the different types of measurements, offer important conclusions regarding audience benefits, governmental costs and their interaction on international climate policy making. With this paper I deliver important explanations on why democracies and autocracies differ in their ways of environmental goods provision. Finally, I show that studies on civil society may benefit from the new way of conceptualizing lobbies in the international climate cooperation arena (Chaudoin and Urpelainen 2014), which I operationalize and verify for the first time in this paper.

Figures

Figure 1: Institutions, special interests, and utility for cooperation

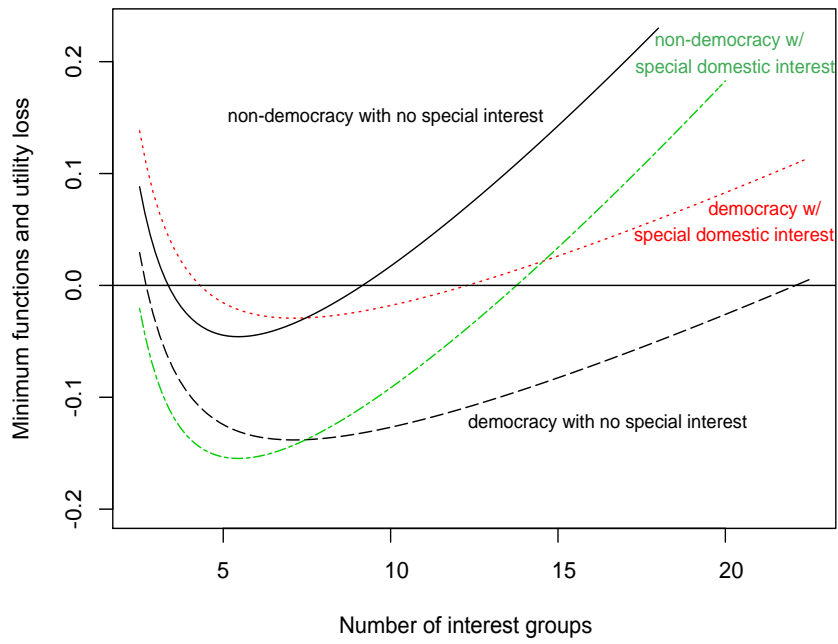


(a) Changing type of regime

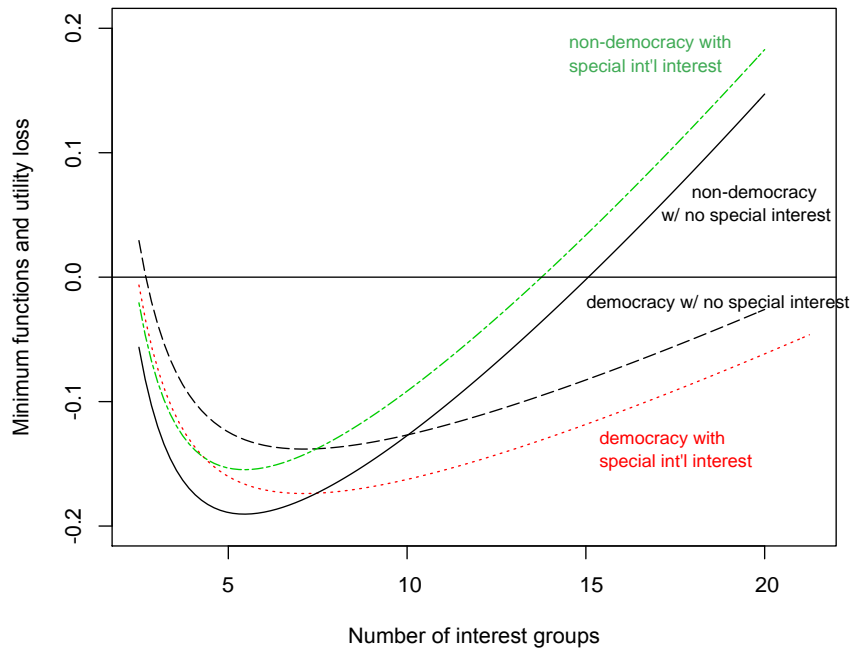


22
(b) Changing type of special interest

Figure 2: Expected cooperation positions



a. Domestically concerned groups by regimes



b. Internationally concerned groups by regimes

Figure 3: Main Factor score distribution

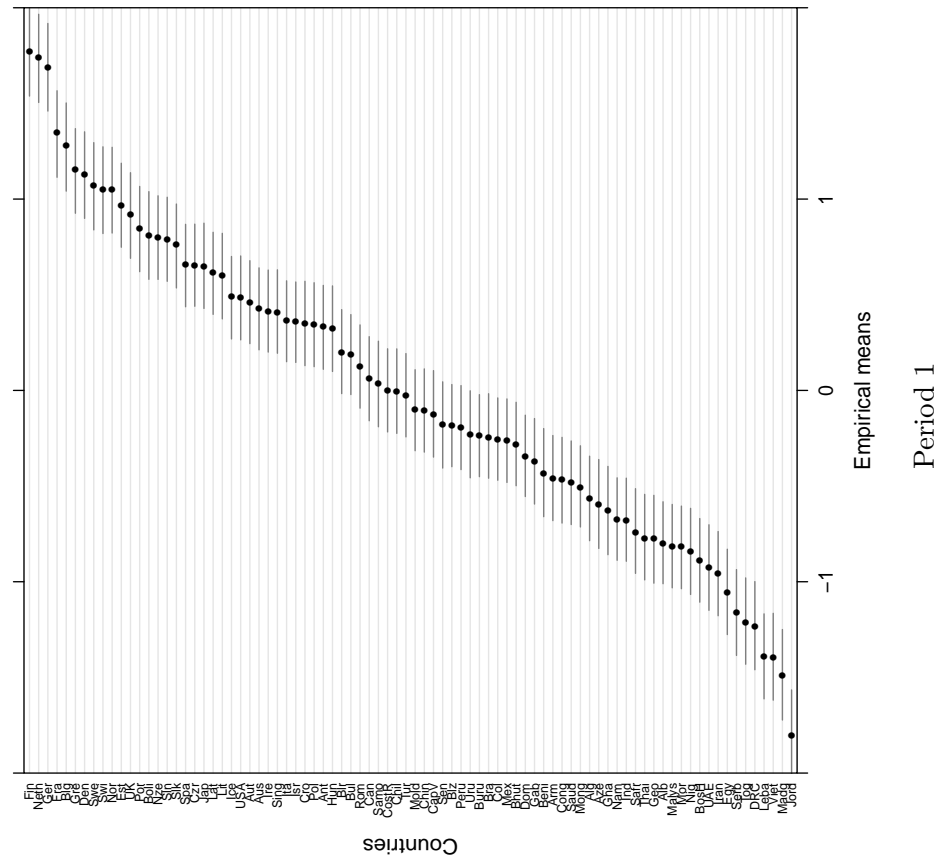
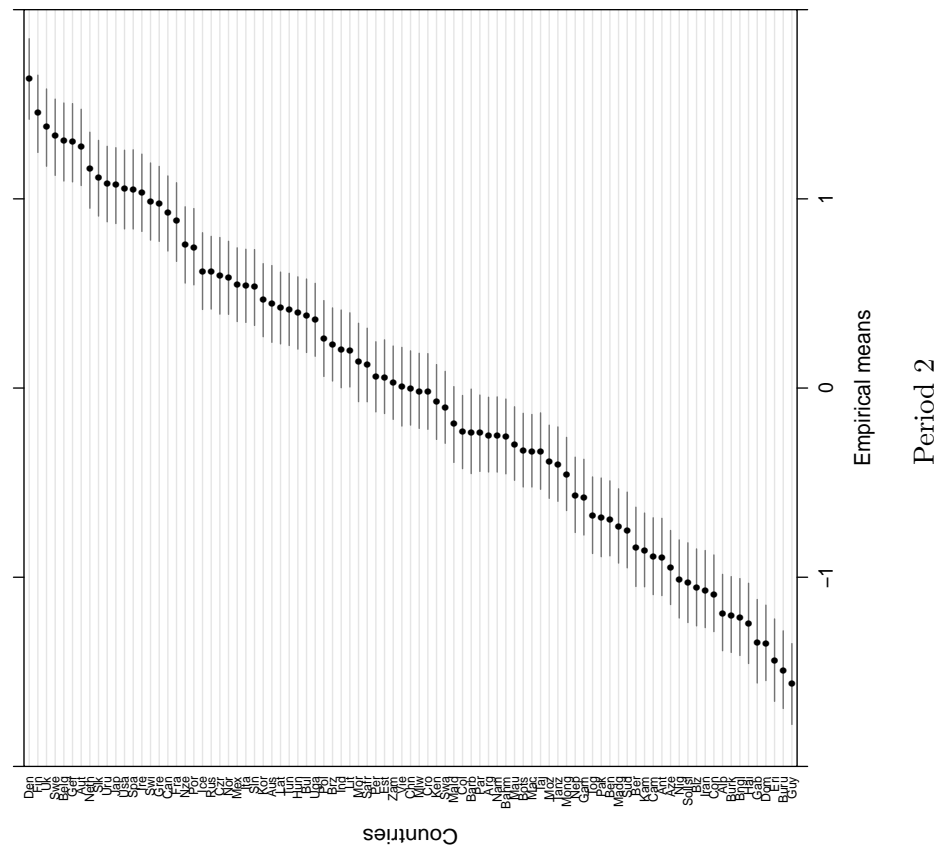


Figure 4: Wordfish score distribution

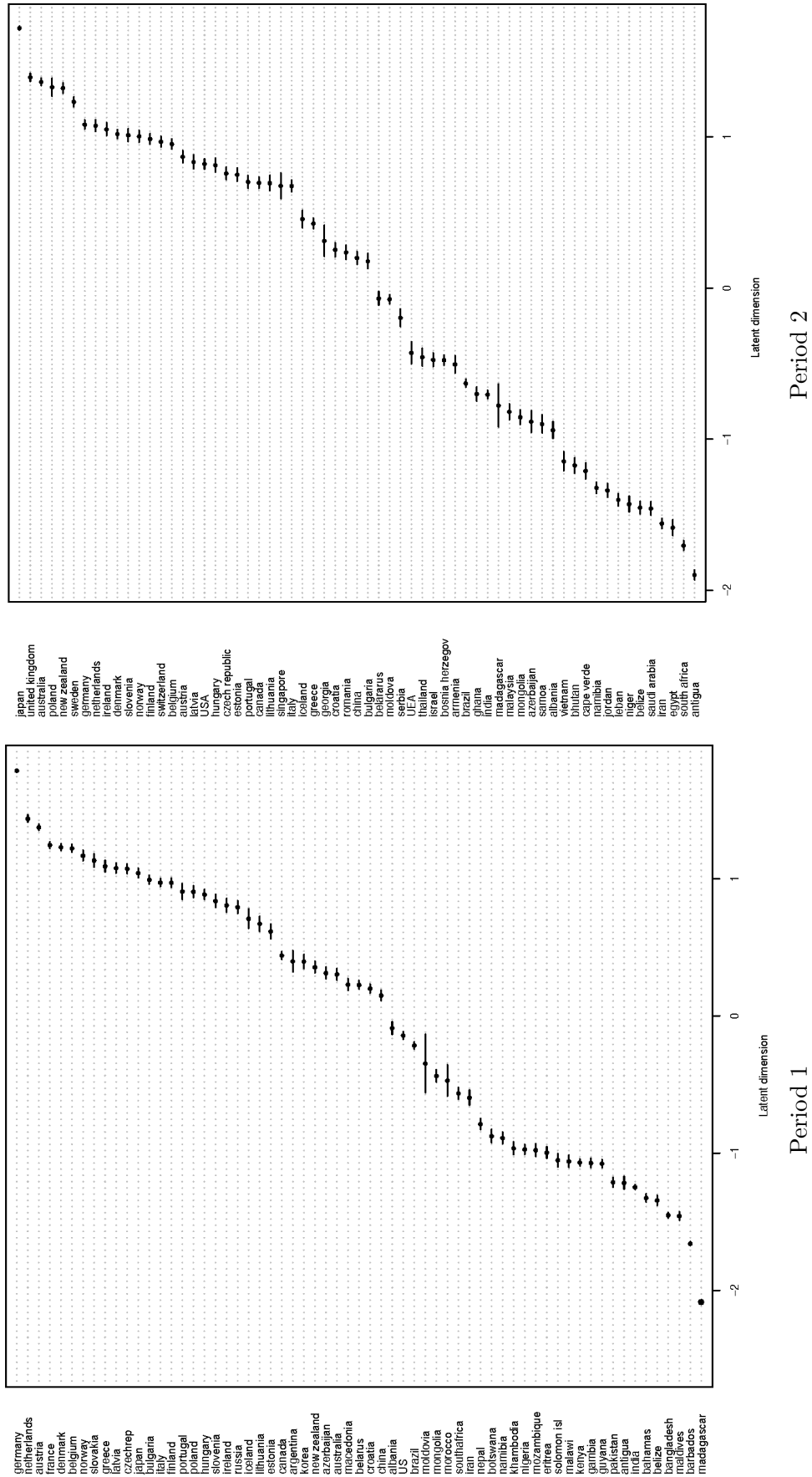
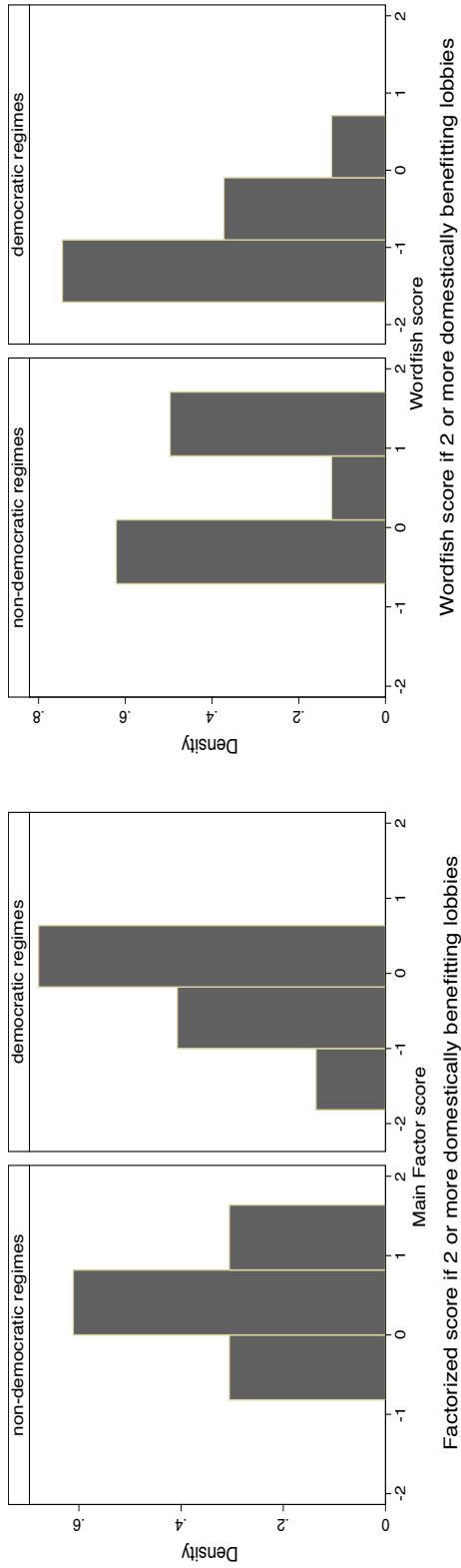


Figure 5: Country-year positions by lobbies' activity
Domestically benefitting lobbies



Internationally benefitting lobbies

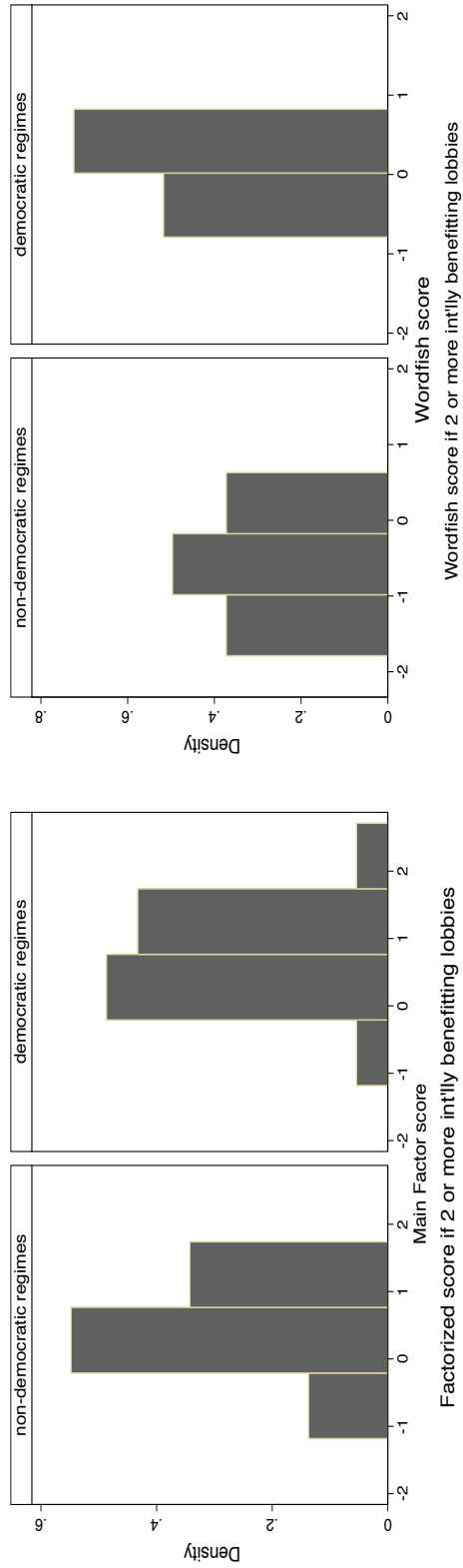


Figure 6: Domestically benefitting lobbies, regimes and climate bargaining positions

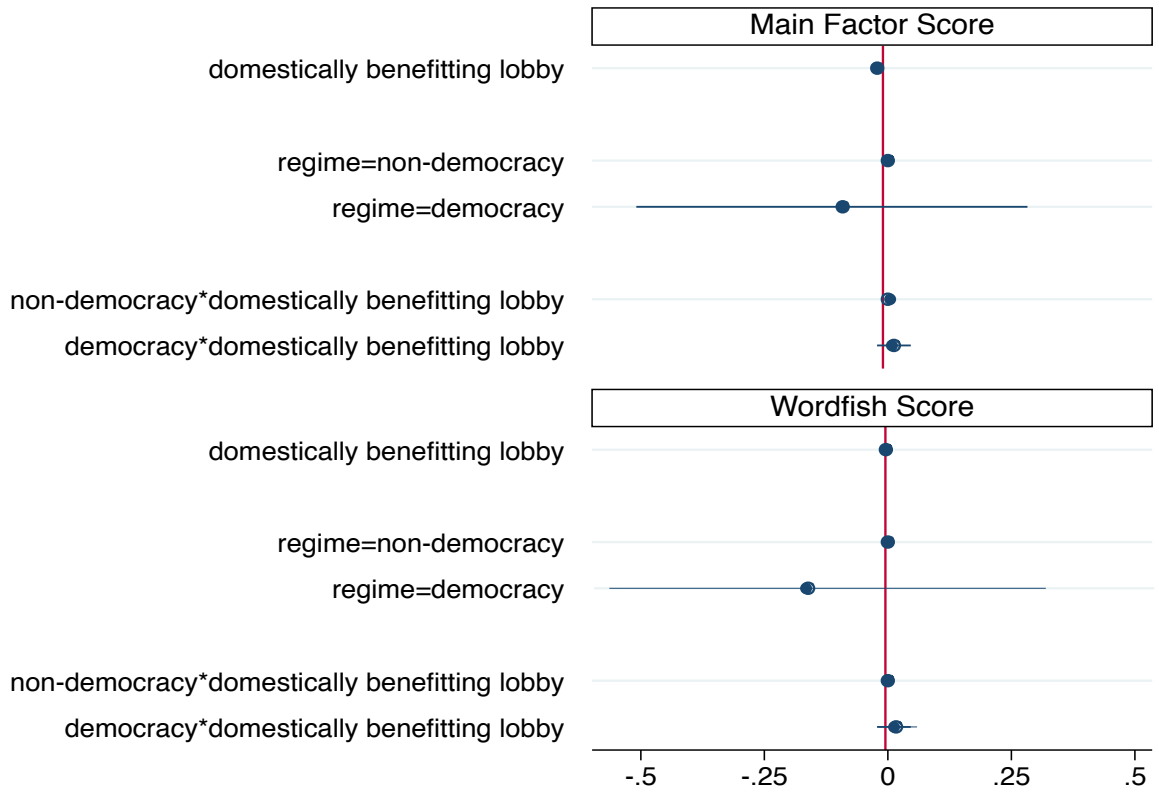


Figure 7: Internationally benefitting lobbies, regimes and climate bargaining positions

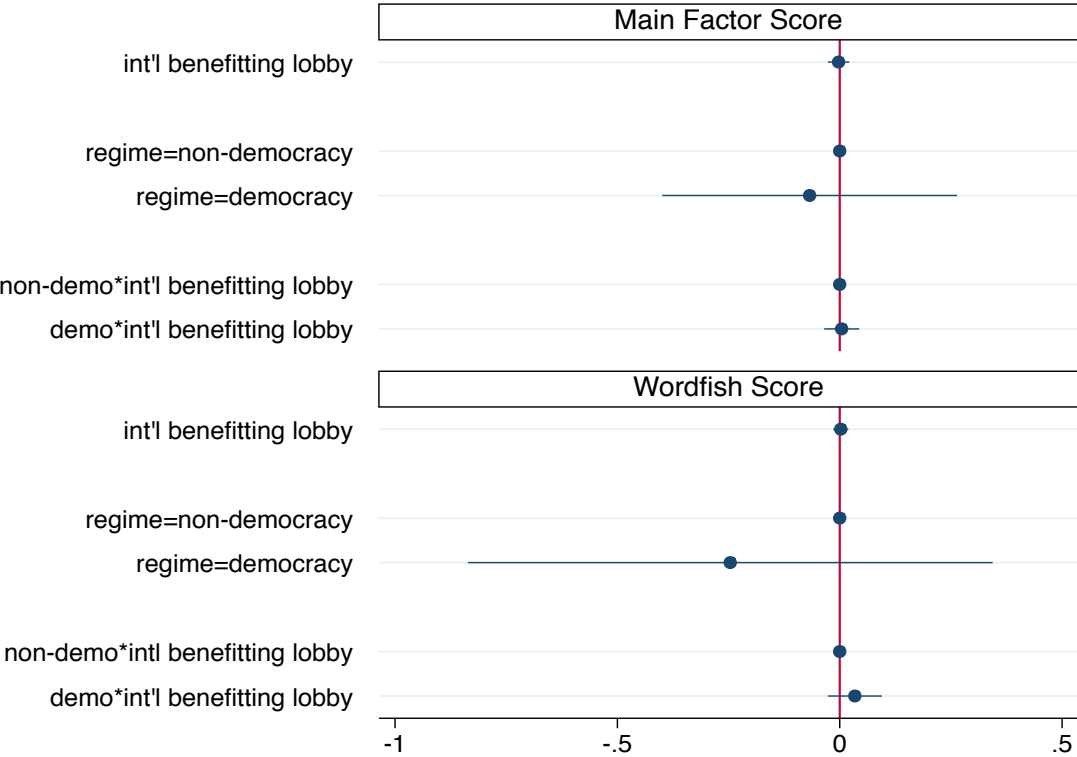


Figure 8: DBL, democracy and climate bargaining positions: margin plots

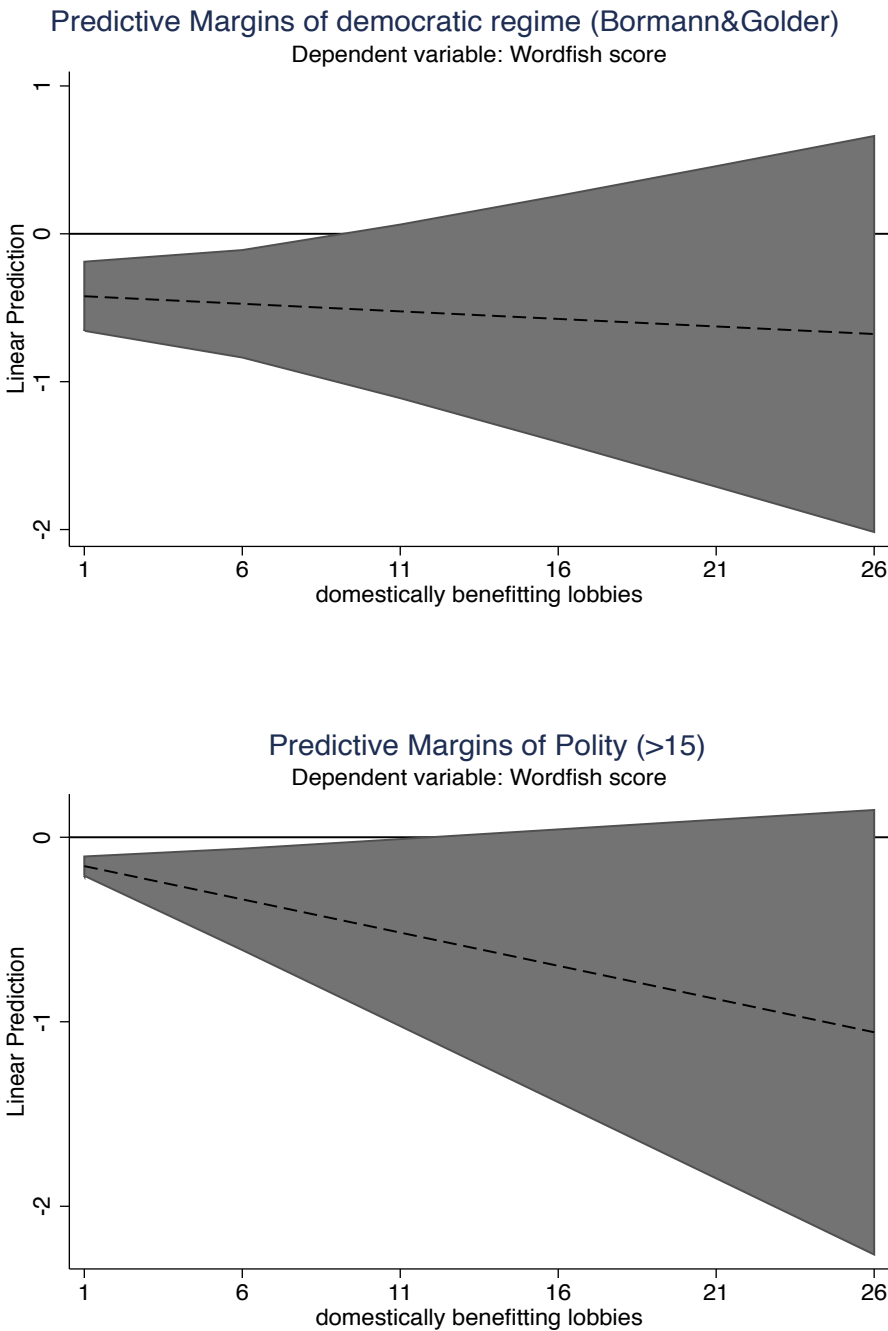


Figure 9: IBL, democracy and climate bargaining positions: margin plots

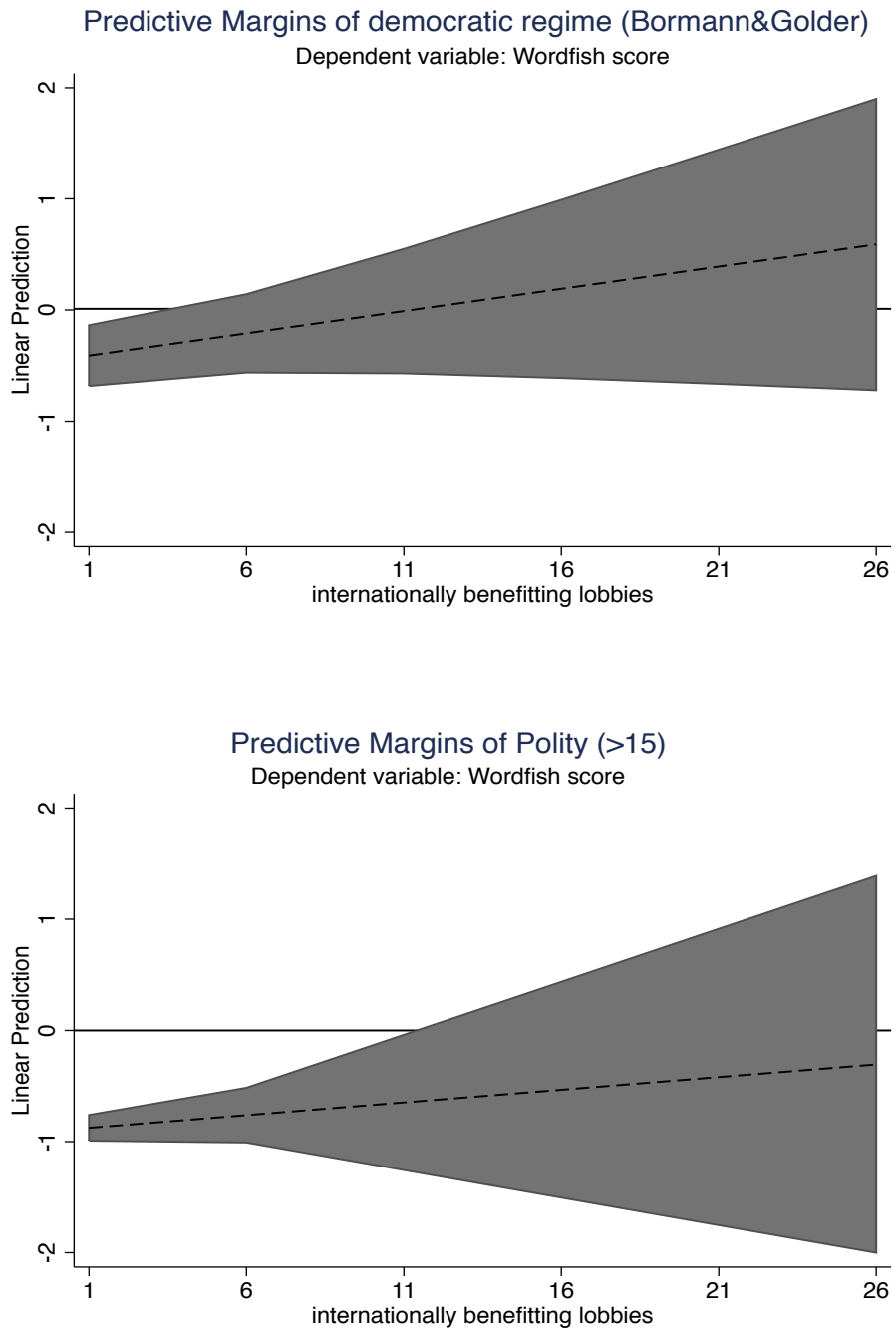
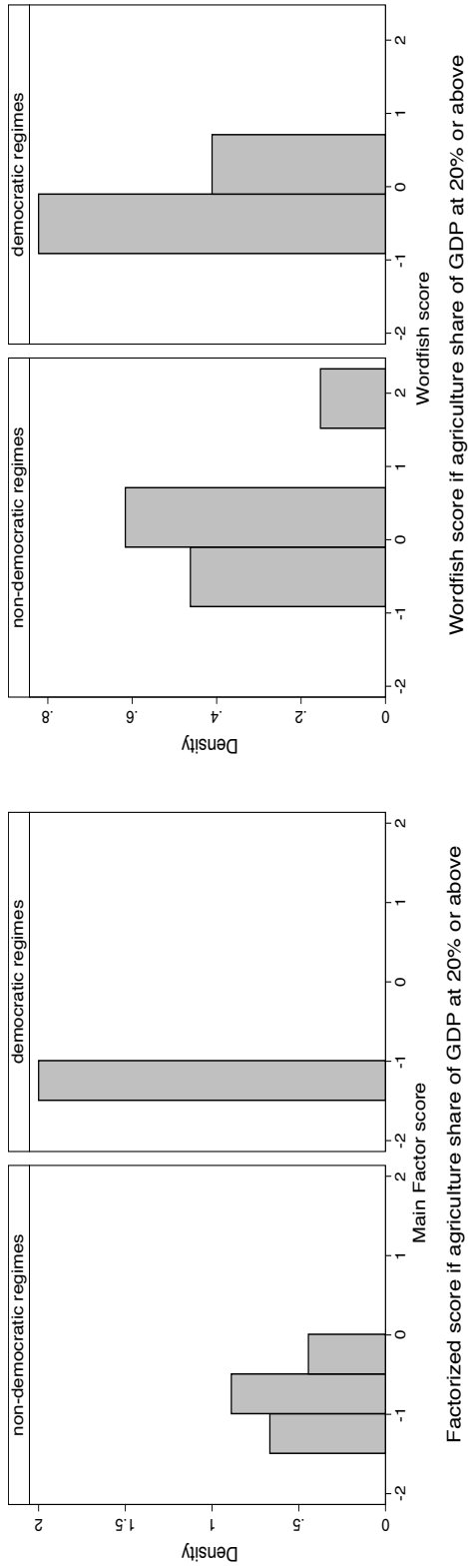


Figure 10: Country-year positions by thresholds of sectoral power

Primary sector: agriculture



Secondary sector: industry

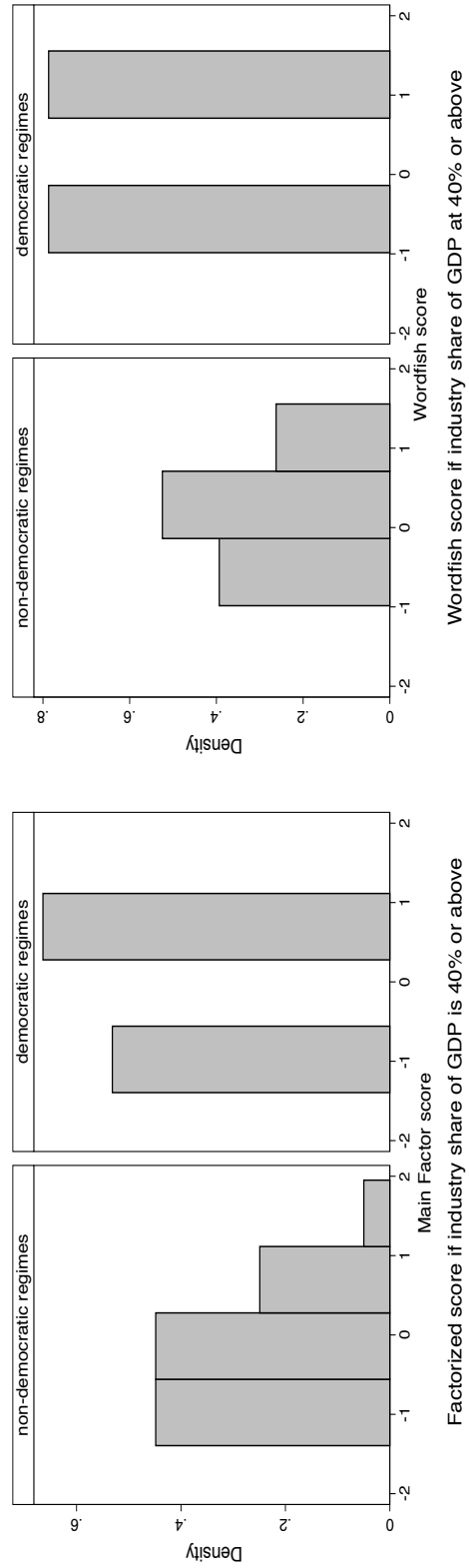


Figure 11: Agriculture, regimes and climate bargaining positions

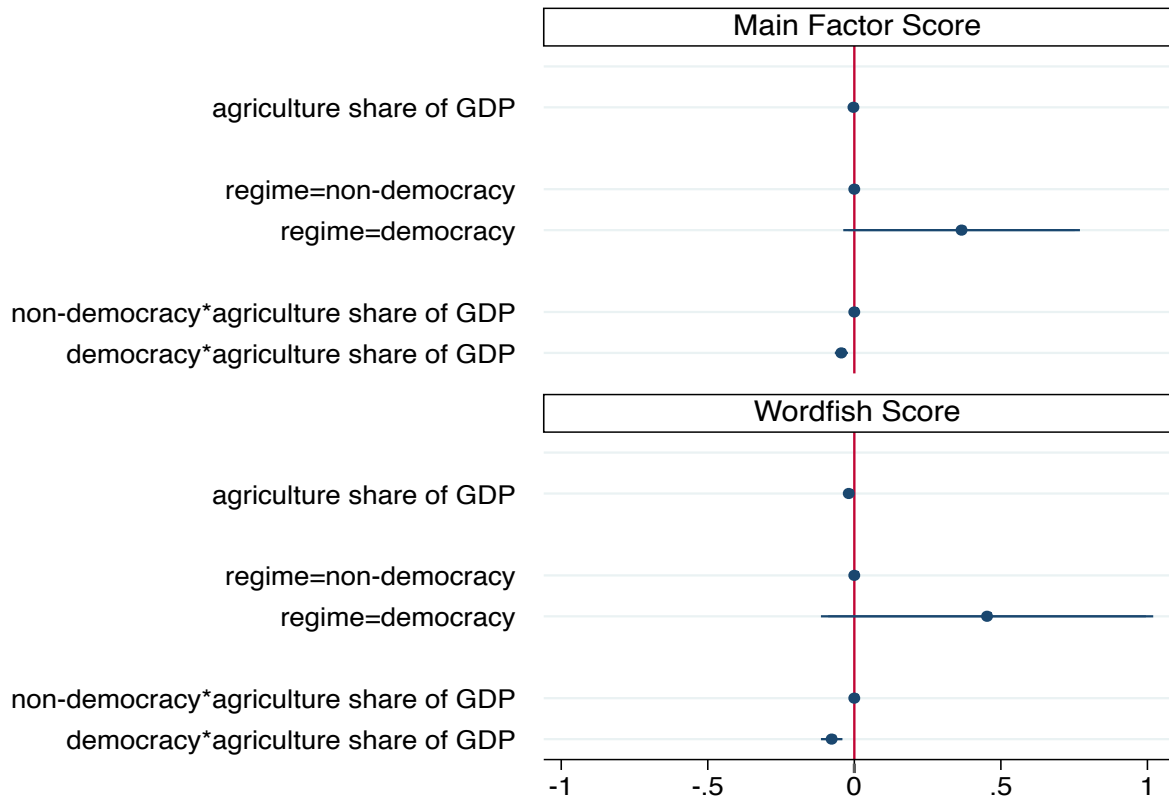


Figure 12: Industry, regimes and climate bargaining positions

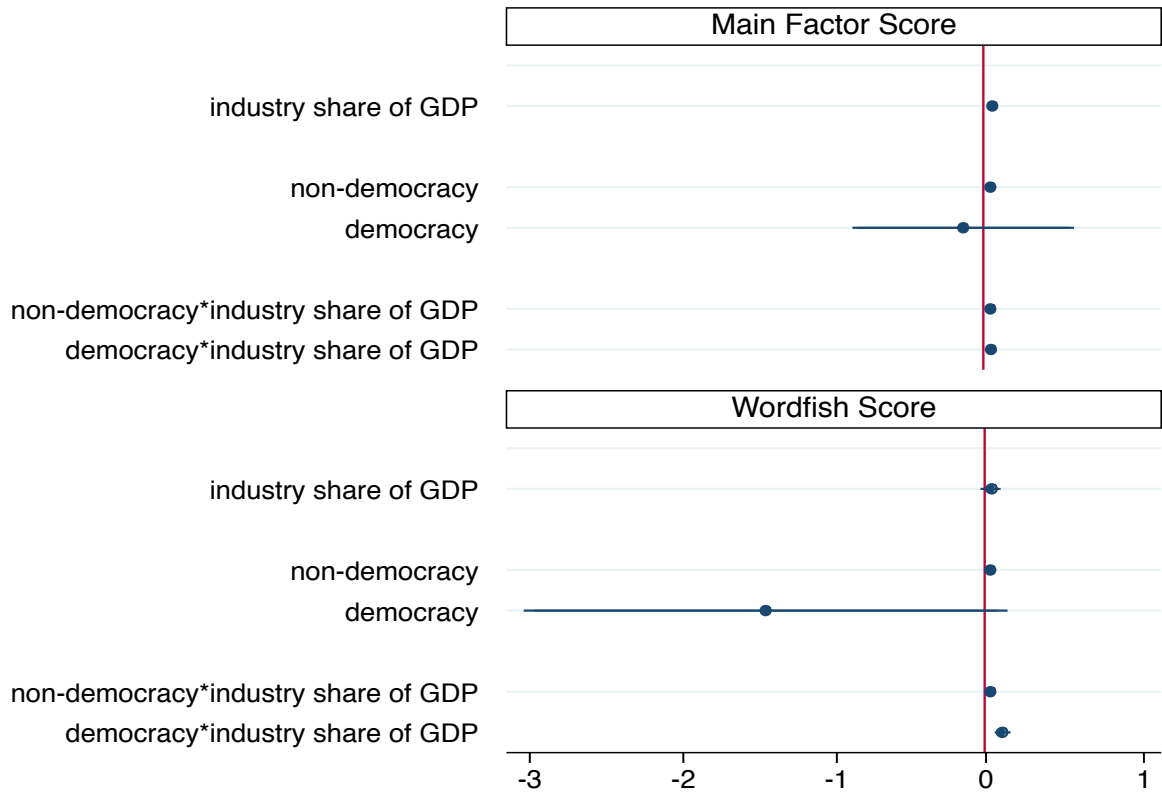


Figure 13: Agriculture, democracy and climate bargaining positions: margin plots

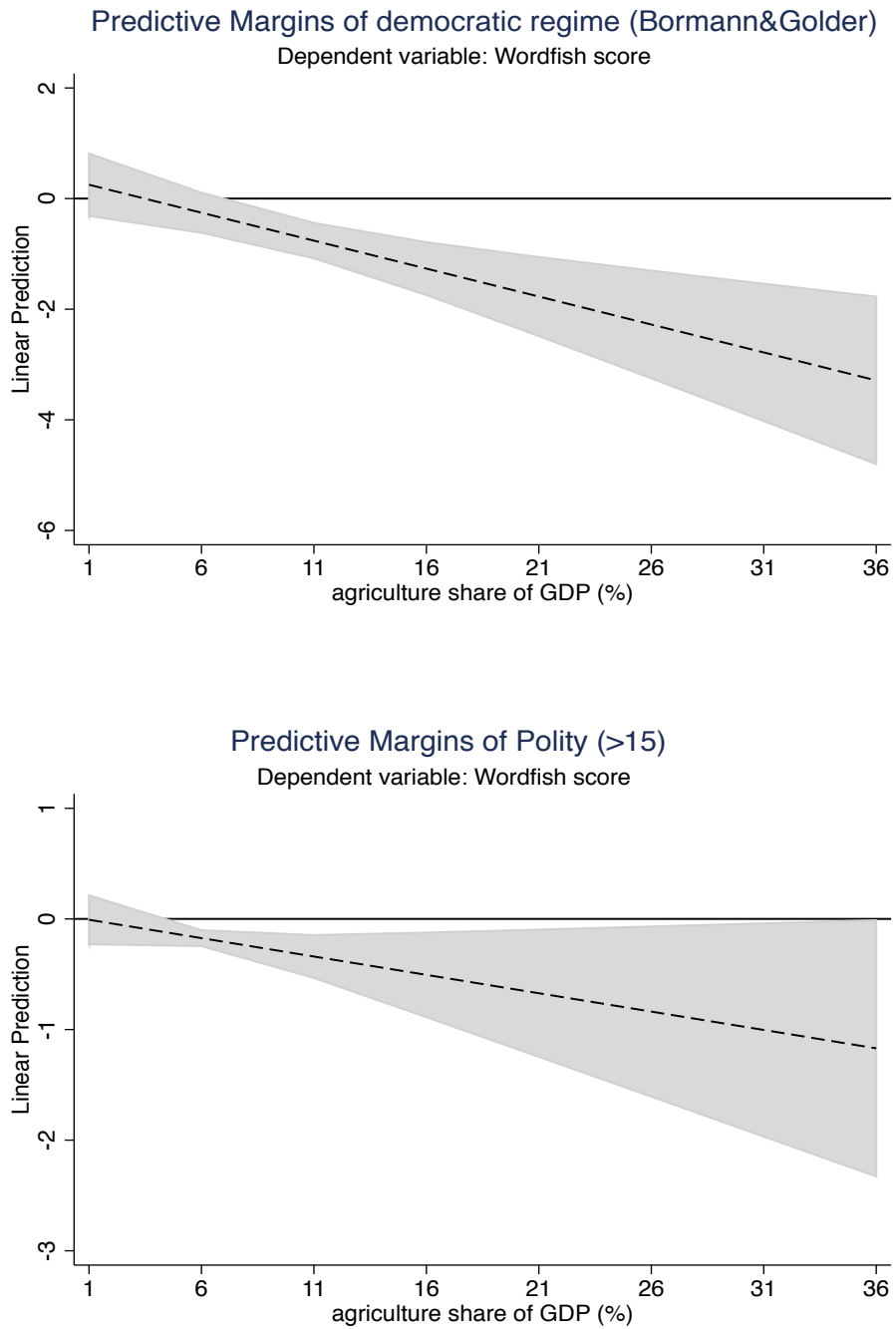


Figure 14: Industry, democracy and climate bargaining positions: margin plots

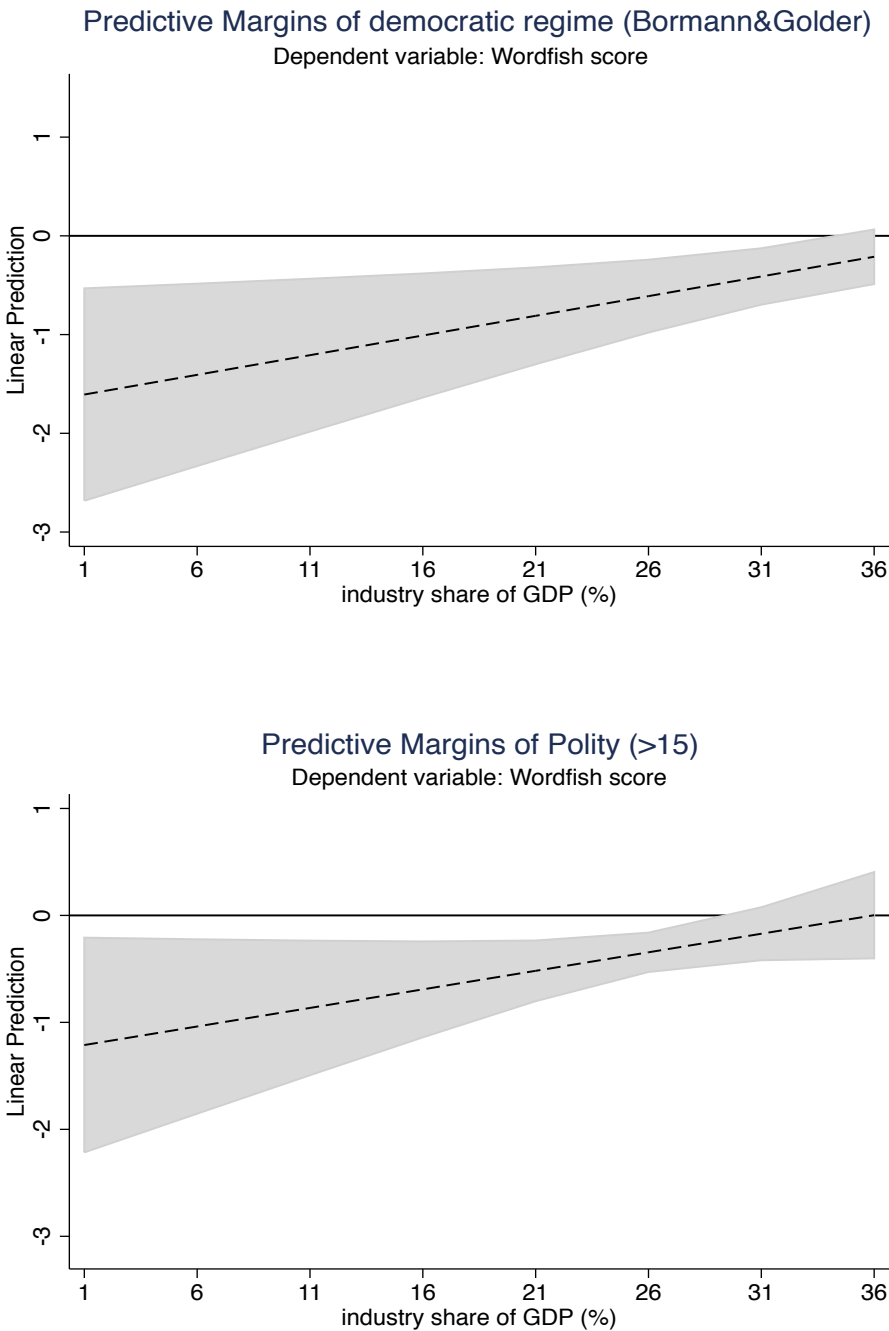
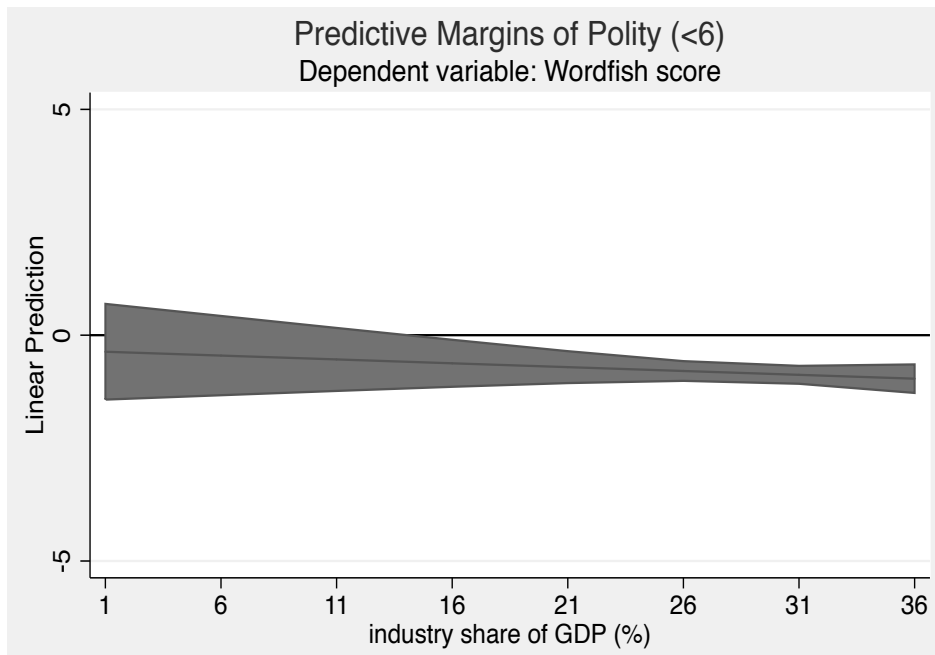
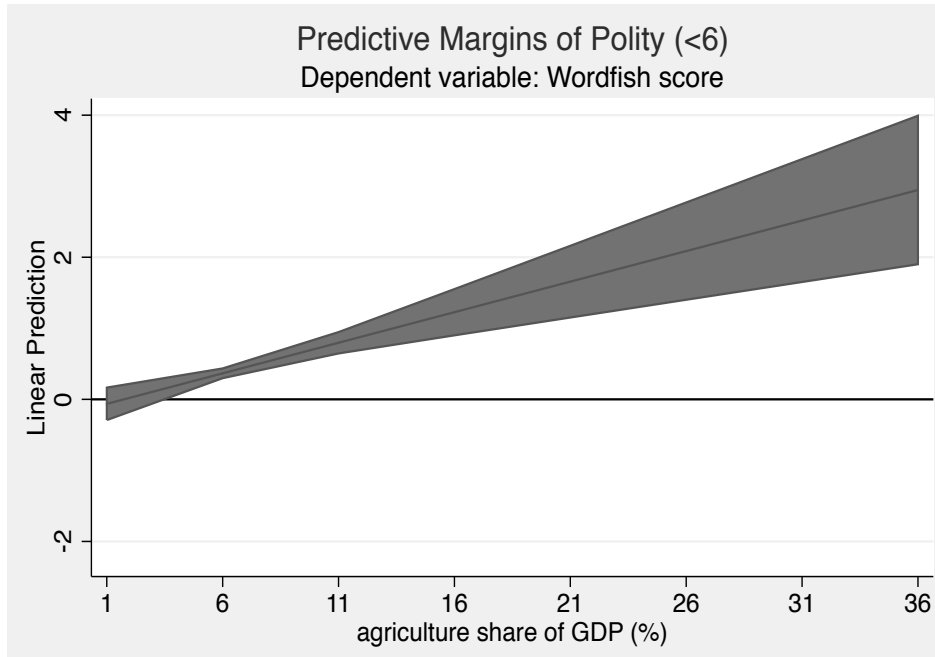


Figure 15: Sectors, autocracy and climate bargaining positions: margin plots



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Appendix

Utility Equilibrium Conditions

Here I show the cooperation conditions of a country with regime of type x and a lobbying group of type i will accept a cooperative bargaining positions based on the discussion in section 2.1. The level at which this country will cooperate is:

$$b_i L + L_1 i^{-\lambda_1} + L_2 i^{-\lambda_2} - RL^{-1} - L^{xi} - L_{2i}^{-\lambda_2} - b_i L + RL^{-1} + L^{xi} - L_{2i}^{-\lambda_2}$$

The minimum amount of cooperation that this country will require is then:

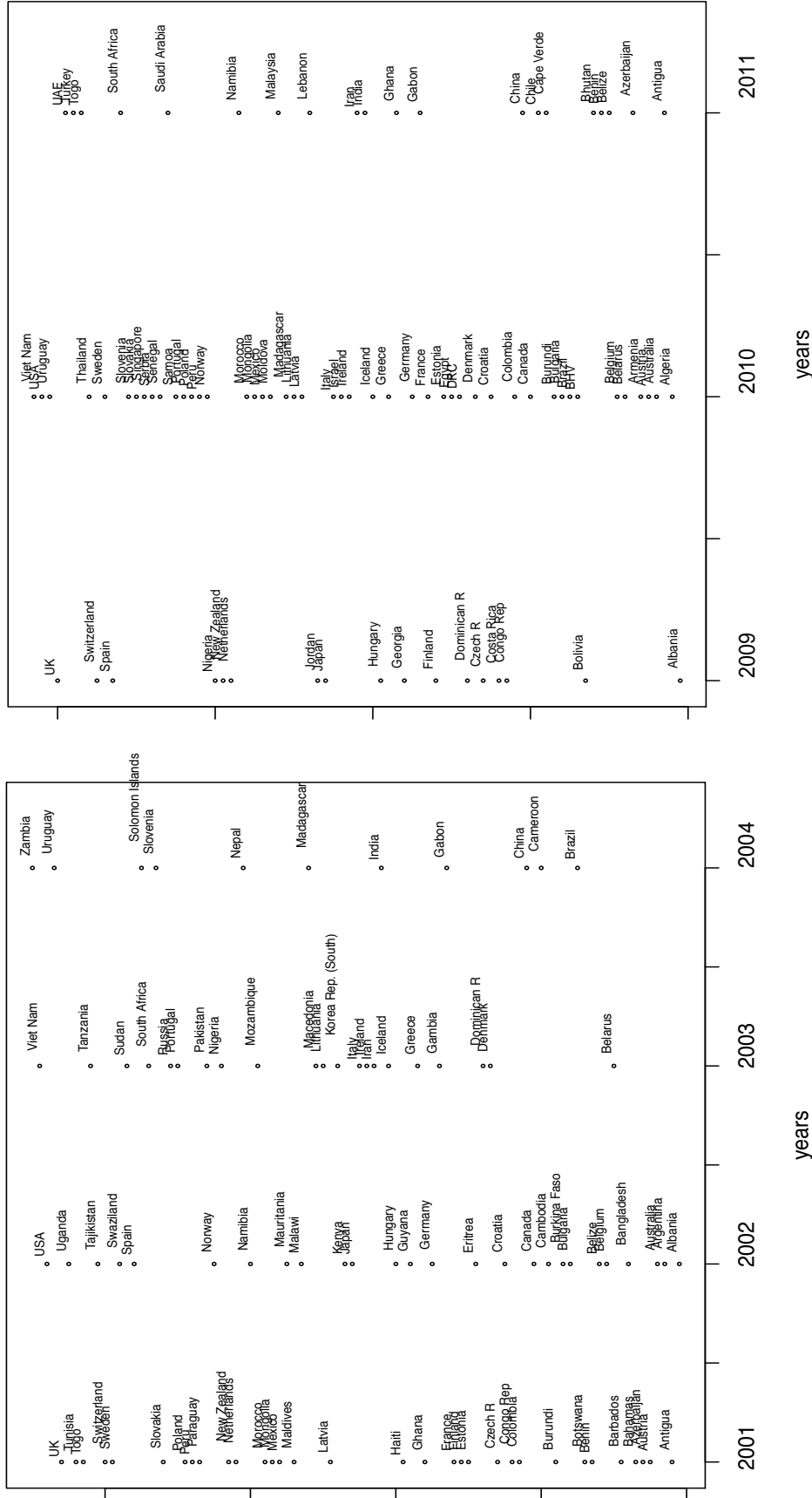
$$\min = -b_i - L_{1i}^{-\lambda_1} - L_{2i}^{-\lambda_2} - RL^{-1} + L^{xi} - L^{xi} \quad (4)$$

Data

Table A.1: UNFCCC issues coded and factorized in Genovese (2014)

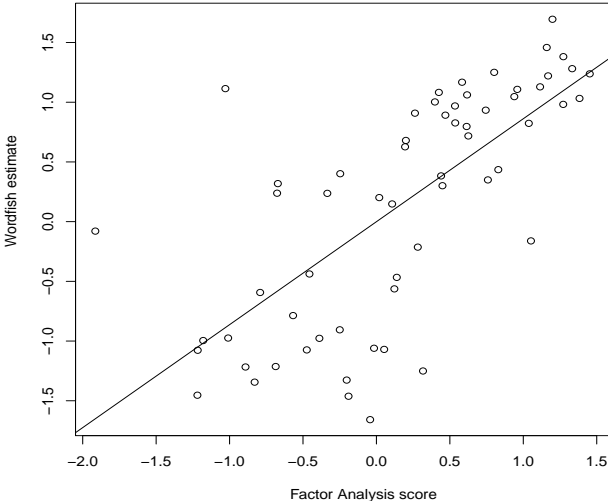
<i>Period 1</i>	<i>Period 2</i>
1. CDM engagement	1. CDM engagement
2. Emission trading	2. Emission trading
3. Binding commitment	3. Binding commitment
4. LUCF accounting	4. LUCF historical records
5. Funding approach	5. Funding approach
6. Abatement credits	6. Abatement credits
7. LUCF eligible threshold	7. REDD eligible threshold
8. Nuclear energy use	8. Nuclear energy use
9. Technological transfers	9. CCS adoption
10. Adaptation/mitigation \$	10. Adaptation/mitigation \$
11. LUCF-based abatement	11. Technological transfers
12. GHG abatement target	12. GHG abatement target
13. Int'l accountability	13. Int'l accountability
14. Legislative action level	14. Legislative action level
15. Offset projects credit	15. Offset projects credit
16. Regulatory approach	16. Regulatory approach
17. Systematic observation	17. Systematic observation
18. Historical responsibility	18. Historical responsibility
19. ODA diversion	19. ODA diversion
20. Supplementarity	20. Supplementarity
21. Proportional industry impact	21. Temperature rise limit
22. Uncertainty of policy	22. Post-2012 regime
	23. Int'l bunkers

Figure A.1: Country sample by period

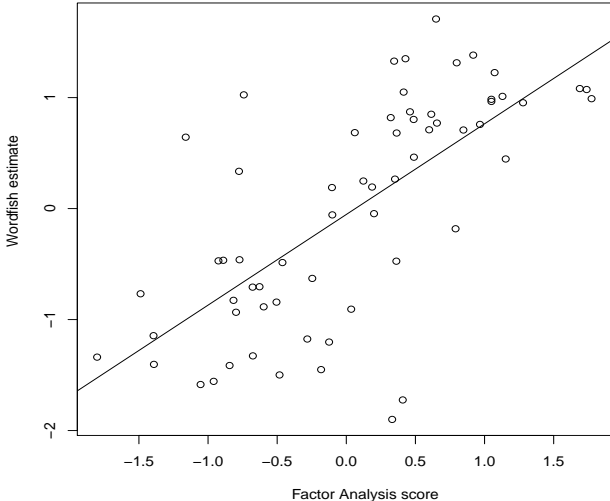


This dot plot lists the National Communications collected for both periods. Countries are listed by year of submission and in inverted alphabetical order. The y-axis is used only for illustration purposes.

Figure A.2: Comparison of Wordfish estimates and factor analysis scores



Period 1



Period 2

Table A.2: Illustration of special interest coding: Böhmelt’s (2013) data recoded into Chaudoin and Urpelainen’s (2013) DBL vs IBL dimension

DBL	Original code
Association de Energia Renovable (Honduras)	ENGO
Sierra Club (Brazil)	ENGO
The Toxic Watch Society of Alberta (Canada)	ENGO
General Confederation of Industries (Morocco)	BINGO
Electric Power Industry (Serbia)	BINGO
Chemical Engineers (Iraq)	BINGO

IBL	Original code
Forest Concession Holders (Indonesia)	ENGO
National Farmers Union (Zambia)	ENGO
Climate Change Network (Tuvalu)	ENGO
Soul Innovation Business Center (Korea)	BINGO
Overseas Private Investment Company (US)	BINGO
Swiss Reinsurance Company (Switzerland)	BINGO
New Energy and Industrial Technology Development Organization (Japan)	BINGO

Results Tables

Table B.1: Lobby group, regime type and climate bargaining positions

	<i>Main Factor</i>	<i>Wordfish</i>	<i>Main Factor</i>	<i>Wordfish</i>	<i>Main Factor</i>	<i>Wordfish</i>	<i>Main Factor</i>	<i>Wordfish</i>	<i>Main Factor</i>	<i>Wordfish</i>
	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>
Democracy level (Bormann&Golder)	-0.214 (0.459)	-0.214 (0.496)	-0.035 (0.316)	-0.246 (0.507)	0.610 (1.388)	-0.792 (0.534)	1.047 (1.595)	-1.479 (1.170)		
DBL	-0.004* (0.001)	0.003 (0.002)			-0.002 (0.006)	0.003 (0.002)				
DBL*democracy level (Bormann&Golder)	0.011 (0.042)	0.009 (0.043)			-0.0155 (0.096)	-0.0551* (0.023)				
IBL			0.003 (0.002)	0.004 (0.010)			0.002 (0.026)	0.009 (0.005)		
IBL*democracy level (Bormann&Golder)			0.017 (0.0205)	0.031* (0.0145)			-0.211 (0.679)	0.184* (0.130)		
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	120	98	120	98	44	36	44	36	44	36
Countries	60	49	60	49	22	18	22	18	22	18

Fixed effects OLS estimates; robust standard errors clustered by country.

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

Columns 1-4 are estimates on full sample. Columns 5-8 are estimates on all country-years with one or more lobby groups in place. Controls are Co2 per capita (substituting with logged GDP does not affect the results) and population.

Table B.2: Sectoral power shares, regime type and climate bargaining positions

	<i>Main Factor</i> <i>score</i>	<i>Wordfish</i> <i>score</i>	<i>Main Factor</i> <i>score</i>	<i>Wordfish</i> <i>score</i>
Democracy level (Bormann&Golder)	0.388 (0.292)	0.481 (0.468)	-0.149 (0.540)	-1.183 (1.228)
Agriculture GDP %	-0.003 (0.010)	-0.0209* (0.012)		
Agriculture*democracy level (Bormann&Golder)	-0.0466* (0.027)	-0.0806** (0.027)		
Industry GDP %			0.015 (0.0167)	0.020 (0.028)
Industry*democracy level (Bormann&Golder)			0.010 (0.014)	0.0245* (0.014)
Controls	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
N	120	98	120	98
Countries	60	49	60	49

Fixed effects OLS estimates

Robust standard errors clustered by country

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

Columns 1-4 are estimates on full sample. Controls are Co2 per capita (substituting with logged GDP does not affect the results) and population.

Table B.3: Sectoral power shares, Polity score and climate bargaining positions

	<i>Main Factor</i>	<i>Wordfish</i>	<i>Main Factor</i>	<i>Wordfish</i>
	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>
Democracy level (Polity score)	0.371 (0.292)	0.561 (0.468)	-0.149 (0.540)	-0.039 (0.728)
Agriculture GDP %	0.183* (0.13)	-0.0209 (0.012)		
Agriculture*democracy level (Polity score)	-0.0466 (0.016)	-0.0306* (0.008)		
Industry GDP %			0.010 (0.014)	0.002 (0.032)
Industry*democracy level (Polity score)			0.003 (0.014)	0.024* (0.021)
Controls	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
N	120	98	120	98
Countries	60	49	60	49

Fixed effects OLS estimates

Robust standard errors clustered by country

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

Columns 1-4 are estimates on full sample. Controls are Co2 per capita (substituting with logged GDP does not affect the results) and population.

Secondary Tests

Table C.1: Civil society (Böhme 2013, Bernauer et al 2013), regime type and climate bargaining positions

	<i>Main Factor</i>	<i>Wordfish</i>	<i>Main Factor</i>	<i>Wordfish</i>
	<i>score</i>	<i>score</i>	<i>score</i>	<i>score</i>
Democracy level (Bormann&Golder)	-0.151 (0.278)	-0.330 (0.540)	-0.056 (0.309)	-0.191 (0.561)
ENGOS	-0.001 (0.001)	0.001* (0.001)		
ENGOS*democracy level (Bormann&Golder)	0.0201** (0.009)	0.0292* (0.022)		
BINGOs			-0.001* (0.000)	0.001 (0.001)
BINGOs*democracy level (Bormann&Golder)			0.017 (0.028)	-0.022 (0.037)
Controls	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
N	120	98	120	98
Countries	60	49	60	49

Fixed effects OLS estimates

Robust standard errors clustered by country

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

Table C.2: Correlations by period

	Y: Wordfish score			
	<i>Period 1</i>		<i>Period 2</i>	
Democracy level (Polity score>10)	0.101 (0.415)	-0.314 (1.084)	-0.0951 (0.102)	-0.0780 (0.288)
Agriculture GDP %	1.234** (0.581)	-0.0535 (0.0531)	-1.004*** (0.377)	-0.00807 (0.00826)
Industry GDP %	0.00928 (0.0458)	0.0507 (0.362)	0.0165* (0.00697)	-0.0694 (0.100)
Agriculture* democracy level	-0.137* (0.0643)		0.100** (0.0377)	
Industry* democracy level		-0.0027 (0.0342)		0.0082 (0.0098)
GDP (UNFCCC)	-0.0016* (0.0305)	-0.00011 (0.03608)	0.0305 (0.0305)	0.0829* (0.0360)
Ideology scale (DPI)	0.0533 (0.150)	-0.0111 (0.155)	-0.0458 (0.0571)	-0.0179 (0.0794)
Green party seats (Doring&Manow 2012)	-0.277 (0.418)	-0.172 (0.479)	0.0901 (0.0792)	0.110 (0.112)
Presidential system (=1)	0.283 (0.809)	0.225 (0.992)	-2.548*** (0.343)	-2.710*** (0.366)
Proportional system (=1)	0.300 (0.293)	0.151 (0.299)	-0.322*** (0.0654)	-0.333*** (0.0750)
Energy use (WDI)	0.00672 (0.00917)	0.00148 (0.00898)	-0.0584** (0.0175)	-0.0353 (0.0260)
Technology patents (OECD)	0.0042 (0.003)	0.0039 (0.003)	0.0021*** (0.0003)	0.0021*** (0.0003)
Constant	-0.580 (4.349)	3.435 (11.02)	1.532 (1.703)	-0.223 (3.277)
N	22	22	26	26
R^2	0.726	0.644	0.868	0.778
Adj. R^2	0.315	0.110	0.746	0.573

Robust OLS estimates (S.E.)

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

Table C.3: Correlations with squared democracy term, by period

	Y: Wordfish score			
	<i>Period 1</i>		<i>Period 2</i>	
Democracy level (Polity score)	0.395 (5.503)	12.59 (8.087)	0.941 (1.789)	-7.098 (3.706)
Democracy level squared	-0.0214 (0.288)	-0.805 (0.463)	0.159 (0.0986)	0.392* (0.203)
Agriculture GDP %	1.184* (0.532)	-0.0755** (0.0298)	-0.844*** (0.276)	-0.00410 (0.006)
Industry GDP %	-0.0078 (0.0238)	-0.652* (0.302)	0.0171** (0.0078)	-0.0287 (0.0770)
Agriculture* democracy level	0.116* (0.0581)		0.115* (0.0275)	
Agriculture* democracy level squared	-0.0230* (0.005)		-0.0844 (0.0275)	
Industry* democracy level		0.0660* (0.0305)		1.967 (2.773)
Industry* democracy level squared		-0.0293 (0.0180)		-0.109 (0.154)
Controls	Yes	Yes	Yes	Yes
N	22	22	26	26
R^2	0.702	0.678	0.873	0.827
Adj. R^2	0.255	0.195	0.756	0.668

Robust OLS estimates (S.E.)

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