

Comparative Politics and Environmental Commitments

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Abstract

Economists and Political scientists have suggested for a long time that democracy and the environment are linked. What they did not analyze in detail is if the way in which politicians are elected influences the environment as well. The scope of this paper is to fill this gap. Using high quality data on a cross section of countries, coming from previous studies, we find strong results suggesting that politicians in majoritarian systems are less interested in environmental commitments than those in proportional representations. The consequence is that environmental commitments are lower in the former system than in the latter.

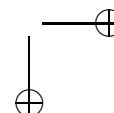
JEL Classification: Q50, H11, C21

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1 Introduction

Economists and political scientists have suggested that the environment and politics (and in particular democracy) are linked, since the sixties. At that time, authors such as Hardin [4] expressed their concern on whether democracy could help solve environmental problems. Even if a consensus about a positive correlation between the two does not exist (see [3]), most of the literature tends nevertheless to go in this direction. In 1995, Payne proposed a very elegant explanation for this relationship basing his reasoning on four important concepts of democracy namely the freedom of press, the freedom of speech, the freedom of association and the freedom of vote. His idea is that the freedom of press allows the mass media to inform people on environmental problems; the freedom of speech allows the people to express their fears while the freedom of association allows them to create organizations to lobby for the respect of their environmental preferences.

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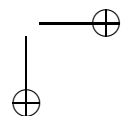
Finally the freedom of vote allows people to pressure politicians to act in accordance with their desire through elections.

Given these liberties allowed by democracies but not by autocracies, he concludes that democracies should observe higher commitments towards environmental agreements than autocracies. In this paper, the last point of his analysis, the freedom of vote, has a particular importance. Even if we totally agree with the fact that the first necessary condition for an electoral system to be effective in monitoring politicians is democracy, we are also convinced that very important discrepancies exist among different electoral systems and that by analyzing only an authoritarian versus democratic dichotomy might bring to the neglect of important features. Our intuition is that electoral systems might affect unequally the decisions over environmental commitments due to the specific strategic behavior of politicians they imply. The basic idea is that under each system, there is a conflict entailed by policies among groups of voters, both between voters and politicians and among different politicians [9]. As a result, while maximizing their utility, politicians choose the policy to adopt under the constraint of the electoral rule. The outcome is that different systems are associated with unequal policies.

Electoral systems are characterized by several features such as the electoral rule for assigning seats in the parliament, the separation of powers between the legislative and the executive branch and the maintenance of power of the chief of the executive. In this paper, we concentrate only on the effects the electoral rule for electing the parliament¹ has on the environment and leave the other features for future research. As stated by Persson and Tabellini [10], electoral rules used in legislative elections around the world differ in several dimensions. The most important difference highlighted by political scientists lies between the district size and the electoral formula. The district size represents the number of seats allocated in each district while the electoral formula determines how votes are translated into seats. With these two dimensions, we can group all the countries in two main groups: the majoritarian and the proportional representation systems. Single seat constituencies characterize the majoritarian countries where the single seat is attributed either to the candidate that received the highest number of votes (plurality) or the candidate that received at least 50% of the votes (majority). Multi-seat constituency characterizes the proportional representation countries where the seats are allocated proportionally to the share of votes received by each party. In many countries the system is mixed which means that some seats are distributed according to the proportional rule while others by the majoritarian rule. In this paper, we define a country as being majoritarian if more than 50% of the seats of the parliament are filled following the majority rule. Otherwise, it is coded as proportional.

As we will explain in detail in the next section, we expect politicians to favor local interests under majoritarian systems while we expect them to favor broad programs under the proportional representation rule. For this reason, we suppose that environmental commitments will not be considered as an interesting political platform in majoritarian systems while they will be one in proportional systems. The effect on international environmental commitments is straightforward. To test for this hypothesis, the structure

¹In fact the lower house of the Parliament.



of the paper is the following: after this short introduction, in section two, we present the theoretical predictions of the effects of the electoral system on environmental commitments. In the third section we present the data and the methodology we use. In the fourth we present our major findings and we conclude in the fifth.

2 Theoretical Predictions

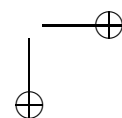
The theoretical link between electoral systems and environmental commitments is latent in the models used in the political economics literature. We will analyze this in details later in the section but, before, it is important to look at some stylized facts linking these two features. Note that electoral systems have a meaning only in countries where voters can effectively express their preference. For this reason we will only consider countries where this condition is satisfied and can thus be seen as sufficiently democratic. In the methodological section, we will explain this concept in detail as well as we will explain the selection procedure we used to decide which country should be considered in the study. For the moment, it is sufficient to keep in mind that the countries that we consider here are countries where elections of the parliament are held without political constraints and where the elected candidate is represented in the parliament in accordance with the votes received and the electoral rule in application.

The most intuitive way of quantifying environmental commitments is to look at the number of signed and ratified Multilateral Environment Agreements (MEA). When we look at some descriptive statistics over the number of signed or ratified MEAs we see that, apparently, majoritarian systems do seem to have higher commitments towards the environment. For example, we see that, in average, countries that have a majoritarian system, sign about 13.19 treaties against 16.3 for those having a proportional representation system. A test of comparison of means² rejects strongly (p-value=0.004) the assumption that these means are equals. Considering the fact that this measure might suffer from the excessive influence of some outliers, it is interesting to calculate the median number of signed MEAs and run a test of comparison of medians. Here again, we see that majoritarian systems seem to have much lower environmental commitments than proportional representations. The median number of signed treaties is 15 for proportional representations and 11 for majoritarian systems. The test of comparison of medians strongly rejects the null of equality (P-value=0.002)³.

Neumayer [7] states clearly that among all the potential MEAs, only some could be considered as interesting in analyzing the environmental commitments since most of them are either regional agreements or have an almost universal membership that can be joined without any cost. For this reason, he searched for the MEAs that are not regional and do not have a zero cost universal membership. He found that only four MEAs could be consider as satisfying these conditions. These MEAs are: the Kyoto protocol on the reduction of CO₂ emissions, the Rotterdam Protocol on trade in hazardous chemicals and pesticides, the Cartagena Biosafety protocol on biosafety

²Allowing for unequal variances.

³Continuity corrected.



and genetically modified organisms and the Copenhagen amendment on the Montreal protocol on ozone layer depletion. Following his work, we analyze some descriptive statistics on these four agreements.

When we look at the signatories of the Kyoto protocol, we see that among the 60 proportional systems considered here, 30% did not sign the protocol while 70% did. Among the 49 majoritarian systems, 45% did not sign the treaty while 55% did sign. When we look at the Rotterdam Protocol, we see that among the proportional democracies 60% signed the treaty while among the majoritarian systems, only 39% signed the treaty. For the Cartagena Biosafety protocol, 68% of the proportional systems signed the treaty against 53% for majoritarian. Finally, for the Copenhagen amendment on the Montreal protocol, we observe that 78% of the proportional systems signed the treaty against 69% of the majoritarian systems. When we aggregate the four MEAs , we can present a summary table.

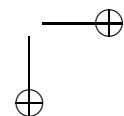
#Treaties Signed	Proportional Representations	Majoritarian Systems
0	8	10
1	10	22
2	15	31
3	33.5	25
4	33.5	12

Table 1: Number of selected MEA Signed,% by System

From this table we see that about 67% of the proportional representations signed at least 3 treaties against 37 % for the majoritarian systems. For majoritarian countries, much more observations are in the middle-lower part of the distribution.

Looking at the political economics literature, it seems evident that Downsian models of political behavior can help explaining these differences. We very briefly summarize the main ideas here.

When we consider the electoral rule, and as stated briefly above, to differentiate between majoritarian and proportional systems, two features should be stressed: the district size and the electoral formula. By district size, we mean the number of representatives elected in each district, whereas the electoral formula determines how votes are translated into seats. To determine the predicted effects of the first characteristic on environmental commitments, we can rely on Persson and Tabellini [9], who model a two party electoral competition and show that small districts, which are typical of majoritarian systems, are associated with locally targeted policies. This is because competition between politicians is concentrated in pivotal districts. When the districts are large, these authors predict that the electoral competition will be diffused and parties will seek support from broad coalitions of voters. Policies are thus concentrated on broad programs. Milesi-Ferretti *et al.* [6] reach similar conclusions with a different model. In their study, they start with the hypothesis that legislators represent geographically determined groups in small districts whereas in large districts they represent socio-economic groups. This results in local targeted policies in countries where



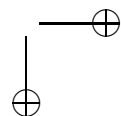
the majority rule prevails, and to more broad policies in countries characterized by the proportional rule. Regarding the predictions associated to the second characteristic of the electoral rule (the electoral formula), Persson and Tabellini [9] again, with the same model described above, show that in majoritarian systems, where politicians need 50% of the votes in 50% of the districts to get to power, policies will be concentrated on narrow geographically determined programs (to please about the 25% of the population located in pivotal districts, allowing them to win the elections) while under proportional representations, where 50% of the total votes not geographically determined are required, spending will be oriented towards broad policies (to please 50% of the voters). The effect predicted with the first electoral rule characteristic is thus strengthened by the second. Given these results, it seems evident that environmental commitments might be of secondary interest for politicians in majoritarian systems since they cannot be locally targeted. They are thus of no use as a political platform for winning the elections. At the opposite, in proportional systems, these policies might please a broad part of the population and can thus be seen as interesting politically.

3 The Data and the Methodology

3.1 The Data

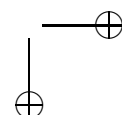
As stated by Neumayer [7], the empirical literature linking political systems and environment, remained mainly concentrated in environmental outcomes and not environmental commitments. The author criticizes strongly this approach. To articulate his critique he studies the work of Midlarsky [5] on CO₂ emission and of Torras and Boyce [11] and Barret and Graddy [1] on soil erosion. He gets to the conclusions that the effective reduction of both the CO₂ emission and the soil erosion as described in the papers by Midlarski, Torras and Boyce and Barret and Grady, depend on a huge number of factors other than politics. For this reason it is extremely difficult to quantify the effect politics have on these environmental hazards. He concludes that the only thing that can be effectively measured is how politics affect the adoption of international agreements. Once adopted, the results of such agreements might take a long time before they can be observed and can be heavily influenced by exogenous factors. Thus, by taking the environmental outcomes as a measure of the degree of interest politicians give to the environment might be misleading. He suggests then to solely concentrate on the environmental treaty commitments of the countries. The first proxy variables we think of, are the total number of signed and/or ratified treaties which are available in the World Fact Book, CIA [2]. We will use them in the empirical part but, as we will see in the next paragraph, these proxies suffer of severe limitations.

Neumayer [7] proposes other variables that might proxy the international commitment on environmental issues: the signing and ratification of some specific Multilateral Environment Agreements (MEA), the number of memberships in environmental inter-governmental organizations (EIO), the extent to which reporting requirements for the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) are met, the percentage of country land area under protection status, the existence of a



National Council on Sustainable Development (NCSD) and the availability of environmentally relevant information. In this paper, in addition to the number of MEAs signed or ratified, we will concentrate our analysis only on the first two variables proposed by Neumayer [7] since we think that these are the only two that can effectively proxy the environmental commitments of governments. The CITES variable is supposed to proxy the compliance with the requirement of the MEAs. It surely proxy the compliance for the MEA on endangered species of fauna and flora but it is difficult to believe that all the countries are equally concerned by the trade in endangered species of flora and fauna and other environmental hazards such as soil erosion or CO₂ emission. This lack of generality of the variable makes us think that it is not a sufficient proxy for the purpose of our study.

For the fourth variable considered by Neumayer, the percentage of land area under protection status, we think that this variable suffers from the same weaknesses he highlighted in CO₂ emissions and soil erosion. In particular, this variable depends on a plethora of exogenous factors that do not depend on politics, such as the size of the country, the population density, the percentage of the land that is arable, the percentage of land occupied by mountains, the number of islands and so on. For this reason, it is difficult to consider it as a variable that proxies the degree of commitment of the government towards environment. The existence of a National Council of Sustainable Development is not sufficient to be considered as a proxy for an environmental commitment either, since it can only be seen as a nominal commitment. Given that the correlation (at a cross-country level) between this variable and the first two is low (less than 35%) we understand that in fact it doesn't have a very strong effect on real commitments. Finally, the availability of environmentally relevant information is more a proxy of the efficiency in providing information of a country than anything else. For this reason we do not think it is interesting here. For the two variables proposed by Neumayer kept in this paper, we take our data from his database [7]. As explained previously, the data for the signing and ratification of specific Multilateral Environment Agreements (MEA) come from a selection process among the more than 180 existing treaties. A first criterion was that the MEA should be global and not regional. A second one was that the treaty should not have a quasi-universal membership since these treaties can often be joined without any cost incurred and cannot really proxy an environmental commitment. Based on these criteria, the author selected four treaties: the Kyoto Protocol on climate change, the Montreal Protocol on ozone layer depletion, the Rotterdam Convention on trade in hazardous chemicals and pesticides and finally the Cartagena Protocol on biodiversity and genetically modified organisms. These treaties identify four extremely important components of the environment. In the empirical section, four dummy variables will be considered to identify if countries signed each specific treaty. These variables will be considered alone and jointly in a composite variable constructed as being the sum of the four. This composite variable can be considered as an indicator for the degree of commitment to environment. A value of four associated to a country means that this country is very concerned with environment while a value of zero means that the country does not commit itself to environment at all. The data for the participation in environment international organizations come from the WEF [12] and the Yearbook of International Organizations [13].



Apart from the environmental commitment proxies, that are our dependent variables, for our empirical analysis, we also need independent variables. The first important one, is a variable identifying the electoral system.

When we look at the non-autocratic countries of the world, we see that there are almost as many electoral systems as there are countries. Nevertheless, it is possible to classify all of them into two main clusters: the family of majoritarian formulas and the family of proportional formulas. By majoritarian formulas we mean rules such that the elected representatives are those who have won a majority of votes in the district for which they compete. On the opposite, proportional representations do not concern individuals but parties⁴. Each party will be represented proportionally to the percentage of votes received. The coding scheme is thus straightforward.

It might be argued that, in many countries, there is no single electoral rule and some of the members of the parliament are elected by a majority rule and others by a proportional rule. We decide to code an electoral rule as being majoritarian if more than 50% of the representatives have been elected under a majoritarian rule⁵. Otherwise, the country is coded as being proportional. Note that we limit our coding scheme to national elections and only for the lower house of the parliament because of the theoretical predictions (see [9]).

The other independent variables considered here are control variables. Neumayer [7] identified several that might have an impact on the environmental commitment of a country. First, he considers the wealth of a country. He suggests that poor countries might prioritize other issues than environment. For this reason, as he did, we control for the gross domestic product per capita in purchasing power parity in 1998 US\$. Second, he suggests that important (or big) countries should be more environmentally committed than unimportant ones. Here again we take his data and control for the (log) of the total population. Finally he also clearly showed that environmental commitments and democracy are highly correlated. For this reason we control for a democracy indicator. The author considers the possibility that different indicators of democracy might have different meanings, which could influence the results. Given that our theory only has a meaning where people effectively vote for representatives, our preference in the democracy index goes to the Jaggers and Gurr Polity IV indicator⁶ that considers exactly this component of democracy. To assure a consistency between our theoretical argument and our empirical analysis, we only kept countries with a sufficiently high degree of democracy as defined by Neumayer (polity variable⁷ superior to 0). Nevertheless to assure consistency, we also compared our results with the freedom house indicator. When we have a discrepancy between the two, we looked in the IPU parline database to check if the last elections for the parliament have taken place in accordance with democracy⁸.

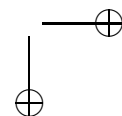
⁴Except for the Single Transferable Vote.

⁵Note that in Russia exactly 50% of the representatives are elected under each rule. It is thus coded as being proportional since we do not have that more than 50% of the representatives are elected by majority rule.

⁶Note that the results do not change much when we adopt another indicator of democracy.

⁷Ranging from -10 to 10.

⁸Note that since we are only interested in the selection process of the parliament, some countries that might have very strong government but where elections are held democratically for selecting the



The democracy indicator was thus used both to make a selection of our sample but was also considered as an independent control variable in the regression. Finally, we also controlled for some regional dummies identifying countries in Latin America, in sub-Saharan Africa, and in Post Communist Transition countries⁹.

3.2 The Methodology

In our analysis, we run heteroskedasticity consistent regressions over three types of dependent variables: count, binary and ordered. For the first type of data we use a negative binomial model, for the binary dependent data we use a standard logit model and for the ordered data, we use an order logit model. In all these models, we correct for the fact that the observations are independent across groups (clusters) but not necessarily independent within groups. The groups considered here are regions, namely: Eastern Asia-Pacific, Eastern Europe and Central Asia, Middle-East and North Africa, Southern Asia, Western Europe, North America, sub-Saharan Africa and Latin America. Since the coefficients of these regression models have no immediate meaning, we calculate incidence rate ratios for the count model and marginal effects calculated at the median for the others.

4 Results

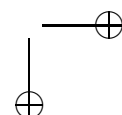
In this section we start by presenting how the electoral rule influenced the adoption of the four specific MEAs described above (independently or jointly) and the present how it influences the number of signed or ratified treaties and the number of participation in EIOs. In Table 2, we can see the results of the logit regression where the dependent variable is a dummy coded equal to one if the country signed a specific environmental agreement. The values presented are the marginal effects calculated at median¹⁰. Starting with the famous Kyoto protocol, dealing with CO₂ emissions, we find that there is no statistical difference between majoritarian and proportional systems. For the other agreements, namely the Copenhagen protocol on ozone layer depletion, the Rotterdam convention on trade in hazardous chemicals and the Cartagena protocol on genetically modified organisms, we see that systematically majoritarian systems are less keen to sign the treaties. In terms of size of effect, we see that for these three last environmental agreements, a median country¹¹ in all the dimension having a majoritarian system with respect to a similar country with a proportional representation election rule would have a 10.6% lower probability of signing the Copenhagen amendment, a 28.4% lower probability of signing the Rotterdam convention and a 18.5% lower probability of signing the Cartagena protocol.

parliament, are kept in the study.

⁹Note that we keep only these three regions to avoid losing too many degrees of freedom. Nevertheless, controlling for more regions does not change the generality of the results.

¹⁰We decided to calculate the marginal effects at medians and not means since there are several qualitative variables for which the mean has no direct meaning.

¹¹Having a level of democracy of 8, a ln(GDP) of 8.67, a ln(Population) of 15.99 and not being neither in Latin America nor in Sub-Saharan Africa or in a Transition country.



Following the work of Neumayer, we then consider an ordered qualitative variable that shows the degree of commitments to environmental agreements. This variable is created by summing the dummy variables described here above. If a country has signed all the above-mentioned agreements, the variables will be coded as equal to four. If it signed none of them, it will be coded as equal to zero, and so on. We present in Table 3 the results of the ordered logit regression with this ordered variable as dependent, and the same right hand side variables as described above. In the first column we present the result of the regression, while in the successive, we present the marginal effects calculated at a median value for each class of the dependent variable. Looking at the results we see, from the sign of the majoritarian dummy, that it is much more likely that majoritarian systems fall in the lower¹² categories than in the higher. For example, the probability that a majoritarian system falls in category one (no treaty signed) is 5% higher than a proportional. For the second category, it is 94% more likely while for the third it is 16% more likely. For category 4 there is no difference between the two systems, while for category 5, it is 22% less likely that a majoritarian system falls in this category.

	Kyoto Protocol	Copenhagen Amendments	Rotterdam Convention	Cartagena Protocol
Majoritarian System	-0.021 (0.20)	-0.106*** (2.66)	-0.284*** (3.16)	-0.185*** (3.54)
Democracy Index	0.015 (0.61)	-0.011* (1.66)	0.004 (0.45)	0.003 (0.78)
Ln(GDP)	0.187* (1.90)	0.088** (2.30)	0.155** (1.96)	-0.031 (0.56)
Ln(Population)	0.017 (0.47)	-0.000 (0.00)	0.052* (1.82)	0.030* (1.69)
Transition Economies	0.043 (0.027)	-0.191** (2.37)	-0.418*** (5.09)	-0.194*** (3.75)
Latin America	0.107 (0.66)	-0.049 (0.96)	-0.108 (1.19)	-0.082 (1.41)
Sub-Saharan Africa	-0.421 (1.66)	-0.082 (1.33)	0.094 (0.68)	-0.124 (1.06)
Observations	99	99	99	99
Pseudo-R ²	0.31	0.25	0.21	0.06

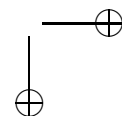
Robust z statistics in parentheses

* Significant at 10%, ** at 5% and *** at 1% Marginal Effects calculated at Medians

Table 2: Logit Regression- Adhesion to environmental agreements

Even if we are convinced that these variables are very good proxies for the environmental commitments, it might be argued that a large number of environmental agreements are not considered in our analysis and that we only concentrate our study on four specific characteristics of the environment. For this reason, following again Neumayer, we consider an additional one. This variable is the number of memberships

¹²Not many treaties signed.



	Marginal Effects					
	Regression Results	#1	#2	#3	#4	#5
Majoritarian System	-1.332*** (3.92)	0.049** (2.19)	0.942** (5.68)	0.159*** (2.77)	-0.082 (1.11)	-0.220*** (2.72)
Democracy Index	-0.003 (0.04)	0.000 (0.04)	0.000 (0.04)	0.000 (0.04)	0.000 (0.04)	-0.000 (0.04)
Ln(GDP)	1.036** (2.07)	-0.019 (0.96)	-0.044 (1.20)	-0.121** (1.70)	-0.048 (0.75)	0.232*** (2.74)
Ln(Population)	0.246 (1.47)	-0.004 (1.33)	-0.010 (1.27)	-0.029** (1.37)	-0.011 (0.51)	0.055 (1.30)
Transition Economies	-1.090** (2.34)	0.035 (4.76)	0.050** (2.54)	0.135** (2.28)	-0.049** (2.45)	-0.192* (1.87)
Latin America	0.050 (0.10)	-0.001 (0.09)	-0.002 (0.09)	-0.006 (0.09)	-0.002 (0.10)	0.011 (0.10)
Sub-Saharan Africa	-0.174 (0.18)	0.003 (0.18)	0.008 (0.17)	0.021 (0.17)	0.006 (0.19)	-0.038 (0.18)
Observations	99	99	99	99	99	99
Pseudo-R ²	0.17	0.17	0.17	0.17	0.17	0.17

Robust z statistics in parentheses

* Significant at 10%, ** at 5% and *** at 1%

Table 3: Ordered Logit Regression-Adhesion to Environmental Agreements

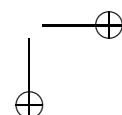
in environmental intergovernmental organizations. Finally we also consider the number of signed or ratified environment¹³- international agreements. The results of the negative binomial regressions are presented in Table 4. Note that to have a straightforward reading of the coefficients, we present the Incidence Rate Ratios in Table 5. As we can see in Table 4, the results are: first, being a majoritarian system, decreases the expected number of participation in Environmental Intergovernmental Organizations by about 18.6% = (0.814¹⁴-1)*100, holding other variables constant. Second, being a majoritarian system, decreases the expected number of ratified treaties by about 11.9% and finally, being a majoritarian system decreases the expected number of signed or ratified treaties by about 13.5%.

It might be argued that in our regression we do not capture the system effect but the colonial origin (in particular the British one). For this reason we checked if our results would be affected by the inclusion of a dummy identifying countries that gained independence from the United Kingdom or by one of its former colonies. The generality of the results remain the same after the inclusion of this variable. Similarly, we also considered the possibility that the inclusion of a regime type¹⁵ variable might affect the

¹³We consider here two variables. A first one that counts the number of signed and ratified treaties and a second one with signed treaties even if not necessarily ratified.

¹⁴0.814 is the Incidence Rate Ratio associated to the majoritarian dummy coefficient. It means that majoritarian systems have an expected number of participation equal approximately to the 81.4% of the proportional systems

¹⁵By regime type we mean that the country is Presidential, Parliamentary or Mixed Presidential Parliamentary.



	Environmental Intergovernmental Organizations	Ratified Treaties	Signed or Ratified Treaties
Majoritarian System	-0.205*** (4.46)	-0.126*** (2.92)	-0.145*** (3.20)
Democracy Index	0.009* (1.64)	0.019** (2.33)	0.016** (2.52)
Ln(GDP)	0.235*** (3.83)	0.207*** (5.23)	0.210*** (5.73)
Ln(Population)	0.127*** (7.18)	0.082*** (4.32)	0.086*** (4.55)
Transition Economies	-0.417*** (5.55)	-0.126** (2.37)	-0.086* (1.93)
Latin America	-0.173** (2.22)	-0.053 (1.03)	-0.083* (1.83)
Sub-Saharan Africa	-0.009 (0.07)	0.001 (0.01)	-0.035 (0.46)
Observations	91	98	98
Pseudo-R2	0.2	0.17	0.19

Robust z statistics in parentheses

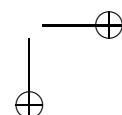
* Significant at 10%, ** at 5% and *** at 1%

Table 4: Negative Binomial, Number of signed treaties and participation in EIOs.

results. By including this variable, the generality of the results remain again unchanged.

5 Conclusion

The aim of this paper was to understand if there might be a link between the strategic behavior of politicians, which depends on the electoral system, and environmental commitments. In particular, we wanted to understand if majoritarian systems are less prone to participate in environmental related agreements than proportional representations. The theoretical predictions came from the political economics literature where several authors have shown that politicians are interested in locally targetable policies in majoritarian systems while they prefer broad policies in proportional systems for electoral purposes. Given that environmental policies can by no mean be targeted locally, our intuition was that it would not be considered as an interesting electoral platform to win the elections in majoritarian systems while it would be one in proportional systems. For this reason, majoritarian system should be less committed to environmental policies than proportional representation. We tested for this idea using several proxies and we got to the strong conclusion that apparently yes, there is a difference in the environmental commitments of a country depending on the electoral rule. In particular we found that majoritarian systems are less prone to sign such treaties than proportional representations. Even if this is a first step and a further analysis might be interesting to



find additional results, we believe that these results are interesting and might help improve our knowledge on the origins of the difference between countries in environmental commitments.

	Environmental Intergovernmental Organisations	Ratified Treaties	Signed or Ratified Treaties
Majoritarian System	0.814*** (4.46)	0.882*** (2.92)	0.865*** (3.20)
Democracy Index	1.009* (1.64)	1.019** (2.33)	1.016** (2.52)
Ln(GDP)	1.265*** (3.83)	1.230*** (5.23)	1.234*** (5.73)
Ln(Population)	1.135*** (7.18)	1.086*** (4.32)	1.090*** (4.55)
Transition Economies	0.659*** (5.55)	0.882** (2.37)	0.917* (1.93)
Latin America	0.841** (2.22)	0.949 (1.03)	0.921* (1.83)
Sub-Saharan Africa	0.991 (0.07)	1.001 (0.01)	0.966 (0.46)
Observations	91	98	98
Pseudo-R2	0.2	0.17	0.19

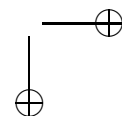
Robust z statistics in parentheses

* Significant at 10%, ** at 5% and *** at 1%

Table 5: Negative Binomial, Number of signed treaties and participation in EIO's.

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