The Agenda Setting Power Model in Comparative Politics: Political Partisanship and Environmental Performance

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Abstract:

This paper analyzes the partisan effect on environmental performance in 21 highly industrialized democracies from 1980 to 2012 by utilizing an agenda setting power model *(ASPM) which is methodologically unique in applying country-specific time lags and sequences of decision-making. Combining preferences in an environmental and left-right dimension and institutional settings of agenda setters and veto players, the results show that both policy dimensions have distinct effects. While the former confirms a rational choice perspective where veto players block and hinder agenda setters to get their preferences translated into policy outcomes, the latter indicates that consensus is also a way to improve environmental performance. Furthermore, the paper demonstrates that social democratic parties in government have a larger effect on improving environmental performance when turning to the left than other parties. The opposite is true for conservative parties – even if they move to greener positions, they have no positive effect on environmental performance.*

This paper is a working draft. Comments are very welcomed. However, do not quote the paper in this version, please.

1. Introduction

The impact of partisan politics on environmental policy is hotly debated in comparative politics. Some claim that Green parties or parties with a green profile more forcefully promote environmental protection when in government (Jensen and Spoon 2011; Knill, Debus, and Heichel 2010). However, these studies do not find support for an impact of left-leaning parties. Due to this, they suggest that the left-right dimension has not been constitutive in explaining policy outcomes in environmental politics. In contrast, other studies suggest that the left-right dimension promotes environmental concerns (Carter 2013; King and Borchardt 1994). More fine-grained studies postulate that left parties are generally more open to environmental concerns, but when in government they do not promote environmental improvement more significantly than other parties (Jahn 1998; Neumayer 2003). Finally, other studies do not see any partisan effect in environmental politics at all. One reason may be that domestic politics is losing ground and that international factors are becoming increasingly important for policies and outcomes of individual countries (Mol 2016).

Partisan politics has a long tradition and focuses on the effects of parties on policy and policy outcomes (Hibbs 1977; Schmidt 1996). Although it is often claimed that the impact of parties is dependent on resource mobilization and political constrains, no systematic analytical concept has been offered for macro-comparative studies to analyze the interaction of these aspects. In order to overcome these limitations, I analyze the impact of parties in the framework of an *agenda setting power model* (ASPM) which focuses on processes and interactions of political actors. This approach will be used to analyze changes in environmental performance in 21 highly industrialized and globalized democracies from 1980 to 2012.

The ASPM developed for this study is not specific to the analysis of environmental performance but is rather applicable to all policies and outcomes in macro-comparative studies. It is constituted by preferences of political parties and institutional settings they face to change policies and outcomes. This is the basic assumption of analytical politics or the *fundamental equation of politics* (Plott 1991; see also Hinich and Munger 1997, 17; Shepsle 1989, 137). Tsebelis and Rasch (2011, 2) emphasize that these two elements are fundamental for empirical research: "[A]n approach that combines the institutional characteristics of a political system with the positions of different actors enables the researcher to understand new policy positions the political system may adopt." However, focusing on the political process moves time and time sequences into the center of analysis. Surprisingly, time is a highly neglected aspect in macro-comparative analysis (de Boef and Keele 2008; Tucker 1982), and therefore this study breaks new ground in this respect by using optimized time lags for the analysis.

2. The Agenda Setting Power Model

The theoretical underpinning of the ASPM resembles agenda setter and veto player theory where the agenda setter intends to move the status quo but her attempt is constrained or modified by veto players

(Tsebelis 2002).[1] In Tsebelis' view the agenda setter can pick and choose where it wishes to move the status quo within the winset which is defined by the preferences of the veto players (Tsebelis 2002, 33–37). This implies that the agenda setter knows the position of the status quo and the positions of the veto players. Furthermore, veto player theory analyzes the political process in a static manner in the sense that the agenda setter and veto players have stable preferences. All these assumptions may not be given for granted in particular when looking at policy outcomes as I will do in this paper. As a consequence, veto player theory may work as a formal model but when it comes to a macro-comparative analysis, i.e. when many countries are compared, some assumption must by specified for such an analysis.

While most formal analysis originates from the status quo, it is not possible to determine the position of the status quo in an analysis of outcomes. This is due to at least two reasons. First, it is not obvious where the status quo lies relative to preferences. For instance, increasing social expenditure may be a goal for left parties, leading to the postulate that left leaning governments mobilize their resources in order to increase social expenditure. However, it remains an open question as to what the causal mechanisms behind such an assumption are. To illustrate: if a left government already has held power for over twenty years, then it is questionable whether it will still mobilize the same amount of resources to increase social expenditure in the 21st year. Instead, it could be satisfied with the achieved status quo which, in turn, results in lower mobilization endeavors. Secondly, the status quo for outcomes is often a moving target. Demographic factors, economic recession, etc. may change the amount of social expenditure without the intervention of political actors. This aspect is likely even more relevant for environmental performance. A dry summer may reduce water flows in rivers and lakes and may subsequently lead to increased concentration of pollution. The status quo (pollution level) has thus changed without political action. In sum, it is clear that the analytical significance of the status quo is not as easily utilized in macro-comparative studies dealing with policy outcomes than in areas of legislative politics.[2]

A solution is to conduct an analysis without relying on identifying an explicit status quo. In an agenda setting power approach, it is possible to assume the status quo implicitly. For instance, a high mobilization of preferences might be an indicator that the ideal point of the agenda setter diverges considerably from the status quo. On the other hand, if preference mobilization is low, then the agenda setter may already be close to the status quo or is otherwise not interested in moving the status quo. That means that the distance between the preferences and the status quo is best conceptualized by the analysis by the *degree of changing preferences* over time.

Depending on how strongly the agenda setter mobilizes its resources, the outcome will be changed in the direction of the agenda setter's position. Mobilizing resources is here defined as the degree to which

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[1] Tsebelis calls all actors veto player and speaks of "the veto player who sets the agenda" because in principle all veto players in a political system might be able to set the agenda. In order to distinguish the veto player who sets the agenda and other veto players, I use the term agenda setter for the veto player who sets the agenda and reserve the term veto player for those actors who may otherwise influence a change of the status quo.

[2] Even in the context of the analyses of the legislative process, such as in the study of European integration, the status quo (and also the position of the central actors) has been assumed. This fact has long been admitted (Garrett 1995), but has not had substantial consequences for subsequent analyses.

political actors increase their preferences concerning environmental issues. Some claim that environmental politics is best explained by referring to an environmental policy dimension (Jensen and Spoon 2011; Knill, Debus, and Heichel 2010). Such a dimension may distinguish between statements which emphasize the priority of environmental issues in contrast to statements which prefer economic development and economic growth (Benoit and Laver 2006; Laver and Hunt 1992). I use a green-growth index which uses time and country specific statements which favor the environment, on the one hand, or economic growth, on the other, building on the party manifesto data (see supporting material: Axxx). For the left-right dimension I use a similar index which is by now established in comparative politics (Jahn 2011). This leads to the first two hypotheses where the first hypothesis receives much support in the literature while the second is highly contested.

Hypothesis I:

The higher the mobilization of the agenda setter of green positions the higher the improvement of environmental performance.

Hypothesis II:

The higher the mobilization of the agenda setter of left positions the higher the improvement of environmental performance.

Agenda setters are constrained by veto players, which mobilize their resources to block, delay or otherwise influence the outcome. However, the reaction of the veto player is dependent on the move of the agenda setter. For instance, a strong move of the agenda setter may lead to a strong reaction of the veto players and a mild move of the agenda setter may result in a more benign reaction of the veto players. This perspective how politics works suggests that politics occurs as incremental bargaining between political actors (Achen 2006). That bargaining is essential to politics is demonstrated by the navette system between first and second chambers or consultation committees in many political systems. More often than not bargaining occurs in steps and not in a one-step manner as suggested in the veto player model.

The result of the interaction between agenda setters and veto players explains the degree of impact on changes of the status quo. In principle the relationship works in such a way that the agenda setter aims to move the status quo in his favored direction and the veto player tries to dilute this intention by emphasizing his preferred position. Because the agenda setter has the agenda setting power, the result is often that the veto player does not move the outcome toward its favored position but rather that it minimizes a policy change and preserves the status quo.

In the remainder of this section I would like to illustrate some typical patterns of interaction between agenda setters and veto players. In Tsebelis' view, veto players obstruct or delay the intended changes initiated by the agenda setters. That means that there is a contentious relationship between agenda setters and veto players (conflict model). Even if this is the most feasible assumption, veto players can also serve to reinforce the agenda setters' initiative (consensus model). Although the reinforcing impact of veto players seems to be counter-intuitive at first, there is a substantial body of literature postulating that veto players promote instead of hinder policy change initiated by agenda setters. For instance,

governments not facing institutional veto players may push through reforms of their own, while those facing veto players must make complex political compromises, which may lead to more far reaching reforms (Häusermann 2010). This result is confirmed by Lindvall's (2010) study of pension reform which points to the positive role played by greater numbers of veto players. Volden and Carrubba (2004) show that oversized coalitions reduce conflict and in doing so increase efficiency. In the view of formal analysis, Gehlbach and Malesky (2010) demonstrate that many veto players may prefer a full reform when other actors with special interests prefer a partial reform that is less effective. That, in turn, has the consequence that many veto players promote a more comprehensive policy change than when there are none or few veto players. In the context of environmental politics, Roller (2005, 252) finds that, concerning the generation of municipal waste, a high number of veto players leads to better results than a low number. She interprets this finding as follows: "This indicates that informal negotiation democracies generally produce better policy performance than informal majoritarian democracies…" Immergut and Orlowski (2013, 210) summarize the core of the argument by stating that "…while classical veto points and veto player analysis can indeed account for policy change, they nevertheless neglect bargaining processes between parties and amongst parties and societal stakeholders that may be necessary to achieve consensus for policy change".

Referring to the conflict and consensus models above it is more likely that the green-growth dimension is determined by conflict while the left-right dimension works according to the consensus model. This may be so because the green-growth dimension emerged from the conflict between prioritizing environmental or economic positions. Even if this antagonist position may be moderated over time they still represent a new cleavage in highly industrialized democracies. In contrast the left-right policy dimension is well institutionalized in industrial societies and conventionally negotiated in collective bargaining.

Hypothesis III:

In the green-growth dimension the ASPM works in a contentious mode, which means that veto players dilute, obstruct or prevent the initiative of the agenda setter.

Hypothesis IV:

In the left-right dimension the ASPM works in a consensus mode, which means that veto players support the initiative of the agenda setter.

3. Explaining Environmental Performance in Highly Industrialized Democracies

In this paper I focus on the environmental performance of 21 highly industrialized and globalized democracies from 1980 to 2012. To focus on these countries is important since they have the resources to capture comprehensive environmental measures and they have a model role for the newly emerging industrializing states. The period of analysis is determined by data availability but covers the years when environmental concern became relevant in most political systems of these countries.

The Dependent Variable

In order to explain environmental performance we need to be clear about the concept. In general, the concept of performance is evaluative and has been utilized in political science since the 1960s (Dahl 1967; Eckstein 1971; Gurr and McClelland 1971). The evaluation can be conducted by comparing to a pre-set target or baseline, or relative to other cases or time-periods (Eckstein 1971, 8). In terms of environmental performance, the difficulties presented by the former measure relate to a lack of clearly defined and universally accepted targets concerning the abatement of environmental degradation or the achievement of sustainability.[3] Therefore, this study focuses on the comparative approach. Furthermore, the concept needs to fulfill at least the following requirements: First, performance is an *outcome* variable. Although the introduction of environmental policies or the establishment of environmental institutions may have the intention to reduce pollution, the empirical proof of its effectiveness can only be measured by the outcomes. Second, environmental performance indicators must correspond to aspects that *can be influenced* by political action. In so far indicators which measure the state of the environment are not suited for explaining environmental performance. Third, it must be clear who is *accountable* for environmental performance. More than in other policy areas, this aspect is highly problematic in the field of environmental performance. Pollution is often transboundary and it is not always clear who is the polluter. I tackle this problem by focusing on the annual environmental performance of individual states. Finally, environmental performance deals with *complex* aspects and processes. There are various issues to consider, from atmospheric and water emissions, to waste and biodiversity. Environmental performance is thus multi-dimensional, leading to another measurement issue: do we aim to construct a comprehensive, composite index of environmental performance by aggregating often distinct aspects? Or do we analyze disaggregated issues in order to better trace causal relationships? The former approach has the advantage of being relevant to a wide range of environmental issues, as well as potentially having a stronger political signaling function like GDI (Gross Domestic Income). The disadvantage is that an aggregated, composite index may conceal causality as specific environmental issues may demonstrate divergent developmental directions (Pillarisetti and van den Bergh 2010). This, on the other hand, is the advantage of disaggregated environmental performance indicators. Nevertheless, it is difficult to explain a country's environmental performance when various disaggregated indicators come to different conclusions.

There are a few existing indices that consider environment performance in various countries (for an overview see Fiorino 2011). Pioneering studies in political science have been conducted by Crepaz (1995), Palmer (1997), Jahn (1998) and Scruggs (2003). However, these indicators are not time variant. The same is true for the environmental performance index conducted at Yale University (http://epi.yale.edu/) which has been published for over almost one decade (Hsu et al. 2014). The comparison over time is as of yet only over two rather ill-defined time periods. The Ecological Footprint Index is the only index suitable for a multi-country, time-series analysis (Wackernagel 2002). This index weighs the biocapacity of a country with the man-made impact on the environment (ecological footprint). With this the index does not meet the criteria for a performance index since it deals with an aspect that is difficult to influence by political action – at least in the short- or medium-term. The only

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[3] For instance, this is even true for Climate Change Policy where political actors introduced set targets. However, these targets were strongly disputed and, over time, frequently revised (Gupta 2010).

index which seems to be suitable for my analysis is a comprehensive index building on publically available data from the OECD which covers a broad spectrum of environmental issues such as atmospheric emissions, household and nuclear waste generation, as well as fresh water abstraction. These issues have been shown to be a common factor in principle component analysis (Jahn 2016b). Because this index includes a wide range of environmental issues it is called *general environmental performance* (GENPER).[4]

The Control Variables

Although the ASPM is in the focus of analysis, there are alternative approaches explaining environmental performance. Previous studies have shown that countries with a high degree of corporatist arrangement have been in particular successful in combating environmental degradation (Crepaz 1995; Jahn 1998; Scruggs 1999; 2001). However, analyzing the long-term effect of corporatism other studies come to the result that the impact is ambiguous and spurious (Neumayer 2003). Referring to the findings of former studies, it seems to be essential to include corporatism as a control variable in this study.

Another alternative explanation take care of the often claimed hypothesis that international aspects influence domestic politics. In its most radical version this line of argument claims that international factors increasingly determines domestic policy and renders the nation state obsolete (Mol 2016). I will use two indicators to capture the international impacts. First, I use the international exposure of countries by looking at their involvement in international trade. There is a vivid discussion if trade openness leads to an improvement (race to the top) or deterioration (race to the bottom) of environmental performance. The "race to the bottom" thesis is well documented in the state-centric environmental politics literature (Engel 1997; Konisky 2007). The assumption is that national governments give the highest priority to economic growth. In order to facilitate growth, they lower environmental standards which may increase production costs. If production costs are too high for industries and firms in comparison with other countries, enterprises may move to countries with lower environmental standards. In order to prevent the real or anticipated threat that firms go abroad, governments lower environmental standards (Lowry 1992). In contrast, structural change and technological development may lead to efficiency gains and the diffusion of environmentally cleaner technologies. This trend would imply a "race to the top" where environmental standards increase through trade because stricter environmental standards imply competitive advantages (Vogel 1995; 1997). This trend seems to dominate in rich countries. Examples are the Japanese automobile and tech industries or Germany's alternative energy sector.

The other international driving force to improve environmental performance focuses on the international engagement of countries in multilateral environmental agreements (for an recent overview see Young 2013). The major conclusion of these studies is that international environmental treaties matter and lead to an improvement of environmental performance.

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[4] The other factors encompass, on the one hand, water pollution in rivers and lakes and, on the other hand, paper and glass recycling as well as waste water treatment.

A further aspect which influences environmental performance is economic performance. A growing economy may be a burden for the environment. Even if some conclude that growth may be good for the environment. As Beckerman (1992, 491) claims: "…in the end the best – and probably the only – way to attain a decent environment in most countries is to become rich." This assumption is also the backbone of ecological modernization theory. New technologies and a growing service industry are seen as causing less environmental damage than economies centered on traditional industrial production. The final set of control variables deal with environmental pressure and relief. Two aspects are in particular relevant: first, the share of fossil fuels may have a negative impact on environmental performance because of the high atmospheric emissions from energy production using, coal, oil or gas. In contrast, countries increasing their share of renewable energy without environmentally harmful effects, such as solar and wind energy may improve the environmental record.

4. Methodological Considerations

Bargaining occurs in steps and not in a take-it-or-leave-it manner. That makes time and decision sequences important. Analytically, veto players change their positions *after* the agenda setter makes the first move and by doing so they change the winset. However, the modelling of time and time sequences is a highly neglected aspect in macro-comparative analysis (de Boef and Keele 2008; Tucker 1982). Already more than three decades ago, Tucker (1982, 177) stated that "[t]here is no single correct way to handle time in cross-sectional analyses. However, some uses of time are more plausible than others." Since there is no single theory of time (Tucker 1982, 193) one has to start with empirical observations or apply an inductive approach (see for instance Cranmer, Rice, and Siverson 2015; Plümper, Troeger, and Manow 2005). In this context, Janoski and Isaac (1994, 35–36) point out that time lags may vary substantially in different policy areas. They argue for a budgetary lag of one or two years and a legislative lag between one and three years. If taking the implementation of a policy into account – as is the case in the analyses of outcomes – the lag structure could be up to five years and in some cases they even refer to a ten year time lag. Plümper, Troeger, and Manow (2005) suggest testing various time lags in order to identify an optimized time lag for each variable. "Though the optimization of lags is certainly time consuming, it is absolutely essential in first difference models" (Plümper, Troeger, and Manow 2005, 344). In this study, the analytical fact that time lags vary between countries and periods is taken into account. This is done by keeping all but one country with no time lags. For each country, all possible combinations of analytically set ranges of time lags are tested. As an effectiveness criterion, R-square is used as suggested by Plümper, Troeger, and Manow (2005). In the next step, the same procedure is applied for all other countries.

An essential point in the context of modelling time is that time lags must make theoretical sense. The theoretical implication of the ASPM determines the sequence of time lags which have to be taken into account when applying the method of optimizing time lags. From this perspective, for instance, veto

players can only veto after the agenda setter has made the first move.[5] In order to model this situation, the time lag of the veto player is always set shorter or equal to the one for the agenda setters.

Technically, one may remark that optimized lags lead to overfitted models. This is of course partially true because it is an inductive method which fits the data to the model. However, as pointed out already, using a standard t-1 lag is even more biased. Optimized lags identify the time lags of the variables in theoretically defined directions and sequences. This fact together with the applied practice that five variables are simultaneously optimized limits the risk of overfitting. However, the most sensible test whether optimized lags make sense is if the results correspond with theoretical assumption. In the case of environmental performance it would contradict all theories when a move to the growth side leads to environmental improvements. Even if less clear, empirical studies also show that a move to left but not to the right leads to a more efficient environmental performance. I therefore test the models in all possible direction: a move to the green side, a move to the growth side, a move to the left and a move to the right.

CORPORATISM , ECONOMIC OPENNESS and INTERNATIONAL TREATIES are treated as independent from the other political variables in the modeling of time lags. The time lag is set between one and four years for CORPORATISM and one and five years for the two international variables since the latter needs to be incorporated into domestic politics and policy. GROWTH, FOSSIL FUELS, RENEWABLES and SERVICE SECTOR SIZE have no time lag because I assume their effects are felt immediately. As with the other variables, the time lag of the level variables is set equal to that identified by the optimization procedure of the first difference variable minus one year.[6]

Indicators for corporatism are not well suited for time-series analysis. As Huber and Stephens (2001, 63) point out, by using Lehmbruch's index of corporatism, "… the corporatist measure suffers from greater measurement error … because the degree of corporatist bargaining varies somewhat through time within countries but the measure does not". As a consequence, the authors eliminated corporatism from their empirical analysis. Therefore what is need is a time-variant indicator for corporatism. This is necessary because I focus my analysis on short term effects which are normally measured by a first difference model which in turn requires variation over time. There is one indicator which is time variant and which covers all the countries included in this study (Jahn 2016a). With this indicator I can test the short and long-term effect of corporatism.

For the international impact I use an index for the economic openness of an economy. The index conventionally used for this aspect is the part of imports plus exports at the gross national income (GNI), divided by the GNI.[7] For the impact of international environmental treaties I use Mitchell's data set on the most important and commonly research international agreements.[8] To control for economic

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[5] Of course there can be anticipated vetoes where political actors adjust their proposals according to the veto players. However, this perception of veto players requires another theoretical and methodological framework.
[6] CORPORATISM and ECONOMIC OPENNESS have been tested in both directions in order to find out whether the overall impact is positive or negative for environmental performance. The tables show the results with the larger t-statistics.
[7] I use Penntrade data. I adjusted the data on trade openness as well as the data for GDP, growth, fossil fuels for the fact that Penntrade and the OECD do not distinguish between East and West Germany before 1990.
[8] https://rmitchel.uoregon.edu/ (accessed June 2015). The included agreements are: UN Framework Convention on Climate Change, Montreal Protocol on Ozone Protection, Convention on Biological Diversity, Convention on Long-

performance and structural change impacts I include, on the one hand, a variable which measures economic growth and, on the other, the changes of employment of the service sector. Finally, the share of Fossil Fuels and Renewables (solar and winder power) is included into the model.

The theoretical considerations require to use first-difference models which consider changes of environmental performance from one year to the next (Δ-models). I also include the independent variables as first differences, which measure the short-term effects. I also include the levels in order to capture the long-term effects and control for the starting-points on which the changes are based. Formally the standard model in this paper can be summarized as follows:

$$\Delta \text{GENPER}_{it} = \alpha_0 + \beta_0\, \text{GENPER}_{it-1} \qquad\qquad\qquad (1)$$

$$+ \beta_1\, \Delta \text{LAS}_{it0-4} + \beta_2\, \text{LAS}_{it=\Delta LAS-1}$$

$$+ \beta_3\, \Delta \text{VETOPLAYER}_{it0-4\,;\,\leq\,\Delta LAS} + \beta_4\, \text{VETOPLAYER}_{it=\Delta VETOPLAYER-1}$$

$$+ \beta_5\, \Delta \text{CORPORATISM}_{it1-4} + \beta_6\, \text{CORPORATISM}_{it=\Delta CORPORATISM-1}$$

$$+ \beta_7\, \Delta \text{ECONOMIC OPENNESS}_{it1-5} + \beta_8 \text{ECONOMIC OPENNESS}_{it=\Delta ECONOMIC OPENNES-1}$$

$$+ \beta_9\, \Delta \text{INTERNATIONAL TREATIES}_{it1-5} + \beta_{10}\text{INTERNATIONAL TREATIES}_{it=\Delta INTERNATIONAL TREATIES-1}$$

$$+ \beta_{11}\, \text{GROWTH} + \beta_{11} + \text{GDI}_{it-1} + \beta_{15}\Delta \text{SERVICE SECTOR SIZE} + \beta_{16}\text{SERVICE SECTOR SIZE}_{it-1}$$

$$+ \beta_{12}\Delta \text{FOSSIL FUELS} + \beta_{11}\, \text{Fossil Fuels}_{it-1} + \beta_{13}\Delta \text{RENEWABLES} + \beta_{14}\text{RENEWABLES}_{it-1}$$

$$+ \beta_{yi}\, \text{YEAR EFFECTS} + \varepsilon_{it}$$

The term $\Delta \text{GENPER}_{it}$ represents the dependent variable in each country i and each year t. Y is measured as first difference (Δ). The variable GENPER_{it-1} is the one year lagged level of the dependent variable. ΔLAS is the first difference of the green-growth or left-right position of the legislative agenda setter (LAS) in country *i* with a time lag between zero and four years. This time lag is selected because it covers a normal period between two elections in most countries. Variable LAS is the level variable of green-growth or left-right positions of the agenda setter which has the same time lag as ΔLAS, minus one year. The changes in the ideological positions have been optimized according to the green, growth, left and right policy preferences. ΔVETO PLAYER is the first difference for the veto player range with a range between zero and four years where the time lag is smaller than or equal to the time lag of ΔLAS. All models include a dummy variable of all years in order to control for temporal changes and yearly shocks (YEAR EFFECTS). The error term ε_{it} captures the unexplained variance in the model and, a_0 is the intercept. The descriptive statistics and the sources of data are provided in Table A1 of the supporting information.

For the ASPM we need to interact the agenda setter and veto player. Conducting interactive analysis requires adequate theoretical and methodological exposition. Berry, Golder, and Milton (2012) suggest formulating interactive predictions when x and z are at their extremes even if the extreme values are not

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Range Transboundary Air Pollution, Convention on International Trade in Endangered Species, Basel Convention on Control of Hazardous Wastes, Convention to Combat Desertification, Antarctic Regime System. I follow Mitchell's coding advice where he suggests coding environmental agreements and amendments as independent instances. The gap towards the annual possible amount of treaties I taken as an indicator in order to avoid a time biased measure.

the main focus.[9] However, the lowest and highest values may most clearly illustrate the assumed relationships. Following this advice, I formulate predictions for the conflict and consensus model for both interactive variables:

Conflict Model

Conflict 1. $P_{AS|VPmin}$: The marginal effect of the ideological changes of the agenda setter is *negative* when the decrease of the veto player range is strongest.

Conflict 2. $P_{AS|VPmax}$: The marginal effect of the ideological changes of the agenda setter is *zero* when the increase of the veto player range is strongest.

Consensus Model

Consensus 1. $P_{AS|VPmin}$: The marginal effect of the ideological changes of the agenda setter is *zero* when the decrease of the veto player range is strongest.

Consensus 2. $P_{AS|VPmax}$: The marginal effect of the ideological changes of the agenda setter is *negative* when the increase of the veto player range is strongest.

I start the analysis with the interaction between the legislative agenda setter and the veto players. In the next step I refine the analysis by looking at the impact of party families on the relationship between agenda setters and veto players. In order to do this I use a three way interaction models.

5. Analysis and Results

In order to facilitate the interpretation of the results, I present the substantial impact of a change of an independent variable building upon the analysis of predicted values (King, Tomz, and Wittenberg 2000). Working with predicted values clarifies the interpretation of the impact of variables because it allows for answering "what if" questions under *ceteris paribus* conditions. It also enables the comparison of the impact within and even across models. The *substantial impact* (SI) relates the difference in adjusted predictions to the empirical range of the dependent variable, which is formally:

$$SI = \frac{\hat{y}_2 - \hat{y}_1}{y_{80th} - y_{20th}} * 100 \tag{1}$$

where y_{20th} and y_{80th} represent the 20th and 80th percentile of the dependent variable. $\hat{y}_1$ and $\hat{y}_2$ are the predicted means. These predicted means are the values the dependent variable would take when one or more independent variables of particular interest are set to specific values while holding all other independent variables at their mean or whatever value (Mitchell 2012, 27). For the "specific values," I

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[9] It should be noted that it is statistically and substantially correct that the relationship between agenda setters and veto players is symmetrical and some (most emphatically Berry, Golder, and Milton 2012) stress, that more information about the interaction can be obtained when calculating both sides of the interaction, meaning in our case to also analyze the marginal effect of agenda setters on veto players. However, in the way I use different time lags for agenda setters and veto players, and that the time lags for veto players is always shorter or equal to the one for agenda setters, the analysis is no longer symmetrical. An analysis of the marginal effects of veto players would then suggest that future stands of agenda setters have an effect on veto players. Because this does not make sense, I do not conduct the analysis when agenda setters condition the marginal effects of veto players.

follow other scholars (see for example Garrett 1998; King, Tomz, and Wittenberg 2000) and use values which represent strong, but not extreme, changes. It has been suggested that the difference between the 20th ($\hat{y}_1$) and 80th ($\hat{y}_2$) percentile is suitable.

Table 1 shows the results of the regression analyses of the t-1 standard Models 1 (green-growth) and 4 (left-right). The optimized lag Models differs in the way that they are optimized for ΔLAS in the green (Model 2), Growth (Model 3), Left (Model 5) or Right (Model 6) direction. A general and expected result is that the optimized lag models have a better fit than the models with standard lags. Optimized lag models also often change the sign of the impact and/or make insignificant results significant compared to models with standard lags. Furthermore, the results show that political variables are important for explaining environmental performance. However, they also illustrate that the political process is not adequately captured using standard lags of t-1. Comparing the standard t-1 and optimized lag models shows that all politics variables except ΔCORPORATISM are insignificant on the 0.05 level in the models with standard lags. In the optimized lag models, all are significant.

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Table 1: Explaining Environmental Performance

	(1) GG (t-1)	(2) GG (Green)	Substantial Impact	(3) GG (Growth)	(4) LR (t-1)	(5) LR (Left)	Substantial Impact	(6) LR (Right)
Lagged DV	-0.003	-0.002	-2.725	-0.002	-0.002	-0.002	-2.381	-0.002
	(0.004)	(0.003)		(0.003)	(0.004)	(0.003)		(0.003)
ΔLAS	-0.001	-0.042***	-8.362	0.008	-0.014	-0.029***	-6.645	0.005
	(0.011)	(0.011)		(0.011)	(0.009)	(0.008)		(0.008)
LAS	-0.003	-0.008	-5.349	-0.009	-0.008	-0.008+	-6.598	0.001
	(0.007)	(0.006)		(0.006)	(0.005)	(0.005)		(0.005)
ΔVETO PLAYER	-0.002	0.017+	3.427	0.017	-0.005	0.013+	3.261	0.016*
	(0.010)	(0.010)		(0.010)	(0.008)	(0.007)		(0.008)
VETO PLAYER	-0.004	-0.008+	-6.805	-0.006	-0.007+	-0.009*	-9.81	-0.006
	(0.005)	(0.004)		(0.005)	(0.004)	(0.004)		(0.004)
ΔCORPORATISM	1.170*	1.483**	6.941	1.110*	1.376*	1.515**	7.247	0.848
	(0.547)	(0.520)		(0.530)	(0.554)	(0.523)		(0.527)
CORPORATISM	0.022	0.052	5.411	0.046	0.058	0.083	8.659	0.026
	(0.066)	(0.067)		(0.064)	(0.071)	(0.066)		(0.061)
Δ ECONOMIC OPENNESS	0.001	-0.032***	-14.091	-0.036***	0.000	-0.025***	-10.844	-0.026***
	(0.010)	(0.007)		(0.008)	(0.010)	(0.007)		(0.007)
ECONOMIC OPENNESS	-0.003+	-0.003*	-9.715	-0.003*	-0.004*	-0.004**	-13.34	-0.003*
	(0.002)	(0.001)		(0.001)	(0.002)	(0.001)		(0.001)
ΔINTERNATIONAL TREATIES	0.442	-0.759**	-2.739	-0.676*	0.376	-0.789**	-2.993	-0.921**
	(0.358)	(0.286)		(0.291)	(0.361)	(0.299)		(0.301)
INTERNATIONAL TREATIES	-0.567***	-0.747***	-22.284	-0.743***	-0.630***	-0.722***	-21.6	-0.576***
	(0.120)	(0.118)		(0.117)	(0.128)	(0.114)		(0.102)
GROWTH	0.091***	0.093***	24.723	0.096***	0.092***	0.107***	28.451	0.103***
	(0.018)	(0.017)		(0.018)	(0.018)	(0.017)		(0.018)
GROSS NATIONAL INCOME	-0.000*	-0.000	-10.481	-0.000+	-0.000	-0.000	-10.029	-0.000*
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)		(0.000)
ΔFOSSIL FUELS	0.160***	0.149***	21.166	0.152***	0.158***	0.142***	20.103	0.161***
	(0.023)	(0.021)		(0.022)	(0.022)	(0.022)		(0.022)
FOSSIL FUELS	-0.002	-0.002	-4.489	-0.002	-0.003	-0.003	-6.6	-0.003
	(0.002)	(0.002)		(0.002)	(0.002)	(0.002)		(0.002)
ΔRENEWABLES	-0.863*	-0.685+	-2.995	-0.730+	-0.882*	-0.857*	-3.745	-0.728+
	(0.422)	(0.389)		(0.404)	(0.419)	(0.404)		(0.410)
RENEWABLES	0.087	0.043	1.118	0.054	0.080	0.074	1.891	0.071
	(0.090)	(0.084)		(0.085)	(0.089)	(0.087)		(0.086)
ΔSERVICE SECTOR SIZE	0.000*	0.000**	3.736	0.000**	0.000*	0.000**	4.104	0.000*
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)		(0.000)
SERVICE SECTOR SIZE	-0.000*	-0.000*	-4.647	-0.000*	-0.000**	-0.000**	-5.553	-0.000**
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)		(0.000)
_cons	0.902*	1.352***		1.228***	0.945*	1.338***		1.222***
	(0.379)	(0.341)		(0.358)	(0.371)	(0.323)		(0.332)
N	650.000	648.000		648.000	650.000	648.000		650.000
r2	0.392	0.460		0.445	0.397	0.444		0.422
adjusted_r2	0.342	0.416		0.400	0.347	0.399		0.375

Explanation: Time-Series–Cross-Section Prais-Winsten regression with corrected standard errors. Levels of significance: *p< 0.05, **p< 0.01, ***p< 0.001. Models 1 and 4 are standardized time lags of t-1 with year dummies (PE). Models 2, 3, 5, and 6 are the models with optimized time lags (OL) and PE. Model 2 is optimized for green positions, Model 3 for growth, Model 5 for left, and Model 6 for right positions. *Green, Left* and *Right* indicate the direction of the optimization. Δ indicates first differences. T-statistics are in parentheses. Substantial Impact shows the percentage change from the 20th to the 80th percentile as described in the text.

Shifts in the agenda setter's ideological position have a substantial and significant effect on ΔGENPER. As in other studies, Model 2 confirms that the green-growth dimension is relevant for improving environmental performance (Jensen and Spoon 2011; Knill, Debus, and Heichel 2010) (hypothesis I). However, Model 5 concludes that the left-right dimension is also important (hypothesis II). The more agenda setters move to the green or left side, the higher the likelihood of improving environmental performance. Optimizing the green-growth dimension towards the growth position or the left-right

dimension toward right positions does not show any significant results (Model 3 and 6). These results make me confident that optimizing lags makes theoretically sense and leads to unambiguous findings.

The predicted mean in Model 2 shows that when an agenda setter moves strongly toward the green side, ΔGENPER improves by 8.4 percent. The impact of ΔLAS in the left-right dimension shows that a leftward shift has a SI of 6.6 percent. Both these results are highly significant (p < 0.001). This is different for the impact of veto players which have a weak effect on environmental performance. Although the SI is well above three percent, the effect is not significant at the 95 percent level (p = 0.08 in Model 2 and 0.07 in Model 5).

Moving to the control variables shows that ΔCORPORATISM is a significant variable with a strong SI of around seven percent. In contrast to most studies the result shows that corporatism is harmful for the environment. A more fine grained analysis (results not shown) reveals that corporatism had a very strong negative impact on environmental performance until the 1990s. During this decade corporatist actors integrated environmental issues into their programs and strategies and the impact of corporatism changed direction. From the mid-1990s the impact of corporatism turned significant into the other direction: the higher the corporatist arrangements the more environmental performance improves. A similar but reversed impact I find for ΔECONOMIC OPENNESS. As Table 1 shows the overall impact is very substantially positive for environmental performance. A closer look, however, shows that this is only true for the previous millennium (results not shown). From around 2000 the impact changes and turns out to be significantly negative for environmental performance. The results for INTERNATIONAL TREATIES show that the long-term effects are among the most substantial impacts in this study. But also the short-term effects are clearly significant but of a smaller magnitude. Concerning the relationship of economic growth and environmental performance, it appears that there is no decoupling between GROWTH and ΔGENPER. Actually the SI of GROWTH is the strongest in all the models and ranges between 25 percent in the green-growth model and more than 28 percent in the left-right model. Finally, the energy mix is important. FOSSIL FUELS are certainly a driving force for environmental degradation. In contrast, solar and wind power have a positive effect. Astonishing is the result for the size of the service sector. Even though the long-term effect is positive for the environment, which supports that structural change leads to an improvement of environmental performance, a growing service sector has a negative effect. This finding sheds some doubts that structural change is enough to improve the environment.

Given the findings so far, how does the ASPM, which builds on the interaction between agenda setters and veto players, perform? For the calculation of the ASPM, I add the interactive term between agenda setter and veto player (ΔLAS * ΔVP) to the basic Models 2 and 5 in Table 1. I will present the results by using graphs for interpreting the marginal effects.

Figure 1: Marginal Effect on Environmental Performance
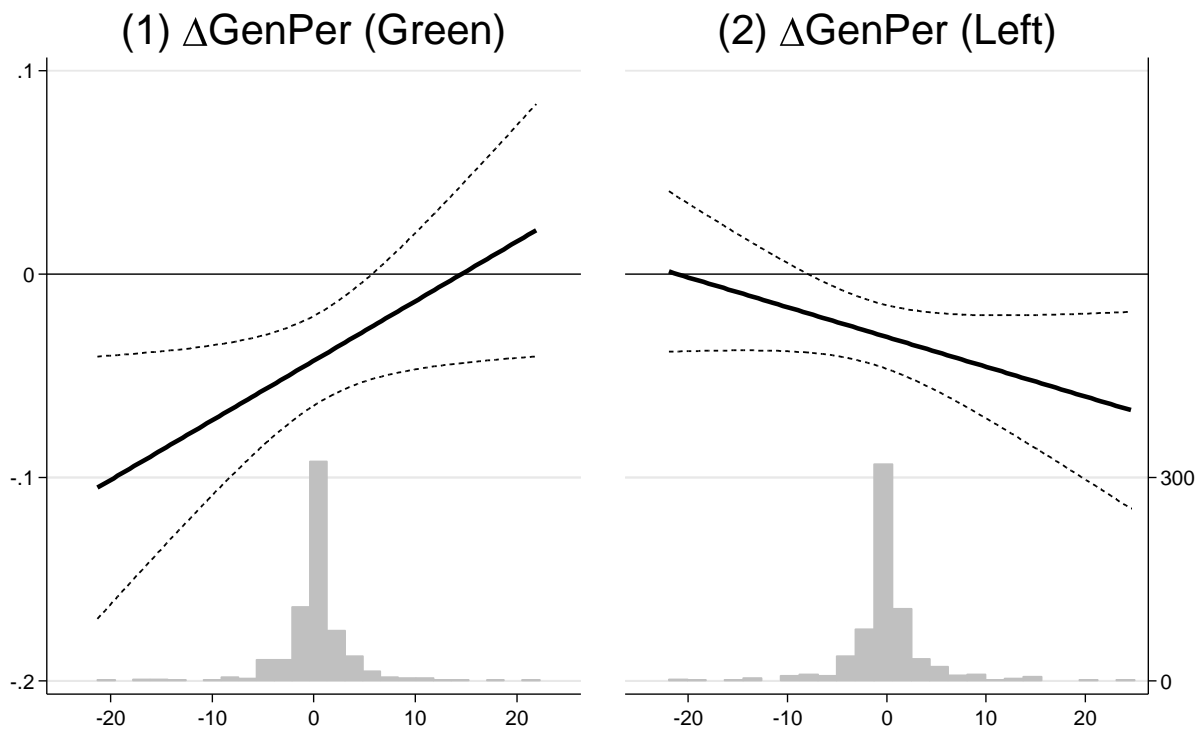
Explanation: The line plots show the average marginal effects of changes of agenda setter over changes in veto player range on changes in environmental performance. The dashed curves define the 95 percent confidence interval. Green and Left indicates the direction in which time lags for agenda setters and veto players are optimized. Vertical axis is the marginal effect of agenda setters on changes in environmental performance. Horizontal axis represents changes in the veto player range. The right y-axis shows observed frequencies of changes in veto player ranges displayed as a histogram.

Graphic 1 in Figure 1 is a green-growth model that shows that when the agenda setter is moving toward green positions, ΔGENPER improves as long as the veto player range shrinks or does not increase more than 5.73 points on a scale reaching from -22 to 25. If the veto player mobilizes over this threshold, then it neutralizes the agenda setter's green positions, that is, the results are becoming statistically insignificant. This result is a model case for the functioning of the ASPM in its contentious version. The left-right model in Graphic 2 in Figure 1 presents another logic of the political process: environmental performance improves when the veto player range increases. The threshold that veto players have a positive effect on the initiatives of the agenda setter is already present when the veto player range decreases less than -7.93. From this point environmental performance improves significantly the more the veto player range improves. This result supports the assumption that left-right politics on environmental issues is consensus-oriented and veto players support the agenda setter's initiative. These results confirm impressively hypotheses III and IV.

Since the analysis concerning the relationship between ideological positons of agenda setters and veto players refers to all agenda setter, it does not say anything about the specific impact of party families

when they change their ideological position. However, there is some evidence that social democratic parties are more likely to move toward positions which support an environmental improvement (Carter 2013; Kitschelt 1994). If that were the case, green politics would have a significant alliance partner. Another aspect is if a move to the green position of the agenda setter is always associated with an improvement of environmental performance. Or, rather is it so that some parties increase their green rhetoric without consequences and do we find evidence that this is so for certain party families? Answering those question require a refined analysis of the interaction between agenda setters and veto players which include the conditional effect of party families.

For the analysis of the impact of party families (PF) on the ASPM, I use a "fully interactive model" (Kam and Franzese 2007, 39–43).[10] The reported significance level of the confidence interval is again at $p < 0.05$. The models are subjected to the contrast test, which tests linear hypotheses and forms contrasts involving factor variables and their interactions, in order for the data to be considered meaningful to report (Mitchell 2012, 172–74). For this reason, party families have been dichotomized leaving us with several models where one party family always receives a value of 1 when it is agenda setter and holds a certain percentage of parliamentary seats. Otherwise, the party family is coded 0.

The results show that social democratic parties have no different effect from other parties when they mobilize green positions. However, conservative parties differ significantly, Social democratic parties differ instead from the other party families in the left-right dimension. Figure 2 shows the results for two models which have passed the test (or come very close to it) and which are substantially interesting.[11]

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[10] A "fully interactive model" adds ΔLAS*ΔVP*PF to the set of pairwise interactive terms: ΔLAS*PF, ΔVP*PF, and ΔLAS*ΔVP. PF is a dummy variable for each party family included in this study.

[11] I tested social democratic, liberal, Christian democratic, non-Christian center and conservative party families because these party families are strong enough to represent a substantial array of agenda setters for a considerable period in the 21 OECD countries. However, except of the reported models, none of these analyses produced significant results. This means that the results of the two-way interaction are valid for most of the observations.

Figure 2: Three Way Interaction of Agenda Setter, Veto Player, and Party Families
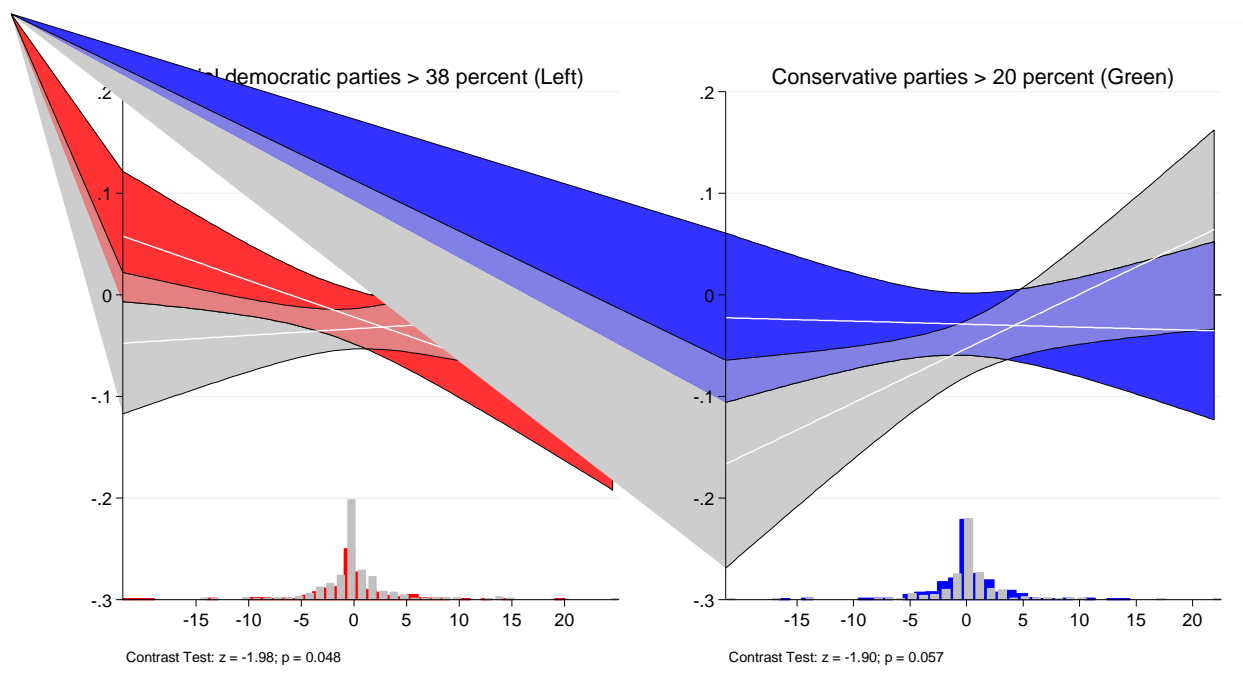
Explanation: Average marginal effects of changes of agenda setter over changes in veto player range on ΔGᴇɴPᴇʀ contrasted between party families with 95 percent confidence interval. Vertical axis is the marginal effect of agenda setters. Horizontal axis represents changes in the veto player range. The right y-axis shows observed frequencies of changes in veto player ranges displayed as a histogram. Dark gray is the respective party family (i.e., dummy = 1), light gray are all other observations (dummy = 0).

Graphic 1 in Figure 2 shows that when social democratic parties are strong agenda setter (i.e., that they have more than 38 percent of total parliamentary seats) and when they move in the left policy direction, they improve ΔGᴇɴPᴇʀ to a substantially stronger degree than when other parties as agenda setters move in the left policy direction. Actually, the result shows that the consensus model in the left-right dimension is only valid for social democratic parties. For the other party families a left move is insignificant which implies that the consensus model is not suitable for them.[12]

Graphic 2 in Figure 2 shows that when conservative parties are moving to the green-side as agenda setters and hold more than 20 percent of parliamentary seats and move toward green positions, they have no substantial effect on ΔGᴇɴPᴇʀ. The graph even shows that environmental performance may deteriorate. That means that conservative parties may only be paying lip service when emphasizing environmental issues or that they are less effective in translating their claims into policies and outcomes. The confidence interval including the zero line also indicates that veto players make no difference when conservative parties take greener positions. For all other party families the conflict model prevails.

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[12] Even if this result is substantial and the contrast test indicates a difference between social democratic parties, on the one hand, and other party families on the other, the conclusion is not immune to doubt statistically because the confidence intervals of the social democratic party family and the other party families overlap.

To summarize, we can conclude that social democratic parties are indeed allies for green concerns. When these parties are agenda setter and emphasize left positions, environmental performance improves. In contrast, a shift within conservative parties as agenda setters toward green positions has no positive effect on environmental performance whatsoever.

6. Conclusion

As demonstrated by the empirical analysis of the political process in 21 highly industrialized and globalized democracies over more than three decades, environmental performance is substantially influenced by party politics. It depends which position a party takes as an agenda setter if environmental performance improves or not. However, agenda setters are constrained by veto players and the outcome of the political process is a result of the interaction of the agenda setter and veto player. This relationship has been analyzed in terms of an ASPM in this paper, which has not only been confirmed but also reveals important new insights. One of the most intriguing findings is that different logics of politics apply. On the one hand, in the green-growth dimension the interaction is confrontational, and on the other hand, in the left-right dimension it is consensus-oriented. In substantial terms that means that in the green-growth dimension, the agenda setter aims to change the status quo and the veto player blocks the agenda setter's intention. This is the classical rational choice perspective which Tsebelis (2002) presents so compellingly. In the left-right dimension, a large veto player range may signal the social integration of various interests and confirms the consensus model. This result confirms Lijphart's (2012) view of politics.

A more fine-grained analysis of the ASPM shows that this result is generally true for all parties as agenda setter regardless of which party family they belong to. However, there are two noticeable exceptions: social democratic parties improve environmental performance when moving to the left. This they do in a consensus manner meaning covering a wide range of veto players. This is not so for the other party families where a move to the left has no effect on environmental performance. In sharp contrast, the opposite conclusions is true when looking at the green-growth dimension. Here a contentious relationship dominates between agenda setters and veto players for all party families except when conservative parties are the agenda setters. When conservative parties stress green position this has no effect on environmental performance and so it may be true that they are only paying lip-service when turning to a green rhetoric.

The paper has focused on domestic politics and did not emphasize structural factors such as energy consumption and the energy mix of a country or international aspects. These aspects have been treated in this study as control variables. However, the results of this study show that these factors play an important role when explaining environmental performance. Nevertheless, they do not dominate domestic politics as some make us believe.

The ASPM is a strong exploratory tool for macro-comparative analysis which takes the political process into account. With that, this paper offers an alternative and more dynamic explanation to partisan theory. However, we know very little about the duration of decision-making in politics and the impact of

time. Using a simple one-year time lag is inappropriate for most aspects of politics and more research is needed in order to overcome the t-1 standard. In this paper, I tried to move one step forward by combining an analytical model with optimized time lags. However, developing a more theoretical grounding for time lags would improve our knowledge of the political process in highly industrialized democracies.

A final aspect which could not be analyzed in detail in this paper is the changing impact of time on the substantial results. Although the research design of this paper is able to address this issue, doing this would have required a paper of its own and therefore has been left out of the analysis (Author). That means that much more research is necessary to take time seriously in macro-comparative studies.

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