

Greening up or not? The determinants of political parties' environmental concern: an empirical analysis based on European data (1970-2008)

Benjamin Michallet, Giuseppe Gaeta, François Facchini

▶ **To cite this version:**

Benjamin Michallet, Giuseppe Gaeta, François Facchini. Greening up or not? The determinants of political parties' environmental concern: an empirical analysis based on European data (1970-2008). 2015. halshs-01154006

HAL Id: halshs-01154006
https://shs.hal.science/halshs-01154006

Preprint submitted on 20 May 2015

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Greening up or not? The determinants of political parties' environmental concern: an empirical analysis based on European data (1970-2008)

Benjamin Michallet*, Giuseppe Lucio Gaeta** and François Facchini***

* Paris School of Economics / Université Paris I Panthéon-Sorbonne, Centre d'Economie de la Sorbonne, 106-112 boulevard de l'hôpital, 75013 Paris, France, benjamin.michallet@psemail.eu

** Department of Humanities and Social Sciences, University of Naples, L'Orientale , 30 Largo San Giovanni Maggiore, 80134, Naples, Italy, glgaeta@unior.it

*** University of Paris 11 (RITM), associate to Centre d'Economie de la Sorbonne (UP1), Faculté Jean Monnet, 54 Boulevard Desgranges, B.P. 104, 92331 Sceaux Cedex, francois.facchini@u-psud.fr

Abstract: Why do parties offer environmental policies in their political programs? While a number of papers examine the determinants of citizens' pro-environmental behaviour, we know little about the extent to which political parties adjust their platform towards environmentalism. We investigate this process through data provided by the Manifesto Project Dataset (CMP) for 20 European countries over the period 1970-2008. Following the literature on public concern towards environment, we examine economic, environmental and political determinants. Our findings provide evidence that political parties' environmental concern is strongly correlated with their political ideology and with country-level economic conditions.

JEL CODES: Q58, D78, Z13

Keywords : environmental concern, political parties, electoral manifestos

¤ We are grateful to Ingmar Schumacher for exceptionally helpful comments, as well as our colleagues from University Paris I and University of Naples.

1. Introduction

Public policy is probably the main channel for environmental quality improvement. Laws, regulations, and incentives are joint determinants of environmental policy outcome and the political decision making process a core element of environmental quality improvement. In this regard, election time is a pivotal period since parties' commitment to platforms determines policy outcomes and political institutions aggregate citizens' preferences diversity (Persson and Tabellini, 2002, 2005).

A common shared view claims that once a certain level of development is achieved, citizens pay greater attention to environmental amenities, leading new institutions to emerge (Arrow et al. 1995). While there is an extended literature on both, private determinants of pro-environmental behavior (Torgler and Garcías-Valiñas 2007; Aklin et al. 2013) and public preferences and green voting (see Schumacher, 2014), we know little about political parties' motivations to provide environmental policies. Although some authors suggest there is a political market for environmental issues (Graman, 2014; Kirchgässner and Schneider, 2003) and there is evidence on the political parties' concern since the 70s (Tognacci et al. 1972), the driving forces behind it remain imprecise. Thus, the objective of this paper is to investigate the determinants of environmental concern in electoral platforms since 1970.

Most studies dealing with the environmental policies offer have looked at political competition or parties' internal organization. The formers assume that political competition raises the stringency of environmental policies (Fredriksson et al., 2005). Environmental issues are strategic items that politicians would manipulate to attract 'single issue voters' (List and Sturm, 2004). In this sense, parties are responsive to both, the opportunity to attract new voters and the electoral green threat from niche parties (Spoon et al., 2014). Idiosyncratic characteristics of parties, such as political stability, also affect environmental policy outcomes. Party discipline and party strength for example, by offering greater national perspectives to politicians, provide incentives to act in line with the party political line (Fredriksson and Wollscheid, 2014). This reduces spillover damages due to local decision-making and strengthens environmental policy strictness.

Our main contribution is to investigate environmental policy offer through individual preferences. We provide a first measure of the salience of this issue in European political programs since 1970, and contribute to fill the gap between studies based on US data and those based on European ones in this field. Following a market-based approach of the political game, we focus on the demand-side characteristics. We investigate how individuals' determinants of attitudes towards environment impact environmental policy offer during political campaign. Precisely, we consider the extent to which a well-identified range of determinants - environmental quality, socio-economic conditions, and political ideologies - affect green policies offer in political programs.

The purpose of this paper is achieved through an empirical analysis that relies on data drawn from the Comparative *Manifesto Database (CMD)* which provides the most comprehensive cross-national dataset for observation of parties' political platforms (Tavits, 2007; Pickering

and Rockey, 2011). Precisely, we investigate the supply of environmentalism as measured by the percentage of sentences devoted to environment-related issues in their electoral programs. This Indeed, the CMD data measure how politicians balance ecology against others social and economic issue, since - given the size-bounded characterization of political programs - an increase in space devoted to environment-related topics has to be compensated by a reduction of space devoted to other topics.

Our results show that political parties' environmentalism is strongly correlated with economic variables; it reveals a positive correlation with countries' economic wealth (according to the prosperity and post-materialist hypothesis), and a negative correlation with inequality in wealth distribution which presumably intensifies social conflict and impedes the discussion of environment-related topics. It also shows a negative correlation also with countries' trade openness. Instead, objective ecological degradation as well as variables that should reflect subjective feelings of this degradation does not seem to be clearly correlated with parties supply of environmentalism. Finally, we find that parties' ideological orientation is a significant driver of environmentalism, left-wing parties being significantly more environmental-friendly than right wing ones. In this way, we confirm the early findings on the relationship between ideology and environmental concern from the point of view of political parties' offer.

The remainder of the paper is structured as follows: section two presents our theoretical framework and the literature, section three exposes our data and models. Section four illustrates and discusses our results; finally, section five concludes.

II. Theoretical Framework

2.1 Individual Preferences and Environmental Policy

We assume that citizens' preferences are the main determinant of political platforms. The democratic political system is inseparable from the individuals' abilities to formulate their preferences which must be balanced by the government in order to respect citizens' choices (Dahl, 1971). Therefore, public opinion is a major determinant of policies in democratic countries (Erikson et al., 1993; Page and Shapiro, 1983). In democratic political systems, citizens can express their preferences toward environmental protection by interactions, (i.e. ballots, demonstrations) with the political system (Farzin and Bond, 2006). By voting for a party, citizens accept its political program and express their preferences on which kind of policies they want to see implemented for next electoral mandate. Therefore, parties are the

link between voters' preferences and political decision-making (Lawson, 1980; Dalton et al., 2011; Spoon et Klüver, 2014).

A democratic system is characterized by a three-step political game: campaign, election, and policy making/implementing. This article focuses on the first one, period during which parties reveal electoral platforms (Lindbeck and Weibull 1987; Grossman and Helpman 2005), i.e., political parties' ideological position. The three classic considerations which make political programs core elements of the political game - information shortcuts (Franzmann and Kaiser, 2006), select and aggregate citizens' preferences in coherent policy packages (Klingemann et al., 1994), and election propaganda (Ray, 2007). – all consider them a mean to inform voters about party policy preferences (Budge and Laver, 1993). Political platforms constitute a base for political communication (Strömberg, 2004), and a benchmark to assess commitment all along the mandate (Klingemann and al., 1994).

Over the 70s, Green Parties emerged in European democracies. According to Spoon et al. (2014), green parties are issue-owners since "there is a spontaneous identification between issues relating to the environment and green politics and green parties in the mind of most people" (2014:366). This suggests that green parties have emerged in order to answer to citizens' expectations about environmental conditions. Furthermore, it also suggests that a part from green parties, politicians were not immediately identified as concerned by the environment.

However, Downs' (1957) model assumes that political parties are opportunistic and face perfect information. Under these conditions, they are able to focus on the median voter in order to win elections. A wide range of the existing literature has discussed political parties' perfect information, their fundamental objectives (i.e. vote-seeking, office-seeking and policy-seeking) and how to achieve them (see Frey, 1978; Strom, 1990; Budge, 1994). The main idea is that parties face mixed-objectives. In order to implement policies, they have to be in office and thus win as many votes as possible, i.e "winning is not the goal but the mean" (Wittman, 1983:143). Finally, studies provide evidence that when building their electoral manifestos, parties modify their positions in response of public opinion (Adam et al., 2004) and of voters' opinion expressed in past election (Spoon and Klüver, 2014).

For example, because public awareness of environmental issues has increased over past decades, it may be argued that not presenting an environmental policy would have a significant cost for parties as it should reduce votes and increase the probability of electoral

defeat. In other words, according to the idea that political market for environmental supply does exist, the increase in voters' sensitivity towards environmental issues should produce a shift of environmentalism in parties' political programs (Garman, 2014; Kirchgässner and Schneider, 2003).

Following a review of the literature concerning the main determinants of public support for environmental quality, this paper investigates whether any statistically significant link exists between determinants of public awareness for the environment and political parties environmentalism.

The existing literature structures the debate about citizens' awareness of the environment around three main approaches: economic, ecological and political. The former assumes that the spread of environmental awareness depends upon economic conditions. According to this perspective, environmental issues are 'sunshine issues' which means that they are debatable only when economic times are good (Dalton et al., 2013). On the contrary, the ecological approach assumes that environmental concern is a global phenomenon whose main determinant is the perception of the threat to nature. Finally, the latter approach focuses on political ideology as determinant of environmental awareness. These three approaches are presented in detail in the following sub-sections.

2.2 The economic approach

A wide range of studies assumes that public support for the environment is a function of economic conditions. Individuals adjust their behavior and take environmental quality into account under economic constrains. As a consequence, in the ballot, ecological objectives compete with pure voters' economic objectives (Kirchgässner and Schneider 2003, p.373). The economic approach includes three main hypotheses.

2.2.1 Income and wealth: the post-materialism and prosperity hypotheses

The post-materialism (Inglehart, 1977, 1990) and the prosperity hypothesis (Diekmann and Franzen, 1999; Franzen, 2003; Franzen and Meyer, 2010) do consider income, or more generally wealth, as the core determinant of environmental concern.

Under the post-materialist hypothesis, people living in richer societies are more likely to exhibit a pro-environmental behavior because of a shift in their values (Inglehart, 1977, 1990, 1995, 1997). Indeed, by investigating the World Value Survey (WWS) data set, which explores "people's values and beliefs, their stability or change over time, and their impact on social and political development of the societies in different countries of the world (Haerpfer,

2014), Inglehart formulates his theory about "objective problems and subjective values" (1995). According to it, in contexts where economic well-being has been established material needs are satisfied and individuals pursue non-materialist goods such as free expression and life quality. On the contrary, in poorer countries, people want to solve objective and local environmental issues (Inglehart, 1995) without having any reference to values. In sum, in line with Rostow's model (Rostow, 1960), Inglehart postulates a new stage of nations' development, where societies consider environmental issues and life quality as crucial because of a shift in their values.

Under the prosperity hypothesis, rather than facing a value shift, people make a trade-off between goods and environmental quality. Environment is a "luxury good" whose demand increases with wealth (Baumol and Oates, 1979 ; Franzen and Meyer, 2010). On the one hand, this hypothesis assumes a rational choice theory under which people face a positive income elasticity of environmental demand. On the other hand, this perspective considers wealthier people as "more willing and able to reduce their standard of living in order to devote more resource to global environmental protection" (Franzen, 2003, p.299). According to this hypothesis, individual's marginal willingness to pay for environmental protection and overall willingness to pay for environmental protection have to be distinguished (Franzen and Meyer, 2010). As societies become wealthier, total willingness to pay for environment will grow. However, individual's marginal willingness to pay for environmental quality first increases with income, but declines in a second phase with the environmental quality's improvement.

2.2.2 Economic instability and environment awareness: environment as "pro-cyclical good"

The "prosperity hypothesis" is strengthened by Conroy and Emerson (2014) who provide evidences that environment is considered as a "pro-cyclical" good. By analyzing data from the General Social Survey (1974-2012), they find that during periods of recession, low GDP rate or unemployment, people are less inclined to support spending towards environment. In this perspective, it is not enough to simply focus on countries' wealth. Instead, also economic fluctuations have to be considered as determinants of environmental awareness. Even when they are concerned for the environment, people disregard environmental policy when their economic condition is threatened. Such a behavior has substantial consequences during elections as illustrated by Horbach (1992) who provides evidences that Green Parties face worse electoral performances when unemployment is high. More generally, public opinion towards environmental issues is affected by economic stability as supported by Scruggs and

Benegal (2012) who argue that the higher unemployment rate is, the less people believe that climate change is a serious issue.

2.2.3 Wealth distribution: the inequality hypothesis

As stated by Rogers (2014), "socioeconomic inequality is now understood to be integrally linked to environmental degradation, climate change, and blocking of pathways to sustainability. " (2014:933). Since Boyce (1994) suggestion, some studies investigate the relationship between environmental concern and wealth's distribution by introducing variables such as the Gini index in their empirical investigations of the determinants of citizens' environmental awareness (Torras and Boyce, 1998; Magnani, 2000). They stress that greater equality in income distribution reduces social conflict about the distribution of income and may favor environmental quality improvements**.** However, Scruggs (1998) challenges these conclusions by suggesting that environmental social choices are inseparable of understanding the complex interactions between actors and institutions. Heerink et al. (2001), then develop the 'aggregation argument' by assuming non-linearity between income and degradation at the household level. They claim that do not include a measure of income dispersion biases outcome at the aggregate level.

In a public choice perspective, Weck-Hannemann follows Boyce (1994) and it's concept of "power-weighted social decision rule". She argues that the weight's distribution of groups in the political decision game matters, such as in the introduction of new environmental regulations or alternatives policies (2004:92); she points out that some groups would behave without face the full opportunity costs of their decisions.

Finally, Magnani (2000) specifically assumes that "a reduction of pollution emissions in high income countries is more likely to be observed if economic growth accompanies improvement in other social indicators, particularly income inequality" (2000:442).

In this perspective, in a period characterized by high inequalities parties would not offer environmental policies since they would primarily focus on socio-economic issues. On the contrary, for each level of GDP per capita in developed countries, an equal wealth repartition would lead to a broader range of environmental sensitive citizens.

2.2.4 The impact of international economic integration

The link between international trade and environmental policy seems ambiguous since the existing literature suggests that they may be exclusive or complementary. Bechtel et al. (2012)

argue that environmental concern and preferences for trade policy are negatively correlated; trade affects the environment since it improves economic activities, exchanges and transports, therefore individuals concerned with environmental protection would be more in favor of national consumption at the expense of globalization. On the other hand, trade may not only favor good or services export, but also green values or green preferences and policies (Bechtel et al., 2012). It may also stimulate technological progress, and exchange of green technologies (Copeland and Taylor, 2003), or enhance the adoption of corporate environmental management systems (Prakash and Potoski, 2006).

2.3 The ecological approach

The environmental activism of poor nations over the 90s (Knight and Messer, 2012) led some scholars to question the role of wealth as the main determinant of environmental concern. By investigating the Health of the Planet (HOP) Survey (Dunlap, Gallup, and Gallup 1993; Dunlap and Mertig, 1995), and the World Value Survey (WVS) (Dunlap and Mertig, 1997; Dunlap and York, 2008; Knight and Messer 2012), these scholars support Dunlap and Liere's New Environmental Paradigm (NEP) (Dunlap and Liere, 1978). According to this paradigm, rather than wealth, the main determinant of individual's environmental concern would be a common and objective perception of environmental degradation (Knight and Messer, 2012). To be more concise, individuals are influenced by environmental conditions of their place of living (Groot, 1967; Brechin and Kempton, 1994).

In their recent work, Dunlap and York (2008) investigate the WVS Survey and find 11 of their 14 measures of environmental awareness significantly correlated with national wealth. They conclude that, compared with citizens' of richer countries, citizens of poor countries have the same ability to express themselves on environmental issues and to perceive the links between environmental risks and sustainability. Knight and Messer (2012) strengthen the NEP through an empirical analysis carried out on WVS data (1990-2008); they provide evidence about the split between concern for local environmental problems and global environmental problems, and that people are willing to pay more taxes when environmental degradation is high. Their results also contradict the post-materialism and the wealth hypotheses by finding a negative and significant relationship between GDP per capita and citizens' willingness to pay for environmental protection.

Following this approach, political parties offer environmental policy in response to a global consensus on objective environmental conditions. People are aware of the importance of protecting the environment because of the global threat that humans face.

2.4 The political approach

The latter approach investigates how ideological preferences are correlated with environmental sensitivity. Since the 70s, scholars suggest that public support for the environment varies across the policy spectrum (Liere and Dunlap, 1980) and transcends political cleavages (Ogden, 1971).

Tognacci et al. (1972) interview 161 persons from Colorado by way of two series of questions. The first ones focus on General environmental goal, the second ones on specific environmental attitude. According to Canstantini and Hanf (1972), their study provides evidence that Democrats and Liberals votes are more pro-environmental than Conservatives or Republicans, which is also supported by Dunlap and Gale (1974) who find that Democrats are more pro-environment voting than Republicans.

More recently, McCright et al. (2014) have investigated the General Social Survey (GSS) dataset 1972-2012. In line with the party sorting theory, they find a significant partisan polarization on support for government spending on environmental protection within the US public since 1992. Finally, Garmann (2014) has focused on relationship between ideology and climate policy and suggests that center and left-wing governments are more associated with emission abatements than right-wing. Dunlap (1975:432) identifies three explanations of this phenomenon: (1) environmental reforms are generally opposed by business and industry because of the costs involved, (2) environmental reforms entail an extension of government activities and regulation, and (3) environmental reforms often require innovative action.

3. Data and methodology

3.1 Political parties' environmental concern

Our analysis primarily relies on party-level data drawn from the Comparative Manifesto Database (CMD) (Volkens and al., 2013). The CMD is a well-established data source built by a group of researcher at the Wissenschafszentrum Berlin für Sozialforschung (WZB) and it has been extensively employed by empirical studies over recent years (Cole, 2005; Netjes and Binnema, 2007). The database contains data that result from an in depth quantitative content

analysis of the political programs released by the major parties that took part in national elections held in a number of countries from 1950 until 2010.

Due to limited data availability for CMD and non-CMD variables that were essential for our empirical investigation, the analysis was restricted to those parties that acted in countries and elections reported in tab. 1. Parties from 20 European countries were taken into account: Sweden, Denmark, Finland, Belgium, Netherlands, Luxembourg, France, Italy, Spain, Greece, Portugal, Austria, Great Britain, Ireland, Czech Republic, Hungary, Poland, Slovakia, Slovenia, Germany. For the first fourteen countries in this list, which are all located in Western Europe, all the major parties that participated in elections held in the period 1970-2008 are included in our sample.

For the five ex-communist countries in this list, instead, data are available only for the major parties that took part in elections held in the post-communist period; finally, German data are available only from the post-reunification era. Our final dataset includes 1,251 observations.

Sweden	1970	1973	1976	1979	1982	1985	1988	1991	1994	1998	2002	2006			
Denmark	1971	1973	1975	1977	1979	1981	1984	1987	1988	1990	1994	1998	2001	2005	2007
Finland	1970	1972	1975	1979	1983	1987	1991	1995	1999	2003	2007				
Belgium	1971	1974	1977	1978	1981	1985	1987	1991	1995	1999	2003	2007			
Netherlands	1971	1972	1977	1981	1982	1986	1989	1994	1998	2002	2003	2006			
Luxembourg	1974	1979	1984	1989	1994	1999	2004								
France	1973	1978	1981	1986	1988	1993	1997	2002	2007						
Italy	1972	1976	1979	1983	1987	1992	1994	1996	2001	2006	2008				
Spain	1977	1979	1982	1986	1989	1993	1996	2000	2004	2008					
Greece	1974	1977	1981	1985	1989	1993	1996	2000	2004						
Portugal	1975	1976	1979	1980	1983	1985	1987	1991	1995	1999	2002	2005			
Austria	1970	1971	1975	1979	1983	1986	1990	1994	1995	1999	2002	2006	2008		
Great Britain	1970	1974	1979	1983	1987	1992	1997	2001	2005						
Ireland	1977	1981	1982	1987	1989	1992	1997	2002	2007						
Czech Republic	1992	1996	1998												
Germany	1994	1998	2002	2005											
Hungary	1990	1994	1998												
Poland	1991	1993	1997	2001											
Slovakia	1992	1994	1998												
Slovenia	1992	1996	2000												

Tab. 1: Countries and elections considered in the analysis. For each country, underlined years are those whose parties were not considered in regression models run on restricted sample because of missing values for some country-level variables.

For each party the CMD records the percentage of sentences devoted to specific political issues in its electoral manifesto. One variable, which is labeled ENVIRONMENTALISM in the following analysis, specifically records the share of manifestos' content devoted to topics that are explicitly related to environmental protection. According to the CMD official description, these topics include: preservation of countryside, forests, etc. general preservation of natural resources against selfish interests, proper use of national parks, soil banks, etc. environment improvement (Volkens et al., 2013b). We consider this variable as a proxy of parties' environmental concern and, more specifically, as a proxy of the salience of environmentalism in parties' political programs. In other words, we consider this variable as measuring how much parties do appeal to environmentalism in order to catch votes in national elections.

About 15% of the parties in our sample did not devote any space to environment-related topics in their programs; for these parties ENVIRONMENTALISM assumes the value of zero, while for the others it ranges from 0.17 to 62.03. Fig. 1 displays countries' average values for this variable over the electoral years included in our study; looking at it, ENVIRONMENTALISM shows a considerable cross-country and within-country heterogeneity.

3.2 Covariates

In order to empirically investigate the evolution of political parties' environmental concern and its correlation with parties' characteristics, countries' economic features and ecological conditions, ENVIRONMENTALISM was used as the dependent variable in regression analyses where, following the theoretical framework depicted in previous sections and according to data availability, a wide set of party-level and country-level covariates was included. All these covariates are presented in the following subsections; variables' full description and their sources are reported in tab. 2 while tab. 3 shows some summary statistics.

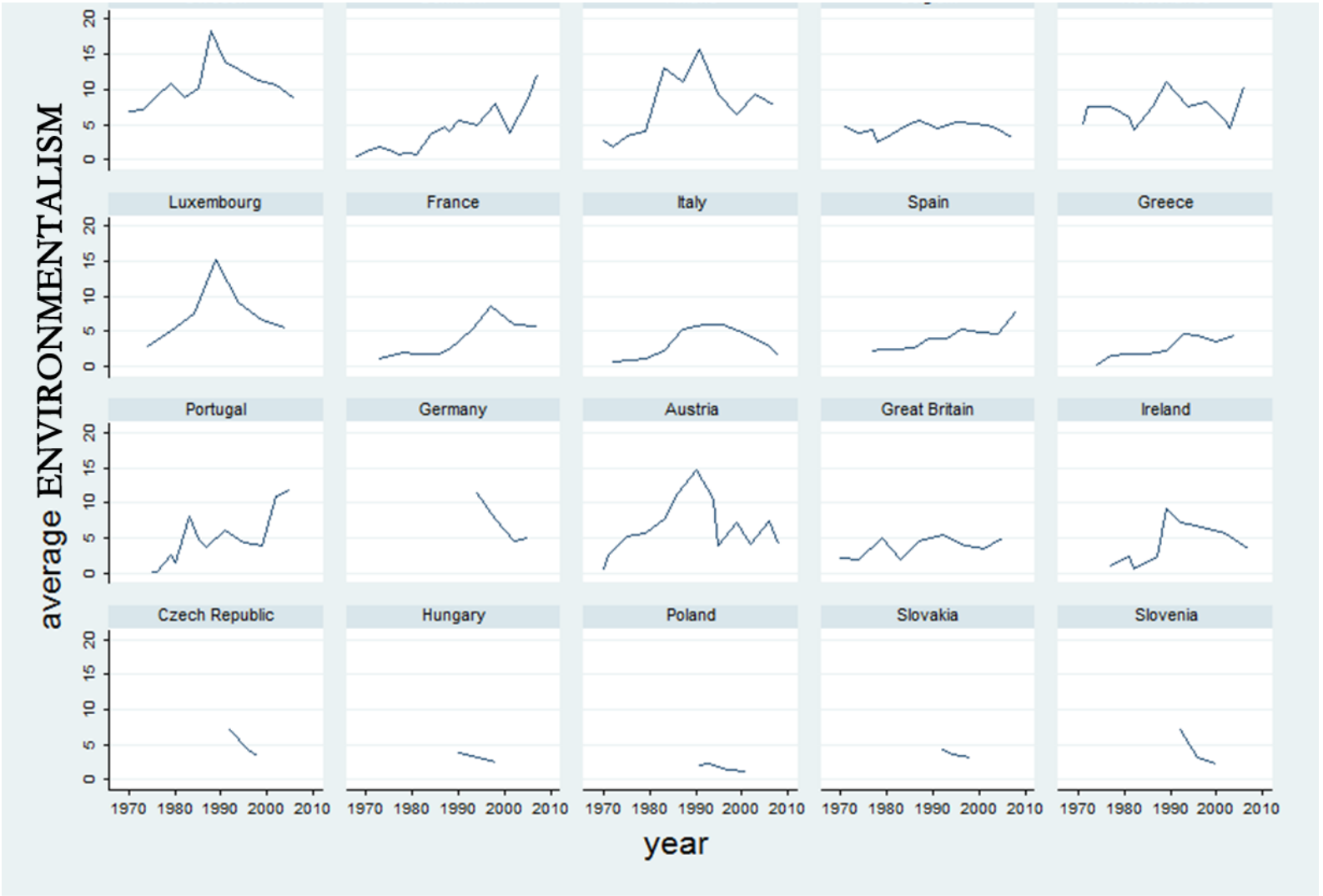


Fig. 1: average ENVIRONMENTALISM by country over the time period considered

Variable	Description	Source

ENVIRONMENTALISM	% of sentences devoted to environmental issues in parties' electoral manifestos	CPM database
ECOLOGICAL PARTY	Dummy =1 for Ecological parties	Own elaboration based on CPM data and parties' classifications provided by Hellwig (2012) and Adams et al. (2006)
RILE	Right-left position of party	CPM database
Ln_GDPpc	Log of real GDP per capita	Penn World Table (through the QOG SOCIAL POLICY DATASET)
GROWTH	Growth rate of real GDP per capita	Penn World Table (through the QOG SOCIAL POLICY DATASET)
TRADE	Total trade (exports plus imports) as a percentage of GDP in constant prices	Penn World Table (through the QOG SOCIAL POLICY DATASET)
UNEMP	Unemployment rate in percent	The QOG SOCIAL POLICY DATASET
INDUSTRY_SHARE	Share of the economy that stems from industrial production measured as % of GDP	World Development indicators (through the QOG SOCIAL POLICY DATASET)
INFLATION	Percentage change in consumer prices (all items) compared to the previous year	The QOG SOCIAL POLICY DATASET
GINI	Gini index of net income inequality	Solt, Frederick. 2009. "Standardizing the World Income Inequality Database." Social Science Quarterly 90(2):231-242.
Log_CO2	Log of CO2 metric tons emissions per capita	World Bank
Log_SO2	Per capita Sulfur Emissions by Country	Global SO2 emission by country data are from http://www.sterndavidi.com/datasite.html while population data are from World Bank
DENSITY	Population density (population/squared km)	Own elaboration based on population data provided by the QOG SOCIAL POLICY DATASET and surface data provided by World Bank
URBAN	% of people living in urban areas as defined by national statistical offices	World Bank
OLDSHARE	% of population having more than 65 years	THE QOG SOCIAL POLICY DATASET
TERTIARY	Total enrollment in tertiary education (ISCED 5 and 6) regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving	World Bank
EU status	Dummies for "non Eu member", "Eu member", "Eu applicant"	CPM database

Tab. 2: data description and sources.

Variable	Obs	Mean	Std. Dev.	Min	Max	Variable	Obs	Mean	Std. Dev.	Min

ENVIRONMENTALISM	1251	5.14	6.31	0	62.03	Sweden	1251	0.06	0.23	0
ECOLOGICAL_PARTY	1251	0.06	0.24	0	1	Denmark	1251	0.12	0.32	0
RILE	1251	-3.1	21.26	-74.3	78.85	Finland	1251	0.07	0.26	0
EU_member	1251	0.27	0.44	0	1	Belgium	1251	0.1	0.3	0
EU_notmember	1251	0.71	0.46	0	1	Netherlands	1251	0.07	0.25	0
EU_applicant	1251	0.03	0.17	0	1	Luxemburg	1251	0.03	0.16	0
Ln_GDPpc	1251	9.96	0.39	8.92	11.13	France	1251	0.04	0.2	0
GROWTH	1251	2.02	2.98	-12.1	9.81	Italy	1251	0.09	0.29	0
TRADE	1251	65.74	41.33	16.68	286.63	Spain	1251	0.08	0.28	0
UNEMP	1251	7.84	4.51	0.06	22.78	Greece	1251	0.03	0.17	0
INFLATION	1251	9.48	19.45	-0.27	209.93	Portugal	1251	0.07	0.25	0
Log_CO2	1251	2.14	0.4	0.85	3.7	Germany	1251	0.02	0.13	0
INDUSTRY_SHARE	1251	31.61	5.68	17.71	50.82	Austria	1251	0.04	0.2	0
OLDSHARE	1251	14.1	2.26	9.16	20.03	Great Britain	1251	0.04	0.18	0
DENSITY	1251	145.63	102.78	13.62	393.5	Ireland	1251	0.04	0.2	0
URBAN	1251	73.38	12.94	40.78	97.5	Czech Republic	1251	0.02	0.14	0
TERTIARY	1189	36.97	18.76	1.42	93.95	Hugary	1251	0.02	0.14	0
GINI	1167	27.59	4.19	20.08	35.95	Poland	1251	0.03	0.18	0
Log_SO2	1078	-10.82	0.82	-13.01	-8.63	Slovakia	1251	0.02	0.14	0
1968-1980	1251	0.23	0.42	0	1	Slovenia	1251	0.02	0.13	0
1980-1990	1251	0.23	0.42	0	1					
1990-2000	1251	0.32	0.47	0	1					
2000-2001	1251	0.22	0.42	0	1					

Tab. 3: summary statistics.

3.2.1 Economic variables

According to the prosperity hypothesis and to the post-materialism hypothesis, countries' wealth exerts a positive impact on parties environmentalism. Indeed, following the reasoning reported in section II.1.1, parties' environmental awareness is supposed to be positively correlated with economic well-being. This hypothesis is tested by the inclusion among covariates of countries' real GDP per capita (transformed in natural log and labeled Ln_GDPpc).

In line with the hypothesis that environment is a pro-cyclical good, which was presented and discussed in section II.1.2, it makes sense to suppose that the better a countries' macroeconomic performance is the greater the salience of environment related issues in parties' manifestos should be. In this perspective, low unemployment, contained inflation and sustained economic growth should positively contribute to parties' environmental awareness. In order to test this hypothesis, the following covariates were added to our analysis: growth rate of real GDP per capita (GROWTH), inflation (INFLATION), unemployment (UNEMP).

Furthermore, in order to test whether any connection between trade and environmentalism effectively exists, as supposed by the literature presented in section II.1.4, our specifications include one covariate that measures the degree of openness of countries' economies and is calculated as the sum of national exports and imports as a percentage of GDP (TRADE).

Finally, in order to test the hypothesis that wealth distribution is significantly correlated with parties' environmental awareness, as theorized by the contributions presented in section II.1.3, countries' Gini index of net income inequality (GINI) was also introduced among the economic covariates following Boyce (1994) suggestion. A number of missing values were observed for this latter variable, therefore its use implies a sensible reduction of the sample.

3.2.2 Ecological variables

According to the NEP hypotheses, countries' objective environmental degradation and individuals' subjective feeling of this degradation are supposed to positively affect citizens' demand and parties' supply of environmentalism.

Unfortunately, the availability of data concern with environmental degradations is rather restricted and this partially limited our test of these hypotheses.

All the same, in order to test them, two variables were introduced among covariates with the purpose to measure countries' level of atmospheric pollution; the first variable is countries'

per capita amount of carbon dioxide emissions (the logarithmic transformation of this variable was labeled Log_CO2). The second variable is countries' per capita sulfur dioxide emissions (also in this case, a logarithmic transformation of values was applied and the variable was labeled Log_SO2); as in the case of the GINI variable, a number of missing values was observed for Log_SO2, therefore its use implies a sensible loss of observations.

In order to investigate the impact on parties' environmentalism arising from citizens' subjective perception of environmental threat, following Van Liere and Dunlop (1980), we also included among our covariates one variable that measures the national share of people living in urban areas (URBAN). Indeed, in a context of high urbanization people may more clearly perceive the risk of environmental degradation because big cities favor noise, transport pollution, reduction of green spaces and, finally, expose to higher level of pollution (Tremblay and Dunlap, 1978 ; Torras and Boyce, 1998). Furthermore, also overpopulation may have a significant impact on citizens' subjective perception of environmental threat. For this reason, we also included among our covariates population density (DENSITY) which is often considered as an important factor moderating pollution intensity (Scruggs, 1998). It is also presumed to be correlated with the exploitations of natural resources and in this perspective it also potentially affects environmental awareness.

3.2.3 Ideological variables

The empirical investigation of the relationship between political parties' ideology and their environmentalism is accomplished by including two covariates in our models' specifications. First, one dummy variable (ECOLOGICAL_PARTY) that identifies ecological parties according to the classification provided by Hellwig (2012) and Adams et al. (2006) is used. Parties who are overtly environmentally-oriented should dedicate a significant part of their manifestos to the proposal of environmentally-oriented policies to be realized; the inclusion among the covariates of one dummy that identify these parties allows to correctly interpret the effect of other variables.

Second, in order to more precisely test the presence of any significant correlation between parties' political ideology and ENVIRONMENTALISM, one variable that measures parties' right-left ideological position (RILE) was introduced among predictors. This variable was drawn from the CMD and measures parties' ideological position on a scale, built following Laver and Budge (1992), which ranges from -100 to 100 with positive values associated to right-wing oriented parties.

3.2.4 Control variables

Since scholars report that people's age is negatively correlated with their attitudes towards environmental issues (Howell and Laska 1992; Carlsson and Johnsson-Sternman 2000), citizens' age may be supposed to exert a significant influence on parties' offer of environmentally-oriented policies. Following to this reasoning, we also included among covariates the share of >65 people on national total population (OLDSHARE).

Citizens' environmental attitude has also been found to be significantly linked with their education (Ercolano et al., 2014); it follows that when population is more highly educated parties' strategy to catch votes should be based on raising ENVIRONMENTALISM. In order to test this hypothesis our regression includes the share of total enrollment in tertiary education (ISCED 5 and 6) as a percentage of total population in the relevant age group (this variable is labeled TERTIARY). Also this variable reports a considerable number of missing values and therefore its use implies a sensible loss of observations.

There are some reason to believe that also the characterization of national economies may significantly affect citizens' demand and parties' supply of environmentalism. For example, industrial production creates employment and wealth but, at the same time, it exposes countries to environmental degradation through generation of pollution and exploitation of natural resources. In this perspective, countries whose economies are significantly characterized by industrial production may experience a sort of trade-off between wealth and environmental degradation and this may translate into a higher or lower ENVIRONMENTALISM. People may ask for more environmentally-oriented policies aimed at reducing the industrial sector on the environment or, on the contrary, they may prefer less environmentalism to avoid the imposition of constraints to economic activities. With the purpose to empirically test whether any link between the relevance of industrial production in national economy and parties environmental concern actually exists, one variable measuring the industrial sector share of national GDP (INDUSTRY_SHARE) was introduced among our covariates.

Moreover, our predictors include dummies that identify countries' EU membership status (member, applicant, non-member with the latter used as reference category). Indeed, the "environment is actually at the heart of EU policy" (European Union, 2013, p. 5) since the Treaty on European Union set members' duty to work towards "a high level of protection and improvement of the quality of the environment" (Article 3). Therefore, it makes sense to

investigate whether being part of the EU is correlated with an higher parties' environmental concern.

Finally, our set of covariates includes countries' and decades' dummies (1970-1980 which is used as reference category; 1980-1990; 1990-2000; 2000-2010) in order to account for unobserved cross-country and cross-period heterogeneity.

3.3 Methodology

The empirical approach adopted to carry out our regression analyses mainly relies on De Simone and Sapio (2013) and has three features that are worth noting.

First, our empirical analysis treats the party-data in our sample as a pooled cross-section because parties' transformations, merges and disappears over time did not allow a panel dataset to be built without deleting a significant number of observations.

Second, our estimates are primarily carried out using OLS with standard errors clustered at country level. Besides, as was stressed in section III.1, our dependent variable is a percentage/proportion and therefore has a bounded nature. Scholars have highlighted the inappropriateness of OLS in case of regression analyses with such a dependent variable (Kieschnick and McCullough, 2003); indeed, when a bounded dependent variable is investigated, OLS may lead to impossible predictions, non-normality of the error terms may arise and heteroskedasticity potentially affects the reliability of the estimates.

In order to overcome these potential biases, we checked the robustness of our OLS results by adopting the Fractional logit model (FRACLOG - Papke and Wooldridge, 1996), and the Zero-Inflated Beta model (ZIB), which were both carried out by adjusting the estimates for clustering at country level. The Fractional logit model assumes that " the expected value of the dependent variable is a logit function of the explanatory variables with the error term supposed to be homoskedastic and Gaussian" (De Simone and Sapio, 2013, p.9). This model is suitable "for handling proportions data in which zeros and ones may appear as well as intermediate values" (Baum, 2009, p. 301). Nevertheless, a further problem that we had to keep in mind when choosing our empirical strategy arises from the fact that the number of observations in our final dataset that show a value of zero for the dependent variable is particularly relevant, as we reported in section III.1. The use of the Zero-Inflated Beta model is a solution to this additional problem. Indeed, this model is made up of two parts; a logistic regression model is used to investigate the probability that the dependent variable equals 0 and a Beta regression model (Ferrari and Cribari-Neto, 2004) is used to estimate the impact

of covariates on non-zero proportions. As highlighted by De Simone and Sapio (2013), the ZIB estimation technique reproduces the two-step decision making process which is presumably carried out by political parties: they choose the salience of environmental issues in their political manifestos only once they have decided that environmental concern has to be reported.

Third, given the unavoidable adoption of a pooled cross-section treatment of our data and the absence of exogenously determined variation, the identification of causality links among our variables is questionable; therefore our analysis has to be intended as the search for robust *ceteris paribus* correlations.

4. Results and Discussion

We present our results following the guideline exposed in the theoretical framework. Economic variables are the main determinants of platforms greening up while we do not find statistical support for the ecological approach. However, we provide strong evidences of ideology as core element of political platforms' greening-up.

4. 1 Economic Approach:

Looking at the tables, a first relevant finding is that the prosperity and the post-materialism hypotheses are strongly supported by our empirical analyses. Indeed, all the specifications run with OLS find a positive and significant coefficient for the natural logarithm of real GDP per capita. This result is strongly confirmed by the FRACLOG and the ZIB estimations. Statistical significance of this result varies across specifications, but it is at least $p<0.10$ with only few exceptions. According to this result, the wealthier the country where parties act is, the higher the saliency of environment-related topics in their manifestos is. In this perspective, wealth positively affects citizen demand for environment related policies which, in turn, translates into a higher supply of environmentalism by parties.

Definitely clearer and more robust results are obtained for the inequality hypothesis which could be tested only with the reduced sample due to missing values reported by the GINI variable. The GINI index reports a negative coefficient in all the specification run with the OLS model and this result is strongly confirmed by the FRACLOG and the ZIB models. In the OLS model this negative correlation of economic inequality with parties' environmentalism turns out to be statistically significant in models 4 and 5 while in model 6, after the inclusion of countries' dummies, the coefficient for this variable is not significant

anymore. Besides, in the FRACLOG and ZIB models the negative sign for this variable is statistically significant also when countries dummies were added.

These results suggest that the higher (lower) countries' inequality is the lower (higher) is the space devoted to environmentally-oriented policies in parties' political manifestos. This leads to accepting the inequality hypothesis according to which the dialogue on environmental issues is favored by reduction of social conflicts arising from unequal wealth distribution.

Such results are consistent with our hypothesis on repartition: all things equal, the most equal economies would be the better environmental friendly societies. Indeed, for each level of GDP per capita, a more equal wealth distribution seems to be understood as a broader range of environmental sensitive citizens by political parties.

An economy where the biggest part of wealth is owned by an elite would probably have few perspectives for an environmental friendly society. First, because such elite would be composed by businessmen and industrialists who should have to support costs (Dunlap, 1975). Second, because the rest of the population would have to face other priorities, according to the post-materialist hypothesis. Finally, it leads to an unbalanced "power-weighted social decision rule" (Boyce, 1994), one more reason that would keep environmental issues to enter into political programs.

However, not all the other macroeconomic covariates included in our models provide as much significant results as GDP per capita. Indeed, GROWTH turns to be statistically insignificant and this result is robust across models and alternative specifications. INFLATION, instead, reports a positive and significant coefficient only in model 6 where the reduced sample is considered and GINI, TERTIARY and SO2 are included in the specification together with our original set of covariates and with countries' dummies. However, this result is clearly reported only by the FRACLOG estimates while it is slightly significant with OLS and totally insignificant in the ZIB model.

Inconsistent results are found for UNEMP for which a negative barely significant sign is reported in some of the OLS and FRACLOG specifications run with the complete sample while an opposite but even in this case slightly significant positive result is found when moving to the reduced sample. Besides, also this result is not robust across specifications and is no longer significant when looking at the ZIB models.

On the whole, looking at the results for these three variables, there is not a highly significant relation between parties' appeal to environment-related policies in order to gain votes and

macroeconomic conditions and, therefore, environment is not clearly interpreted as a "pro-cyclical good".

	OLS model 1	**OLS model 2**	**OLS model 3**	**OLS model 4**	**OLS model 5**	**OLS model 6**
ECOLOGICAL_PARTY	0.136***	0.132***	0.133***	0.148***	0.146***	0.148***
	(3.84)	(3.73)	(3.77)	(3.54)	(3.47)	(3.46)
RILE	-0.000347***	-0.000429***	-0.000346**	-0.000427***	-0.000455***	-0.000367**
	(-3.12)	(-3.70)	(-2.84)	(-3.56)	(-3.59)	(-2.76)
Ln_GDPpc	0.0425**	0.0398**	0.0549*	0.0286***	0.0296***	0.0606**
	(2.11)	(2.20)	(1.94)	(2.91)	(3.12)	(2.39)
GROWTH	-0.000487	-0.0000394	0.000673	-0.000823	-0.000669	0.000933
	(-0.56)	(-0.05)	(1.11)	(-0.73)	(-0.65)	(1.19)
TRADE	-0.0000556	-0.000128	-0.000567***	-0.0000845	-0.000113	-0.000513**
	(-0.55)	(-1.50)	(-2.96)	(-1.14)	(-1.44)	(-2.31)
UNEMP	0.000260	-0.00126*	-0.000377	0.000828*	-0.000192	0.0000228
	(0.41)	(-2.07)	(-0.60)	(1.75)	(-0.41)	(0.03)
INFLATION	-0.0000479	-0.0000579	0.000104	-0.000161	-0.000127	0.000169*
	(-0.51)	(-0.54)	(1.07)	(-1.36)	(-1.16)	(2.05)
Log_CO2	0.00787	0.00436	-0.00148	0.00980	0.0103	-0.00215
	(0.57)	(0.35)	(-0.08)	(1.32)	(1.48)	(-0.13)
DENSITY	-0.0000394	-0.0000344	-0.000894**	-0.0000330	-0.0000330	-0.00149***
	(-0.71)	(-0.67)	(-2.59)	(-0.85)	(-0.88)	(-4.02)
URBAN	-0.000190	0.00000789	0.00289***	-0.00110**	-0.000975**	0.00331***
	(-0.44)	(0.02)	(3.46)	(-2.46)	(-2.19)	(3.36)
INDUSTRY_SHARE	0.000433	0.000613	0.00132	0.000802	0.000887	0.000389
	(0.59)	(0.90)	(1.27)	(1.43)	(1.64)	(0.42)
OLDSHARE	0.00220	0.00115	0.00142	0.00743***	0.00647***	0.00390
	(0.77)	(0.40)	(0.46)	(3.63)	(2.94)	(1.53)
EU_member	-0.0297***	-0.0241***	-0.0275***	-0.0241***	-0.0234***	-0.0282***
	(-3.29)	(-3.04)	(-3.21)	(-3.43)	(-3.62)	(-3.35)
EU_applicant	-0.0201***	-0.0164**	0.000692	-0.0314***	-0.0241**	0.00206
	(-3.40)	(-2.48)	(0.12)	(-3.31)	(-2.69)	(0.34)
1980s-1990s		0.0256***	0.0210**		0.0158***	0.0135*
		(5.99)	(2.78)		(2.96)	(1.83)
1990s-2000		0.0313***	0.0367**		0.0139	0.0303**
		(3.88)	(2.79)		(1.72)	(2.13)
2000-2010		0.0164	0.0314*		-0.00681	0.0243
		(1.59)	(1.89)		(-0.81)	(1.38)
GINI				-0.00292***	-0.00225***	-0.00155
				(-3.82)	(-3.07)	(-1.71)
Log_SO2				-0.00358	-0.00244	0.00151
				(-0.63)	(-0.42)	(0.21)
TERTIARY				-0.00000402	0.000286	-0.000323
				(-0.02)	(1.58)	(-1.31)
Country dummies	No	No	Yes	No	No	Yes
Obs.	1251	1251	1251	949	949	949
log likelihood	1978.40	2000.24	2061.61	1596.87	1606.79	1641.09
Pseudo R2	0.38	0.40	0.46	0.49	0.50	0.53

Tab. 4: OLS pooled cross-sectional estimates; the dependent variable is ENVIRONMENTALISM. coefficients and t statistics (in parentheses). Standard errors clustered at country level were applied to all models. In models 4, 5 and 6 all the observations related to countries and years underlined in tab. 1 were not considered due to missing values. * p<.10, ** p<.05, *** p<.01.

	FRACLOG model 1	FRACLOG model 2	FRACLOG model 3	FRACLOG model 4	FRACLOG model 5	FRACLOG model 6
ECOLOGICAL_PARTY	0.0681***	0.0640***	0.0651***	0.0681***	0.0661***	0.0674***
	(5.34)	(5.02)	(5.54)	(5.09)	(4.85)	(5.07)
RILE	-0.000348**	-0.000437***	-0.000355**	-0.000387***	-0.000418***	-0.000352**
	(-2.54)	(-3.00)	(-2.39)	(-3.06)	(-2.90)	(-2.32)
Ln_GDPpc	0.0444*	0.0372*	0.0598**	0.0331***	0.0335***	0.0716***
	(1.88)	(1.74)	(2.07)	(2.66)	(2.65)	(2.65)
GROWTH	-0.000522	0.0000435	0.000669	-0.000933	-0.000604	0.000595
	(-0.62)	(0.06)	(1.06)	(-1.04)	(-0.70)	(0.73)
TRADE	-0.0000564	-0.000120	-0.000475**	0.00000134	-0.0000407	-0.000405*
	(-0.57)	(-1.61)	(-2.24)	(0.02)	(-0.49)	(-1.84)
UNEMP	0.000474	-0.00112*	0.000365	0.00116*	0.000103	0.00124**
	(0.66)	(-1.71)	(0.71)	(1.79)	(0.18)	(2.27)
INFLATION	-0.0000489	-0.0000466	0.000129	-0.000192	-0.000149	0.000186***
	(-0.42)	(-0.38)	(1.43)	(-1.52)	(-1.30)	(2.85)
Log_CO2	0.00729	0.00431	0.0137	0.00613	0.00590	0.0145
	(0.54)	(0.36)	(0.77)	(0.77)	(0.73)	(0.80)
DENSITY	-0.0000266	-0.0000216	-0.000700	-0.00000147	-0.00000415	-0.000816**
	(-0.49)	(-0.45)	(-1.57)	(-0.05)	(-0.14)	(-2.50)
URBAN	-0.000182	0.0000174	0.00170	-0.00128***	-0.00111**	0.000763
	(-0.47)	(0.05)	(1.49)	(-2.76)	(-2.34)	(0.76)
INDUSTRY_SHARE	0.000450	0.000634	0.00170	0.000647	0.000715	0.000696
	(0.60)	(0.92)	(1.39)	(1.08)	(1.29)	(0.79)
OLDSHARE	0.00207	0.00109	0.000667	0.00669***	0.00576***	0.00365*
	(0.81)	(0.45)	(0.28)	(4.41)	(3.45)	(1.73)
EU_member	-0.0284***	-0.0214***	-0.0295***	-0.0225***	-0.0202***	-0.0286***
	(-3.39)	(-3.15)	(-3.96)	(-3.04)	(-3.47)	(-4.58)
EU_applicant	-0.0256***	-0.0242***	-0.00791	-0.0462***	-0.0382***	-0.0103
	(-3.38)	(-3.55)	(-1.22)	(-3.66)	(-3.25)	(-1.37)
1980s-1990s		0.0297***	0.0275***		0.0203***	0.0167*
		(4.58)	(2.98)		(2.70)	(1.87)
1990s-2000		0.0360***	0.0440***		0.0208*	0.0288**
		(3.48)	(2.81)		(1.79)	(1.99)
2000-2010		0.0239*	0.0418**		0.00534	0.0230
		(1.84)	(2.21)		(0.49)	(1.59)
GINI				-0.00302***	-0.00239***	-0.00227***
				(-3.42)	(-2.92)	(-2.61)
Log_SO2				0.00116	0.00241	0.00288
				(0.24)	(0.52)	(0.37)
TERTIARY				0.000131	0.000278*	-0.0000143
				(0.87)	(1.91)	(-0.06)
Country dummies	No	No	Yes	No	No	Yes
Obs.	1251	1251	1251	949	949	949

Tab. 5: Fractional logit pooled cross-sectional estimates; the dependent variable is ENVIRONMENTALISM. coefficients and t statistics (in parentheses). Standard errors clustered at country level were applied to all models. In models 4, 5 and 6 all the observations related to countries and years underlined in tab. 1 were not considered due to missing values. * p<.10, ** p<.05, *** p<.01.

	ZIB model 1	ZIB model 2	ZIB model 3	ZIB model 4	ZIB model 5	ZIB model 6
ECOLOGICAL_PARTY	0.0759***	0.0695***	0.0739***	0.0760**	0.0722**	0.0786**
	(2.99)	(2.89)	(3.02)	(2.32)	(2.30)	(2.33)
RILE	-0.000204**	-0.000280***	-0.000249***	-0.000230**	-0.000269**	-0.000222**
	(-2.30)	(-2.99)	(-2.71)	(-2.11)	(-2.53)	(-1.98)
Ln_GDPpc	0.0281*	0.0270*	0.0413**	0.0264***	0.0290***	0.0441**
	(1.80)	(1.94)	(2.55)	(3.46)	(4.05)	(2.36)
GROWTH	-0.000330	-0.0000455	0.000300	-0.000249	-0.0000802	0.000323
	(-0.57)	(-0.09)	(0.57)	(-0.39)	(-0.15)	(0.55)
TRADE	-0.0000914	-0.000121*	-0.000395***	-0.0000984*	-0.000127**	-0.000246
	(-1.08)	(-1.70)	(-3.41)	(-1.72)	(-2.32)	(-1.57)
UNEMP	0.000206	-0.000637	-0.0000757	0.000610	0.0000494	0.000141
	(0.39)	(-1.29)	(-0.19)	(1.55)	(0.13)	(0.37)
INFLATION	-0.0000527	-0.0000533	0.0000296	-0.0000931	-0.0000787	0.0000617
	(-0.58)	(-0.63)	(0.39)	(-1.34)	(-1.26)	(1.09)
Log_CO2	0.0142	0.0109	0.000484	0.0127**	0.0109**	-0.00189
	(1.42)	(1.29)	(0.04)	(2.33)	(2.32)	(-0.17)
DENSITY	-0.0000371	-0.0000333	-0.000325	-0.0000239	-0.0000233	-0.000420
	(-0.81)	(-0.80)	(-1.28)	(-0.75)	(-0.73)	(-1.43)
URBAN	-0.000291	-0.000176	0.000493	-0.000870***	-0.000771**	0.000242
	(-0.95)	(-0.64)	(0.74)	(-2.90)	(-2.50)	(0.31)
INDUSTRY_SHARE	-0.0000225	0.000138	0.000742	0.0000433	0.000129	0.000181
	(-0.05)	(0.34)	(0.96)	(0.12)	(0.37)	(0.27)
OLDSHARE	0.00159	0.00111	0.00240	0.00356***	0.00297**	0.00342**
	(0.90)	(0.66)	(1.56)	(2.97)	(2.52)	(2.08)
EU_member	-0.0236***	-0.0190***	-0.0177***	-0.0193***	-0.0172***	-0.0150*
	(-3.08)	(-3.20)	(-2.64)	(-2.69)	(-2.91)	(-1.91)
EU_applicant	-0.0121***	-0.0106***	-0.00564	-0.0177***	-0.0136***	-0.00470
	(-3.62)	(-3.07)	(-1.51)	(-4.26)	(-3.22)	(-1.28)
1980s-1990s		0.0159***	0.0107*		0.00959***	0.00710
		(4.02)	(1.91)		(2.82)	(1.47)
1990s-2000		0.0213***	0.0206**		0.0131***	0.0163*
		(4.38)	(2.24)		(3.04)	(1.90)
2000-2010		0.0101	0.0158		0.00132	0.0107
		(1.57)	(1.33)		(0.27)	(0.92)
GINI				-0.00188***	-0.00157***	-0.000871*
				(-3.22)	(-2.66)	(-1.74)
Log_SO2				0.000181	0.000993	0.00377
				(0.04)	(0.26)	(0.61)
TERTIARY				0.0000629	0.0000997	-0.000137
				(0.70)	(1.08)	(-0.57)
Country dummies	No	No	Yes	No	No	Yes
Obs.	1251	1251	1251	949	949	949

Tab. 6: Zero-inflated Beta regression pooled cross-sectional estimates the dependent variable is ENVIRONMENTALISM. coefficients and t statistics (in parentheses). Standard errors clustered at country level were applied to all models. In models 4, 5 and 6 all the observations related to countries and years underlined in tab. 1 were not considered due to missing values. * p<.10, ** p<.05, *** p<.01.

These results are consistent with institutionalization processes and path dependency. Once a level of standard of living reached, citizens will vote for new institutions and regulations in favor of environmental protection (Arrow et al. 1995).

However, whether individuals are sensitive to economic cycle for their private consumption of environmental goods, environmentalism policy supply faces an "institutional ratchet-effect" (Armingeon, 2007), which undo cycle-effect. Governments cannot escape from environmental public goods' provision once they are engaged in. Hence, whatever the economical cycle, parties have to commit on this topic. Such conclusion gives consistency to the idea of a 'greening-up by thresholds'. Grossman and Krueger (1995) for example, identify a turning point of the inverted U-shaped relationship environment/development for an income's level of less than 8000$ (1985). Rather than development's trend, the absolute level of GDP matters, reflecting a short-term's inertia.

Finally, a negative correlation is found between environmentalism saliency in parties' manifestos and countries' economic openness as measured by the variable TRADE. This result is highly statistically significant in the OLS, FRACCLOG and ZIB specifications that include countries' dummies and investigate the whole sample at our disposal (model 3). Some significance, anyway, is also found in the other specifications.

According to this results trade openness and environmental policy saliency in parties' manifestos seem to be mutually exclusive. Such result is not surprising given the idea that ecological ecology "competes" with other interests in the ballot, especially with "pure" economic objective (Kirchgässner and Schneider 2002:373). Political parties make the assumption that citizens associate rather trade with globalization and environmental degradation than with green technology transfers and a global sustainability's improvement.

4.2 Ecological Approach

The correlation of parties' environmentalism with objective measures of environmental degradation does not find strong support in our results.

More in detail, Log_SO2 reports non significant results in all the models and specifications adopted. Moreover, the Log_CO2 variable reports an inconsistent and statistically non significant result is all the OLS specifications and a positive but not significant impact on parties' environmentalism in all the FRACLOG specifications. When turning to the ZIB models, this variable shows a positive and $p<0.10$ significant effect on parties'

environmentalism when the restricted sample is considered and only in models 4 and 5. While this result is in line with expectations, it does not hold when countries' dummies are included in model 6.

According to these findings the saliency of environmental concern in political parties programs is not strongly correlated with national objective environmental degradation as measured by air pollution. In other words, for political parties it is not worthwhile to provide more environmental-oriented electoral programs as a response to a higher objective level of toxic emission.

We first presume that one of the reasons of such misadjustment is the complex understanding of objective natural conditions' states. Second, following Downs (1957), rational ignorance may occur when the cost of improving his knowledge exceed the expected benefit. In this perspective, cost and availability of information are the core determinants of the understanding process. It seems reasonable to assume that environmental information is both, less available for public than economic ones, and complex to interpret. Kirchgässner and Schneider (2002) also suggest that a lag could occur between environmental improvement consecutive to political measure, and voters' discount rate. Finally, we presume that local environmental data would offer better results: voters would probably better valuate local conditions because they are closed to their direct environment.

The two variables which are presumably correlated with citizens' subjective measures of environmental degradation do not exhibit clear results.

URBAN reports inconsistent results. In model 3 and model 6 calculated through OLS it turns out to be highly significant ($p<0.01$) and a positive coefficient is found. This finding reveals that the saliency of environment related topics in parties manifesto is positively correlated with the proportion of population living in cities which presumably affects people's perception of environmental. Nevertheless, this result is not robust across the models, as its significance is not confirmed by model 3 and 6 run by FRACLOG and ZIB. Furthermore, in the FRACLOG and ZIB model 4 and 5, where countries' dummies are not considered, URBAN shows an opposite negative result. This reveals that this variable presumably has different effects when moving from a between to a within country analysis.

Not completely clear results are also obtained for the DENSITY variable. It reports a negative correlation in all our models and specification but this result is significant only in models 3 and 6 run with OLS and in model 6 run with FRACLOG. No significance is reported by the

ZIB estimations. Also in this case this mixed result does not allow to clearly support the hypotheses concerning the link between citizens' subjective feeling of environmental degradation and political parties' environmentalism.

Following the distinction made by Heerink et al. (2001), we suggest that on one hand, Density and Urbanization may be perceived as a threat for the environment because of a 'scale effect', i.e. that more population and more urbanization, ceteris paribus, would result into higher levels of pollution and waste. On the other hand, they may be offset by a 'composing effect' and a 'technique effect' through, such as public transport and waste treatment (Batabyal and Nijkamp, 2013; Bulkeley and Bestill, 2005). In other words, results obtained reflect for a part that our indicators do not capture qualitative insights, which differ across cities and countries.

4.3 The impact of political variables: strong support

Moving to the examination party-level political covariates, the OLS estimates show that parties' environmental awareness is strongly significantly correlated with their ideological orientations. This result is confirmed by the FRACLOG and the ZIB models.

First, as it was expected, the dummy variable ECOLOGICAL_PARTY shows a positive and highly significant coefficient, meaning that environmentalism is considerably more salient for these kinds of parties. Looking at the coefficients in the OLS specifications and at marginal effects I the FRACLOG and ZIB specifications, among our covariates the ECOLOGICAL_PARTY dummy is the variable that reveals the highest correlation with the saliency of environmentalism in parties' manifestos.

Second, our findings strongly support the hypothesis that the more right-wing (left-wing) oriented parties are, the less (more) they appeal to environmentalism to catch votes. In other words, environmental concern is a subject which is significantly more used by left-wing parties in order to attract the attention of the electorate.

This result clearly provides a robust Europe-centered confirmation of the results provided by Americans' contributions (Dunlap, 1975; McCright et al., 2014). More interesting, whether American contributions focus on the relationship between individual preferences for environment and ideology, we confirm these results from the political parties' offer side. Therefore our results are positioned in the line of those who found a positive link between governments' left-wing orientation and awareness for climate policy looking at recent OECD data (Scruggs, 1999; Garmann, 2014).

4.4 Results for control variables

Moving to the examination of the results obtained for control variables, it is worth noting that only few of them are found to be significantly correlated with the saliency of environment-related proposals in parties' manifestos.

A positive *ceteris paribus* correlation with our dependent variable is found for the INDUSTRY_SHARE variable in all our specifications and models but this result is never significant; it follows that the saliency of industrial production in national economies does not translate in a higher or lower environmentalism in the political arena.

Not significant results are also obtained for the TERTIARY variable which was supposed to be a good proxy of countries' level of education. According to this finding, parties appeal to environmentalism in order to catch votes does not depend upon citizens' education.

OLDSHARE, instead, reports a significant and, quite surprisingly, positive correlation with our dependent variable in almost all the models based on the restricted sample. This result is robust to model shifting from OLS to FRACLOG and ZIB. Not significant results, instead, are obtained when the whole sample is considered.

Our OLS findings clearly indicate that parties in the EU area and EU applicants do pay lower attention to environment-related topics in order to catch votes. Indeed, the dummies that identify EU member countries and applicants' countries show a highly significant negative correlation with our dependent variable in all the specifications. This result is strongly confirmed by the FRACLOG and the ZIB models. This finding may arise from the high pressure that EU policy and institutions put on environmental issues which, for this reason, may be not considered anymore by parties as national issues they can appeal to in order to gain votes.

Finally, decade's dummies reveal that political parties do devote more space in their programs to environment-related issues during the 1980s and the 1990s compared with 1970s. With few exceptions, this result is robust across models and to alternative specifications

5. Conclusion

In recent years a broad literature has theoretically and empirically analyzed in profound way the determinants of individuals' environmental awareness. In democratic countries citizens' preferences have to translate into political parties before they can turn into environment

friendly policies. At the same time, parties' do exploit environmentalism in order to catch votes. This is why an empirical analysis of the drivers of political parties' supply of environmentalism is particularly interesting.

To the best of our knowledge, this paper provided the first empirical analysis of the drivers of political parties' environmentalism in European countries using data that cover all the major parties that took part in national elections over more than 30 years, from the 1970s to the present day.

Quite surprisingly, our results show that political parties' supply of environmentalism is not clearly significantly correlated with variables that measure objective environmental degradation nor it is clearly correlated with variables that should affect citizens' subjective feelings of this degradation. Instead, it is strongly correlated with economic variables; indeed, our results strongly support the prosperity and post-materialism hypothesis by revealing that parties' environmentalism is positively correlated with countries' economic wealth. Furthermore, we show that inequality in wealth distribution negatively affects the political supply of environmentalism since it presumably intensifies social conflict and impedes the discussion of environment-related topics. Finally, we provide robust evidence that parties' ideological orientation is a significant driver of environmentalism with left-wing parties who are significantly more environmental-friendly than right wing ones.

References

Adams, J., Clark, M., Ezrow, L., & Glasgow, G. (2004). Understanding change and stability in party ideologies: do parties respond to public opinion or to past election results?, *British Journal of Political Science*, 34(4), 589-610.

Aklin, M., Bayer, P., Harish, S. P., & Urpelainen, J. (2013). Understanding environmental policy preferences: new evidence from Brazil, *Ecological Economics*, 94, 28-36.

Baumol, W. J., & Oates, W. E. (1979). *Economics, environmental policy, and the quality of life,* Prentice Hall, Englewood Cliffs, NJ.

Bechtel, M. M., Bernauer, T., & Meyer, R. (2012). The green side of protectionism: environmental concerns and three facets of trade policy preferences, *Review of International Political Economy*, 19(5), 837-866.

Boyce, J. K. (1994). Inequality as a cause of environmental degradation, *Ecological Economics*, 11(3), 169-178.

Brechin, S. R., & Kempton, W. (1994). Global environmentalism: a challenge to the postmaterialism thesis?, *Social Science Quarterly*, 75(2), 245-269.

Budge, I. (1994). A new spatial theory of party competition: uncertainty, ideology and policy equilibria viewed comparatively and temporally, *British Journal of Political Science*, 24(4), 443-467.

Budge, I., & Laver, M. (1993). The policy basis of government coalitions: a comparative investigation", *British Journal of Political Science*, 23(4), 499-519.

Cole, M. A. (2004). Trade, the pollution haven hypothesis and the environmental Kuznets curve: examining the linkages, *Ecological Economics*, 48(1), 71-81.

Cole, A. (2005). Old right or new right? The ideological positioning of parties of the far right, *European Journal of Political Research*, 44(2), 203-230.

Conroy, S. J., & Emerson, T. L. (2014). A tale of trade-offs: The impact of macroeconomic factors on environmental concern, *Journal of Environmental Management*, 145, 88-93.

Copeland, B. R., & Taylor, M. S. (2003). Trade, growth and the environment, *National Bureau of Economic Research Working Papers*, n. 9823.

Costantini, E., & Hanf, K. (1972). Environmental concern and lake Tahoe: a study of elite perceptions, backgrounds, and attitudes, *Environment and Behavior*, 4(2), 209-242.

Dahl, R. A. (1971). *Polyarchy: participation and opposition*, New Haven: Yale UniversityPress.

Dalton, R. J., Farrell, D.M., & McAllister, I. (2011). *Political parties and democratic linkage: how parties organize democracy*, Oxford University Press.

Dalton, R. J. (2013). Parties, voters and the environment, *Canada-Europe Transatlantic Dialogue Working papers*, University of Carleton.

De Simone, E., & Sapio, A. (2013). What lies behind the promise of fiscal austerity? Unveiling the determinants of party positioning in the EU, *London School of Economics Political Science and Political Economy Working Paper Series*, n.4.

Diekmann, A., & Franzen, A. (1999). The wealth of nations and environmental concern, *Environment and Behavior*, 31(4), 540-549.

Downs, A. (1957). *An Economic Theory of Democracy*, New York, Harper.

Downs, A. (1972). Up and down with ecology: the issue attention cycle, *Public Interest*, 28(1), 38-50.

Dunlap, R. E. (1975). The impact of political orientation on environmental attitudes and actions, *Environment and Behavior*, 7(4), 428-453.

Dunlap, R. E., & Gale, R. P. (1974). Party membership and environmental politics-legislative roll-call analysis, *Social Science Quarterly*, 55(3), 670-690.

Dunlap, R. E., Gallup Jr, G. H., & Gallup, A. M. (1993). Of global concern: results of the health of the planet survey, *Environment: Science and Policy for Sustainable Development*, 35(9), 7-39.

Dunlap, R. E., & Mertig, A. G. (1997). Global environmental concern: an anomaly for postmaterialism, *Social Science Quarterly*, 78(1), 24-29.

Dunlap, R. E., & Van Liere, K. D. (1978). The "new environmental paradigm", *The Journal of Environmental Education*, 9(4), 10-19.

Dunlap, R. E., & York, R. (2008). The globalization of environmental concern and the limits of the postmaterialist values explanation: evidence from four multinational surveys, *The Sociological Quarterly*, 49(3), 529-563.

European Union (2013). A healthy and sustainable environment for future generations, *European Union explained series*, available online at http://europa.eu/pol/env/index_en.htm [accessed on 13/10/2014]

Ercolano, S., Gaeta, G. L., & Romano, O. (2014). Environmental tax reform and individual preferences: an empirical analysis on European micro data, *Journal of Behavioral and Experimental Economics*, 51, 1-11.

Erikson, R. S., Wright, G. C., & McIver, J. P. (1993). *Statehouse democracy: public opinion and policy in the American states*, Cambridge University Press.

Ferrari, S., Cribari-Neto, F. (2004). Beta regression for modelling rates and proportions, *Journal of Applied Statistics*, 31(7), 799-815.

Farzin, Y. H., & Bond, C. A. (2006). Democracy and environmental quality, *Journal of Development Economics*, 81(1), 213-235.

Franzen, A. (2003). Environmental attitudes in international comparison: an analysis of the ISSP surveys 1993 and 2000, *Social Science Quarterly*, 84(2), 297-308.

Franzen, A., & Meyer, R. (2010). Environmental attitudes in cross-national perspective: A multilevel analysis of the ISSP 1993 and 2000, *European Sociological Review*, 26(2), 219-234.

Franzman, S., & Kaiser, A. (2006). Locating political parties in policy space. A reanalysis of party Manifesto data, *Party Politics*, 12(2), 163-188.

Fredriksson, P. G., Neumayer, E., Damania, R., & Gates, S. (2005). Environmentalism, democracy, and pollution control.*Journal of environmental economics and management*, *49*(2), 343-365

Fredriksson, P. G., & Wollscheid, J. R. (2014). Political institutions, political careers and environmental policy. *Kyklos*,*67*(1), 54-73

Frey, B. S. (1978). Politico-economic models and cycles, *Journal of Public Economics*, 9(2), 203-220.

Garmann, S. (2014) Do government ideology and fragmentation matter for reducing CO2-emissions? Empirical evidence from OECD countries, *Ecological Economics*, 105, 1-10.

Glaeser, E. L. (2014). The supply of environmentalism, *Discussion Paper Cambridge, Mass: Harvard Environmental Economics Program*, n. 56.

Groot, I. D. (1967). Trends in public attitudes toward air pollution, *Journal of the Air Pollution Control Association*, 17(10), 679-681.

Haerpfer, C. W. (2014). http://www.worldvaluessurvey.org/wvs.jsp, [accessed on 10/05/2014]

Hellwig, T. (2012). Constructing accountability party position taking and economic voting, *Comparative Political Studies*, 45, 91–118.

Horbach, J. (1992). *Neue politische ´Zkonomie und Umweltpolitik*, Frankfurt, Fischer.

Inglehart, R. (1977). *The silent revolution* (Vol. 8), Princeton, Princeton University Press.

Inglehart, R. (1990). *Culture shift in advanced industrial society*, Princeton University Press.

Inglehart, R. (1995). Public support for environmental protection: objective problems and subjective values in 43 societies., *PS: Political Science & Politics*, 28(1), 57-72.

Inglehart, R. (1997). *Modernization and postmodernization: cultural, economic, and political change in 43 societies*, Princeton, Princeton University Press. International Institute for

Sustainable Development, United Nations Environment Programme. Economics, & Trade Unit (2000), *Environment and trade: a handbook*, UNEP/Earthprint.

Kieschnick, R., & McCullough, B. D. (2003). Regression analysis of variates observed on (0, 1): percentages, proportions and fractions, *Statistical Modelling*, 3(3), 193-213.

Kirchgässner, G., & Schneider, F. (2003). On the political economy of environmental policy, *Public Choice*, 115(3-4), 369-396.

Klingemann, H.D., Hofferbert, R., & Budge, I. (eds) (1994). *Parties policies and democracy*, Westview Press, Boulder.

Knight, K. W., & Messer, B. L. (2012). Environmental concern in cross- national perspective: the effects of affluence, environmental degradation, and World Society, *Social Science Quarterly*, 93(2), 521-537.

Lawson, K. (ed) (1980). *Political parties and linkage: a comparative perspective*, New Haven, Yale University Press.

Liere, K. D., & Dunlap, R. E. (1980). The social bases of environmental concern: A review of hypotheses, explanations and empirical evidence, *Public Opinion Quarterly*, 44(2), 181-197.

List, J. A., & Sturm, D. M. (2004). *How elections matter: Theory and evidence from environmental policy* (No. w10609). National Bureau of Economic Research

Magnani, E. (2000). The environmental Kuznets curve, environmental protection policy and income distribution, *Ecological Economics*, 32(3), 431-443.

McCright, A. M., & Dunlap, R. E. (2011). The politicization of climate change and polarization in the American public's views of global warming, 2001–2010, *The Sociological Quarterly*, 52(2), 155-194.

McCright, A. M., Xiao, C., & Dunlap, R. E. (2014). Political polarization on support for government spending on environmental protection in the USA, 1974–2012, *Social Science Research*, 48, 251-260.

Meadows, D. H., Goldsmith, E. I., & Meadow, P. (1972). *The limits to growth* (Vol. 381), London, Earth Island Limited.

Netjes, C. E., & Binnema, H. A. (2007). The salience of the European integration issue: three data sources compared, *Electoral Studies*, 26(1), 39-49.

Ogden, Jr D. M. (1971). The future of the environmental struggle, in R. Meek, R. & Straayer, J. (eds.), *The Politics of Neglect: The Environmental Crisis*, Boston, Houghton Mifflin.

Page, B. I., & Shapiro, R. Y. (1983). Effects of public opinion on policy, *The American Political Science Review*, 77(1), 175-190.

Persson, T., & Tabellini, G. E. (2002). *Political economics: explaining economic policy*. MIT press.

Persson, T., & Tabellini, G. E. (2005). *The economic effects of constitutions*. MIT press.

Prakash, A., & Potoski, M. (2006). Racing to the bottom? Trade, environmental governance, and ISO 14001, *American Journal of Political Science*, 50(2), 350-364.

Pickering, A., & Rockey, J. (2011). Ideology and the Growth of Government**.** *Review of Economics and Statistics***,** *93*(3), 907-919.

Rae, D. W. (1968). A note on the fractionalization of some European party systems, *Comparative Political Studies*, 1, 413-418.

Ray, L. (2007). Validity of measured party positions on European integration: assumptions, approaches, and a comparison of alternative measures, *Electoral Studies*, 26, 11-22.

Rogers, D. S. (2014). Socioeconomic equity and sustainability, *Global Environmental Change*, 1, 933-941.

Rostow, W. W. (1960). *The process of economic growth*, New York, Norton.

Schumacher, I. (2013). An empirical study of the determinants of green party voting, *Ipag Business School Working Papers Department of Research*, n. 2014-005.

Scruggs, L. A. (1999). Institutions and environmental performance in seventeen western democracies, *British Journal of Political Science*, 29(1), 1-31.

Scruggs, L., & Benegal, S. (2012). Declining public concern about climate change: can we blame the great recession?, *Global Environmental Change*, 22(2), 505-515.

Spoon, J. J., Hobolt, S. B., & Vries, C. E. (2014). Going green: explaining issue competition on the environment, *European Journal of Political Research*, 53(2), 363-380.

Spoon, J. J., & Klüver, H. (2014). Do parties respond? How electoral context influences party responsiveness, *Electoral Studies*, 35, 48-60.

Strom, K. (1990). A behavioral theory of competitive political parties, *American Journal of Political Science*, 34(2), 565-598.

Strömberg, D. (2004). Mass media competition, political competition, and public policy. *The Review of Economic Studies*, *71*(1), 265-284.

Tavits, M. (2007). Principle vs. pragmatism: Policy shifts and political competition. *American Journal of Political Science*, *51*(1), 151-165.

Tognacci, L. N., Weigel, R. H., Wideen, M. F., & Vernon, D. T. (1972). Environmental quality: how universal is public concern?, *Environment and Behavior*, 4(3), 73-86.

Torgler, B., & Garcia-Valiñas, M. A. (2007). The determinants of individuals' attitudes towards preventing environmental damage, *Ecological Economics*, 63(2), 536-552.

Torras, M., & Boyce, J. K. (1998). Income, inequality, and pollution: a reassessment of the environmental Kuznets curve, *Ecological Economics*, 25(2), 147-160.

Tremblay, Jr K. R., & Dunlap, R. E. (1977). Rural-urban residence and concern with environmental quality: a replication and extension, *Rural Sociology*, 43(3), 474-491.

Volkens, A., Lehmann, P., Merz, N., Regel S., Werner A., Lacewell O. P. &, Schultze, H. (2013). *The Manifesto data collection*, Manifesto Project, Version 2013b, Berlin, WZB Berlin Social Science Center.

Volkens, A., Lehmann, P.,Merz, N., Regel, S., Werner, A., Lacewell, O. P. & Schultze, H. (2013b). *Description of the Manifesto Data Set Full Dataset* – Version 2013b, Manifesto Project, Version 2013b. Berlin: WZB Berlin Social Science Center.