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From Environmental Rhetoric to Environmental Expenditure? Evidence from EU Public Spending (1995-2021)

Abstract. *Environmental degradation is a global phenomenon that demands coordinated and sustained action at both the micro- and macroeconomic levels. Although international agreements and public expectations exert growing pressure on governments to address environmental challenges, national authorities often fail to translate environmental discourse into tangible fiscal measures. Governments bear both a moral and institutional responsibility to develop coherent environmental strategies that ensure the well-being of future generations. Electoral manifestos serve as key political instruments through which parties communicate their environmental intentions. However, the extent to which these commitments translate into actual public spending remains uncertain. This paper examines the alignment between environmental rhetoric and fiscal behaviour using a panel dataset covering 27 European Union member states from 1995 to 2021. The analysis incorporates ideological, economic, and institutional variables and employs fixed effects regression to control for country-specific characteristics. The results reveal a significant gap between electoral promises and budgetary outcomes, suggesting that many parties engage in symbolic environmentalism. This disconnect underscores the limitations of rhetorical commitments in the absence of structural and economic support for meaningful policy implementation.*

Keywords: *quantitative environmental policy, public expenditure, political discourse, panel data analysis, European Union.*

JEL Classification: H72, Q58, D72.

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1. Introduction

Achieving sustainability represents a complex challenge, particularly within the economic sphere, where multiple interrelated factors must be simultaneously addressed in order to ensure long-term growth and systemic resilience. The concept of sustainability extends beyond environmental protection alone, requiring the integration of economic efficiency, social equity, and institutional effectiveness to secure broad societal acceptance and financial stability (Ahmed et al., 2021). From an economic perspective, the transition toward sustainable development models entails substantial costs, structural adjustments, and the internalisation of negative externalities, all of which complicate policy design and implementation.

While a growing body of literature examines the relationship between economic development and environmental outcomes, as well as the role of political ideology

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in shaping environmental regulation, considerably less attention has been paid to the **budgetary dimension** of environmental policy. Existing studies often focus on regulatory stringency, emission levels, or composite environmental indices, while public expenditure on environmental protection remains relatively underexplored. Moreover, the empirical evidence on whether political rhetoric and electoral commitments translate into tangible fiscal action is mixed and inconclusive, particularly in cross-country settings such as the European Union.

In this context, the 2016 Paris Agreement represents a significant political and economic milestone, providing a coordinated international framework aimed at mitigating climate change while fostering sustainable development. Nevertheless, despite its historical importance, the agreement’s transformative potential has been only partially realised (Arpad, 2018). The economic implications of its implementation – such as uneven national contributions, disparities in technological capabilities, and the risks of carbon leakage – continue to pose substantial challenges to global climate efforts (Chuan and Yiyun, 2025). Consequently, advancing sustainability requires not only stronger institutional commitments, but also innovative market mechanisms, green investment strategies, and inclusive economic policies capable of reconciling economic growth with environmental responsibility. At the European level, the European Union has adapted its competition policies to promote innovation, technological advancement, and competitiveness (Horobeţ et al., 2024). At the same time, previous research highlights the critical role of state capacity and human resources in managing crises and navigating periods of political and economic instability (Johnston and Massey, 2024). These institutional and political dimensions further reinforce the importance of examining whether declared environmental priorities are effectively translated into concrete budgetary allocations.

Figure 1 illustrates the primary factors that influence the relationship between political power and environmental expenditure.

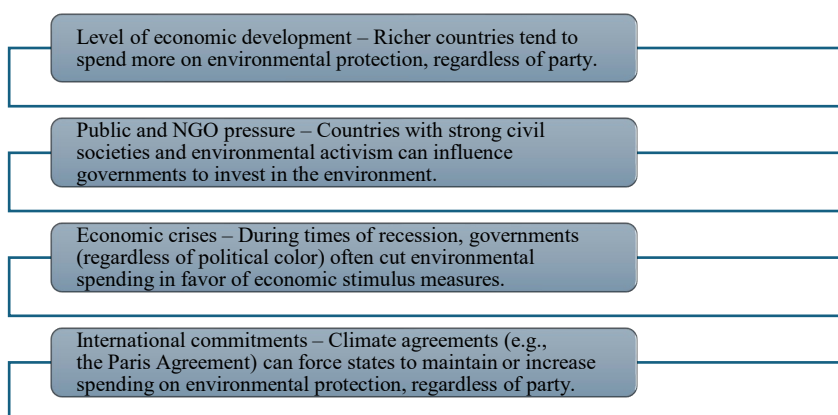


Figure 1. Factors influencing the relationship between political power and environmental expenditure

Source: Own elaboration.

In this study, environmental commitment is operationalised through **public expenditure on environmental protection**, measured as a percentage of the gross domestic product. This indicator captures actual budgetary allocations rather than fiscal revenues or taxation instruments, allowing for a direct assessment of whether declared environmental priorities are reflected in public spending decisions. Accordingly, the analysis focuses on the expenditure side of public finance, rather than on fiscality in the strict sense of taxation.

Against this background, the paper addresses the following research question: *to what extent are pro-environmental commitments made by governing parties reflected in actual public spending?* The relationship between political power and environmental expenditure is inherently complex, being shaped by ideological orientations, economic structures, institutional constraints, and societal pressures. Although political ideology may suggest certain policy preferences, real-world implementation often deviates from rhetorical commitments.

Addressing this question is particularly relevant in the European Union context, where member states display substantial heterogeneity in fiscal capacity, political systems, and institutional quality, while simultaneously operating under common environmental objectives and policy frameworks.

This paper contributes to existing literature in several ways. First, it shifts the analytical focus from environmental outcomes or regulatory measures to **public environmental expenditure**, offering a fiscally grounded perspective on environmental commitment. Second, it incorporates manifesto-based indicators of environmental rhetoric into the analysis of public spending, providing novel empirical evidence on whether electoral commitments are reflected in budgetary decisions. Third, by employing a panel dataset covering European Union member states over the period 1995–2021, the study captures both cross-country heterogeneity and temporal dynamics that are often overlooked in single-country or short-horizon analyses.

2. Theoretical Framework and Literature Review

Understanding the allocation of public resources for environmental protection requires a nuanced exploration of how political ideologies, institutional pressures, and economic constraints interact within democratic governance. While political parties frequently express environmental commitments through electoral manifestos, there is increasing evidence that such rhetorical commitments often fail to materialise into corresponding budgetary actions. This discrepancy raises critical questions about the conditions under which ideological preferences translate into fiscal decisions, particularly in the context of European Union member states.

2.1 Political Ideology and Environmental Spending

A significant body of research has examined how political ideology influences environmental policymaking. Traditionally, parties positioned on the left – social democratic, green, or progressive – have been more inclined to support

environmental protection through regulatory interventions and increased public spending (Boyne, 1998; Krajewski, 2016). These parties often advocate for stringent environmental regulations and the promotion of renewable energy. Conversely, conservative or economically liberal parties tend to emphasise economic growth, fiscal restraint, and minimal state intervention, frequently deprioritising environmental spending unless it aligns with broader economic goals. However, recent findings challenge the assumption of a direct link between ideology and environmental expenditure. Bursac (2021), for instance, shows that while ideological orientation matters, its predictive power is often outstripped by contextual variables such as economic performance, institutional structure, and the influence of external actors like the European Union. This suggests that political ideology may not operate as a straightforward determinant of environmental spending, but rather as one among multiple interdependent factors.

In recent empirical research (Warntjen et al., 2008; Benoit et al., 2009), electoral manifestos have become an important source for capturing parties' policy priorities and issue salience. Rather than measuring policy outcomes, manifesto-based indicators reflect the relative emphasis placed on specific topics within party platforms. In the environmental domain, such indicators capture the prominence of environmental protection, sustainability, and climate-related issues in political discourse, serving as proxies for declared political commitment. These measures do not imply direct policy implementation but instead allow for the analysis of whether stated priorities are subsequently reflected in fiscal decisions.

2.2 The Role of Institutional and Electoral Incentives

Beyond ideology, electoral incentives, and institutional arrangements significantly shape party behaviour. The theory of political signalling (Bremer, 2018) posits that parties use environmental language strategically to appeal to environmentally conscious voters without necessarily intending to follow through with substantive policy commitments. In this light, manifestos may serve as symbolic tools rather than as binding platforms. The principal-agent problem further complicates this relationship – governments (agents) may pursue agendas that diverge from voter expectations (principals), especially when accountability mechanisms are weak or public attention is dispersed. Moreover, European institutions exert pressure on national governments to meet environmental standards, often through policy frameworks, funding instruments, and performance monitoring (Kotseva-Tikova & Dvorak, 2022). While these supranational influences can stimulate environmental policy adoption, they do not guarantee proportional financial commitments at the national level. Thus, public expenditure may lag behind rhetorical compliance, particularly in states facing economic constraints or competing policy demands.

2.3 Economic Constraints and Strategic Trade-offs

Economic variables – GDP growth, inflation, debt levels, and budget deficits – also play a decisive role in environmental budget decisions. Krajewski (2016) and Drăcea et al. (2020) have demonstrated that increases in GDP and environmental investment are sometimes correlated, especially in wealthier nations. Nonetheless, fiscal constraints often limit the scope of action, and governments may engage in strategic trade-offs – favouring low-cost regulatory tools over substantial fiscal investments (Newmark & Witko, 2007). This dynamic is particularly pronounced in post-socialist or developing EU states, where public demand for environmental protection competes with pressing economic and social needs. The Environmental Kuznets Curve hypothesis (Johnson & Schwadel, 2019) suggests that environmental concern follows an inverted U-shape relative to GDP – early development brings degradation, followed by improved environmental performance at higher income levels. However, empirical evidence across EU states suggests a more complex, potentially S-shaped relationship, indicating that the interaction between economic growth and environmental commitment is non-linear and mediated by institutional and political variables.

An important distinction in this context concerns the use of GDP growth rates rather than income levels. Although GDP levels capture the stock of economic resources available to governments, growth rates reflect short-term economic dynamics and fiscal cycles. Environmental expenditure decisions, particularly those involving long-term investments, may not respond immediately to contemporaneous growth fluctuations. As a result, the relationship between economic growth and environmental spending may appear weak or even negative in the short run, without implying a lack of long-term commitment.

2.4 Gaps in Literature and Contribution of This Study

While the existing literature provides valuable insights into the ideological, institutional, and economic determinants of environmental policymaking, few studies rigorously examine the **mismatch between electoral rhetoric and actual fiscal behaviour**. Even fewer provide empirical evidence on this gap across a multi-country, longitudinal dataset such as that of the European Union. This paper aims to bridge that gap by analysing whether governing parties' pro-environmental commitments, as expressed in electoral manifestos, are reflected in concrete public expenditure on environmental protection. By combining data from the Manifesto Project and EUROSTAT for 27 EU countries over a 26-year period (1995-2021), this research employs a panel data approach to uncover patterns, anomalies, and structural influences shaping environmental fiscal behaviour. In doing so, it contributes to a deeper understanding of the disjunction between environmental signalling and financial commitment in democratic systems. These theoretical expectations find support in recent empirical observations. As illustrated in the

scatter plot below (Figure 2), the relationship between GDP and environmental expenditure among EU countries follows a complex trajectory.



Figure 2. Spatial distribution of environmental protection expenditure (% of GDP)
Source: WB, 2025.

The map provides a descriptive overview of the cross-country distribution of environmental protection expenditure within the European Union. It highlights substantial spatial heterogeneity, reflecting differences in fiscal capacity, institutional frameworks, and national policy priorities. However, this representation is purely descriptive and does not allow for inference regarding the functional relationship between economic development and environmental expenditure.

Taken together, the theoretical framework of this study builds on three complementary strands of literature: (i) the role of political ideology and electoral signaling in shaping policy priorities, (ii) institutional and economic constraints affecting public expenditure decisions, and (iii) the growth–environment nexus traditionally discussed within the Environmental Kuznets Curve framework.

Rather than assuming a direct and automatic translation of political preferences into fiscal outcomes, the framework emphasises the conditional nature of environmental spending decisions, which are shaped by short-term economic dynamics, fiscal capacity, and strategic policy trade-offs. This integrated perspective provides the theoretical basis for empirical analysis, guiding both the selection of variables and the interpretation of the estimated relationships.

Based on the theoretical framework and the existing literature, the study formulates a set of hypotheses regarding the relationship between political commitments, economic conditions, and public expenditure on environmental protection:

H1: Pro-environmental commitments expressed in the electoral manifestos of governing parties are not necessarily associated with higher public expenditure on environmental protection.

H2: Sustainability-related discourse in electoral manifestos has a limited or indirect association with public expenditure on environmental protection.

H3: The relationship between pro-environmental rhetoric and environmental expenditure varies across types of governing parties and is conditioned by political and economic constraints.

H4: The relationship between economic development and public expenditure on environmental protection is non-linear, reflecting different stages of economic growth rather than a simple monotonic or inverted U-shaped pattern.

This study builds on a political economic framework in which public environmental expenditure results from the interaction between declared political priorities, fiscal constraints, and contemporaneous macroeconomic conditions. Electoral manifestos signal policy priorities, while actual budgetary allocations reflect institutional capacity and short-term fiscal trade-offs. Within this framework, manifesto salience affects expenditure only conditionally, rather than mechanically.

3. Methodology

The study examines whether governments translate the environmental commitments expressed by the governing parties into actual public expenditure on environmental protection over the period 1995–2021. The empirical analysis focuses on a balanced panel of 27 European countries over the period 1995–2021, selected based on data availability (Austria, Belgium, Bulgaria, Switzerland, the Czech Republic, Germany, Denmark, Greece, Spain, Finland, France, Hungary, Ireland, Iceland, Italy, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia, the United Kingdom). The sample was limited to this number, depending on the availability of data collected from the EUROSTAT database and the Manifesto project database (Lehmann et al., 2024). A detailed description of all variables, including measurement units and sources, is provided in Table 1 below.

Table 1. Description of variable

Symbol	Name	Measurement Unit	Source
g_expenditure	General Expenditure for environmental protection	Percentage of GDP	Eurostat
per501	Environmental protection salience (PER501)	Parties at national elections	Manifesto project
per416_2	Sustainability discourse salience (PER416_2) - positive	Parties at national elections	Manifesto project
per304	Anti-corruption discourse salience (PER304)	Parties at national elections	Manifesto project
r_gdp	Real GDP growth rate	Chain linked volumes, percentage change on previous period	Eurostat
inflation	Inflation rate	Annual average rate of change	Eurostat
unemployment	Unemployment rate	Percentage of population in the labor force	Eurostat
deficit	Government deficit/surplus	Percentage of gross domestic product (GDP)	Eurostat
debt	Government consolidated gross debt	Percentage of gross domestic product (GDP)	Eurostat

Source: Own elaboration.

The panel is **balanced**, with data available for all 27 countries over the full 1995-2021 period.

The analysis employs real GDP growth rates rather than GDP levels in order to capture short-term economic dynamics and fiscal cycles. While GDP levels reflect the overall stock of economic resources available to governments, growth rates provide information on contemporaneous economic conditions that may influence annual budgetary decisions. This distinction is particularly relevant for environmental expenditure, which often involves long-term investments whose fiscal effects may not materialise immediately.

Within the Manifesto Project dataset, the variable Environmental protection salience (PER501) captures the salience of environmental protection in electoral manifestos. Specifically, Environmental protection salience (PER501) measures the percentage of quasi-sentences within a party's electoral program that expresses positive positions toward environmental protection. Quasi-sentences represent the basic coding units of the Manifesto Project and correspond to distinct policy statements rather than full sentences or paragraphs.

Environmental protection salience (PER501) reflects declared political priorities and issue salience rather than policy implementation or budgetary commitment. As such, it provides a measure of environmental rhetoric and agenda-setting in electoral competition, rather than a direct indicator of environmental policy outcomes. This distinction is central to the present analysis, which examines whether variations in manifesto-based environmental discourse are systematically associated with changes in public expenditure on environmental protection.

By using Environmental protection salience (PER501) as an explanatory variable, the study is able to assess the extent to which electoral emphasis on environmental issues translates into fiscal behaviour once parties assume governing responsibility, while explicitly recognising that manifesto commitments may serve symbolic or strategic functions alongside substantive policy intentions.

The variable Sustainability discourse salience (PER416_2) captures the salience of sustainability-related discourse expressed in positive terms within electoral manifestos. Similarly to Environmental protection salience (PER501), this indicator is computed as the percentage of quasi-sentences that explicitly refer to sustainability, long-term development, intergenerational responsibility, or balanced growth strategies that integrate economic, social, and environmental considerations.

Unlike Environmental protection salience (PER501), which focuses narrowly on environmental protection, Sustainability discourse salience (PER416_2) reflects a broader conceptualisation of sustainability. It encompasses policy statements that emphasise sustainable development as a general objective, without necessarily specifying concrete environmental measures or sectoral interventions. As such, per416_2 is less directly tied to environmental policy instruments and may capture a more abstract or cross-sectoral orientation in party discourse.

From an analytical perspective, the Sustainability discourse salience (PER416_2) is interpreted as an indicator of general sustainability framing rather than as a direct proxy for environmental policy commitment. Its inclusion in the

empirical model allows the study to distinguish between narrowly defined environmental rhetoric and broader sustainability narratives, which may influence fiscal behaviour only indirectly or through long-term strategic planning rather than through immediate budgetary allocations.

Accordingly, the empirical specification is intended to capture associations rather than causal effects, and the results should be interpreted as descriptive relationships conditioned by economic and political contexts.

A summary of the central tendencies and dispersion of each variable is presented in **Table 2**, showing, for instance, that average environmental expenditure across the EU is approximately 0.86% of GDP, while the average manifesto commitment to Environmental protection salience (PER501) is around 5.3%.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
g expenditure	1132	.856	.366	.2	1.5
per501	1132	5.298	5.926	0	62.11
per416 2	1132	2.796	3.282	0	23.64
per304	1132	1.148	2.023	0	26.03
r gdp	1132	1.628	2.784	-8.6	6.2
inflation	1132	.944	1.239	-1.6	3.7
unemployment	1132	4.777	3.731	.7	16.4
deficit	1132	-2.601	3.237	-15.2	5.1
debt	1132	68.512	36.492	3.8	180.6

Source: Own elaboration.

Given the longitudinal structure of the data, the analysis applies a **fixed effects (FE) panel** regression model to account for time-invariant heterogeneity across countries – such as institutional stability, environmental awareness, or historical legacies. The fixed effects specification is superior to pooled OLS in this context, as it mitigates omitted variable bias arising from unobservable, country-specific factors.

To allow for potential non-linear relationships between economic performance and environmental expenditure, the model incorporates higher-order terms of GDP growth. Rather than imposing the validity of the traditional inverted-U Environmental Kuznets Curve, this approach enables a flexible specification in which the relationship may vary across stages of economic development. The inclusion of quadratic and cubic terms allows the data to reveal more complex patterns, such as multiple inflection points, without constraining the analysis to a predefined functional form.

The model is formally expressed as:

$$g_expenditure_it = \alpha_i + \beta_1_per501_it + \beta_2_per416_2it + \beta_3_per304_it + \beta_4_r_gdp_it + \beta_5_r_gdp_it^2 + \beta_6_inflation_it + \beta_7_unemployment_it + \beta_8_deficit_it + \beta_9_debt_it + \varepsilon_it \quad (1)$$

Where:

- α_i are the **country fixed effects**,
- ε_it is an **idiosyncratic** error term.

Equation (1) specifies a contemporaneous fixed-effects panel model in which public expenditure on environmental protection is explained by political discourse indicators and macroeconomic controls observed in the same period. The specification is grounded in the political economy literature, which emphasises that budgetary decisions are shaped by short-term fiscal conditions, institutional constraints, and declared policy priorities rather than by long-run adjustment mechanisms.

To allow for potential non-linear responses of environmental expenditure to economic dynamics, the specification includes higher-order terms of real GDP growth. Rather than testing the traditional Environmental Kuznets Curve in levels, the model explores whether short-term growth phases are associated with different patterns of environmental spending, reflecting cyclical budgetary trade-offs and changing fiscal space.

A **Hausman test** was conducted to assess whether a fixed effects or random effects model would be more appropriate. The test favoured the fixed effects model, indicating that the unobserved effects are correlated with the explanatory variables. To control heteroscedasticity and autocorrelation, standard errors are computed with clustering at the country level. This estimation strategy allows for a robust investigation of the relationship between political commitments and actual fiscal behaviour, providing a solid empirical foundation for evaluating the credibility of environmental discourse among governing parties in the EU.

The fixed effects specification is particularly suitable for the present analysis, as it controls for unobserved, time-invariant country characteristics that may simultaneously influence political discourse and public expenditure patterns. These characteristics include institutional quality, long-standing environmental awareness, historical policy legacies, and cultural attitudes toward state intervention. By differencing out such factors, the fixed effects model allows the estimation to focus on within-country variation over time, thereby reducing potential bias arising from omitted variables.

This within-country approach is particularly appropriate given the focus on changes in political discourse and fiscal behaviour over time, rather than on cross-sectional differences between countries.

Several limitations of the empirical approach should be acknowledged. First, the analysis relies on contemporaneous relationships between political commitments, economic conditions, and environmental expenditure, and does not explicitly model lagged effects. While this choice reflects data availability and comparability constraints, it implies that delayed fiscal responses to political or economic changes may not be fully captured. Second, although the fixed effects specification mitigates concerns related to unobserved heterogeneity, potential endogeneity issues cannot be entirely ruled out. These limitations are explicitly taken into account when interpreting the empirical findings.

The analysis focuses on contemporaneous relationships between political discourse, economic conditions, and environmental expenditure. This choice is consistent with the objective of examining short-term fiscal responses to political

commitments as reflected in annual budgetary decisions. While lagged effects may be relevant for long-term investment outcomes, environmental expenditure is approved and executed within annual budget cycles, making contemporaneous specifications appropriate for capturing immediate fiscal behaviour (Boyne, 1998; Newmark and Witko, 2007). The absence of lagged terms, therefore, reflects a deliberate modelling choice rather than a limitation of the empirical design.

The empirical strategy deliberately combines ideological indicators with macroeconomic controls and allows for non-linear economic dynamics. The use of fixed effects mitigates bias arising from unobserved, time-invariant country characteristics, while the inclusion of higher-order terms of GDP growth relaxes restrictive functional assumptions regarding the growth–environment nexus.

Importantly, the negative coefficient associated with manifesto-based environmental salience should not be interpreted as evidence of model misspecification. Rather, it reflects the conceptual distinction between political discourse and fiscal implementation, a distinction that is central to the research question. The empirical specification is therefore designed to test whether rhetorical commitments are systematically aligned with budgetary outcomes, not to predict environmental expenditure mechanically from ideological variables.

4. Results

The presentation of the results follows a structured approach: first, the baseline fixed effects estimates are discussed; second, heterogeneity across governing party types is examined; and third, potential non-linear economic effects are explored. This section presents and interprets the results obtained from the fixed effects panel regression model, as discussed in the methodology. The primary goal is to assess whether pro-environmental commitments stated in the electoral manifestos of governing parties correlate with actual public expenditure on environmental protection.

4.1 Baseline Fixed Effects Model

The results of the main regression model are presented in Table 3. This specification includes Environmental protection salience (PER501), Sustainability discourse salience (PER416_2), and Anti-corruption discourse salience (PER304) as ideological predictors, along with standard macroeconomic controls.

Table 3. Regression results

<i>g_expenditure</i>	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
<i>per501</i>	-.013	.004	-3.15	.002	-.021	-.005	***
<i>per416_2</i>	.002	.006	0.38	.707	-.01	.014	
<i>per304</i>	.002	.006	0.27	.787	-.011	.014	
<i>log_r_gdp</i>	.093	.032	2.88	.004	.029	.157	***
<i>inflation</i>	-.068	.022	-	.003	-.112	-.024	***

3.05

g_expenditure	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
unemployment	-.003	.01	-0.27	.785	-.022	.017	
deficit	-.004	.011	-0.35	.724	-.025	.017	
debt	.005	.001	7.41	0	.004	.007	***
Constant	.592	.097	6.10	0	.401	.783	***
Mean dependent var	0.762		SD dependent var		0.339		
R-squared	0.400		Number of obs		246		
F-test	17.487		Prob > F		0.000		
Akaike crit. (AIC)	-58.720		Bayesian crit. (BIC)		93.773		

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Own elaboration.

The GDP growth variable is included in logarithmic form in this specification in order to reduce skewness and improve comparability across countries. Alternative specifications using the level of GDP growth yield qualitatively similar results.

The results of the baseline fixed effects model are reported in Table 3. The specification includes three manifesto-based ideological indicators – Environmental protection salience (PER501), Sustainability discourse salience (PER416_2), and Anti-corruption discourse salience (PER304) – alongside a set of macroeconomic control variables commonly employed in the literature on public expenditure and fiscal policy (Boyne, 1998; Krajewski, 2016).

The coefficient associated with Environmental protection salience (PER501) is negative and statistically significant at the 1% level. Given that Environmental protection salience (PER501) captures the relative salience of environmental protection in electoral manifestos rather than policy outcomes, this result indicates that, within countries over time, a higher emphasis on environmental protection in electoral discourse is associated with lower public expenditure on environmental protection as a share of GDP during the corresponding governing periods.

This finding points to a systematic divergence between declared environmental priorities and observed budgetary allocations. In this sense, Environmental protection salience (PER501) should be interpreted as a measure of political agenda-setting rather than of policy implementation, and the estimated coefficient reflects an empirical decoupling between environmental rhetoric and fiscal outcomes (Budge et al., 2001; Bremer, 2018). The result does not imply a deterioration in environmental outcomes but rather highlights the limited capacity of manifesto-based commitments to predict sector-specific expenditure decisions.

Consistent with this interpretation, the results indicate that increases in manifesto-based environmental emphasis are not accompanied by proportional increases in aggregate environmental expenditure. Environmental policy priorities may therefore be reflected through non-expenditure-based instruments, while public spending remains constrained by broader fiscal conditions and competing budgetary demands (Newmark and Witko, 2007).

By contrast, the coefficients associated with Sustainability discourse salience (PER416_2) (sustainability-related discourse) and Anti-corruption discourse

salience (PER304) (references to political corruption) are not statistically significant in this baseline specification. This suggests that, once country fixed effects and macroeconomic conditions are taken into account, these dimensions of political discourse do not exert a systematic influence on environmental expenditure decisions. Similar results have been reported in previous studies emphasising that broader sustainability narratives or governance-related rhetoric do not automatically translate into sector-specific fiscal outcomes (Bursać, 2021).

Among the control variables, real GDP growth (logged) exhibits a positive and statistically significant association with environmental expenditure, indicating that periods of stronger economic performance are associated with greater fiscal capacity for discretionary spending, including environmental protection (Krajewski, 2016). Inflation displays a negative and statistically significant coefficient, consistent with the notion that macroeconomic instability constrains public expenditure by eroding real budgetary resources (Drăcea et al., 2020). Government debt is positively associated with environmental expenditure, suggesting that higher indebtedness does not necessarily crowd out environmental spending and may reflect broader public investment strategies, as documented in other empirical analyses of public finance and environmental policy (Johnson and Schwadel, 2019).

Overall, the model explains approximately 40% of the within-country variation in environmental expenditure, which represents a satisfactory level of explanatory power for a fixed effects panel model applied to a heterogeneous group of European countries over a long-time horizon. These baseline results provide a foundation for the subsequent analysis of heterogeneity across governing party types and for the exploration of non-linear economic effects.

4.2 Heterogeneity by Governing Party Type

To examine whether the relationship between political discourse and environmental expenditure differs across governing party types, the analysis estimates separate fixed effects regressions for the main categories of parties in power. Table 4 presents the classification of parties included in the analysis, while the regression results by party type are reported in Table 5. Also, in Appendix 1, Table A1 presents the dataset contents with regard to countries, election years, and parties.

Table 4. Name of the party

Symbol	Name of the party	Cod
eco ecolog	Ecologist / Ecological	1
soc social	Socialist / Social Democrat	2
nat nation	Nationalist	3
lib libera	Liberal	4
chr christ	Christian-Democrat/Christian	5
lef social	Left / Socialist	6
sip specia	Specialised/Unique-Thematic Party (single-issue parties such as animal protection)	7
eth ethnic	Ethnic (parties of national minorities)	8

Symbol	Name of the party	Cod
con conser	Conservative	9
agr agrari	Agrarian	10

Source: Own elaboration after Lehmann et al., 2024.

The party classification highlights the diversity of ideological positions represented in the sample, ranging from ecological and socialist parties to liberal, conservative, and agrarian formations. This classification allows for the exploration of whether environmental spending patterns differ depending on the ideological orientation of the governing parties.

Thus, it was found that large changes in the distribution of voters' preferences are rare, the programs of the parties remain relatively stable over time (Bremer, 2018). Also, environmental protection might compete with other pressing economic or social needs, leading to lower budget allocations despite ideological commitments. So, in table no. 5 we have analysed the way in which each party in government manages the expenses for the environment.

Table 5. Regression results by governing parties

Dependent variable: g expenditure

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Type party	eco ecolog	soc social	nat nation	lib libera	chr christ	lef social	sip specia	eth ethnic	con conser	agr agrari
per501	-0.0266	-0.00549	-0.0258	-	-0.0106	-0.0208*	0.0302	-0.0122	-0.0278*	0.0314
	(0.0165)	(0.0171)	(0.0198)	(0.0144)	(0.0322)	(0.0119)	(0.0246)	(0.00862)	(0.0160)	(0.0167)
per416_2	0.00291	0.0275	0.0978*	0.0104	0.0694*	-0.00438	-0.0560	0.000232	-0.00822	0.239
	(0.0292)	(0.0232)	(0.0402)	(0.0167)	(0.0349)	(0.0121)	(0.0596)	(0.00811)	(0.0223)	(0.131)
per304	-0.0316	0.00318	0.00260	-0.0415*	-0.0542	0.0288	-0.00245	-0.00346	-0.0420	0.240
	(0.0287)	(0.0291)	(0.0167)	(0.0219)	(0.0476)	(0.0263)	(0.0157)	(0.0110)	(0.0263)	(0.123)
r_gdp	0.147**	0.0219	0.0515*	-0.0140	0.0845*	0.0117	0.204**	-0.0135	0.0467	0.150
	(0.0660)	(0.0233)	(0.0199)	(0.0183)	(0.0396)	(0.0169)	(0.0869)	(0.0200)	(0.0353)	(0.0414)
inflation	-0.112	0.0117	0.0411	0.0553	-0.0542	-0.0223	-0.502**	-0.0434	-0.0214	0.339
	(0.130)	(0.0606)	(0.0469)	(0.0494)	(0.0793)	(0.0491)	(0.180)	(0.0509)	(0.0484)	(0.131)
unemployment	0.0407	0.0203	0.0198	0.0211	0.0498	-	-0.164**	-0.0141	0.0223	0.249
	(0.0984)	(0.0277)	(0.0225)	(0.0241)	(0.0403)	(0.0249)	(0.0669)	(0.0187)	(0.0211)	(0.132)
deficit	-0.0257	-0.0341	-	-0.0242	-0.0457	-0.0114	0.00200	0.00486	-0.00794	-0.103
	(0.0742)	(0.0266)	(0.0234)	(0.0192)	(0.0341)	(0.0213)	(0.0545)	(0.0247)	(0.0220)	(0.0437)
debt	-	0.00225	0.00295	0.00352	0.00254	0.00343	0.00922	0.00759**	0.00131	0.0378
	0.00081	*	*	*	*	*	*	*	*	*
	(0.00581)	(0.00208)	(0.00173)	(0.00180)	(0.00259)	(0.00235)	(0.00722)	(0.00165)	(0.00129)	(0.0195)

From Environmental Rhetoric to Environmental Expenditure?...

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Type party	eco ecolog	soc social	nat nation	lib libera	chr christ	lef social	sip specia	eth ethnic	con conser	agr agrari
Constant	0.835*	0.381**	0.295**	0.552** *	0.179	0.653** *	1.010*	0.376***	0.554** *	-3.617
	(0.465)	(0.167)	(0.145)	(0.137)	(0.269)	(0.200)	(0.531)	(0.125)	(0.155)	(1.824)
Observations	24	59	56	63	34	62	17	50	42	10
R-squared	0.393	0.250	0.425	0.381	0.510	0.377	0.629	0.473	0.352	0.966

Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Source: Own elaboration.

The regression results reported in Table 5 reveal substantial heterogeneity in the relationship between manifesto-based environmental discourse and public expenditure on environmental protection across different governing party types. While the sign of the coefficient associated with Environmental protection salience (PER501) is predominantly negative, its magnitude and statistical significance vary across ideological categories.

For liberal and left/socialist parties, the coefficient on Environmental protection salience (PER501) is negative and statistically significant, suggesting that even parties traditionally associated with greater openness toward environmental issues do not systematically translate rhetorical commitments into higher environmental expenditure. This pattern is consistent with the view that fiscal decisions are shaped by economic constraints and institutional settings, rather than being solely driven by ideological preferences (Bremer, 2018; Bursać, 2021).

In contrast, for specialised or single-issue environmental parties, the coefficient on Environmental protection salience (PER501) becomes positive, although it does not reach conventional levels of statistical significance. This result suggests that such parties may pursue environmental objectives through alternative channels, such as regulatory initiatives or agenda-setting, rather than through direct increases in public expenditure, particularly when operating within coalition governments (Newmark and Witko, 2007).

Taking together, these results indicate that governing party ideology conditions do not fully determine environmental expenditure outcomes. Rather than uniformly increasing total spending, parties appear to differ in the mechanisms through which environmental priorities are addressed, with economic constraints and policy trade-offs playing a central role in shaping fiscal decisions (Bremer, 2018).

Table 6 reports the pairwise correlations among the main variables included in the analysis.

Table 6. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	1.000								
g_expenditure									
(2) per501	-0.115	1.000							
(3) per416_2	0.020	0.401	1.000						
(4) per304	0.087	-0.123	-0.143	1.000					
(5) r_gdp	-0.168	0.065	0.091	-0.070	1.000				

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(6) inflation	-0.007	0.114	0.168	-0.106	0.197	1.000			
(7) unemployment	0.331	-0.157	-0.234	0.221	-0.318	-0.455	1.000		
(8) deficit	-0.370	0.110	0.114	-0.149	0.539	0.150	-0.475	1.000	
(9) debt	0.396	-0.072	0.009	0.118	-0.422	-0.300	0.590	-0.421	1.000

Source: Own elaboration.

Table 6 presents the pairwise correlations among the main variables included in the analysis. These correlations provide a preliminary descriptive overview of the associations between environmental expenditure, manifesto-based indicators, and macroeconomic variables.

The correlation coefficients indicate a negative association between environmental expenditure and Environmental protection salience (PER501), which is consistent with the baseline regression results. However, these bivariate relationships should be interpreted with caution, as they do not account for country-specific effects, temporal dynamics, or the influence of other explanatory variables included in the multivariate models.

Similarly, the observed associations between environmental expenditure and macroeconomic indicators reflect contemporaneous correlations rather than causal relationships. As such, the correlation matrix is intended to complement the regression analysis by offering descriptive insights, rather than serving as a basis for substantive inference.

4.3 Nonlinear Effects of Economic Development

To explore potential nonlinear relationships between economic performance and environmental expenditure, the analysis extends the baseline specification by incorporating higher-order terms of real GDP growth. This approach allows for a flexible assessment of how short-term economic dynamics are associated with changes in public expenditure on environmental protection, without imposing the functional form implied by the traditional Environmental Kuznets Curve (EKC). The results are presented in Table 7 and Table 8.

Table 7. Regression results with a squared GDP term

g_expenditure	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
per501	-.015	.004	-3.76	0	-.024	-.007	***
per416_2	.011	.006	1.83	.068	-.001	.022	*
per304	.003	.006	0.51	.607	-.009	.016	
r_gdp2	.005	.001	4.23	0	.003	.008	***
inflation	-.036	.021	-1.74	.083	-.078	.005	*
unemployment	.049	.006	8.25	0	.037	.06	***
deficit	-.017	.007	-2.51	.013	-.031	-.004	**
debt	0	0	1.81	.071	0	0	*
Constant	.652	.067	9.80	0	.521	.783	***
Mean dependent var	0.810		SD dependent var		0.372		
R-squared	0.412		Number of obs		278		

g expenditure	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
F-test	23.543		Prob > F		0.000	
Akaike crit. (AIC)	108.138		Bayesian crit. (BIC)		140.787	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Own elaboration.

The results reported in Table 7 indicate that the coefficient associated with the squared term of GDP growth is positive and statistically significant. This suggests a U-shaped relationship between GDP growth and environmental expenditure, whereby periods of lower or moderate growth are associated with relatively lower levels of environmental spending, while higher growth rates coincide with increased expenditure on environmental protection.

This pattern should be interpreted in terms of short-term economic dynamics rather than levels of economic development. Since the analysis employs GDP growth rates rather than GDP levels, the estimated relationship captures cyclical fiscal responses to economic conditions, rather than long-run structural stages as postulated by the standard Environmental Kuznets Curve.

The model is significant ($F(8, 269) = 23.54, p < 0.01$), which means that the variables significantly explain the variation in environmental protection expenditures. The model explains 41.18% of the variation in environmental spending, which is decent, but suggests that there are other important factors not included.

To assess whether this relationship is more complex than a simple quadratic form, the model is further extended by including a cubic term of GDP growth (see Table 8).

Table 8. Regression results with the term GDP to the third power

g expenditure	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
per501	-.016	.004	-4.14	0	-.023	-.008 ***
per416_2	.009	.006	1.62	.107	-.002	.02
per304	.005	.006	0.84	.404	-.007	.017
r_gdp3	-.001	0	-6.90	0	-.001	-.001 ***
inflation	.006	.021	0.27	.785	-.036	.047
unemployment	.053	.006	9.37	0	.042	.064 ***
debt	0	0	1.64	.102	0	0
Constant	.642	.061	10.50	0	.522	.763 ***
Mean dependent var	0.810		SD dependent var		0.372	
R-squared	0.467		Number of obs		278	
F-test	29.458		Prob > F		0.000	
Akaike crit. (AIC)	80.768		Bayesian crit. (BIC)		113.417	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Own elaboration.

The results reported in Table 8 show a negative and statistically significant coefficient for the cubic term of GDP growth ³ (-0.001, $p < 0.01$). This finding

indicates that the relationship between GDP growth and environmental expenditure is better characterised by a non-monotonic pattern with multiple inflection points, consistent with an S-shaped relationship.

Taken together, the quadratic and cubic specifications suggest that environmental expenditure responds differently across phases of economic expansion. Periods of accelerating growth may initially coincide with a relative deprioritisation of environmental spending, as governments focus on growth-enhancing or socially urgent expenditures. At higher growth rates, increased fiscal space may allow for renewed attention to environmental protection.

Figure 3 depicts a scatter plot of real GDP growth and public expenditure on environmental protection, together with the fitted values from the cubic specification, allowing for a visual assessment of the non-linear relationship identified in the empirical analysis.

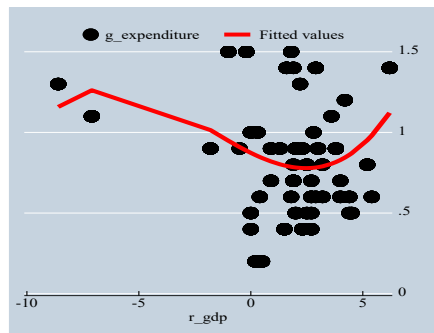


Figure 3. Scatter plot of real GDP growth and environmental expenditure with fitted cubic regression line

Source: Own elaboration.

Figure 3 illustrates the relationship between real GDP growth and public expenditure on environmental protection (as a percentage of GDP), together with the fitted values derived from the cubic specification. The scatter plot reveals a non-linear association between short-term economic dynamics and environmental spending, deviating from the traditional inverted-U shape predicted by the Environmental Kuznets Curve (EKC) hypothesis.

While the conventional EKC framework postulates an inverted-U relationship between income and environmental outcomes (Grossman and Krueger, 1995), subsequent empirical research has questioned its general validity, emphasising heterogeneous, non-linear, and even S-shaped patterns depending on the indicator, time horizon, and institutional context (Stern, 2004; Dinda, 2004). In line with this literature, the fitted curve obtained from the cubic specification suggests a more complex relationship between economic growth and environmental expenditure.

At low and negative values of GDP growth, environmental expenditure displays considerable heterogeneity, reflecting divergent fiscal responses among countries experiencing economic contraction or stagnation. In such periods, governments face

acute budgetary pressures and tend to prioritise short-term stabilisation measures over long-term environmental investments.

As GDP growth moves into positive but moderate ranges, the fitted curve indicates a downward tendency in environmental expenditure. This pattern should not be interpreted as a weakening of environmental commitment per se, but rather as a consequence of fiscal reallocation during phases of economic expansion. When growth accelerates, governments may prioritise expenditures with more immediate growth effects – such as infrastructure development, labour market interventions, or industrial support – while environmental spending, which often yields benefits over longer horizons, may temporarily receive less budgetary emphasis.

At higher levels of GDP growth, the fitted values suggest a renewed increase in environmental expenditure. This upward adjustment indicates that once fiscal space expands and economies reach more advanced stages of development, governments regain the capacity to allocate greater resources to environmental protection. At this stage, environmental spending is likely driven by a higher societal demand for environmental quality, stronger institutional capacity, and the integration of environmental objectives into broader development strategies.

Overall, the observed pattern is consistent with an S-shaped relationship between economic growth and environmental expenditure, rather than a simple inverted-U. These findings highlight that the link between economic performance and environmental spending is dynamic and stage-dependent, shaped by fiscal constraints, policy priorities, and institutional context. They further suggest that environmental expenditure responds not only to levels of economic development, but also to short-term growth dynamics and strategic budgetary trade-offs faced by governments.

These results reinforce the need for flexible empirical specifications when analysing the growth–environment nexus and caution against overly deterministic interpretations of the EKC framework, particularly when using expenditure-based indicators and contemporaneous economic measures.

5. Conclusions

The empirical analysis highlights a persistent gap between pro-environmental discourse and actual fiscal behaviour among governing parties in the European Union. The main ideological variable capturing environmental salience in electoral manifestos (Environmental protection salience (PER501)) exhibits a statistically significant negative association with public expenditure on environmental protection. This finding suggests that a stronger rhetorical emphasis on environmental issues does not systematically translate into higher budgetary allocations once parties assume office.

This pattern remains robust across alternative model specifications, including regressions disaggregated by governing party type. Parties traditionally associated with environmental or progressive agendas, such as left-leaning or single-issue environmental formations, do not consistently allocate higher levels of public

spending to environmental protection. Instead, the results are consistent with the political signaling hypothesis, according to which environmental rhetoric serves as an electoral strategy rather than a binding fiscal commitment.

From a macroeconomic perspective, the study documents a non-linear, S-shaped relationship between economic dynamics and environmental expenditure. Using GDP growth rates rather than income levels, the results indicate that environmental spending tends to increase during periods of low and high economic growth, while stagnating or declining at intermediate growth rates. This pattern does not confirm the traditional inverted-U Environmental Kuznets Curve, but rather points to a more complex and context-dependent interaction between economic cycles and environmental budgetary decisions. Importantly, these findings reflect contemporaneous associations and should not be interpreted as long-term causal or long-term effects.

Overall, the evidence underscores the multidimensional nature of environmental commitment. Electoral discourse alone is an imperfect predictor of fiscal outcomes, as the translation of political priorities into public expenditure is mediated by economic conditions, institutional constraints, and competing policy objectives. By combining manifesto-based indicators with fiscal data in a balanced panel covering 27 EU countries during the period 1995–2021, this study contributes to the literature by offering a longitudinal and fiscally grounded assessment of environmental commitment that goes beyond regulatory or outcome-based measures.

Several limitations should be acknowledged. First, environmental commitment is represented exclusively through public expenditure, without accounting for regulatory instruments or implementation effectiveness. Second, while the fixed-effects framework controls time-invariant heterogeneity, it cannot fully address potential endogeneity or delayed policy responses. These limitations suggest caution in interpreting the results.

Future research could extend this framework by distinguishing between different types of environmental policy instruments, incorporating lagged effects, or examining the role of public opinion, lobbying activity, and media framing in shaping the relationship between electoral commitments and fiscal outcomes. Expanding the analysis to subnational levels or non-EU countries may also provide valuable comparative insights.

In conclusion, this study provides empirical support for the argument that environmental rhetoric, in isolation, does not guarantee increased environmental investment. Bridging the gap between political discourse and fiscal commitment remains a central challenge for credible and effective environmental governance in democratic systems.

As a robustness consideration, future research may explore lagged specifications to capture delayed fiscal responses, although the present study focuses on contemporaneous budgetary decisions.

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Appendix

Table A1. Dataset contents about countries, election years and parties

Austria 1995 (1, 2, 3, 4 and 5) 1999 (1, 2, 3 and 5) 2002 (1, 2, 3, 5 and 6) 2006 (1, 2, 3 and 6) 2008 (1, 2, 3, 5 and 6) 2013 (1, 2, 3, 4, 5, and 7) 2017 (1, 2, 3, 4 and 5) 2019 (1, 2, 3, 4 and 5)	Belgium 1995 (1, 2, 3, 4, 5 and 8) 1999 (1, 2, 3, 4, 5 and 8) 2003 (1, 2, 3, 4, 5 and 8) 2007 (1, 2, 3, 4, 5 and 8) 2010 (1, 2, 3, 4, 5 and 8) 2014 (1, 2, 3, 4, 5, 6 and 8) 2019 (1, 2, 3, 4, 5, 6 and 8)	Bulgaria 2009 (2, 3, 5, 8 and 9) 2013 (2, 3, 5 and 8) 2014 (2, 3, 5, 8 and 9) 2017 (2, 3, 5, 8 and 9)
Croatia 2015 (2, 4, 8 and 9) 2016 (2, 3, 4, 6 and 8) 2020 (2, 3, 4, 6 and 8)	Cyprus 2006 (1, 2, 3 and 4) 2011 (1, 2, 3 and 4) 2016 (1, 2, 3, 4 and 9)	Czechia 2006 (1, 2, 5 and 6) 2010 (1, 2, 5, 6, 8 and 9) 2013 (1, 2, 3, 4, 5, 6 and 9) 2017 (2, 3, 4, 6, 7 and 9)
Denmark 1998 (2, 3, 4, 5, 6 and 9) 2001 (2, 3, 4, 5, 6 and 9) 2005 (2, 3, 4, 5, 6 and 9) 2007 (2, 3, 4, 6, and 9) 2011 (2, 3, 4, 6, and 9) 2015 (2, 3, 4, 6, and 9) 2019 (2, 3, 4, 6, and 9)	Estonia 2007 (1, 2, 4, 9 and 10) 2011 (1, 2, 4, 9 and 10) 2015 (2, 3, 4 and 9) 2019 (2, 3, 4 and 9)	Finland 1995 (1, 2, 3, 4, 5, 6, 8, 9 and 10) 1999 (1, 2, 3, 5, 6, 9 and 10) 2003 (1, 2, 3, 5, 6, 8, 9 and 10) 2007 (1, 2, 3, 5, 6, 8, 9 and 10) 2011 (1, 2, 3, 5, 8, 9 and 10) 2015 (1, 2, 3, 5, 6, 8, 9 and 10) 2019 (1, 2, 3, 4, 5, 6, 8, 9 and 10)
France 1997 (1, 2, 3, 6 and 9) 2002 (1, 2, 3, 6 and 9) 2007 (1, 2, 3, 6 and 9) 2012 (1, 2, 3, 4, 6 and 9) 2017 (1, 2, 3, 4, 6 and 9)	Germany 1998 (1, 2, 4, 5 and 6) 2002 (1, 2, 4, 5 and 6) 2005 (1, 2, 4, 5 and 6) 2009 (1, 2, 4, 5 and 6) 2013 (1, 2, 3, 4, 5, 6 and 7) 2017 (1, 2, 3, 4, 5 and 6) 2021 (1, 2, 3, 4, 5, 6 and 8)	Greece 1996 (2, 5 and 6) 2000 (2, 5 and 6) 2004 (2, 5 and 6) 2007 (2, 3, 5 and 6) 2009 (2, 3, 5 and 6) 2012 (2, 3, 5 and 6) 2015 (2, 3, 4, 5 and 6) 2019 (2, 3, 5 and 6)
Hungary 2006 (2, 4, 5 and 9) 2010 (1, 2, 3 and 9) 2014 (1, 2, 3, 6 and 9) 2018 (1, 2, 3, 6 and 9)	Ireland 1997 (1, 2, 4, 5, 6, 7 and 9) 2002 (1, 2, 4, 5, 7 and 9) 2007 (1, 2, 4, 5, 7 and 9) 2011 (1, 2, 5, 6, 7 and 9) 2016 (1, 2, 5, 6, 7 and 9)	Italy 1996 (1, 2, 3, 5 and 6) 2001 (1, 2, 3, 4, 5, 6, 7 and 9) 2006 (1, 2, 3, 5, 6, 7, 8 and 9) 2008 (2, 3, 5 and 9) 2013 (2, 3, 4, 5, 6, 7, 8 and 9) 2018 (2, 3, 4, 5, 6, 7, 8 and 9)
Latvia 2006 (2, 3, 4, 6, 9 and 10) 2010 (3, 4, 6, 9 and 10) 2011 (3, 6, 9 and 10) 2014 (2, 3, 8, 9 and 10) 2018 (2, 3, 4, 9 and 10)	Lithuania 2004 (2, 4, 9 and 10) 2008 (2, 3, 4 and 9) 2012 (2, 3, 4, 7 8, 9 and 10) 2016 (2, 3, 4, 8, 9 and 10) 2020 (2, 4, 8, 9 and 10)	Luxembourg 1999 (1, 2, 4, 5 and 7) 2004 (1, 2, 4, 5 and 7) 2009 (1, 2, 4, 5, 6 and 7) 2013 (1, 2, 4, 5, 6 and 7)
Malta 1998 (2 and 9)	Netherlands 1998 (1, 2, 4, 5, 6 and 7) 2002 (1, 2, 3, 4, 5 6 and 7) 2003 (1, 2, 3, 4, 5 and 6) 2006 (1, 2, 3, 4, 5, 6 and 7) 2010 (1, 2, 3, 4, 5, 6 and 7) 2012 (1, 2, 3, 4, 5, 6 and 7) 2017 (1, 2, 3, 4, 5, 6 and 7) 2021 (1, 2, 3, 4, 5, 6, 7 and 10)	Poland 2005 (2, 4, 5, 8, 9 and 10) 2007 (2, 4, 8, 9 and 10) 2011 (2, 4, 8, 9 and 10) 2015 (3, 4, 8, 9 and 10) 2019 (2, 3, 4, 5, 8 and 9)

<p>Portugal</p> <p>1995 (2, 5, 6 and 9)</p> <p>1999 (2, 5, 6 and 9)</p> <p>2002 (1, 2, 5, 6 and 9)</p> <p>2005 (1, 2, 5, 6 and 9)</p> <p>2009 (1, 2, 5, 6 and 9)</p> <p>2011 (1, 2, 5, 6 and 9)</p> <p>2015 (1, 2, 6 and 9)</p> <p>2019 (1, 2, 3, 4, 5, 6 and 9)</p>	<p>Romania</p> <p>2008 (4, 5, 8 and 10)</p> <p>2012 (2, 3, 8 and 9)</p> <p>2016 (4, 5, 6 and 8)</p>	<p>Slovakia</p> <p>2006 (2, 3, 5, and 8)</p> <p>2010 (2, 3, 4, 5, 7 and 9)</p> <p>2012 (2, 3, 4, 5, 7 and 9)</p> <p>2016 (2, 3, 4, 5 7 and 9)</p>
<p>Slovenia</p> <p>2004 (2, 3, 4, 5, 7 and 9)</p> <p>2008 (2, 3, 4, 5, 7 and 9)</p> <p>2011 (2, 3, 4, 5, 7 and 9)</p> <p>2014 (2, 4, 5, 6, 7 and 9)</p> <p>2018 (2, 3, 4, 5, 6 7 and 9)</p>	<p>Spain</p> <p>1996 (2, 6, 8 and 9)</p> <p>2000 (2, 6, 8 and 9)</p> <p>2004 (2, 6, 8 and 9)</p> <p>2008 (2, 6, 8 and 9)</p> <p>2011 (2, 4, 6, 7, 8 and 9)</p> <p>2015 (2, 4, 6, 8 and 9)</p> <p>2016 (2, 4, 6, 8 and 9)</p> <p>2019 (2, 3, 4, 6, 8 and 9)</p>	<p>Sweden</p> <p>1998 (1, 2, 4, 5, 6, 9 and 10)</p> <p>2002 (1, 2, 4, 5 6, 9 and 10)</p> <p>2006 (1, 2, 4, 5, 6, 9 and 10)</p> <p>2010 (1, 2, 3, 4, 5, 6, 9 and 10)</p> <p>2014 (1, 2, 3, 4, 5, 6, 9 and 10)</p> <p>2018 (1, 2, 3, 4, 5, 6, 9 and 10)</p>

Source: Own elaboration after Lehmann et al., 2024