Mapping Different Worlds of Eco-Welfare States

Zimmermann, Katharina; Graziano, Paolo

Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:
Zimmermann, K., & Graziano, P. (2019). Mapping Different Worlds of Eco-Welfare States. *Sustainability*, *12*(5), 1-20. https://doi.org/10.3390/su12051819

sustainability

MDPI

Article

Mapping Different Worlds of Eco-Welfare States

Katharina Zimmermann [1,*] and Paolo Graziano [2]

[1] Department of Socioeconomics, University of Hamburg, 20354 Hamburg, Germany
[2] Department of Political Science, Law and International Studies, 27100 Padova, Italy; paoloroberto.graziano@unipd.it
* Correspondence: katharina.zimmermann@uni-hamburg.de

Received: 1 December 2019; Accepted: 20 February 2020; Published: 28 February 2020

Abstract: Attention towards topics such as environmental pollution, climate change, or biodiversity has strongly increased in the last years. The struggles to balance market powers and ecological sustainability somehow evoke memories of the early days of European welfare states, when social protection emerged as a means to prevent industrial capitalism from disruptive social tensions due to excessive social inequalities. In fact, social and environmental crises are inseparably intertwined, as ecological destruction is likely to be followed by social deprivation, and a lack of social security can be a crucial barrier for ecologically sustainable action. Our paper seeks to provide a step towards such an integrated perspective by studying problem pressure and public interventions in the area of green welfare, that is, in social and environmental protection. By using available data from Eurostat and Environmental Performance Index (EPI) databases, we contrast environmental and social performances to detect links between the social and the ecological dimension in these areas and unearth different configurations of green welfare among European countries. Our findings suggest that there are different "worlds of eco-welfare states" which only partially overlap with the more conventional "world of welfare states" but show how the Nordic countries are in the relatively-better performing cluster.

Keywords: green welfare; eco-welfare states; cluster analysis

1. Introduction: Linking Ecological and Social Welfares

The literature on the "worlds of welfare state" is almost forty years old and has developed an important framework for the analysis of similarities and differences in welfare states (especially in terms of outputs, governance mechanisms and political determinants). Although the "modelling" has become to a certain extent a business [1,2], it has also offered very important insights in the politics and main features of welfare systems in Western and non-Western European welfare states [3].

Similarly, sustainability issues have become prominent in recent times due to the full acknowledgement of the risks linked to climate change and the overall critical state of the environment in the world [4]. Furthermore, a recent debate on "environmental states" has flourished and given birth to noteworthy contributions which appreciate the differences in the ways through which the state is involved in environmental policies [5,6]. To be sure, unlike welfare state policies which have a century-long history, environmental policies are relatively new in the world of public policy: As it is well known, beyond very few exceptions (such as the 1956 Clean Air Act in the UK and the Air Pollution Control Act in the US) and after a debate that developed during the 1960s [7] it was only in the early 1970s, and especially with the first report of the Club of Rome entitled "The Limits of Growth" [8] that awareness on the "limits" in terms of development clearly emerged.

Notwithstanding the relevance of the two topics and the related strands of the literature, so far only a handful of contributions have started to link the welfare state and the environmental state [4,9,10].

From an academic perspective, the normative angle has been the preferred way through which the issue has been explored. Empirically, there have been some routes to reconcile welfare and environment, as particularly in the debate on sustainable welfare [10] or in the case of the innovative experiences linked to "political consumerism" and political activism as in the form of "sustainable community movement organizations" (see the special issue of *Journal of Consumer Culture*) [11].

The purpose of this paper is twofold. First, we discuss commodification and de-commodification of work and environmental resources and review the few important contributions which have been produced with the attempt to link social and environmental protection. By social and environmental protection, we understand policies and outcomes in the social and environmental realm—and hence by eco-welfare states we refer to the interactions in this social and environmental protection. Second, through a cluster analysis and further assessments, we will see if it is possible to identify different worlds of "eco-welfare states" which could then be further investigated in order to understand how and why such different or similar paths have emerged.

The remainder of the article is structured as follows: Section 1 introduces the links between the two topics (and literature strands), arguing why it is relevant for an "eco-social analysis" to be conducted. Section 2 introduces the research design, the data and the methods using to identify links between welfare and ecological states, whereas Section 3 presents the empirical findings and tries to map—via a cluster analysis—the "worlds of eco-welfare". Section 4 discusses the main research findings and offers some preliminary conclusions.

2. Connecting Environment and Social Protection

2.1. Commodification and De-commodification of Labor and Environmental Resources

As it is well known, the commodification of labor in the context of the rise of industrial capitalism came along with severe consequences in the social array. In this regard, the development of the European welfare states was a reaction to increasing social tensions and their political and functional consequences [12]. Different European countries followed different routes of mitigating the class cleavages and the resulting problems of the capitalist systems by developing different patterns of de-commodification of labor mainly via social protection and labor market regulations. Following T.H. Marshall (1950) [13], it is also well known how social rights' promotion and protection are strongly connected to the development of contemporary nation-states and—to a large extent—contemporary democracies. Together with civil and political rights, the expansion of the protection of social rights lies at the heart of the so called "golden age of the welfare state" (1945–1975) which has characterized several European (and non-European) countries.

In his path-breaking study, Esping-Andersen (1990) builds on T.H. Marshall's work on social rights and argues that if social rights are granted on the basis of social citizenship, they entail a de-commodification of the status of individuals vis-à-vis the market [14]. He claims that different patterns of de-commodification can be subsumed under three main "welfare regimes" that differ with regard to their systems of stratification and their arrangements between state, market and family:

(1) A liberal regime to be found in the Anglo-Saxon countries, with weak de-commodification and low-level statutory services for the working class and the poor, while the middle class is referred to private services at the market,
(2) a continental regime to be found in countries like Austria, France, Germany, and Italy with a strong involvement of trade unions, catering to the middle class with statutory status-preserving social insurance schemes for the insiders and low-level benefits for the outsiders, and a church-related strong role of familialism, and
(3) a social-democratic regime with high levels of de-commodification, where also the needs and tastes of the middle class form the basis of the welfare system, but the rights and services are universally expanded to all societal groups [14] (p. 31).

Esping-Andersen's work kicked off a broad debate among social policy scholars. There is no need to systematically go through the main features of the long-lasting debate linked to the publication of his book (and subsequent scholarly contributions; for an overview, see Powell and Barrientos (2011) [2]): For our purposes, it suffices to remember that one of the most important aspects regarded the "welfare state effort" under the form of de-commodification of social policy coverage, i.e., "when a service is rendered as a matter of right, and when a person can maintain a livelihood without reliance on the market" [14] (p. 22). In this, de-commodification means an active role of the state in promoting policies that cover social risks emerging from the commodification of labor that has been reinforced during the rise of industrial capitalism.

However, industrial capitalism did not only fuel the commodification of labor, but also of the environment, as already Polanyi argued in his book "The Great Transformation" [15]. In his perspective, nature (more specifically, land) is, together with labor and money, not a "real" but a "fictitious" commodity, as it is not produced for the purpose of being sold at a market [15] (pp. 68–76). In his eyes, the trade of these three fictitious commodities on unregulated markets constitutes a fundamental problem that "would result in the demolition of society" [15] (p. 73). Consequently, in an act of self-protection, societies developed powerful institutions to regulate the markets—and thus de-commodified the fictitious commodities to a certain extent. This process of marketization and general commodification and the countermovement of de-commodification has become famous as the Polanyian dialectic double movement of dis-embedding markets from society and re-embedding them.

Polanyi based his arguments mainly on observations of the commodification and de-commodification of labor (e.g., his notes on Speenhamland and the development of social protection), and hence the scholarly reception of his work is also mainly to be found in the labor market and social policy domain. However, he also discussed the role of nature [15] (pp. 178–180), and more recently scholars also explore the analytical power of his approach with regard to ecological questions by pointing towards the mechanisms of commodification and de-commodification of environmental resources, e.g., [16,17]. For our purpose, adopting a perspective that understands both labor and environmental resources as commodities requiring de-commodification to avoid self-destructive processes of the capitalist system is also highly useful, as it allows us to grasp commonalities of the social and the environmental dimension. In the late 19th century, unregulated labor markets led to pauperism and extreme inequalities. With a certain time lag, the commodification of natural resources created serious environmental problems—which now receive enormous public attention, and we might face societal tensions and a demand for regulation similar to what happened in the late 19th century in the social realm.

Of course, despite the current debates on how to effectively implement environmental protection, we do not face entirely unregulated markets with regard to the commodification of environmental resources. It was mainly in the 1970s (with previously some limited UK and US legislation protecting from air pollution) when a greater acknowledgement of environmental issues emerged in several European countries: "We suspect on the basis of present knowledge of the physical constraints of the planet that the growth phase cannot continue for another one hundred years. Again, because of the delays in the system, if the global society waits until those constraints are unmistakably apparent, it will have waited too long" [8] (p. 183). At the European level, the first steps in the production of environmental policies were taken in 1972 with the Conference on the Environment in Stockholm in 1972 and the launch of EU environmental policy towards the end of the same year [18] (p. 19). Clearly, the intention of regulation was to limit pollution via various forms (and stringent degrees) of policy regulation—from prohibition to incentives.

At the national level, we can—as for social policy—observe different patterns of environmental policy making. Although there is no such regime business as in the welfare literature, still a few studies seek to map different types of "environmental states" or "green states". For instance, Duit [19] focuses on environmental governance regimes and studies environmental regulation, taxes, public administrations, and knowledge production on environmental issues in 28 countries. Using hierarchical

cluster analysis, he identifies four different types of environmental states that differ with regard to their type and level of interventions in the environmental realm: From established over emerging and partial to weak environmental states [19]. Jahn analyzes both environmental performance and policy outcomes in terms of productivist versus green economies; measured by energy consumption, energy mix and transport mix [20] (p.96). He finds three different "worlds of environmentalism": One with high scores of environmental performance and a green regime, one with high environmental performance but productivist economies, and one with low environmental performance and mostly productivist economies [20] (p.101) where several sub-groups are found. However, the notion of productivist vs. green economy is partially misleading, particularly as Jahn [20] does not take into account other economic factors than energy consumption, energy mix and transport mix. Consequently, service-economy oriented countries such as the Netherlands classify as a productivist regime.

Finally, Koch and Fritz (2014) are also interested in the relationship between the ecological and the welfare state [9]. By using correspondence analysis, they find that

> "There is no "automatic" development of the "green state" on top of existing advanced welfare institutions. Overall, welfare development is largely unrelated to ecological development, and social-democratic countries do not perform better in terms of ecology than liberal ones. In fact, it is the conservative countries that are most ecologically sustainable. The lack in correspondence between welfare regime affiliation and environmental performance is also expressed by the fact that countries of all welfare traditions are spread across our empirically constructed and preliminary typology of "ecostates": established, deadlocked, failing, emerging and endangered ecostates. However, empirically measured ecological performances do not exclude the fact that the existence of the institutional basis of social-democratic welfare states is indeed beneficial to the development of the green state" [9] (p. 698).

In a nutshell, we could argue that to a certain extent a sort of de-commodification was at place not only in social policy but also in the environmental policy sector, although here the main concern was to modify the behavior of the market rather than taking away from the market the coverage of social rights. It may also be argued that it is more appropriate to talk about regulation rather than de-commodification, but we think that the parallel should be considered with reference to the modality through which the market is constrained and public policies are discussed, formulated, adopted, and implemented—i.e., in a sort of a Polanyian re-embedding of the market. In this regard, it might also be plausible that certain parallels exist in terms of how the de-commodification in the array of social policy on the one hand and in environmental policies on the other is organized. In the following subsection, we discuss the role of public policies, politics and economic systems in this de-commodification process.

2.2. Worlds of Eco-Welfare States?

As Castles and Obinger notice, the idea that domestic policies are clustered in terms of lasting affinities is particularly consolidated in comparative political inquiry [21]. In fact, the insights from the previous sub-section suggest that parallels between and interactions of the social and the environmental domain might follow the lines of country clusters, as in both areas different country-specific patterns of how economies deploy labor and environmental resources as commodities, and how states regulate and re-embed the markets for these commodities can be observed.

With regard to the question how economies deploy labor and environmental resources, research on welfare state first of all tells us that different types of economies imply different forms of commodification of labor that come with different social risks. For instance, we can observe links between public social service employment, private service employment and female labor force participation [15,22], and research linked to the varieties of capitalism approach highlights a ""mutually enabling fit" between the welfare state and production regimes types" [23] (p. 556), particularly concerning wage levels and benefit levels, as well as required skills and vocational educational systems [24–26]. The type of an economy thus shapes to a certain extent the welfare system and the societal outcomes in terms

of stratification and labor market situation of workers. When it comes to environmental resources, we have a similar situation. It is common sense that the use of fossil energy or the exploitation of certain material resources has a crucial impact on the environmental situation in a given territory [27], and that there is a link between the size and type of economic production, energy consumption, and environmental performance. For instance, Acaravi and Ozturk find causal relationships between energy consumption, Gross Domestic Product (GDP) and carbon emissions for a number of European countries [28].

However, the link between economies and social and environmental outcomes is obviously not linear but moderated through statutory policy interventions, and these interventions are in turn embedded in politics and path-dependent structures. The development of the welfare state was strongly connected to the development of the nation-states and the promotion of social protection. Policy development followed the emergence of human needs of workers (first) and citizens (later), which gave opportunities for newly born interest groups and political parties to represent preferences in favor of state intervention. Furthermore, the main (although not exclusive) focus of the welfare state has been to protect workers, would-be workers or–more broadly speaking–people in need. Such a focus has become even more relevant after the "activation turn" which characterized, with different intensities, all European welfare states [29]. Nevertheless, it is precisely over the notion of who should be protected by the welfare state that the debate regarding the differences among various types or worlds took off. In this context, the crucial role of trade unions and partisan politics in the question how different states organize social protection has been stated in different strands of literature [14,30], and it is exactly here where we find the above-mentioned statutory moderation between the economies and social outcomes.

If we turn to environmental policies, similarly to welfare state functioning, also here the state guarantees that specific policy objectives must be reached and hence moderates the environmental outcomes. At the global level, since the Rio United Nations Conference on Environment and Development in 1992, environmental policy was at the heart of the policy agenda [31]—although from time to time highly contested, as by the Trump Presidency, supported by his voters, has clearly shown in a recent piece of research [32]. The recent movement "Fridays for Future" has further put into the political agenda the need to limit climate change via a world mobilization on 15 March, 2019 which was particularly intensively participated [33], and we might even expect environmental interest groups to develop a similarly important role as the workers' movement had in the development of the welfare state.

In brief, we can hence argue that economic factors are linked to social and environmental outcomes, moderated through policies and politics in both policy fields. Despite different levels and ranges of statutory regulation, we might thus find a comparable situation for social and environmental protection across Europe. However, there are of course also clear differences between the two realms. First, environmental policies differ fundamentally from social policies in that they developed more recently and the main claim since the Report of the Club of Rome (1972) [8] has been that the environmental threat is an universal threat, i.e., it regards all the people in the world community (not in the national community). Put differently, it is not linked to national (social) rights which were codified in national Constitutions or legislations but rather in futuristic cosmopolitan (environmental) rights which are often only superficially shared by the member of the United Nations—which does virtually have no implementation power at the national level, where the bulk of the policies would need to be adopted and adequately implemented. This clearly poses a dilemma in terms of responsibility of environmental protection. Who should be in charge? And who—and how—will be held accountable for defining and reaching (or nor not) environmental goals?

Second, even if we find a theoretically similar situation of social and environmental protection, environmental concerns may be at odds with social concerns. In some cases, as the recent protests of the so called *Gilets Jaunes* in France have demonstrated [34], promoting environmental policies (such as the ones proposed by President Macron, under the form of a pollution tax) may be seen

as a policy for the rich, i.e., a policy made in favor of the (rich) urban dwellers who take public transportation and do not need automobiles to go from one remote rural part of the country to another simply to take the children to school: With regard to this, recent data provided show how the supporters of the *Gilets jaunes* in France are individuals with middle-low income, and one third of the supporters are against consumption reductions for environmental reasons [34]. Put differently, protecting workers or vulnerable individuals has often meant ignoring environmental concerns—or at least, putting environmental concerns in the background, especially when employment or even food safety are at risk (on employment and environment, see Goodstein (1994) [35]; on food dilemmas, see Wertheim-Heck et al. (2019) [36]). To be sure, also in the development of the welfare state there were conflicting preferences–for example, between unions and employers. But per se the adoption of a welfare state was universally perceived as a political compromise between different interests which allowed employers' and workers' interests to be preserved [14]. The main cost of the compromise was paid primarily by the state—through social expenditure—which towards the mid of the 1970s entered in a 'fiscal crisis' [37].

In a nutshell, we can thus state that environmental and social outcomes are related to economic patterns as well as policies and politics in both realms, and that there is a complex interdependency across all these dimensions—not very surprising, but nevertheless underestimated so far. Unfortunately, there is very little research yet on the interaction of social and environmental aspects in what we call the arena of social and environmental protection: Neither do we have much knowledge on the links between welfare and eco outcomes, nor between policies, politics, or economic factors in the two areas. Our overview on the possible links between these different dimensions here is thus necessarily brief and oversimplifying, and comprehensive in-depth research will be necessary to dig deeper into the mechanisms behind the links between social and environmental protection in a broader sense.

We are very aware that such in-depth research requires time and resources, as well as collective effort across different disciplines. Our paper aims to provide a first step towards an integrated perspective on what we label eco-welfare states: The interaction of policies, politics and outcomes in social and environmental protection. As research in this field is still in its infancy, and theoretical and empirical studies that could serve to construct sound and convincing analytical models are rare, we refrain from causal and explanatory analyses but rather strive to provide exploratory insights into the interaction of the social and the environmental realm in different dimensions. In a first step, we focus on the interaction of social and environmental outcomes in order to understand whether there are overlaps in the social and environmental performance of countries (e.g., inequality and environmental health). Based on the empirically unearthed patterns in the outcome dimension, we then add some empirical insights into economic, political and policy-related aspects and discuss whether the outcome-patterns differ with regard to above-mentioned factors such as fossil and renewable energy consumption, the role of trade unions or policies in the social and the environmental realm. In the following section, we will describe the methodological details of this approach.

3. Research Design, Data, and Methods: Measuring Worlds of Environmental and Social Protection

Our research design foresees three empirical steps: (1) A cluster analysis on outcomes in the social and the environmental realm, (2) an assessment of the results of this cluster analysis, and (3) an analysis how the different clusters relate to further structural and political dimensions.

In the first step, a hierarchical cluster analysis based on outcome indicators—i.e., indicators that seek to provide information how a country performs in environmental and social protection—is accomplished. As discussed above, outcomes are linked to economic, political and policy-related aspects, but the relationships are complex and empirical knowledge not yet very elaborated. This is why we decided not to mix the different aspects in our empirical analysis, but to begin with an analysis on the interaction of the social and environmental array in the outcome dimension and then feed in other aspects at a later stage. For measuring the performance in the environmental dimension, we

use the Environmental Performance Index (EPI) developed by Yale University scholars [38] and the Domestic Material Consumption (DMC) indicator from Eurostat. The EPI provides a numerical index from 0 to 100 on environmental performance across the globe that it based on two main sub-indicators: Ecosystem vitality and environmental health (with 100 meaning highest performance and 0 lowest). These sub-indicators, which we use for our analysis, provide an assessment for the state of the ecosystem in a country (i.e., biodiversity and habitat, forests, fisheries, climate, air pollution, water resources, and agriculture), and of the level of the environmental health (mainly in terms of air quality and the quality of water and sanitation). From a global perspective, environmental health usually rises with economic growth and ecosystem vitality comes under strain from industrialization and urbanization [39]. Both sub-indicators are built out of a variety of different measures that are created out of numerous variables (e.g., trend in carbon intensity for measuring climate and energy performance in ecosystem vitality, or household air quality, exposure to fine particular matter, and exposure to NO2 to measure air quality in environmental health).

The DMC indicator "measures the total amount of materials directly used by an economy and is defined as the annual quantity of raw materials extracted from the domestic territory, plus all physical imports minus all physical exports" [40]. This means the measure is sensitive to both consumption driven by domestic demand and consumption driven by the export market. The DMC is usually provided in thousand tons per country. It is not solely a performance index but also entails structural aspects, as it focuses on the materials used by an economy. However, as it measures the extraction of raw materials, it also matters substantially for the ecological outcome dimension. Although the indicator may have some limitations, we believe that—taken with other indicators—it offers a unique measure of ecological relevance. As most analyses do, we use the DMC in relation to the GDP, which provides information on the resource productivity of the economy. The two EPI-scores and the DMC-measure form the basis for our assessment of the performance of the countries under study in the ecological dimension (see Table 1).

For the outcomes in the social dimensions, we also use three different indicators. In a first assessment of six indicators for inequality and unemployment (the at-risk-of-poverty-rate, the Gini, the income quintile share ratio, the unemployment rate, the long-term unemployment rate, and the youth unemployment rate; see Supplemental Materials), we selected those three that are least correlated to each other and hence provide a multifaceted picture of the social situation in the countries under study: The Gini, the unemployment rate and the long-term unemployment rate. A Gini coefficient on a scale from 0 to 100, based on the equivalized disposable income from the EU-SILC data (EU Statistics on Income and Living Conditions), is provided by Eurostat. The same applies to the unemployment rate (measured in percentages of the total population) and to the long-term-unemployment rate (LTU; measured as the number of persons unemployed for 12 months or longer as percentage of total unemployment). Table 1 displays all six outcome indicators (three in the eco dimension and three in the social dimension) for those countries on the European continent for which data was available across all six indicators for the year 2016.

Table 1. Environmental and social performance indicators.

	Performance in the Eco Dimension			Performance in the Social Dimension		
	Environmental Health	**Ecosystem Vitality**	**DMC**	**Gini**	**Unemployment Rate**	**Long-Term Unemployment**
Austria	86.41	86.87	165,753.267	27.2	4.1	32.3
Belgium	79.1	81.21	145,671.518	26.3	4.7	51.6
Bulgaria	85.18	81.62	134,949.741	37.7	4.5	59.1
Croatia	86.37	87.59	42,255.29	29.8	7.5	50.7
Czechia	80.81	88.53	164,925.02	25.1	2.6	42.1
Denmark	94.29	84.12	136,142.701	27.7	4.3	22.3
Estonia	95.26	81.91	35,323.501	32.7	4.8	31.6
Finland	97.23	84.13	173,161.365	25.4	5.8	25.7
France	89.97	86.44	722,013.234	29.3	6.1	45.4
Germany	84.66	83.87	1,294,338.86	29.5	2.9	40.8
Greece	89.09	82.54	124,105.835	34.3	14.1	72
Hungary	81.89	87.3	119,658.862	28.2	3.1	46.5
Ireland	95.6	77.61	104,406.005	29.6	5.6	50.5
Italy	82.83	86.14	493,538.185	33.1	6.6	57.4
Latvia	91	80.42	22,675.84	34.5	6.6	41.4
Lithuania	89.13	81.86	45,034.549	37	5.3	38.3
Luxembourg	88.88	84.29	13,906.99	31	4	34.8
Netherlands	82.85	81.21	168,068.648	26.9	4.2	41.5
Norway	97.82	75.98	154,924.68	25	3.3	25.7
Poland	80.54	81.98	671,893.695	29.8	3.8	35
Portugal	96.55	80.7	154,206.353	33.9	7.3	55.4
Romania	81.19	85.28	451,260.185	34.7	3.5	50
Slovakia	83.77	87.07	72,517.422	24.3	6.2	60.2
Slovenia	88.32	89.65	26,500.935	24.4	5	53.3
Spain	94.57	83.24	400,553.429	34.5	12.8	48.4
Sweden	97.29	83.57	232,398.602	27.6	5	18.3
UK	93.85	80.92	571,977.893	31.5	3.3	27.1
Average	88.68	83.55	253,413.43	30.0	5.4	42.9

Data: Eurostat, EPI-Database, all data for 2016.

As Table 1 indicates, our sample of 27 countries does not include all EU-member states (as Malta and Cyprus are missing due to data unavailability) but it also covers Norway. We deliberately include Norway, as we believe it constitutes an interesting case as an oil-rich social-democratic welfare state.

In order to assess how the social and the ecological performances interact, we run a hierarchical cluster analysis with the six indicators listed in Table S1. For this cluster analysis, we use z-standardized values of the indicators (see Supplemental Materials). Cluster analyses seek to reveal underlying patterns in the data by grouping cases together that are most similar. This approach is of course most useful for our purpose, as it inductively provides us with information which countries show similar patterns of eco and social performance. However, cluster analysis is also problematic not only because it reduces complex cases to different configurations of indicators, but it also does not provide any information on which grounds the similarities of the cases are based. Here, the researchers need to interpret the results on the basis of theory and existing research. As we outlined above, research on the link between eco and social policies is still in its infancy, and the theoretical and empirical basis for interpretation is hence limited. This is why we provide a mainly empirical picture on the link between the eco and the social realm.

To spell out in greater detail this empirical picture is the purpose of our *second empirical step*, where we provide an assessment of the performance of the individual clusters with regard to the six indicators. Here, we discuss the role of the different performance-indicators in the different clusters based on over- and underperformance and on the contribution of the indicators to the clustering results. For this discussion, we inverted the scales of the standardized indicators DMC, Gini, unemployment rate, and long-term unemployment rate, so that high values signify a good performance in terms of low inequality and (long-term) unemployment, as well as low material extraction. The discussion in this step aims at unravelling empirical characteristics of each cluster.

In a third empirical step, we turn towards the above-discussed economic, political and policy-related aspects and link the performance-clusters to a number of "structural indicators". For this purpose, we select—based on the above-discussed literature on green states and welfare states—the following indicators: (1) A ratio of fossil to renewable energy consumption, (2) GDP, (3) a ratio of industry to service economy, (4) the level of workers' protection against individual and collective dismissals, (5) the stringency of environmental policy, and (6) union density and the countries' share of seats of green parties in national parliaments.

The first three indicators (fossil/renewable ratio, the GDP and the industry/service ratio) are related to the size and type of the *economy* and production of a given country, and their selection follows the above-discussed findings that both social and environmental performance are related to these structural factors. For calculating the fossil/renewable ratio, we use Eurostat data on the gross inland energy consumption of solid fossil fuels and renewables and biofuels and calculate the ratio of the two forms of energy consumption. For the GDP (at market prices in current prices), we also use Eurostat data. The industry/service-ratio is calculated out of OECD (Organisation for Economic Co-operation and Development) data on the share of the GDP per sector, and for the union density, we also use an OECD dataset.

The second set of "structural indicators" consists of measures in the field of labor market and environmental *policy* and follows the discussion on the role of statutory interventions sketched out above. Here, we deploy OECD measures on the rigor of statutory policy interventions in both environmental and labor market policies. The OECD also provides indicators on workers' protection and environmental policy stringency; both are displayed in an index from zero to six.

Finally, in a third set of "structural indicators", we focus on the role of *politics and interest groups*, as these have been proven to play a crucial role in welfare state development, as mentioned above. On the one hand, we use OECD data on trade union density rates, and on the other hand, we include the share of green parties' seats in national parliaments. We deploy a politics-related party-indicator in the environmental realm and the interest-group related union-indicator in the social realm because in current party systems, parties' engagement for workers' interest representation is hard to identify,

while at the same time, there is no environmental interest group comparable to trade unions. Detailed information on the measurement and data sources for all performance and structural indicators are available in the Supplemental Materials.

Based on the cluster-classifications from the first empirical step, we assess in the third step—by running single-factored variance analyses—whether these clusters show significant differences in any of the indicators from Table 2. Those indicators that are of relevance are discussed in detail, and a tentative interpretation of the interaction with social and environmental performance is provided. All analyses are conducted with R [41].

Table 2. Illustrating structural and political/policy indicators.

	Fossil/ Renewable Ratio	Gross Domestic Product	Industry/ Service-Ratio	Workers' Protect-tion	Union Den-sity	Environ-Mental Policy Stringency	Green Parties' Seats in National Parliaments (in %)
Austria	0.2958	357,299.7	0.3987	2.4422	26.9	2.9458	14.21
Belgium	0.8007	430,372.1	0.2907	2.9949	52.8	2.4667	14
Bulgaria	2.8092	48,620.5	0.4054				0
Croatia	0.3251	46,615.5	0.3621	2.2982			0
Czechia	3.7483	176,370.1	0.5735	2.6604	12.0	2.3833	0
Denmark	0.3723	283,109.7	0.3231	2.3203	65.5	3.8500	10.61
Estonia	0.0090	21,693.6	0.4174	2.0663	4.4		0
Finland	0.2979	217,484.0	0.4223	2.1667	64.9	3.4292	10
France	0.3403	2,234,129.0	0.2418	2.8226	9.0	3.5667	0.17
Germany	1.9820	3,134,100.0	0.4553	2.8418	17.0	2.9250	9.45
Greece	1.6551	176,487.9	0.2203	2.4104	20.2	2.1333	0
Hungary	0.7285	115,259.2	0.4779	2.0743	8.5	2.6333	5.53
Ireland	1.2417	271,683.6	0.6631	2.0692	25.6	2.0500	1.9
Italy	0.4221	1,695,590.1	0.3328	2.8895	34.4	2.7667	0
Latvia	0.0248	25,072.6	0.3150	2.9070	12.3		11
Lithuania	0.1088	38,893.4	0.4255	2.4155	7.7		39.01
Luxembourg	0.2337	54,867.2	0.1389	2.7353	32.3		15
Netherlands	2.6016	708,337.0	0.2575	2.9379	17.3	3.6250	9.33
Norway	0.0529	333,471.3	0.5576	2.3095	49.3	3.2583	0.59
Poland	5.6254	426,555.7	0.5319	2.3906	12.7	2.5750	0.65
Portugal	0.5060	186,489.8	0.3077	2.6854	15.3	2.1333	3.04
Romania	0.8528	170,393.6	0.5079				0
Slovakia	2.0434	81,038.4	0.5586	2.2557	10.7	2.9875	0
Slovenia	1.0205	40,366.6	0.5151	2.3872	20.4	2.2833	0
Spain	0.6016	1,113,840.0	0.3338	2.3554	14.8	2.2167	0.57
Sweden	0.0960	466,347.6	0.3549	2.5170	66.9	3.1000	4.59
UK	0.7489	2,435,055.2	0.2553	1.5918	23.7	3.2917	14.21
Average	1.0942	566,279.4	0.3942	2.4618	26.0	2.8310	5.75

Data: Eurostat, OECD, last available year (see Supplemental Materials for detailed information).

4. Empirical Findings

4.1. Patterns of Eco-Social Performance—A Cluster Analysis

For assessing whether there are different patterns of eco-social performance across our countries under study, we run a hierarchical cluster analysis (ward method, squared Euclidian distance, z-standardized values) with the six performance indicators (environmental health, ecosystem vitality, DMC, Gini, unemployment, LTU). We decided to accept a solution with six clusters (based on NbClust function; details see Supplemental Materials). Figure 1 illustrates the results of the cluster analysis in a dendrogram and a map.

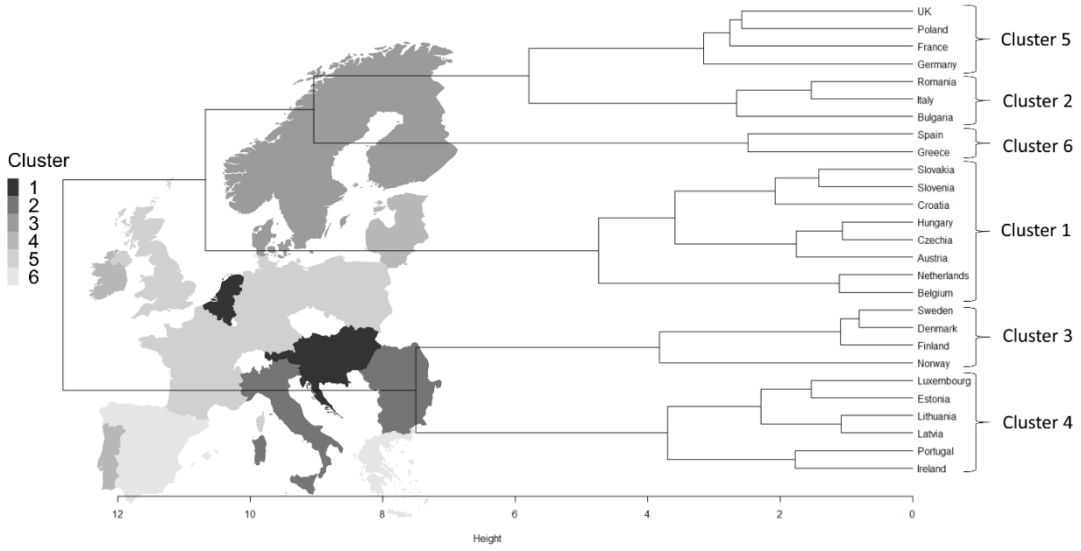

Figure 1. Results of hierarchical cluster analysis with eco- and social indicators (in map and dendrogram). Data: Eurostat, EPI-Database; own calculations (ward method, squared Euclidian distance, z-standardized values). The solution can be deemed as robust based on our robustness tests with other methods (average, complete; see Supplemental Materials;).

As Figure 1 shows, we have seven different clusters:

- Cluster 1 with Slovakia, Slovenia, Croatia, Hungary, Czechia, Austria, the Netherlands and Belgium
- Cluster 2 with Romania, Italy and Bulgaria
- Cluster 3 with Sweden, Denmark, Finland and Norway
- Cluster 4 with Luxembourg, Estonia, Lithuania, Latvia, Portugal, and Ireland
- Cluster 5 consisting only of UK, Poland, France, and Germany
- Cluster 6 with Greece and Spain

When looking at the six clusters, we can of course already observe that some clusters point towards well-known social and economic patters. For instance, all Scandinavian countries—known for relatively generous welfare states—cluster together in cluster 3, and in cluster 5 join large production-intensive economies. However, for a better understanding of the characteristics of the single clusters and the eco-social link within them, we need a more in-depth assessment. This will be done in the following two subsections: We will take a closer look at the role of the various performance indicators in the next subsection, and then, in a final step, link the clusters to the structural indicators introduced above.

4.2. Unfolding the Clusters

For the cluster exercise, we deployed the six performance indicators environmental health, ecosystem vitality, DMC, Gini, unemployment, and LTU, which means that countries within one clusters show a certain similarity with regard to (some of) these indicators, as the algorithm grouped them together. However, we still do not know how this similarity within clusters looks like and how the clusters differ from each other.

For a first assessment of similarity and difference, we calculated the average values of the z-standardized scores of the three social- and the three eco-indicators for each country, and then graphically plotted these values in Figure 2—with indicating the cluster-affiliation of the countries.

Figure 2 mainly illustrates two facts: (1) The countries indeed show different links of eco-social performance (e.g., Germany and Poland clearly showing above-average social performance but far-below-average eco performance; Spain and Greece slightly above-average eco-performance but below-average social performance, and most Scandinavian countries being above the average in both

dimensions), and (2) the clusters seem to capture these links quite well, as the countries in the same clusters group mostly nearby each other (with some exceptions).

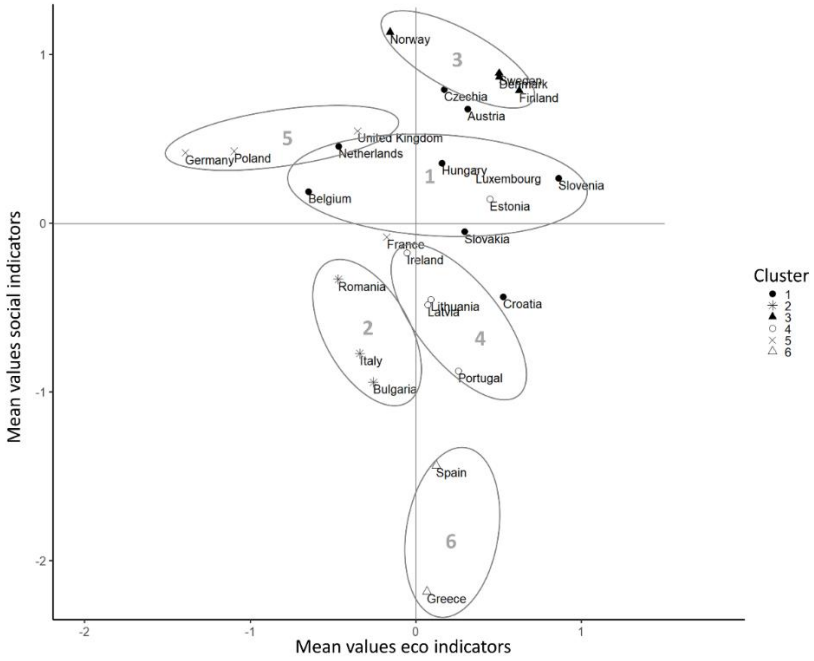

Figure 2. Countries' average performance in the eco and social dimension. Data: Eurostat, EPI-Database; own calculations (z-standardized data). Inverted scales for standardized indicators DMC, Gini, unemployment rate and long-term unemployment rate, so that high values signify a good performance in terms of low inequality and (long-term) unemployment, as well as low material extraction.

However, while Figure 2 is already quite informative when it comes to the eco-social link of the countries and clusters, we also see that countries within a cluster can differ considerably, as for instance Poland, France, and the UK, who are relatively far from each other (and France not even being captured by the cluster-5-circle). This is of course because Figure 2 is based on average values of the three eco and the three social dimensions, and hence insensitive to differences within the eco dimension and the social dimension. Hence, we also calculated the average values (and standard deviations) per cluster for each indicator and compared them to the average values of these indicators across all countries under study. This allows us (1) to assess whether a cluster is above the average with regard to an individual indicator, (2) to grasp how meaningful this average value is in terms of homo- or heterogeneity within the cluster, and (3) by this unearth the characteristics of each cluster in terms of eco and social performance.

This analysis reveals that there are indeed remarkable differences between the clusters (for a graphical depiction see also Figure 3 in the following subsection): Cluster 1 and 3 show the best performance in both dimensions and have every indicator above average (except environmental health respectively ecosystem vitality), and cluster 2 shows the worst overall performance, with most indicators below average (except environmental health and unemployment, but these are only slightly above average). Cluster 5 is clearly the worst-performer in the eco dimension (with DMC well below) but shows a good employment situation (both unemployment and long-term unemployment are low), and cluster 4 does not show a good performance in the social dimension but a relatively good one in the eco dimension (both environmental health and DMC above average). cluster 6 is with four indicators below the average similar to cluster 2, but has slightly better performance in the eco dimension (ecosystem vitality and unemployment are a bit above average) and hence also shows some similarities to cluster 4 (with which it also joins to a larger cluster at a later stage; see Figure 1).

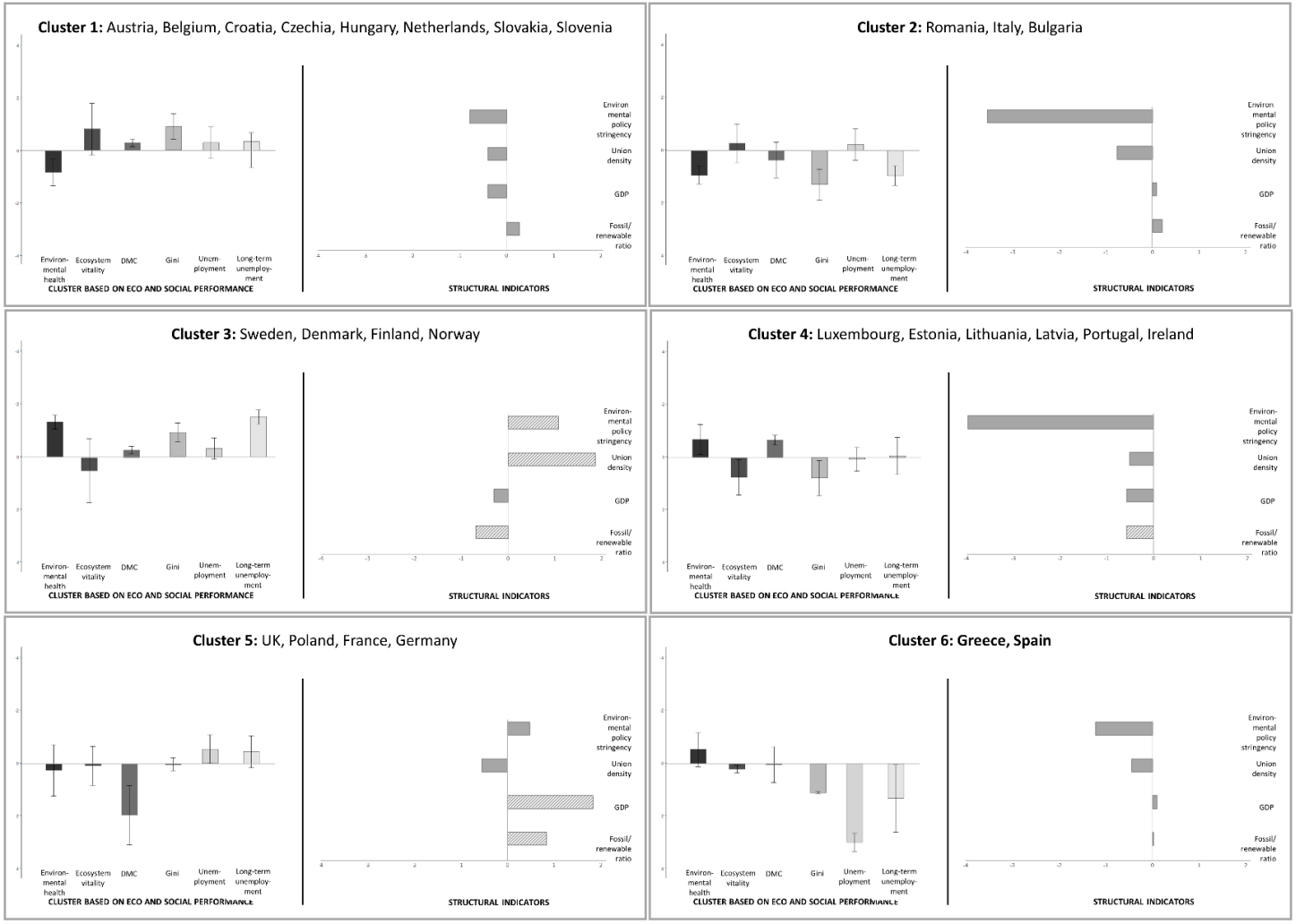

Figure 3. Cluster 1–6: Performance and structural indicators. Data: Eurostat, Environmental Performance Index (EPI)-Database, OECD; own calculations (z-standardized data).

In a nutshell, we thus have four different configurations of the eco and the social dimension across our clusters: A relatively good performance in both dimensions (cluster 1 and 3), a relatively low performance in both dimensions (cluster 2), a problematic eco performance but relatively good social performance (cluster 5), and a relatively weak social performance and mostly good eco performance (cluster 4 and to a certain extent cluster 6). This picture is also visible in Figure 2, where the four groups are mainly located in opposite quadrants.

Most interestingly, we can also identify specific roles of single performance indicators that contribute in one or another way to the positioning of the different clusters in this configurational order. Based on post-hoc tests for the six clusters (see the Supplemental Materials), we can for instance infer that indeed clusters 2 and 3 (i.e., those with low respectively high performance in both dimensions) and clusters 6 and 5 (with high social and low eco and vice versa) show the highest differences among all clusters: environmental health, the Gini and long-term unemployment differ significantly between cluster 2 and cluster 3, and DMC, unemployment and long-term unemployment differ significantly between cluster 6 and 5. Most other combinations of clusters differ significantly in two indicators (also, cluster 6 and cluster 3 differ significantly in three indicators, but these are the three social indicators, so that here no specific eco-social pattern is visible). As the post-hoc tests (Supplemental Materials) and to a certain extent also Figure 3 below show, from the eco indicators, environmental health is particularly decisive for cluster 3 (and to a certain extent for cluster 2 and 4) and DMC for cluster 5. From the social indicators, the Gini is particularly relevant for cluster 1 (and also for clusters 2, 3, and 4), unemployment for cluster 6, and long-term unemployment for cluster 3. Simplifying, we could hence state that:

a. The relatively good performance in both dimensions in cluster 1 and 3 is related to high environmental health, low LTU and a low Gini,
b. the relatively low performance in both dimensions in cluster 2 is related to weak environmental health and a high Gini,
c. the problematic eco performance but relatively good social performance in cluster 5 is related to a high DMC, and
d. the relatively weak social performance and mostly good eco performance in cluster 4 and to a certain extent in cluster 6 is related to high unemployment, a high Gini and good environmental health.

From these four configurations, three show a combination of relevant social and eco indicators, while for the problematic eco performance but relatively good social performance in cluster 5 solely an eco- indicator (DMC) appears as significant. However, the post-hoc tests also revealed that the Gini between cluster 5 and cluster 2 differs significantly, as well as unemployment and long-term unemployment between cluster 5 and cluster 6—and hence social indicators also matter for distinguishing cluster 5. This indicates that there are indeed specific underlying patterns of eco *and* social performance behind our cluster results (and not either one or the other matters for specific clusters). These underlying patterns might of course very well be related to specific economic, political or policy-related factors (as for instance already the good eco and social performance of the Scandinavian countries suggests). As discussed above, we are not able to explain our performance-patterns, but we nevertheless feed in some structural indicators and link them to the cluster results in order to provide some exploratory insights.

4.3. Eco-Social Performance: Linking the Clusters and Structural Indicators

For our cluster analysis, we deliberately chose to use solely performance indicators. However, as outlined above, both the literature on welfare regimes and on "green states" suggests that certain economic, political and policy-related aspects matter in terms of shaping different "worlds", or country patterns. Consequently, we decided to include a few structural indicators that refer to plausible economic and political dimensions: the ratio of fossil to renewable energy consumption, the GDP,

the ratio of industrial to service added value, strictness of workers' protection, the union density, the stringency of environmental policy, and the share of seats in national parliaments for green parties (see methodological section and Supplemental Materials for details).

In a first step, we run single-factored variance analyses for these eight indicators in order to see whether there are statistically significant differences between the clusters. This was especially the case for the GDP, but also for union density and environmental policy stringency (see Supplemental Materials)—a highly interesting result that already indicates that both economic and political factors might be important for the composition of the clusters. When running Tukey's tests for all structural indicators, we find that the GDP matters especially for differences between cluster 5 and other clusters, while union density plays a role for distinguishing cluster 3 from other countries, and the stringency of environmental policy mainly comes into account between cluster 4 and cluster 3, and between cluster 6 and cluster 3 respectively.

To illustrate the similarities and differences of the seven clusters, below bring together in Figure 3 the original cluster-characteristics in terms of average values for performance in the three eco and the three social dimensions with the average values per cluster for each of the three significant structural indicators (GDP, union density, environmental policy stringency). Furthermore, we include the fossil/renewable ratio, as we find here interesting results for cluster 3, 4, and 5 that are not statistically relevant but still worth of being discussed, as we think (see below). Those values of structural indicators in a cluster that show homogenously large differences to the value of the respective indicator in other clusters are highlighted in textured filling.

We begin the discussion of the findings of this juxtaposition of the performance-clusters and the structural indicators with the clusters in our best-performing group (i.e., cluster 1 and 3). Our analysis in the previous steps revealed that particularly environmental health, long-term unemployment and unemployment mattered for distinguishing these clusters from the others. As Figure 3 shows, cluster 1 shows above-average values for all three social dimensions and above-average values for ecosystem vitality and DMC. However, heterogeneity is relatively large within the cluster for most indicators (except DMC). None of the four structural indicators stands out as distinguishing for this cluster, and also the welfare state and green state literature does not provide us with further information how to interpret the average performance of the countries in this cluster. This is different for cluster 3. Here, the relatively homogenous above-average performance in the eco and the social dimension (with the exception of ecosystem vitality) is linked to interesting results for the political domain: Environmental policy stringency and union density are both clearly above average. Furthermore, the fossil/renewable-ratio in cluster 3 clearly is well below average (i.e., less fossil and more renewable energy consumption). This was not statistically relevant in the ANOVA-test. But as the average value for the fossil/renewable-ratio is only 1/6th of the average across all countries and the variation within the cluster is not very high, we believe that we should not disregard the results.

A high union density suggests that we might have a crucial role of workers-oriented politics, and indeed cluster 3 covers all Scandinavian countries which are known for traditionally high levels of de-commodification in the social realm and for relatively well-developed environmental regulation, according to welfare state and green state research [15,20,21]. Now, with also showing comparatively strict levels of environmental policy, we can assume that there is indeed some empirical evidence for the synergy hypothesis mentioned above that "social-democratic welfare states are in a better position to manage the intersection of social and environmental policies than more liberal market economies and welfare regimes" [9] (p. 680) see also [10]. However, our data is of course purely descriptive and only allows hypothetical reflections on this matter.

Cluster 2 is to a certain extent the opposite to cluster 3: Here, we find an overall weak situation in both the eco and the social dimension (but heterogeneity is relatively high). Our analysis in the previous step showed that especially environmental health and the Gini mattered for distinguishing cluster 2 from other clusters. All performance indicators are below average except unemployment (and this is only slightly above). Particularly inequality (in terms of the Gini) is high, and also the

environmental health is weak—we find here the lowest values across all clusters. Unfortunately, we do not have data for union density and environmental policy stringency for Bulgaria and Romania, so that these values are not really interpretable for this cluster. Furthermore, it is interesting that we find Italy (that in welfare state analyses usually clusters together with other South European countries and which has a size of the economy that would better fit with the countries in cluster 5) clustering together with Romania and Bulgaria. Like for cluster 1, further research is hence particularly needed to understand the picture behind the performance in the eco and the social dimension in cluster 2, as theory and previous research do not offer relevant information.

We continue with the cluster that shows problematic eco performance but average or good social performance: Cluster 5 (with Germany, UK, Poland, and France). According to our analysis in step 2, especially DMC was a decisive indicator to distinguish cluster 5 from other clusters. Cluster 5 shows average performance across most all performance indicators (with relatively high heterogeneity) but a clearly below average value for DMC. Hence, the countries in cluster 5 all use more materials extracted from their territory (or import extracted material) compared to the general average. At the same time, the labor market situation is above average with low unemployment and low long-term unemployment (despite heterogeneity, the values are almost entirely above-average). All countries are highly industrialized countries, and as we can see from the structural indicators, the GDP is remarkably high. Furthermore, the countries do not only have big economies, they also show values in the fossil/renewable-ratio that indicate that these big economies consume high levels of fossil energy. We do not have empirical evidence from our structural indicators that supports the "workers first" narrative as mentioned above (i.e., that protecting workers individuals means ignoring environmental concerns). However, recent public debates like in France (the *gilets jaunes*) or Germany (brown coal in the Lausitz) at least suggest that the traditional industry countries might be confronted with a certain eco-social cleavage, and future research should clearly further investigate this issue.

Finally, we turn towards the two clusters that shows a slightly opposite picture to cluster 5: Cluster 4 (with Luxembourg, Estonia, Lithuania, Latvia, Portugal, and Ireland) and cluster 6 (with Greece and Spain). For these clusters, our analysis in the previous steps revealed unemployment, Gini and environmental health as relevant indicators to distinguish cluster 4 and cluster 6 from other clusters. Cluster 4 shows a relatively weak (but heterogeneous) social performance—particularly in terms of the Gini—but a more or less good eco performance (the remarkably low value for environmental policy stringency in the structural indicators might as first sight contradict the observation of a relatively good eco performance, but as this value was not statistically significant, we should not overstretch the interpretation). Particularly the value for DMC is homogenously above average, but also environmental health. When we look at the structural indicators, the clearly below-average value for the fossil/renewable ratio is interesting: These countries seem to use less fossil fuels, a fact that might be related to the relatively good eco situation. Interestingly, most of these countries are not service-economies but have an average or relatively high industry/service-ratio (see Supplemental Materials), so we might assume that they managed at least to a certain extent to reconcile industrial and ecological demands. However, unfortunately both the welfare state literature and the green state debate cannot provide us with any relevant ideas how the configuration of countries in this cluster can explain the specific eco-social relationship.

Cluster 6 (Greece and Spain), shows a remarkably low performance in the social dimension and a "not-so-bad" situation in the eco dimension. For understanding the pattern in this cluster, knowledge from the literature helps us, at least partially. We know from the welfare state debate that Southern welfare states are more residual [14], while studies on green states suggest that both countries might not have well-developed environmental policies, but are at least partially on the way towards more regulation in the eco realm [19,20]—a fact that might be related to their "not-so-bad" performance in the eco dimensions. Furthermore, it is well known that Greece and Spain have been strongly hit by the crises in 2008, and that they still struggle to cope with the social consequences. Unfortunately,

our structural indicators do not point into any specific direction regarding the specific relationship between the eco and the social dimension in cluster 6.

5. Discussion and Conclusions

Our analysis was aimed at uncovering possible links between ecological and social performances, as the two policy realms share certain features. We argue that both the commodification of human labor and of nature implies a self-destructive risk, and hence de-commodification in both arrays is a crucial task of modern societies—which might be addressed differently in different (national) contexts.

In order to unravel whether there are empirical patterns of overlaps between the social and the environmental realm, we run a hierarchical cluster analysis based on social and eco performance indicators. We find six different clusters currently existing in 27 European countries that show specific configurations of eco-social performance. More specifically, we find that the Nordic countries in cluster 3 (and to a certain extent a number of countries including Austria, the Netherlands, Belgium and Croatia in Cluster 1) perform better in both dimensions, whereas Romania, Italy and Bulgaria in cluster 2 underperform in both sets of indicators. This, of course, is in relative terms and not in absolute ones. To be sure, the aim of our article was not to identify the ideal "eco-welfare world" but rather to map different clusters were welfare state and ecological worlds went hand in hand. With this respect, we find a cluster which is relatively better performing than others—and this is the Nordic cluster, which therefore represents a the currently best existing "eco-welfare state". Furthermore, we observe a set of countries that show weak ecological performance (Germany, Poland, UK, and France in cluster 5), and a set of countries that show weak social performance but better ecological conditions (cluster 6 with Greece and Spain and cluster 4 with Luxembourg, Estonia, Latvia, Portugal, and Ireland).

As research on welfare states and green states suggests that performance is related to different economic, political and policy-related factors, we added in a further empirical step a number of structural factors like fossil energy consumption, the GDP, strictness of workers' protection and environmental policy, union density, and the green parties' seats in national parliaments. Although we were not able to explain the performance clusters based on the structural indicators, we can nevertheless provide some insights how the specific configurations of eco-social performance are linked to some of the structural indicators. Table 3 summarizes the results (The results for the structural indicators—displayed in grey—should not be interpreted as explanatory for the cluster results):

Table 3. Summary of results. The results for the structural indicators—displayed in grey—should not be interpreted as explanatory for the cluster results.

		Eco-Performance.	
		Low	**High**
Social-Perfroamce	Low	Cluster 2 *Low environmental health, high Gini* Less fossil/more renewable energy, more service/less industrial production	Cluster 4 (Cluster 6) *High unemployment, high Gini, good environmental health*
	High	Cluster 5 *High DMC (Domestci Material Extraction* High GDP, less renewable/more fossil energy consumption	Cluster 1, Cluster 3 *Good environmental health, low long-term unemployment, low unemployment* Cluster 3: Less fossil/more renewable energy consumption, high union density, comparatively strict levels of environmental policy

The findings are particularly interesting since they do support—prima facie—the idea that the high performances of the Nordic welfare states are linked to high performances in environmental protection, a hypothesis that has been raised by other authors, although empirical analyses could

not confirm it [9]. Furthermore, we might argue that with Greece and Spain two Southern European countries that face hard times in terms of social conditions and do not have comprehensive welfare states also only managed to establish partial "green states" [19]. However, with respect to the other countries under study, our analysis does not necessarily support the overlapping of the "worlds of welfare" states and the "worlds or ecological" states, giving birth to an original map of different worlds of eco-welfare states characterized by different features. When looking at the outcomes in terms of ecological and social performance, there does not seem to be a natural link between particular logics of statutory governance of welfare and environment (e.g., a mutual reinforcement of welfare and environmental policies [9,10], or conservative welfare states being more environmental protective [9]). Instead, our findings—not very surprisingly—point towards a crucial role of the national economies, production systems and energy consumption patterns (e.g., in the case of large GDPs and high fossil energy consumption in cluster 5).

The findings also confirm to a certain extent what different studies in the context of the sustainable welfare debate have shown: the link between economic factors and environmental outcomes seems to be much closer than the link between social and environmental factors [19,42]. Despite their kinship as "fictious commodities" [15], we were not able to unearth a joint pathway towards a de-commodification of labor and natural resources. Our notion of "worlds of eco-welfare states" hence remains an analytical concept to describe different configurations of ecological and social protection, but it cannot normatively guide us towards a better reconciliation of social and environmental protection from a sustainability perspective. What hence remains to be studied are the conditions and the mechanisms that have to occur for high eco-social performances to be achieved in terms of eco-social trajectories which may be conducive to sustainable welfare states. For this purpose, qualitative research—which may also look more into the role of the state in supporting sustainable development, or a "sustainable postgrowth economy", as suggested by Max Koch (2019) [6] is needed. More specifically, understanding if, how and why post-growth is key for domestic industrial and development policies seems to be crucial for both analytical and normative reasons: the Nordic countries show that environmental and social performances can go at least partially hand in hand, but the mechanisms which make this happen are still to be fully understood. Furthermore, also puzzling are the other combinations of European countries which show mixed-to-good performance in the eco dimension but relatively weak social conditions (like Luxembourg, Estonia, Lithuania, Latvia, Portugal, and Ireland), or above average values in several social indicators and below average in certain environmental indicators (such as Germany, France, Poland, and UK). Only understanding the politics of eco-welfare states will possibly allow us to find the answers.

Supplementary Materials: The following are available online at http://www.mdpi.com/2071-1050/12/5/1819/s1, Figures S1 and S2, Tables S1–S8.

Author Contributions: Conceptualization, P.G. and K.Z.; writing—original draft preparation, P.G. and K.Z.; methodology, K.Z.; formal analysis, K.Z.; writing—review and editing, P.G. and K.Z.; visualization, K.Z. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Acknowledgments: This paper benefitted strongly from the support by research assistants Laura Lüth and Frieder Zaspel. Furthermore, we are grateful for the valuable comments by members of the stream on "Reconciling ecological and social citizenship?" at the ESPAnet conference 2019.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Abrahamson, P. The Welfare Modelling Business. *Soc. Policy Adm.* **1999**, *33*, 394–415. [CrossRef]
2. Powell, M.; Barrientos, A. Au Audit of the Welfare Modelling Business. *Soc. Policy Adm.* **2011**, *45*, 69–85. [CrossRef]
3. Graziano, P.; Jessoula, M. Explaining Welfare State Developments: Towards a Comparative Research Agenda. *Liepp Work. Pap.* **2018**, *76*. [CrossRef]

4. Gough, I. Climate Change and Sustainable Welfare: The Centrality of Human Needs. *Camb. J. Econ.* **2015**, *39*, 1191–1214. [CrossRef]
5. Duit, A.; Feindt, P.H.; Meadowcroft, J. Greening Leviathan: The rise of the environmental state? *Environ. Politics* **2016**, *25*, 1–23. [CrossRef]
6. Koch, M. The state in the transformation to a sustainable postgrowth economy. *Environ. Politics* **2019**, *29*, 115–133. [CrossRef]
7. Caldwell, L.K. Environment: A New Focus for Public Policy? *Public Adm. Rev.* **1963**, *23*, 132–139. [CrossRef]
8. Meadows, D.H.; Meadows, D.L.; Randers, J.; Behrens, W.W., III. *The Limits to Growth*; Potomac Associates: Washington, DC, USA, 1972.
9. Koch, M.; Fritz, M. Building the Eco-social State: Do Welfare Regimes Matter? *J. Soc. Policy* **2014**, *43*, 679–703. [CrossRef]
10. Dryzek, J.S. The ecological crisis of the welfare state. *J. Eur. Soc. Policy* **2008**, *18*, 334–337.
11. Graziano, P.; Forno, F. Sustainable Community Movement Organisations. *J. Consum. Cult.* **2014**, *14*, 139–157.
12. Baldwin, P. *The Politics of Social Solidarity: Class Bases of the European Welfare State*; Cambridge University Press: Cambridge, UK, 1990.
13. Marshall, T.H. *Citizenship and Social Class and other Essays*; Cambridge University Press: Cambridge, UK, 1950.
14. Esping-Andersen, G. *The Three Worlds of Welfare Capitalism*; Princeton University Press: Princeton, NJ, USA, 1990.
15. Polanyi, K. The great transformation. In *The Political and Economic Origins of Our Time*, 3rd ed.; Beacon Press: Boston, MA, USA, 1962.
16. Kaup, B.Z. Markets, Nature, and Society: Embedding Economic and Environmental Sociology. *Sociol. Theory* **2019**, *33*, 280–296. [CrossRef]
17. Rea, C.M. The EU emissions trading scheme: Protection via commodification? *Cult. Pract. Eur.* **2019**, *4*, 48–73.
18. Hey, C. EU Environmental Policies: A short history of the policy strategies. In *EU Environmental Policy Handbook*; Scheuer, S., Ed.; European Environmental Bureau: Brussels, Belgium, 2005; pp. 17–30.
19. Duit, A. The four faces of the environmental state: Environmental governance regimes in 28 countries. *Environ. Politics* **2016**, *25*, 69–91.
20. Jahn, D. The Three Worlds of Environmental Politics. In *State and Environment: The Comparative Study of Environmental Governance*; Duit, A., Ed.; MIT Press: Boston, MA, USA, 2014; pp. 81–110.
21. Castles, F.G.; Obinger, H. Worlds, Families, Regimes: Country Clusters in European and OECD Area Public Policy. *West. Eur. Politics* **2008**, *31*, 321–344. [CrossRef]
22. Esping-Andersen, G.; Kolberg, J.E. Welfare States and Employment Regimes. In *The Study of Welfare State Regimes*; Kolberg, J.E., Ed.; M.E. Sharpe: Armonk, NY, USA, 1992; pp. 3–36.
23. Huber, E.; Stephens, J.D. Welfare States and the Economy. In *The Handbook of Economic Sociology*, 2nd ed.; Smelser, N.J., Swedberg, R., Eds.; Sage: New York, NY, USA, 2005; pp. 552–574.
24. Hall, P.A.; Soskice, D. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*; Oxford University Press: Oxford, UK, 2001.
25. Estevez-Abe, M.; Iversen, T.; Soskice, D. Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State. In *Varieties of Capitalism*; Hall, P., Soskice, D., Eds.; Oxford University Press: New York, NY, USA, 2001; pp. 145–183.
26. Iversen, T.; Soskice, D. An Asset Theory of Social Policy Preferences. *Am. Political Sci. Rev.* **2001**, *95*, 875–893. [CrossRef]
27. Bölük, G.; Mert, M. Fossil & renewable energy consumption, GHGs (greenhouse gases) and economic growth: Evidence from a panel of EU (European Union) countries. *Energy* **2014**, *74*, 439–446.
28. Acaravci, A.; Ozturk, I. On the relationship between energy consumption, CO2 emissions and economic growth in Europe. *Energy* **2010**, *35*, 5412–5420. [CrossRef]
29. Bonoli, G. The political economy of Active Labour Market Policy. *Politics Soc.* **2010**, *38*, 435–457. [CrossRef]
30. Pierson, P. (Ed.) *The New Politics of the Welfare State*; Oxford University Press: Oxford, UK, 2001.
31. Benidickson, J.; Boer, B.; Benjamin, A.H.; Morrow, K. (Eds.) *Environmental Law and Sustainability after Rio*; Edward Elgar Publishing: Cheltenham, UK, 2011.
32. Panno, A.; Carrus, G. Attitudes towards Trump and Climate Change: The Key Roles of Aversion to Wealth Redistribution and Political Interest. *J. Soc. Issues* **2019**, *75*, 153–168. [CrossRef]

33. Wahlström, M.; Kocyba, P.; De Vydt, M.; De Moor, J. (Eds.) *Protest for a Future: Composition, Mobilization and Motives of the Participants in Fridays for Future Climate Protests on 15 March, 2019 in 13 European Cities*; Mimeo: Guildford, UK, 2019.
34. Algan, Y.; Beasley, E.; Cohen, D.; Foucault, M.; Péron, M. *Qui sont les Gilets Jaunes et leurs Soutiens?* Observatoire du Bien-etre du CEPREMAP et CEVIPOF: Paris, France, 2019.
35. Goodstein, E.J. *Jobs and the Environment*; Economic Policy Institute: Washington, DC, USA, 1994.
36. Wertheim-Heck, S.; Raneri, J.E.; Oosterveer, P. Food safety and nutrition for low-income urbanities: Exploring a social justice dilemma in consumption policy. *Environ. Urban.* **2019**, 1–24.
37. O'Connor, J. *The Fiscal Crisis of the State*; Transaction Publishers: Piscataway, NJ, USA, 1973.
38. YCELP—Yale Center for Environmental Law and Policy. *2016 Environmental Performance Index (EPI)*; NASA Socioeconomic Data and Applications Center (SEDAC): Palisades, NY, USA, 2016.
39. YCELP—Yale Center for Environmental Law and Policy. Two Dimensions of Environmental Performance. Available online: https://epi.envirocenter.yale.edu/ (accessed on 12 August 2019).
40. Eurostat. Glossary: Domestic Material Consumption (DMC). Available online: https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Domestic_material_consumption_(DMC) (accessed on 1 December 2019).
41. R Core Team. *R: A Language and Environment for Statistical Computing*; R Foundation for Statistical Computing: Vienna, Austria, 2019.
42. Fritz, M.; Koch, M. Economic Development and Prosperity Patterns Around the World: Structural Challenges for a Global Steady-State Economy. *Glob. Environ. Chang.* **2016**, *38*, 41–48. [CrossRef]