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Building the Eco-social State: Do Welfare Regimes Matter?

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Abstract

Authors such as Dryzek, Gough and Meadowcroft have indicated that social-democratic welfare states could be in a better position to deal with development of the ‘green’ or ‘eco’ state, and the intersection of social and environmental policies, than conservative or liberal welfare regimes (synergy hypothesis). However, this hypothesis has as yet not been examined in comparative empirical research. Based on comparative empirical data from EUROSTAT, the World Bank, the OECD, the Global Footprint Network and the International Social Survey Programme, we are carrying out two research operations: First, by applying correspondence analysis, we contrast the macro-structural welfare and sustainability indicators of thirty countries and ask whether clusters largely follow the synergy hypothesis. Second, we raise the issue of whether differences in the institutional and organisational capabilities of combining welfare with environmental policies are reflected in people’s attitudes and opinions. With regard to the first issue, our results suggest that there is no ‘automatic’ development of the ecostate based on already existing advanced welfare institutions. Representatives of all welfare regimes are spread across established, deadlocked, failing, emerging and endangered ecostates. As for the second issue, the results are mixed. While responses to the statements ‘economic growth always harms the environment’ and ‘governments should pass laws to make ordinary people protect the environment, even if it interferes with people’s rights to make their own decisions’ did not vary according to welfare regimes, people from social-democratic countries expressed more often than average their willingness to accept cuts in their standard of living in order to protect the environment.

Introduction

Ecological challenges such as climate change, deforestation and the degradation of the soil, water and air suggest a qualitatively different environmental and welfare policy governance network, which, as Gough and Meadowcroft (2011) have argued, would need to redistribute environmental impacts such as carbon emissions, pollution and waste, on the one hand, and work, time, income and

wealth, on the other. Not only will social policies need to address the inequalities and conflicts that are likely to emerge in the transition towards more sustainable production and consumption patterns (Pye *et al.*, 2008; Gough, 2013), it will also be increasingly necessary to formulate them in ways that create synergy with environmental goals and that are acceptable to the electorate. According to researchers such as Dryzek *et al.* (2003; Dryzek, 2008), 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. As a corollary, he holds that the ‘relationship between environmental policy effort and social policy effort does not have to be conflictual’ (Dryzek, 2008: 334–5). However, this relationship has as yet not been scrutinised in comparative empirical research. In this paper, we intend to contribute towards filling this gap in research by carrying out two research operations. First, we contrast the macro-structural welfare and sustainability indicators of thirty countries and ask whether clusters largely follow Dryzek’s hypothesis that social-democratic welfare states also perform best in ecological terms. Of special interest is the temporal dimension: are there indications that social-democratic welfare states move towards becoming eco-social states, and, if so, are they doing this in more pronounced ways than conservative and liberal countries? And is this reflected in ecological key indicators such as the Ecological Footprint? Second, we raise the issue of whether these differences in the institutional and organisational capabilities of combining welfare with environmental policies are reflected in people’s attitudes and opinions. Are, for example, people who live in a country with a social-democratic welfare tradition more environmentally aware and prepared to adjust their standard of living and to bring it in line with ecological needs than people living in liberal countries?

Theorising and comparatively analysing eco-social policies and states

Both social and environmental policies are political responses to long-term societal trends related to capitalist development, industrialisation and (sub)urbanisation (Koch, 2012). Both modify these processes through regulation, fiscal transfers and other measures, thereby affecting conditions for the other (Fitzpatrick, 2011; Koch, 2014). Exploring and analysing these policy interactions and their complex institutional coordination is a relatively new research field (Gough, 2010). A developing body of literature addresses the distributive consequences and implications of environmental policies for social justice and social policy (Gough, 2013). Different societal groups have different responsibilities for ecological issues, and experience different impacts. Responsibilities and impacts sometimes work in opposite ways, constituting ‘double injustice’ (Walker, 2012), since the groups and populations likely to be

most harmed by environmental issues are the least responsible for causing them and have the least resources to cope with the consequences (Büchs *et al.*, 2012). There have also been attempts to comparatively understand state strategies in relation to environmental performance. In 1999, Scruggs (1999) was already proposing the comparative advantages of corporatism as opposed to pluralism for dealing with environmental issues. More recently, Liefferink *et al.*, (2009) produced a study on the policy output of twenty-four countries during the period 1970–2000, highlighting high environmental problem pressures, neo-corporatist institutional structures, EU membership and a high level of economic development as favourable to the advancement of environmental regulation.¹ In relation to greenhouse gas emissions, Christoff and Eckersley (2011) found that domestic political institutions (proportional representation versus first-past-the-post electoral systems and the presence of green parties in parliament and government) and corporatist systems that include business and labour, play an important role. The study pointed out that while national vulnerability to climate change is a poor indicator, both reliance on fossil fuel extraction and energy-intensive industry heighten opposition to carbon reduction. Of further significance are the kinds of ideological discourses on environmental issues. Indeed, depending on how these discourses are framed at the national level, these can ‘give rise to quite different cost/benefit calculations’ (Christoff and Eckersley, 2011: 442). Similarly, Görg (2003) asserts that what actually counts as ‘environmentally relevant’ is in fact variable over time and across space and thus must be identified as an object of research in the context of changing societal integration and regulation patterns. Societal power relations and the corresponding discourse patterns frame which ecological facts and processes are perceived as ‘problems’ and deserve to be tackled.

Still another stream in the existing literature, which is of particular relevance for this paper, suggests that different welfare regimes (Esping-Andersen, 1990; Arts and Gelissen, 2002) implement environmental policies and the green dimension of the state with different rates of success. Dryzek, for example, arrives at the ‘provisional conclusion’ (Dryzek *et al.*, 2003; see Dryzek, 2008) that social-democratic welfare states, and also coordinated market economies, are ‘better placed’ to handle the intersection of social and environmental policies than more liberal market economies and welfare regimes (Dryzek, 2008: 333; see Dryzek *et al.*, 2003). One reason Dryzek mentions is the discourse on ecological modernisation, which he regards as especially widespread in social-democratic welfare regimes: the idea that environmental policies can be good for business, and that green growth presupposes coordinated governance structures. Rather than trusting in the invisible hand of the market, social-democratic welfare regimes would generally make a ‘conscious and coordinated effort’ and regard ‘economic and ecological values as mutually reinforcing’ (Dryzek, 2008: 334–5). The ‘contemporary result’ would be the ‘mainstreaming of both environmental

and equality concerns' (Dryzek, 2008: 330). In the following, we refer to the assumption of a mutual reinforcement of welfare and environmental policies and corresponding outcomes in terms of environmental performance, popular attitudes, values and opinions as the 'synergy hypothesis'. However, Dryzek also mentions the possibility that environmental policies do not develop in synergy but in conflict with social policies, thereby weakening traditional concerns of social justice. He emphasises that the green state may 'demand a re-allocation of government expenditure to compensate its victims ... or develop low-polluting forms of energy production' (Dryzek, 2008: 334). He also points to the 'double injustice' as described above by suggesting that many policies that make sense from an environmental perspective 'hurt the poor disproportionately. Thus a clash between environmental and social policy looms' (Gough *et al.*, 2008: 334).

Similarly, Meadowcroft (2005; Meadowcroft, 2008) advocates the synergy hypothesis when highlighting that there is a range of linkages between social and environmental policies that together have the potential of bringing about sustainable development. According to Meadowcroft, it was around forty years ago that advanced states began to 'build up highly complex systems of environmental rule' so that 'it makes sense today to refer to the emergence of an environmental state ... much as we talk about the historical development of the welfare state' (Meadowcroft, 2008: 331). Yet there are also differences to welfare state development, since the environmental state is comparatively new and weakly institutionally embedded. Environmental functions have been grafted onto state structures that were developed for 'other purposes (security, economic management and welfare provision), and the economic interests associated with environmental protection remain less developed than those in other domains' (Meadowcroft, 2008: 331). Unsurprisingly, struggles over the distribution of the costs and benefits of environmental intervention and non-intervention constitute a 'central feature of environmental politics and policy' (Meadowcroft, 2008: 331). Meadowcroft stresses that the green state takes on somewhat different forms in different national contexts and that there is 'no elegant typology of environmental states equivalent to the well-known classification of welfare states'. This is partly due to the fact that the environmental state has been 'layered on top of well-established economic variants ("forms of capitalism"), political-institutional set-ups, and welfare-state types. National environmental states are strongly coloured by what has gone before' (Meadowcroft, 2008: 331–2).

In summary, the 'synergy hypothesis' claims that social-democratic welfare regimes provide a better institutional basis for the introduction and development of the green dimension of the state than conservative and liberal welfare regimes. However, Dryzek, Gough and Meadowcroft are in agreement that this institutional basis is no guarantee that green states *de facto* develop in synergy with welfare states. The possibility of competition, clashes and conflicts between the welfare and green dimensions of the state, which is considered by

all mentioned authors, is even more emphasised by environmental economists such as Victor (2008), Jackson (2009) and Daley and Farley (2009), who point to the weak empirical evidence for absolute decoupling of economic growth and the resource input and throughput of production and consumption processes.² On this empirical basis, these researchers have started to question both the synergy hypothesis of the welfare and green dimensions of the state and the green growth policy option that follows on from it (Koch, 2013). Instead, both welfare and the environmental performance of a country is primarily regarded as a reflection of its development in economic terms, that is, of GDP. Not only has the welfare state itself a significant ecological footprint, but its redistribution effect, in combination with economic growth, enables large groups in society to participate in production and consumption patterns that are, all other things being equal, environmentally harmful, for example in terms of CO₂ emissions. Hence, while ‘green growth’ and ‘economic modernisation’ discourses claim that the pursuit of economic growth can be combined with sustainable development and the International Panel on Climate Change (IPCC) climate targets by building on existing institutions, among which the welfare state plays an important role, ‘nogrowth’ theories and the mentioned environmental economists would regard economic growth itself as the problem. GDP growth would need to be deprioritised in policy making across the advanced capitalist world – that is, irrespective of welfare affiliation – in order to allow for efficient environmental policy making and to achieve sustainability.

Whether or not synergy or conflict between the welfare and the green dimension of the state prevails, and whether or not an advanced welfare state indeed facilitates the creation of such synergy, cannot be decided at a merely theoretical level. It is instead an empirical question as to how the welfare and green dimensions of the state vary comparatively. In the following analysis, we focus on the question of if, and to what extent, different welfare regimes correspond with different environmental performances and citizen attitudes. Hence, the emphasis is not on policy output (for example, the existence and advancement of environmental legislation and regulation) but on the stress on the environment from existing national economic and welfare arrangements.

Method and operationalisation

Overall, we analyse the welfare and ecology indicators of thirty countries (Table 1), which we allocated to welfare regimes by building on Esping-Andersen’s framework (Esping-Andersen, 1990).³ Space does not allow for a detailed consideration of the debate connected to Esping-Andersen’s original work. Overall, however, this debate seems to confirm rather than falsify his approach, insofar as more recent typologies did not suggest totally different clusters. Later approaches propose four or five ‘worlds of welfare’ rather than three,

TABLE 1. Welfare regimes and countries analysed

Welfare regimes and other country clusters	
Liberal	UK, USA, Australia, New Zealand, Ireland, Canada
Conservative	Finland, Japan, Germany, Italy, France, Switzerland
Social-democratic	Norway, Sweden, Denmark, Netherlands, Belgium, Austria
Eastern	Czech Republic, Slovenia, Slovak Republic, Poland, Hungary, Estonia
Mediterranean	Turkey, Spain, Portugal, Greece

Note: Not classified: Luxembourg, Korea.

yet with significant overlap in the allocation of countries (Arts and Gelissen, 2002; Ferragina and Seelaib-Kaiser, 2011). In their influential overview of welfare regime typologies, Arts and Gelissen also point out that the remarkable degree of theoretical consistency, which characterises Esping-Andersen's approach, would decrease through the adaptation of alternative theoretical arguments. However, we present the data for both welfare regimes and countries separately so that alternative welfare clusters can be constructed. For example, one could follow Ferrara (1996) and locate Italy within the Mediterranean countries or Japan and South Korea together within the conservative countries. Yet the vast majority of these countries belong to Esping-Anderson's original welfare regimes: the social-democratic welfare regime (Norway, Sweden, Denmark, the Netherlands, Belgium, Austria) characterised by the highest degree of decommodification and the lowest degree of stratification; the conservative welfare regime (Finland, Japan, Germany, Italy, France, Switzerland) with medium decommodification and stratification; and the liberal regime (UK, USA, Australia, New Zealand, Ireland, Canada) featuring the lowest degree of decommodification and the highest values for stratification. Beyond these classical types, we suggest two complementary welfare clusters and two additional countries to broaden the empirical reach of the comparative analysis: A 'Mediterranean' cluster (Turkey, Spain, Portugal and Greece), a cluster of 'Eastern European' countries (Czech Republic, Slovenia, Slovak Republic, Poland, Hungary and Estonia) and South Korea as representative of the East Asian industrialised countries⁴ as well as the extremely wealthy Luxembourg.

We operationalise the welfare and ecology dimensions as follows: in relation to the welfare dimension, we build on Esping-Andersen (1990; Arts and Gelissen, 2002: 141–2) and consider *stratification/inequality* using the Gini index for income inequality, and the degree of *decommodification* measured by the overall expenditures for social protection as percentage of GDP. With respect to the green dimension of the state, we consider *ecological performance* in terms of electricity generated from renewable sources as a percent of gross electricity

production, CO₂ emissions per capita and national ecological footprints per capita. We further include *green regulation* in terms of environmental taxes as a percent of GDP. According to Jacobs (2012: 11), green taxes are used as correction for market failures. These taxes can be reasonably assumed to be higher in social-democratic and conservative countries than in liberal ones, due to more advanced traditions of market regulation and redistribution. Furthermore, the extent of such taxation can be expected to be positively correlated to environmental performance, since – all other things being equal – it increases the costs for ecologically harmful practices by companies and households. Finally, we include gross domestic product (GDP) per capita and purchasing power parity (PPP) as an indicator for economic development and the standard of living of a country.⁵

We apply correspondence analysis in order to explore empirically the relations between the welfare and green dimensions at country level. While cluster analyses are often used to situate countries with similar characteristics into more or less homogenous groups, our focus is on the usually hidden relationships between welfare and ecology indicators among all countries under observation. Correspondence analysis allows for visually depicting these latent structures and correlations within maps (Bourdieu, 1984; Blasius and Greenacre, 2006; Greenacre, 2007). To give every indicator and every country the same weight, the macro data are standardised by the use of the two-step procedure of ranking and doubling.⁶ In total, we compiled and analysed data for seven indicators (two for the welfare dimension and four for the green dimension of the state as well as GDP) for thirty countries and two points in time (1995 and 2010). Data were collected from EUROSTAT, the World Bank, the OECD and the Global Footprint Network (Appendix Table A1). We interpret the resulting maps as follows (see Blasius and Graeff, 2009):

- The greater the distance of a variable or country from the centroid, which depicts the overall average of all thirty countries, the stronger its contribution to the respective axis within the two-dimensional map. If, for example, the indicator *ecological footprint* is on the first dimension furthest away from the centroid, this dimension is mostly determined by ‘footprint-differences’ between the countries.
- The correlation between two indicators is expressed by the angle of their trajectories in the map, whereby a 90° angle reflects complete independence, that is, the absence of a correlation between variables.
- Both distances between variables and distances between countries are interpreted as associations: the closer two variables or two countries are located on the map, the more similar they are. If, for example, *footprint* is close – that is, similar, to *environmental taxes* – but far – that is, dissimilar, from *GINI* – this indicates a pattern of the ecological footprint being higher in countries where environmental taxes are also relatively high but where the GINI is lower.

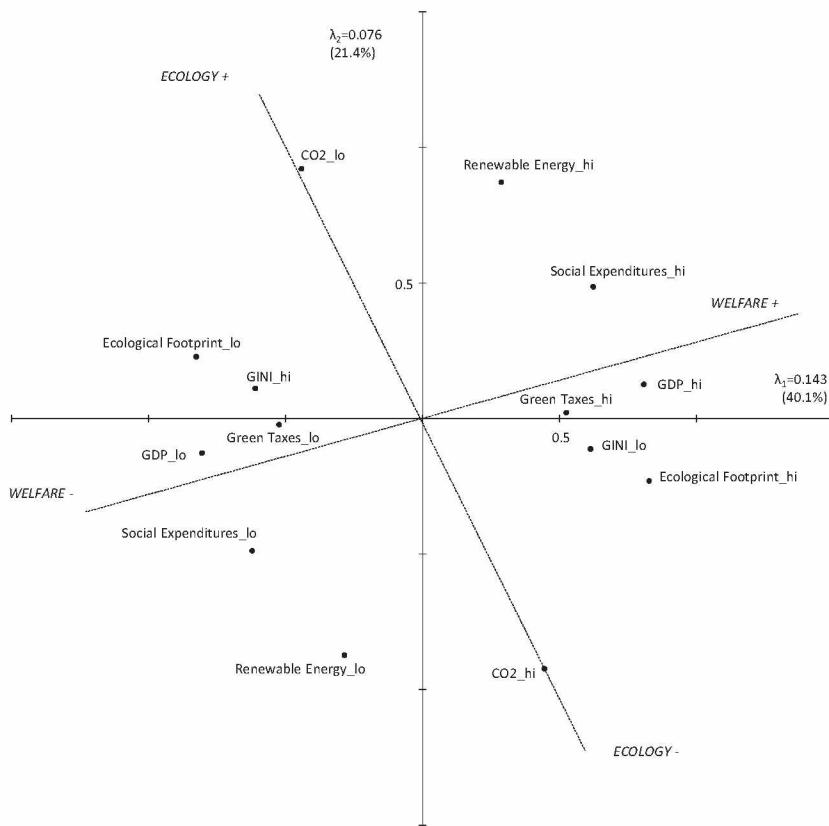


Figure 1. Ecology and welfare in 1995

- The doubling and ranking procedure results in two endpoints for each variable/indicator, a positive and a negative one (indicated as *_hi* and *_lo*), which are both depicted in the maps and which are perfectly mirrored by the centroid. If, for example, *GINI_hi* (the positive endpoint of inequality indicating the highest degree of inequality) appears at $x = 1$ and $y = 1$ in the map, *GINI_lo* (the negative endpoint of inequality indicating the lowest inequality) is located at $x = -1$ and $y = -1$.

Analysis

Figure 1 displays the results for 1995.⁷ For better visualisation, latent dimensions for welfare and ecological performance (ECOLOGY) were inserted as dotted lines with minimised distances to the respective indicators. In this way, clusters of indicators and single indicators can be examined with regard to their relationship towards each other and in respect to both the welfare and ecology dimension.

First of all, the latent dimensions for welfare and ecological performance are nearly orthogonal. This indicates statistical independence or, in other words, that the two are not linked to each other in the way the synergy hypothesis would suggest. A closer look at the several indicators confirms this result: a cluster of variables appears in the right part of the map, around the positive side of the welfare dimension. Here, relatively high expenditures for social protection are associated with lower levels of income inequality – indicating the effective functioning of welfare states in the reduction of social risks – relatively high environmental taxes but also comparatively huge ecological footprints. Countries which share these characteristics also tend to have a higher GDP per capita. Conversely, the left part of the map indicates an association between smaller GDP per capita, relatively low social expenditures, low environmental taxes, small ecological footprints and huge income inequality. The correspondence between higher environmental taxes and social expenditures is in accordance with the synergy hypothesis or the idea that the green state is being built on top of already existing welfare institutions that also enable the state to regulate ecological challenges. However, additional revenue from green taxes did not translate into improved ecological performance. There is no correlation between green taxes and the ecology dimension. The fact that the ecological footprint as an indicator for ‘human appropriation of ecosystem products and services’ (Borucke *et al.*, 2013) tends to increase where also the welfare dimension is relatively advanced, contradicts the synergy hypothesis and rather confirms the alternative view developed by Jackson (2009: 48–50) and others – that welfare regulation largely reflects economic development in terms of GDP and that the latter has not been sufficiently decoupled from environmental pressures.

Renewable energy as percentage of gross electricity production and, particularly, CO₂ emissions per capita are disconnected from the welfare indicators. As one might expect, both indicators are linked to each other so that relatively high levels of renewable energy are accompanied by low levels of CO₂ emissions per head. Yet it is remarkable that this has no effect on the ecological footprint, since there is no overall pattern among the thirty countries that would indicate a connection between a greater percentage of renewable energy in electricity production and relatively low environmental burdens.⁸ Overall, the analysis of the 1995 data indicates that economic development, advanced welfare and poor ecological performance are inextricably linked.

In 2010, the situation changed somewhat (Figure 2).⁹ The welfare indicators are now not only detached from GDP per capita and the ecological footprint, they are also more associated with the ecology indicator, renewable energy. In accordance with the synergy hypothesis, a comparatively high percentage of renewable energy in electricity production is connected with advanced welfare provision and relatively high green taxes. The fact that GDP and welfare are less associated indicates that the fruits of economic growth were less equally

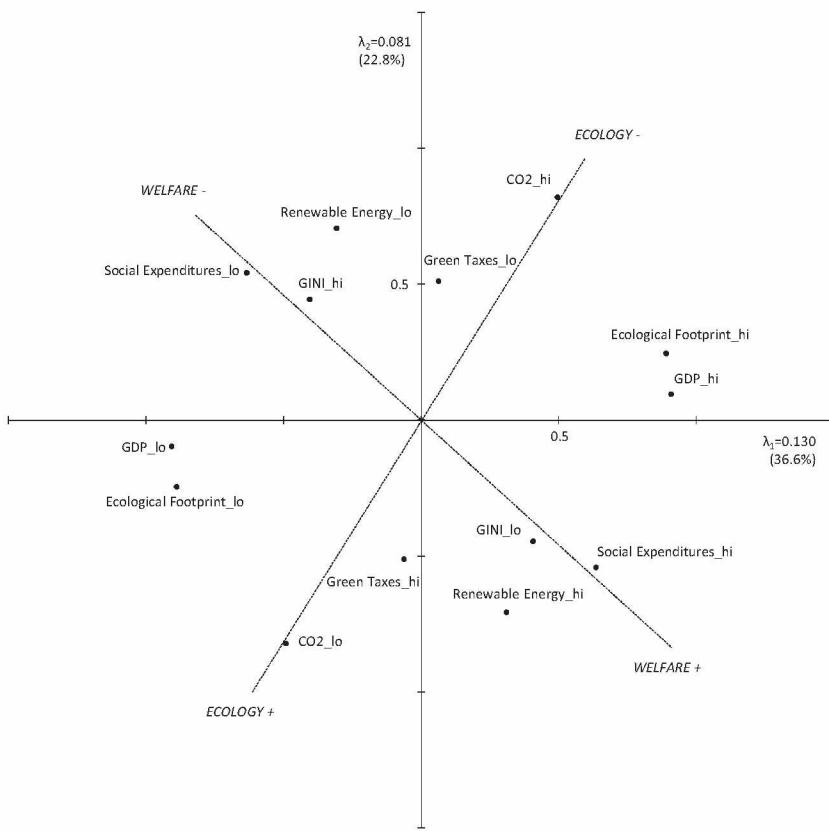


Figure 2. Ecology and welfare in 2010

(re)distributed in 2010 than in 1995. Yet, contrary to the synergy hypothesis, the very strong relationship between GDP per capita and the ecological footprint continued over the fifteen-year period. This indicates a persistent effect of the production and consumption parameters and the material standard of living on ecological conditions, while social expenditures and the GINI – key indicators of welfare – hardly influence the extent of the ecological footprint.

The next stage of our macro-analysis is a calculation and interpretation of the positional changes of the thirty countries between 1995 and 2010 (Figure 3).¹⁰ We also included the positions of Esping-Andersen's three welfare regimes as mean values of the respective countries (see Table 1). With regard to the welfare dimension, the differences between social-democratic countries, conservative and liberal countries follow Esping-Andersen's theory very closely. Yet, while social-democratic countries display higher income equality and social expenditure than conservative and liberal ones, their ecological performance does not differ significantly from other countries, and not from the liberal regime

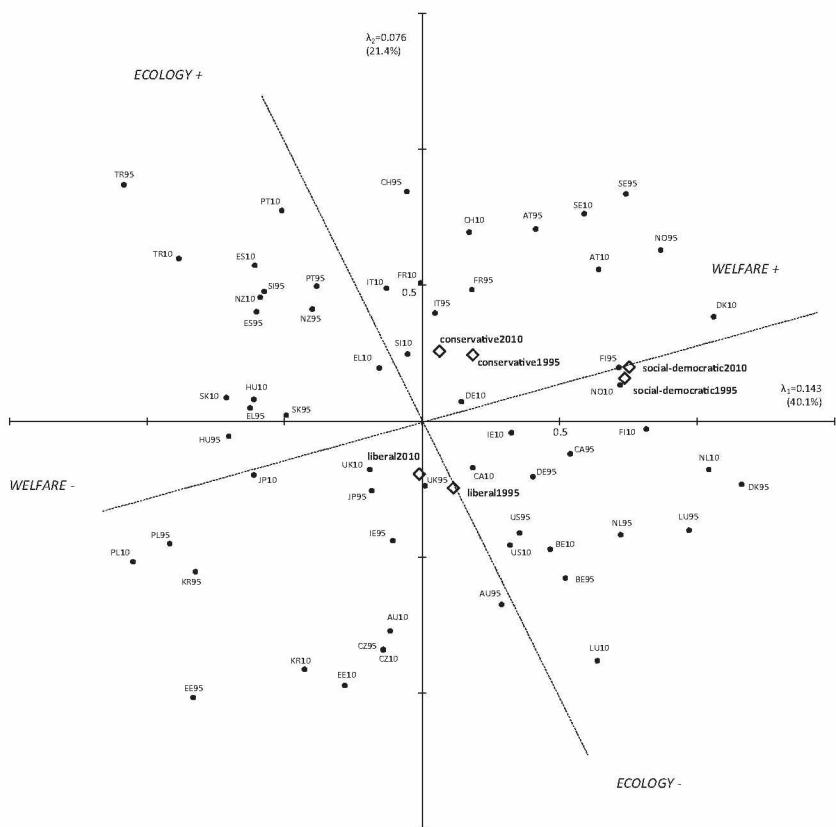


Figure 3. Positional changes of 30 countries in the eco-social field

in particular. In fact, countries with a conservative welfare tradition are the most sustainable.

At country level, the synergy hypothesis, according to which advanced welfare states and particularly the social-democratic regime also perform well ecologically, holds for two countries only.¹¹ Sweden and Austria display above-average values on the welfare as well as on the ecology dimension. The same is true for the ‘conservative’ Switzerland and, less so, for Italy and France.¹² Other countries with a comparatively good ecological performance include the liberal New Zealand, Slovenia and the Mediterranean Spain, Portugal and Turkey, and, to a lesser extent, Hungary, the Slovak Republic and Greece. The Mediterranean countries, particularly, combine relatively low CO₂ emissions, considerable percentages of renewable energy and lower ecological footprints. The fact that these countries display relatively modest levels of GDP per capita underlines Jackson and others’ doubts about the possibility of effectively decoupling GDP growth from environmental stress. Turkey is another interesting case in this

regard. Due to its delayed socio-economic modernisation, it was the most sustainable country of the thirty in 1995. By 2010, the country's GDP per capita had tripled. This 'progress' was made at the expense of environmental performance. Not only did CO₂ emissions and the ecological footprint rise considerably, but the percentage of renewable energy in electricity production even declined. Countries with a comparatively bad ecological performance include – in accordance with the synergy hypothesis – liberal Australia and the USA, which both display extremely high CO₂ emissions per capita, but also – in contradiction to this hypothesis – the Netherlands and Belgium as representatives of the social-democratic welfare regime. In the latter two countries, a comparatively advanced degree of economic development and an accordingly high standard of living as indicated by GDP per capita coincides with high values for CO₂ emissions and ecological footprints. CO₂ emissions and ecological footprints are exceptionally high in the country with the most luxurious living standard among the thirty countries compared: Luxembourg. However, there are also some less rich countries that demonstrate a below-average ecological performance. This applies to Eastern European countries such as Poland, the Czech Republic and Estonia as well as South Korea.

Overall, there is very little support for the synergy hypothesis in regard to the countries' ecological performance. This applies above all in a somewhat 'negative' way, since most liberal countries indeed perform less well at establishing sustainability than conservative and social-democratic countries. Conversely, there are social-democratic and conservative countries that perform relatively well in terms of ecology, while others do not.

A preliminary typology of ecostates

Table 2 groups countries according to their ecological performance in 1995 and in 2010. Distinguishing between above and below average as well as medium ecological performances,¹³ we empirically arrive at the following typology of (emerging) ecostates:

The countries that display a relatively good ecological performance with a tendency to keep or even improve their level of sustainability come closest to *established ecostates*: New Zealand, Sweden, Switzerland, Italy, France, but also Portugal and Spain. Despite lower scores for 2010, Turkey is still among the countries with the higher ecological performance. The fact that this group of established ecostates includes countries from all welfare regimes, and also countries with very different levels of economic development and material standards of living, indicates that the relations between welfare, economy and ecology are more complex than the synergy hypothesis suggests.

A second group of countries, which we might call *deadlocked ecostates*, is characterised by a continuity of middle positions in terms of their ecological performance. Like the first group, this group involves countries from all three

TABLE 2. State environmental performance compared

	Above average environmental performance in 2010	Medium environmental performance in 2010	Below average environmental performance in 2010
Above average environmental performance in 1995	ESTABLISHED ECOSTATES: Portugal, Spain, Turkey, Switzerland, New Zealand, Italy, France, Sweden	ENDANGERED ECOSTATES: Slovenia, Austria	
Medium environmental performance in 1995		DEADLOCKED ECOSTATES: Greece, Hungary, Slovak Republic, Norway, UK, Ireland, Japan, Poland, Canada	FAILING ECOSTATES: South Korea, Finland,
Below average environmental performance in 1995		EMERGING ECOSTATES: Germany, Denmark	Australia, Luxembourg, Belgium, Czech Republic, Estonia, USA, Netherlands

welfare regimes as well as from Eastern and Mediterranean Europe. Cases such as Norway seem to be especially promising for future in-depth research since, from the perspective of ecological modernisation and the synergy hypothesis, one would have expected more efforts to reduce ecological damage and implement effective ‘green’ policies in this social-democratic country.

Failing ecostates are those with regressive or continuously bad ecological performances: South Korea, the Netherlands, Luxembourg, Belgium, Estonia, Finland and the Czech Republic as well as Australia and the USA. The fact that we find representatives of the social-democratic welfare regime in this group provides further reason to question and/or reformulate the synergy hypothesis according to which advanced welfare institutions would facilitate the buildup of efficient green institutions and the introduction of measures.

Finally, Germany and Denmark may be labelled *emerging ecostates*, since they are the countries that improved their ecological sustainability the most. Both countries reduced their Ecological Footprints and their CO₂ emissions per capita, not least through state investment in renewable energies. In contrast, Slovenia and Austria mark the opposite pole of *endangered ecostates*. While these countries performed rather well in 2010, they had done so better in 1995. A

slow increase in the material standard of living in combination with insufficient efforts for ecological regeneration and preservation has led, somewhat unnoticed, to small but significant rises in CO₂ emissions and footprints.

The environment, economic prosperity and the (welfare) state: what do people think?

The debate on possible links between the welfare and environmental dimensions of the state is not reduced to institutional features and policies but also includes assumptions on attitudes, discourses and the environmental awareness of the public. Dryzek (2008), for example, suggests, first, that the discourse on ecological modernisation in traditionally social-democratic welfare states leads to a generalisation of the perception of environmental protection and economic growth as mutually reinforcing rather than being two opposite policy goals. The latter characterises countries with a liberal market and welfare tradition. Second, building on Dryzek, one would assume people living in social-democratic and, less so, in conservative welfare environments to be more prone to accept state intervention in terms of environmental concerns than people who live in liberal countries. We add to this that, third, people in social-democratic and conservative welfare states will also be more likely to accept cuts in their standard of living if this is seen as beneficial for the protection of the environment.

We test these hypotheses through an analysis of data from the International Social Survey Programme 2010 (ISSP Research Group, 2012)¹⁴ and operationalise them through the following questions:

- How much do you agree or disagree with the following statement? *Economic growth always harms the environment.*
- If you had to choose, which one of the following would be closest to your views? *Governments should let ordinary people decide for themselves how to protect the environment, even if it means they don't always do the right thing* OR *Governments should pass laws to make ordinary people protect the environment, even if it interferes with people's rights to make their own decisions.*
- How willing would you be to accept cuts in your standard of living in order to protect the environment?

Regarding the first question – how citizens perceive the relation between economic growth and environmental protection – the pattern follows Dryzek's reasoning insofar as antagonist views of the relationship between economic growth and ecology are least widespread in most social-democratic countries (Figure 4 and Table 3). Exceptions are Belgium and Austria where public opinions are more similar to those of the conservative welfare type, which features the highest agreement scores to the statement that economic growth always harms the environment. The fact that almost as few citizens from the liberal countries

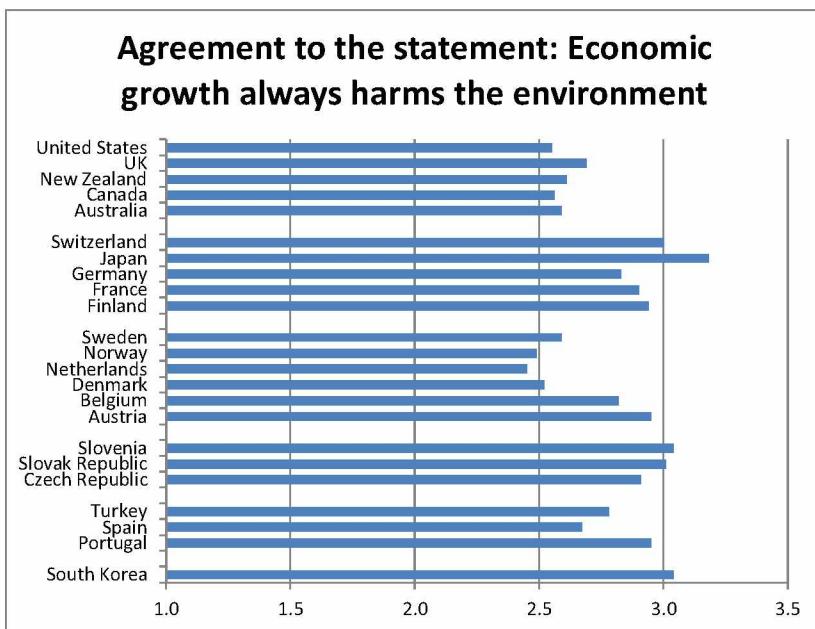


Figure 4. (Colour online) Public perception of the relationship between economic growth and environmental protection

Source: ISSP Research Group (2012), Ns between 1.000 and 1.500 per country, weighted data, mean values from a 1–5 scale where 1 means ‘strongly disagree with statement’ and 5 means ‘strongly agree with statement’

express agreement to this statement as in the social-democratic countries is more difficult to reconcile with Dryzek’s approach.

In terms of the willingness to accept governmental measures to protect the environment rather than leaving environmental protection to individuals we arrive at the following picture (Figure 5 and Table 3): in accordance with the ecological modernisation thesis, about 75 per cent of Danish respondents preferred state initiatives over individual efforts. Also in other social-democratic countries such as Norway, Sweden and Austria support for governmental initiatives is high. Similarly, people in most conservative countries prefer state regulations over individual initiatives, particularly in Switzerland and Germany. Hence, overall, citizens from social-democratic and conservative countries are more likely to approve legal restrictions to protect the environment than citizens from liberal countries. Exceptions include Canada, where citizens are more in favour of enforcing laws than relying on the voluntary efforts of individuals. Conversely, people in the Netherlands, Finland and Belgium are more individualistic or sceptical of their governments than one would surmise on the basis of their welfare regime affiliation. The consideration of Eastern European and Mediterranean countries indicates that citizens’ preferences for governmental initiatives to

TABLE 3. Means of regimes and country clusters; attitudes towards growth, the environment and the role of the state

	Economic growth harms the environment (1 = strongly disagree, 5 = strongly agree)	Would accept cuts in living standard (1 = strongly disagree, 5 = strongly agree)	The government should enforce laws to protect the environment (agreement in percent)
Liberal (UK, USA, New Zealand, Canada, Australia)	2.60	2.71	50%
Conservative (Germany, France, Japan, Switzerland, Finland)	2.97	2.97	60%
Social-democratic (Netherlands, Austria, Belgium, Sweden, Norway, Denmark)	2.64	3.01	62%
Eastern (Slovenia, Czech Rep. Slovak Rep.)	2.99	2.56	67%
Mediterranean (Turkey, Spain, Portugal)	2.80	2.60	75%

protect the environment are not a specific feature of generous welfare states. On the contrary, citizens of these countries would prefer their governments to introduce corresponding legislation even more than those of social-democratic countries.

Figure 6 and Table 3 largely verify the ecological modernisation hypothesis, according to which people in social-democratic welfare states are most likely to accept cuts in their standard of living if the environment benefits from this. Also citizens of most conservative countries, especially Switzerland, are willing to reduce their standard of living for environmental protection. It is thus in line with the synergy hypothesis that citizens of liberal countries are significantly less prone to accept cutbacks in their living standard for the sake of the environment. The same applies to the economically less developed countries of Eastern Europe and the Mediterranean region. However, a comparison of the country-level answers to this item beyond the economically developed countries is problematic, since few people would morally expect Turkish or Czech citizens to reduce their living standard even further, while this case can more reasonably be made for Swedish or UK citizens.

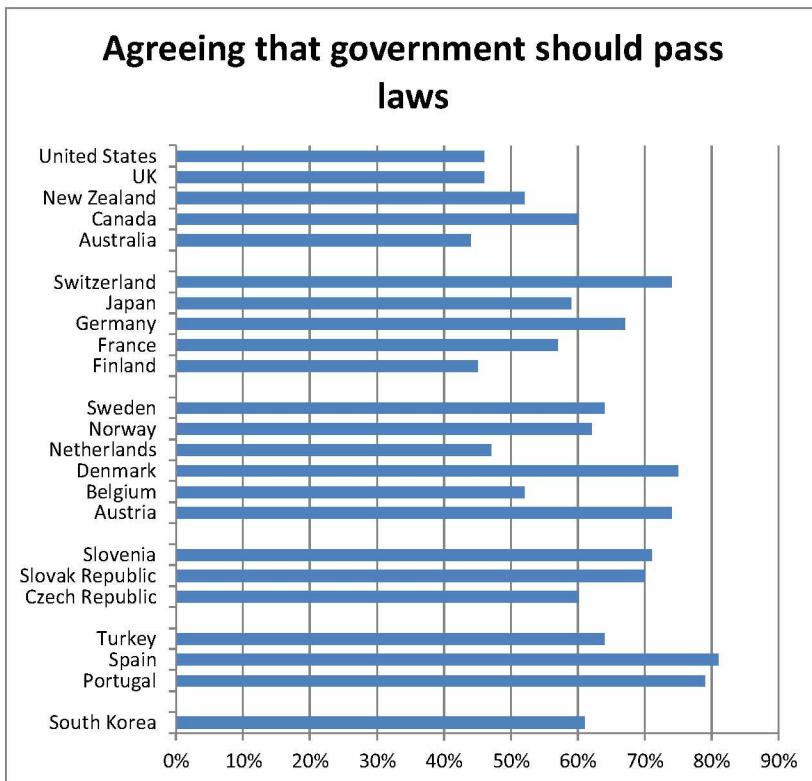


Figure 5. (Colour online) Willingness to accept governmental measures for environmental reasons

Source: ISSP Research Group (2012), Ns between 1,000 and 1,500 per country, weighted data.

Discussion and conclusion

This paper departed from the theoretical discussion of the links between the welfare and the green dimensions of the state initiated by authors such as Dryzek, Gough and Meadowcroft (see Gough *et al.*, 2008), who – without excluding the possibility of conflictive and contradictory relations between the two – expressed some hope in the ability of social-democratic welfare regimes to develop the green dimension of the state more successfully than conservative and, especially, liberal welfare regimes, and, consequently, to perform better in terms of ecological key indicators. We called this the synergy hypothesis, which we confronted with recent studies that question the compatibility of GDP growth, welfare and sustainability (Victor, 2008; Jackson, 2009; Koch, 2013) and which we set out to empirically scrutinise in terms of institutional and subjective indicators for thirty countries and over the time period 1995–2010.

Our results suggest that there is no ‘automatic’ development of the green state on top of existing advanced welfare institutions. Overall, welfare development

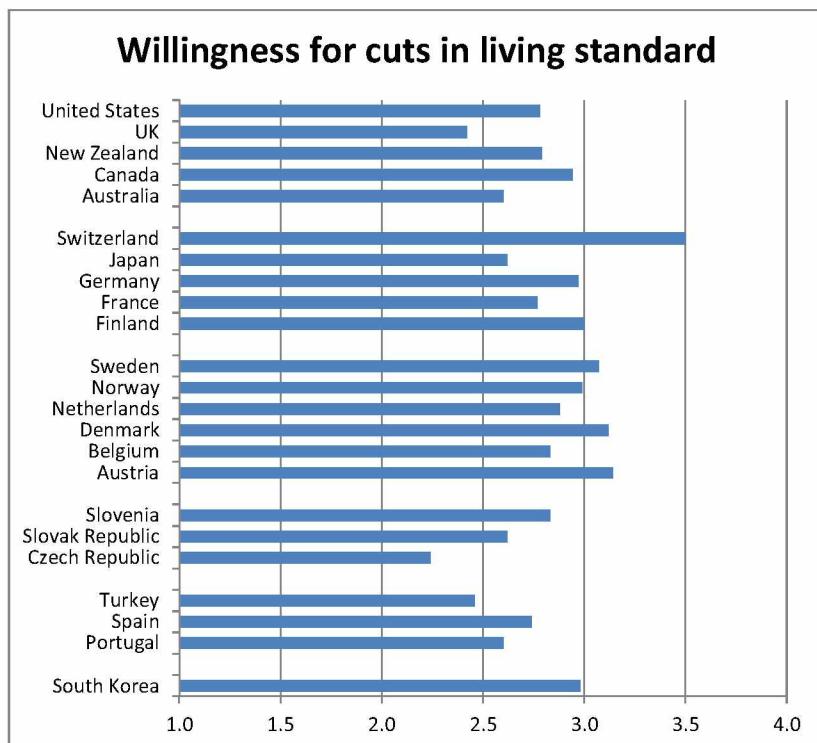


Figure 6. (Colour online) Willingness to accept cutbacks in standard of living

Source: ISSP Research Group (2012), Ns between 1.000 and 1.500 per country, weighted data, mean values from a 1–5 scale where 1 means ‘strongly disagree with statement’ and 5 means ‘strongly agree with statement’.

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. All other things being equal, countries with comparatively lower levels of social inequality also feature lower levels of status competition (Wilkinson and Pickett, 2010). While this potential could doubtless be used to contain the extreme forms of consumption that crucially contribute to CO₂ emissions, and cause other environmental stress, this potential would need to be politically actualised much more than is currently the case.

In terms of the issue of whether the discourse on ecological modernisation, which, according to Dryzek (2008), is more advanced in social-democratic than in other countries, indeed leads to a generalisation of the perception to regard environmental protection and economic growth as mutually reinforcing and whether this is accompanied by citizens of social-democratic welfare states being more prone to adjust their lifestyles to reflect environmental needs, the results are mixed. While responses to the statement ‘governments should pass laws to make ordinary people protect the environment’ did not vary according to welfare regimes, responses to the statement, ‘how willing would you be to accept cuts in your standard of living in order to protect the environment’, did: citizens of social-democratic and conservative countries indeed expressed more willingness to carry out such lifestyle change than citizens from liberal countries. However, people in social-democratic countries are closer to the liberal world in their lack of agreement for the statement ‘economic growth always harms the environment’. Citizens of conservative welfare traditions affirm this statement much more often – and our analyses of economic, welfare and environmental data confirm their point of view.

The main conclusion is that the links between the welfare and green dimensions of the state are far more complex than suggested in the synergy hypothesis. Factors other than welfare may be significant for the explanation of the cross-country differences in ecological regulation and performance. Liefferink *et al.*, (2009) identified institutional and other factors that influenced environmental legislation and regulation between 1970 and 2000. However, the existence of an encompassing environmental policy network in a given country does not necessarily influence its environmental performance in a positive way. The examples of the Netherlands, Finland or Belgium (Table 2) seem to indicate that a country may well have strict and advanced environmental policies and nevertheless perform below average on the ecology dimension. In relation to environmental performance, it appears promising to consider factors such as the political representation of green parties, facilitating the lobbying for environmental issues within the state and the exertion of pressure from ‘below’ (Christoff and Eckersley, 2011), as well as the degree of political decentralisation with correspondingly different roles and responsibilities for local authorities to develop green politics. Another issue that emerged from the present study and is worth exploring further is why, overall, countries with a conservative welfare tradition perform better on the environmental dimension than on social-democratic ones.

While these factors and issues should be considered in future research, the present analysis dealt with the role of welfare regimes in building the eco-social state. Overall, it has given support to previous studies that emphasise the conflict between the welfare and the ecological dimensions of the state due to the lack of evidence for absolute decoupling of GDP growth and resource intensity (Daley

and Farley, 2009; Jackson, 2009; Koch, 2012). The development of the welfare dimension of the advanced capitalist countries has, as yet, largely reflected their development in economic terms and failed to be accompanied by satisfactory performance in terms of sustainability. Far from it, the dialectic of the welfare state appears to lie in the fact that the same mechanism that defuses the socio-economic inequalities inherent in capitalist development ensures the inclusion of an increasing amount of people in environmentally problematic production and consumption practices. Policy proposals to provide prosperity and welfare in both social and ecological terms should therefore focus on strategies to decouple the two from economic growth or, if this continues to prove impossible, to de-prioritise economic growth in policy making.

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Notes

- 1 In contrast to Liefferink *et al.* (2009), we do not focus on the level of existence of environmental regulatory networks but on the environmental impact of different institutional structures.
- 2 While there is some evidence for relative decoupling (decline in resource intensity per unit of economic output) in advanced Western countries, there is no evidence whatsoever for absolute decoupling (where resource intensity falls at least as fast as economic output increases) (Jackson, 2009: 48–50; Koch, 2012: 122–5). Absolute decoupling of GDP growth and CO₂ emissions, in particular, would be necessary to meet the climate goals as defined by the IPCC.
- 3 Since Esping-Andersen's typology is widely known, its adaptation facilitates links to the existing welfare literature. The reference year of our analysis is 1995, that is, relatively close to the period of Esping-Andersen's discussion of the original three welfare regimes and the corresponding countries.
- 4 See Jones (1993), Goodman and Peng (1996), Holliday and Wilding (2003) and Sung and Pascall (2014) for different positions on East Asian welfare regimes.
- 5 Appendix Table A1 provides detailed information on data sources, missing values, etc.
- 6 See Greenacre (2007) for statistical details about ranking and doubling and Blasius and Graeff (2009) for an empirical application.
- 7 The correspondence analysis of the seven macro-level indicators reveals two latent dimensions, which together explain about 61.5 per cent of the variation in the data.
- 8 The example of hydropower plants endangering natural landscapes and habitats points to the opposite: that a CO₂ ‘smart’ energy network can indeed have negative consequences for ecosystems.
- 9 Taken together, the two dimensions explain about 59.4 per cent of the variance of the data.
- 10 The countries' locations for 1995 are plotted jointly with the 2010 positions (as supplementary cases) to analyse their positional changes over time.
- 11 Norway performs ecologically well in 1995 but considerably worse in 2010.
- 12 The relatively ‘good’ performance of France is co-determined by an overproportional use of nuclear energy.

- 13 The position and the positional shift of a country is always relative to all other twenty-nine countries. Hence, changes in a country's position in relation to, for example, CO₂ emissions per head, do not necessarily reflect an improvement or decline in absolute terms. The positional change may also have occurred due to changes in CO₂ emissions of other countries.
- 14 We analyse twenty countries that are included in the integrated data set (ISSP Research Group, 2012) (see Figures 4–6). Additionally, we use data sets for Australia (Evans, 2014), the Netherlands (Ganzeboom, 2014), and Portugal (Vala and Ramos, 2014) which were not yet included in the integrated file at the time of our analyses.

References

- Arts, W. and Gelissen, J. (2002), 'Three worlds of welfare capitalism or more? A state-of-the-art report', *Journal of European Social Policy*, 12: 2, 137–58.
- Blasius, J. and Graeff, P. (2009), 'Economic freedom, wealth and corruption: analyzing their empirical connection by means of correspondence analysis', in P. Graeff and G. Mehlkop (eds.), *Capitalism, Democracy and the Prevention of War and Poverty*, London: Routledge.
- Blasius, J. and Greenacre, M. (2006), 'Multiple correspondence analysis and related methods in practice', in M. Greenacre and J. Blasius (eds.), *Multiple Correspondence Analysis and Related Methods*, Boca Raton, FL: Chapman & Hall.
- Borucke, M., Moore, D., Cranston, G., Gracey, K., Iha, K., Larson, J., Lazarus, E., Morales, J. C., Wackernagel, M. and Galli, A. (2013), 'Accounting for demand and supply of the biosphere's regenerative capacity: the National Footprint Accounts' underlying methodology and framework', *Ecological Indicators*, 24: 518–33.
- Bourdieu, P. (1984), *Distinction: A Social Critique of the Judgement of Taste*, Harvard: Harvard University Press.
- Büchs, M., Bardsley, N. and Duwe, S. (2012), 'Who bears the brunt? Distributional effects of climate change mitigation policies', *Critical Social Policy*, 31: 2, 285–307.
- Christoff, P. and Eckersley, R. (2011), 'Comparing state responses', in J. Dryzek, R. Norgaard and D. Schlosberg (eds.), *Oxford Handbook of Climate Change and Society*, Oxford: Oxford University Press.
- Daly, H. and Farley, J. (2009), *Ecological Economics: Principles and Applications*, Washington, DC: Island Press.
- Dryzek, J., Downes, D., Hunhold, C., Schlosberg, D. and Hernes, H. (2003), *Green States and Social Movements: Environmentalism in the United States, United Kingdom, Germany and Norway*, Oxford: Oxford University Press.
- Dryzek, J. S. (2008), 'The ecological crisis of the welfare state', in I. Gough, J. Meadowcroft, J. Dryzek, J. Gerhards, H. Lengfield, A. Markandya and R. Ortiz (eds.), JESP symposium: climate change and social policy', *Journal of European Social Policy*, 18: 325.
- Esping Andersen, G. (1990), *The Three Worlds of Welfare Capitalism*, Cambridge: Polity Press.
- EUROSTAT (2013), Online statistical databases at <http://epp.eurostat.ec.europa.eu> (accessed between 8 and 12 of April 2013).
- Evans, A. (2014), 'International Social Survey Programme: Environment III – ISSP 2010 (Australia)', GESIS Data Archive, Cologne, ZA5512 Data file Version 1.0.0, doi:10.4232/1.11791.
- Ferragina, E. and Seelab-Kaiser, M. (2011) 'Thematic review: welfare regime debate – past, present, futures?', *Policy and Politics*, 39: 4, 583–611.
- Ferrara, M. (1996) 'The "Southern" model of welfare in social Europe', *Journal of European Social Policy*, 6: 1, 17–37.
- Fitzpatrick, T. (2011), *Understanding the Environment and Social Policy*, Bristol: Policy Press.
- Ganzeboom, H. (2014), 'International Social Survey Programme: Environment III – ISSP 2010 (Netherlands)', GESIS Data Archive, Cologne, ZA5513 Data file Version 1.0.0, doi:10.4232/1.11792.

- Global Footprint Network (2014), 'Country trend figures', www.footprintnetwork.org (accessed between 16 and 17 January 2014).
- Goodman, R. and Peng, I. (1996) 'The East Asian welfare states: peripatetic learning, adaptive changes, and nation building', in Esping-Andersen, G. (ed.), *Welfare States in Transition: National Adaptations in Global Economies*, London: Sage.
- Görg, C. (2003), *Regulation der Naturverhältnisse: Zu einer kritischen Theorie der ökologischen Krise*, Münster: Westfälisches Dampfboot.
- Gough, I. (2010), 'Economic crisis, climate change and the future of welfare states', *21st Century Society*, 5: 1, 51–64.
- Gough, I. (2013), 'Carbon mitigation policies, distributional dilemmas and social policies', *Journal of Social Policy*, 42: 2, 191–213.
- Gough, I., Meadowcroft, J., Dryzek, J., Gerhards, J., Lengfield, H., Markandya, A. and Ortiz, R. (2008), 'JESP symposium: climate change and social policy', *Journal of European Social Policy*, 18: 4, 325–44.
- Gough, I. and Meadowcroft, J. (2011), 'Decarbonising the welfare state', in J. Dryzek, R. Norgaard and D. Schlosberg (eds.) *Oxford Handbook of Climate Change and Society*, Oxford: Oxford University Press.
- Greenacre, M. (2007), *Correspondence Analysis in Practice*, 2nd edn, Boca Raton, FL: Chapman & Hall.
- Holliday and Wilding (eds) (2003), *Welfare Capitalism in East Asia: Social Policy in the Tiger Economies*, Basingstoke: Palgrave Macmillan.
- ISSP Research Group (2012), 'International Social Survey Programme: Environment III – ISSP 2010', GESIS Dataarchive, Cologne. ZA5500 Datafile Version 2.0.0, doi:10.4232/1.11418.
- Jackson, T. (2009), *Prosperity Without Growth? Economics for a Future Planet*, London: Earthscan.
- Jacobs, M. (2012), 'Green growth: economic theory and political discourse', Working Paper No. 108, Centre for Climate Change Economics and Policy, London.
- Jones, C. (1993), 'The Pacific challenge: Confucian welfare states', in C. Jones (ed.), *New Perspectives on the Welfare State in Europe*, London: Routledge.
- Koch, M. (2012), *Capitalism and Climate Change: Theoretical Analysis, Historical Development and Policy Responses*, Basingstoke: Palgrave Macmillan.
- Koch, M. (2013), 'Welfare after growth: theoretical discussion and policy implications', *International Journal of Social Quality*, 3: 1, 4–20.
- Koch, M. (2014), 'Climate change, carbon trading and societal self-defence', *Real-World Economics Review*, No. 67: 52–66.
- Liefferink, D., Arts, B., Kamstra, J. and Ooijevaar, J. (2009), 'Leaders and laggards in environmental policy: a quantitative analysis of domestic policy inputs', *Journal of European Public Policies*, 16: 5, 677–700.
- Meadowcroft, J. (2005), 'From welfare state to ecostate', in J. Barry and R. Eckersley (eds.), *The State and the Global Ecological Crisis*, Cambridge, MA: MIT Press.
- Meadowcroft, J. (2008), 'From welfare state to environmental state?', in I. Gough, J. Meadowcroft, J. Dryzek, J. Gerhards, H. Lengfield, A. Markandya and R. Ortiz (eds.), 'JESP symposium: climate change and social policy', *Journal of European Social Policy*, 18: 331.
- OECD (2014), OECD.StatExtracts and indicators on green growth, <http://stats.oecd.org/> (accessed between 13 and 15 January 2014).
- Pye, S., Skinner, I., Meyer-Ohlendorf, N., Leipprand, A., Lucas, K. and Salmons, R. (2008), *Addressing the Social Dimensions of Environmental Policy*, Unit E1 – Social and Demographic Analysis, DG Employment, Social Affairs and Equal Opportunities, Brussels: European Commission.
- Scruggs, L. E. (1999), 'Institutions and environmental performance in seventeen Western democracies', *British Journal of Political Science*, 29: 1, 1–31.
- Sung, S. and Pascall, G. (2014) 'Introduction: gender and welfare states in East Asia', in S. Sung and G. Pascall (eds.), *Gender and Welfare States in East Asia: Confucianism or Gender Equality?* Basingstoke: Palgrave Macmillan.

- Vala, J. and Ramos, A. (2014), 'International Social Survey Programme: Environment III – ISSP 2010 (Portugal)', GESIS Data Archive, Cologne, ZA5516 Data file Version 1.0.0, doi:10.4232/1.11793.
- Victor, P. A. (2008), *Managing without Growth: Slower by Design, not Disaster*, Cheltenham: Edward Elgar.
- Walker, G. (2012), *Environmental Justice: Concepts, Evidence and Politics*, London: Routledge.
- Wilkinson, R. and Pickett, K. (2010), *The Spirit Level: Why Equality is Better for Everyone*, London: Penguin.
- WWF (2012), *Living Planet Report 2012*, Gland, Switzerland: WWF International.
- The World Bank (2014), 'World development indicators', available online at <http://data.worldbank.org/> (accessed on 13 January 2014).

APPENDIX

TABLE A1. Macro data tables 1995 and 2010: indicators used in the correspondence analyses

1995	GINI ¹	Social expenditures ⁹	Renewable energy ¹³	Environmental taxes ¹⁴	CO ₂ emissions ¹⁵	Ecological footprint ¹⁶	GDP ¹⁷
Australia	30.9 ²	18.67 ¹⁰	9.6	2.6	17.01	7.0	20,906
Austria	27.0	27.98	70.6	2.1	7.77	4.6	23,483
Belgium	29.0	25.87	1.9	2.3	11.15	7.7	22,438
Canada	28.9 ²	20.90 ¹⁰	61.0	1.7	15.66	6.5	22,697
Czech Republic	25.7 ^{2,3}	16.11	4.0	2.8	12.11	4.6	13,379
Denmark	20.0	31.01	5.8	4.4	10.54	8.7	22,935
Estonia	30.1 ⁴	15.16 ¹¹	0.1	0.8	11.66	4.4	6,315
Finland	22.0 ³	30.56	30.5	2.9	10.34	5.8	18,768
France	29.0	28.66	15.4	2.4	6.60	4.9	20,169
Germany	29.0	27.19	5.9	2.4	10.60	4.9	22,446
Greece	35.0	19.23	8.9	2.5	7.45	4.3	14,518
Hungary	29.4 ²	20.21 ¹¹	0.8	2.8	5.81	3.1	8,971
Ireland	33.0	17.75	4.1	3.0	9.11	5.5	18,059
Italy	33.0	23.13	17.7	3.8	7.72	4.5	21,180
Japan	32.3 ²	17.55 ^{10,12}	10.2	1.7	9.44	4.8	22,893
Luxembourg	29.0	20.01	29.0	3.0	20.43	9.5	38,866
Netherlands	29.0	28.91	2.8	3.4	11.40	6.8	21,513
New Zealand	33.5 ²	16.60 ^{10,12}	83.9	1.7	7.36	5.1 ⁶	17,772
Norway	24.3 ²	25.93	99.7	3.5	8.01	5.1 ⁶	23,546
Poland	32.7 ^{3,4}	19.13 ⁷	1.6	1.4	8.99	3.6	7,407
Portugal	37.0	18.47	28.3	3.4	5.18	5.0	13,461
Slovak Republic	25.8 ^{3,4}	17.94	18.5	2.4	8.11	3.3	8,299
Slovenia	29.2 ^{4,5}	22.80 ³	25.2	0.0	7.23	3.7	13,000
South Korea	31.2 ⁶	05.37 ¹⁰	1.7	2.2	8.31	3.8	12,465
Spain	34.0	20.93	14.9	2.2	6.14	4.3	15,959
Sweden	21.1 ²	33.08	47.6	2.9	5.75	5.9	21,824
Switzerland	33.7 ^{4,7}	21.33	58.3	1.9	5.57	4.8	27,404
Turkey	49.0 ^{2,8}	21.50 ⁶	41.6	1.2	2.92	2.2	5,403

TABLE A1. Continued.

1995	GINI ¹	Social expenditures ⁹	Renewable energy ¹³	Environmental taxes ¹⁴	CO ₂ emissions ¹⁵	Ecological footprint ¹⁶	GDP ¹⁷
United Kingdom	32.0	26.12	2.2	2.8	9.73	4.6	20,082
United States	36.1 ²	22.7 ^{2,10}	11.1	1.1	19.67	7.5	28,782

Notes: ¹ GINI Coefficient for income inequality, EUROSTAT ([2013](#)).

² OECD.StatExtracts as of 13.1.2014.

³ Due to incomplete time series, we use data from 1996.

⁴ The World Bank: World Development Indicators as of 13.1.2014.

⁵ Due to incomplete time series, we use data from 1993.

⁶ Replaced with mean due to incomplete time series or otherwise missing value.

⁷ Due to incomplete time series, we use data from 2000.

⁸ Due to incomplete time series, we use data from 1994.

⁹ Expenditures for Social Protection as per cent of GDP (all systems and functions), EUROSTAT as of 11.4.2013.

¹⁰ OECD.StatExtracts as of 14.1.2014.

¹¹ Due to incomplete time series, we use data from 1999.

¹² Due to incomplete time series, we use data from 1997.

¹³ Share of renewable energy in electricity production generation, Source: OECD, indicators on green growth, as of 14–15.1.2014.

¹⁴ Total environmentally related taxes as per cent of GDP, OECD, indicators on green growth, as of 14–15.1.2014.

¹⁵ Metric tons per capita, The World Bank as of 13.1.2014.

¹⁶ The Ecological Footprint per person in a country ‘measures human appropriation ... of ecosystem product and services’, in terms of a, ‘world average bioproducing area, referred to as global hectares (gha)’ (Borucke *et al.*, [2013](#)). It includes cropland, grazing land, fishing ground, forest land, carbon uptake land and built-up land. For details on the construction of that indicator, see Borucke *et al.*, [2013](#). Source: country trend figures of the Global Footprint Network (www.footprintnetwork.org as of 16–17.1.2014).

¹⁷ Gross Domestic Product per capita, PPP (current international \$), The World Bank as of 13.1.2014.

2010	GINI ¹	Social expenditures ⁵	Renewable energy ⁸	Environmental taxes ⁹	CO ₂ emissions ¹⁰	Ecological footprint ¹¹	GDP ¹³
Australia	33.4 ²	19.57 ^{3,6}	8.9	1.8	16.91	5.0	39,093
Austria	26.1	29.51	67.1	2.5	7.97	5.2	40,227
Belgium	26.6	28.40	8.3	2.0	10.00	7.4	37,793
Canada	32.0 ²	23.27 ^{3,6}	60.9	1.2	14.63	6.0	39,075
Czech Republic	25.6 ²	19.49	6.9	2.8	10.62	4.7	25,300
Denmark	26.9	32.41	33.9	4.1	8.35	7.7	40,588

TABLE A1. Continued.

2010	GINI ¹	Social expenditures ⁵	Renewable energy ⁸	Environmental taxes ⁹	CO ₂ emissions ¹⁰	Ecological footprint ¹¹	GDP ¹³
Estonia	31.9 ²	17.88	8.1	2.9	13.68	5.0	20,160
Finland	25.4	29.74	30.3	2.8	11.53	5.7	36,015
France	29.8	32.04	14.2	1.8	5.56	4.9	34,276
Germany	29.3	29.44	18.1	2.2	9.11	4.5	37,633
Greece	32.9	28.16	18.6	2.7	7.67	4.7	27,539
Hungary	27.2 ^{2,3}	22.55	8.5	2.9	5.06	3.0	20,552
Ireland	33.2	28.33	13.1	2.5	8.94	5.7	41,435
Italy	31.2	28.57	26.7	2.6	6.72	4.3	32,085
Japan	33.6 ^{2,3}	24.99 ^{3,6}	10.4	1.6	9.19	3.8	33,668
Luxembourg	27.9	22.30	9.7	2.4	21.36	15.0	83,483
Netherlands	25.5	30.19	10.9	3.8	10.96	6.0	41,535
New Zealand	31.7 ^{2,3}	19.44 ^{3,6}	73.3	1.4	7.22	4.3 ¹²	30,556
Norway	24.9 ²	25.12	95.9	2.5	11.70	4.8 ¹²	57,452
Poland	33.8 ⁴	18.63	7.1	1.9	8.31	4.1	20,036
Portugal	33.7	25.50	53.4	2.5	4.92	4.4	25,547
Slovak Republic	26.0 ^{3,4}	18.02	21.9	1.9	6.65	3.5	23,149
Slovenia	23.8	24.27	29.2	3.2	7.48	4.0	26,509
South Korea	31.0 ²	12.08 ^{3,6}	1.3	2.8	11.49	4.3	28,613
Spain	33.9	25.19	32.8	1.7	5.85	4.3	31,476
Sweden	26.9 ²	29.90	56.1	2.7	5.60	5.3	39,251
Switzerland	29.6	24.19	58.4	2.0	4.95	5.0	48,580
Turkey	41.1 ^{2,3}	24.17 ⁷	26.4	3.9	4.13	2.5	15,965
United Kingdom	33.0	27.15	7.2	2.6	7.93	4.5	35,752
United States	38.0 ²	28.82 ^{3,6}	10.5	0.8	17.56	7.0	48,358

¹ GINI Coefficient for income inequality, EUROSTAT ([2013](#)).² OECD.StatExtracts as of 13.1.2014.³ Due to incomplete time series, we use data from 2009.⁴ The World Bank: World Development Indicators as of 13.1.2014.⁵ Expenditures for Social Protection as per cent of GDP (all systems and functions), EUROSTAT ([2013](#)).⁶ OECD.StatExtracts as of 14.1.2014.⁷ Replaced with mean due to incomplete time series or otherwise missing value.⁸ Share of renewable energy in electricity production generation, Source: OECD, indicators on green growth, as of 14–15.1.2014.⁹ Total environmentally related taxes as per cent of GDP, OECD, indicators on green growth, as of 14–15.1.2014.¹⁰ Metric tons per capita, The World Bank as of 13.1.2014.¹¹ Country trend figures of the Global Footprint Network (www.footprintnetwork.org) as of 16–17.1.2014.¹² Ecological footprint from 2008, WWF ([2012](#)).¹³ Gross Domestic Product per capita, PPP (current international \$), The World Bank as of 13.1.2014.