Environmental Behaviours in the Czech Republic, Austria and Germany between 1993 and 2010: Macro-Level Trends and Individual-Level Determinants Compared*

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Abstract: Comparing environmental behaviours in the neighbouring countries of Austria, the Czech Republic and Germany, this article discusses the national and individual level determinants of private and public environmental actions. For this purpose, survey data collected by the International Social Survey Programme (ISSP) in 1993, 2000 and 2010 are analysed. The analysis reveals that values are more important for public behaviour and socio-demographics are more important for private behaviour. At the macro-level, an initial gap can be reported: Public and private behaviours were less frequent in the Czech Republic and also to a certain extent in East Germany. The gap between these former socialist countries and Austria and Germany has decreased over time. The convergence, however, happens at an overall low level of public behaviour and an overall high level of private behaviour.

Keywords: environmental behaviour, environmental values, international comparison, Austria, Czech Republic, Germany
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Introduction

International comparisons of individual environmentalism focus frequently on differences in concerns, identities, and values [see, for example, Xiao and Dunlap 2007; Dunlap and York 2008; Franzen and Meyer 2010]. Cross-cultural differences in environmental behaviour, on the other hand, have been studied less frequently [but see Hunter, Hatch and Johnson 2004; Gillham 2008; Hadler and Haller 2011]. This article considers environmental behaviour and contributes to this literature

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by comparing environmental behaviours in Austria, Germany, and the Czech Republic both cross-culturally and over time.

Following Stern's classification [2000], we distinguish between public and private environmental behaviours. Public behaviour refers to political actions such as protesting and petitioning—activities typically related to the environmental movement. Private behaviour refers to activities such as buying environmentally friendly products or using public transportation instead of one's own car. Such private behaviours are also linked to environmental organisations: for example, the webpage of Greenpeace (www.greenpeace.org) offers advice to individuals on how to make their life greener by saving energy, buying organic produce, and many more suggestions. This idea of social movements reaching out to private life is addressed in the new social movements (NSM) literature that characterises NSM as extending politics to everyday life and not just targeting the political system [Cohen and Kenney 2000; Buechler 2000; Mertig and Dunlap 2001]. Given this relation of private and public behaviour to environmental movements, we draw upon social movement literature in this article. Further, as research has shown that participation in movements also alters values, beliefs and the lifestyle of participants [Sherkat and Blocker 1997], supporting environmental movements publicly and showing private actions, thus, can be considered two sides of the same coin, or, more precisely, of the same individual.

An individual's motivation to engage in movement-related actions is considered either a rational deliberation of benefits and costs within traditional resource mobilisation approaches [McCarthy and Zald 1977; McAdam 1982; McAdam, Tarrow and Tilly 2001] or an expression of identities, values, and beliefs within new social movement approaches [Kriesi et al. 1995; Mertig and Dunlap 2001]. Beyond the individual level, support and participation are also shaped by the national and transnational context. Austria, Germany and the Czech Republic present ideal cases for studying different contextual influences. On one hand, as neighbouring Central European countries, they share much of their history and face similar environmental problems. On the other hand, communist rule in East Germany and the Czech Republic from 1945 to 1989 imposed a big divide between these countries and affected many aspects of these societies. This is of particular importance for environmental behaviour, as these decades were the nascent period of the modern environmental movement in Western democracies, while they remained less visible in socialist countries. Consequently, public and private environmental behaviours were less frequent in post-communist countries in 1993 [Hunter, Hatch and Johnson 2004]. In recent decades, however, accelerated Europeanisation and a more active global civil society should have diminished differences between these countries. The central research hypothesis at the macro-level is that the prevalence of environmental behaviours has become more similar across our countries over the past two decades.

This article is organised as follows: The individual aspects of participation are discussed in the next section, followed by a depiction of developments at

the global and national level and their influence on environmental actions. The research methods and data section introduces the ISSP data used in the analyses. The results section first summarises the trends at the aggregated level of environmental behaviours and attitudes since 1993, and then scrutinises individual-level influences. In the end we compare our results to our research hypotheses and draw some conclusions.

Individual-level explanations

A core question is why do individuals become active and engage in public and private environmental actions? The first obvious answer is a 'challenge response' [Inglehart 1995], when individuals react to environmental pollution and threats. Given the time period under investigation (1993–2010), the main focuses of public discussions have been nuclear power after Chernobyl, the depletion of the ozone layer, mad cow disease, the genetic modification of crops, plants, and animals, acid rain and water pollution, endangered species and the rainforest, urban smog, and most recently climate change. This brief—and certainly not exhaustive—overview shows that various kinds of topics have been salient and offered plenty of reasons for participation.

The plethora of topics is in line with the basic assumption of resource mobilisation theory that grievances are omnipresent and that it is resources, either political or economic, that are decisive for the development of and the participation in social movements. Resource mobilisation theories consequently emphasise either economic resources [McCarthy and Zald 1977] or political resources [McAdam 1982; McAdam, Tarrow and Tilly 2001; Tilly 1978, 2004] to explain activism. Resources are more ample within cities, and movements have consequently more often been started and sustained in urban areas. Individual participation tends to be explained using the rational actor model. In this regard the first step is that individuals claim agency and overcome what Olson [1965] described as the free-rider problem. This is more likely when individuals think that they have a chance of achieving their goals and anticipate more benefits than costs. As pointed out within the biographical availability thesis [McAdam 1986], personal constraints that increase the costs of participation, lower the likelihood of participation. An individual, therefore, is likely to be less active in environmental behaviours if she or he faces constraints such as work and family obligations. Tasks such as taking care of children are more often performed by women and constrain them to the household. Consequently, gender is an important mediating factor. Research has shown that women are more often engaged in private behaviour than men, while differences are less clear in public behaviour [Hunter, Hatch and Johnson 2004]. Equally important when considering the instrumental side of human decisions are the individual assessment of environmental risks and the knowledge of environmental problems. Overall, individuals will focus on environmental actions that are socially preferable and display them in a positive light; with conscious-

ness being particularly important in low-cost situations [Diekmann and Preisendörfer 1998]. Based on these considerations of resource mobilisation theory we can formulate the following hypothesis:

Hypothesis (1): Environmental behaviours are more common in urban areas, where individuals claim agency, know environmental problems, are ready to make sacrifices and are not fatalistic about their efforts, assess environmental risks as high and face few biographical constraints.

NSM theories comprise a wide range of approaches that question the rational actor assumption of resource mobilisation theories [Buechler 2000]. These approaches consider the emergence of recent movements such as the environmental movement as a reaction to modernisation processes. In fact, early environmental movements were suspicious of modern technology and its impact on the environment—views that cumulated in the strong opposition to nuclear power [Cotgrove and Duff 2009]. In contrast to rational choice approaches, NSM literature emphasises ideology, culture and values [Dietz and Showm 2005; Polletta and Jaspers 2001]. Participation in ecological movements is discussed as an expression of values, such as the new environmental paradigm that assumes that the environment itself is sacred, and of shared collective identities. As for the influence of socio-structural characteristics, participation in new social movements is seen as more likely among the new social class, which consists mostly of educated individuals [Mertig and Dunlap 2001]. At the same time, this new social class is also considered to hold postmaterialistic values—another alleged determinant of environmental behaviour. Ronald Inglehart's [1990, 1995] postmaterialism thesis asserts that increasing affluence causes a value change towards postmaterialism and that postmaterialists are more likely to join environmental movements while materialists support labour movements. These considerations lead us to the following hypothesis:

Hypothesis (2): Environmental behaviours are more common among members of the new social class and individuals that hold related values such as modernisation scepticism and postmaterialism.

The global and the national context

Many environmental problems such as climate change, ozone depletion, and endangered species have become global problems or have an inherently global dimension. Similarly, environmental concern and actions have also become a global phenomenon in recent decades and are no longer limited to wealthy nations [Dunlap and York 2008]. This global proliferation of environmental concern can be attributed to forces such as the development of a global civil society [della Porta

and Tarrow 2005; Wapner 2007], increasing societal affluence and its effects on resources [Edwards and McCarthy 2004] and individual values [Inglehart 1995], and increasing political opportunities [Gillham 2008; Hadler and Haller 2011].

The development of a global civil society has been one of the most prominent changes of the recent past. Various governmental and non-governmental organisations have created a network that takes action on topics such as human rights, animal rights, environmental issues, and more [Florini 2000]. Environmental issues are considered a central part of this civil society given the numerous well-established international treaties and agreements that exist on these issues [Frank, Hironaka and Schofer 2000]. As for environmental behaviour, in line with the institutionalist idea that individual actions reflect the institutional embedding of an actor, the presence of these international organisations also influences support for environmental movements [Longhofer and Schofer 2011]. Austria, the Czech Republic, and Germany are well embedded in this international civil society,[1] and that should lead to higher rates of environmental activism. On the other hand, it is not just formal environmental organisations such as Greenpeace that influence actions, but increasingly also loose networks of actors that are organised through social networks and new media [Smith 2007]. These loose networks of transnational activists have created membership problems for old, established organisations such as Greenpeace. The eroding support for institutionalised organisations fits well with the global picture of decreasing support for any authoritarian form of policy and declining membership in formal organisations and associations [Norris 1999; Putnam 2000]. We, therefore, could also see contradictory trends, in the sense of the increasing prevalence of environmental actions but the simultaneous erosion of support for formal organisations.

Taking into account the resources aspect of social movement mobilisation and participation [Rootes 2003; Edwards and McCarthy 2004], a comparison of countries shows that the availability of material means is closely related to societal wealth. As with international embedding, the level of affluence was lower in the Czech Republic than in Austria and Germany in the early 1990s. However, it has increased in all three countries over the past twenty years.[2] Since research has shown that environmental behaviour is more common in affluent societies [Gillham 2008; Hadler and Haller 2011], we can also expect that private and public en-

[1] According to data from the Union of International Associations [UIA 2008], the number of INGOs (Type A-K) increased substantially between 1990 and 2007: from about 2700 to 5200 in Austria, from about 1400 to 4000 in the Czech Republic (1990 data for Czechoslovakia), and from about 5200 to 7300 in Germany. The UIA [2008: 41] defines country participation as 'the number of organizations of which a country . . . is a member, whether directly or through the presence of members in this country'.

[2] According to OECD [2012] data, per capita GDP (in USD, ppp) increased between 1990 and 2010 from 19k to 39k in Austria, from 18k to 36k in Germany, and from 12k to 26k in the Czech Republic (1990 data for Czechoslovakia).

vironmental actions also increased in our three countries. Increasing wealth, however, is not just an important resource; it can also trigger a value change, as noted in Inglehart's [1995, 2000] postmaterialism thesis. Here the assumption is that postmaterialists and supporters of the environmental movement—as an outcome of underlying values—are more prevalent in wealthier societies. The prevalence of postmaterialists, however, also depends on short-term effects such as brief economic hardship. Considering the unemployment rate [OECD 2012] as an indicator of economic hardship, the early 1990s were characterised by rising unemployment rates in Austria, Germany and also the Czech Republic. The data used in this article, from the International Social Survey Programme's Environment module of 1993, 2000 and 2010, were collected in different economic climates: The 1993 survey was conducted during a less prosperous period. Similarly, the 2010 module was conducted after the 2007 economic crisis in a phase of rising unemployment rates. The second wave of the survey, on the other hand, was conducted during an era of low unemployment in Austria and Germany, while unemployment was still rather high in the Czech Republic and dropped only later. Considering possible short-term effects, we would expect particularly high rates of environmental activism in Austria and Germany during the second wave.

A final aspect is political opportunity structures. Environmental movements and public support started in Western democracies, which offered more favourable political opportunities than socialist countries [Jones 1993; Dalton 1994; Manning 1998; Fagan 2004; Gillham 2008]. With the fall of the Iron Curtain in 1989 and accelerated Europeanisation, the political opportunity structures in the countries under observation here became more similar. Attitudes and behaviours, however, do not change immediately and differences in environmental behaviours and attitudes were still observable in 1993 and 2000: The population of former communist countries showed lower environmental concern and smaller differences between men and women's environmental behaviour [see Hunter, Hatch and Johnson 2004; Haller and Hadler 2008].

The following paragraphs discuss the development of environmental movements in Austria, Germany and the Czech Republic, as these movements are at the core of environmental action and reflect the significance and spread of environmentalism within a society. In doing this, the political significance of Green parties will be addressed as well, as they can be considered institutionalised environmental movements [Rootes 2003] and important political allies for any activists and are associated with strong activism and concern [Hadler and Haller 2011].

In the Czech Republic, the environmental movement has roots that predate the fall of the Iron Curtain, but it had its main start after the breakdown of the socialist system [see Fagan 2004]. The initially increased political opportunities, however, were somewhat hampered under the rule of Václav Klaus (1992–1997). Klaus likened environmental movements to terrorist organisations, and he insisted, for example, on the construction of the nuclear power plant in Temelín. More recently, the Green Party has had some political successes, getting a senator into

the upper house (1996) and members into the lower chamber, and they were even part of the government from 2007 to 2009. Most recently, however, these seats were lost again. Despite this recent defeat, political opportunities have certainly increased since the early 1990s.

As for Germany, environmental movements have been active in both the western and the eastern part [see Jones 1993; Markham 2008]. In West Germany, these movements accelerated in the 1980s through protests against nuclear power plants, airport extensions and the Rhine-Danube channel. Like in many other countries, they became part of the political system in the aftermath of these confrontations. The Green Party won seats in the federal Bundestag for the first time in 1983 and was even part of the government between 1998 and 2005. In East Germany, the environmental movement was active quite early as well and, unlike in other former socialist countries, it even existed during the last decade of the former regime. Reunification with West Germany accelerated the institutionalisation of environmental issues because the East was merging with a state that already had strict environmental laws and institutions. Interestingly, however, after reunification with West Germany, the Green Party only managed to remain in the Bundestag with the support of the eastern part of Germany since it failed to achieve the 5% threshold in the western part.

Austria, like many other countries, experienced an economic boom after the Second World War that was accompanied by little emphasis on environmental protection. Environmental issues, however, became more relevant in the 1970s and 1980s. The 1979 public vote not to turn on the new nuclear power plant in Zwentendorf and the 1984 protest against the construction of a hydro power plant near Vienna can be considered the pivotal events that gave rise to the environmental movement in Austria and the formation of the Green Party [see Haller and Troy 2003; Pesendorfer 2007]. The Austrian Green Party has been part of the national parliament since 1986 and has had an influence on national politics despite never being part of the federal government. The 1980s and early 1990s were a period of strong environmental politics; environmentalism, however, lost its power during the 1990s when the focus shifted to economic competitiveness. In addition, the Austrian Ministry of the Environment was merged with the Ministry of Agriculture and the Ministry of Forestry by recent conservative governments (2000–2007) and has not been re-established as an independent ministry since. At the provincial 'Bundesländer' level, on the other hand, Green parties have become more important and partake in local and provincial governments.

This discussion of changes at the global and national level—increasing civil society, wealth, and political opportunities—leads us to formulate the following hypothesis:

Hypothesis (3): Environmental behaviours have become more common over the past two decades, but at the same time, because of the differences between countries, environmental behaviours can be expected to be less prevalent in former socialist countries.

Research methods and data

Our analysis of environmental behaviours is based on survey data that were collected by the International Social Survey Programme in 1993, 2000, and 2010 (www.ISSP.org) [see Haller, Jowell and Smith 2009]. ISSP data are collected independently in each country; only random sampling methods are allowed, the goal being to achieve representative samples of adult populations. Data are merged after the surveys and made available at www.gesis.org. The actual fieldwork in our three countries was done in 1993, 2000, and 2010 in the Czech Republic (sample sizes: 1005, 1244, and 1428), West Germany (sample sizes: 1014, 974, and 989), and East Germany (sample sizes: 1092, 527, and 418); and in 1994/1995, 2001, and 2010 in Austria (sample sizes: 977, 1011, and 1090). Each module includes 60 questions on environmental behaviour and attitudes, and about 40 were asked in all three waves. Only these items are considered in the present analysis.

Our dependent variables are two scales of environmental behaviour. Public behaviour comprises the following items: being a member of an environmental organisation, donating money, taking part in a demonstration, and signing a petition. All four questions have 'yes' and 'no' answers, the answers of each respondent were summed up and divided by the number of valid responses. Private behaviour consists of the two items: forgoing car driving and recycling of waste. The response categories are 'always', 'often', 'sometimes', and 'never' and 'no car or driver's license' and 'no recycling available' as additional options.[3] Again, the individual responses are summed up and divided by the total number of valid responses. Respondents who do not have a car or driver's license and for whom recycling is not available are excluded.[4] Following Hunter, Hatch and Johnson [2004], we are thus analysing the frequency of environmental behaviour given that a respondent has the opportunity to act. In order to have comparable models for private and public behaviour, we show and discuss only the models that include respondents with valid answers in both behaviours.

Independent variables include the following socio-demographic variables: gender; marital status; being economically active as a full-time worker or a part-time worker; subjective class on a six-point scale ranging from lower to upper class;[5]

[3] Our analysis is limited to these two items since only these two behavioural questions were asked in all three waves. The 2010 survey includes four more items on private behaviour: buying organic produce, reusing water, saving energy, and boycotting products. A factor analysis shows that all five items load on one factor—the two items are thus a good proxy for private environmental behaviour.

[4] The number of missing cases is less than 3% in all countries and time points but the Czech Republic in 1993, where about 20% of the respondents had no car and no recycling available. Considering this fact, the reported lag in private behaviours (see Figure 1) could be even larger.

[5] In 1993 and 2000 respondents were asked to classify themselves as (1) lower, (2) working, (3) lower-middle/upper-working, (4) middle, (5) upper middle, and (6) upper class.

age as a categorical variable with the following age groups: below 30, 30–44, 45–59, and 60 and older; education as a categorical variable based on a college education (yes/no) and alternatively as years spent in the school system; and the size of a person's hometown defined as an urban, suburban and rural categorical variable. The ISSP module includes several questions referring to different attitudinal and knowledge dimensions that were successfully used in environmental research [Oreg and Katz-Gerro 2006]. We applied explanatory factor analyses to these questions and derived several dimensions that are related to the dimensions named in our hypotheses. All scales are named in the same way as in Hadler and Haller [2011] to make results more easily comparable. Regarding instrumental rational choice decisions, scales of 'individual versus state agency', 'knowledge', 'willingness to make sacrifices', 'fatalism', and 'assessment of environmental risk' are considered. A detailed overview of these scales is provided in the appendix. Regarding more general values and attitudes, the dimension of modernisation scepticism is considered to capture this underlying attitude of early environmental activists. Further, we include postmaterialism by considering the items (1) 'maintain order in the nation', (2)'give people more say in government decisions', (3) 'fight rising prices', and (4) 'protect freedom of speech'. Respondents were asked what should be the highest priority in their country and afterwards what should be the second priority. Items 1 and 3 are considered materialistic items and 2 and 4 postmaterialistic items. Respondents who picked only materialistic items are coded as 'materialists'; those who chose a materialistic and a postmaterialistic item as 'mixed'; those who picked two postmaterialistic goals as 'postmaterialists'.[6]

The setup of our data, individuals nested within different countries at three different time points, calls for a hierarchical regression that considers country and time as upper levels. However, since only three countries are included, the minimum requirements in terms of the number of observations at the upper levels are not met. For this reason, separate regressions were estimated for each country. We estimated OLS regressions and, alternatively, IGLS models with robust standard errors and logistic regressions with being active in any of the behaviours of each dimension as the dependent variable. All methods yielded similar results. For the sake of easier readability, we decided to present the OLS results. Below, Table 1 and Table 2 show only the models with the pooled data for each country, with the year of the survey as an additional explanatory variable.

In 2010, this variable was replaced by a ten-point top-bottom measure asking respondents where they see themselves in terms of societal stratification. This top-bottom measure was recoded (1–2 = 1; 3–4 = 3; 4–6 = 4; 7–8 = 5; 9–10 = 6) and added to the subjective class variable.

[6] Alternatively, we coded postmaterialism also on a scale from 1 to 4 , based on the items a respondent selected, where 4 = two PM items selected, 3 = PM item first goal, M item second goal, 2 = M item first and PM second, and 1 = two M items.

As for missing cases, we use embedded variables—a specific type of interaction term for missing cases [see Hardy and Reynolds 2004]. This method[7] results in two regression parameters for each variable of interest. The first parameter indicates the effect of the variable of interest (e.g. education) on the dependent variable (e.g. private behaviour). The second parameter indicates the difference between repliers (e.g. education provided), and non-repliers (e.g. education missing) with regard to the dependent variable (e.g. private behaviour). This dual regressor procedure minimises the detrimental effect of having to drop cases lost due to non-response. Additionally, we can also see if the magnitude of behaviour differs between missing and valid cases. However, for easier readability, only the main effects are shown in the tables of this article. The full models and detailed results can be requested from the authors.

Changes in behaviours and attitudes

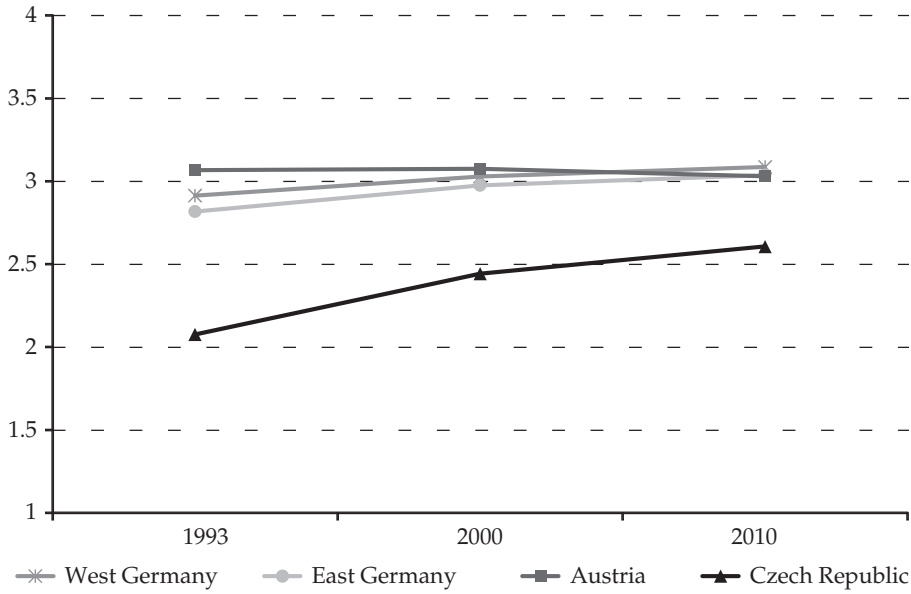
Figures 1 and 2 show the magnitude and changes in environmental behaviours in Austria, Germany and the Czech Republic.[8] The displayed values represent the mean values of each scale at the county level. Public behaviour can range between 1 (no actions at all) to 2 (partake in all actions) and private behaviour between 1 (no actions at all) and 4 (frequent recycling and giving up car driving). A higher value, therefore, in both graphs represents pro-environmental behaviour. The ranking of our countries matches our initial hypothesis: West Germans and Austrians most often engage in private and public environmental behaviour, followed by East Germans and Czechs. As for the changes over time, the differences decrease, but the trend differs for the two behaviours: Public behaviour converges at a very low level. Here, Germans and Austrians become more similar to Czechs. Private behaviour, on the other hand, converges at a higher level. Here, respondents in the Czech Republic are more like respondents in Austria and Germany.

Figure 3 shows the differences in attitudes across countries and their changes over time. As each dimension is scaled differently, values are standardised as

[7] First, a new dichotomous variable has to be created for each variable containing the information 'valid reply' and 'missing reply'. This variable is coded 1 if a respondent gave a valid reply and 0 if she or he did not answer (or the other way around). The variable of interest (e.g. education) also remains in the regression with missing cases coded as 0. Finally, an interaction term between this dichotomous variable and the variable of interest (e.g. education) is introduced in a regression. One of these three terms contains only zeros and is thus omitted from the regression.

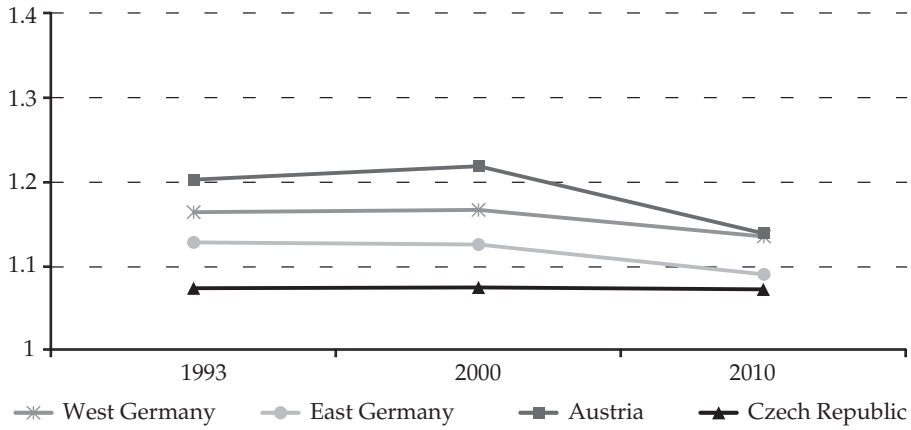
[8] Attributes such as 'low' and 'high' used in this article refer to the scores at the underlying scales and are not normative judgments. The judgment, for example, if 10% of a population being a member an environmental organisation is considered high or low rests within the individual reader.

Figure 1. Changes in private environmental behaviours since 1993



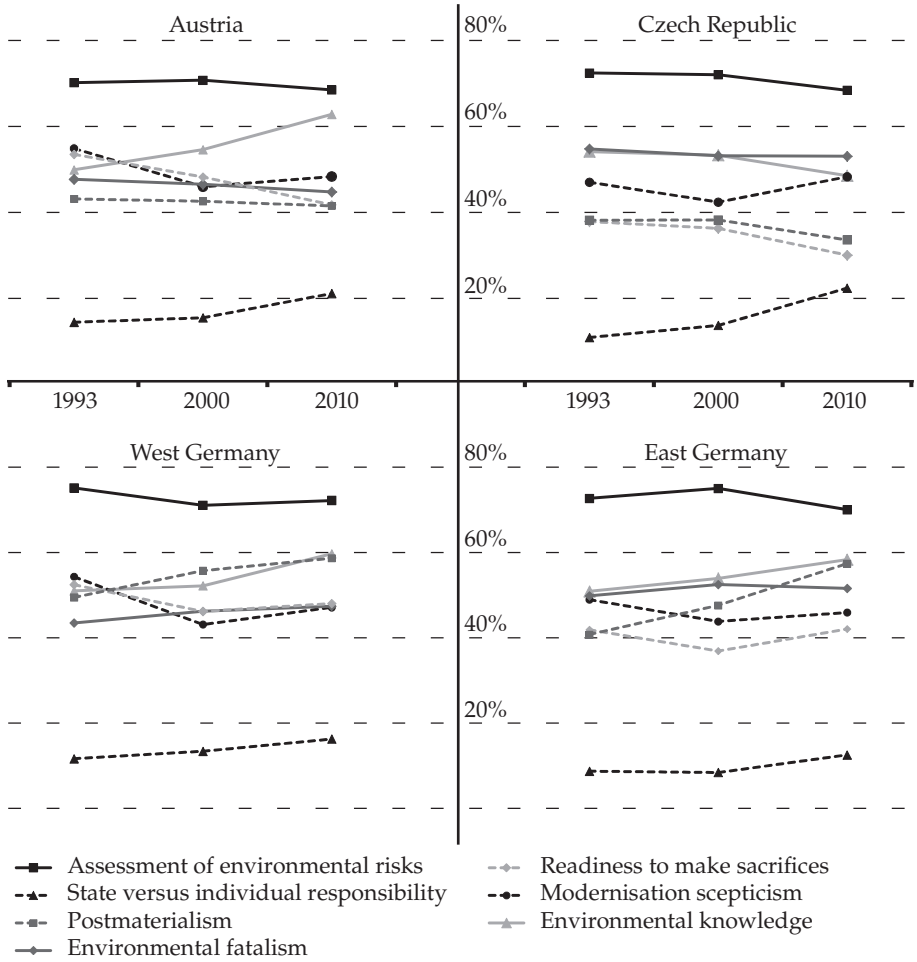
Notes: Data points represent the national mean values of the 'private behaviour' scale: minimum value 1 = no private behaviour; maximum value 4 = frequent private behaviour. See the methods and data section for additional information.
Source: ISSP 1993, 2000 and 2010.

Figure 2. Changes in public environmental behaviours since 1993



Notes: Data points represent the national mean values of the 'public behaviour' scale: minimum value 1 = no public behaviour; maximum value 2 = frequent public behaviour. See the methods and data section for additional information.
Source: ISSP 1993, 2000 and 2010.

Figure 3. Changes in attitudes and values since 1993



Note: For better comparability of the magnitude of each dimension, the values are standardised as a percentage of the range of each scale (see Footnote 9).
Source: ISSP 1993, 2000 and 2010.

a percentage of the range of each scale.[9] Within the given items and scales, risks are perceived as relatively high in all countries and this perception remains quite stable over time. 'State versus individual responsibility', on the other hand, has

[9] For example, the possible national mean values of 'knowledge' go from 1 to 4. The range is 3 and 60% of this range is 1.8. So in Figure 3, 60% represents a mean value of 2.8 on the knowledge scale. In the case of 'individual agency' with possible mean values between 1 and 2, 60% in Figure 3 represents a mean value of 1.6.

rather low values. The majority of the respondents, therefore, have a preference for the state as actor. Over time, however, we observe a substantial increase in the calls for individual responsibility. The remaining dimensions are located in the middle of this graph. Among these, fatalism is quite stable in all the countries, while modernisation scepticism decreases from 1993 to 2000 and bounces back in 2010. The trends of the remaining three dimensions are slightly different across our countries: Knowledge increases in Austria and both parts of Germany, but decreases in the Czech Republic. The willingness to make sacrifices becomes smaller in Austria, West Germany, and the Czech Republic, but remains stable in East Germany. Postmaterialism[10] increases in both parts of Germany, but has changed only little in Austria and the Czech Republic.

The individual-level determinants of environmental behaviour

The results discussed in the previous section are based on aggregated data and do not consider the influence of individual-level factors. Therefore, we will present the results of various OLS regressions that include individual socio-demographics, attitudes and values in this section. We present only the models for the pooled data set for each country—these are regressions that include the year of the survey as additional explanatory variable. Table 1 and 2 show the B values, their standardised Beta values, and their significance as well as the number of valid cases and the explained variances. Given that the dependent variables are scaled differently, only Beta values should be compared between Table 1 and Table 2.

Table 1 presents the results for private behaviour. As for the socio-demographics, age has a positive effect in all four countries—older individuals are more often active for the benefit of the environment. Education is significant only in West Germany, where better educated individuals recycle less often and use their car more often. The gender effect is significant in all countries, with private behaviour being more prevalent among women. Married people less often act for the benefit of the environment; this effect, however, is not significant in West Germany. Full-time workers do less for the environment (not significant in the Czech Republic). The same is true for part-time workers; this effect, however, is not significant in Austria. Subjective social class is significant in Austria only and indicates that private behaviour decreases with increasing subjective class. The size of the hometown is not significant in any country.

As for the instrumental values and aspects of behaviour, the perception of risks and the willingness to make sacrifices increase the likelihood of private environmental behaviour significantly in all countries. Fatalism has a negative effect on private behaviour and decreases its likelihood in all countries. Individuals who prefer individual responsibility over state agency are also less likely to

[10] Here measured as the mean value of scale 1 = materialist and 4 = postmaterialist as described in Footnote 6.

Table 1. Determinants of private environmental behaviour*

	A			G–W			G–E			CZ		
	B	β	Sig	B	β	Sig	B	β	Sig	B	β	Sig
2000	–.052	–.037		.183	.133	**	.159	.095	**	.329	.178	**
2010	.026	.019		.233	.167	**	.270	.145	**	.558	.314	**
Socio–demographics												
Age (to 29 years = ref)												
30 to 44 years	.079	.053	*	.078	.054	*	.138	.083	**	.077	.040	
45 to 59 years	.194	.131	**	.141	.095	**	.267	.162	**	.185	.095	**
over 59 years	.412	.281	**	.309	.215	**	.369	.222	**	.486	.237	**
Education (over 12 years)	.014	.009		–.079	–.050	*	–.002	–.001		.034	.019	
Female	.184	.138	**	.086	.066	**	.189	.128	**	.253	.144	**
Married	–.103	–.077	**	–.012	–.009		–.092	–.062	**	–.111	–.062	**
Work status (not active = ref)												
Full time	–.170	–.126	**	–.127	–.097	**	–.207	–.138	**	–.070	–.040	
Part time	–.053	–.025		–.089	–.042	*	–.184	–.056	*	–.256	–.054	**
Subjective class (low–high)	–.044	–.072	*	–.026	–.047		–.034	–.052		–.027	–.031	
Size of hometown (rural = ref)												
Urban region	–.012	–.009		.049	.034		–.026	–.015		–.072	–.037	
Suburban region	–.022	–.014		.007	.006		–.007	–.004		–.033	–.019	

Table 1. Determinants of private environmental behaviour*—continued

	A			G–W			G–E			CZ		
	B	β	Sig	B	β	Sig	B	β	Sig	B	β	Sig
Instrumental aspects/values												
Individual agency (state = ref)	–.076	–.037	*	–.035	–.016		–.182	–.061	**	–.104	–.035	*
Environmental knowledge	–.007	–.008		.005	.007		.032	.037		.047	.042	
Readiness to make sacrifices	.049	.069	**	.100	.145	**	.091	.120	**	.104	.113	**
Environmental fatalism	–.048	–.054	**	–.081	–.096	**	–.063	–.066	**	–.060	–.047	**
Assessment of envir. risks	.148	.132	**	.139	.129	**	.146	.117	**	.172	.115	**
General values												
Postmaterialism (mixed = ref)	.047	.024		–.029	–.020		–.024	–.011		–.104	–.032	
Materialism (mixed = ref)	–.019	–.012		–.074	–.043	*	.028	.016		–.012	–.007	
Modernisation scepticism	.028	.037	*	.043	.057	**	.062	.075	**	.010	.010	
R^2 (adj.) overall		.151			.138			.165			.176	
R^2 (adj.) socio-dem. only		.115			.066			.110			.128	
R^2 (adj.) values only		.035			.077			.082			.101	
N		2918			2780			1913			3244	

* Linear OLS regression, a pooled dataset of the three waves of the survey for each county, casewise deletion, also included but not shown: embedded variables for missing cases in education, class, postmaterialism and knowledge. All independent variables are coded low–high unless stated differently. The dependent variable can range between 1 and 4. Significance: * $p = .05$, ** $p = 0.01$; see the methods and data section for additional information.

Source: ISSP 1993, 2000, 2010.

Table 2. Determinants of public environmental behaviour*

	A			G–W			G–E			CZ		
	B	β	Sig	B	β	Sig	B	β	Sig	B	β	Sig
2000	.019	.034		.041	.080	**	–.003	–.007		.001	.002	
2010	–.065	–.119	**	–.024	–.046	*	–.048	–.092	**	.005	.014	
Socio–demographics												
Age (to 29 years = ref)												
30 to 44 years	.002	.004		.024	.045		–.021	–.044		.000	.001	
45 to 59 years	.030	.052	*	.017	.031		–.030	–.066		–.007	–.019	
over 59 years	–.004	–.007		–.004	–.007		–.034	–.073	*	–.026	–.066	**
Education (over 12 years)	.060	.098	**	.055	.093	**	.014	.026		.032	.096	**
Female	.013	.026		.010	.020		.001	.003		–.008	–.024	
Married	–.006	–.012		–.021	–.042	*	–.007	–.017		–.010	–.031	
Work status (not active = ref)												
Full time	.029	.055	*	.008	.017		–.007	–.017		–.013	–.039	
Part time	.024	.030		.029	.036		.030	.033		–.013	–.014	
Subjective class (low–high)	.024	.100	**	.011	.056		.008	.043		.001	.004	
Size of hometown (rural = ref)												
Urban region	.041	.075	**	.021	.038		.007	.015		.021	.058	**
Suburban region	.035	.055	**	.008	.017		.006	.014		.001	.004	

Table 2. Determinants of public environmental behaviour*—continued

	A			G–W			G–E			CZ		
	B	β	Sig	B	β	Sig	B	β	Sig	B	β	Sig
Instrumental aspects/values												
Individual agency (state = ref)	–.066	–.083	**	–.018	–.021		–.019	–.023		.006	.010	
Environmental knowledge	.027	.084	**	.021	.076	**	–.002	–.006		.007	.033	
Readiness to make sacrifices	.041	.148	**	.045	.174	**	.035	.162	**	.019	.109	**
Environmental fatalism	–.045	–.130	**	–.037	–.117	**	–.007	–.027		–.018	–.075	**
Assessment of envir. risks	.034	.078	**	.026	.065	**	.043	.122	**	.027	.096	**
General values												
Postmaterialism (mixed = ref)	.076	.099	**	.050	.091	**	.038	.065	**	.031	.051	**
Materialism (mixed = ref)	–.022	–.037	*	–.020	–.031		–.010	–.019		–.005	–.013	
Modernisation scepticism	–.011	–.035	*	.022	.079	**	–.002	–.009		.002	.010	
R^2 (adj.) overall		.202			.163			.079			.072	
R^2 (adj.) socio-dem. only		.102			.061			.018			.033	
R^2 (adj.) values only		.175			.147			.078			.056	
N		2918			2780			1913			3244	

* Linear OLS regression, a pooled dataset of the three waves of the survey for each county, casewise deletion, also included but not shown: embedded variables for missing cases in education, class, postmaterialism and knowledge. All independent variables are coded low–high unless stated differently. The dependent variable can range between 1 and 2. Significance: * $p = .05$, ** $p = .01$; see the methods and data section for additional information.

Source: ISSP 1993, 2000, 2010.

become active. This effect is significant in all the countries except West Germany. Knowledge, finally, does not have any significant effects. As regards more general values, postmaterialism yields rather inconsistent results. In West Germany, materialists are significantly less engaged in private environmental behaviour than individuals with mixed values. The same, however, is also true for postmaterialists albeit the effect is not significant.[11] In Austria, postmaterialists are more active and materialists less active; this effect, however, is significant only when these two groups are compared directly. In the former socialist countries, the Czech Republic and East Germany, postmaterialism has no significant effects at all. The second more general value, modernisation scepticism, has a positive effect on private behaviour that is significant in all the countries but the Czech Republic.

The models that include all the factors explain between 13.8% and 17.6% of the variance (see the lower part of Table 1). Separating socio-demographics and values shows that the models that contain socio-demographics and the time variable explain between 6.6% and 12.8%, and the models that contain values and the time variable between 3.5% and 10.1%. Considering these partial models, socio-demographics do explain more than values in all the countries except West Germany. Private environmental behaviour, therefore, depends strongly on socio-demographics. It is older respondents, women, and economically inactive individuals who engage in private environmental behaviours.

Table 2 shows the results for public behaviour. Age has somewhat inconsistent effects: negative effects in the Czech Republic and East Germany, where older respondents are less likely to engage in public environmental behaviour; engagement peaks in the 45–59 age group in Austria and in the 30–44 age group in West Germany. When respondents with and without a college degree are compared the results are significant in all the countries except East Germany. Education, however, has significant positive effects in all the countries when the college variable is replaced by the linear variable 'years spent in school' (not shown in Table 2). Gender is not significant in any country. Married people are less active in West Germany, while marital status has no significant effect in the other countries. As for work status, full-time workers are more active in Austria, while there are no significant effects in the other countries. Subjective social class has a significant effect only in Austria, where activism increases with class. As for the effect of hometown size, urbanites are more active; this effect, however, is significant only in Austria and the Czech Republic.

As regards the instrumental aspects of behaviour, individuals who perceive high environmental risks and are willing to make sacrifices are more active in all the countries. Fatalism decreases the likelihood of public behaviour, although the effect is not significant in East Germany. Individual agency has a negative effect in Austria; and knowledge both in Austria and Germany. In the case of the more general values, postmaterialists are more active in all the countries. Materialists

[11] The postmaterialism-materialism scale as described in Footnote 6 is, however, significant.

are somewhat less active than those with mixed values, but, in contrast to the effect of postmaterialism, this effect is not significant in all countries. Modernisation scepticism, on the other hand, has a positive influence in West Germany, a negative effect in Austria, but no significant effects in the other countries.

The models with all variables explain between 7.2% and 20.2% of the variance; socio-demographics and the time variable between 1.8% and 10.2%; and values and the time variable between 5.6% and 17.5%. These partial models reveal that values explain more variance than socio-demographics in all the countries. Public behaviour, in contrast to private behaviour, is influenced more strongly by values than by socio-demographics.

Discussion and conclusion

The aim of this article was to analyse environmental behaviours in the neighbouring Central European countries of Austria, the Czech Republic and Germany between 1993 and 2010. The theoretical backdrop is the assumptions of the resource mobilisation theories and the new social movement theories about individual participation in and support for the environmental movement. After presenting various descriptive findings and regression results in the previous sections, this final section discusses how these results stack up against our initial research hypotheses.

Hypothesis 1 referred to the determinants of environmental behaviour discussed in the resource mobilisation theories. The idea underlying these approaches is that the individual acts rationally but is constrained by biographical characteristics such as taking care of children and other activities that allow less time for political activities. We hypothesised that environmental behaviours are more common in urban areas, when individuals claim agency, know environmental problems, are ready to make sacrifices and not fatalistic about their efforts, assess environmental risks as high, and face few biographical constraints. Such constraints are reflected in the various socio-demographic characteristics and our results show indeed that constraints do play a role. The regression analyses, however, also revealed that socio-demographics influence private behaviour more strongly than they do public behaviour. Recycling and forgoing car driving is done by individuals who face few constraints and have more leisure time: the elderly, women, and individuals who are economically inactive. Hypothesis 1 also considered various instrumental aspects and evaluations related to the rational decision of becoming active. The regression showed that factors such as the evaluation of environmental risks, claiming individual agency, and other aspects are also important factors in explaining environmental behaviours. Our results, therefore, support strongly the part of Hypothesis 1 that refers to the instrumental aspects of behaviour. Conversely, socio-demographics such as gender and work status, which are related to the biographical constraints considered in the resources approach [McAdam 1986], are more important for private behaviour.

Hypothesis 2 refers to the aspects of participation and support that are considered in the new social movement theories and related approaches, which claim that environmental behaviours should be more common among members of the new social class and individuals holding related values such as modernisation scepticism and postmaterialistic attitudes. Our results show that education and postmaterialism as key characteristics of members of the new social class are more important for public behaviour than for private environmental behaviour. Subjective class and modernisation scepticism, on the other hand, produce somewhat inconsistent results. Overall, Hypothesis 2 finds partial support for private behaviour and strong support for public behaviour.

In a summary of the findings at the individual level and their relevance for different social movement approaches it seems crucial to distinguish between private and public behaviour. Biographical constraints are more important for private behaviour than for public behaviour. This is particularly interesting because public behaviour—protesting on the streets and other activities—is more in line with the political target focus of resource mobilisation theories than is private behaviour. Constraints are apparently also at work in the private sphere and cannot be considered a unique determinant of political activism. Public behaviour, on the other hand, is strongly influenced by values. Why are general values such as postmaterialism less important for private behaviour? A possible explanation—considering the emphasis of new social movement theorists on the collective identity of participants [Polletta and Jaspers 2001]—is that values are more important in the public sphere, as they are reinforced by other participants. In private, when recycling is not noticed by other individuals and thus not reinforced, values could remain less important than constraints.

The second focus of this article is on differences between our three countries. Hypothesis 3 stated in this regard that environmental behaviours should have become more common over the past two decades, but also that environmental behaviours are less prevalent in former socialist countries. The findings presented in the previous sections fully support our macro-level hypothesis: both environmental behaviours have the highest prevalence in Austria and West Germany, followed by East Germany and the Czech Republic. In addition, the gap in environmental behaviours between our three countries has become smaller over time.

However, we were surprised to observe contrary trends—a low and/or decreasing level of public behaviour and a high and/or increasing level of private behaviour. The decrease of public behaviour is surprising, given that environmental problems are still omnipresent, political and technical behavioural opportunities have increased, and an international community fighting for environmental issues has evolved. The increased institutionalisation of environmental problems highlighted in the international organisation and social movement literature [Smith 2007; Wapner 2007] is thus decoupled from public support and the actions of the general public. Two different explanations are possible. One interpretation is to assume that the increasing institutionalisation of environmen-

tal issues has given the public the feeling that the problems have been tackled, so their support is no longer necessary. An alternative interpretation is that the increasing distrust in all forms of organisations and organisational activities noted in the social trust and social capital literature [Norris 1999; Putnam 2000] has also affected environmental movements. The different values and attitudes and how they have changed since 1993 (as depicted in Figure 3) add some insight into this issue: environmental risks are still perceived as very high—individuals are aware of environmental issues and do not feel that environmental problems are solved. However, when asked who should become active, respondents call more for individual action. More and more individuals are claiming agency and in turn seemingly withdrawing their support for organised environmental movements. As a result, organised environmental action faces two problems: increased claims of individual responsibility and distrust in institutions.

In conclusion, this article has shown that the environmental behaviours of Austrians, Czechs, and Germans have become more similar over time—with low and/or decreasing levels of public behaviours and high and/or increasing levels of private behaviour. Several minor differences can be found in the determinants of these behaviours, but the overall picture is rather similar: the strong impact of values on public behaviour and the important role of socio-demographics in private behaviour. Future research will have to show whether these findings are also applicable to other countries or limited to our unique set of Central European countries.

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Appendix: Overview of scales

The following questions were asked by the International Social Survey Programme in the 1993, 2000, and 2010 environment modules. All questionnaires and field reports can be accessed at: www.ISSP.org.

'Private environmental behaviour'

Q1: 'How often do you make a special effort to sort glass or tins or plastic or newspapers and so on for recycling?'

Q2: 'And how often do cut back on driving a car for environmental reasons?'

Answer categories: always, often, sometimes, never, and I do not have or cannot drive a car. The answers of each respondent were summed up and divided by the total number of valid answers. This scale was recoded; 1 represents a low environmental behaviour and 4 a very active individual.

'Public environmental behaviour'

Q1: 'Are you a member of any group whose main aim is to preserve or protect the environment?'

Q2: 'In the last five years, have you signed a petition about an environmental issue?'

Q3: 'In the last five years, have you given money to an environmental group?'

Q4: 'In the last five years, have you taken part in a protest or demonstration about an environmental issue?'

Answer categories: yes and no. The answers of each respondent were summed up and divided by the total number of valid answers. The final scale was recoded; 1 represents a low environmental behaviour and 2 a very active individual.

Assessment of environmental risks

Q1: 'In general, do you think that air pollution caused by industry is … ?'

Q2: 'Do you think that pesticides and chemicals used in farming are … ?'

Q3: 'Do you think that pollution of [country's] rivers, lakes and streams is … ?'

Q4: 'In general, do you think that a global rise of temperature caused by the "greenhouse effect" is … ?'

Q5: 'In general, do you think that air pollution caused by cars is …'

Answer categories: extremely dangerous for the environment, very dangerous, somewhat dangerous, not very dangerous, not dangerous at all. The answer categories were recoded and the final index ranges from 1 to 5 with a higher value indicating higher risks perceived.

Environmental fatalism

Q1: 'We worry too much about the future of the environment and not enough about prices and jobs today.'

Q2: 'People worry too much about human progress harming the environment.'

Q3: 'It is just too difficult for someone like me to do much about the environment.'

Q4: 'Modern science will solve our environmental problems with little change to our way of life.'

Q5: 'In order to protect the environment [country] needs economic growth.'

Answer categories: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, and can't choose. The answer categories were recoded and the final index ranges from 1 to 5 with a higher value indicating a more pessimistic view.

Readiness to make sacrifices for the environment

Q1: 'How willing would you be to pay much higher prices in order to protect the environment?'

Q2: 'How willing would you be to pay much higher taxes in order to protect the environment?'

Q3: 'How willing would you be to accept a reduction of your living standards in order to protect the environment?'

Answer categories: very willing, fairly willing, neither willing nor unwilling, fairly unwilling, very unwilling, and can't choose. The answer categories were recoded and the final index ranges from 1 to 5 with a higher value indicating a higher readiness.

Scientific/environmental knowledge

Q1: 'The greenhouse effect is caused by a hole in the earth's atmosphere.'

Q2: 'Every time we use coal or oils or gas, we contribute to the greenhouse effect.'

Answer categories: definitely true, probably true, probably not true, and definitely not true. Each question was recoded with a low value indicating a wrong answer and a high value a correct answer. The index, which represents a respondent's mean across all items, ranges from 1 to 4.

Modernisation scepticism

Q1: 'Overall, modern science does more harm than good.'

Q2: 'Almost everything we do in modern life harms the environment.'

Q3: 'Economic growth always harms the environment.'

Answer categories: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. The answer categories were recoded and the final index ranges from 1 to 5 with a higher value indicating a more sceptical view.

State versus individual responsibility

Q1: 'Government should let ordinary people decide for themselves how to protect the environment, even if it means they don't always do the right thing. / Government should pass laws to make ordinary people protect the environment, even if it interferes with people's rights to make their own decisions.'

Q2: 'Government should let businesses decide for themselves how to protect the environment, even if it means they don't always do the right thing. / Government should pass laws to make businesses protect the environment, even if it interferes with businesses' rights to make their own decisions.'

Individuals who chose individual (Q1) and businesses (Q2) were coded as 2; individuals who chose government in both questions as 1. All other individuals were coded as 1.5 A high value, therefore, indicates a preference for an individual solution.