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**Patterns of Environmental  
Culture in Europe**

**Marco Carradore**

**Researcher**

**Ca' Foscari University Foundation Venice (Italy)**

**Italy**

Athens Institute for Education and Research  
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece  
Tel: + 30 210 3634210 Fax: + 30 210 3634209  
Email: [info@atiner.gr](mailto:info@atiner.gr) URL: [www.atiner.gr](http://www.atiner.gr)  
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## **Patterns of Environmental Culture in Europe**

Marco Carradore

Researcher

Ca' Foscari University Foundation Venice (Italy)

Italy

### **Abstract**

The ecological dimension of economics relates to environmental issues and in the last 30 years these issues have attracted much interest. Moreover, pro-environmental behaviour depends not only on institutional factors, but also on the actions of individuals and their levels of environmental knowledge and awareness.

The present research, using data from the International Social Survey Programme, compares the levels of environmental knowledge and awareness of people living in different European countries and the actions made in response to such issues. Furthermore, a classification is created of European environmental culture.

The outcome of the analysis suggests that not only has environmental culture changed over time, but that different environment cultures also exist across Europe.

**Corresponding Author:**

## **Introduction**

The attention directed towards environmental issues has greatly increased over the last 30 years; indeed the need to preserve the natural environment for the well-being of our and future generations is undeniable.

Preservation of the environment is one of the major challenges faced by all the countries within Europe and its citizens. Great efforts are being made by some European institutions, but it is also important to increase general awareness about pertinent environmental issues in order to cultivate a sense of respect for the environment.

The purpose of this paper is to analyse how people living in European countries perceive environment problems and to assess whether a common culture exists within the European area in reference to the environment or whether distinct patterns of environmental concern prevail. In the following sections the concept of environmental concern will be introduced, followed by a brief summary exemplifying the variety of methods that have been used to measure environmental concern. The data set used for the present analysis will then be presented and the differences existing in Europe in relation to some aspects of environmental concern described, followed by a comparison of the differences across different years. An attempt to classify environmental culture in the European area is presented in the final section.

## **Building an environmental culture**

The concept of *environmental concern* is a ‘technical’ concept most commonly used in the field of environmental sociology and different scholars have defined this concept in slightly different ways. According to Stern and colleagues (1993), environmental concern derives from a positive relationship between three moral principles (or value-systems) that are: (1) social-altruistic value; (2) biospheric value; and (3) egoism or self-interest orientation. The first highlights the importance of the environmental condition for other people; the second indicates the negative consequences that environmental conditions have upon the biosphere and non-human life-forms and the last describes the negative impact upon the self. Stern et al.’s (1993) definition, as highlighted by Madalla and White (2011), has some shortcomings because it was tested using a small sample and it is based on the use of explanatory statistical methods.

Cluck (1998) also developed a concept of environmental concern, which he used as part of his definition of environmental attitudes. According to Cluck et al. (1997), environmental attitude correlates with three dimensions. One of these dimensions is *environmental worldview*, representing environmentalism; i.e. the environmental values of people. It specifically regards people’s perception of the environment, such as the effect of science on the environment and the relationship between economic growth and the environment. The second dimension is *environmental concern*, defining the relationship between society and the environment; explicitly it regards people’s perception of

particular environmental problems (such as air pollution, nuclear dangers, and water pollution). The last dimension is *environmental commitment*, indicating the efforts made to improve environmental quality, like willingness to pay higher taxes for better environmental preservation. The definition proposed by Cluck et al. (1997) has also been confirmed by the research conducted by Tuna (2004).

Fransson and Gärling (1999) define environmental concern as “ranging from a specific attitude toward environmentally relevant behaviour to a more encompassing value orientation” (1999: 370).

Dunlap and Jones (2002), on the other hand, stressed that environmental concern has a vast range of meanings and that it represents a multifaceted feature. They observed that the concept of environmental concern is often used in empirical literature because, as previously pointed out by Ester (1981), it is suggestive of a meaning that is very similar to environmental attitude. Dunlap and Jones (2002) also recall the conceptualization provided by Scheurs and Nelissen,<sup>1</sup> which expresses environmental concern as the thought and behavioural temperament that interface between the natural and artificial environment. Moreover, according to Easter and van der Meer, environmental concern is “the degree to which a person reorganizes environmental problems and is ready to contribute to their solution” (1982:72). Dunlan and Jones (2002) go on to define environmental concern as “the degree to which people are aware of problems regarding the environment and support effort to solve them and/or indicate a willingness to contribute personally to their solution” (2002: 485).

According to most scholars, it is possible to affirm that environmental concern is composed of two components: the environmental element and the concern element. As affirmed by Dunlan (2002), the environmental element represents a particular issue or a set of issues; it defines the substantive content of environmental concern and researches operationalise this concept by choosing which environmental components to analyse. Researchers may address a specific issue, for example the ‘water crisis’, or a set of issues which may come under a specific heading, such as ‘pollution’. The substantive issue can be classified in three different ways, according to: the level of generality or specificity (attitude towards water pollution or a specific form of water pollution, such as acid rain); the geographical scale (local, regional, national); and in relation to different points in time (for example, comparing the past to the present). The concern element, on the other hand, relates to the method used to articulate the environmental concern. In brief, it refers to the way in which researchers operationalise people’s thoughts about environmental issues.

The present research unusually uses the concept of *environmental culture* because *culture* is a wider concept than *concern*. By *culture* one intends the beliefs, perceptions, values, norms, customs and behaviours of a group or society; features that are shared within a group of people in a consensual way, whether or not such an agreement is verbalized. The concept of environmental

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<sup>1</sup>Cited in Ester 1981.

culture is used in the present study because it also considers civic participation in environmental issues as an analysis dimension.

### **Measurement of environmental concern**

Different methods and distinct detailed variables have been used in the literature to measure environmental concern. Each measurement refers to a distinct definition of environmental concern; but, in general, all measures reflect the following three components: cognitive, affective and intentional.

The New Environmental Paradigm (NEP) has played an important role in developing new measures of environmental concern. This new 'theory', which replaces the Human Exemptionalism Paradigm (HEP), takes into consideration the fact that there are limited resources on the earth. As described by Albrecht, D., Bultena, G., Hoiberg, E., and Nowark, P. (1982), the NEP also considers concepts that can be summarised as the "balance of nature", the "limits to growth", and the "man over nature".

Since environmental concern is a complex concept that is not simple to measure, the present section will only cite some of the methods that have been used in the literature to measure environmental concern without providing in depth descriptions.

The first researchers that tried to identify measures of environmental concern, using NEP, were Dunlap and Van Liere (1978), who developed the NEP Scale. The NEP Scale, composed of 12 items, measures the attitudes and the beliefs that agree with a pro-ecological worldview. The scale has seen various modifications over the years: Arcury and Christianson (1990) reduced the scale down to only five items, whereas Dunlap and Van Liere (1981), as cited by Fransson and Gärling (1999), tried to develop six different scales. Three scales directed at measuring population, pollution, and the overuse of natural resources, respectively, and three other scales measuring attitudes toward governmental actions, as well as the respondents' level of engagement in pro-environmental behaviours.

More recently, Stern et al. (1993) used a set of Likert scale variables, one for each single dimension; in this way, they identified a cluster of variables for biosphere, social-altruistic and egoism dimensions. The data they used came from a random survey carried out at a public university in New York State. Moreover they identified a set of indicators of political actions. Some of the variables developed were: a biosphere item, indicating "modern life harms the environment"; a social-altruistic item, indicating "paying a higher price to protect the environment", and a egoism item, which describes "how dangerous do you think that the pollution of rivers is for you and your family?" An example of political action is "money contribution to environmental protection".



Franzen and Meyer (2009), following the previous description of environmental concern, classified the variables from the ISSP<sup>1</sup> survey and found three dimensions that they called cognitive, affective and conative. Using these variables, the Authors built an additive index of environmental concern.

Other researchers, on the other hand, have used different surveys to measure environmental concern. Fairbrother (2012), for example, used data from the World and European Values Surveys (WVS) to show that environmental concern is higher in poorer countries and that richer people are only concerned about some dimensions of the environment. Using this dataset, Fairbrother identified three indicators to describe environmental concern.

From this brief review, we can see that many different scales exist in the literature that have been used to measure environmental concern and that the most common scales are divided into three dimensions: a conative component, an affective component and a cognitive component.

### **The data and measures**

The data used in this research come from the ISSP survey, a continuing annual survey covering many different topics pertinent to social science research and relevant to numerous different nations. The first ISSP survey was carried out in 1985, with the majority of data being collected by means of interviews. Since the 1990's, three surveys regarding environmental issues have been conducted. The first was in 1993, the second in 2000 and the most recent in 2010, with the number of countries involved in the survey increasing each year.

The present study is only concerned with the European area; thus responses are only considered from people living in the countries that make up the European area; although for some comparative analyses only the European countries that participated in all three surveys are considered, and they are: Bulgaria, the Czech Republic, Germany, Norway, Slovenia, Spain and the UK. Thus, by using the surveys carried out in 1993, 2000 and 2010, it is possible to compare how the behaviours and thoughts of people regarding the environment have changed over the last twenty years.

### **Environmental differences in Europe**

Environmental concern has been analysed in the literature from varying perspectives and in relation to many distinct aspects, such as gender, economic growth and other socio-economic features. Moreover, we can see from the literature that addresses the relationship between environmental concern and

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<sup>1</sup> <http://www.issp.org/>

other socio-economic features that a broad and ongoing debate exists to this regard.

The present research does not focus on this debate, but compares the levels of environmental knowledge and awareness of people living in different European countries.

One of the first important reflections to make regards the level of importance placed on the environmental problems affecting everyday life in the European area. Only the 2010 ISSP survey addressed this topic, thus such considerations cannot be made for the 1993 and 2000 survey years. When interviewees were asked to indicate the most important problem in the European area, the environment was the sixth most popular response (table 1). When asked to indicate the next most important problem, the environment was once again the sixth most popular response, although in this case a higher percentage of people considered it to be the second most important problem (9%) than those who indicated it to be the first most important issue (5%).

When focusing on the responses from the different nations, we can see that the citizens of different countries perceive environmental problems with different intensities. In the north of the European area, higher percentages of citizens answered that environmental problems are the most important compared to responses from central or southern Europe. Norway presented the highest percentage of people who 'recognised' environmental problems as being the most important at 15.6%, followed by Denmark and Sweden at 10.5%, and Belgium at 7.8%.

In southern and eastern Europe, very few people considered the presence of environmental problems. In Lithuania, for example, the percentage stood at less than 1%, in Turkey it was marginally higher at 1.2% and in Latvia the figure was 1.8%. Approximately 2% of people living in countries bordering the Adriatic Sea (Croatia and Slovenia) recognised the environment as deserving prime concern.

Considering the diversity about environment perception, it is also interesting to analyse what the specific problems are that people consider. Table 3 reports the three major problems that the people from each country consider. In some countries, the most important problems considered are air pollution (as is the case for Austria, Belgium, Bulgaria, the Czech Republic, Latvia, Lithuania, the Slovak Republic and Slovenia); climate change (especially in Denmark, Finland, Germany, Norway, Spain, Sweden, Turkey and the United Kingdom); water pollution (Croatia); and chemicals and pesticides (France). The second most important issues comprise those that were considered as the first most important, in addition to other problems, such as domestic waste disposal, genetically modified foods, the using up of natural resources and nuclear waste. The only new third most important problem (not considered as first or second) is water shortage.

The three countries in which environmental problems are most perceived by its citizens are Norway, Denmark and Sweden, and the major problem concerned about was climate change. On the other hand, in the countries in which environmental problems are least perceived, the most important

problems identified were air pollution, climate change (see Turkey) and water pollution.

The relationship between people and the environment is important, thus it is also important to observe how the aspects concerning the relationship between people and the environment has changed over the years.

Figure 1 presents the perception that people have about what they do in modern life; i.e. whether their activities are respectful of the environment or not. This figure also allows us to compare the responses across the three different years. In this case, the comparative analysis only focuses on the nations that performed the survey in all three years. The bar chart (figure 1) shows the percentage of the population that agree or strongly agree with the statement: “almost everything we do in modern life harms the environment”.

Only approximately 30% of Norwegian people agree that their daily activities cause harm to the environment, a much lower percentage than seen for other countries. In Bulgaria and Spain, the percentage of citizens believing that they do harm to the environment is more than 50%. This is only a general consideration, but this statement helps us think that in the European area different perceptions exist about the relationship between the environment and human actions.

In addition, we can analyse how this perception has changed over the years for each country. In this case, a clear trend cannot be identified: in some countries, such as Bulgaria and to a lesser extent in Germany, the population’s perception that their actions harm the environment was lower in 2010 than it was in 1993, but in 2000 it was even lower. In other countries, however, like the Czech Republic, Spain and the United Kingdom, no regular increasing trend can be seen between 1993 and 2010.

An important role is played by the economic dimension. Here the issue of whether economic growth always harms the environment was considered (table 4). The 2010 surveys for Norway and the UK show that few people think that economic development is able to have a damaging influence upon nature. The percentages of citizens who believe that economic growth harms nature are greater in Bulgaria and Slovenia than in the other countries considered. Once again, it is evident how people who live in different places consider their relationship with the environment in different ways. In this case, an unmistakable trend is evident: in all cases, the percentage of people who agree or strongly agree with the role that economic growth plays in harming the environment decreases between 1993 and 2010.

Table 5 presents people’s thoughts about whether economic growth protects the environment. Comparing the years, it is evident that the opinions of German citizens, and to a lesser extent those of the United Kingdom, increasingly indicate that economic growth may lead to enhanced protection of the environment.

In the other countries another phenomenon took place. From 1993 to 2000 the percentage of people believing that economic development could protect the environment decreased. The most significant change was present in Norway.

Until now, we have analysed respondent opinions, but it is also interesting to consider how people act. Some people think that is important to preserve the environment, other people do not think so, but, for example, how much effort do people make to respect the environment by recycling?

Figure 2 describes how often people living in various European countries make special efforts to sort glass, tin, plastic and newspaper etc for recycling purposes. In the same figure, we can compare the data obtained for the different years. It is necessary to consider that not all countries provide the facilities for recycling; for example, because the public administration does not promote or demand recycling.

Focusing on 2010, the highest proportions of people that always recycle can be observed in Germany, the United Kingdom, Slovenia, Spain and Norway, respectively. The lowest proportion is seen in Bulgaria. Considering the sum of the frequencies of the replies 'always' and 'often', the German, British, Slovenian and Norwegian people recycle the most.

We can also notice that in the year 1993, the difference in the proportions of people from the different countries who make efforts to sort glass, tin, plastic and newspaper are very high. For example, only 5% of Bulgarians always recycle, while more than 50% of German people always recycle.

The most interesting feature is the change that happened within individual countries between 1993 and 2010. In some countries, like the United Kingdom and Norway, the percentage of people who affirmed to recycle greatly increased: the increase sits at approximately 49% in Great Britain and approximately 45% in Norway. Significant increases were also observed in other countries, especially in those in which citizens previously affirmed not to recycling a lot, for example, an increase of approximately 23% was seen between 1993 and 2010 in Bulgaria and the Czech Republic. It is most probable that changes in public policy occurred that encouraged recycling that were widely accepted by citizens.

Figure 3 presents the average values of the civic engagement index. The index was created by adding the dichotomies fellow variables: 1) "Are you a member of any group whose main aim is to preserve or protect the environment?", "In the last five years have you: 2) signed a petition about an environmental issue?", 3) "Given money to an environmental group?" or 4) "Taken part in a protest or demonstration about an environmental issue?". This index indicates the participation in civic events concerning environmental issues.

People who live in some countries, such as Germany, Norway and the United Kingdom, participate more frequently in social and public activities that preserve the environment than people who live in Bulgaria, Czech Republic and Slovenian.

The environmental index has changed since the year 1993. In the Czech Republic, for example, the average value of environmental civic engagement remains constant, but in Spain it has made a slight increase. In all other countries, the average index value decreased from 1993 to 2000. The most significant decrease happened in the United Kingdom.

This data shows that, in general, people have reduced their participation in social and public activities that concern environmental protection. To summarise, we can see that the people in the European area have different attitudes and act in different ways regarding the environment. It appears that the people from some countries are more interested in environment issues than others.

### **A classification of environmental culture in Europe area**

The above analysis shows that different levels of environment concern exist in the European geographical area. To create a classification of environmental culture, cluster analysis is one of the best methods available. Here, hierarchical cluster analysis was applied to analyse the 2010 dataset. Previous studies, especially Franzen and Meyer (2010) and Alibeli and White (2011), have shown that certain specific variables are best able to describe environmental concern, and were thus chosen for the present cluster analysis. To test the model fit of environmental concern, a theoretical confirmatory factor analysis, as developed by the literature, was applied. The variables used in the factor analysis were 'transformed' before the cluster analysis was applied, such that the values used in the cluster analysis reflected the relationship between the number of people who 'agree' or 'strongly agree' versus those who 'disagree' or 'strongly disagree'. Three factors emerged from factor analysis that represent the following three dimensions: 1) conative, 2) affective and cognitive and 3) egoistic. The analysis results are shown in table 6.

The average value of environmental civic engagement index was also used in the cluster analysis, in accordance with the work by Stern, Dietz and Kalof (1993).

The results of the hierarchical cluster analysis are presented in Figure 4. Considering the value 10 as the point at which the process of aggregation must be stopped, four different clusters were identified. The first cluster is composed of Germany, Sweden, Austria, Belgium, Norway, Denmark, Finland, France, Croatia, the United Kingdom and Spain. Within this cluster, we can distinguish two sub-groups: one composed of Croatian, British and Spanish people and the other of German, Swedish, Austrian, Belgian, Norwegian, Danish, Finnish and French people. The second cluster is composed of just a single country that is Slovenia. The third group is composed of the Czech Republic, Latvia, the Slovak Republic, Lithuania and Turkey. Once again, in this cluster some countries are more 'connected', such as the Czech Republic and Lithuania, while Turkey represents the most distinct case within the cluster. The last cluster is composed, once again of a single country: Bulgaria.

To obtain more insight into the distinct characteristics of each of these groups, table 7 provides an overview of the average scores of each of these groups for the variables used in the cluster analysis. Based on the analysis, four

different types of environmental culture can be distinguished in Europe. These patterns of environmental culture have some specific features.

The environmental civic engagement index is higher for cluster one compared with that found for the other groups. People living in the countries grouped in cluster one show a high level of participation in associations aimed at preserving the environment; moreover, people are more willing, for example, to give money to environmental groups.

The second cluster is characterised by conative features. In this case, Slovenian people are more willing to pay high amounts of money to protect the environment.

A high level of both cognitive and affective dimensions is evident in the third cluster. The people who live in these countries worry about the future of the environment; for example, they think that science will be able to solve environmental problems and that economic growth is required to bring about actions able to protect the environment. Nevertheless, they also retain that the problems are too great for individual people to do much in the way of protecting environment.

The last cluster is characterised by a high level of both cognitive and affective dimensions, but it also presents a high level of egoistic features. This cluster is formed by just one country and it is very different from the other clusters. In this last group, people worry about the environment and think that economic growth may help protect the environment, but at the same time they believe that the economy and modern life is highly damaging to the environment.

## **Conclusions**

The purpose of this research was to describe the differences existing between the opinions of European citizens in relation to environmental concern and to create a pattern of environmental culture.

The data show that people living in different places consider the relationship between human activity and the environment in different ways. Only some countries are characterised by a high level of people that always recycle. Moreover, the citizens of some countries (namely, Germany, Norway and the United Kingdom) participate more frequently in social and public activities aimed at preserving the environment; but, in general, a reduction in the level of participation in social and public activities concerning the environmental protection has occurred since the 1990's.

These differences characterise four patterns of environmental culture. Thus more efforts are required to create a common environmental culture in the European area. Moreover, it would be useful to encourage people to overcome egoistic dimensions and participate more in civic activities aimed at environmental protection. Above all, it is necessary to deepen our knowledge of the effects that economic growth could produce on how people perceive the environment.

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**Table 1.** *The most important problems in European area (percentages year 2010)*

<i>List of problems</i>	<i>Most important</i>	<i>Next most important</i>
Health care	23.27	20.56
Education	12.52	16.32
Crime	7.15	11.41
The environment	5.34	9.09
Immigration	5.17	6.89
The economy	29.33	17.28
Terrorism	3.85	3.90
Poverty	12.58	13.75
None of these	0.79	0.79
%	100	100
N	23 274	23 051

**Table 2.** *How important are environmental problems to each country (2010)*

<i>Country</i>	<i>%</i>	<i>N.</i>
Norway	15.6%	1 325
Denmark	10.5%	1 277
Sweden	10.5%	1 146
Belgium	7.8%	1 099
Austria	7.1%	1 012
Finland	7.1%	1 176
Germany	6.5%	1 337
France	6.4%	2 033
Czech Republic	4.8%	1 410
United Kingdom	3.3%	870
Spain	3.0%	2 531
Slovenia	2.9%	1 071
Slovak Republic	2.4%	1 143
Bulgaria	2.1%	996
Croatia	2.0%	1 204
Latvia	1.8%	985
Turkey	1.2%	1 650
Lithuania	0.9%	1 009
Total	5.3%	23 274

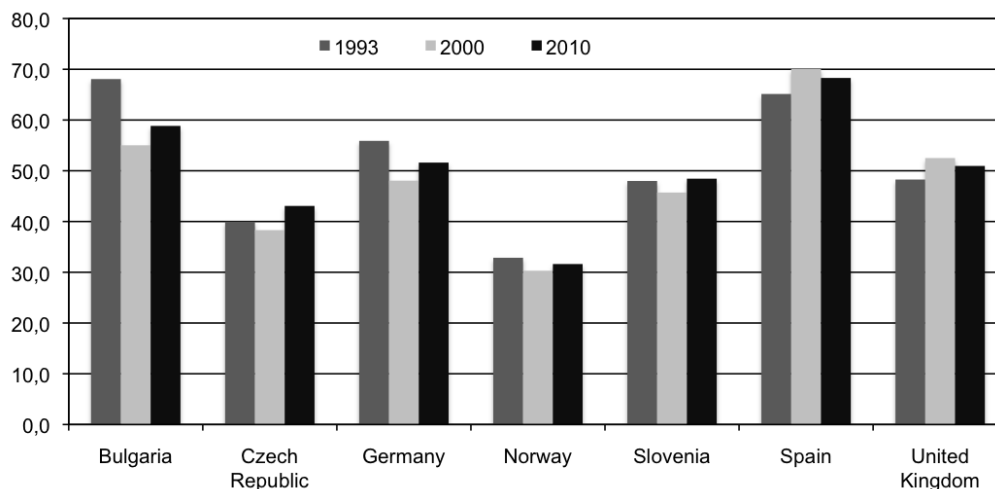


**Table 3.** *The three major problems in each country that people consider (2010)\**

<i>Country</i>	<i>Problems</i>		
	<i>First</i>	<i>Second</i>	<i>Third</i>
Austria	Air pollution (25.74)	Climate change (25.33)	Genetically modified foods (10.5)
Belgium	Air pollution (36.18)	Climate change (13.96)	Water pollution (12.67)
Bulgaria	Air pollution (39.72)	Domestic waste disposal (12.25)	Chemicals and pesticides (11.18)
Croatia	Water pollution (16.43)	Air pollution (15.49)	Using up our natural resources (15.32)
Czech Republic	Air pollution (32.92)	Domestic waste disposal (15.59)	Using up our natural resources (12.62)
Denmark	Climate change (25.43)	Chemicals and pesticides (21.11)	Water pollution (15.57)
Finland	Climate change (20.57)	Water pollution (19.62)	Air pollution (13.25)
France	Chemicals and pesticides (30.07)	Water pollution (11.23)	Nuclear waste (10.7)
Germany	Climate change (26.88)	Nuclear waste (25.47)	Air pollution (18.84)
Latvia	Air pollution (20.32)	Genetically modified foods (15.61)	Water pollution (11.34)
Lithuania	Air pollution (23.76)	Genetically modified foods (18.29)	Chemicals and pesticides (16.94)
Norway	Climate change (26.88)	Using up our natural resources (19.22)	Air pollution (18.84)
Slovak Republic	Air pollution (30.48)	Domestic waste disposal (15.38)	Chemicals and pesticides (12.1)
Slovenia	Air pollution (25.24)	Chemicals and pesticides (18.67)	Domestic waste disposal (15.81)
Spain	Climate change (24.49)	Air pollution (15.33)	Water shortage (15.45)
Sweden	Climate change (21.35)	Water pollution (19.73)	Air pollution (15.7)
Turkey	Climate change (24.97)	Genetically modified foods (18.67)	Using up our natural resources (12.86)
United Kingdom	Climate change (20.57)	Using up our natural resources (19.21)	Domestic waste disposal (18.72)

\* *In brackets %*

**Figure 1.** *Percentage of respondents who ‘agree’ or ‘strongly agree’ that human activities of modern life harm the environment.*



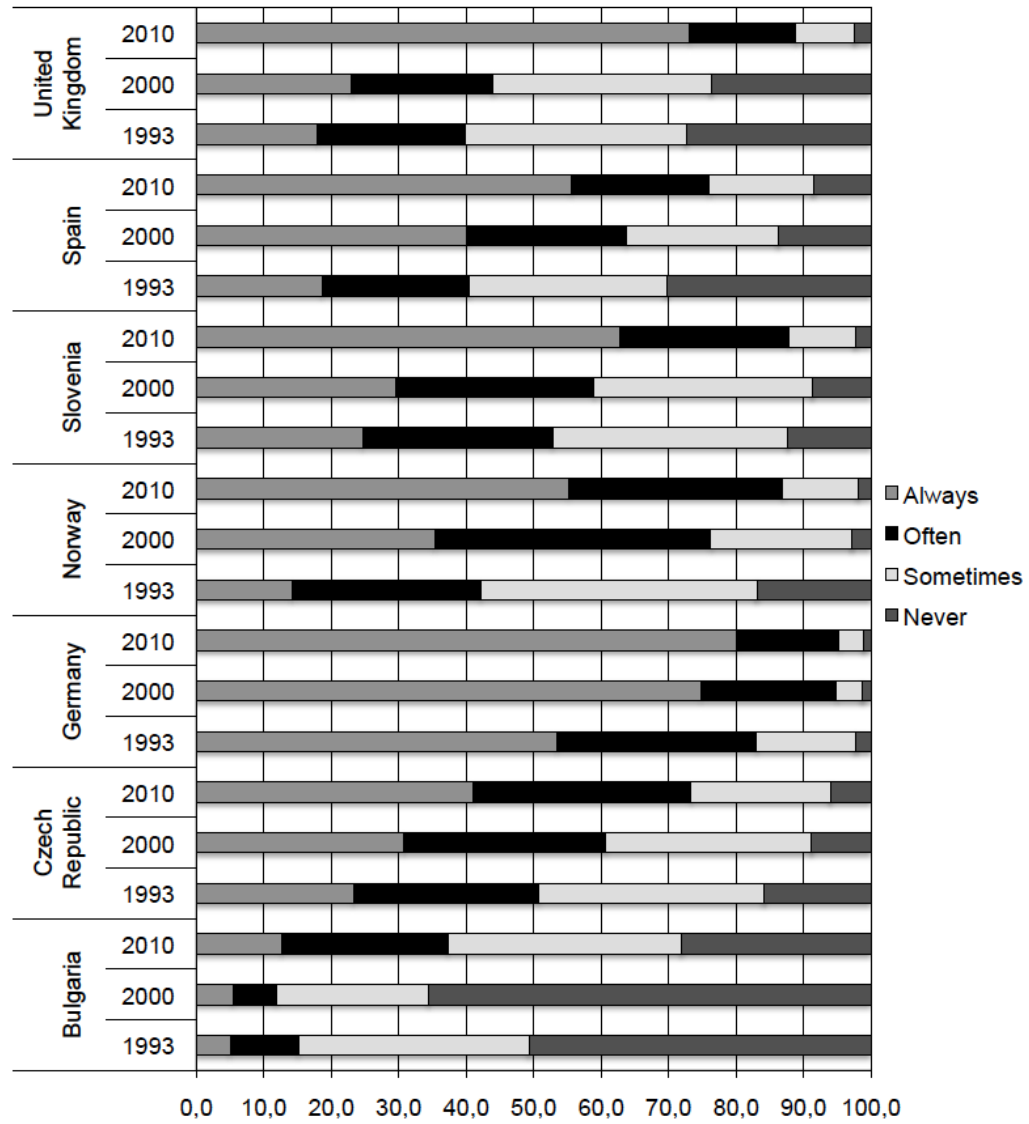
**Table 4.** *Percentage of respondents who ‘agree’ or ‘strongly agree’ that economic growth causes harm to the environment*

Year	Bulgaria	Czech Republic	Germany	Norway	Slovenia	Spain	United Kingdom
1993	58.13	35.5	45.54	18.06	47.68	42.3	26.34
2000	50.06	22.87	29.72	14.64	37.87	27.46	17.31
2010	37.49	28.77	28.93	14.64	35.28	25.98	15.33

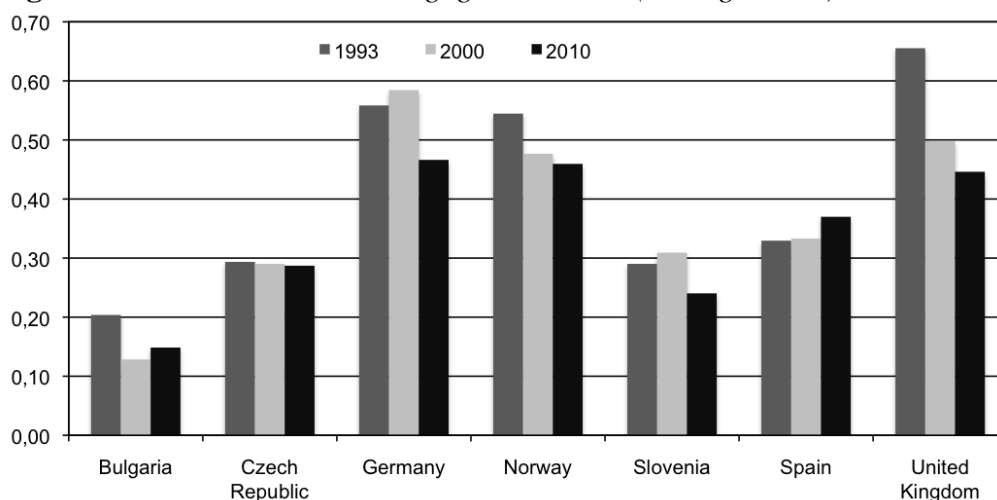
**Table 5.** *Percentage of respondents who ‘agree’ or ‘strongly agree’ that economic growth has a protective effect upon the environment.*

Year	Bulgaria	Czech Republic	Germany	Norway	Slovenia	Spain	United Kingdom
1993	81.67	82.63	46.35	45.77	69.37	60.00	48.55
2000	80.07	80.82	57.29	36.43	68.59	62.29	50.58
2010	72.78	68.73	52.32	35.48	59.16	58.72	49.29

**Figure 2.** *Special efforts made to recycle (%)*



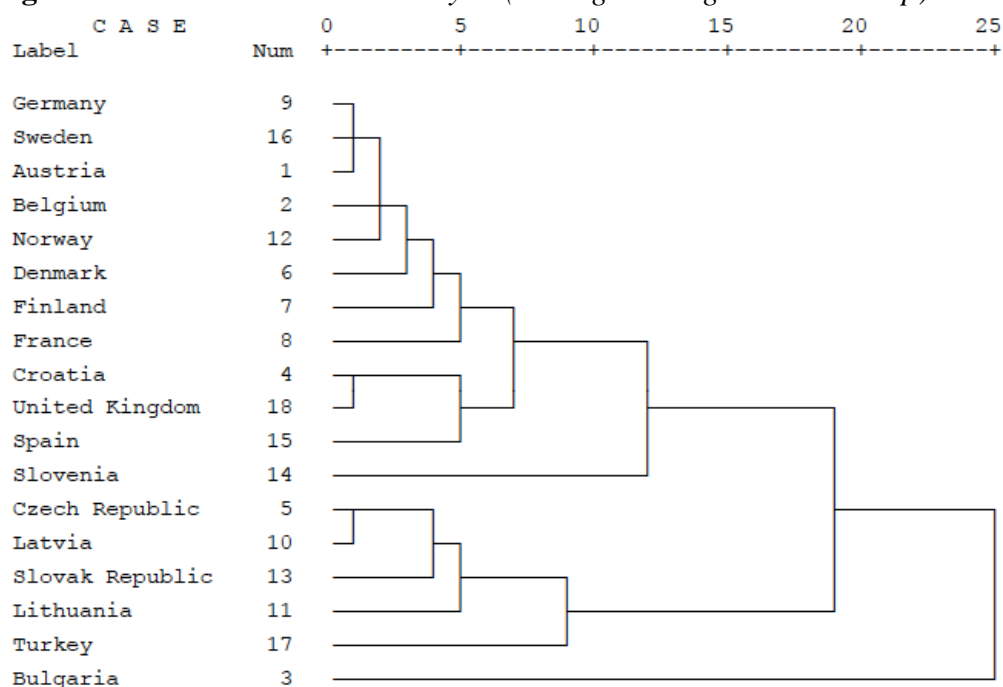
**Figure 3.** *Environmental civic engagement index (average value)*



**Table 6.** *Rotated Component Matrix and Cronbach alpha*

Variable	Factor 1	Factor 2	Factor 3	Dimension	Alpha
How willing would you be to pay much higher prices in order to protect the environment?	0.864			Conative	0.780
How willing would you be to pay much higher taxes in order to protect the environment?	0.858				
How willing would you be to accept cuts in your standard of living in order to protect the environment?	0.782				
I do what is right for the environment, even when it costs more money or takes more time	0.501				
We worry too much about the future of the environment and not enough about prices and jobs		0.634		Affective	0.590
People worry too much about human progress harming the environment		0.661			
Modern science will solve our environmental problems with little change to our way of living		0.613		Cognitive	0.590
In order to protect the environment the country needs economic growth		0.620			
It is just too difficult for someone like me to do much about the environment		0.500			
Almost everything we do in modern life harms the environment			0.760	Egoistic	0.495
Economic growth always harms the environment			0.801		

**Figure 4.** Hierarchical cluster analysis (Average Linkage Within Group)



**Table 7.** Cluster characteristics

Components	Cluster 1	Cluster 2	Cluster 3	Cluster 4
<i>Conative</i> (mean)	1.047	2.224	0.609	0.465
Protect environment: pay higher prices	0.730	0.735	0.310	0.406
Protect environment: pay higher taxes	0.371	0.325	0.231	0.265
Protect environment: cut standard of living	0.838	0.957	0.252	0.183
Do what is right costs money, takes time	2.250	6.879	1.641	1.006
<i>Cognitive</i> (mean)	0.903	1.312	2.458	3.778
Science: solve environmental problems	0.574	0.264	0.728	0.925
Environment: protect by economic growth	1.624	3.083	5.426	7.583
To do about environment: too difficult	0.512	0.588	1.220	2.824
<i>Affective</i> (mean)	0.803	1.229	1.014	2.923
Worry about the future of the environment	0.990	1.554	1.229	1.093
Worry: progress harms the environment	0.616	0.903	0.798	4.752
<i>Egoistic</i> (mean)	1.233	1.441	1.186	2.781
Modern life harms the environment	1.910	1.847	1.628	4.055
Economic growth harms the environment	0.555	1.035	0.743	1.506
<i>Civic Action</i>				
Environmental civic index (mean)	0.44	0.24	0.19	0.14