ENVIPOLCON

ENVIRONMENTAL GOVERNANCE IN EUROPE

THE IMPACT OF INTERNATIONAL INSTITUTIONS AND TRADE ON POLICY CONVERGENCE (2003-2006)

CODE BOOK for Dependent Variable

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Content

I Introduction

I.1 Introduction to the Project

It is often argued that policy ideas, concepts and instruments converge, not only within national political systems, but also across national borders. Such effects have been observed particularly in the field of environmental policy, where striking similarities in the development of national, European and global policies for environmental protection have been identified (Knill 2005).

It was the primary objective of the ENVIPOLCON project to investigate the degree of environmental policy convergence across European countries and to identify the underlying driving forces. To reach this objective, it focused on the following aspects:

- To what extent and in which direction can we observe a convergence of national environmental policies in Europe over the last thirty years (1970-2000)?
- What is the specific impact of economic and institutional interlinkages between national states in this respect?

To address the research questions, the empirical focus of the research relied on the analysis of environmental policy development across 21 European countries. Additionally, USA, Japan and Mexico have been included in the sample as 'control' countries. In theses 24 countries, 40 policies were observed at four points in time (1970, 1980, 1990, 2000).

The project was characterised by a combined research design ('mixed methodology'), including both quantitative data analysis and qualitative case studies. In the first stage of the research, the above mentioned aspects have been inquired on the basis of various statistical data analyses. In the second step, qualitative case studies completed the findings and aimed to solve the problems that occurred during the quantitative analysis, by taking into account policy processes and contextual impact factors. As those factors are difficult to quantify, they cannot be included in the statistical analysis. Cases were selected based on quantitative data contained in the data set.

To our best knowledge, that it is the first time researches have successfully collected and coded this kind of data – referring to environmental policy output – in detail and at that breadth (covering a range of policies) for a longer period of time.

I.2 Aim of this Code Book

Besides serving internal purposes, this codebook aims to help researchers, who are not involved, to gain further insight into the project and to understand the setting up of the dataset and the character of the information contained therein. Its main objective is to provide information on the building and coding of the variables, the basic structure as well as the transformation/standardization of the data and the changes made during the coding as compared to the original information. In the end, it should enable researchers to replicate our

research by using the data set or to use it for inquiring other research questions (**but only based on a necessary mutual agreement**).

I.3 Further Information

We trust this code book to be quite detailed and comprehensive. However, if you do want to find out more about the project, we are happy to recommend the project website or get in contact with the researchers involved (see title page). We trust this website to be very helpful and it can be found here:

http://www.uni-konstanz.de/FuF/Verwiss/knill/projekte/envipolcon/project-homepage.php

II Data Set for the Dependent Variable: National Environmental Policy Development

II.1 Data Collection

25 national environmental policy experts were asked to complete a questionnaire concerning the development of environmental policy in their country. The questionnaires were accompanied by a manual. This manual served as a **guideline for the national experts** on environmental policy who provided the data for the project **ENVIPOLCON.** The main purpose of the manual was to give necessary background information, instructions and definitions for the questionnaire as a whole as well as for each single environmental policy appearing in the questionnaire. This enabled the experts to provide the data we were looking for: accurate and comparable data. Needless to say that accurate and comparable data were obviously indispensable for the validity and reliability of this study.

The manual first offered general remarks and overall specifications that applied to the questionnaire as a whole. The next section provided the necessary explanations to *each* environmental policy item and *each* question. The final ('final comments') section summarizes the most important instructions. Experts were asked to use this manual as a 'reminder list."

The questionnaire as well as the manual can be obtained from any person mentioned on the title sheet. The questionnaire, as well as the manual is recommended to gain full insight into the kind of policies for which the data are collected.

After the questionnaires had been completed by the respective experts, the answers were cross-checked by members of the research team and if necessary, the answers were corrected and adjusted.

II.2 Country Codes

Each country is given a specific identification number (ID) in the data set. The number for the countries can be found in the following table.

Countryname	COUNTRY	ID
Austria	AUT	1
Belgium	BEL	2
Bulgaria	BUL	3
Denmark	DEN	4
Finland	FIN	5
France	FRA	6
Germany	GER	7
Greece	GRE	8
Hungary	HUN	9
Italy	ITA	11
Japan	JAP	12

Mexico	MEX	13
Netherlands	NED	14
Norway	NOR	15
Poland	POL	16
Portugal	POR	17
Romania	ROM	18
Slovenia	SLO	19
Spain	SPA	20
Sweden	SWE	21
Switzerland	SWI	22
United Kingdom	UKD	23
United States of America	USA	24

II.3 Time Period

There have been four measurements in time. Data were collect for the years 1970, 1980, 1990 and 2000. The experts were asked to note the policy in place at the end of the respective year. The information on the four years are coded separately in the data set (see details below.)

II.4 Coding of the Variables based on the Raw Data Collected

II.4.1 Types of Information obtained by Expert Questionnaire

There are basically four different kinds of questions with varying degrees of specification that originally appeared in the questionnaire and which form the basis of the data.

1. ‘policy in place” questions:

   Here, we were interested in the mere existence of certain environmental policies within a certain time period and, if they exist, the year of their introduction.

2. ‘principles” questions

   Here, we inquired if more general *environmental policy ‘principles”* had been adopted between 1970 and 2000 and, if yes, when they did appear for the first time.

3. ‘limit-value”/”standard” questions

   The third question-category related to *specific environmental policy settings*. This means precise limit value/emission-standard for single polluting substances, precise percentage goals to achieve a certain environmental outcome and two times the exact fixing of an environmental tax rate.

4. ‘policy-instruments” questions

The last question type inquired what *kind of instrument types* (the *dominant* ones)[1] are used to tackle environmental problems and how has the application of these instrument types developed over the time period of three decades.

II.4.2 Item Categories

The overwhelming share of the questions were categorized as belonging to the set of **environmental media**, and the questionnaire was ordered accordingly. The last category (‘General’) addressed subjects that cannot be assigned to one environmental medium, but can relate to a broad spectrum of environmental issues and media (e.g. environmental principles like ‘sustainable development’).

A) Air
B) Water
C) Soil
D) Waste
E) Noise
F) Resource protection
G) Climate
H) Nature conversation
I) General

II.4.3 Coding of the Variables in Data Set

According to its item categories and its type the variables are coded in the following logic.

Policy/Principles in Place Variables

As was already determined when the original rough data set/questionnaire had been created, the information about the existence of a policy in the year 2000 and the year when it was introduced was considered to be sufficient for a transformation into separate information for every year 1970, 1980, 1990 and 2000.
Thus, the information that was in a raw version contained in two questions/variables:

1. Policy in place in 2000?
No (coded as 0)
Yes (coded as 1)
2. Beginning of the policy (year)

[1] Dominant Instrument: Generally, we asked to identify the dominant instrument with respect to a certain policy item. This, of course, requires criteria and indicators to identify ‘dominant’ and ‘non-dominant’ instruments.
The central indicator to identify the dominant instrument should be based on the relevance of an instruments to achieve the objectives – policy outcomes and impacts – underlying a certain policy item (e.g. the reduction of emissions in a certain policy area). This was mostly left to the discretion of the national policy experts or later coding decisions based on close cooperation between team members and national policy experts.

(coded as the precise year, e.g. 1975 or 1969 when it started before 1970)

has been transformed into four variables:

1. Policy in place in 1970 yes/no (coded as 1/0)
2. Policy in place in 1980 yes/no (coded as 1/0)
3. Policy in place in 1990 yes/no (coded as 1/0)
4. Policy in place in 2000 yes/no (coded as 1/0)

The same applies for principles and the existence of standards (not settings – see below).

All those variables have a ‘p” in their variable names while the ‘p” expresses ‘policy/principle in place” and is thus exclusively used for that meaning. An exception is the waste-treatment targets (only existence of them) where we operate with wast_a (recovery), wast_b (reuse) and wast_c (landfill). This is necessary because within the waste-category we have three ‘policy in place”-questions so that a single ‘p” cannot be used.

Instrument Variables

All dominant instrument information is contained in four variables (e.g. lead_i7) – one for each point in time. The ‘i” in the variable name stands for ‘instruments”. Thus, only instrument-variables have an ‘i” in their names. Each of those variables is coded with scores ranging from 1= obligatory standard to 10 = voluntary instrument. 0 = no instrument because no policy was in place yet (see also the variable labels document). For the variable on the promotion of renewable energy (e.g. ener_i7) the additional instrument ‘legal obligation to purchase that electricity” was coded as = 11.

Complete List of Codes:

0 = 'No policy'
1 = 'Obligatory standard, prohibition or ban'
2 = 'Technological prescription'
3 = 'Tax or levy'
4 = 'Subsidy or tax reduction'
5 = 'Liability scheme(s)'
6 = 'Planning instrument'
7 = 'Public investment'
8 = 'Data collection / monitoring programme(s)'
9 = 'Information based instrument'
10 = 'Voluntary instrument'
11 = ‘Extra instrument for energy.’

Setting Variables

For all settings-items where we have only one setting-variable (e.g. sulp_s7), an ‘s” is used in the variables name that stands for ‘setting”. Thus, an ‘s” is only assigned to settings-variables. However, for some settings-items we have more than one setting-variable (e.g. car_~). For

those cases the usage of a single ‘s” is not possible. Therefore, another letter that is in most cases the first letter of the polluting substance is taken (e.g. car_c7 for CO emission standard in 1970). Sometimes the first letter of the polluting substance could not be taken for the naming because it was already assigned to other variables. In those cases another letter from the polluting substance name is taken (e.g. watp_r7 for Chromium limit value in industrial discharges). Please see the variable list below.

II.4.4 Example for the Coding of the Variables

In the following the logic behind the coding of the variables is given by one example. A list of all variables and what they mean will follow after the one example. One can clearly identify every single variable and what it means from this list. For further clarification, please have a look at the original questionnaire.

Sulp_p7

Sulp = Short form for the chemical substance in this case ‘sulphur”
_p = Policy in place (the same logic for setting = _s and instrument = _i)[2]
7 = Year 1970

There is one **principal exception** to this coding. Some variables are for instance coded: sulp_sy7. In this example the ‘y” stands for those setting variables where one could not give a specific limit value for a substance, but one has identified that there was something in place at that time. The following section explains this specific coding in more detail.

Additional Variables ‘Limit Value in Force”

Every setting variable for all four points in time is accompanied by a variable that contains the information if a limit value was in force at that point time, e.g. sulp_sy7 (coded as 1 for yes and 0 for no; the ‘y” in the name means ‘yes”). The inclusion of this type of variable seemed necessary because thereby the data set keeps information that would otherwise get lost. The reason is that for several settings from several countries and points in time we encountered:

- Incompatible values (mostly early limit values)
- Unknown values (for some time periods, again mostly the early years)
- Ranges (either depending on geographic location or industry sector) and individual permits for single polluting facilities only, which means standards that are applied without any national minimum or otherwise prescribed standard (so-called permit regulations, e.g. typical for Scandinavian countries)

All countries and items that belong to those categories (have such a type of limit value) get a ‘1” which means that we take into account that a standard was in force though we cannot take or do not know the precise value. To prevent confusion: a ‘1” is of course also assigned to

[2] Instruments are given numbers from 1 to 10 depending what it was. For further information see ‘Instrument Variable” in section ‘I.3.3. Coding of the Variables”.

those countries/years where we have also the exact setting value. Thus: This type of information is provided for all setting items.

Four Points in Time:

A general principle is followed for the variable labeling in the four points in time (1970, 1980, 1990, and 2000). The digit in the variable stands for:
7 = 1970
8 = 1980
9 = 1990
0 = 2000

Exception from the Rule of Counting National Policies only:

The research project was only interested in the development of national environmental policies (unit of analysis is the nation state). Hence, any sub-national regulations are disregarded. Obviously, this may cause a bias disadvantaging federal or decentralized countries, like the United States, Switzerland, Germany or Spain. For exactly that reason neither Australia nor Canada have been considered for the analysis, since environmental federalism with a strong focus on sub-national policies is very pronounced in those countries. However, for **Belgium from 1993 (decentralization of environmental policy competences) on,** we **assume continuity** of policies and existence of settings, but not the exact setting level nor the type of instrument for the year 2000.

II.4.5 List of all Variables

Coded Variable	Description of the Variables
sulp_p7	A 1 1970 Policy - Sulphur content in gas oil
sulp_p8	A 1 1980 Policy - Sulphur content in gas oil
sulp_p9	A 1 1990 Policy - Sulphur content in gas oil
sulp_p0	A 1 2000 Policy - Sulphur content in gas oil
sulp_s7	A 1.3: SULPHUR content in gas oil limit value level in 1970 as % per weight
sulp_s8	A 1.3: SULPHUR content in gas oil limit value level in 1980 as % per weight
sulp_s9	A 1.3: SULPHUR content in gas oil limit value level in 1990 as % per weight
sulp_s0	A 1.3: SULPHUR content in gas oil limit value level in 2000 as % per weight
sulp_sy7	A 1.3: SULPHUR content in gas oil limit value in force in 1970
sulp_sy8	A 1.3: SULPHUR content in gas oil limit value in force in 1980
sulp_sy9	A 1.3: SULPHUR content in gas oil limit value in place in 1990
sulp_sy0	A 1.3: SULPHUR content in gas oil limit value in force in 2000
lead_p7	A 2 1970 Policy - lead emissions vehicles
lead_p8	A 2 1980 Policy - lead emissions vehicles
lead_p9	A 2 1990 Policy - lead emissions vehicles
lead_p0	A 2 2000 Policy - lead emissions vehicles
lead_i7	A 2.3 1970 Instruments: Lead emissions from vehicles
lead_i8	A 2.3 1980 Instruments: Lead emissions from vehicles
lead_i9	A 2.3 1990 Instruments: Lead emissions from vehicles
lead_i0	A 2.3 2000 Instruments: Lead emissions from vehicles
lead_s7	A 2.4: LEAD in petrol limit value level in 1970 in g/l
lead_s8	A 2.4: LEAD in petrol limit value level in 1980 in g/l
lead_s9	A 2.4: LEAD in petrol limit value level in 1990 in g/l
lead_s0	A 2.4: LEAD in petrol limit value level in 2000 in g/l
lead_sy7	A 2.4: LEAD in petrol limit value in force in 1970 in g/l
lead_sy8	A 2.4: LEAD in petrol limit value in force in 1980 in g/l
lead_sy9	A 2.4: LEAD in petrol limit value in force in 1990 in g/l
lead_sy0	A 2.4: LEAD in petrol limit value in force in 2000 in g/l
car_p7	A 3 1970 Policy - exhaust emissions cars
car_p8	A 3 1980 Policy - exhaust emissions cars
car_p9	A 3 1990 Policy - exhaust emissions cars
car_p0	A 3 2000 Policy - exhaust emissions cars
car_i7	A 3.3 1970 Instruments: Exhaust emissions from cars
car_i8	A 3.3 1980 Instruments: Exhaust emissions from cars
car_i9	A 3.3 1990 Instruments: Exhaust emissions from cars
car_i0	A 3.3 2000 Instruments: Exhaust emissions from cars
car_n7	A 3.4: NOx emissions limit value level in 1970 in g/km adjusted
car_n8	A 3.4: NOx emissions limit value level in 1980 in g/km adjusted
car_n9	A 3.4: NOx emissions limit value level in 1990 in g/km adjusted
car_n0	A 3.4: NOx emissions limit value level in 2000 in g/km adjusted
car_ny7	A 3.4: NOx emissions limit value in force in 1970
car_ny8	A 3.4: NOx emissions limit value in force in 1980
car_ny9	A 3.4: NOx emissions limit value in force in 1990
car_ny0	A 3.4: NOx emissions limit value in force in 2000
car_c7	A 3.5: CO emissions limit value level in 1970 in g/km adjusted
car_c8	A 3.5: CO emissions limit value level in 1980 in g/km adjusted
car_c9	A 3.5: CO emissions limit value level in 1990 in g/km adjusted

car_c0	A 3.5: CO emissions limit value level in 2000 in g/km adjusted
car_cy7	A 3.5: CO emissions limit value in force in 1970
car_cy8	A 3.5: CO emissions limit value in force in 1980
car_cy9	A 3.5: CO emissions limit value in force in 1990
car_cy0	A 3.5: CO emissions limit value in force in 2000
car_cv7	A 3.5: CO emissions as volume percent limit value level in 1970
car_cv8	A 3.5: CO emissions as volume percent limit value level in 1980
car_cv9	A 3.5: CO emissions as volume percent limit value level in 1990
car_cv0	A 3.5: CO emissions as volume percent limit value level in 2000
car_h7	A 3.6: HC emissions limit value level in 1970 in g/km adjusted
car_h8	A 3.6: HC emissions limit value level in 1980 in g/km adjusted
car_h9	A 3.6: HC emissions limit value level in 1990 in g/km adjusted
car_h0	A 3.6: HC emissions limit value level in 2000 in g/km adjusted
car_hy7	A 3.6: HC emissions limit in force in 1970
car_hy8	A 3.6: HC emissions limit in force in 1980
car_hy9	A 3.6: HC emissions limit in force in 1990
car_hy0	A 3.6: HC emissions limit in force in 2000
plan_p7	A 4 1970 Policy - airborne emissions large combustion plants
plan_p8	A 4 1980 Policy - airborne emissions large combustion plants
plan_p9	A 4 1990 Policy - airborne emissions large combustion plants
plan_p0	A 4 2000 Policy - airborne emissions large combustion plants
plan_s7	A 4.3: SO2 emissions limit value level in 1970 in mg/m3
plan_s8	A 4.3: SO2 emissions limit value level in 1980 in mg/m3
plan_s9	A 4.3: SO2 emissions limit value level in 1990 in mg/m3
plan_s0	A 4.3: SO2 emissions limit value level in 2000 in mg/m3
plan_sy7	A 4.3: SO2 emissions limit value in force in 1970
plan_sy8	A 4.3: SO2 emissions limit value in force in 1980
plan_sy9	A 4.3: SO2 emissions limit value in force in 1990
plan_sy0	A 4.3: SO2 emissions limit value in force in 2000
plan_n7	A 4.4: NOx emissions from LCP limit value level in 1970 in mg/m3
plan_n8	A 4.4: NOx emissions from LCP limit value level in 1980 in mg/m3
plan_n9	A 4.4: NOx emissions from LCP limit value level in 1990 in mg/m3
plan_n0	A 4.4: NOx emissions from LCP limit value level in 2000 in mg/m3
plan_ny7	A 4.4: NOx emissions from LCP limit value in force in 1970
plan_ny8	A 4.4: NOx emissions from LCP limit value in force in 1980
plan_ny9	A 4.4: NOx emissions from LCP limit value in force in 1990
plan_ny0	A 4.4: NOx emissions from LCP limit value in force in 2000
dust_p7	A 5 1970 Policy - dust concentration in industrial emissions
dust_p8	A 5 1980 Policy - dust concentration in industrial emissions
dust_p9	A 5 1990 Policy - dust concentration in industrial emissions
dust_p0	A 5 2000 Policy - dust concentration in industrial emissions
dust_s7	A 5.3: DUST from LCP limit value level in 1970 in mg/m3
dust_s8	A 5.3: DUST from LCP limit value level in 1980 in mg/m3
dust_s9	A 5.3: DUST from LCP limit value level in 1990 in mg/m3
dust_s0	A 5.3: DUST from LCP limit value level in 2000 in mg/m3
dust_sy7	A 5.3: DUST from LCP limit value in force in 1970
dust_sy8	A 5.3: DUST from LCP limit value in force in 1980
dust_sy9	A 5.3: DUST from LCP limit value in force in 1990
dust_sy0	A 5.3: DUST from LCP limit value in force in 2000
bath_p7	B 1 1970 Policy - quality bathing water
bath_p8	B 1 1980 Policy - quality bathing water
bath_p9	B 1 1990 Policy - quality bathing water
bath_p0	B 1 2000 Policy - quality bathing water
bath_i7	B 1.4 1970 Instrument: Quality bathing water

bath_i8	B 1.4 1980 Instrument: Quality bathing water
bath_i9	B 1.4 1990 Instrument: Quality bathing water
bath_i0	B 1.4 2000 Instrument: Quality bathing water
bath_s7	B 1.4: COLIFORMS limit value in 1970 per 100 ml
bath_s8	B 1.4: COLIFORMS limit value in 1980 per 100 ml
bath_s9	B 1.4: COLIFORMS limit value in 1990 per 100 ml
bath_s0	B 1.4: COLIFORMS limit value in 2000 per 100 ml
bath_sy7	B 1.4: COLIFORMS limit value in force in 1970
bath_sy8	B 1.4: COLIFORMS limit value in force in 1980
bath_sy9	B 1.4: COLIFORMS limit value in force in 1990
bath_sy0	B 1.4: COLIFORMS limit value in force in 2000
dete_p7	B 2 1970 Policy - hazardous substances in detergents
dete_p8	B 2 1980 Policy - hazardous substances in detergents
dete_p9	B 2 1990 Policy - hazardous substances in detergents
dete_p0	B 2 2000 Policy - hazardous substances in detergents
dete_i7	B 2.3 1970 Instruments: Hazardous substances in detergents
dete_i8	B 2.3 1980 Instruments: Hazardous substances in detergents
dete_i9	B 2.3 1990 Instruments: Hazardous substances in detergents
dete_i0	B 2.3 2000 Instruments: Hazardous substances in detergents
watf_p7	B 3 1970 Policy - efficient use of water industry
watf_p8	B 3 1980 Policy - efficient use of water industry
watf_p9	B 3 1990 Policy - efficient use of water industry
watf_p0	B 3 2000 Policy - efficient use of water industry
watp_p7	B 4 1970 Policy - water protection – industrial discharges
watp_p8	B 4 1980 Policy - water protection – industrial discharges
watp_p9	B 4 1990 Policy - water protection – industrial discharges
watp_p0	B 4 2000 Policy - water protection – industrial discharges
watp_i7	B 4.3 1970 Instruments: Water protection – industrial discharges
watp_i8	B 4.3 1980 Instruments: Water protection – industrial discharges
watp_i9	B 4.3 1990 Instruments: Water protection – industrial discharges
watp_i0	B 4.3 2000 Instruments: Water protection – industrial discharges
watp_l7	B 4.4: LEAD in industrial discharges limit value in 1970 in mg/l
watp_l8	B 4.4: LEAD in industrial discharges limit value in 1980 in mg/l
watp_l9	B 4.4: LEAD in industrial discharges limit value in 1990 in mg/l
watp_l0	B 4.4: LEAD in industrial discharges limit value in 2000 in mg/l
watp_ly7	B 4.4: LEAD in industrial discharges limit value in force in 1970
watp_ly8	B 4.4: LEAD in industrial discharges limit value in force in 1980
watp_ly9	B 4.4: LEAD in industrial discharges limit value in force in 1990
watp_ly0	B 4.4: LEAD in industrial discharges limit value in force in 2000
watp_c7	B 4.5: COPPER in industrial discharged limit value in 1970 in mg/l
watp_c8	B 4.5: COPPER in industrial discharged limit value in 1980 in mg/l
watp_c9	B 4.5: COPPER in industrial discharged limit value in 1990 in mg/l
watp_c0	B 4.5: COPPER in industrial discharged limit value in 2000 in mg/l
watp_cy7	B 4.5: COPPER in industrial discharged limit value in force in 1970
watp_cy8	B 4.5: COPPER in industrial discharged limit value in force in 1980
watp_cy9	B 4.5: COPPER in industrial discharged limit value in force in 1990
watp_cy0	B 4.5: COPPER in industrial discharged limit value in force in 2000
watp_z7	B 4.6: ZINC in industrial discharges limit value in 1970 in mg/l
watp_z8	B 4.6: ZINC in industrial discharges limit value in 1980 in mg/l
watp_z9	B 4.6: ZINC in industrial discharges limit value in 1990 in mg/l
watp_z0	B 4.6: ZINC in industrial discharges limit value in 2000 in mg/l
watp_zy7	B 4.6: ZINC in industrial discharges limit value in force in 1970
watp_zy8	B 4.6: ZINC in industrial discharges limit value in force in 1980
watp_zy9	B 4.6: ZINC in industrial discharges limit value in force in 1990

watp_zy0	B 4.6: ZINC in industrial discharges limit value in force in 2000
watp_o7	B 4.7: BOD in industrial discharges limit value in 1970 in mg/l
watp_o8	B 4.7: BOD in industrial discharges limit value in 1980 in mg/l
watp_o9	B 4.7: BOD in industrial discharges limit value in 1990 in mg/l
watp_o0	B 4.7: BOD in industrial discharges limit value in 2000 in mg/l
watp_oy7	B 4.7: BOD in industrial discharged limit value in force in 1970
watp_oy8	B 4.7: BOD in industrial discharged limit value in force in 1980
watp_oy9	B 4.7: BOD in industrial discharged limit value in force in 1990
watp_oy0	B 4.7: BOD in industrial discharged limit value in force in 2000
watp_r7	B 4.8: CHROMIUM in industrial discharges limit value in 1970 in mg/l
watp_r8	B 4.8: CHROMIUM in industrial discharges limit value in 1980 in mg/l
watp_r9	B 4.8: CHROMIUM in industrial discharges limit value in 1990 in mg/l
watp_r0	B 4.8: CHROMIUM in industrial discharges limit value in 2000 in mg/l
watp_ry7	B 4.8: CHROMIUM in industrial discharges limit value in force in 1970
watp_ry8	B 4.8: CHROMIUM in industrial discharges limit value in force in 1980
watp_ry9	B 4.8: CHROMIUM in industrial discharges limit value in force in 1990
watp_ry0	B 4.8: CHROMIUM in industrial discharges limit value in force in 2000
soil_p7	C 1 1970 Policy - contaminated sites
soil_p8	C 1 1980 Policy - contaminated sites
soil_p9	C 1 1990 Policy - contaminated sites
soil_p0	C 1 2000 Policy - contaminated sites
soil_i7	C 1.3 1970 Instruments: Contaminated sites policy
soil_i8	C 1.3 1980 Instruments: Contaminated sites policy
soil_i9	C 1.3 1990 Instruments: Contaminated sites policy
soil_i0	C 1.3 2000 Instruments: Contaminated sites policy
wast_a7	D 1 1970 Policy - Waste recovery target
wast_a8	D 1 1980 Policy - Waste recovery target
wast_a9	D 1 1990 Policy - Waste recovery target
wast_a0	D 1 2000 Policy - Waste recovery target
wast_b7	D 1 1970 Policy - Waste reuse target
wast_b8	D 1 1980 Policy - Waste reuse target
wast_b9	D 1 1990 Policy - Waste reuse target
wast_b0	D 1 2000 Policy - Waste reuse target
wast_c7	D 1 1970 Policy - Waste landfill target
wast_c8	D 1 1980 Policy - Waste landfill target
wast_c9	D 1 1990 Policy - Waste landfill target
wast_c0	D 1 2000 Policy - Waste landfill target
wast_g7	D: GLASS REUSE/RECYCLING target in 1970 in percent
wast_g8	D: GLASS REUSE/RECYCLING target in 1980 in percent
wast_g9	D: GLASS REUSE/RECYCLING target in 1990 in percent
wast_g0	D: GLASS REUSE/RECYCLING target in 2000 in percent
wast_gy7	D: GLASS REUSE/RECYCLING target in 1970 in force
wast_gy8	D: GLASS REUSE/RECYCLING target in 1980 in force
wast_gy9	D: GLASS REUSE/RECYCLING target in 1990 in force
wast_gy0	D: GLASS REUSE/RECYCLING target in 2000 in force
wast_w7	D: WASTE PAPER REUSE/RECYCLING target in 1970 in percent
wast_w8	D: WASTE PAPER REUSE/RECYCLING target in 1980 in percent
wast_w9	D: WASTE PAPER REUSE/RECYCLING target in 1990 in percent
wast_w0	D: WASTE PAPER REUSE/RECYCLING target in 2000 in percent
wast_wy7	D: WASTE PAPER REUSE/RECYCLING target in 1970 in force
wast_wy8	D: WASTE PAPER REUSE/RECYCLING target in 1980 in force
wast_wy9	D: WASTE PAPER REUSE/RECYCLING target in 1990 in force
wast_wy0	D: WASTE PAPER REUSE/RECYCLING target in 2000 in force
wast_z7	(placeholder with no information)

wast_z8	(placeholder with no information)
wast_z9	(placeholder with no information)
wast_z0	(placeholder with no information)
wast_zy7	(placeholder with no information)
wast_zy8	(placeholder with no information)
wast_zy9	(placeholder with no information)
wast_zy0	(placeholder with no information)
pawa_p7	D 2 1970 Policy - promote refillable beverage containers
pawa_p8	D 2 1980 Policy - promote refillable beverage containers
pawa_p9	D 2 1990 Policy - promote refillable beverage containers
pawa_p0	D 2 2000 Policy - promote refillable beverage containers
pawa_i7	D 2.3 1970 Instruments: Policy to promote refillable beverage containers
pawa_i8	D 2.3 1980 Instruments: Policy to promote refillable beverage containers
pawa_i9	D 2.3 1990 Instruments: Policy to promote refillable beverage containers
pawa_i0	D 2.3 2000 Instruments: Policy to promote refillable beverage containers
depv_p7	D 2.4 1970 Policy - voluntary deposit system
depv_p8	D 2.4 1980 Policy - voluntary deposit system
depv_p9	D 2.4 1990 Policy - voluntary deposit system
depv_p0	D 2.4 2000 Policy - voluntary deposit system
nois_p7	E 1 1970 Policy - noise emissions from lorries
nois_p8	E 1 1980 Policy - noise emissions from lorries
nois_p9	E 1 1990 Policy - noise emissions from lorries
nois_p0	E 1 2000 Policy - noise emissions from lorries
nois_i7	E 1.3 1970 Instruments: Noise emission from lorries
nois_i8	E 1.3 1980 Instruments: Noise emission from lorries
nois_i9	E 1.3 1990 Instruments: Noise emission from lorries
nois_i0	E 1.3 2000 Instruments: Noise emission from lorries
nois_s7	E 1.4: NOISE EMISSIONS standard from lorries in 1970 in dB (A)
nois_s8	E 1.4: NOISE EMISSIONS standard from lorries in 1980 in dB (A)
nois_s9	E 1.4: NOISE EMISSIONS standard from lorries in 1990 in dB (A)
nois_s0	E 1.4: NOISE EMISSIONS standard from lorries in 2000 in dB (A)
nois_sy7	E 1.4: NOISE EMISSIONS standard from lorries in force in 1970
nois_sy8	E 1.4: NOISE EMISSIONS standard from lorries in force in 1980
nois_sy9	E 1.4: NOISE EMISSIONS standard from lorries in force in 1990
nois_sy0	E 1.4: NOISE EMISSIONS standard from lorries in force in 2000
motw_p7	E 2 1970 Policy - noise level around motorways
motw_p8	E 2 1980 Policy - noise level around motorways
motw_p9	E 2 1990 Policy - noise level around motorways
motw_p0	E 2 2000 Policy - noise level around motorways
motw_s7	E 2.3: MOTORWAY NOISE EMISSIONS standard in 1970 in dB (A)
motw_s8	E 2.3: MOTORWAY NOISE EMISSIONS standard in 1980 in dB (A)
motw_s9	E 2.3: MOTORWAY NOISE EMISSIONS standard in 1990 in dB (A)
motw_s0	E 2.3: MOTORWAY NOISE EMISSIONS standard in 2000 in dB (A)
motw_sy7	E 2.3: MOTORWAY NOISE EMISSIONS standard in force in 1970
motw_sy8	E 2.3: MOTORWAY NOISE EMISSIONS standard in force in 1980
motw_sy9	E 2.3: MOTORWAY NOISE EMISSIONS standard in force in 1990
motw_sy0	E 2.3: MOTORWAY NOISE EMISSIONS standard in force in 2000
work_p7	E 3 1970 Policy - noise level working environment
work_p8	E 3 1980 Policy - noise level working environment
work_p9	E 3 1990 Policy - noise level working environment
work_p0	E 3 2000 Policy - noise level working environment
work_s7	E 3.3: WORKING NOISE EMISSIONS standard value in 1970
work_s8	E 3.3: WORKING NOISE EMISSIONS standard value in 1980
work_s9	E 3.3: WORKING NOISE EMISSIONS standard value in 1990

work_s0	E 3.3: WORKING NOISE EMISSIONS standard value in 2000
work_sy7	E 3.3: WORKING NOISE EMISSIONS standard value in force in 1970
work_sy8	E 3.3: WORKING NOISE EMISSIONS standard value in force in 1980
work_sy9	E 3.3: WORKING NOISE EMISSIONS standard value in force in 1990
work_sy0	E 3.3: WORKING NOISE EMISSIONS standard value in force in 2000
ener_p7	F 1 1970 Policy - electricity from renewable sources
ener_p8	F 1 1980 Policy - electricity from renewable sources
ener_p9	F 1 1990 Policy - electricity from renewable sources
ener_p0	F 1 2000 Policy - electricity from renewable sources
ener_i7	F 1.3 1970 Instruments: Electircity from renewable sources
ener_i8	F 1.3 1980 Instruments: Electircity from renewable sources
ener_i9	F 1.3 1990 Instruments: Electircity from renewable sources
ener_i0	F 1.3 2000 Instruments: Electircity from renewable sources
cont_p7	F 2 1970 Policy - recycling construction waste
cont_p8	F 2 1980 Policy - recycling construction waste
cont_p9	F 2 1990 Policy - recycling construction waste
cont_p0	F 2 2000 Policy - recycling construction waste
enef_p7	G 1 1970 Policy - energy efficiency of refrigerators
enef_p8	G 1 1980 Policy - energy efficiency of refrigerators
enef_p9	G 1 1990 Policy - energy efficiency of refrigerators
enef_p0	G 1 2000 Policy - energy efficiency of refrigerators
enef_i7	G 1.3 1970 Instruments: Energy efficiency of refrigerators
enef_i8	G 1.3 1980 Instruments: Energy efficiency of refrigerators
enef_i9	G 1.3 1990 Instruments: Energy efficiency of refrigerators
enef_i0	G 1.3 2000 Instruments: Energy efficiency of refrigerators
entx_p7	G 2 1970 Policy - energy tax electricity private households
entx_p8	G 2 1980 Policy - energy tax electricity private households
entx_p9	G 2 1990 Policy - energy tax electricity private households
entx_p0	G 2 2000 Policy - energy tax electricity private households
entx_s7	G 2.3: ELECTRICITY TAX rate in 1970 per kWh adjusted to $
entx_s8	G 2.3: ELECTRICITY TAX rate in 1980 per kWh adjusted to $
entx_s9	G 2.3: ELECTRICITY TAX rate in 1990 per kWh adjusted to $
entx_s0	G 2.3: ELECTRICITY TAX Rate in 2000 per kWh adjusted to $
entx_sy7	G 2.3: ELECTRICITY TAX in force in 1970
entx_sy8	G 2.3: ELECTRICITY TAX in force in 1980
entx_sy9	G 2.3: ELECTRICITY TAX in force in 1990
entx_sy0	G 2.3: ELECTRICITY TAX in force in 2000
levy_p7	G 3 1970 Policy - energy tax on heavy fuel oil in industry
levy_p8	G 3 1980 Policy - energy tax on heavy fuel oil in industry
levy_p9	G 3 1990 Policy - energy tax on heavy fuel oil in industry
levy_p0	G 3 2000 Policy - energy tax on heavy fuel oil in industry
levy_s7	G 3.2: HEAVY FUEL OIL LEVY RATE for industry in 1970 per 1000 kg adjusted to $
levy_s8	G 3.2: HEAVY FUEL OIL LEVY RATE for industry in 1980 per 1000 kg adjusted to $
levy_s9	G 3.2: HEAVY FUEL OIL LEVY RATE for industry in 1990 per 1000 kg adjusted to $
levy_s0	G 3.2: HEAVY FUEL OIL LEVY RATE for industry in 2000 per 1000 kg adjusted to $
levy_sy7	G 3.2: HEAVY FUEL OIL LEVY in force in 1970
levy_sy8	G 3.2: HEAVY FUEL OIL LEVY in force in 1980
levy_sy9	G 3.2: HEAVY FUEL OIL LEVY in force in 1990
levy_sy0	G 3.2: HEAVY FUEL OIL LEVY in force in 2000
co2_p7	G 4 1970 Policy - reduction of CO^2 emissions from heavy industry

co2_p8	G 4 1980 Policy - reduction of CO^2 emissions from heavy industry
co2_p9	G 4 1990 Policy - reduction of CO^2 emissions from heavy industry
co2_p0	G 4 2000 Policy - reduction of CO^2 emissions from heavy industry
co2_i7	G 4.3 1970 Instruments: Reduction of CO^2 emissions from heavy industry
co2_i8	G 4.3 1980 Instruments: Reduction of CO^2 emissions from heavy industry
co2_i9	G 4.3 1990 Instruments: Reduction of CO^2 emissions from heavy industry
co2_i0	G 4.3 2000 Instruments: Reduction of CO^2 emissions from heavy industry
fors_p7	H 1 1970 Policy - forest protection
fors_p8	H 1 1980 Policy - forest protection
fors_p9	H 1 1990 Policy - forest protection
fors_p0	H 1 2000 Policy - forest protection
fors_i7	H 1.3 1970 Instruments: Forest protection policy
fors_i8	H 1.3 1980 Instruments: Forest protection policy
fors_i9	H 1.3 1990 Instruments: Forest protection policy
fors_i0	H 1.3 2000 Instruments: Forest protection policy
audi_p7	I 1 1970 Policy - Eco-Audit
audi_p8	I 1 1980 Policy - Eco-Audit
audi_p9	I 1 1990 Policy - Eco-Audit
audi_p0	I 1 2000 Policy - Eco-Audit
eia_p7	I 2 1970 Policy - environmental impact assessment
eia_p8	I 2 1980 Policy - environmental impact assessment
eia_p9	I 2 1990 Policy - environmental impact assessment
eia_p0	I 2 2000 Policy - environmental impact assessment
ecol_p7	I 3 1970 Policy - eco-labelling
ecol_p8	I 3 1980 Policy - eco-labelling
ecol_p9	I 3 1990 Policy - eco-labelling
ecol_p0	I 3 2000 Policy - eco-labelling
prec_p7	I 4 1970 Policy - reference to precautionary principle in legislation
prec_p8	I 4 1980 Policy - reference to precautionary principle in legislation
prec_p9	I 4 1990 Policy - reference to precautionary principle in legislation
prec_p0	I 4 2000 Policy - reference to precautionary principle in legislation
sust_p7	I 5 1970 Policy - reference to sustainability in legislation
sust_p8	I 5 1980 Policy - reference to sustainability in legislation
sust_p9	I 5 1990 Policy - reference to sustainability in legislation
sust_p0	I 5 2000 Policy - reference to sustainability in legislation
susp_p7	I 6 1970 Policy - national environmental policy or sustainable development plan
susp_p8	I 6 1980 Policy - national environmental policy or sustainable development plan
susp_p9	I 6 1990 Policy - national environmental policy or sustainable development plan
susp_p0	I 6 2000 Policy - national environmental policy or sustainable development plan

II.4.6 Missing Values

Missing values were coded 99, 88, 77, 00.

III Changes and Specifications in the Data Set of the Dependent Variable

III.1 General Transformation of the Data

In general the values have been transformed in that way that they can be compared. For instance, the setting values that displayed different levels of measuring have been adjusted.

III.2 Changes or Adoption Being Made

This section will give an overview over data specifications and specific changes and transformation being made. There have occurred some problems after the collection of the data. The following passages show how these problems have been solved. The data specifications and changes are ordered according to their belonging to a specific environmental media.

III.2.1 Air (A)

A 1 Sulphur Content in Gas Oil

- limit values are not for household use but industrial processing/industrial heating equipment
- limit values do apply to certain oil types only
- limit value might be different for natural high/low sulphur content oils
- limit values might apply only to (special) regions, mostly polluted urban areas
- limit values might apply only to imported gas oil

All those types of limit values are accepted and treated as being comparable.

A.3 Passenger Cars Exhaust Emissions

We recalculated all values not only in terms of units of measurement but also regarding the varying test cycles such that we have comparable figures expressed as g/km now.
There is one subgroup for CO-limit value expressed as vol./percent since there is no possibility to recalculate that and there are besides more than one cases for it.

A.4 Airborne Emissions from Large Combust. Plants

If differentiation in individual countries: the *highest* plant capacity (mostly <500 MW) for *new* plants applying in the particular country which relates (in general) to the *strictest* standard is taken. If this differentiation exists, we take the values for *coal as fuel* and *production of electricity* (industry).
Where possible, recalculations have been made so that the unit is only mg/m^3. Values depending (and/or) on gas flow (speed), temperature of gas, volume of flue gas, stack height, regional protection level as well as single polluting industrial facility limit values (permits) are not taken.

A.5 Dust Concentration in Industrial Emissions

If differentiation in individual countries: we take the *highest* plant capacity (mostly <500 MW) for *new* plants applying in the particular country which relates (in general) to the *strictest* standard. If an according differentiation exists, we take the values for *coal as fuel* and *production of electricity* (industry).
Where possible, recalculations have been made so that the unit is only mg/m^3. Values depending (and/or) on gas flow (speed), temperature of gas, volume of flue gas, stack height, regional protection level as well as single polluting facility limit values (permits) are not taken.
Daily/monthly/yearly average of dust concentration: as recalculation is not possible and values are comparable (expressed as mg/m^3) we decided to accept the values as they are.

A 5.3: Dust Concentration in Industrial Emissions

Because of several problems stemming from the existence of different values for different types of industries/industrial processings, the question text will be *interpreted* as referring to large combustion plants (or also to large combustion plants). With this solution, it became possible to select a single value for dust concentration expressed as mg/m^3 (not all countries provided a single value at first). For EU countries, EC 88/609 becomes relevant (not those quoted in the manual text).

III.2.2 Water (B)

B.1.3 Bathing Water Quality

Instrument type: Based on further research we divide countries into 'monitoring' OR 'obligatory standard', depending on what happens if standards are not met. A closure of beaches and related measures indicate an obligatory standard. Just warnings etc. mean monitoring.

B 1.4

Only limit values for TOTAL coliforms (not sub-types) are taken. Where possible, recalculations/transformations have been made so that the unit is only x/100 ml.

B.2.2 Hazardous Substances in Detergents

If reference to 'labelling" is made by national policy expert, it becomes 'information based instrument"; holds also true for voluntary labelling.

B 3 Water Extraction tax

All taxes/fees/charges given in questionnaires are counted as a ‘tax” even when the resource-saving intention is not clear or doubtful. The only exception is when there is clear evidence that it has no resource saving intention at all, e.g. in UK.

B.4.4-8 Water Protection

Not taken are:
- quality objectives that are not limit values (emission standards, **not** imission limit values)
- general water quality standards that do not explicitly relate to industrial water discharges

For B 4.8 the values for Chrom. 3 is taken (not Chrom. 6)

Different BOD types are not distinguished, but COD is not taken.

Except for Mexico, the measurement ’end of pipe‘ is confirmed for every country. In Mexico, it works slightly different, but the comparability can be assumed. However, ‘end of pipe‘ can mean before or after sewage plant treatment if it exists within an industrial plant (no detailed information from every country). It is, however, assured that values for indirect discharges (into public sewerage system) are excluded.

Where possible, recalculations have been made so that the unit is only mg/l. Values depending on regional protection level as well as single polluting facility limit values (permits) are not taken.

III.2.3 Waste (D)

D1.3/1.6/1.9: Fraction of total waste covered by targets for recovery, reuse and landfill of waste

Remark on difference between data and original questionnaire: Those questions turned out to be the most difficult ones. A majority of experts didn’t understand the intention. Others said that they weren’t able to do the calculations because they amount of waste produced each year in their country is not known. A principal problem that makes these questions useless is that they inappropriately combined *output* with *outcome* information which is not our intention in the project (obviously we didn’t think of this problem when developing the questions – our fault).
All those variables are deleted from the data set. They are replaced with variables that include information on targets for the recycling/reuse of glass and waste-paper/cardboard. The necessary information was obtained by contacting the experts again and doing additional research. However, this solution cannot replace the three former settings-items but instead creates two new ones.

III.2.4 Noise (E)

E 1.4 Noise Emissions from Lorries Standard

Standards taken are:
- for highest engine capacity
- highest weight class if existing and relevant in particular country
- diesel engine if different from all engines

E 2/2.3Noise Emissions from Motorways

Standards taken are:
- for night
- highest protection zone (mostly inner city living areas)

Where possible, recalculations have been made so that the unit is only dB (A). Values with incomparable units are not taken (but existence of value is acknowledged).

E 3 Noise Level Around Working Environments

Standards taken are:
- Day time (usually 6-22 o'clock)
- Those for average of 8 hours working day and 'average industrial working place' (not peak values or those for special working places, like mining)

Where possible, recalculations have been made so that the unit is only dB (A). Values with incomparable units are not taken (but existence of value is acknowledged).

III.2.5 Resource Protection (F)

F 1 Electricity for Renewable Energy Sources

Policies are counted that either support all renewable energies or only selected ones

III.2.6 Climate (G)

G 1.2 Energy Efficiency of Refrigerators

An obligatory (maximum use allowed) standard is counted as an 'obligatory standard", not an 'information based instrument".

G 2 Tax on Electricity

Only **ENVIRONMENTAL taxes** on electricity are counted (environmental intention to reduce electricity consumption is (also) seen as policy goal).
- taxation of raw materials (coal, oil) for electricity production instead of end consumer taxing is not counted

-VAT like tax on energy consumption is counted but price tax rate is not taken (hence no setting data)

Rates are adjusted to $ according to the exchange rate in 1970, 1980, 1990 and 2000 (thus not at constant prices or ppp).

G 3.3 Levy on Heavy Fuel Oils Usage in Industry

Since levy rates can vary according to the fluidity of the oil type, the most expensive type rate is taken.
Since levy rates were often not provided for 1000 kg but to litre, 1 litre oil is treated as being equivalent to 1 litre water which means that 1000 l = 1000 kg. However, we are aware of the fact that oil types have another density than water but since we don't know the oil types' densities (neither the experts), there is no other solution.
Rates are adjusted to $ according to the exchange rate in 1970, 1980, 1990 and 2000 (thus not constant prices).

G 4 CO2 Reduction in Heavy Industry

All policies in industry are counted (not just heavy industry).

III.2.7 Nature Conversation (H)

H 1 Forest Protection

If the national policy expert made a reference to 'managing" as being the dominant instrument, 'planning instrument" was selected in case the expert had made another decision.

III.2.8 General (I)

I.3 Eco-Labelling

For all EU-countries there is a label since 1992 (880/92 EC). If a national eco-label did also exist, we counted the one that was introduced earlier.