

ECONOMY AND FINANCE

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Environmental taxes in the EU, 1980-1999

Steinar Todsen Anton Steurer

Environmental tax revenues in the EU amounted to 228 billion euro in 1999

In 1999, revenues from environmental taxes in the EU amounted to 228 billion euro. This represented 6.7% of the total revenues from taxes and social contributions, and 2.8% of GDP, see Table 1.

Environmental taxes can be divided into four broad categories: energy taxes, non-energy transport taxes, pollution taxes and resource taxes. Of these categories, energy taxes are by far the most significant, generating a revenue of 175 billion euro in 1999. This is more than three-quarters (76.9%) of environmental tax receipts and represents 5.2% of total revenues from taxes and social contributions. Energy taxes are taxes on energy products used for both transport and stationary purposes. The most important are taxes on petrol, diesel and fuel oils. CO₂-taxes are also included in this category.

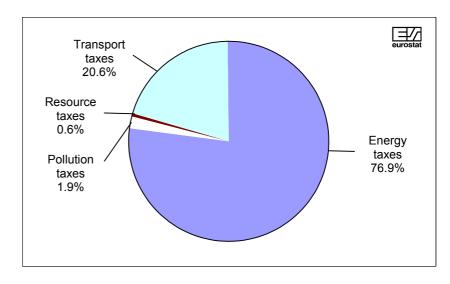


Figure 1: Structure of environmental tax revenue in percent, European Union, 1999

The total revenue generated by transport taxes was 46.8 billion euro in 1999, representing 20.6% of total environmental tax revenues and 1.4% of the total revenues from taxes and social contributions. The category transport taxes mainly includes taxes on the purchase, ownership and use of motor vehicles.

The role played by other environmental taxes is rather marginal. Pollution taxes are taxes on measured or estimated emissions to air and water, disposal of solid waste, noise etc., and generated a revenue of 4.3 billion euro in 1999. The revenue from resource taxes, mainly related to water consumption, was 1.4 billion euro. All together, pollution and resource taxes accounted for 2.5% of total environmental tax revenue and 0.17% of the total revenue from taxes and social contributions.

Table 1: Revenue from environmental taxes in the European Union, 1999

	Million euro	In % of GDP	In % of total taxes and social contributions	Structure of environmental taxes in %
Energy taxes	175 137	2.18	5.17	76.93
Pollution taxes	4 288	0.05	0.13	1.88
Resource taxes	1 406	0.02	0.04	0.62
Transport taxes	46 838	0.58	1.38	20.57
Total environmental taxes	227 669	2.84	6.72	100.00
Total taxes and social contributions	3 388 782	42.27	100.00	
GDP	8 016 585	100.00		

Slow increase from 1980 to 1999

Since 1980, the share of environmental taxes in the EU total revenues from taxes and social contributions has increased by 0.9 percentage points, from 5.8 to 6.7 percent, as shown in Figure 2. Periods of regular increases in the share are the years from 1982 to 1986, and from 1990 to 1994.

The introduction of the new version of the European System of Accounts (ESA95) has caused a break in the time series between 1994 and 1995. This has a relatively small effect for the environmental tax revenue data for the EU as a whole, however, as illustrated by Figure 2.

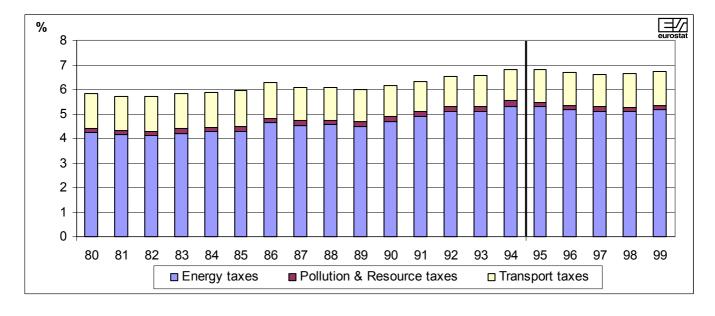


Figure 2: Revenue from environmental taxes in the European Union, 1980-1999, in percent of total revenue from taxes and social contributions

Figure 3 shows that the EU environmental tax revenue in nominal terms is 4.2 times higher in 1999 than in 1980. In comparison, total taxes and social contributions increased by a factor of 3.6 over the same period. This is reflected in the 0.9 percentage point gain in the share of environmental taxes in the revenues from total taxes and social contributions. Nominal GDP increased by a factor of 3.3 from 1980 to 1999.

The weight of energy taxes within the whole taxation system has gained one percentage point compared to the base year (5.2% in 1999 compared to 4.2% in 1980). Among the main environmental tax aggregates, transport taxes increased least from 1980 to 1999, by a factor of 3.5. Growth was relatively low in the 1980s, but accelerated in the 1990s.

For pollution and resource taxes, classification changes related to the introduction of ESA95 are relatively more important than for energy and transport taxes, so the old and new data are not directly comparable. From 1995 to 1999, the revenue increase from pollution taxes was 51%, and 24% for resource taxes. The total revenue from environmental taxes increased by 25% in this period.

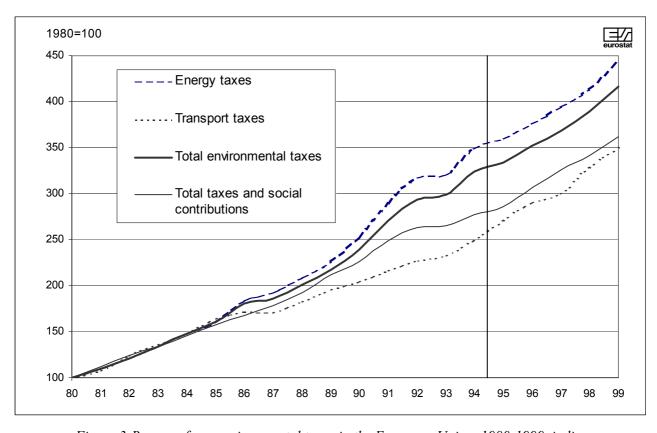


Figure 3:Revenue from environmental taxes in the European Union, 1980-1999, indices with 1980=100



The importance of environmental taxes varies significantly across countries

The share of environmental taxes in the total revenue from taxes and social contributions varies significantly across Member States (see figure 4 and table 6). In 1999, the lowest ratios, between 5 and 6%, were observed in France, Austria, Germany, Sweden and Belgium. By contrast, the highest ratios were observed in Denmark, Portugal, the Netherlands and Ireland, all of them with a ratio above 9%. Italy and the United Kingdom also have a relatively high contribution of environmental taxes to total revenue from taxes and social contributions, more than 8%.

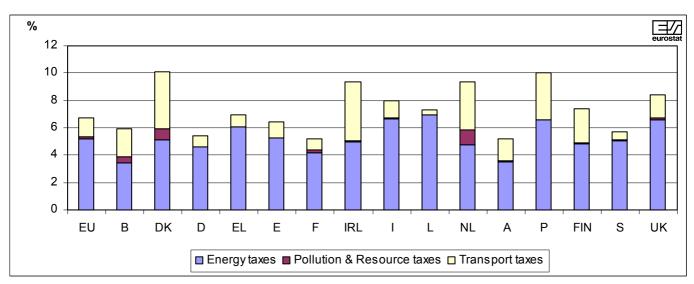


Figure 4: Revenues from environmental taxes by Member State in 1999, in percent of total revenues from taxes and social contributions

When the revenue from environmental taxes is related to GDP, a somewhat different picture emerges. Denmark is still the country with the highest share of environmental taxes (5.1% of GDP), but the difference relative to the other EU countries is considerably higher when the share is measured in % of GDP rather than total taxes and social contributions. The reason is that Denmark has one of the highest shares of taxes and social contributions compared to GDP in the EU (51% compared to 42% for the EU as a whole, see table 7). The second highest share of environmental taxes compared to GDP was found in the Netherlands (3.9%), while Portugal, Italy and Finland had shares of about 3.5%. Spain, Austria, Germany and France had the lowest shares, with around 2.3% of GDP.

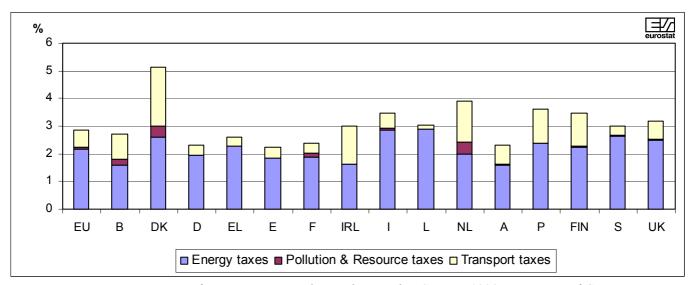


Figure 5: Revenues from environmental taxes by Member State in 1999, in percent of GDP



In almost all the EU countries, there is a strong concentration of environmental taxes in the field of energy. Energy taxes generate more than 50% of the total revenue from environmental taxes in all EU countries. Ireland, Denmark, the Netherlands, Portugal and Finland are countries with significant transport taxes.

The role of pollution and resource taxes is marginal in most Member States. The Netherlands, Denmark and Belgium were the only EU countries with a non-negligible contribution of pollution taxes to their total tax receipts. In Denmark there are taxes on several polluting products, such as pesticides, retail containers, carrier bags and batteries, as well as effluent charges and a duty on waste. In Belgium and the Netherlands the pollution taxes are mainly related to part-financing of the treatment of wastewater, and for Belgium also solid waste. In most EU countries these activities are either financed via fees or the management of waste and wastewater is largely or completely privatised. Denmark and France are the only countries with non-negligible revenue from resource taxes, in both cases related to water consumption.

> ESSENTIAL INFORMATION - METHODOLOGICAL NOTES

The basic framework for this presentation was developed jointly by Eurostat, the European Commission Directorate General Environment and Directorate General Taxation and Customs Union, OECD and IEA. According to this framework, an environmental tax is defined as a tax on an environmentally harmful tax base. Included are taxes on e.g. transport fuels, motor vehicle taxes, taxes on discharges to water or air, landfill taxes, taxes on pesticides, etc. Environmental taxes should not be interpreted as an indicator for environmental friendliness. More details about the environmental tax statistics may be found in the Eurostat publication "Environmental taxes – A statistical guide", Catalogue No KS-39-01-077-EN-N, which can be downloaded from Eurostat's web site.

For international comparison reasons and with regard to data availability, the framework of this work is strictly limited to taxes as defined in the national accounts. This means that fees paid to government units in exchange for services received (e.g., waste and wastewater collection services) are excluded.

EU environmental taxes are described and analysed by broad categories of taxes (energy, transport, pollution and resources). Carbon dioxide taxes are included under energy as they are often an integral part of general energy taxes. Excluded from the analysis is general Value Added Tax (VAT) on environmentally harmful tax bases as well as royalty payments and other special taxes related to oil and gas extraction.

The data have been derived from detailed tax data reported to Eurostat as part of the national accounts transmission programme. The introduction of the new version of the European System of Accounts (ESA95) has caused a break in the time series between 1994 and 1995. In some cases, payments that were previously classified as taxes are now classified as fees paid to the government, and no longer included in environmental taxes. There has also been a change in the way tax revenue is recorded, from cash to accruals basis. The effect of the introduction of the new national accounts system is not very large for the environmental tax revenue in the EU as whole, but in some Member States the effect is more pronounced.

The list of individual taxes included under environmental taxes was established jointly with the Directorate General Taxation and Customs Union and Member State representatives.



Table 2: Revenue from environmental taxes in the European Union, 1980-1999, in million ECU/euro (1)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Energy taxes	39530	43405	47578	52877	58333	63370	72741	75883	82398	89252	99469	114470	125557	126789	137752	142011	148799	155983	163101	175137
Pollution taxes	1633	1759	1940	2076	2242	2417	2643	2832	2959	3172	3446	3919	4460	5021	5511	2833	3412	3741	3933	4288
Resource taxes	81	96	115	118	166	195	181	184	187	198	217	227	182	160	198	1135	1288	1397	1400	1406
Transport taxes	13381	14409	16548	18109	19843	21890	22943	22814	24441	26150	27316	29002	30355	31142	33304	36285	38825	40095	43982	46838
Total environmental taxes	54621	59671	66184	73180	80584	87872	98507	101712	109985	118772	130448	147618	160556	163112	176765	182264	192324	201215	212416	227669
Total taxes and social contributions	935574	1046496	1157058	1254391	1366633	1474877	1566227	1667673	1804553	1979269	2112828	2332029	2459574	2482215	2590470	2678328	2868369	3046230	3190380	3388782
GDP	2440355	2690575	2933683	3133103	3399315	3653292	3878610	4086995	4423563	4828755	5199780	5659159	5900520	5915677	6210731	6588360	6919909	7287970	7630689	8016585

Table 3: Revenue from environmental taxes in the European Union, 1980-1999, in percent of total revenue from taxes and social contributions (1)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Energy taxes	4.23	4.15	4.11	4.22	4.27	4.30	4.64	4.55	4.57	4.51	4.71	4.91	5.10	5.11	5.32	5.30	5.19	5.12	5.11	5.17
Pollution taxes	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.17	0.18	0.20	0.21	0.11	0.12	0.12	0.12	0.13
Resource taxes	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.05	0.04	0.04
Transport taxes	1.43	1.38	1.43	1.44	1.45	1.48	1.46	1.37	1.35	1.32	1.29	1.24	1.23	1.25	1.29	1.35	1.35	1.32	1.38	1.38
Total environmental taxes	5.84	5.70	5.72	5.83	5.90	5.96	6.29	6.10	6.09	6.00	6.17	6.33	6.53	6.57	6.82	6.81	6.70	6.61	6.66	6.72

Table 4: Revenue from environmental taxes in the European Union, 1980-1999, in percent of GDP (1)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Energy taxes	1.62	1.61	1.62	1.69	1.72	1.73	1.88	1.86	1.86	1.85	1.91	2.02	2.13	2.14	2.22	2.16	2.15	2.14	2.14	2.18
Pollution taxes	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.09	0.04	0.05	0.05	0.05	0.05
Resource taxes	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
Transport taxes	0.55	0.54	0.56	0.58	0.58	0.60	0.59	0.56	0.55	0.54	0.53	0.51	0.51	0.53	0.54	0.55	0.56	0.55	0.58	0.58
Total environmental taxes	2.24	2.22	2.26	2.34	2.37	2.41	2.54	2.49	2.49	2.46	2.51	2.61	2.72	2.76	2.85	2.77	2.78	2.76	2.78	2.84
Total taxes and social contributions	38.34	38.89	39.44	40.04	40.20	40.37	40.38	40.80	40.79	40.99	40.63	41.21	41.68	41.96	41.71	40.65	41.45	41.80	41.81	42.27

(1) The introduction of the new version of the European System of Accounts (ESA95) has caused a break in the time series between 1994 and 1995.





Table 5: Revenues from environmental taxes by Member State in 1999, in million euro

	EU	В	DK	D	EL (2)	E (2)	F	IRL	I	L	NL	Α	Р	FIN	S	UK
Energy taxes	175137	3730	4250	38824	2682	10370	25605	1435	31766	532	7463	3101	2561	2711	5983	34124
Pollution taxes	4288	492	442	0	0	59	380	0	463	0	1616	66	0	43	61	666
Resource taxes	1406	0	225	0	0	0	1154	7	5	0	0	0	0	0	16	0
Transport taxes	46838	2160	3479	7035	365	2267	4905	1245	6154	28	5552	1391	1336	1423	756	8739
Total environmental taxes	227669	6383	8396	45860	3047	12696	32043	2686	38388	560	14632	4558	3898	4177	6815	43530
Total taxes and social contributions	3388782	108341	83270	847753	44011	198194	618988	28682	479290	7667	155844	87465	38893	56333	118702	515349
GDP	8016585	235538	163215	1974300	117823	565483	1350159	89029	1107779	18449	373664	196658	108217	120485	227607	1368181

Table 6: Revenues from environmental taxes by Member State in 1999, in percent of total revenues from taxes and social contributions

	EU	В	DK	D	EL (2)	E (2)	F	IRL	- 1	L	NL	Α	Р	FIN	S	UK
Energy taxes	5.17	3.44	5.10	4.58	6.09	5.23	4.14	5.00	6.63	6.95	4.79	3.54	6.59	4.81	5.04	6.62
Pollution taxes	0.13	0.45	0.53	0.00	0.00	0.03	0.06	0.00	0.10	0.00	1.04	0.08	0.00	0.08	0.05	0.13
Resource taxes	0.04	0.00	0.27	0.00	0.00	0.00	0.19	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Transport taxes	1.38	1.99	4.18	0.83	0.83	1.14	0.79	4.34	1.28	0.37	3.56	1.59	3.44	2.53	0.64	1.70
Total environmental taxes	6.72	5.89	10.08	5.41	6.92	6.41	5.18	9.37	8.01	7.31	9.39	5.21	10.02	7.42	5.74	8.45

Table 7: Revenues from environmental taxes by Member State in 1999, in percent of GDP

	EU	В	DK	D	EL (2)	E (2)	F	IRL	I	L	NL	Α	Р	FIN	S	UK
Energy taxes	2.18	1.58	2.60	1.97	2.28	1.83	1.90	1.61	2.87	2.89	2.00	1.58	2.37	2.25	2.63	2.49
Pollution taxes	0.05	0.21	0.27	0.00	0.00	0.01	0.03	0.00	0.04	0.00	0.43	0.03	0.00	0.04	0.03	0.05
Resource taxes	0.02	0.00	0.14	0.00	0.00	0.00	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Transport taxes	0.58	0.92	2.13	0.36	0.31	0.40	0.36	1.40	0.56	0.15	1.49	0.71	1.23	1.18	0.33	0.64
Total environmental taxes	2.84	2.71	5.14	2.32	2.59	2.25	2.37	3.02	3.47	3.04	3.92	2.32	3.60	3.47	2.99	3.18
Total taxes and social contributions	42.27	46.00	51.02	42.94	37.35	35.05	45.85	32.22	43.27	41.56	41.71	44.48	35.94	46.76	52.15	37.67

(2) The 1999 environmental tax revenues for Greece and (partly) Spain are Eurostat estimates.

Further information:

Reference publications

Title Structures of the taxation systems in the European Union -1970 - 1997 - 2000 edition

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