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Report for Eurostat

Environmental TAX ACCOUNTS for Belgium (1997-2007)

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Abstract – This report presents the environmental tax accounts for Belgium for the period 1997-2007. It shows how the accounts were constructed, and discusses the evolution of environmental taxes and who is paying for them.

Jel Classification –C80, H20, Q20

Keywords –Environmental accounts, environmental taxes

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Executive Summary

Environmental taxes are a basic instrument of environmental policy. Every tax whose tax base is a physical unit of something that has a negative impact on the environment is considered as an environmental tax. This report identifies environmental taxes in Belgium, and tries to assess who is paying these taxes.

Between 1997 and 2007 environmental taxes increased by 29 percent, from just over 6 billion euros at the start of the period to almost 7.8 billion euros in 2007. This rise is considerably smaller than the increase in total taxes collected over the same period. Total tax revenue increased by 51 percent between 1997 and 2007. As a consequence the share of environmental taxes in total tax revenue decreased from 9.1 percent in 1997 to 7.8 percent in 2007.

The composition of the environmental taxes was fairly stable. The largest part of environmental taxes was linked to energy products. This type of environmental tax accounted for just under 60 percent of the total. About one third of environmental taxes consisted of transport taxes. Pollution taxes accounted for just below 10 percent of the total. Resource taxes were negligible, and they became all the more so over the period under consideration, as revenues from this type of tax decreased by more than 42 percent between 1997 and 2007. Almost exactly the opposite evolution can be observed for pollution taxes, the tax type showing the highest increase.

Households and industries each paid about half of the environmental taxes in Belgium during the period 1997-2007. Although the distribution of total taxes was stable over this period, this was not the case for all the different types of environmental taxes. Energy taxation, the main environmental tax type, shifted slightly from industries to households. Industries nevertheless still paid a considerably larger share of energy taxes than the households. For transport taxes the shift has gone the other way.

When we consider environmental taxes paid by the industries only, on average almost a third was paid by the land transport industry during the period 1997-2007. Together with the real estate, renting and business activities industry they accounted for almost half of all environmental taxes paid by the industries. The wholesale and retail trade industry contributed just below 13 percent of the industries' total environmental taxes. The construction industry contributed over 7.5 percent, which is only slightly less than the contribution of the entire manufacturing industry. The supporting and auxiliary transport activities complete the top five contributors to environmental taxes paid by industries. Together these five industries accounted for almost three quarters of total industry environmental taxes.

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1. Introduction

Environmental taxes are a basic instrument of environmental policy. According to Eurostat (2001) every tax whose tax base is a physical unit of something that has a proven, specific negative impact on the environment is considered as an environmental tax. This report identifies environmental taxes in Belgium, and tries to assess who is paying these taxes. Such knowledge, apart from being valuable in its own right, is also a valuable input to the transfer table of the Environmental Protection Expenditure Accounts (EPEA).

The Environmental Tax Accounts for Belgium were built taking into account the Eurostat guidelines on this subject.[1] This implies that environmental taxes were divided into four categories, namely energy taxes, transport taxes[2], pollution taxes and resource taxes, and that value added taxes were excluded. Energy taxes include all taxes on energy products used for both transport and stationary purposes. Transport taxes include taxes related to the ownership and use of motor vehicles. Pollution taxes include taxes on measured and estimated emissions to air and water, on management of solid waste and on noise. Resource taxes include taxes on water consumption, forestry and mining.[3] Moreover, all taxes were also allocated to industries and households.[4]

The first chapter deals with methodological issues, and gives an answer to questions such as: Which data sources were used ? Which environmental taxes exist in Belgium ? How were these taxes allocated between different industries and the households ?

Chapter two presents the results for the period 1997-2007, the same period as covered by the EPEA for Belgium. It shows how the environmental taxes evolved during this period, which types of environmental taxes were predominant, and which economic agents paid these taxes.

1 See Eurostat (2001) and Eurostat (2003)
2 Transport taxes do not include taxes on energy used for transport purposes. These are included in energy taxes.
3 Taxes on oil and gas extraction are excluded.
4 See Annex I for a complete overview of the industry classification.

2. Data compilation methodology

This chapter presents the methodology used to construct the environmental tax accounts. First we show how the environmental taxes were selected. Next we turn to the allocation of these taxes to the different tax types (energy, transport, pollution and resource). The final part explains the distribution of the taxes by industry and household consumption category.

2.1. The data

Tax data can be found on the Belgostat website of the National Bank of Belgium (NBB)[5], under National accounts, General government accounts, Taxes and actual social contributions by kind. In this database some of the regional taxes are lumped together. We therefore also used more detailed regional tax data from the NBB. The tax database of the NBB does not classify the taxes by function. As a consequence, we first had to determine which of the taxes in this database could be marked as environmental taxes. This was done by consultation of the OECD/EEA Database on instruments for environmental policy and natural resources management.[6] The following 13 federal taxes were found in this database:

- Inspection fee on domestic fuel oil[7]
- Contribution on heating fuels[8]
- Levy on energy[9]
- Excise duties[10]
- Federal contribution on electricity and natural gas[11]
- Environmental charge[12]
- Environmental taxes[13]
- Packaging charge[14]
- Eurosticker[15]
- Excise compensating tax[16]
- Road tax[17]

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5 http://www.nbb.be/app/cal/N/BelgoHome.htm : Nationale Rekeningen; Rekeningen van de overheid; Belastingen en werkelijke sociale premies per soort; totale overheid (S13) http://www.nbb.be/belgostat/PublicatieSelectieLinker?LinkID=972000064|910000082&Lang=E : National accounts; General government accounts; Taxes and actual social contributions by kind; Received by general government (S.13). The data we used correspond to the ones published in INR (2009).

6 http://www2.oecd.org/ecoinst/queries/index.htm (version of April 2010)

7 Contribution for the surveillance on domestic fuel oil (D2122CM+D214AM) in the national tax list of DG TAXUD

8 Contribution on oil products for heating (D2122CN+D214AN) in the national tax list of DG TAXUD

9 Contribution on energy (D2122CO+D214AO) in the national tax list of DG TAXUD

10 Excise duties on mineral oil (D2122CA+D214AA) in the national tax list of DG TAXUD

11 Federal contribution on electricity and natural gas (D214AP) in the national tax list of DG TAXUD

12 Environmental charge (D2122CQ+D214AZA) in the national tax list of DG TAXUD

13 Ecotax (D2122CR+D214AZB) in the national tax list of DG TAXUD. The term "environmental taxes" is used for one specific type of environmental tax in the OECD/EEA database for Belgium, although all the taxes in the database are of course environmental taxes.

14 Packing contribution (D2122CP+D214AY) in the national tax list of DG TAXUD

15 Euro tax disc (D29BC) in the national tax list of DG TAXUD

16 Taxes equal to excise rights (D29BD+D59DB) in the national tax list of DG TAXUD

17 Traffic taxes paid by corporations and taxes on traffic paid by households (D29BA+D59DA) in the national tax list of DG TAXUD

– Additional road tax[18]
– Tax on the entry into service[19]

The names of the first two taxes are self-explanatory. The inspection fee on domestic fuel oil is a tax paid per liter of household fuel purchased. It no longer exists, as it was discontinued in 2004. The contribution on heating fuels is a tax paid per liter of fuel used for heating purposes. The revenue is to be used to support poor people's heating needs. It was introduced in 2005. The levy on energy is a tax to be paid on the use of low-tension electricity and natural gas, as well as on each liter of petrol, light fuel oil and lamp petrol, and on each ton of butane and propane. It has been discontinued in 2004. The excise duties are paid per liter of diesel, petrol, light fuel and kerosene, per ton of heavy fuel, LPG and methane gas, and per MegaWatthour of electricity and natural gas. The federal contribution on electricity and natural gas was introduced in 2003, and is to be paid per MegaWatthour. The environmental charge was introduced in 2007, and is to be paid for each kilogram of aluminium sheets and strips for household use, disposable plastic bags, disposable plastic kitchenware, and plastic plates, sheets, strips, tape, foil, and other flat shapes for household use. The taxes which bear the misleading title "environmental taxes" have to be paid on each purchase of a battery, disposable camera, and package of certain types of glue, ink and solvents for professional use. In 2004 the packaging charge was introduced. It has to be paid per hectoliter of beverages packed in individual (non)reusable packages. The Eurosticker is paid annually for each truck of which the maximum authorised weight is at least 12 tons. The excise compensating tax is an annual tax which has to be paid by the users of diesel cars and minibuses. The road tax has to be paid annually by all users of cars, coaches and (mini)buses, motorcycles, motor vehicles intended for road haulage, and trailers and semi-trailers. The additional road tax is to be paid each year by users of cars and minibuses propelled by LPG. The tax on the entry into service has to be paid on the entry into service of cars, minibuses, motorcycles, boats and aircrafts.

Next to these federal taxes, the OECD/EEA Database on environmentally related taxes also contains regional taxes. The following 8 regional taxes were found:
– Flemish groundwater tax[20]
– Flemish manure tax[21]
– Flemish tax on the landfilling and incineration of waste[22]
– Flemish waste water charge[23]
– Flemish water pollution tax[24]
– Walloon tax on waste collection[25]
– Walloon tax on water withdrawals[26]

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18 This tax is only mentioned in the OECD/EEA database, and not in the national tax list. No separate revenue data is available for this tax. Its revenue, which can be expected to be quite small, is comprised in the road tax revenue.
19 Taxes on traffic (D214DB) in the national tax list of DG TAXUD
20 Part of "Taxes on water" (D29FC) in the national tax list of DG TAXUD
21 Tax on manure (D29FB) in the national tax list of DG TAXUD
22 Part of "Tax on waste products" (D29FA) in the national tax list of DG TAXUD
23 Part of "Taxes on water" (D214AQ) in the national tax list of DG TAXUD
24 Part of "Taxes on water" (D29FC) in the national tax list of DG TAXUD
25 "Tax on household waste" (D59BA) and part of "Tax on waste products" (D29FA) in the national tax list of DG TAXUD

– Walloon waste water charge[27]

The Flemish groundwater tax is paid on each cubic meter of groundwater used. The Flemish manure tax is paid per kilogram of nitrogen and phosphorus produced or imported, as well as on each kilogram which is not processed or exported. It was discontinued in 2007. The Flemish tax on the landfilling and incineration of waste is paid per ton of waste which is incinerated or landfilled. The Flemish waste water charge is paid per cubic meter of drinking water. The water pollution tax is paid per unit of pollution. The Walloon tax on waste collection has to be paid per ton of commercial and household waste. It has to be paid per cubic meter for waste in illegal waste depots and household waste possession. For collection and transport of dangerous waste, as well as for imports and exports of waste a transport license has to be obtained. The Walloon tax on water withdrawals is to be paid per cubic meter. The Walloon waste water charge is paid per cubic meter of drinking water for domestic waste water, and per unit of pollution for industrial waste water.

Water taxation was changed in Flanders as well as in Wallonia in 2005. Taxes on water provided by water companies were replaced by a contribution for water sanitation (called "bovengemeentelijke saneringsbijdrage") and a contribution for building and maintaining the sewage system (called "gemeentelijke saneringsbijdrage") in Flanders, and by a contribution to cover the real cost of water sanitation (called "coût-vérité à l'assainissement") in Wallonia. In Brussels a same kind of overhaul was implemented in 2007. These contributions are officially no longer considered to be taxes, but rather as payments for the service of water sanitation. Consequently, official water taxation has dropped significantly since 2005. However, these contributions are calculated on the volume of water used and the level of the contribution is set by the government, just in the same way as taxes used to be. So, one does not really pay for the service of the sanitation of the water one has used and disposed of by means of the sewage system. One also pays the contribution for the water one drinks and the water one sprays in the garden. Furthermore, it is impossible to refuse the service. Payment is obligatory. And if sewage treatment plants work badly, and the water that ends up in the rivers is polluted, one will not get a refund, even though the service for which one has paid has not been delivered. In other words, by the facts these contributions are no payments for services, but taxes collected by water companies. We therefore included the Flemish and Walloon waste water charge, which are marked as "fee/charge" in the OECD/EEA database, also in our list of environmental taxes. Unfortunately, this database does not contain any data on the value for the revenues of the Walloon waste water charge. So, we were only able to add data for the Flemish waste water charge. The OECD/EEA database also does not contain any data on the revenues for the Walloon tax on water withdrawals. The regional tax data from the NBB do contain these data, however, as well as data for the Walloon waste water charge on industrial pollution, which is the pendant of the Flemish water pollution tax.

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[26] Part of "Taxes on water" (D29FC) in the national tax list of DG TAXUD

[27] Part of "Taxes on water" (D214AQ+D29FC) in the national tax list of DG TAXUD

As far as Brussels is concerned, the OECD/EEA database does not contain any data at all. From the regional tax data of the NBB we were able to add the Brussels household as well as industrial water pollution taxes, which we will call the Brussels waste water charge[28]. As of 2007, the year in which water taxation was reformed, some data on the Brussels waste water charge are missing, as is the case for Wallonia. The Brussels waste water charge brings the number of regional taxes to a total of nine.

Next to the taxes in the OECD/EEA Database, we added six other taxes found either in the Belgostat list or in the detailed regional taxes, because these taxes can also be considered to have a physical unit which is harmful to the environment as their tax base, namely:

- Extra charge on car insurance premiums
- One-off charge on the gas industry
- One-off charge on the petroleum industry
- Exceptional charge on electricity producers
- Flemish gravel charge
- Flemish charge on water capture

One could argue that insurance is not a physical unit harmful to the environment. However, no one buys car insurance when he does not own a car. And a car is a physical unit harmful to the environment. We therefore consider the extra charge on car insurance premiums as an environmental tax. The one-off charge on the gas industry was paid in 2006. The one-off charge on the petroleum industry was paid both in 2003 and in 2006. The exceptional charge on electricity producers was paid in 1997 and 1998. Gas, petroleum, and electricity production clearly have a potential negative impact on the environment. The Flemish gravel charge is to be paid per ton of gravel excavated. The Flemish charge on water capture is to be paid by users withdrawing over 500 cubic meters of water a year from waterways. Both of these Flemish taxes can be considered to be taxes on the use of natural resources.

So, in total we have identified 28 different environmental taxes. All of these taxes need to be divided over the different tax types identified in the Environmental Tax Accounts, as well as allocated to the economic agents paying them. The former is done in section 2.2, the latter in section 2.3.

2.2. Allocation to tax types

The Environmental Tax Accounts for Belgium were built taking into account the Eurostat guidelines on this subject.[29] This implies that environmental taxes were divided into four categories, namely energy taxes, transport taxes, pollution taxes and resource taxes. Energy taxes include all taxes on energy products used for both transport and stationary purposes. Transport taxes include taxes related to the ownership and use of motor vehicles[30]. Pollution taxes include

[28] Part of "Taxes on water" (D214AQ+D29FC) in the national tax list of DG TAXUD

[29] See Eurostat (2001) and Eurostat (2003).

[30] Except taxes on energy used for transport purposes

taxes on measured and estimated emissions to air and water, on management of solid waste and on noise. Resource taxes include taxes on water consumption, forestry and mining.[31]

9 of the 28 taxes can be considered to be energy taxes. These are:
- Inspection fee on domestic fuel oil
- Contribution on heating fuels
- Levy on energy
- Excise duty on mineral oils
- Excise compensating tax
- Federal contribution on electricity and natural gas
- One-off charge on the gas industry
- One-off charge on the petroleum industry
- Exceptional charge on electricity producers

5 of the 28 taxes are transport taxes. These are:
- Eurosticker
- Road tax
- Additional road tax
- Tax on the entry into service
- Extra charge on car insurance premiums

10 of the 28 taxes are pollution taxes. These are:
- Environmental charge
- Environmental taxes
- Packaging charge
- Flemish manure tax
- Flemish tax on the landfilling and incineration of waste
- Flemish waste water charge[32]
- Flemish water pollution tax
- Walloon tax on waste collection
- Walloon waste water charge
- Brussels waste water charge

4 of the 28 taxes are resource taxes. These are:
- Flemish groundwater tax
- Flemish gravel charge
- Flemish charge on water capture
- Walloon tax on water withdrawals

[31] Taxes on oil and gas extraction are to be included according to the most recent change to the definition of environmentally related taxes, whereas according to the Eurostat(2001) guidelines they were to be excluded. As far as Belgium is concerned, this change has no consequences, because there is no oil and gas extraction.

[32] Waste water charges are calculated on the basis of water consumption, but it is not a tax on the use of water, as rather on the pollution generated by this use of the water. It should thus not be considered to be a resource tax.

2.3. Allocation to industries and household consumption categories

In order to be able to link the environmental tax data to other environmental accounts data, we need to allocate these data to household consumption categories and to industries[33]. For some taxes this is quite easy, for others we need to look for a distribution key.

The exceptional charge on electricity producers, the one-off charges on the gas industry and on the petroleum industry, the Flemish gravel charge and the Flemish manure tax can of course simply be allocated to the paying industries, NACE 40.1, NACE 40.2, NACE 23.2, NACE 14 and NACE 01 respectively. The part of the Walloon tax on waste collection paid on household waste is registered separately in the Belgostat database. This part was directly allocated to the households. The rest of the waste taxes (both the Walloon and the Flemish) could not be allocated. This is also the case for the taxes levied on the use of groundwater and surface water, the Flemish groundwater tax and charge on water capture, and the Walloon tax on water withdrawals. The part of the road tax and the excise compensating tax paid by the households is also registered separately in the Belgostat database. This part was also directly allocated to the households.

For all the other taxes we need a distribution key. For most of them this distribution key was found in the tables for the taxes and subsidies on products of the supply and use tables for the years 2000 and 2005.[34] These tables provide a distribution for the inspection fee on domestic fuel oil, the contribution on heating fuels, the levy on energy, the excise duty on mineral oils, the federal contribution on electricity and natural gas, the environmental charge, the environmental taxes, the packaging charge, the waste water charges exclusive of the Brussels and Walloon parts levied on pollution, and the extra charge on car insurance premiums. The part of the Brussels and Walloon waste water charges levied on pollution and the Flemish water pollution tax were distributed on the basis of the water use of the industries in the three different regions.

The part of the tax on the entry into service paid by households could also be determined in the tables for the taxes and subsidies on products of the supply and use tables. The part paid by the industries, however, is lumped together in these tables in the investment columns. The investment tables used in the compilation of the 2000 and 2005 input-output tables were used to distribute the part of the tax on the entry into service paid by the industries among the different industries. For the period 1997-2002 the 2000 distribution was applied, for the period 2003-2007 the 2005 distribution. The part of the road tax paid by the industries was distributed on the basis of yearly data on the ownership of the complete vehicle park, provided by the Vehicles Registration Service. The same source was also used to distribute payments for the Eurosticker. In this case only road vehicles for haulage and specific purposes were considered, instead of the

[33] Because national accounts for the period 1997-2007 only exist according to NACE Rev.1.1., this is also the version of the NACE that will be used throughout this study.

[34] The analysis of these tables was done by Luc Avonds, member of the input-output team of the Federal Planning Bureau. See: Avonds (2004) and (2009)

entire vehicle park. For the part of the excise compensating tax paid by the industries we used the use of diesel as the distribution key.

3. Results

This chapter describes the outcome obtained as a result of the allocation procedure described in chapter 2. Section 3.1 describes the evolution of the different types of environmental taxes. Section 3.2 shows which economic agents pay which share of the environmental tax burden.

3.1. Evolution of environmental taxes by type

Table 1 shows total environmental taxes paid in Belgium in the period 1997-2007 in millions of euros, as well as the composition of the environmental taxes, and the percentage growth of the different types of environmental taxes.

Between 1997 and 2007 environmental taxes increased by 29 percent, from just over 6 billion euros at the start of the period to almost 7.8 billion euros in 2007. This rise is considerably smaller than the increase in total taxes (D2+D5+D91) collected over the same period. Total tax revenue increased by 51 percent between 1997 and 2007. As a consequence the share of environmental taxes in total tax revenue decreased from 9.1 percent in 1997 to 7.8 percent in 2007.

The composition of the environmental taxes was fairly stable. The largest part of environmental taxes was linked to energy products. This type of environmental tax accounted for just under 60 percent of the total. About one third of environmental taxes consisted of transport taxes. Pollution taxes accounted for just below 10 percent of the total. Resource taxes were negligible, and they became all the more so over the period under consideration, as revenues from this type of tax decreased by 42 percent between 1997 and 2007. Almost exactly the opposite evolution can be observed for pollution taxes, the tax type showing the highest increase.

Table 1: Total environmental taxes (in millions of euros), their composition and growth *(in %)*

	Total taxes	Energy	Transport	Pollution	Resources
1997	6014	59	32	8	1
1998	6071	60	32	7	1
1999	6293	57	34	7	1
2000	6176	59	33	7	1
2001	6333	57	35	7	1
2002	6396	57	36	7	1
2003	6760	58	35	6	1
2004	7366	58	33	8	1
2005	7763	58	33	9	0
2006	7709	58	32	9	1
2007	7756	58	33	9	0
%-growth	+29	+27	+32	+41	-42

The increase in pollution taxes is due to the introduction of the packaging charge in 2004. In the year of its introduction it immediately accounted for 34 percent of all pollution taxes. By 2007 its

share had grown to 44 percent. This increase is partly due to the fact that no data were available for the revenues generated by the new type of waste water tax in Wallonia ("coût-vérité à l'assainissement"). The share of waste water taxation in Wallonia consequently decreased from almost 15 percent in 1997 to less than 2 percent of total pollution taxes in 2007. The share of Flemish waste water taxation fell from 50 percent to 39 percent over the same period. The fall in resource taxes is caused by the near disappearance of the Walloon tax on water withdrawals, which in 1997 accounted for almost half of total resource taxes, while by 2007 its share had dwindled to below one percent. In 2007 the Flemish ground water tax accounted for almost half of total resource taxes. In 1997 its share had been smaller than 20 percent.

Among the transport taxes the largest part was generated by the road tax paid by households. This tax accounted for almost 40 percent of total transport taxes in 2007. The extra charge on car insurance premiums accounted for over 20 percent, just a bit larger than the share of the road tax paid by the enterprises. The share of the additional road tax decreased from 10 percent in 1997 to 4 percent in 2007. The shares of the road taxes and the tax on the entry into service increased. Energy taxes were dominated by the excise taxes on mineral oils. In 1997 they represented almost 92 percent of total energy taxes. Their share fell to 84 percent, chiefly due to the introduction in 2003 of the federal contribution on electricity and natural gas, which by 2007 accounted for 7 percent of total energy taxes.

3.2. Who pays environmental taxes in Belgium ?

In this section we investigate who paid the different kinds of environmental taxes in Belgium in the period 1997-2007. Table 2 shows the 1997 and 2007 shares of the households on the one hand and of the industries on the other hand. It also shows the part of the taxes which we were unable to allocate. The very small part not accounted for in the table is paid for by non-residents.

Table 2: 1997 and 2007 shares in environmental taxes *(in %)*

	Households		Industries		Not allocated	
	1997	2007	1997	2007	1997	2007
Total	50	50	47	48	2	2
Energy	43	45	57	55	0	0
Transport	66	57	33	40	0	1
Pollution	44	62	30	28	26	10
Resources	0	0	76	5	24	95

As shown in table 2, households and industries each paid about half of the environmental taxes in Belgium during the period 1997-2007. Although the distribution of total taxes was stable over this period, this was not the case for all the different types of environmental taxes. Energy taxation, the main environmental tax type, shifted slightly from industries to households. Industries nevertheless still paid a considerably larger share of energy taxes than the households. For

transport taxes the shift has gone the other way. Whereas in 1997 the households paid two thirds of the transport taxes, their share decreased to 57 percent in 2007. The share of the industries increased from one third to 40 percent over the same period. The share of the households in pollution taxes also increased significantly, from 44 percent in 1997 to 62 percent in 2007. The share of the industries decreased only slightly over this period. The reason for the increase in the share of the households in this type of tax is to be found in the fact that we were able to allocate a much larger portion of the pollution taxes in 2007 than in 1997, as the unassignable waste taxes became much less important in the total of pollution taxes. The reverse is true for resource taxes, of which in 1997 we were able to allocate three quarters entirely to the industries. In 2007 this share had dropped to a mere 5 percent, the rest not being assignable. This is due to the fact that the 2005 study on taxes and subsidies on products did not consider taxes on ground and surface water, whereas the 2000 study did provide a distribution for these taxes.

When we consider environmental taxes paid by the industries only, table 3 shows that on average during the period 1997-2007 almost a third was paid by the land transport industry. Together with the real estate, renting and business activities industry they accounted for almost half of all environmental taxes paid by the industries. The wholesale and retail trade industry contributed just below 13 percent of the industries' total environmental taxes. The construction industry contributed over seven and a half percent, which is only slightly less than the contribution of the entire manufacturing industry. The supporting and auxiliary transport activities complete the top five contributors to environmental taxes paid by industries. Together these five industries accounted for almost three quarters of total industry environmental taxes.

Table 3: Most important contributors to environmental taxes paid by industries (1997, 2007, and 1997-2007 average share, in %)

		1997	2007	average
NACE 60	Land transport	36.0	28.0	32.9
NACE 70-74	Real estate, renting and business activities	13.9	18.8	16.4
NACE 50-52	Wholesale and retail trade	13.5	12.2	12.9
NACE 45	Construction	8.0	7.1	7.7
NACE 63	Supporting and auxiliary transport activities; activities of travel agencies	3.3	4.7	3.9

The land transport industry clearly contributed the lion's share of industry environmental taxes in the period 1997-2007. However, its contribution has significantly fallen during this period. In 1997 the land transport industry still accounted for 36 percent of total industry environmental taxes, whereas in 2007 its share had shrunk to 28 percent. A large part of this decrease was absorbed by the real estate, renting and business activities, of which the share increased from 14 percent in 1997 to 19 percent in 2007.

The distribution of total environmental taxes across industries is to a large extent given shape by the distribution of energy taxes. As shown by table 4, the land transport industry alone on average paid over forty percent of all the industries' energy taxes over the 1997-2007 period. As in the case of total environmental taxes its share decreased over this period. In 1997 its share

was no less than 46 percent. By 2007 it had decreased to 38 percent. The wholesale and retail trade industry and the real estate, renting and business activities industry together accounted for almost a quarter, their average shares being practically identical. The evolution of their shares was different, however. Whereas the share of the wholesale and retail trade industry fell from 13 percent in 1997 to 12 percent in 2007, the share of the real estate, renting and business activities industry increased from 11 percent to 13.5 percent, thereby overtaking the former to become the second most important contributor in 2007. Construction and supporting and auxiliary transport activities complete the top five contributors to energy taxes paid by industries. These five industries together accounted for almost 80 percent of total energy taxes paid by the enterprises.

Table 4: Most important contributors to energy taxes paid by industries (1997, 2007, and 1997-2007 average share, in %)

		1997	2007	average
NACE 60	Land transport	46.3	37.8	43.0
NACE 50-52	Wholesale and retail trade	12.9	12.0	12.5
NACE 70-74	Real estate, renting and business activities	11.0	13.5	12.3
NACE 45	Construction	7.7	6.0	7.0
NACE 63	Supporting and auxiliary transport activities; activities of travel agencies	4.1	6.1	5.0

Contrary to what one might expect, table 5 shows that the land transport industry was not the main contributor to transport taxes paid by the industries. This is of course due to the fact that taxes on energy products for transport are considered to be energy taxes instead of transport taxes. The industry with the highest share was the real estate, renting and business activities industry, which accounted for over a quarter of total industry transport taxes. This is due to the importance of the car leasing business. Between 1997 and 2007 its share increased from less than 24 percent to almost 32 percent. Three other industries show shares that on average were higher than ten percent, namely wholesale and retail trade, land transport, and construction.

Table 5: Most important contributors to transport taxes paid by industries (1997, 2007, and 1997-2007 average share, in %)

		1997	2007	average
NACE 70-74	Real estate, renting and business activities	23.6	31.6	27.7
NACE 50-52	Wholesale and retail trade	17.8	14.1	15.5
NACE 60	Land transport	13.5	9.1	12.0
NACE 45	Construction	10.8	10.9	10.7
NACE 65-67	Financial intermediation	6.7	3.8	5.7

As for the energy taxes the share of land transport decreased between 1997 and 2007, falling from almost 14 percent to just over 9 percent. The share of the wholesale and retail trade industry also declined, falling from almost 18 percent in 1997 to just over 14 percent in 2007. The share of the construction industry remained stable over this period. The top five contributors to industry transport taxes is completed by the financial intermediation industry.

The distribution of pollution taxes is significantly different from the distribution of total environmental, energy and transport taxes, the top four contributors for which consisted of the same industries. Except for the real estate, renting and business activities industry, none of the industries identified as important environmental tax contributors in Belgium were among the five industries contributing most to pollution taxes in the period 1997-2007. Table 6 shows that the top four contributors accounted for half of the pollution taxes paid by the enterprises. The real estate, renting and business activities industry was the top contributor during that period with an average share larger than 17 percent. Hotels and restaurants contributed over 14 percent on average. Their share increased enormously during the period considered. In 1997 their share in pollution taxes was smaller than four percent. By 2007 their share had risen to over 33 percent. This is due to the introduction in 2004 of the packaging charge. The food and beverages industry accounted for just over 10 percent of total pollution taxes paid by all industries. The chemical industry is the second manufacturing industry among the top five pollution tax payers. All manufacturing industries together accounted for more than a quarter of pollution taxes paid by the industries. Their share decreased significantly between 1997 and 2007. In 1997 manufacturing industries still accounted for almost 39 percent of total pollution taxes paid by enterprises. By 2007 their share had slumped to 14 percent. The chemical industry was one of the manufacturing industries for which pollution taxes were slashed. In 1997 their share was 11 percent. In 2007 it had dropped to just over one percent. The share of the food and beverages industry only decreased slightly. Agriculture was an important contributor to pollution taxes as well. Its share was about the same at the start as at the end of the observation period.

Table 6: Most important contributors to pollution taxes paid by industries (1997, 2007, and 1997-2007 average share, in %)

		1997	2007	average
NACE 70-74	Real estate, renting and business activities	13.7	17.3	17.4
NACE 55	Hotels and restaurants	3.8	33.5	14.3
NACE 15	Food products and beverages	11.8	9.8	10.6
NACE 01	Agriculture	8.8	8.7	7.6
NACE 24	Chemicals and chemical products	11.0	1.2	6.8

As concerns environmental taxes paid by households, throughout the entire period about half of the taxes were energy taxes. The share of transport taxes declined from 43 percent in 1997 to 38 percent in 2007. This decline was reflected by a comparable rise in pollution taxes.

3.3. Comparison with Eurostat data on environmental tax revenue

According to Eurostat (2003) the environmental tax accounts should be consistent with the data transferred by the Member States in the context of the national accounts transfer programme and add up to the total environmental tax revenues resulting from the cooperation between Eurostat and DG TAXUD and Member State representatives. These data can be found on the Eu-

rostat website, section Environment and Energy. Our data do not exactly add up to the Eurostat data.

Table 7: Environmental tax accounts data as % of DG TAXUD data

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total	1.09	1.09	1.07	1.08	1.08	1.08	1.09	1.07	1.09	1.12	1.11
Energy	1.02	1.02	1.00	1.00	1.00	1.00	1.01	1.00	1.00	1.03	1.00
Transport	1.29	1.29	1.25	1.27	1.26	1.26	1.27	1.27	1.27	1.28	1.27
Pollution/resources	1.01	1.02	1.02	1.02	1.03	1.01	1.03	1.00	1.21	1.38	1.41

Table 7 shows the differences by type of tax. The difference as concerns energy taxes is small. In many years energy taxes according to DG TAXUD are exactly equal to the value in the Belgian ETA. In the years for which a difference is observed the ETA data are higher than the DG TAXUD data. The largest difference is observed for the year 2006, for which the ETA data are three percent higher. These differences are caused by the inclusion in the ETA of the one-off charge on the gas industry (2006), the one-off charge on the petroleum industry (2003 and 2006), and the exceptional charge on the electricity producers (1997 and 1998), three taxes not included in the environmental tax data of DG TAXUD.

Slightly higher ETA values are also observed for the sum of pollution and resources taxes, at least until 2005. As of that year the ETA data are significantly higher. The reason for this is of course that as of that year the regional waste water charges and water pollution taxes are no longer officially recognized as taxes. As was explained above, we believe it is not correct to no longer consider these payments as taxes. We therefore included these payments in the ETA for the period 2005-2007 as well. This also ensures that the analysis of the evolution of pollution taxes does not become meaningless. The small difference in the other years is caused by the inclusion of the Flemish gravel charge and the Flemish charge on water capture in the ETA, two taxes not included in the environmental tax data of DG TAXUD.

The reason why total environmental taxes in the ETA are considerably higher than the DG TAXUD values over the entire period is to be found in the transport taxes. Transport taxes are clearly higher in the environmental tax accounts. They exceeded the Eurostat data by at least 25% during the period considered. This difference can almost entirely be explained by the inclusion of the extra charge on car insurance premiums. When this tax is removed the ETA data are exactly equal to DG TAXUD data for the years 1999-2003. For the other years the difference is not larger than one percent.[35]

[35] Such small differences can be caused by the use of different vintages of the national accounts for the construction of the ETA data on the one hand and the DG TAXUD environmental tax list on the other.

4. References

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5. Annex 1: Industry classification, based on NACE rev. 1.

Industry classification

A	**01-02**	**Agriculture, hunting and forestry**
	01	Agriculture, hunting and related service activities
	02	Forestry, logging and related service activities
B	**05**	**Fishing**
C	**10-14**	**Mining and quarrying**
	10	Mining of coal and lignite; extraction of peat
	11	Extraction of crude petroleum and natural gas; service activities incidental to oil surveying and gas extraction excluding
	12	Mining of uranium and thorium ores
	13	Mining of metal ores
	14	Other mining and quarrying
D	**15-37**	**Manufacturing**
	15	Manufacture of food products and beverages
	16	Manufacture of tobacco products
	17	Manufacture of textiles
	18	Manufacture of wearing apparel; dressing and dyeing of fur
	19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
	20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and manufacture plaiting materials
	21	Manufacture of pulp, paper and paper products
	22	Publishing, printing and reproduction of recorded media
	23	Manufacture of coke, refined petroleum products and nuclear fuel
	24	Manufacture of chemicals and chemical products
	25	Manufacture of rubber and plastic products
	26	Manufacture of other non-metallic mineral products
	26.1	*Manufacture of glass and glass products*
	26.2-8	*Manufacture of non-metallic mineral products n.e.c.*
	27	Manufacture of basic metals
	27.1-3	*Manufacture of basic iron and steel*
	27.4-5	*Other manufacture of basic metals*
	28	Manufacture of fabricated metal products, except machinery and equipment
	29	Manufacture of machinery and equipment n.e.c.
	30	Manufacture of office machinery and computers
	31	Manufacture of electrical machinery and apparatus n.e.c.
	32	Manufacture of radio, television and communication equipment and apparatus
	33	Manufacture of medical, precision and optical instruments, watches and clocks
	34	Manufacture of motor vehicles, trailers and semi-trailers
	35	Manufacture of other transport equipment
	36	Manufacture of furniture; manufacturing n.e.c.
	37	Recycling
E	**40-41**	**Electricity, gas and water supply**
	40	Electricity, gas, steam and hot water supply
	40.1	*Production and distribution of electricity*
	40.2	*Manufacture of gas; distribution of gaseous fuels through mains*
	40.3	*Steam and hot water supply*
	41	Collection, purification and distribution of water

F	**45**	**Construction**
G	**50-52**	**Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods**
H	**55**	**Hotels and restaurants**
I	**60-64**	**Transport, storage and communication**
	60	Land transport; transport via pipelines
	60.1	*Transport via railways*
	60.2	*Other land transport*
	60.3	*Transport via pipelines*
	61	Water transport
	61.1	*Sea and coastal water transport*
	61.2	*Inland water transport*
	62	Air transport
	63	Supporting and auxiliary transport activities; activities of travel agencies
	64	Post and telecommunications
J	**65-67**	**Financial intermediation**
K	**70-74**	**Real estate, renting and business activities**
L	**75**	**Public administration and defence; compulsory social security**
M	**80**	**Education**
N	**85**	**Health and social work**
O	**90-93**	**Other community, social and personal service activities**
	90	Sewage and refuse disposal, sanitation and similar activities
	91	Activities of membership organization n.e.c.
	92	Recreational, cultural and sporting activities
	93	Other service activities
P	**95**	**Private households with employed persons**
Q	**99**	**Extra-territorial organizations and bodies**
		Not allocated