This article provides an overview of results of the most recent data collection on environmental taxes in the European Union (EU). According to Regulation (EU) No 691/2011 on European environmental economic accounts, an environmental tax is a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment and which is defined in the European system of accounts (ESA 2010) as a tax. European statistics distinguish four different categories of environmental taxes relating to energy, transport, pollution and resources; value added tax (VAT) is excluded from the scope of environmental taxes.

Environmental taxes have been increasingly used to influence the behaviour of economic operators, whether producers or consumers. These taxes also generate revenue that can potentially be used by government to increase its expenditure on environmental protection or efficient management of natural resources.

**Environmental taxes in the EU**

In 2017, the total environmental tax revenue in the EU-28 (i.e., revenue from environmental taxes collected by governments in all EU Member States) amounted to EUR 368.8 billion; this figure represents 2.4 % of the EU-28 gross domestic product (GDP) and 6.1 % of the total government revenue from taxes and social contributions in the EU (see Table 1).

<table>
<thead>
<tr>
<th>Total environmental tax revenue by type of tax, EU-28, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Million euro</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>Total environmental taxes</td>
</tr>
<tr>
<td>Energy taxes</td>
</tr>
<tr>
<td>Transport taxes</td>
</tr>
<tr>
<td>Taxes on Pollution/Resources</td>
</tr>
</tbody>
</table>

Source: Eurostat (online data code: env_ac_tax)

Table 1: Total environmental tax revenue by type of tax, EU-28, 2017
Source: Eurostat (env_ac_tax)
From 2002 to 2017, the total environmental tax revenue in the EU increased by 2.2 % per year (at current prices) on average whereas GDP at market prices rose at an annual average of 2.6 %. In 2017, the level of the total environmental tax revenue in the EU was around EUR 104 billion higher than in 2002 (see Figure 1).

Figure 1: Total environmental tax revenue by type of tax, EU-28, 2002–2017
(billion EUR)

Source: Eurostat (online data code: env_ac_tax)

Figure 1 shows the 2017 environmental tax revenue by country both in relation to GDP and to the total government revenue from taxes and social contributions.

Environmental tax statistics
Relative to GDP, the largest level of environmental tax revenue was recorded in 2017 in Greece (4.0 %), followed by Slovenia and Denmark (both 3.7 %), Latvia (3.5 %), Croatia (3.4 %) and the Netherlands and Italy (both 3.3 %). The lowest environmental tax revenue in relation to GDP was reported by Luxembourg (1.7 %). In six other EU Member States (Lithuania, Romania, Spain, Germany, Slovakia, Ireland) the level of environmental tax revenue was similarly low in 2017 compared to the size of their economies, and did not reach 2 % of GDP.

The proportion of environmental taxes in total government revenue from taxes and social contributions also varied significantly across the EU Member States. Latvia reported the largest share in the EU (at 11.2 %), slightly ahead of Greece and Slovenia (both 10.2 %). Two other EU Member States recorded a share of 9.1 %: Croatia and Bulgaria. At the opposite end of the scale, Luxembourg (4.4 %), Germany (4.6 %), Sweden (4.9 %), France and Belgium (both 5.0 %) had the lowest shares of environmental taxes, followed by Slovakia and Spain (both 5.4 %), Austria (5.7 %) and Czechia (5.9 %).

Within the candidate and potential candidate countries for which data were available, Serbia (only 2016 data available) stands out with its environmental tax revenue-to-GDP ratio at 4.1 %, followed by Turkey (3.2 %). Out of the EFTA countries, Norway recorded in 2017 the largest level of environmental tax revenue relative to GDP (2.3 %).

Serbia (only 2016 data available) is also the candidate country for which environmental taxes accounted for the largest share of total government revenue from taxes and social contributions (11.4 %). Environmental tax revenue collected in 2017 in Norway and Switzerland accounted for 6.0 % of the total government revenue from taxes and social contributions.

In 2017, the share of EU-28 environmental tax revenues in total taxes and social contributions started to decrease.
From 2016 to 2017, the EU-28 environmental tax revenue increased in absolute terms by 1.1 %, or by around 4 billion EUR. However, 2017 is the first year for which – according to the results of Eurostat’s tax data collection - the share of environmental tax revenue in total taxes and social contributions (TSC) collected by governments across the EU decreased. It fell to 6.1 %, after having retained a relatively stable level in the range of 6.3 % to -6.4 % between 2009 and 2016, the eight years following the financial crisis (see also Figure 4).

In all, 22 EU Member States contributed to the rise in the environmental tax revenue in absolute terms (see Figure 3), with the strongest increases (above 7 %) observed in Malta (+9.3 %), Poland (+8.3 %), Lithuania (+8.0 %) and Greece (+7.6 %). However, six EU-Member States recorded a decrease in the revenue. The largest fall, by nearly 10 %, was reported by Romania (-9.7 %), followed by the United Kingdom (-4.3 %), Italy (-2.3 %), Denmark (-1.7 %), Sweden (-1.1 %) and Finland (-0.2 %).

Furthermore, 24 EU Member States recorded a lower share of environmental tax revenue in TSC in 2017, although for the majority the drop remained below 0.4 percentage points. Beyond this threshold were Romania (-1.4 percentage points), Bulgaria (-0.5 percentage points) and Latvia and Denmark (both -0.4 percentage points). In four EU Member States the share increased, with the largest increase, by around 0.5 percentage points, observed in Greece.

In relation to GDP, only seven EU countries kept or slightly increased the level of 2016, at the top Greece with the highest increase of 0.2 percentage points. For the majority of countries, the share of environmental taxes in GDP decreased. Here Romania shows the largest negative change at -0.4 percentage points compared to the 2016 level.

Figure 4 presents the evolution of EU-28 environmental tax revenue relative to GDP and to the total gov-
government revenue from taxes and social contributions\(^1\) between 2002 and 2017, and, as such, puts the most recent year-on-year changes into a broader perspective.

\[\text{Table 4: Total environmental tax revenue, EU-28, 2002–2017}\]

(\%)

After remaining relatively stable between 2002 and 2004, the environmental tax revenue-to-GDP ratio decreased over the subsequent years (to 2.3 % in 2008), mainly due to a slower pace of the growth of environmental tax revenue compared to the EU’s overall economic growth. Only in 2009 was a slight increase observed in the ratio, caused by a considerable fall of GDP, which was larger than the contraction observed in the same year for environmental tax revenue (-4.3 % compared to -2.7 %). After 2009, the environmental tax revenue grew broadly at the same pace as GDP so that the ratio remained quite stable (at around 2.4 %).

Environmental tax revenue as a share of total government revenue from taxes and social contributions decreased from 6.8 % to 6.0 % between 2002 and 2008. After a recovery in 2009, the ratio has remained rather stable (at the level of 6.3 % to 6.4 %) until 2016. In 2017, the level significantly decreased to 6.1 %. This is mainly caused by an overall stronger increase of the total tax revenue (total receipts from taxes and compulsory social contributions after deduction of amounts assessed but unlikely to be collected) at EU-28 level (by 3.6 % compared to the previous year) in relation to the increase in environmental tax revenue, which grew only by 1.1 %.

\(^1\)excluding imputed social contributions
**Environmental taxes by category**

Taxes on energy accounted for more than three-quarters of the total revenues from environmental taxes (76.9 % of the total) in 2017, well ahead of taxes on transport (19.8 %) and those on pollution and resources (3.3 %) (see Figure 5).

**Figure 5: Environmental taxes by tax category, 2017(% of total environmental taxes)**

![Environmental taxes by tax category, 2017(% of total environmental taxes)](image)

*Source: Eurostat (online data code: env_ac_tax)*

Energy taxes are the most significant category of environmental taxes in Czechia, Romania, Luxembourg and Lithuania, where energy taxes accounted in 2017 for more than nine tenths of total environmental tax revenue. By contrast, energy taxes only slightly exceeded 50 % of the revenue from environmental taxes in Malta (50.8 %), and accounted only for 54-56 % of the total in Denmark (53.8 %) and in the Netherlands (55.7 %).

Transport taxes represented the second-largest contribution to total environmental tax revenue. Their relative significance was considerably higher in Denmark (41.6 %), Malta (40.8 %), Ireland (37.2 %) and Austria (36.4 %). On the other hand, in some EU Member States the share of transport taxes in total revenue from environmental taxes was well below the EU average, with the lowest shares recorded in Estonia (1.9 %), Lithuania (4.3 %), Czechia (6.4 %), Luxembourg (7.1 %) and Romania (7.2 %).

Pollution and resource taxes represented a relatively small share of total environmental tax revenue. This category of environmental taxes groups a variety of taxes levied e.g. on waste, water pollution and abstraction. In many European countries such taxes were introduced more recently than energy or transport taxes. As yet, no taxes of this category have been levied in Greece and in Germany, whilst in Cyprus, Romania, Croatia, Czechia and Portugal only marginal amounts of the pollution and resource taxes were recorded. However, in three EU Member States, the Netherlands (13.1 %), Hungary (10.7 %) and Estonia (10.1 %), pollution and resource taxes are a relatively important source of environmental tax revenue.

The data breakdown of the environmental tax revenue by category is also available for two EFTA countries as well as for Serbia and Turkey.

For both Norway and Switzerland, the share of energy tax revenue amounted in 2017 to 57.0 %, while for
Turkey energy taxes were an even more significant category of environmental tax revenue, with the equivalent share at 65.0 %. For Serbia, energy taxes accounted for 86.7 % of the total environmental tax revenue. Serbia also recorded the highest share of pollution and resource taxes among non-EU countries (6.6 % of the total environmental taxes). On the other hand, Serbia collects only 6.8 % of its environmental tax revenue from transport taxes, while this category of taxes accounts for 40.8 % of total environmental taxes in Switzerland and 38.2 % in Norway.

Environmental taxes by economic activity

Energy tax payers

In the EU, businesses paid a little more than half (51 %) of all energy tax revenue collected by governments in 2016. The contribution of households, albeit lower, was also significant (at 47 % in 2016). The remainder (2 %) relates to the amounts payable by non-residents or that could not be allocated to a specific group of payers.

Among the EU Member States, Luxembourg stands out with the largest share of the energy tax revenue (at 59 %) collected from non-residents, largely due to non-resident purchases of petrol and diesel. In Malta this share is also substantial (at 46 %).

In 2016, the share of energy taxes payable by households in Cyprus (67 %) and Slovenia (63 %), France (59 %), Denmark (57 %) and the Netherlands (56 %) was considerably higher than the EU-28 average of 46 % (see Figure 6). A relatively low contribution of households is observable in Luxembourg (9 %) and Malta (14 %).

![Figure 6: Energy taxes by economic activity, 2016(% of energy tax revenue)](env_ac_taxind2)

*Mining and quarrying; manufacturing, electricity, gas, steam and air conditioning supply, water supply, sewerage, waste management and remediation activities, construction
Source: Eurostat (online data code: env_ac_taxind2)

The share of energy tax revenue levied on the services sector (including transportation and storage activities) amounted to 28 % for the EU-28 as a whole, ranging from 11 % in Slovenia to 48 % in Estonia and 49 % in Croatia.
The third most significant contribution to the EU-28 energy tax revenue (20 %) originated from the industrial sector (Mining and quarrying, manufacturing, electricity, gas, steam and air conditioning supply, water supply, sewerage, waste management and remediation activities). The share of energy taxes payable by this sector is particularly large in Romania (at 43 %). Relatively high shares for this industry sector, compared to the EU average, were also recorded by United Kingdom (29 %), Czechia (26 %) and Slovenia and Malta (both 25 %).

The contribution of agriculture, forestry and fishing to the total energy taxes accounted for less than 3 % for the EU-28, ranging from below 1 % in Luxembourg, Slovenia, Belgium, Cyprus and Malta to above 5 % in Croatia, Lithuania, Hungary, Greece and Poland and even to more than 8 % in Latvia.

The energy taxes payable by businesses were also relatively high in 2016 in Norway (above 58 % of all energy tax revenue). In Switzerland, non-residents contributed to 12 % of the total energy tax revenue.

**Transport tax payers**

On average, among the EU Member States, the share of transport taxes payable by households was much higher (65 %) than the share payable by businesses (33 %) (see Figure 7). This is because in most EU Member States households pay a larger share of the motor vehicle tax revenue (an important component of transport tax revenue) than businesses.

![Figure 7: Transport taxes by economic activity, 2016(% of transport tax revenue)](env_ac_taxind2)

However, in some Member States the structure of transport tax revenue by payer differs considerably, with households contributing only marginally to transport tax revenue, as in Slovakia and in Czechia.

At 66 %, businesses contributed a much higher share to the total transport tax revenue than households in Serbia in 2016. Switzerland stands out in 2016 with the largest share of transport taxes payable by non-residents, 11.9 %. 
Implicit tax rate on energy

The implicit tax rate on energy is defined as the ratio of energy tax revenue to final energy consumption calculated for a calendar year. Energy tax revenues are measured in constant price euros (deflated with the implicit GDP deflator, prices of year 2010) and final energy consumption is measured in tonnes of oil equivalent (toe); as such the implicit tax rate on energy is expressed in terms of euros per tonne of oil equivalent (EUR per toe). The implicit tax rate on energy is not influenced by the size of the tax base and provides a measure of the effective level of energy taxation. From 2006 to 2017, the implicit tax rate on energy grew by 17% in real terms (in other words, after deflating the energy tax revenue), changing from EUR 204.8 per toe to EUR 247.1 per toe. Between 2006 and 2008, the implicit tax rate on energy decreased. From 2008 to 2014, strong annual increases have been observed, except in 2010. Since 2014, it remained rather stable. This movement reflects the fact that energy use is more and more costly in terms of the amount of tax that is levied for each unit consumed.

Figure 8: Implicit tax rate on energy (deflated), EU-28, 2006–17 (EUR per tonne of oil equivalent)  
Source: Eurostat (ten00120)

Source data for tables and graphs

- [Environmental tax statistics — figures and tables](#)

Data sources

Using Table 9 from the ESA transmission programme, Eurostat gathers data on environmental taxes for four categories - energy, transport, pollution and resource taxes; the data are then validated and published.

Eurostat also collects data on environmental taxes at a more detailed level, by economic activity. This annual collection of data has been carried out since 2013 under Regulation (EU) N° 691/2011 on European environmental economic accounts. The Eurostat publication titled 'Environmental taxes — a statistical guide' constitutes the methodological basis for this data collection.

Data relating to environmental taxes can be used to analyse the revenue stream from such taxes and to provide a relative measure of the importance of these taxes through the calculation of ratios relative to GDP or to the total revenue from all taxes and social contributions. In the first case (ratio relative to GDP), the comparison
helps to provide an understanding of the tax burden. In the second case, the comparison helps to assess whether or not there is a shift towards environmental taxes, in other words, shifting the tax burden from other tax bases (for example, labour income) towards environmental taxes. It has to be noted that the total revenue of taxes and social contributions used to compute the ratio does not include imputed social contributions. For further information concerning various tax aggregates, see 'Main national accounts tax aggregates' .

Environmental tax revenue can also be allocated according to the different economic activities paying the taxes. Eurostat collects data on environmental taxes using a categorisation by economic activity (based on the NACE Rev. 2 classification supplemented by information for households, non-residents and a residual category for taxes that could not be allocated).

Increasing revenue from environmental taxes should be interpreted with caution. The increases may be caused by the introduction of new taxes or an increase in tax rates, or alternatively may be linked to an increase in the tax base caused, for instance, by a higher consumption of energy products.

Satellite accounts are a set of accounts that can be used to supplement national accounts; they exist or are in the process of being developed in a range of areas such as health accounts, tourism accounts or environmental accounts. An important feature of satellite accounts is that the basic concepts and classifications of the national accounts framework are retained. Regulation (EU) No 691/2011 on environmental economic accounts was adopted on 6 July 2011 and amended in April 2014; this made the collection and delivery of data on environmental taxes obligatory from 2013 onwards. The Regulation provides a framework for the development of various types of environmental accounts which are also referred to as modules. Environmental taxes by economic activity is one of the six modules included in the Regulation (Annex II).

Context

Economic instruments for pollution control and natural resource management are an important part of environmental policy in the EU Member States. The range of instruments that are available includes, among others, environmental taxes, fees and charges, tradable permits, deposit-refund systems and subsidies.

Environmental taxes are used to influence the behaviour of economic operators, whether producers or consumers. The EU has progressively favoured these instruments because they provide a flexible and cost-effective means for reinforcing the polluter-pays principle and for reaching environmental policy objectives. The use of economic tools for the benefit of the environment is promoted in the EU Environment Action Programme to 2020, the EU sustainable development goals and the Europe 2020 strategy.

Other articles

- Tax revenue statistics

Main tables

- Environmental taxes (t_env_eta), see:

  Environmental tax revenues

Database

- Environmental tax revenues (env_ac_tax)
- Environmental taxes by economic activity (NACE Rev. 2) (env_ac_taxind2)
- Main national accounts tax aggregates (gov_10a_taxag)

Dedicated section

- Environmental taxes
Publications

• Energy, transport and environment indicators — Statistical books, 2018
• Key figures on Europe — 2018 edition — Statistical book, 2018
• Taxation trends in the European Union — Data for the EU Member States, Iceland and Norway, 2018

Methodology

• Environmental tax revenues (ESMS metadata file — env_ac_tax_esms)
• Environmental taxes by economic activity (NACE Rev. 2) (ESMS metadata file — env_ac_taxind2_esms)
• Implicit tax rate on energy (ITR) (ESMS metadata file — ten00120_esmsip)

Legislation

• Regulation (EU) No 691/2011 of 6 July 2011 on European environmental economic accounts

External links

• European Commission — Environment — Policies
• European Commission — Energy — Energy policy for a competitive Europe
• European Commission — Taxation and Customs Union
• European Environment Agency — Environmental taxation and EU environmental policies, EEA report 17/2016, Copenhagen
• European Commission - Taxes in Europe database

This article is available on-line at http://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_tax_statistics