

Environmental accounts on environmental taxes QMI

Quality and methodology information for environmental taxes statistics, detailing the strengths and limitations of the data, methods used and data uses and users.

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1 . Output information

- National Statistic: Yes
- Frequency: Annual
- How compiled: Various sources
- Geographic coverage: UK
- Last revised: 30 January 2023

2 . About this Quality and Methodology report

This quality and methodology report contains information on the quality characteristics of the data, including the [Code of Practice for Statistics](#) from the [UK Statistics Authority](#), and the methods used to create it. The information in this report will help you to:

- understand the strengths and limitations of the data
- learn about existing uses and users of the data
- understand the methods used to create the data
- decide suitable uses for the data
- reduce the risk of misusing data

3 . Important points

This report provides users of the environmental taxes statistics with information on the quality and appropriate use of these estimates.

Environmental taxes form part of the Office for National Statistics (ONS) UK Environmental Accounts. There are quality and methodology information reports available for other UK Environmental Accounts estimates, including:

- [Air emissions](#)
- [Energy use](#)
- [Material flows](#)
- [Environmental Protection Expenditure](#)
- [Environmental Goods and Services Sector](#)

4 . Quality summary

Overview

The UN [System of Environmental Economic Accounts](#) (SEEA), together with the UN [System of National Accounts](#) (SNA) and the European System of Accounts (ESA), provides a framework for producing internationally comparable statistics on the environment and its relationship with the economy.

Environmental taxation is captured within this international framework. Environmental taxes (and other economic instruments such as charges or subsidies) for pollution control and natural resource management are an increasingly important part of public policy.

Environmental taxes are based on a physical unit that has a proven negative impact on the environment. For example, this could be a litre of petrol, or a proxy measurement such as a passenger flight. The tax also needs to be defined as a tax (and not another type of payment) in the System of National Accounts (SNA 2008). The [National Tax List](#) is published by the Office for National Statistics (ONS) using the European System of National and Regional Accounts (ESA 2010), which is consistent with the SNA. This definition is also explained in the [Central Framework for the System of Environmental Economic Accounting](#) from the United Nations, which uses concepts, definitions and classifications consistent with the SNA.

A range of statistics are published in the UK Environmental Accounts on environmental taxation:

- total environmental tax revenue
- environmental tax revenue as a proportion of gross domestic product (GDP)
- environmental tax revenue as a proportion of total tax revenue including social contributions
- environmental tax revenue broken down by economic activity ([Standard Industrial Classification 2007](#)) and type of environmental tax (Energy, Transport, Pollution and Resource)

These are all made available for download as Microsoft Excel files from the [Environmental Accounts](#) page of the ONS website.

Source data on aggregate revenue for each type of tax is provided to the ONS from HM Treasury, to enable compilation of public sector accounts. We then produce a breakdown of the aggregate by industry, including allocation to households and the rest of the world. To do so, we use a number of sources, including supply and use tables. This is explained further in Section 6.

Users and uses

Due to its compatibility with the boundaries and definitions used in the national accounts, the data are a useful input to economic analysis. The potential uses for data come from a variety of international organisations, UK and other governments and the research community. The primary users of environmental taxes data in government are HM Treasury and the Department for Environment, Food and Rural Affairs (Defra).

5 . Quality characteristics

Geography

Estimates are available at UK level.

Coherence and comparability

Environmental taxes data are sourced from the public sector accounts branch of the Office for National Statistics (ONS) and are based on administrative data supplied by HM Treasury. During the compilation process, validation checks ensure that published ONS environmental taxes data are consistent with the source data.

Environmental taxes data are published as a time series from 1997, and data within this time series are internally consistent, enabling the analysis of emerging trends. The UK National Tax List is regularly reviewed to determine if any environmental taxes have been introduced or have stopped. Data are comparable over time and the time series is subject to revision each year. Revisions can occur for various reasons including updates to source data.

The UK Environmental Accounts are a satellite account of the main national accounts. As such, estimates of environmental taxes published in the UK Environmental Accounts are consistent with those used in the national accounts.

As definitions of environmental taxes reported are internationally agreed, this allows for cross-country comparisons of levels of environmental taxation to be made. The data tables “environmental taxes as a share of GDP” and “environmental taxes a share of total taxes and social contributions” within the Environmental Accounts publication, contain data on the UK along with EU countries. These data are available on the [Eurostat website](#).

Timeliness and punctuality

Environmental taxes data are published within the Environmental Accounts release in June each year. The timeliness of the environmental taxes data contained within the release varies from year-1 to year-3 depending on the specific breakdown. The ONS aim to publish the most timely data environmental taxes data available as soon as is possible.

The release, and any articles associated with the environmental taxes estimates, are pre-announced on the ONS website. As well as the latest dataset, previously released datasets are accessible on the [ONS website](#).

Concepts and definitions

Environmental taxes are based on a physical unit that has a proven negative impact on the environment. For example, this could be a litre of petrol, or a proxy measurement such as a passenger or cargo flight. The tax also needs to be defined as a tax (and not another type of payment) in the System of National Accounts (SNA 2008). The [National Tax List](#) is published by the ONS using European System of National and Regional Accounts (ESA 2010), which is consistent with the SNA.

This definition has been agreed by international experts, and adopted by [Eurostat](#) and the [Organisation for Economic Co-operation and Development](#) (OECD).

By considering the effects of taxes rather than their aims, it is possible to understand the degree to which environmental issues affect how a government raises its revenue. For instance, a tax may be introduced with the purpose of increasing government revenue rather than reducing environmental degradation, but this would not prevent its inclusion as an environmental tax.

Measures of environmental taxes should be interpreted and used with care. In particular, the levels of revenues from environmental taxes do not necessarily indicate the relative importance or the success of environmental policy. High environmental tax revenues can result either from high rates of taxes or from high levels of environmental problems (for example, pollution), leading to a large tax base. The broad measure of revenues can also fail to capture the effect of the differential rates that encourage a shift away from higher-impact behaviour (such as the use of leaded petrol).

6 . Methods used to produce environmental taxes

The environmental taxes data are compiled in accordance with the [System of Environmental Economic Accounting \(SEEA\)](#), which closely follows national accounting standards set out in the [System of National Accounts \(SNA\)](#).

Environmental taxes are identified according to criteria laid out by the [Eurostat handbook on the compilation of environmental taxes](#), which follows [System of Environmental Economic Accounting](#) guidance. Environmental taxes are grouped into four main tax categories.

Energy taxes

This category includes taxes on energy products used for both transport and stationary purposes. The most important energy products for transport are petrol and diesel. Energy products for stationary use include fuel oils, natural gas, coal and electricity. Taxes relating to the reduction of carbon dioxide (CO₂) emissions reduction are also included within this category. In the UK, these include the Climate Change Levy, the Emissions Trading Scheme and the Carbon Reduction Commitment¹.

Pollution taxes

This group includes taxes on measured or estimated emissions to air and water, management of solid waste and noise. They exclude taxes related to CO₂ emissions, which are included under energy taxes.

Resource taxes

This category includes taxes linked to the extraction or to the use of natural resources such as water, forest, wild flora and fauna etc.

Transport taxes

This category mainly includes taxes related to the ownership and use of motor vehicles and taxes on other transport equipment, when they conform to the general definition of environmental taxes. The taxes may be one-off taxes related to imports or sales of the equipment, or recurrent taxes such as an annual road tax. All taxes on means of transport should be included, even taxes on means of transport that are considered to be relatively more environmentally friendly such as railway rolling stock and public transport in general. Taxes on electric cars should also be included. This is because although a train may be better for the environment than a car (for example), it still affects the environment negatively. Taxes on vehicle insurance should also be included, provided they are specific taxes on the insurance of vehicles and not general insurance taxes levied on all kinds of insurance contracts.

In the UK, these four tax categories currently include the taxes shown below. For detailed descriptions of individual taxes please see Annex 1.

Environmental taxes in the UK

The levies, duties and benefits, etc. that are included in each type of tax.

Energy tax includes:

- Carbon Reduction Commitment
- Climate Change Levy
- Contracts for Difference
- Emissions Trading System
- Fossil Fuel Levy
- Gas Levy
- Hydro Benefit
- Hydrocarbon Oil Duty
- Renewables Obligation

Pollution tax includes:

- Landfill

Resources tax includes:

- Aggregates Levy
- Fishing licences

Transport tax includes:

- Air Passenger Duty
- Air Travel Operators Tax
- Boat licences
- Dartford Toll
- Motor vehicle duties paid by businesses
- Motor vehicle duties paid by households
- Northern Ireland Driver Vehicle Agency (DVANI)
- Rail Franchise Premia
- Vehicle Registration tax

In general, new taxes and changes to taxes are identified through the Office of National Statistics (ONS) classification process. Assurance of coverage is assisted by HM Revenue and Customs (HMRC), which is responsible for collecting most UK taxes, and HM Treasury. These government departments provide monthly data to the ONS detailing each individual tax collected, and the amount of revenue associated with that tax. This ensures appropriate coverage of all relevant taxes.

During the compilation process validation checks ensure that published ONS environmental taxes data are consistent with the source data. Quality assurance checks are also completed to ensure accuracy when compiling and publishing the results. This includes checking against the [National Tax List](#).

Allocation of taxes to industries

We use several different sources to allocate taxes to industries ([Standard Industrial Classification 2007](#)) as well as to households and the rest of the world. We receive the aggregate revenue for each tax listed in Table 1 from the public finances branch of the ONS, that in turn receive it from HM Treasury.

We then split out these aggregates by industry, using several data sources. The main source is supply and use tables for each year, which show the flow of products in the UK economy and therefore show, for example, how much energy each industry uses. This allows for estimation of how much tax an industry will pay. We also use some information from the Living Costs and Food Survey for tax payable by households and the rest of the world for Air Passenger Duty and the duty on hydrocarbon oils. Lastly, for some taxes, we receive data already allocated to industries (motor vehicle duty, Northern Ireland Driver Vehicle Agency, Emissions Trading System, and Carbon Reduction Commitment) which uses information from the Annual Business Survey. For boat and fishing licenses, we allocate revenue for these taxes all to households.

Accuracy

As the true value for environmental taxes is never known, the accuracy of data is difficult to assess. However, most sources for public income are administrative and therefore not subject to sampling error.

One way in which to measure accuracy is reliability and this can be determined according to the magnitude of revisions. Although the data sources used to compile environmental taxes data are subject to revision, aggregate revisions tend to be small in magnitude, with total environmental tax revenue generally revised by less than 0.1% each year. Revisions can be larger when we review the allocation of a specific tax to industry, which often is due to revisions to Supply and Use tables.

Notes for: Methods used to produce the environmental taxes data

1. Carbon dioxide (CO₂) taxes are included in energy taxes rather than the pollution taxes category because these taxes are integrated with energy taxes and as such splitting them out is difficult. Such taxes are often introduced as a substitute for other energy taxes and the revenue from them is often large compared to the revenue from pollution taxes. This means that includes CO₂ taxes with pollution taxes rather than energy taxes would distort international comparisons.

7 . Other information

More information on environmental taxes and other topics related to UK Environmental Accounts is available:

[UK Environmental Accounts](#)

[UN System of Environmental and Economic Accounting \(SEEA\)](#)

[European regulation on environmental economic accounts](#)

[Eurostat handbook on the compilation of environmental taxes](#)

[UK Supply and Use tables](#)

8 . Annex 1: Definition of specific environmental taxes

Tax on hydrocarbon oils is also known as fuel duty and include taxes on unleaded petrol (including super unleaded), leaded petrol, lead replacement petrol, ultra-low sulphur petrol, diesel and ultra-low sulphur diesel. There are different rates payable depending on the fuel.

The Climate Change Levy is a tax on energy delivered to non-domestic users (with some industries such as charities being exempt) and was introduced in 2001. From 2013 it includes the carbon price floor, which taxes fossil fuels used to generate electricity. It is charged at the point of supply.

The Fossil Fuel Levy was introduced in 1990 and is a tax paid by suppliers of electricity from non-renewable energy sources, it was set at 0% (it ended) following the introduction of the Climate Change Levy.

The Gas Levy was introduced in 1981. It was a tax on gas suppliers who arranged gas supply contracts. The tax was remanded in the finance act 1998.

Hydro Benefit is a tax on energy suppliers to protect domestic consumers from the high costs of distributing electricity in the north of Scotland. It ceased in 2005 and was replaced with alternative schemes.

Renewables Obligation tax was introduced in 2002 for Great Britain, and in 2005 for Northern Ireland. It requires supplies of electricity to generate a certain proportion of electricity from renewable sources.

The Contracts for Difference scheme was introduced in 2014 and was previously included within the renewables obligation data -- it has replaced the renewables obligation scheme for new claims. The scheme is designed to incentivise investment in renewable energy generation. The basic principle is that generators are offered a contract with a known strike price for renewable electricity sold. If the market price for electricity is below the strike price, the generator is paid the difference from the government; if the market price for electricity is above the strike price, the generator pays back the difference to the government.

The European Union Emissions Trading System (ETS) was introduced in 2005. It is designed to help limit greenhouse gas emissions from heavy energy using installations by setting a cap on allowance of greenhouse gas emissions from such installations. Companies with such installations receive or buy emissions which they can trade with one another as needed. A limit on the total number of allowances available ensures they have a value. Each year a company must surrender enough emissions allowances to cover its emissions, otherwise fines are imposed. If a company reduces its emissions, it can keep spare allowances to cover its future needs or sell them to other companies. In January 2021, a UK version of the ETS replaced the EU scheme following the UK's exit from the EU.

The Carbon Reduction Commitment was introduced in 2010 and is designed to improve energy efficiency and cut carbon dioxide emissions in private and public sector organisations that are high energy users, using allowances. Organisations that meet set criteria must participate. The scheme is being phased out in favour of increased use of the Climate Change Levy.

Air Passenger Duty was introduced in 1994 and is charged on all passenger flights from UK airports. Rates vary by destination and class of travel.

Rail Franchises Premia refers to the premium paid by train companies to the UK Government of provide specified train services. The franchising system began in the 1990s as part of the privatisation of British Rail. This was paused in 2020 and it was announced that the franchise system would be replaced by another system.

Vehicle registration tax includes revenue from tax on vehicle registration in the UK but excludes Northern Ireland from 2007 onwards.

The Northern Ireland Driver Licensing agency was set up in 2007. Data refer to revenues from tax on vehicle registration in Northern Ireland.

Motor vehicle duties paid by businesses and households are also known as Vehicle Excise Duty. This is payable annually by owners of most types of vehicles.

Boat licences refer to an annual charge required by owners of boats who use or keep their boats on inland waterways in the UK.

Air Travel Operators Tax is an insurance scheme ran by the UK Civil Aviation Authority. It is a legal requirement for package holidays and some flights.

The Dartford Tolls are a toll for motorists to use the Dartford Crossing. This is payable by both households and industries.

Fishing licences are required to fish for certain species of fish in various locations across the UK.

The Aggregates Levy was introduced in 2002 and is a tax on sand, gravel or rock that has been dug from the ground, dredged from the sea or imported into the UK. It is generally payable by the quarrying industry but could also apply when aggregate is removed in the course of infrastructure projects.

Landfill tax applies to any and all waste disposed of via landfill, unless the waste is specifically exempt. There are two charge bands.

9 . Cite this QMI

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