



Fossil Fuel and Similar Subsidies 2012-2016

Background

The UN System of Environmental-Economic Accounting (SEEA) is a statistical system that brings together economic and environmental information into a common framework to measure the condition of the environment, the contribution of the environment to the economy, and the impact of the economy on the environment. The SEEA contains an internationally agreed set of standard concepts, definitions, classifications, accounting rules and tables to produce internationally comparable statistics.

Eurostat has developed a series of legal and voluntary environmental accounts modules based on the SEEA and the CSO provides data to Eurostat on an annual basis for those modules. The CSO has published statistical releases on two Eurostat SEEA modules which complement this research paper: the Environmental Taxes and Environmental Subsidies and Similar Transfers modules.

Eurostat has developed a new module to collect data on potentially environmentally harmful subsidies¹. This first collection of data from EU countries will be undertaken by Eurostat in the second half of 2019. This new module is also building upon work done by the United Nations, OECD, International Energy Agency, and the International Monetary Fund. The methodological work being done by Eurostat, the UN, and the OECD will lead towards consistent coverage of support measures across all countries and hence the data will be more comparable across countries.

Some publicly-funded supports have a negative impact on the environment. These supports come in many forms and are accordingly difficult to measure on a consistent basis across all countries. Examples of such supports include: Direct subsidies and provision of a good or service from government; Market price interventions; Tax rebates; Reduced excise rates for certain sectors of the economy; Social supports; etc. These supports can have important social and economic purposes but can be detrimental to the environment. Alternative approaches such as refurbishment of dwellings or supporting the purchase of eco-friendly vehicles can achieve the same social purposes without having a detrimental impact on the physical environment. This research paper contains estimates for 2012 to 2016 of the extent of such potentially environmentally damaging subsidies.

Sustainable Development Goals

The United Nations SDGs contain a number of indicators that are of relevance to environmentally harmful subsidies:

- 2.b.1 Agricultural export subsidies
- 2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities
- 2.5.2 Proportion of local breeds classified as being at risk, not at risk or at unknown level of risk of extinction

¹ [https://circabc.europa.eu/webdav/CircaBC/ESTAT/Environment%20Meetings/Library/2019-06%20-%20Working%20Group%20on%20Monetary%20environmental%20statistics%20and%20accounts%20\(15-16%20May%202019\)/ENV_MESA_WG_2019%2005b%20PEDS.pdf](https://circabc.europa.eu/webdav/CircaBC/ESTAT/Environment%20Meetings/Library/2019-06%20-%20Working%20Group%20on%20Monetary%20environmental%20statistics%20and%20accounts%20(15-16%20May%202019)/ENV_MESA_WG_2019%2005b%20PEDS.pdf)

- 3.9.1 Mortality rate attributed to household and ambient air pollution
- 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
- 7.1.2 Proportion of population with primary reliance on clean fuels and technology
- 12.c.1 The amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels
- 14.1.1 Index of coastal eutrophication and floating plastic debris density
- 14.6.1 Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
- 15.3.1 Proportion of land that is degraded over total land area

The U.N. London Group on Environmental Accounting has established a Task Force to collect data on fossil fuel supports. As part of this work, the Task Force will identify what data sources and methodologies were used by the participating countries. Ireland is a member of the Task Force.

OECD

The OECD has undertaken a considerable amount of work on potentially environmentally damaging subsidies. The OECD defines a subsidy as the result of a government action that confers an advantage on consumers or producers in order to supplement their income or lower their costs.

This definition includes tax expenditures. Tax expenditures do not appear in government budgets or accounts, however they constitute a loss of revenue by the government in order to support producer or consumer economic activity. Tax expenditures were calculated using the revenue foregone approach.

CSO Methodology

The CSO has followed the OECD approach which is broadly consistent with Eurostat. We have only included schemes that met the following two criteria:

- Were regarded as a subsidy; and
- Were considered potentially environmentally damaging.

A subsidy is classified as a potentially environmentally damaging subsidy if it is likely to incentivise behaviour that could be damaging to the environment irrespective of its importance for other policy purposes.

Examples of such subsidies include providing fossil fuels at lower prices to certain industries and providing fuel allowances to households to alleviate fuel poverty. Providing fuels at a subsidised price may result in increased emissions through unnecessary use of such fuels. An alternative to household fuel allowances is refurbishment of the property through improved attic, wall, floor, and window insulation. Those measures would greatly reduce the amount of energy required to heat a dwelling as well as resulting in much improved heat retention. They would reduce health risks from the presence of damp or mould. Subsidies that have a purpose of improving energy efficiency are included in the CSO Environmental Subsidies and Similar Transfers release. We have classified subsidies into four categories: Fossil fuel supports; Agriculture and food supports; Transport supports; and Fishing and aquaculture supports. Agricultural subsidies can result in nutrient pollution and loss of biodiversity as well as increasing demands on water abstraction. Transport supports can incentivise the purchase of vehicles while Fishing supports include grants that may result in larger catches.

Commentary

Table 1 shows our initial estimates for the period 2012 to 2016. In 2016, €2.5 billion in direct subsidies and revenue foregone due to preferential tax treatment supported fossil fuel activities in Ireland, while a further €1.6 billion supported other potentially environmentally damaging activities. Total potentially environmentally damaging subsidies were estimated at €4.1 billion in 2016. Supports to fossil fuel activities increased on a year by year basis from 2012 to 2016 from €2.3 billion in 2012 to €2.5 billion in 2016.

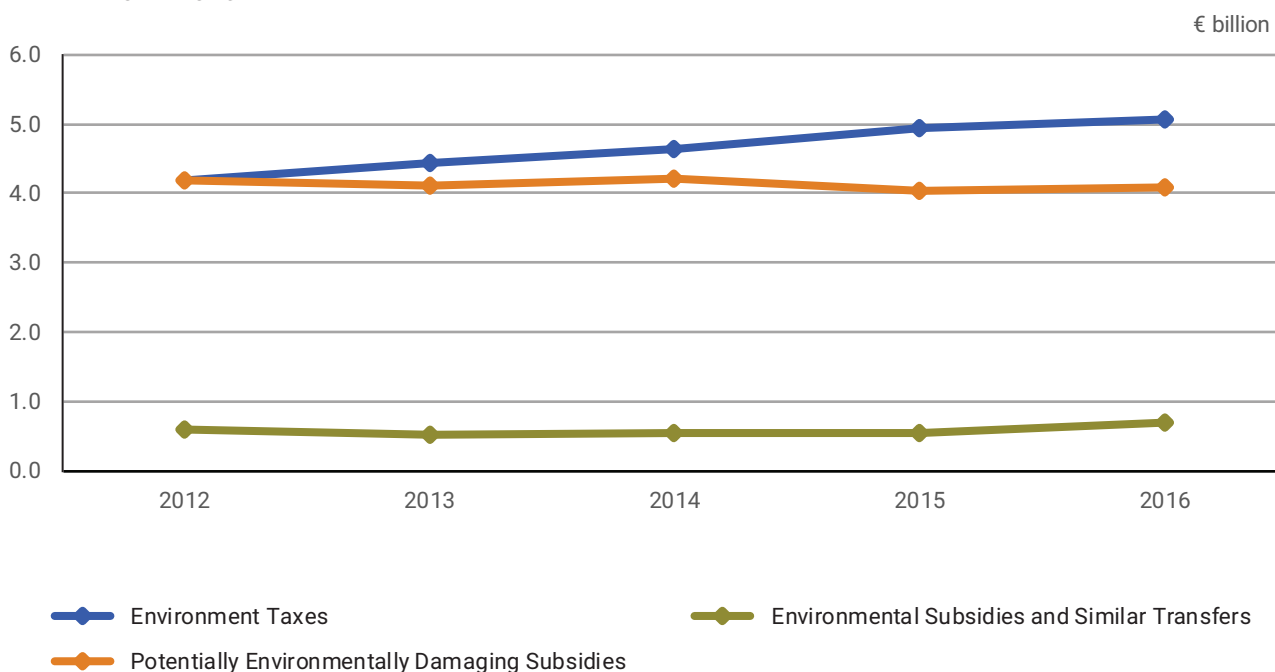
Table 1: Potentially Environmentally Damaging Subsidies by Activity, 2012-2016

	€m				
	2012	2013	2014	2015	2016
Fossil Fuel Supports	2,260	2,315	2,380	2,479	2,505
Agriculture and Food Supports	1,904	1,760	1,739	1,462	1,490
Transport Supports	10	15	60	65	82
Fishing and Aquaculture Supports	12	22	27	29	16
Total[†]	4,186	4,111	4,207	4,035	4,093

[†]Due to rounding, totals may not correspond precisely with the sum of the categories.

Figure 1 shows a comparison of the amount raised in environment taxes (such as the plastic bag levy and the carbon tax) with expenditure on environmental subsidies and on potentially environmentally damaging subsidies. In 2016, €5.1 billion was raised in environment taxes, €0.7 billion was spent on environmental subsidies, and potentially environmentally damaging subsidies were €4.1 billion.

Figure 1: Environment Taxes; Environmental Subsidies; Potentially Environmentally Damaging Subsidies, 2012-2016



Detailed Tables

Table 2: Direct Potentially Environmentally Damaging Subsidies, 2012-2016

	€m				
	2012	2013	2014	2015	2016
Total Direct PEDS	2,168.3	2,063.8	2,108.7	1,702.4	1,799.3
Total Fossil Fuel Supports	557.6	561.7	627.5	561.4	533.9
PSO Levy: Electricity Generation from Peat	94.2	94.8	119.0	121.9	115.4
PSO Levy: Security of Electricity Supply	42.2	61.0	104.7	47.3	0.0
Petroleum Exploration and Production Promotion and Support (PEPPS) Programme	1.3	0.5	1.6	2.2	2.4
Electricity Allowance	176.7	161.0	154.6	149.6	150.7
Gas Allowance	20.6	16.3	21.8	18.8	19.2
Fuel Allowance	211.4	228.1	217.7	214.2	230.9
Other Supplements (Heating Allowance)	11.2	.	8.1	7.4	6.7
Fuel Grant for Disabled Drivers and Disabled Passengers Scheme	.	.	.	.	8.6
Total Agriculture and Food Supports	1,600.5	1,492.0	1,470.0	1,129.8	1,254.8
Agricultural Product Subsidies: Cattle	28.5	9.4	28.8	43.2	55.9
Other Agricultural Programmes	1,509.2	1,434.9	1,404.5	976.9	1,159.4
Subsidies and Grants for Marketing and Processing	23.5	9.5	7.5	7.7	3.5
Income and Market Supports (incl. School Milk Scheme)	14.8	12.4	1.2	69.2	2.3
Bord Bia Marketing and Promotional Expenditure	24.5	25.8	28.0	32.8	33.7
Total Transport Supports	7.4	7.6	7.8	7.6	7.6
PSO Air Services Scheme	7.4	7.6	7.8	7.6	7.6
Total Fishing and Aquaculture Supports	2.8	2.5	3.4	3.6	3.0
BIM Scaling and New Market Development Scheme	.	.	.	.	0.2
BIM Special Assistance for Young Fishermen	0.3	0.5	0.1	0.0	.
BIM Aquaculture Schemes	0.0	0.8	1.2	1.4	0.8
Aquaculture Processing and Commercial Schemes	2.5	1.2	2.1	2.2	2.0

Table 3: Indirect Potentially Environmentally Damaging Subsidies (Tax Expenditures), 2012-2016

	€m				
	2012	2013	2014	2015	2016
Total Indirect PEDS	2,017.9	2,047.4	2,097.6	2,332.3	2,293.4
Total Fossil Fuel Supports	1,702.7	1,753.1	1,752.4	1,917.3	1,970.6
Revenue Foregone: Excise Rate on Autodiesel ¹	276.9	290.9	309.4	337.5	362.0
Revenue Foregone: Excise Rate on Marked Gas Oil ¹	546.5	534.7	484.2	492.4	506.9
Revenue Foregone: Excise Rate on Fuel Oil ¹	39.9	35.7	30.9	29.7	28.3
Revenue Foregone: Excise Rate on Kerosene ¹	486	486.7	460.1	544.9	563.6
Revenue Foregone: Excise Exemption on Aviation Fuel	333.4	384.3	425.9	481.9	494.4
Fuel Oil used in Manufacture of Alumina: Excise Exemption	1.3	1.3	0.6	0.0	0.0
Domestic Electricity Use: Excise Exemption	4.1	4.0	3.9	3.9	3.9
Diesel Rebate Scheme	.	0.7	21.1	13.1	1.3
Marine Diesel Scheme	0.1	0.2	0.1	0.1	0.1
Commercial Sea Navigation: Excise Duty Repayment	6.6	6.8	8.5	8.4	10.1
Horticulture: Excise Duty Repayment	0.1	0.1	0.1	0.1	0.0
Fuel Excise Repayment for Disabled Drivers and Disabled Passengers	7.8	7.7	7.6	5.3	.
Total Agriculture and Food Supports	303.7	267.9	268.9	332.2	235.4
Fertiliser: Zero Rate of VAT	29.1	35.1	30.8	31.3	27.1
Farmer VAT Refunds	48.3	50.1	50.5	54.4	55.7
Agricultural Capital Acquisitions Tax Relief	201.0	163.0	164.0	215.0	118.0
Stamp Duty Relief for Young Trained Farmers	7.9	3.8	4.7	5.2	4.6
Stamp Duty Relief on Certain Family Farm Transfers	:	0.2	0.1	0.1	0.2
Consanguinity Relief	3.7	2.0	3.0	4.7	2.1
General Stock Relief for Farmers	5.2	5.2	5.2	6.1	6.4
Stock Relief for Registered Farm Partnerships	0.1	0.1	0.3	0.1	0.5
Stock Relief for Young Trained Farmers	1.1	1.1	1.1	1.4	1.4
Exempt Rental Income from Leasing	7.3	7.3	9.2	13.9	19.4
Total Transport Supports	2.6	7.0	52.4	57.6	74.1
Touring Coaches	2.6	4.0	5.5	6.3	10.0
VRT Relief for Leased Cars	:	:	14.7	17.3	22.9
Repayments of VRT: Disabled Drivers and Disabled Passengers Scheme	:	:	23.6	24.9	30.5
VRT Exemptions	:	:	7.6	8.6	10.2
Multi-storey Car Parks	:	3.0	1.0	0.5	0.5
Total Fishing and Aquaculture Supports	8.9	19.4	23.9	25.2	13.3
VAT Relief on Fishing Vessels	7.8	18.6	23.6	24.9	13.0
Employer's PRSI Relief for Employment of Seafarers	0.7	0.4	:	:	:
Seafarers Allowance	0.4	0.4	0.3	0.3	0.3

: Programme in operation but data not available

¹ The excise duty rate includes the carbon tax

Alternative Method to Calculating Fossil Fuel Tax Expenditures

The tax expenditures in the detailed tables were calculated using the revenue foregone approach. This method uses the deviation of the excise rate for a particular fuel from a benchmark rate (in this case, the excise rate for unleaded petrol) and calculates the revenue lost due to the lower rate of excise duty, assuming no change in fuel consumption. An alternative approach would be to also take account of the extent of the environmentally harmful effect of each fuel. A simple indicator to use is the carbon dioxide emission factor of each fuel. In this case the revenue foregone due to the difference in excise rates is weighted by the emission factor of the fuel relative to the emission factor of petrol. The results are shown in the table below.

Table 4: Fossil Fuel Tax Expenditures weighted by CO₂ Emissions Factor, 2012-2016

	€m				
	2012	2013	2014	2015	2016
Weighted Tax Expenditure: Excise Rate on Autodiesel	315.5	331.4	352.5	384.5	412.3
Weighted Tax Expenditure: Excise Rate on Marked Gas Oil	622.6	609.2	551.6	560.9	577.4
Weighted Tax Expenditure: Excise Rate on Fuel Oil	50.0	44.8	38.7	37.2	35.5
Weighted Tax Expenditure: Excise Rate on Kerosene	520.87	521.63	493.07	583.97	604.04

The introduction of a weighting factor based on carbon dioxide emissions has the effect of increasing the cost of the tax expenditures. In other words, a higher rate of excise duty would be needed on autodiesel, marked gas oil, fuel oil and kerosene, compared with petrol, to reflect the higher carbon dioxide emission factors of the fuels in Table 4. This is a similar concept to the carbon tax, which is calculated based on the carbon content of each fuel. Carbon tax is included in the excise rates used for the calculations in Table 4 above.

Carbon Tax Approach

The OECD, in its work in this area, focussed on establishing an appropriate carbon tax that would reflect the environmental damage caused by fossil fuels. We have not calculated figures for this approach because the main approach in Ireland to-date is to use different excise duties which incorporate social and economic policies. A carbon tax was introduced in Ireland in 2010.

Further Information

Please contact us at Clare.OHara@cso.ie or Gerry.Brady@cso.ie for further information or with queries.