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Fuel Taxes

A fuel tax is a sale tax on fuel (i.e. on coal, gas, oil). Any individual or firm who purchases fuel for his/her automobile, home heating, or any other purpose, is charged. Fuel taxes can reduce the consumption of fossil fuels and greenhouse gas emissions (i.e. a [carbon tax](#)) and price other [negative externalities](#) (e.g. air pollution and congestion) while generating public revenues. Their impact on the poor is context specific, depending on whether the tax takes a [progressive](#) or [regressive](#) form, and might require complementary corrective measures to the benefit of poor households.

Key words: environmental fiscal reform; carbon tax; extractive sectors

How does it work?

Fuel taxes, i.e. [indirect taxes](#) charged on fuel consumption, [account](#) for about 60-70 per cent of environmental tax revenues. They are mostly levied on fuels used in transportation, i.e. petrol, diesel and gas. Fuels for agricultural/industrial vehicles, for home or industrial heating and lighting, and for electricity generation are usually taxed at lower rates, or even subsidized. The chief focus here is on sales taxes that increase the final price of petroleum products (i.e. diesel, petrol, and kerosene), gas, and coal/charcoal. Taxation connected to the oil/gas sector (e.g. exploration, extraction) and electricity generation is not covered. Fuel taxes are levied to correct [market failures](#) and/or to mobilize fiscal resources. They are primarily [excise duties](#) that are charged in addition to the generally applied [VAT/GST](#). They can encompass different taxes and duties that relate to specific items/purposes (e.g. carbon, congestion, road maintenance) and levels of Government (federal, state/regional, municipal or agency specific).

A fuel tax is a [carbon tax](#) if the primary intent is the imposition of an explicit charge on the consumption of fossil fuels in order to compute the cost of greenhouses emissions in the final price (i.e. it is a [Pigovian tax](#)). Fossil fuels contain carbon that is emitted into the atmosphere through combustion, heavily contributing to climate change: for example, transportation is responsible for 31 per cent of greenhouse gas emissions in the USA ([EPA](#)). This cost is unfairly paid by the whole society. The economic justification for a fuel tax is thus the correction of the [market failure](#) that prevents the correct pricing of the [negative externalities](#) due to carbon emissions. A carbon tax should therefore reflect the social cost of carbon, which is the present value of estimated environmental damage (e.g. [US EPA](#) at US\$42 per ton of CO₂) caused by additional CO₂ emitted today.

In addition to greenhouse gas emissions, negative externalities from fuel combustion include air pollution from fine particulates. Congestion, traffic accidents and noise are additional [externalities](#) connected to the transportation system, but not directly to fuel consumption. These latter [externalities](#) can easily be priced into fuel taxes—the transport system relies for the most part on fossil fuels—but they are justified on different premises. During rush hour, for example, London drivers are [estimated](#) to generate [negative externalities](#) of about US\$10 per litre of fuel, including their contribution to traffic congestion and accidents.

The introduction of fuel taxes can be revenue-neutral, thus not requiring any increase in overall taxation but only a shift between different taxes. [British Columbia](#) (Canada) for example uses the proceeds from fuel tax to finance reductions in personal income tax (the first two bands by 5 per cent), tax credits to low income individuals and monetary bonuses to rural homeowners.

The correction of [market failures](#) is a sound justification for introducing fuel taxes, but their use is often explained by the desire/need to increase fiscal revenues; and for good reason since they are an effective form of taxation: 1. Fuel consumption is fairly [inelastic to price changes](#); 2. fuel taxes are easy to introduce/increase with minimal risks of evasion/elusion; 3. the [tax base](#) is relatively large; 4. if set as a special tax, the proceeds can cover the public costs of road improvement and maintenance by charging the primary user directly; and 5. they can be [progressive](#) in developing countries (with exceptions, such as kerosene and coal that are mostly consumed by the poorest).

The two main objectives of taxing fuels – i.e. pricing [negative externalities](#) and mobilizing fiscal resources – can coexist, but one is usually favoured over the other: for example, a prohibitive tax rate can steadily reduce greenhouse gas emissions but at the price of lower consumption (and future revenues). The optimal tax rate can be set either to achieve a specific emissions outcome (e.g. 30 per cent reduction of greenhouse gas emissions), the offset of an [externality](#) (e.g. the social cost of carbon) or the achievement of revenue targets.

The [average](#) fuel tax was estimated at US\$1.19 per litre in Europe and US\$0.39 outside Europe (only indicative figures), with the USA having historically applied low rates. African countries' fuel taxes are on average above the US rate and approach European rates in some cases. However, a number of countries in the Gulf and Asia still charge a low rate, or even subsidize the consumption of certain fuels. Taxes that apply a fixed levy need to be updated according to changes in prices and social and environmental cost estimates.

Summary

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Financial Results



[Generate Revenue](#)



[Avoid Future Expenditure](#)

Instruments Used



[Fiscal](#)



[Regulatory](#)

Sources of Finance

PUBLIC

NATIONAL

INTERNATIONAL

Related SDG

Stakeholders

- **Regulatory entity/ies:** The Government authority responsible for tax revenues drafts the relevant bill for approval in the national/regional assembly.
- **Revenue collection entity/ies:** The tax is collected by the revenue authority from retailers. The earned income might be transferred to the Treasury or allocated to a specified budget (e.g. a Road Accident Fund).
- **Tax base/payer:** The consumer of fossil fuels pays the tax which is included in the sale price of fuel.
- **Retailer:** The refinery, fuel station or other retailer will transfer to the revenue authority the amount of tax paid by consumers.

Potential in monetary terms (revenues, realignment or cost-savings)

Revenues from fuel taxation vary greatly across countries, depending on the tax rate applied, the number of products covered and the tax base. In developed economies the share of fuel taxes in the final price paid by consumers ranges from a high of 70 per cent (e.g. in the Netherlands, the UK and Turkey) to virtually zero or negative (e.g. subsidies in oil-producing countries). Revenues from fuel taxes can be significant, especially if compared with other environmental taxes. In Africa, fuel taxes account for a significant share of total taxes: 4 per cent in South Africa, 5-7 per cent in Kenya and Tanzania, 12 per cent in Mozambique and 16 per cent in Uganda.

When is it feasible?

A law is usually required to introduce or amend the tax code. Feasibility studies are necessary to forecast the economic, social and environmental impact of the suggested fuel tax. In federal states different jurisdictions can introduce fuel taxes.

Minimum investment required and running costs

The introduction of a fuel tax requires a legal and economic assessment as well as technical inputs to amend the tax code. Advocacy and awareness-raising campaign are necessary to facilitate the approval of the legislation and to balance different interests, as well as to change perceptions among policymakers and the general public. The investment and running costs are small or null if the country already has a VAT/GST.

Use in appropriate time and context

Fuel taxes are appropriate in most economic and social contexts. However, the economic and social context should guide their design, including the selection of the appropriate tax rate, the timing/phasing-in of implementation and the identification of exceptions or complementary measures (e.g. income support for poor households). Fuel taxes are easier to introduce at times when oil prices are low. In the countries that still directly or indirectly subsidize petrol and gas consumption, the priority should be to phase out harmful subsidies.

What are the main risks and challenges?

Pros

- It is a progressive form of taxation in many developing countries, with important exceptions (e.g. kerosene and coal).
- An economically efficient and not distortive form of taxation, it corrects market failures.
- It is easy to enforce with a low risk of tax avoidance/evasion.
- Its tax base is large.

Cons

- The price elasticity of fuel may increase in the longer term, affecting the amount of revenues.
- The political cost of introducing fuel taxes is high.
- Fuel taxes are perceived to be regressive. While this is a legitimate concern, it might not hold true, though the perception that it is, it likely to generate opposition to fuel taxes.
- Only a very high tax rate can substantially reduce fuel consumption, thus making other alternatives (e.g. fuel/vehicles standards) a more effective means to that end.
- The economic impact of fuel taxes might be high in certain contexts or periods of time, e.g. in cases where energy-intensive industries play an important role or at times of international price hikes.

Risks

- The tax might be regressive and unfair for a certain (vulnerable) segment of the population; the cost of the tax on fuel may be too high for poorer households.
- The tax rate might not be set at the appropriate level to correct negative externalities. There is a risk of failing to ensure that the prices that firms and consumers pay for fuel reflect the full costs of their use.
- Fuel taxes can modify the relative prices of fuels: large difference in tax rates among different categories/products can lead to consumers switching among products or to adulteration. Alternative and cheaper fuels may have greater negative impacts on health and the environment, for example if the tax generates a switch to burning brown coal or tyres.
- Fuel taxes can multiply the impact of oil price increases with large negative effects on the economy.
- If neighbouring countries (or states) apply a lower rate of taxation, consumers might simply shift to those territories. If the price difference is substantial and borders are porous, smuggling might emerge.
- There may be considerable resistance to the introduction of the tax, making it politically or socially unfeasible and/or unsustainable.
- Unless additional measures are taken, the price of public transportation will increase.
- The impact on inflation and other inflation linked Government policies can be large.



Related Sectors

AGRICULTURE

ENERGY

FORESTRY

FISHERY

WATER

TOURISM

FINANCE

MINING

TRANSPORT

- The support mechanisms designed to balance the tax's impact on the poor might not be effective or efficient.

How can the design be ameliorated to improve the impact?

The impact of fuel taxes in reducing greenhouse gas emissions has been limited by the difficulty of introducing a level of taxation that is high enough to counterbalance the high inelasticity of demand with respect to price changes. A few positive examples can be cited, however. Despite the low value of the [carbon tax](#) on fuels in [British Columbia](#) (Canada), fuel consumption there decreased by 16 per cent in the first five years after its adoption, while it increased by 3 per cent in the rest of Canada. Preliminary [results](#) suggest that the tax may have also reduced greenhouse emissions by the order of 5–15 per cent, although these estimates are disputed.

These positive impacts are augmented by fuel taxes' advantage of addressing effectively multiple [negative externalities](#) such as congestion, air pollution and traffic. Higher fuel prices can also help the shift to more fuel-efficient vehicles (more effectively than [subsidies](#)), safer driving behaviour and the use of public transportation and car-pooling.

The social/environmental impact of fuel taxes is further maximized if their introduction is part of an economy-wide tax and incentives reform to reduce emissions and possible revenue leakages. Otherwise, it is critical to evaluate different options that can complement or substitute for a fuel tax in order to maximize the environmental and social impact. Regulations determining the chemical content of fuels or the minimum performance of vehicles, for example, may be needed as companion policies.

There are different options for ameliorating the social and environmental impact other than setting a high level of taxation, which might be politically/socially unfeasible. For example, the proceeds of the tax can be used to benefit the poor or facilitate the transition towards a greener economy. This is valid even in the case of revenue neutrality. Tax revenues can be used to reduce taxes on renewable energy or to subsidize public transportation (which is negatively impacted by raising fuel prices) and social programmes that combat poverty and social exclusion.

Even if some recent studies have demonstrated that fuel taxes can be [progressive](#) in developing countries (whereas fuel subsidies are [regressive](#)), an assessment of the impact on the different segments of the population is required to improve the tax design. If a fuel tax is [regressive](#) in a certain context, corrective measures can be introduced: exemptions for lower-income households or lower rates for certain fuels. Lowering the tax rate and/or introducing vouchers for kerosene, which is used mainly by the poorest for cooking and lighting, is an example of a temporary measure that can be taken in developing country. When possible, the introduction of subsidies/incentives to shift to greener cooking/lighting systems should be considered to achieve longer-term outcomes.

The tax's design can also feature mechanisms to align and balance the tax rate with changes in the international reference price. In case of severe international oil price increases, countries can temporarily reduce the amount of the tax to prevent wider economic impacts. These mechanisms can be integrated in the original law, thus allowing the public authorities to react rapidly and imposing lower social costs on the society.

Guidelines and Case Studies

Guidance

[Getting Energy Prices Right : From Principle to Practice](#)

[Revenue Administration: Performance Measurement in Tax Administration](#)

Case studies

[British Columbia \(Canada\)](#)

[Costa Rica](#)

[East and Southern Africa](#)

[India](#)

[Nigeria](#)

Our work

[International Guidebook
of Environmental
Finance Tools](#)

Sustainable Development Goals

Environmental finance

Our Perspective

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We should reach a consensus
on the fact that
macroeconomic policies in





low-income economies need to also jettison the conventional wisdom of undue restrictiveness.