Subject: Environmental Economics
Course code: ECON3029
Topic: Pollution Permit Trading
B.A. Economics (6th Semester)

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Pollution Permit Trading

Characteristics

- Ensuring good water quality is an essential step towards water security. Consequently, pollution control is a big part of water resource management.
- Tradable pollution permits are so-called cap and trade schemes. They give companies a legal right to pollute a certain amount per fixed time span.
- Firms that pollute less can then sell their leftover pollution permits to firms that pollute more.
- The point of this is that polluting firms and public agencies differ in their ability to abate their pollution – some can do it easily and cheaply, for others it would be more difficult and costly.
- Consequently, tradable pollution permits can be a cost effective way to achieve a reduction in overall pollution.
- The freedom to trade pollution "entitlements" gives an incentive for polluters to consider abatement (since they can sell their surplus quotas) while others face the cost of having to purchase permits.
- For society, the existence of tradable permits enables pollution abatement to be achieved in the least costly manner.

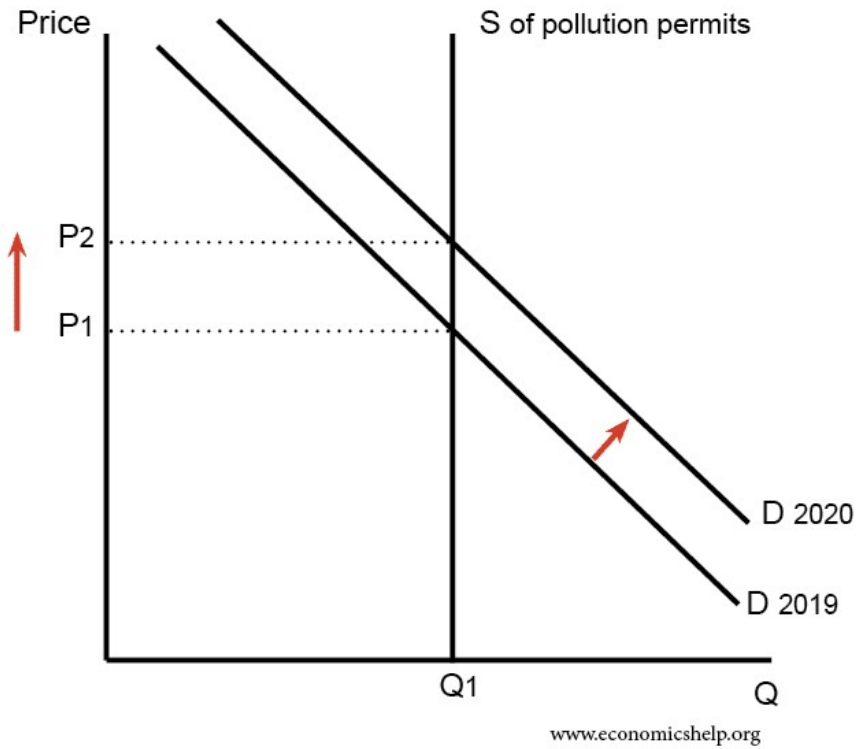
Pollution Permit Trading

- Pollution permits involve giving firms a legal right to pollute a certain amount e.g. 100 units of Carbon Dioxide per year.
- If the firm produces less pollution it can sell its pollution permits to other firms.
- However, if it produces more pollution it has to buy permits from other firms or the government.
- This creates a market for pollution permits with the price set by demand and supply.
- The aim of pollution permits is to provide market incentives for firms to reduce pollution and reduce the external costs associated with it. For example, it is argued carbon dioxide emissions contribute towards global warming.
- Pollution permits can also be a way for the government to raise revenue, by selling firms these permits to allow pollution.

Trading in pollution permits arises in the following situations:

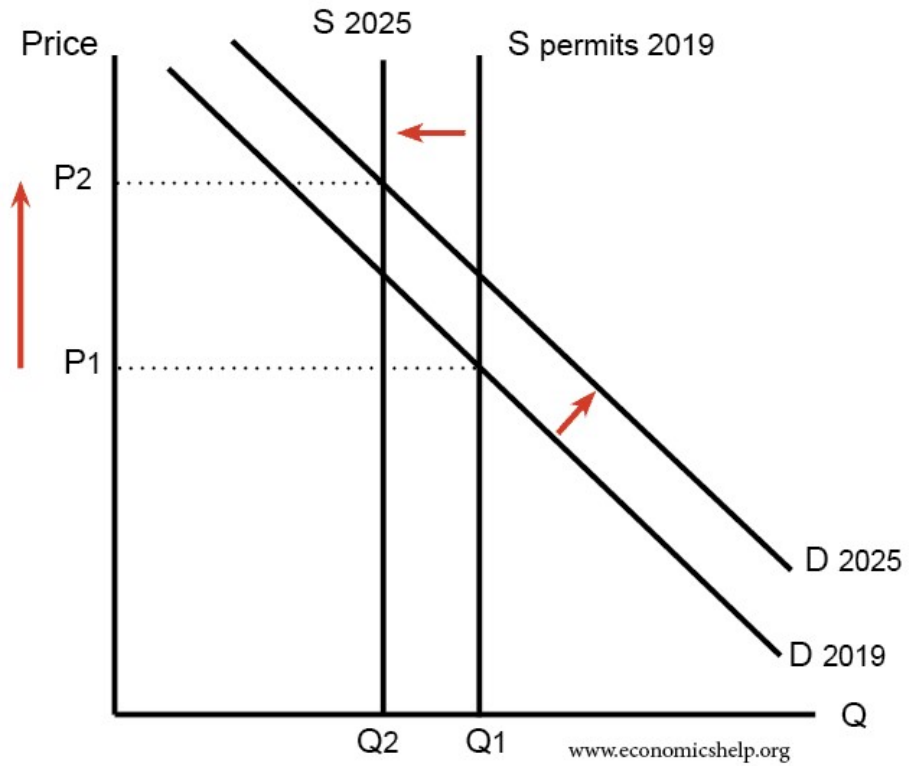
- Permits to discharge into specific water bodies issued to local firms and wastewater treatment plants (e.g. Fox River, USA);
- Salinity Credits (e.g. for coal mining and power companies discharging into the Hunter River in Australia);
- Nutrient trading (e.g. in parts of the USA, Canada, Netherlands, and Australia).
- Transactions listed under some schemes include “bubble licensing” (in which several wastewater treatment plants are considered together in applying nitrogen and phosphorous load discharge limits) and “diffuse source offsets” (in which a water authority can purchase offset credits from external sources using much cheaper ways of reducing overall nutrient pollution).
- A number of these schemes in water pollution are still in the pilot phase, and experience is still accumulating. Mainly, tradable permits are used to manage air pollution.

Diagram for pollution permits with increased demand



A very simple diagram showing the fixed supply of pollution permits. Suppose there is rapid economic growth and the demand for producing pollution increases, the cost of tradable permits rises from P1 to P2.

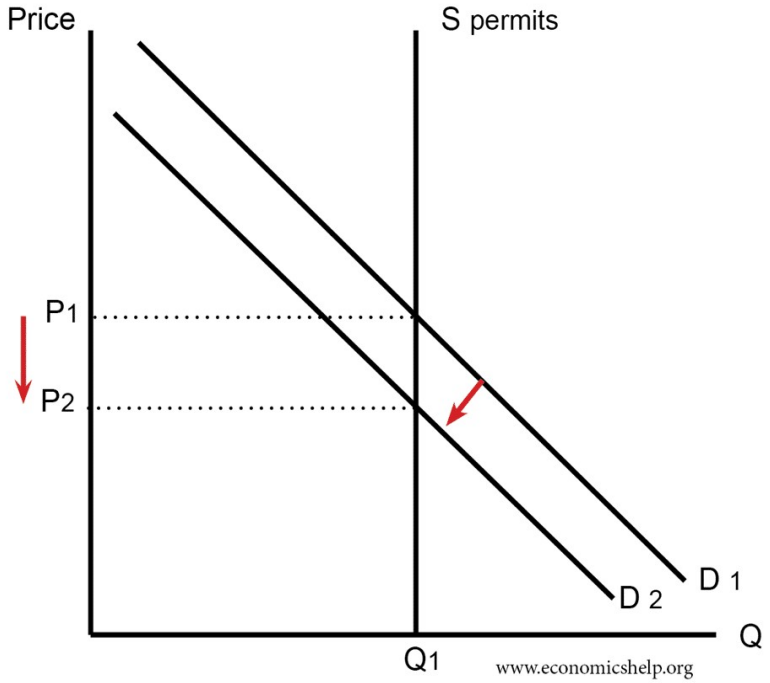
Pollution permit scheme with cut in supply of permits



In this case, the government reduces the number of permits over time. This means the price will steadily increase and create a growing incentive to reduce pollution over time. The idea is that it gives firms time to try and invest in different technology which creates less pollution.

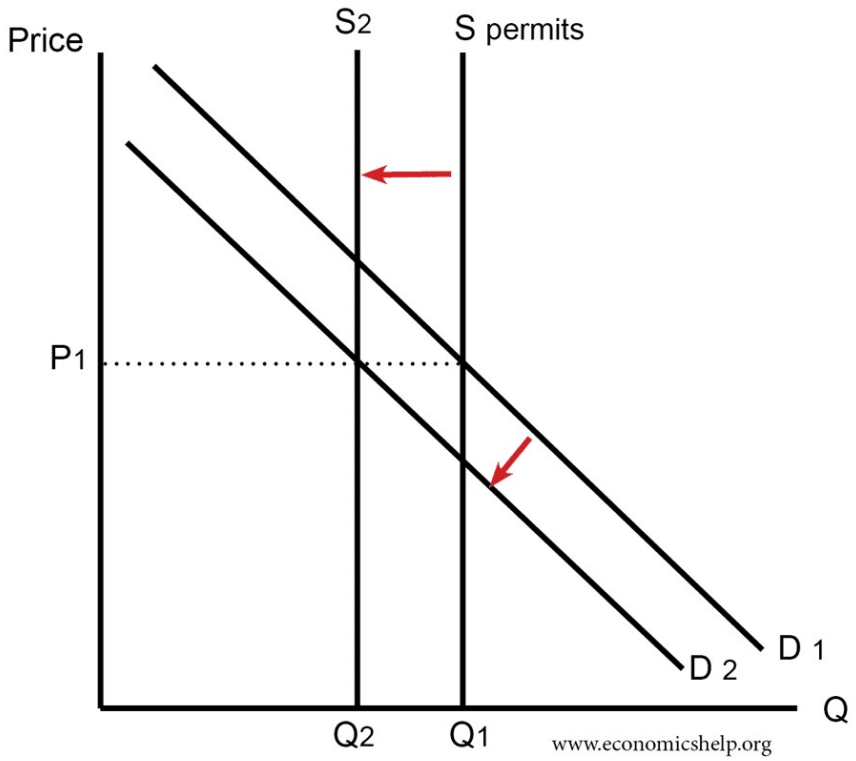
Permits reducing demand over time

Over time, the existence of pollution permits should reduce demand for pollution. Firms wish to avoid paying the cost and find a way to reduce pollution. As demand for permits falls, the price of permits will fall.



In this case of falling price of permits, it may be necessary for the government to respond by steadily reducing the supply of permits.

By steadily reducing the amount of permits, the government can steadily reduce the quantity of pollution.



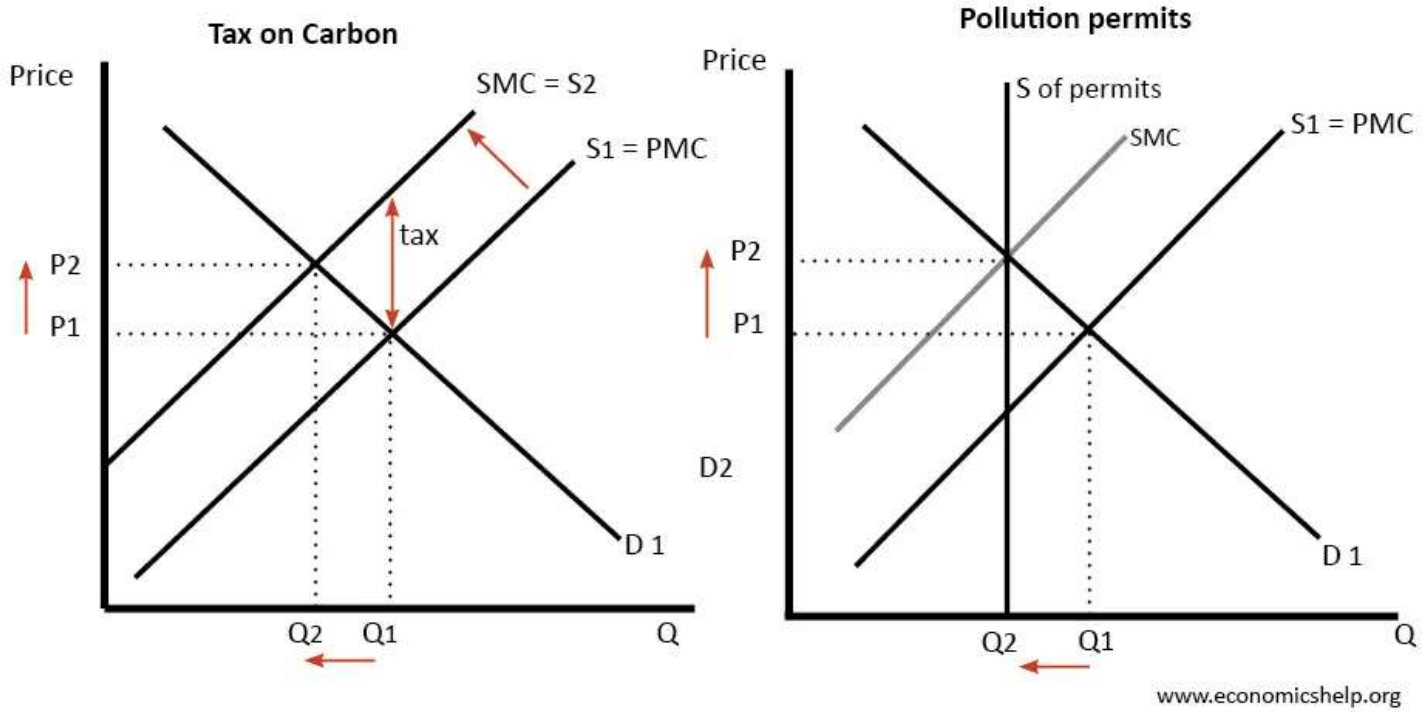
In the long-term a fall in demand and fall in supply of permits leads to a decline in pollution.

Pollution permits and social efficiency

- If firms produce carbon as a side-effect of production, it is classed as a negative externality.
- In this case, the social marginal cost of the polluting industry is greater than private marginal cost. In a free market, we get over-production of pollution and social inefficiency.
- Pollution permits are a method to try and reduce output to a more socially efficient level.
- The aim is to make the price of pollution permits as close as possible to the social marginal cost

Pollution Permits vs Carbon Tax

Pollution permits have a similar goal to carbon tax. They both aim to increase the cost of producing pollution and create an incentive to reduce the quantity of pollution.



Pollution Permits vs Carbon Tax

- The diagram on left shows how a tax can shift supply to the left and make firms pay the full social marginal cost of pollution. It raises the market price to P2.
- The diagram on the right shows how pollution permits have a similar effect. If the quantity of permits is set to Q2, the market price rises to P2.

Problems of Pollution Permits

- It is difficult to know how many permits to give out. The government may be too generous or too tight.
- It can be difficult to measure pollution levels. There is potential for hiding pollution levels or shifting production to other countries, with looser environmental standards. In a globalised world, multinationals increasingly shift production around.
- There are administration costs of implementing the scheme and measuring pollution levels.
- For global pollution permits, countries who pollute more than their quotas can simply buy permits from other countries. Therefore rich developed countries can simply buy permits from less developed countries. This does not significantly reduce pollution but shifts it from the richer countries to poorer countries.

Problems of Pollution Permits..

- The biggest carbon trading scheme is the EU Emissions Trading Scheme (ETS), however political interference has created a glut of permits and it has done little to reduce carbon dioxide and reverse global warming.
- Environmentalists have argued a higher price of carbon is insufficient to reduce carbon dioxide to levels necessary to stop global warming. Demand for carbon permits is often price inelastic and too slow to act.
- Some carbon trading schemes have a component called ‘carbon offsetting. This means if pay to plant trees, this can count against carbon emissions. However, critics argue carbon offsetting effectively enables firms to keep polluting with no guarantee planting trees will on their own solve the pollution problem.

Lessons learned...

- There is a need for a mechanism for initial allocation of rights (whether for water or pollution discharges) which should be seen to be fair, and be equitable and effective. Initial prices can be set by governments or determined through public auctions.
- The decision on how long permits are valid is important if ever governments want to change the price for a pollution unit. If permits are valid indefinitely, companies can "bank" unused pollution certificates which means that later price corrections will be less effective.
- In order to be effective, monitoring systems need to be put in place to keep track of the pollution discharges of companies and/or other users so their actual discharge can be determined and fines imposed if companies surpass the pollution levels allotted through their permits.
- A system that relies on pollution permits as opposed to mandatory pollution cuts or limits set by the government allows companies that are wealthy enough to keep polluting.
- It is also possible to set up a system in which credits are not just sold or given out, but also generated through environmental services or water treatment.

Thank You