
GOVERNMENT INTERVENTION

Free market vs. Government, are they totally in conflict?

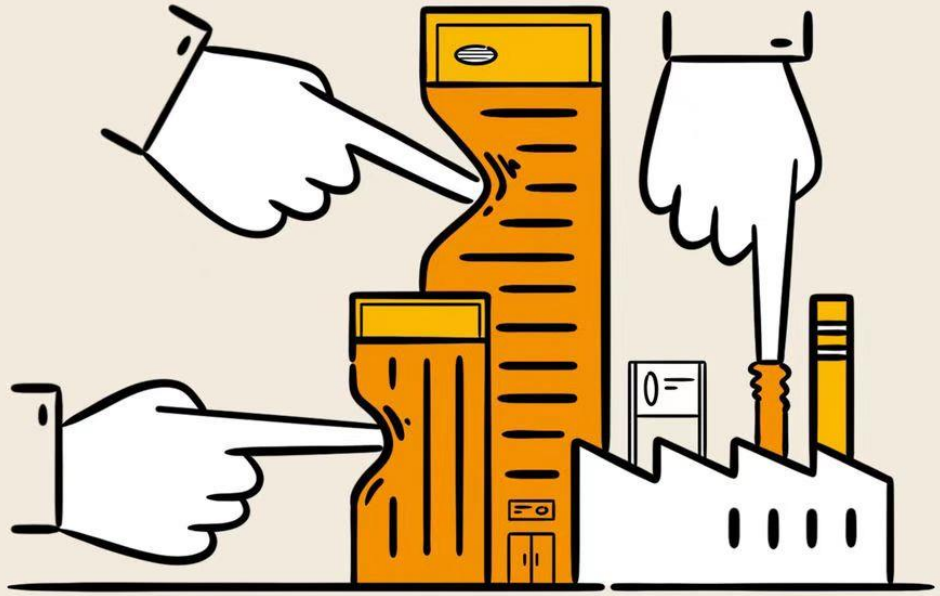


Group Discussion:
Why & How government intervene in markets?

Why governments intervene in markets

1. Earn revenue for the government from indirect taxes.

- Value-added tax, tariff, consumption tax
- Usually imposed on goods with price inelastic demand. (0<PED<1)
- Cigarettes, alcohol, gasoline, etc.



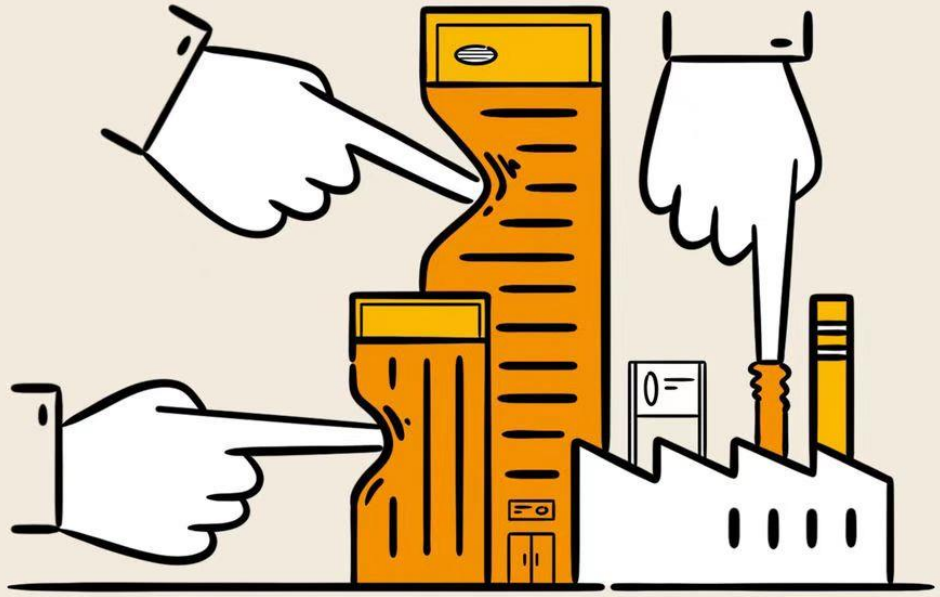
2. Provide support to firms：

- Financial assistance to **small start-up firms**
- Offer subsidies or other kinds of help to support **special firms/industries** (e.g., environmentally friendly products, wind power and solar power, etc.)
- Protect **domestic firms** from foreign competition arising from imports. (e.g., tariffs, quotas)

Why governments intervene in markets

3. Provide support to households on low incomes

- Subsidies
- Price ceilings (a maximum price set below the equilibrium price, in order to make goods more affordable to people on low incomes)
- Direct provision of services (free education, free health care)
- Transfer payments (unemployment benefits, child benefits, maternity benefits, etc.)



4. Influence the levels of production of firms

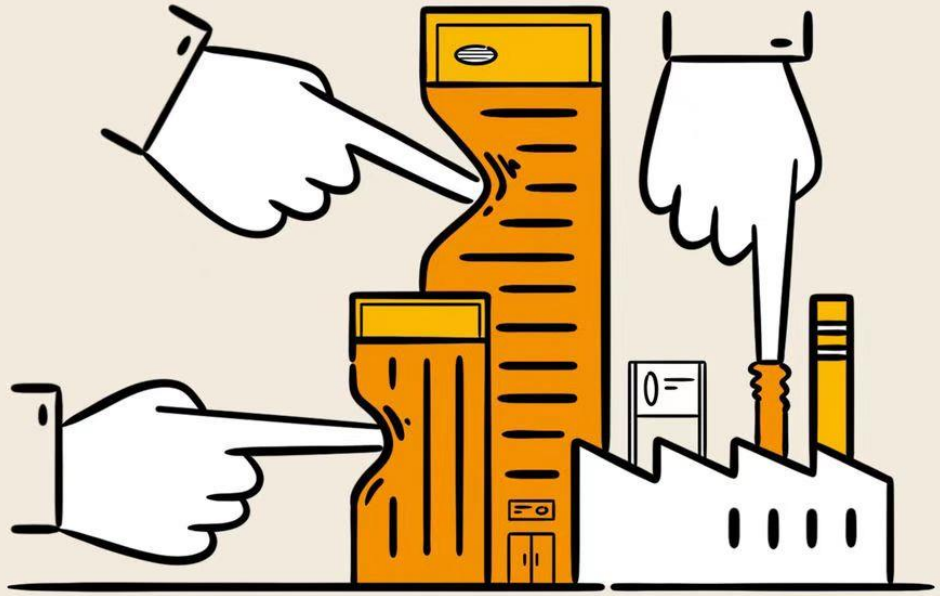
- Increase the firm's level of production by different approaches.

Why governments intervene in markets

5. Influence levels of consumption of households/consumers

- Encourage the consumption of merit goods (education, health care, etc.)
  - ✓ Encouragement approaches: subsidies, direct provision of services, nudges, command and control methods.
- Reduce consumption of demerit goods (cigarettes, fatty foods)
  - ✓ Discouragement approaches: indirect taxes, nudges, command and control methods.

* Command and control is the government laws and regulations that must be followed.



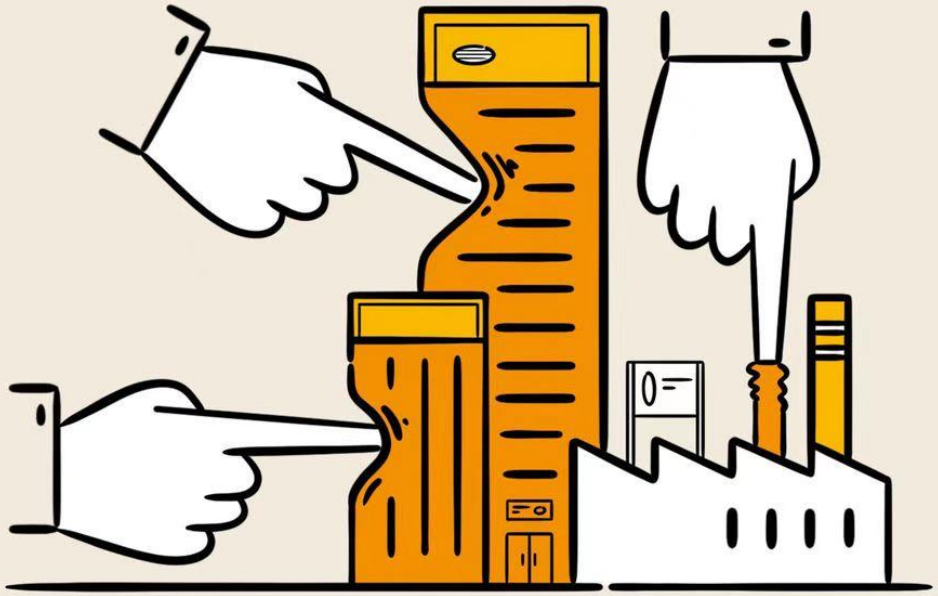
Why governments intervene in markets

6. Correct market failure

- Market failure is the failure of the market to achieve allocative efficiency. (too large or too small quantities of goods/services)

7. Promote equity (equality)

- Income and wealth distributions



Government intervention approaches in Microeconomics:

1. Indirect taxes
2. Subsidies

→ Approaches we focus in this chapter

3. Price controls:
   - Price ceilings
   - Price floor
4. Direct provision of services
5. Command and control regulation and legislation
6. Consumer nudges

➢ **Purpose:** try to influence demand or supply for a good or service, thus affecting market outcomes.

Homework

1. Read and review the textbook chapter 4.1.
2. Make your own research and make comparison between the tax system of China and US.


Indirect taxes

Type of taxes

Taxation is one of the most important instruments for income and wealth redistribution, because it can lower inequalities by taking more taxes from the rich than from the poor, and is used to finance a broad variety of government expenditures.

- **Direct taxes –** involving payment of the tax by the taxpayers directly to the government → **a levy imposed on income**
- **Indirect taxes -** Indirect taxes are imposed on spending to buy goods and services. → **a levy imposed on expenditure**

Indirect Taxes

Definition: Taxes levied on spending to buy goods and services, called indirect because, whereas payment of some or all of the tax by the consumer is involved, they are paid to the government authorities by the suppliers (firms), that is, indirectly.

"indirect" – they are paid partly by consumers, but are paid to the government by producers (firms). – imposed on expenditure

- **Excise taxes:** taxes imposed on particular goods/services. (gasoline, cigarettes, alcohol, etc.)
  - Specific taxes: fixed amount of tax per unit of the good/service sold.
  - Ad valorem taxes: fixed % of the price of the good/service.
- **General expenditure taxes** - Taxes on spending on all (or most) goods and services. (general sales tax in US, Value-added taxes VAT in European, China)
- **Custom duties**, also known as tariffs.

Why government impose indirect taxes

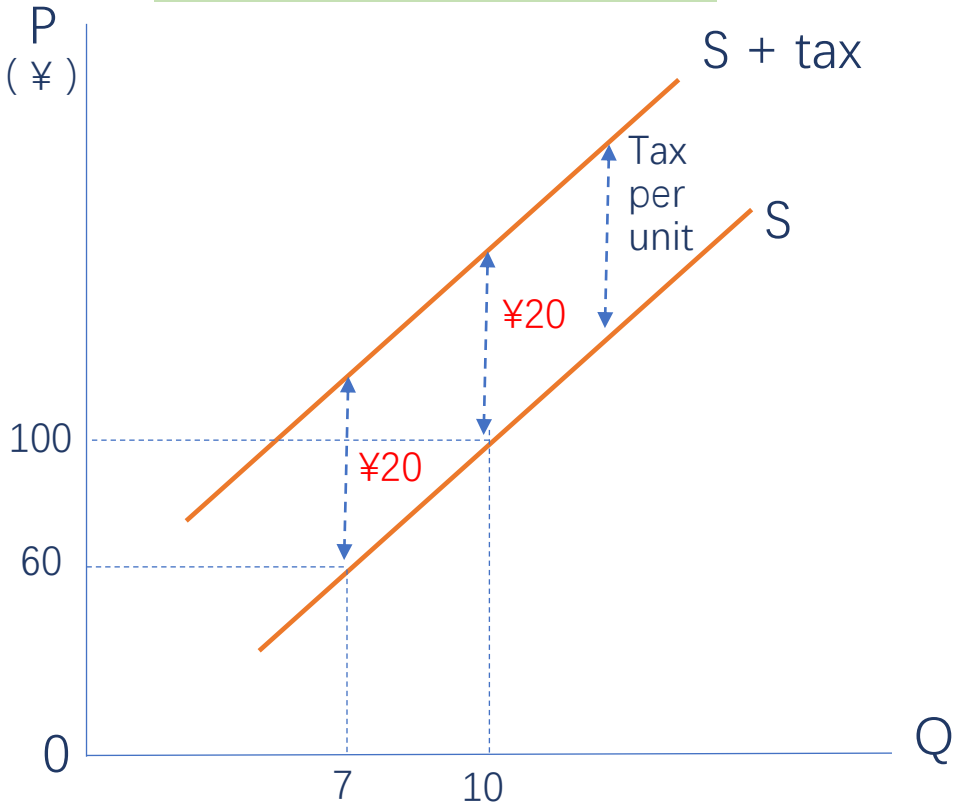
1. Source of **government revenue**.
   - the lower the price elasticity of demand for a good, the greater the government revenue generated.
2. A method to **discourage consumption** of goods that are harmful for the individual. (cigarette, alcohol, etc.)
   - Imposed on products like cigarette, alcohol, etc. ('vice taxes' or 'sin taxes')
3. It can be used to **redistribute income**.
   - Tax goods that can only be afforded by high-income earners, like expensive cars, boats, furs, jewelry, etc.
   - Impose indirect tax on those goods can narrowing income differences between higher income and lower income earners.
4. Improve the allocation of resources by **correcting negative externalities**.
   - If there are market imperfections which preventing the achievement of allocative efficiency, excise taxes can be used to try to improve the allocation of resources

*In this chapter, we assume that the economy begins with allocative efficiency.

Specific tax VS Ad Valorem Tax

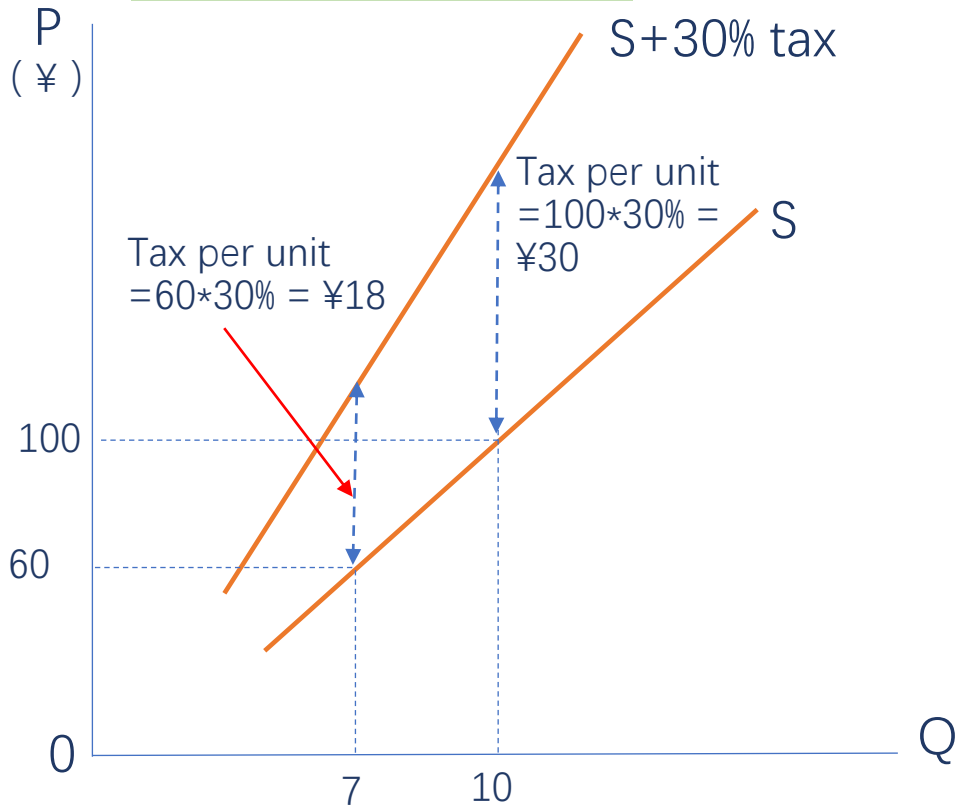
Specific tax

fixed amount of tax per unit of the good/service sold



Ad Valorem tax

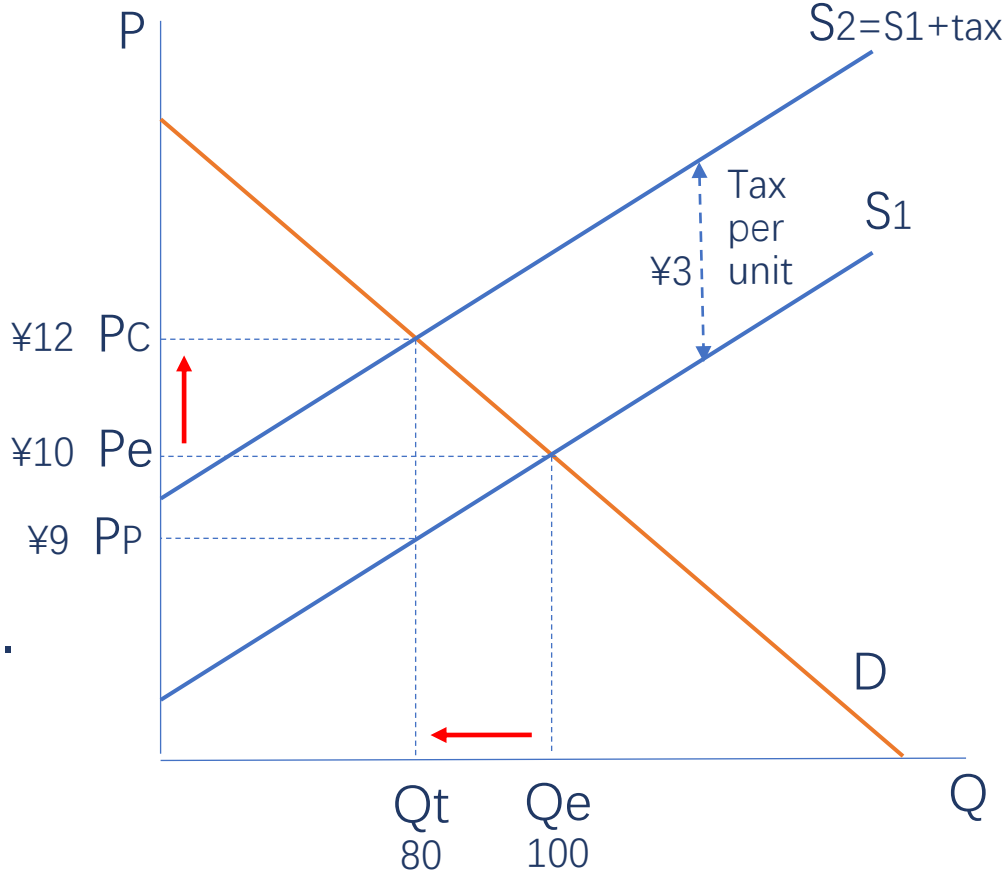
fixed % of the price of the good/service



For every level of output the firm is willing and able to supply to the market, it must receive a price that is higher than the original price by the amount of the tax. This involves a shift of the supply curve upward by the amount of the tax.

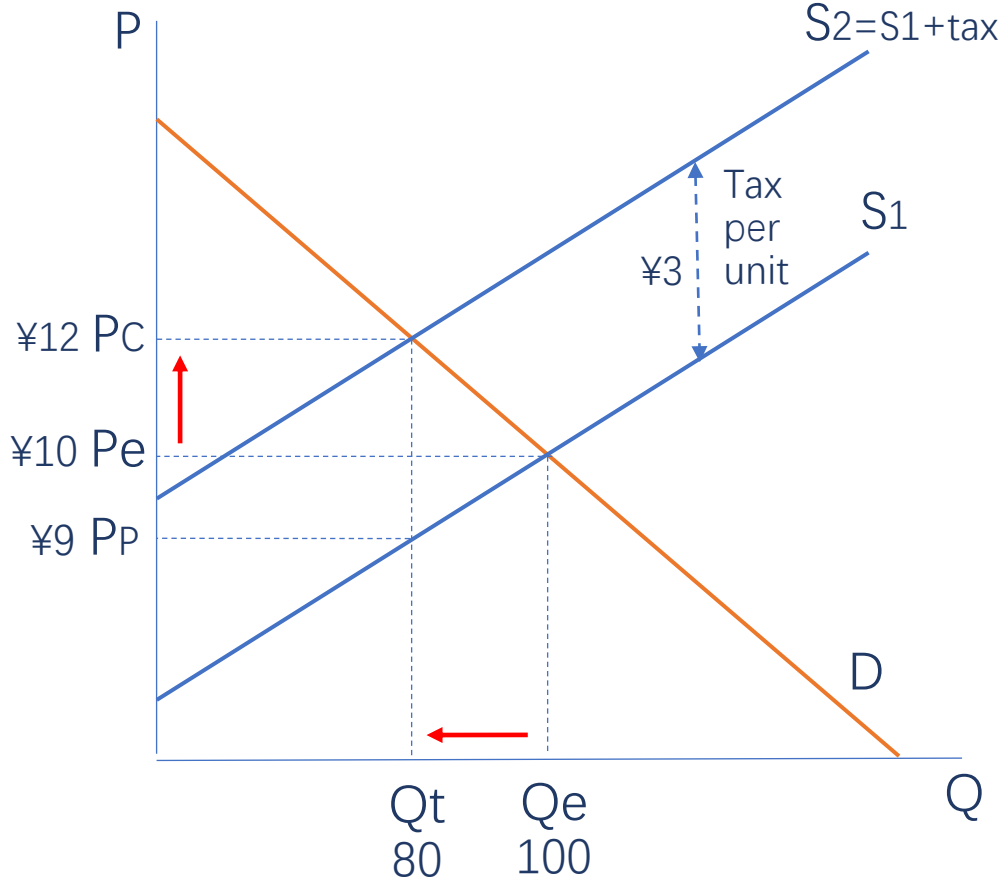
Illustration of indirect taxes

- Original pre-tax equilibrium price Pe and Qe
- Government imposes Specific tax on the good, S_1 shifts upwards to S_2, The imposition of a specific tax will **parallel shift** the supply curve to the left by the value of the tax.
- D curve unchanged. 'drive a wedge'
- P_C= the price consumer paid
- P_C-P_P = the tax amount paid to government.
- P_P= the price producer received.



The market outcomes

1. Equilibrium quantity produced and consumed falls from Qe to Qt
2. Equilibrium price increases from Pe to Pc which is the price paid by consumers.
3. Consumer expenditure on the good is given by the price of the good per unit times the quantity of units bought; it therefore changes from Pe*Qe to Pc*Qt
4. Price received by the firm falls from Pe to Pp which is Pp = Pc – tax per unit
5. The firm's revenue falls from Pe*Qe to Pp*Qt
6. The government receives tax revenue, given by (Pc-Pp)*Qt or the amount of tax per unit times the number of units sold.
7. There is an underallocation of resources to the production or the good: Qt is less than the free market quantity, Qe



The market outcomes

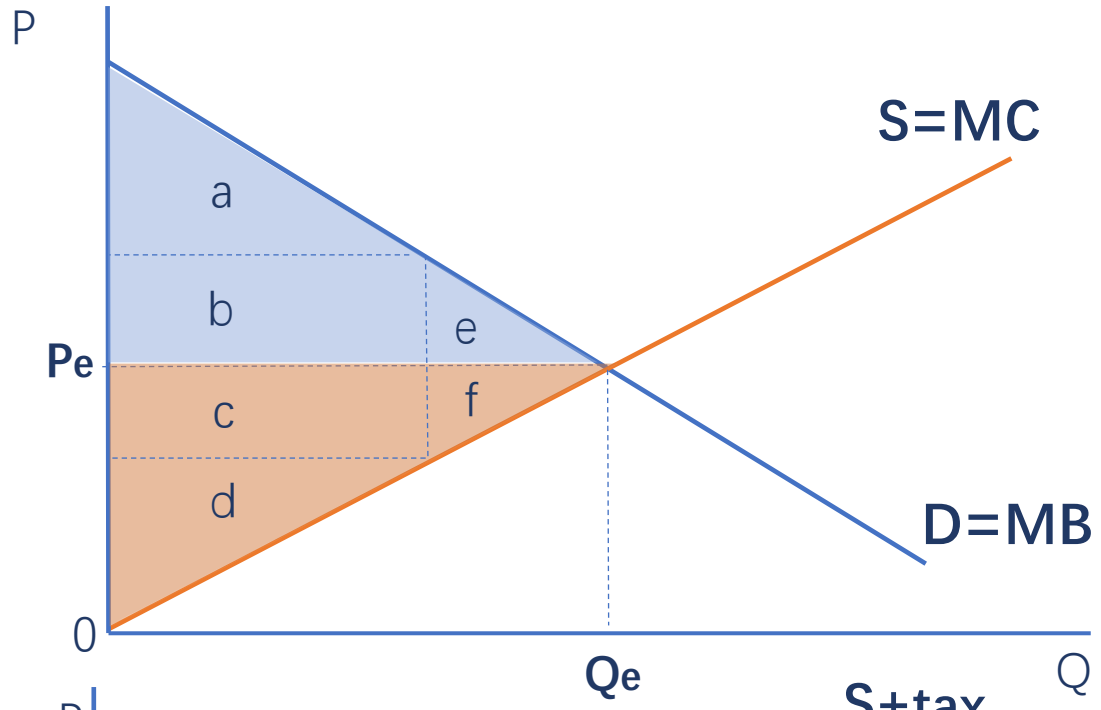
Negative welfare impacts

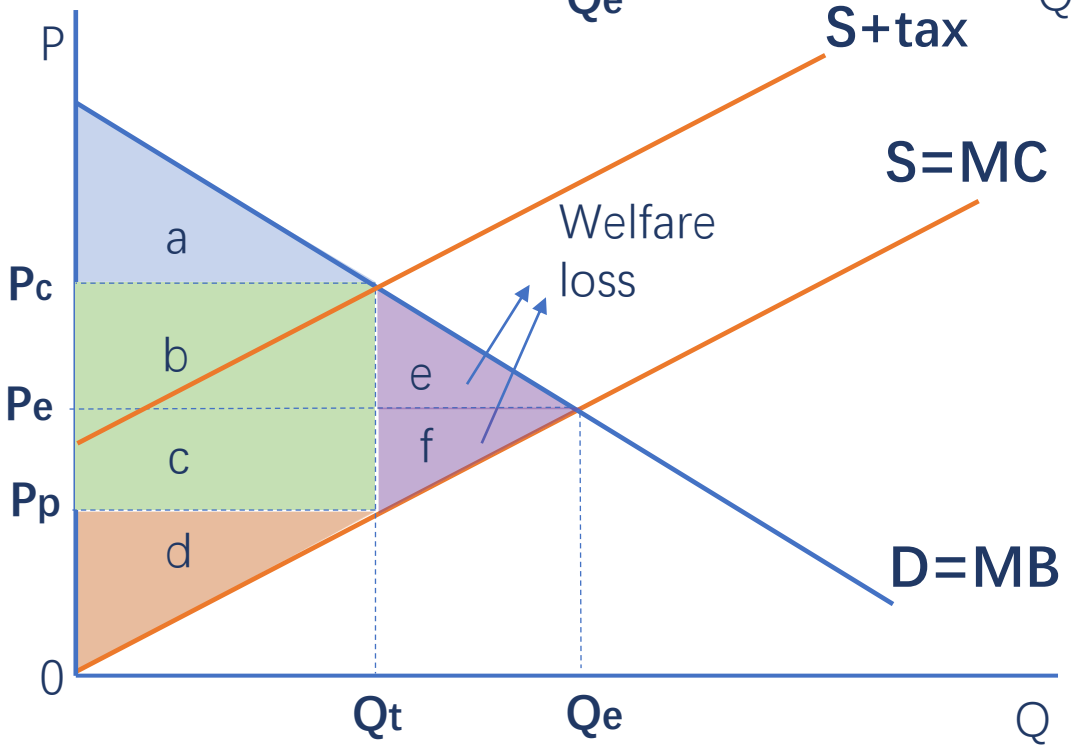
In free market, allocative efficiency with consumer surplus and producer surplus. Pe &Qe

- Consumer surplus = a+b+e
- Producer surplus = c+d+f
- **Social surplus = a+b+c+d+e+f**

If a indirect tax is imposed, Q_t is produced and consumed.

- Consumer surplus = a
- Producer surplus = d
- Government revenue = b+c
- **Social surplus = a+b+c+d**
- **Welfare loss** due to indirect tax= e+f





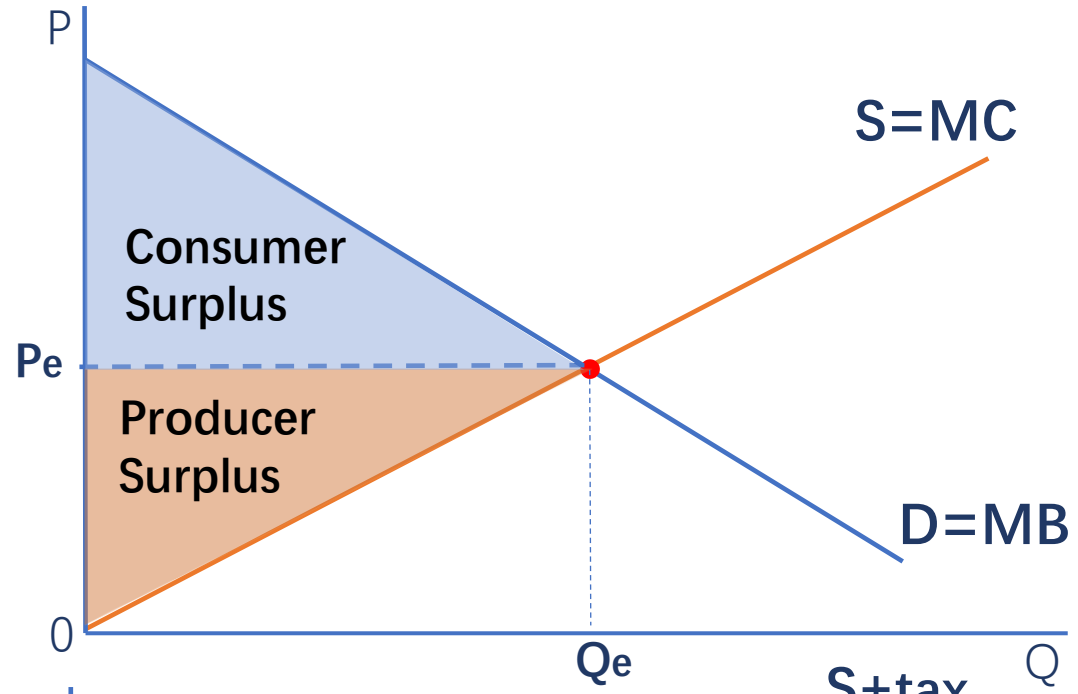
Consequences
– for markets

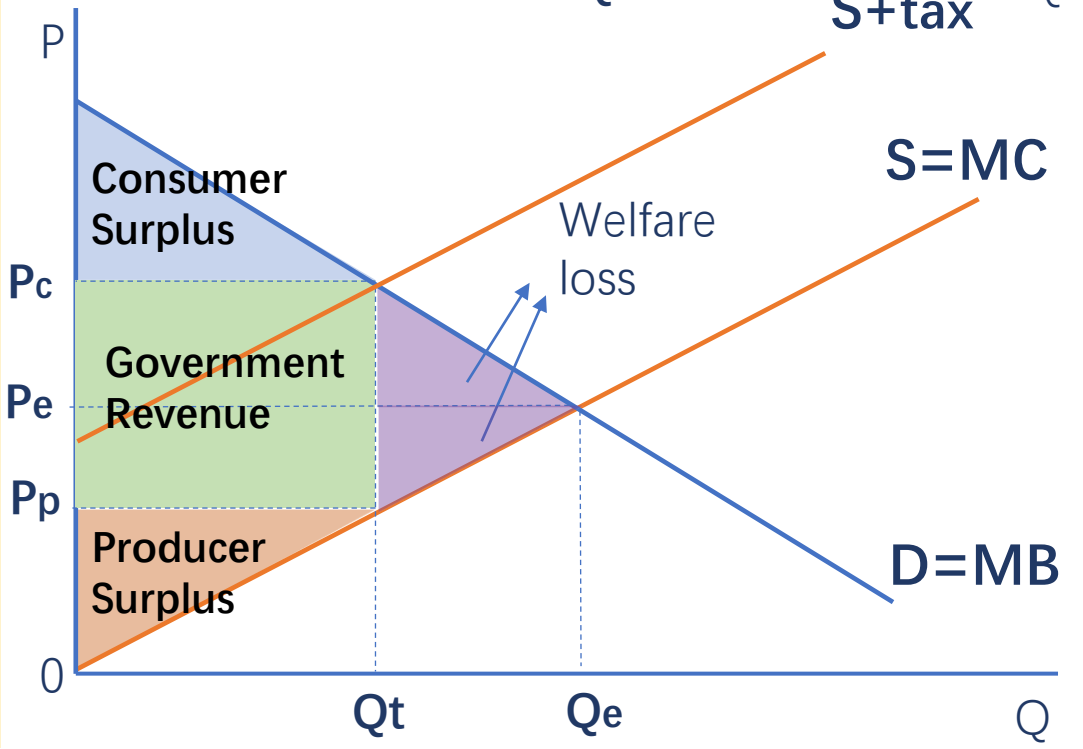
Welfare loss (deadweight loss) represents social surplus or welfare benefits that are lost to society because resources are not allocated efficiently.

Allocative inefficiency → MB>MC at Qt.

The benefit consumers receive from the last unit of the good they buy is greater than the marginal cost of producing it.

→ Underallocation of resources to its production.





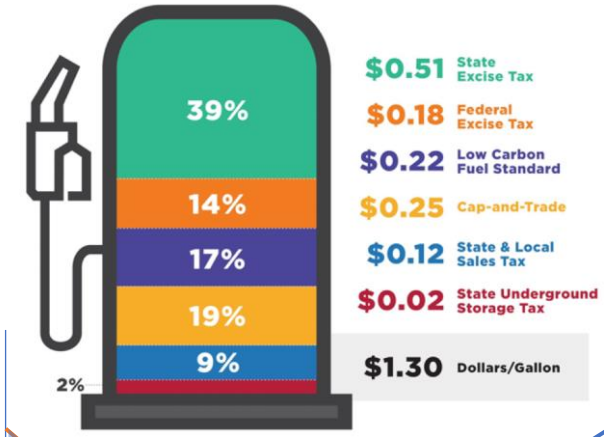
Example: Sugary drink indirect tax

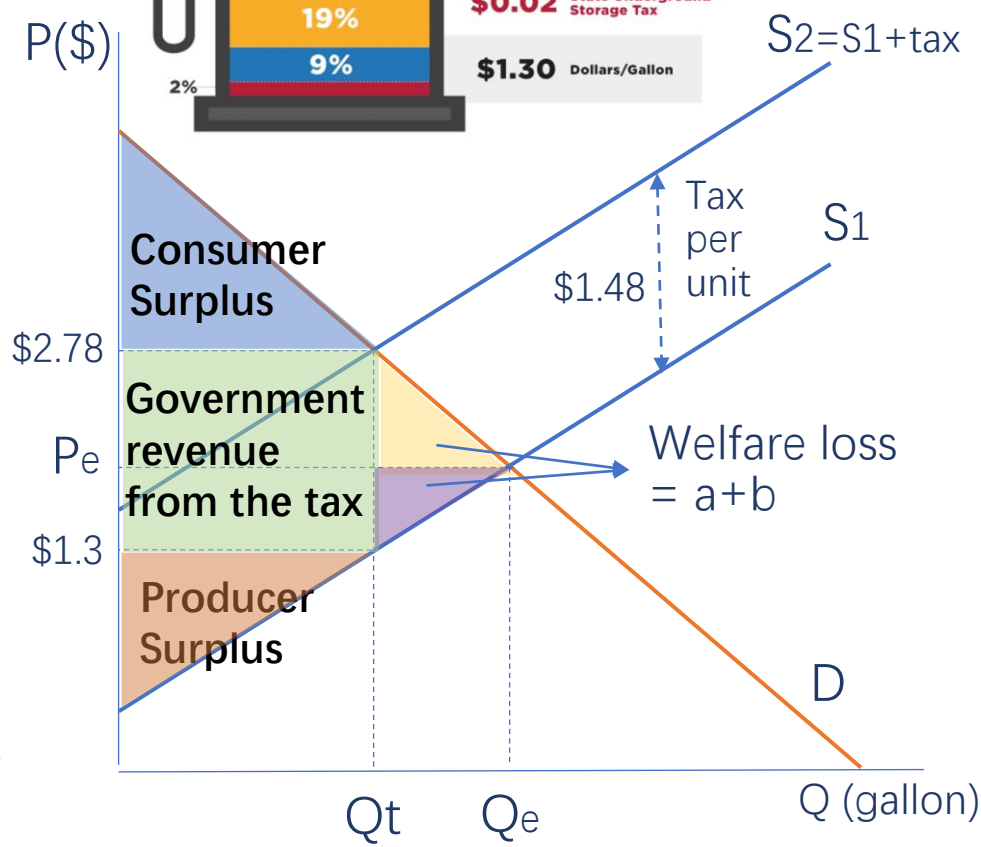
See: HM Customs and Revenue Policy Paper. 2016. Soft Drinks Industry Levy. Available: [https://www.gov.uk/government/publications/soft-drinks-industry-levy]. Last accessed: 29th May 2017

Consequences for various stakeholders

Stakeholders are individuals or groups of individuals who have an interest in something and are affected by it.

- **For consumers**:
  a. For those who still buying the products → Price paid ↗, quantities demanded ↘ → higher spending
  b. Not buying (shift to other types of transportation)
- **For producers:**
  a. For those who still selling the products → Price receive ↘, quantities supplied ↘ → Total revenue ↘
  b. Out of market
- **For the government:**
  - Gain $(P_c - P_p) * Q_t$ for the government budget
  - The government could spend it on…?
- **For workers**
  - Lower amount of output → fewer workers needed in the industry
- **Society as a whole**
  - Effects on the whole society.
    - Welfare loss
    - Other possible consequences: Possible less carbon emission, better environment, better social overall health condition

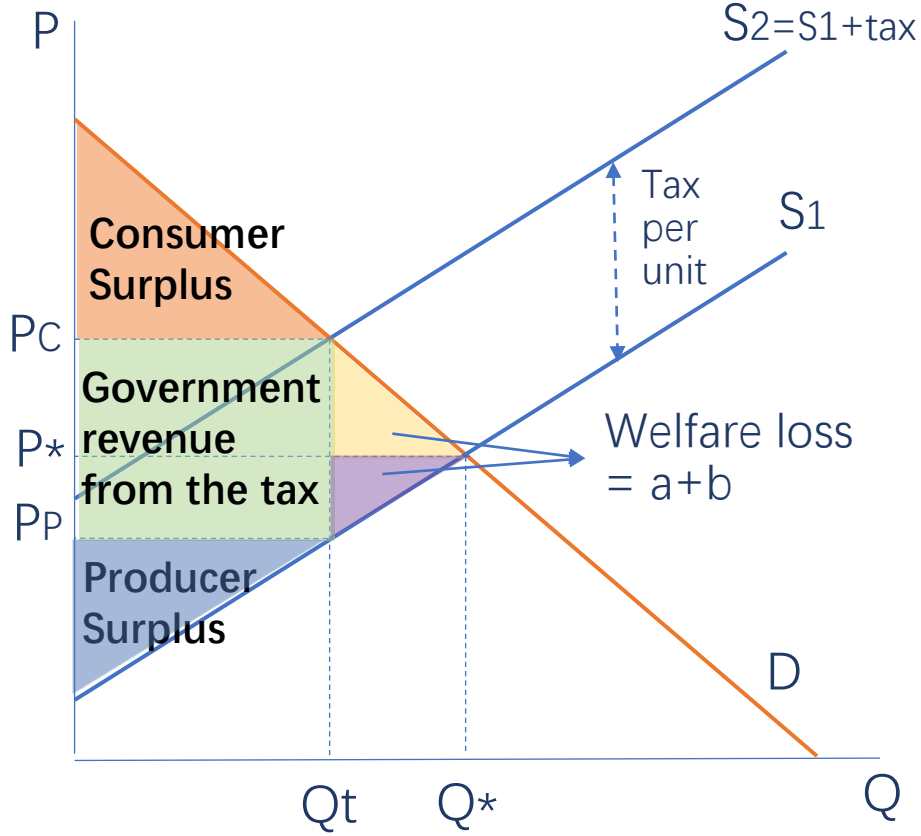




Consequences for various stakeholders

We call it Underallocation of resources (underproduction) or **Allocative inefficiency**.

- **MB > MC**: too little of the good is produced and consumed relative to the social optimum.



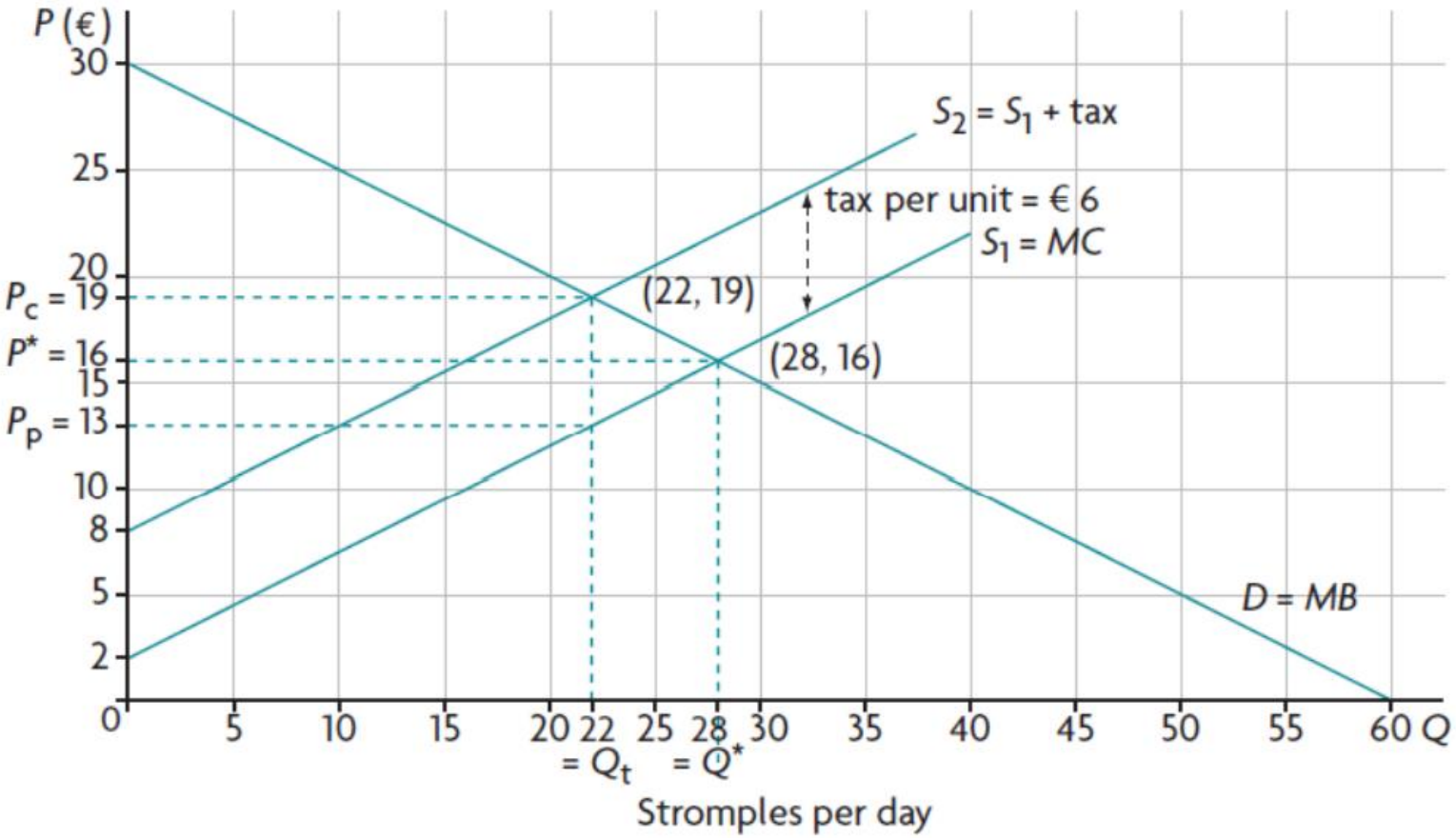
Calculation - the effect of indirect taxes

- Using the equation as follow to plot the demand and supply curve.

- Demand: P=30-0.5Q
- Supply: P=2+0.5Q

- Indirect tax = € 6 per unit
- Draw the curve after the imposition of indirect tax.

Calculation - the effect of indirect taxes



P* = €16, Q*=28

Pc = €19, Qc=22, Pt= €13

Consumer expenditure:

- Before tax: P* x Q* = 16 x 28=€448
- After tax: Pc x Qt =19 x 22 = €418

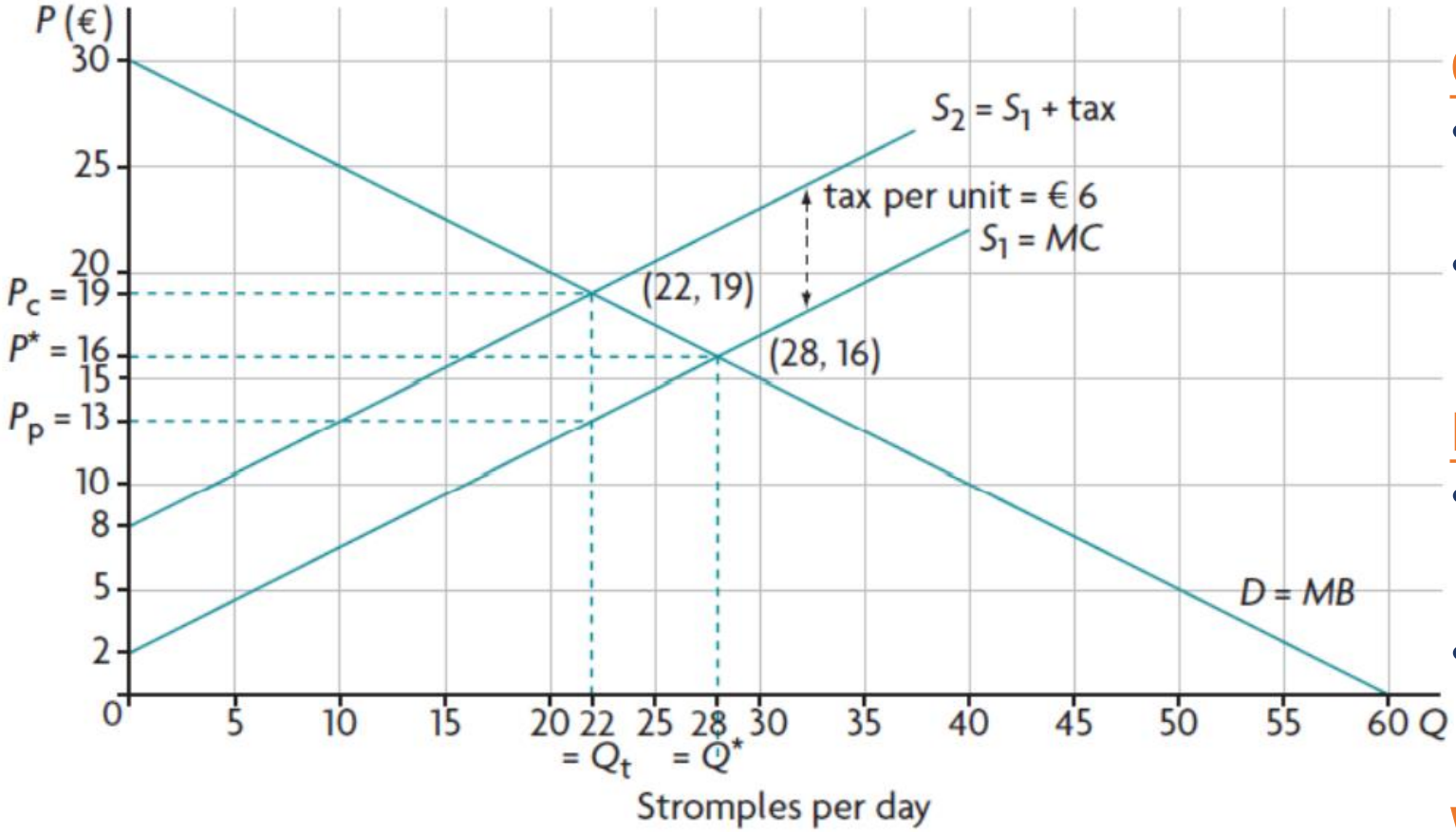
Producer revenue:

- Before tax: P* x Q*=16 x 28= €448
- After tax: Pt x Qt=13 x 22 = €286

Government revenue:

- =(Pc-Pt) x Qt=(19-13) x 22= €132
- =(taxed) Consumer expenditure – producer revenue = €132

Calculation - the effect of indirect taxes



P* = €16, Q*= 28

Pc = €19, Qc=22, Pt= €13

Consumer surplus:

- Before tax: ($P_{intercept\ of\ D} - P^*$) x Q*/2
  = (30-16) x 28/2=€196
- After tax: ($P_{intercept\ of\ D} - P_c$) x Q_t /2
  = (30-19) x 22/2 = €121

Producer surplus:

- Before tax: ($P^* - P_{intercept\ of\ S1}$) x Q*/2
  = (16-2)*28/2 = €196
- After tax: ($P_t - P_{intercept\ of\ S1}$) x Qt/2
  = (13-2)*22/2 = €121

Welfare loss:

= 196+196-121-121-132 = €18

=Area of triangle (P_c-P_p)(Q^*-Q_t)/2= €18


Subsidies

Subsidy

Definition: An amount of money paid by the government to firms for a variety of reasons: to prevent an industry from failing, to support producer's incomes, or as a form of protection against imports (due to the lower costs and lower prices that arise from the subsidy). A subsidy given to a firm results in a higher level of output and lower price for consumers. May also be paid to consumers as financial assistance or for income redistribution.

- Direct cash payment
- Low interest or interest-free loans
- The provision of goods/services by the government at below market price
- Tax relief

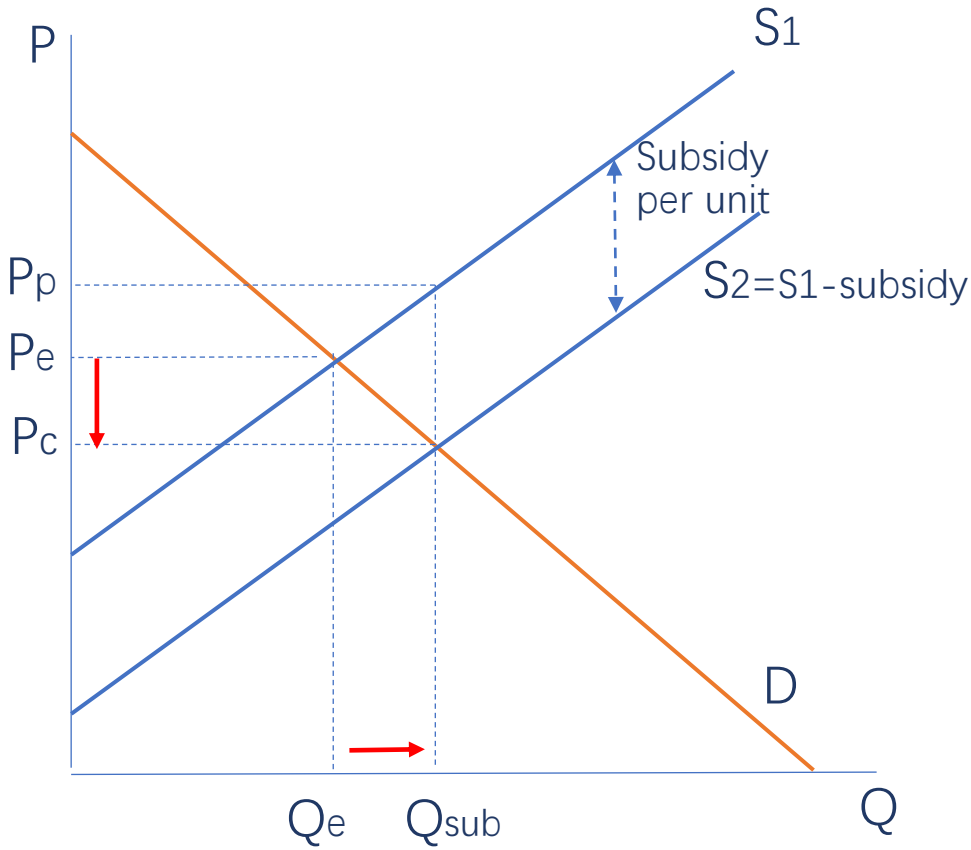
* In this chapter, we focus on **specific subsidies**, which the **government pay to producers with fixed amount per unit of output.**

Why governments grant subsidies

1. Increase **revenue of producers**.
2. Make certain goods (necessities) **affordable to low-income consumers**.
3. **Encourage production and consumption** of particular goods and services that are believed to be desirable for consumers. (education, electronic car, etc.)
4. Support the **growth of particular industries** in an economy. (support to solar industry)
5. **Encourage exports** of particular goods.
6. Improve the **allocation of resources** (reduce allocative inefficiencies)

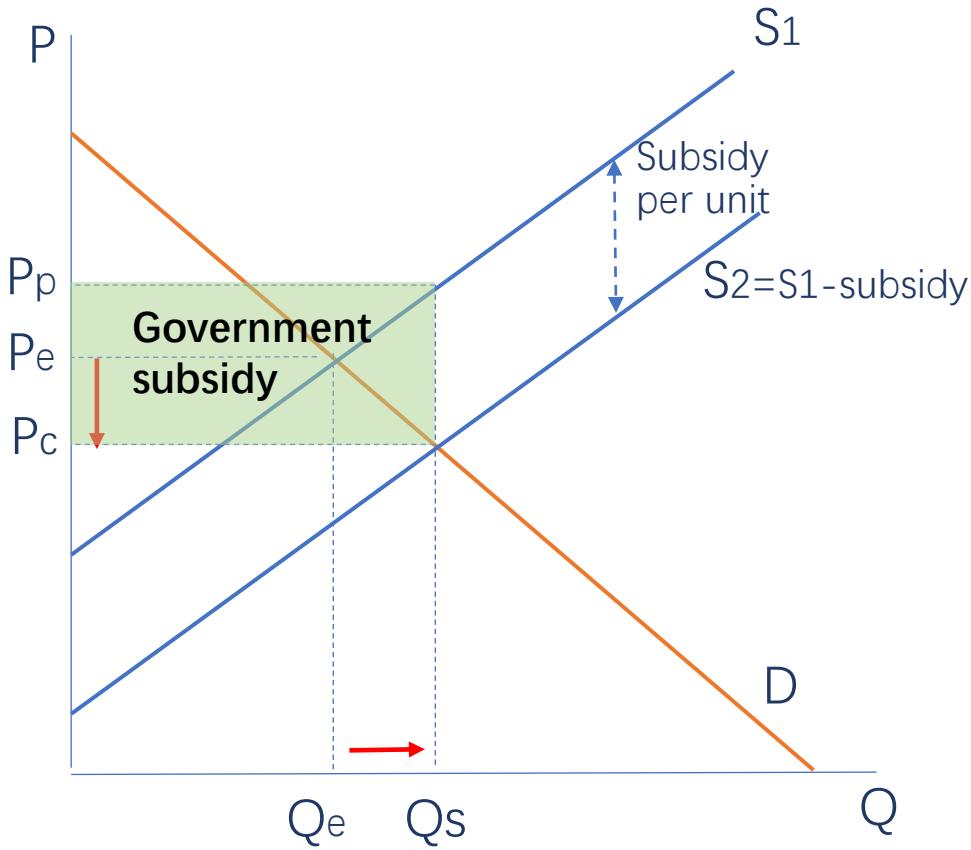
Illustration of subsidies

- Original pre-subsidy equilibrium price P_e and Q_e
- Government grants a subsidy consisting of a payment to the firm of a fixed amount for each unit of output sold, S1 parallel shifts downwards by the amount of the subsidy to S_2, D curve unchanged.
- Price decrease to P_c= the price paid by consumer
- →Consumers are more willing to buy the product, so the quantities demanded increase from Q_e to Q_{sub}.
- P_p - P_c = the subsidy paid by government.
- P_P= the price received by producer.
- Government subsidy spending = $(P_p - P_c)* Q_S$



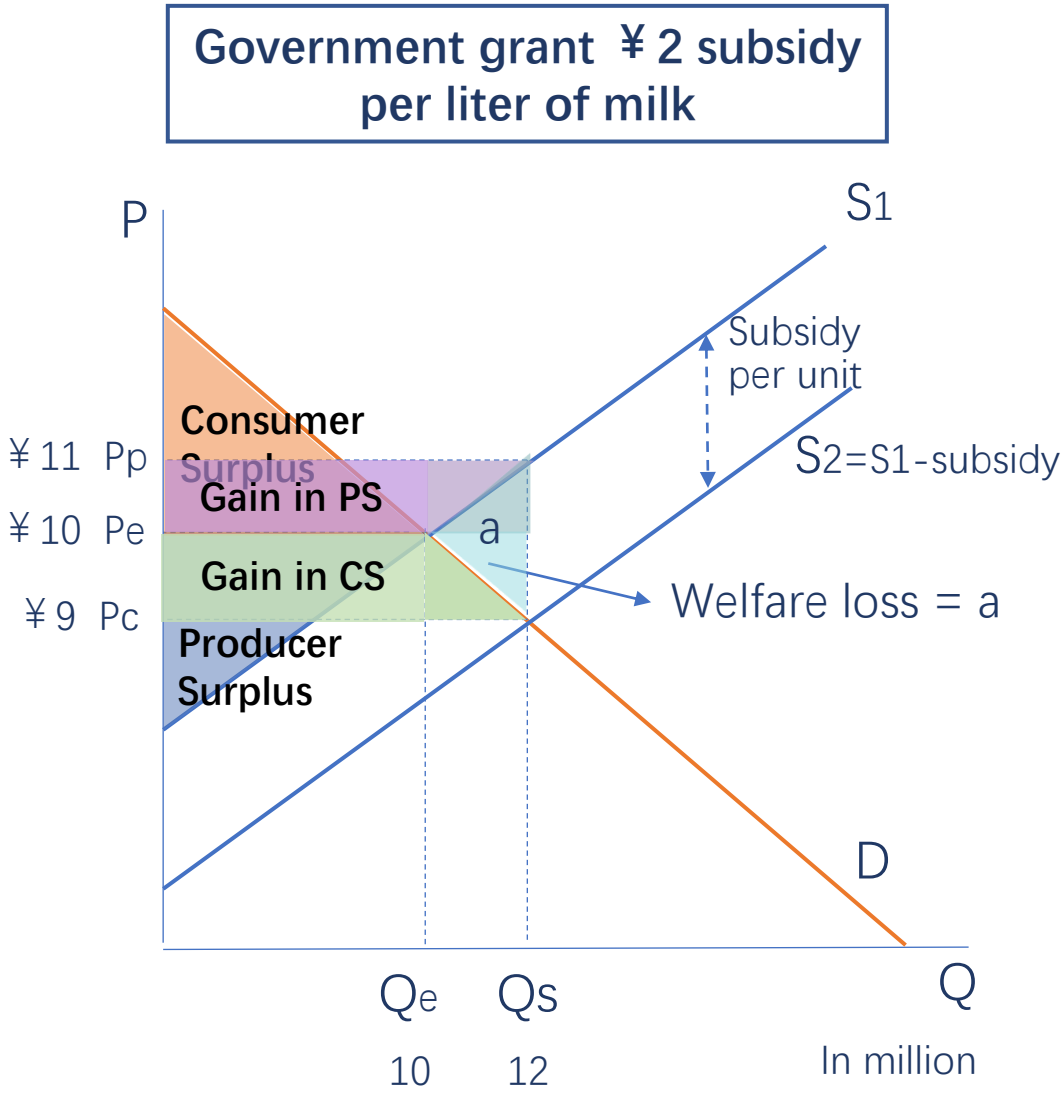
The market outcome of subsidy

- **Equilibrium quantity** produced and consumed increases from Q_e to Q_s
- The **equilibrium price** falls from P_e to P_c, this is the price paid by **consumers**
- The price received by **producers** increases from P_e to P_p.
- The amount of the subsidy is given by $(P_p - P_c)*Q_s$, or the amount of subsidy per unit multiplied by the number of units sold; it represents **government spending** to provide the subsidy.
- There is an **overallocation of resources** to the production of the good: Q_s is greater than the free market quantity, Q_e.



Consequences for various stakeholders

- **For consumers:**
  a. Existing consumers: Price paid ↘, quantity bought ↗
  b. New consumers join
  → Better off
- **For producers:**
  a. Existing producers: Price received ↗, quantity sold ↗ Total revenue ↗
     - Possibly more funding to expand their production or invest in R&D
     - Possibly become less efficient.
  b. Higher prices attract new producer join the market
  → Better off
- **For workers**
  - Higher amount of output → more workers needed → more labour working in this industry
- **For the government:**
  - $(P_p - P_c) * Q_s$ Burden on its budget
  - Make the milk more affordable to low-income people.
  - Opportunity costs of the government spending.
- **Society as a whole**
  - Government subsidy = CS + PS + welfare loss a
  - Inefficient firms could sell in the market
  - Subsidies can reduce incentives for firms to cut costs or to be more competitive.



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