Equilibrium, efficiency and government

Economics II: Microeconomics

VŠE Praha

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- Consumers:
  - People.
  - Households.
- Firms:
  - Internal Organisation.
  - Industrial Organisation.
- Equilibrium:
  - Holds.
  - Does not hold.

Microeconomics

- Consumers:
  - People.
  - Households.
- Firms:
  - Internal Organisation.
  - Industrial Organisation.
- `Equilibrium:` $\twoheadleftarrow$ `Now`
  - Holds.
  - Does not hold.

Equilibrium

Baby version

Definition

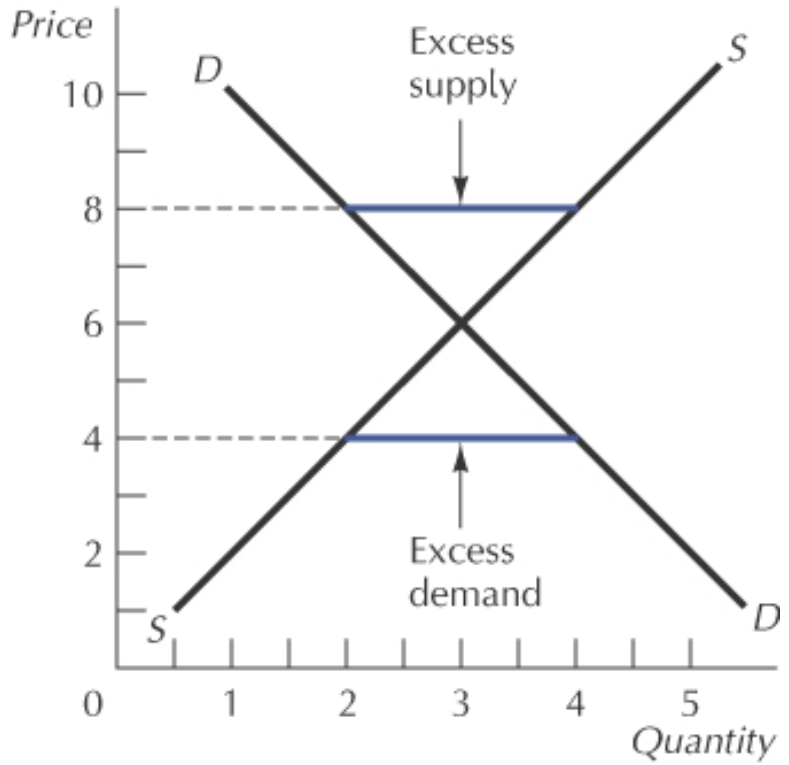
A condition in which all acting influences are canceled by others, resulting in a stable, balanced, or unchanging system.

Definition

The excess demand is zero.

Definition

No incentive to deviate.



$$D(p^*) = S(p^*) \text{ or}$$
$$P_S(q^*) = P_D(q^*)$$

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- $D(p) = a - bp$
- $S(p) = c + dp$

Example

$$\begin{aligned} D(p) &= a - bp \\ &= c + dp \quad = S(p) \end{aligned}$$
$$p^* = \frac{a-c}{d+b}$$
$$D(p^*) = \frac{ad+bc}{b+d}$$

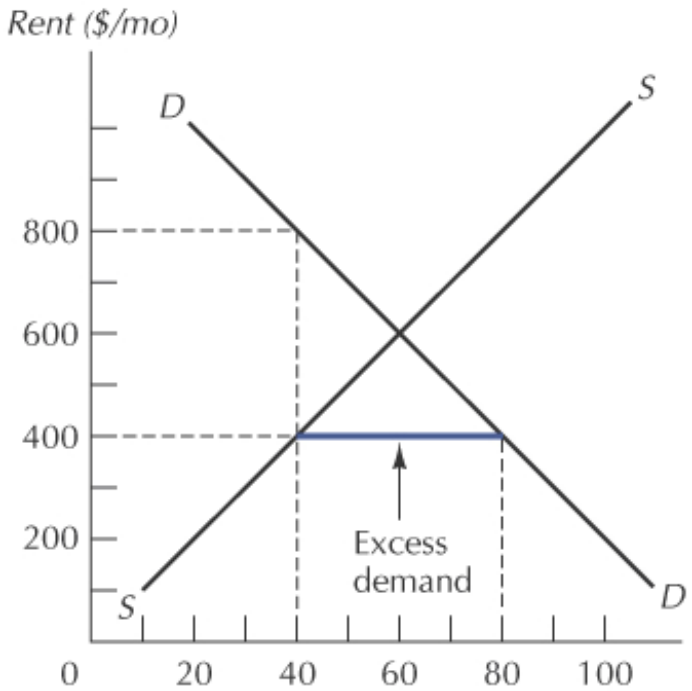
Example

$$\begin{aligned} P_D(q) &= \frac{a-q}{b} \\ &[=] \frac{q-c}{d} \quad = P_S(q) \end{aligned}$$
$$q^* = \frac{ad+bc}{b+d}$$

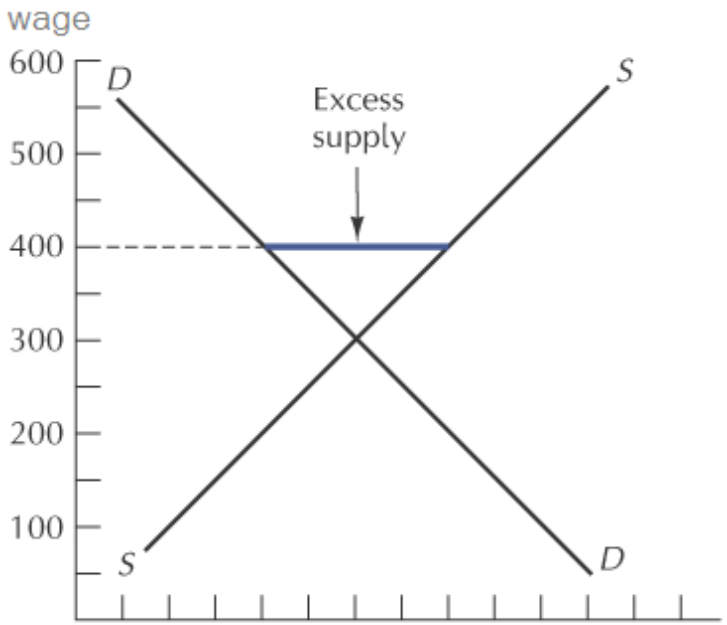
Equilibrium and Government

(Dis)equilibrium

Baby version: Price control



Price ceiling



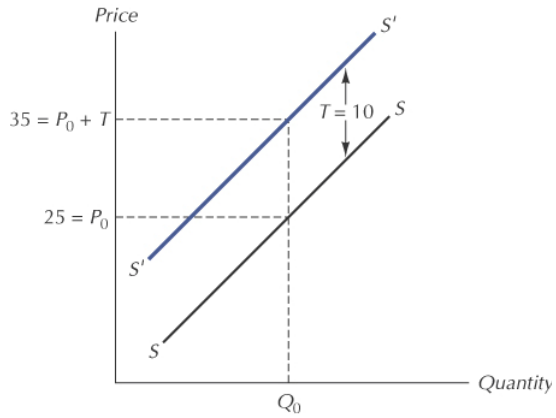
Price floor

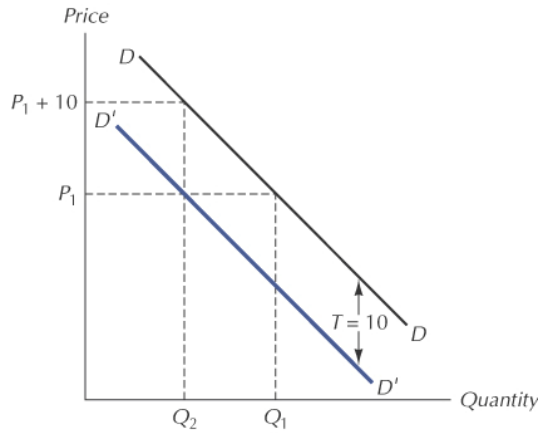
Equilibrium

Baby version: Taxation

P_D... price for buyer
P_S... price for seller
t... tax

- $P_D = P_S + t$
- $P_S = P_D - t$





Equilibrium

Baby version: Taxation

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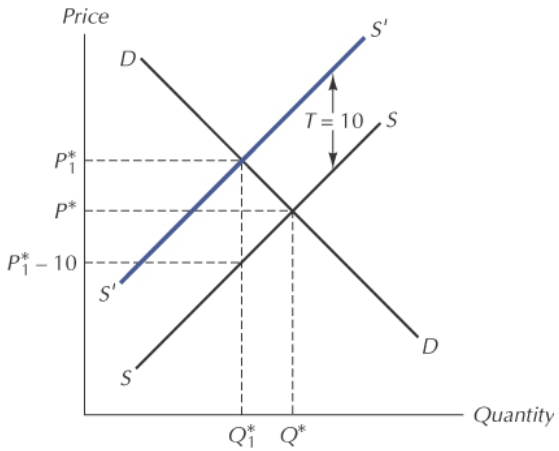
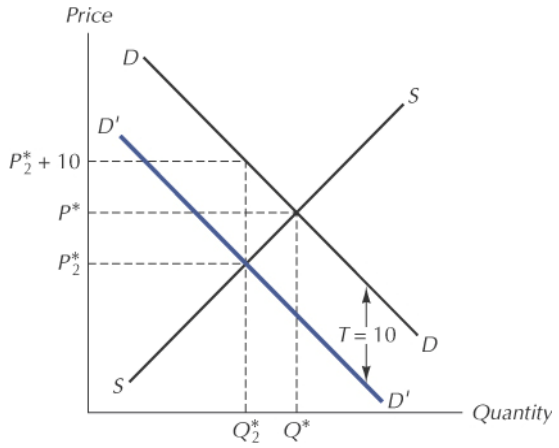
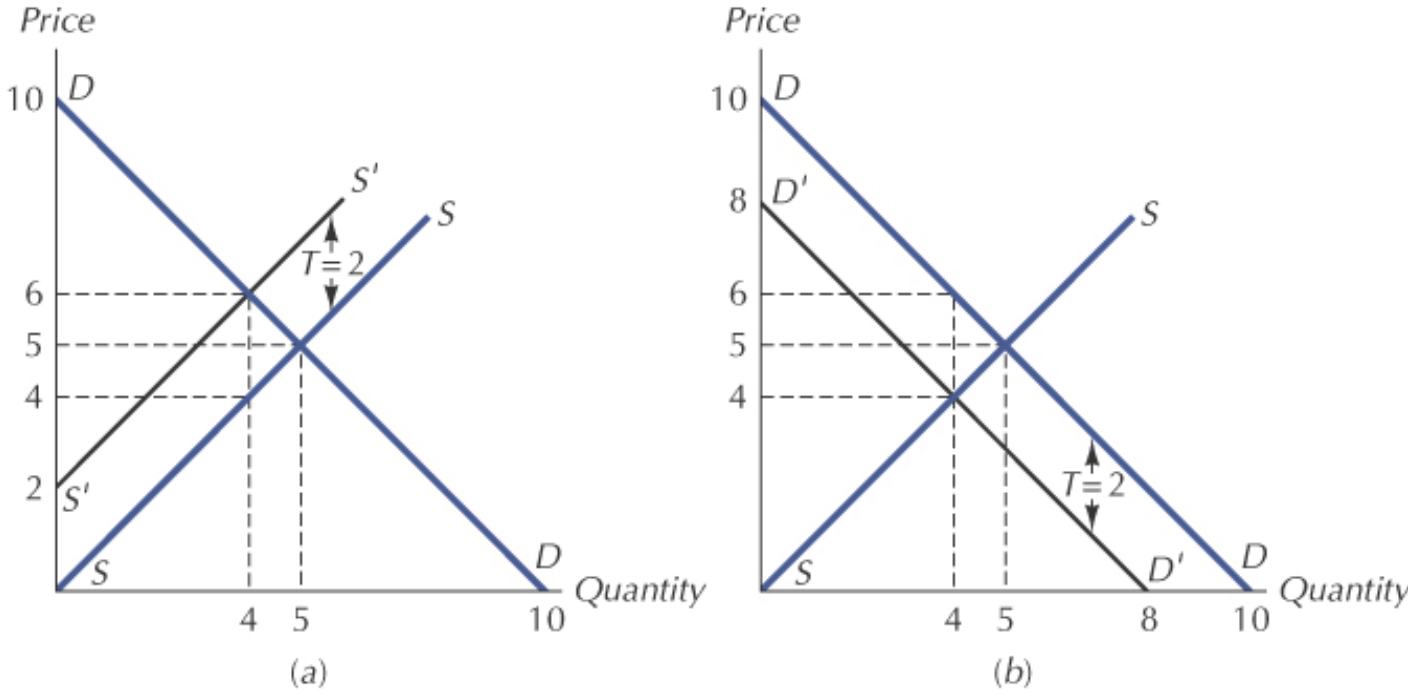




Equilibrium

Baby version: Taxation



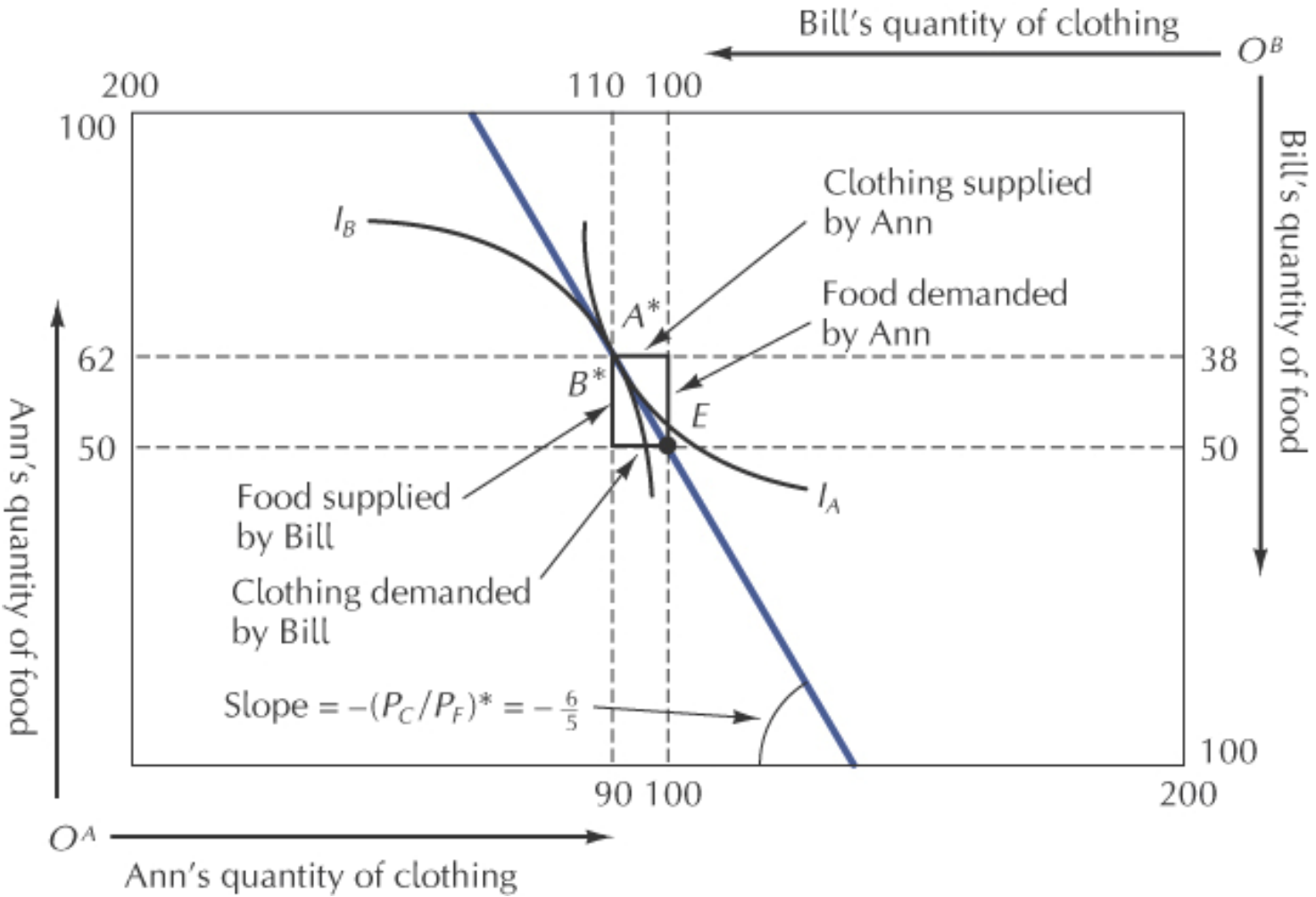
Fact

Higher price for buyer, lower price for seller, and less quantity.

Equilibrium and efficiency

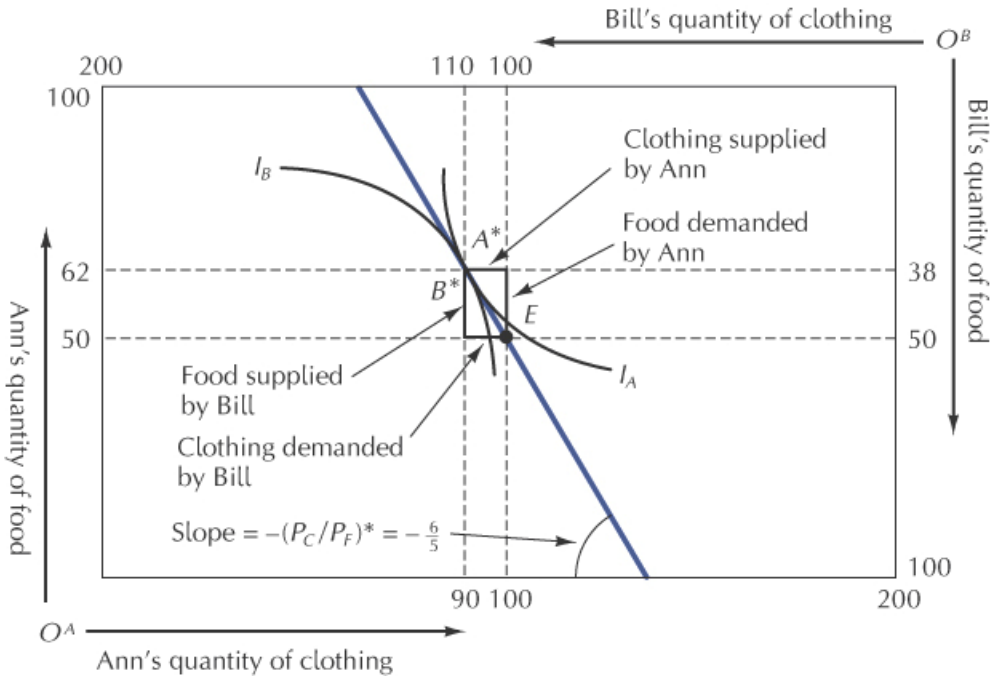
Equilibrium

Edgeworth box



Equilibrium

Edgeworth box



Theorem (First Theorem of Welfare Economics or Invisible Hand)

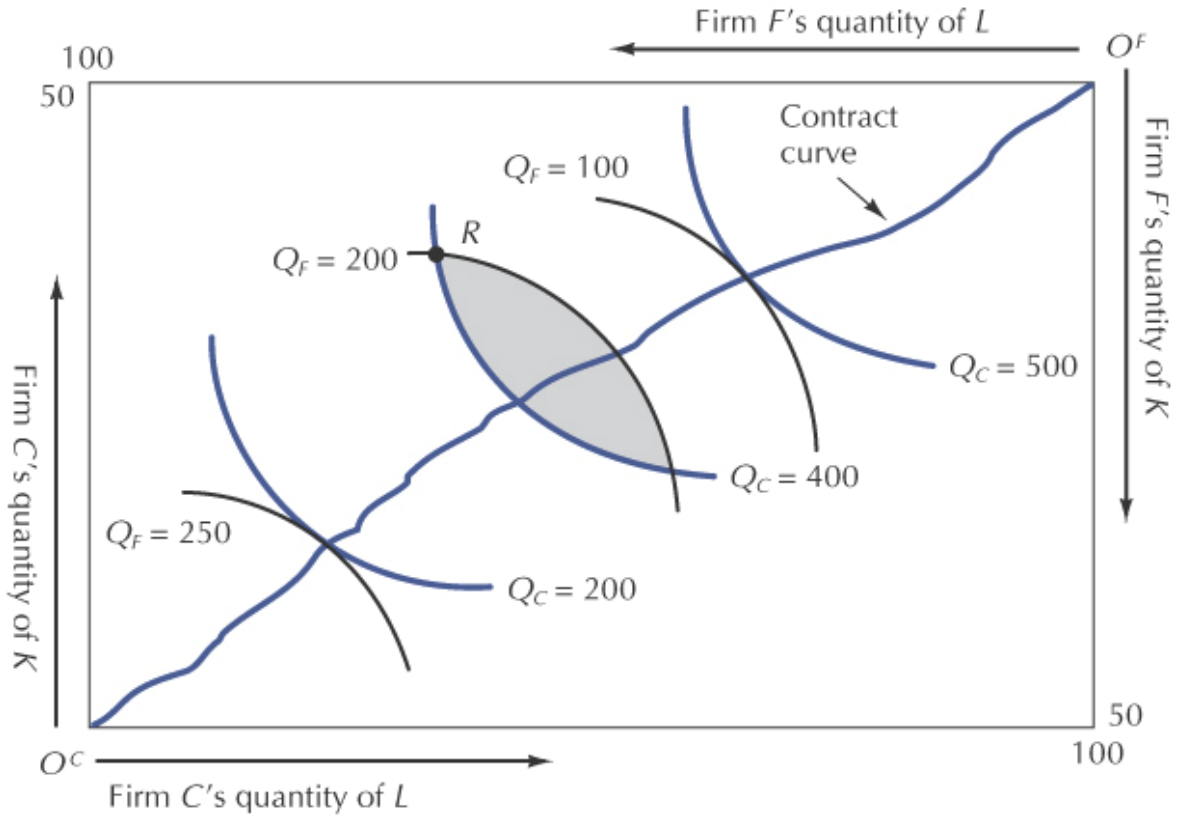
Equilibrium in competitive markets is Pareto efficient.

Equilibrium

Equilibrium, efficiency and production

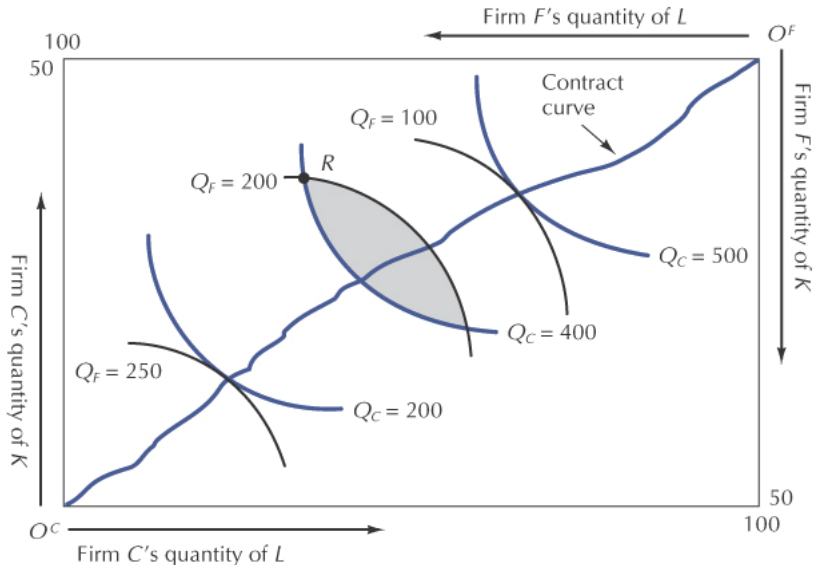
Production

Edgeworth Box



Production

Edgeworth Box

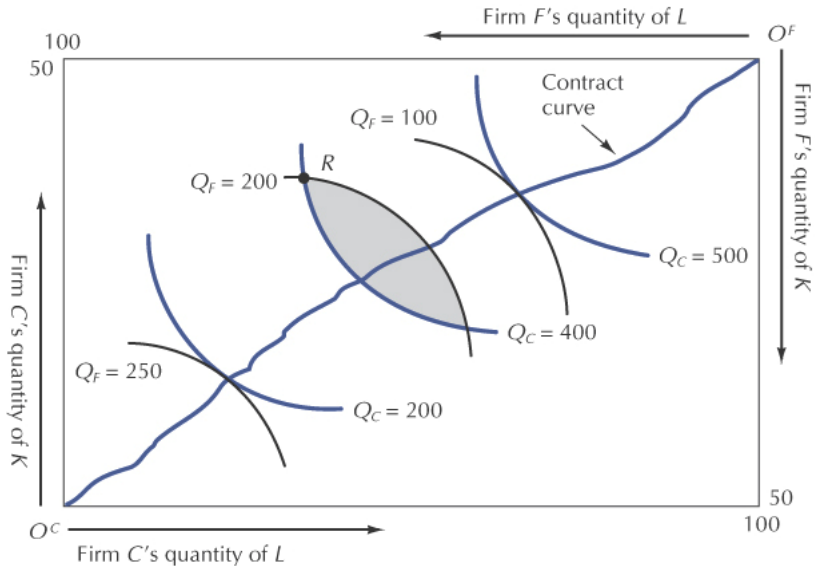


Fact

The marginal rates of technical substitution for the two firms will be equal in competitive equilibrium.

Production

Edgeworth Box

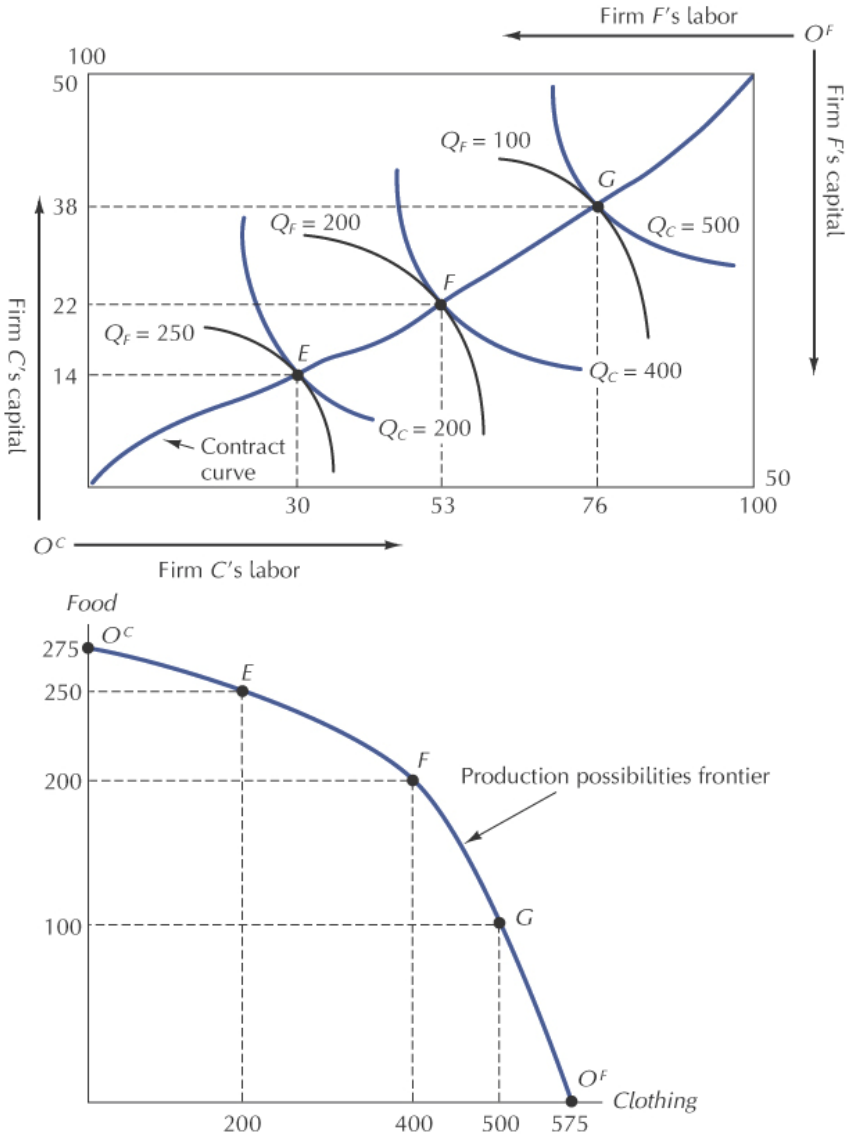


Fact

Competitive general equilibrium is efficient not only in the allocation of a given endowment of consumption goods, but also in the allocation of the factors used to produce those goods.

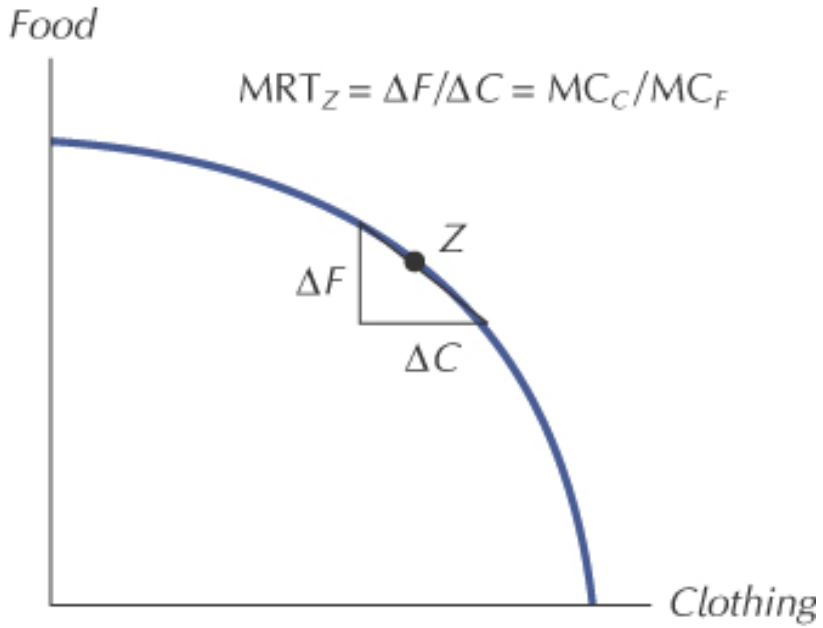
Production Mix

Production



Definition

Production possibilities frontier is the set of all possible output combinations that can be produced with a given endowment of factor inputs.

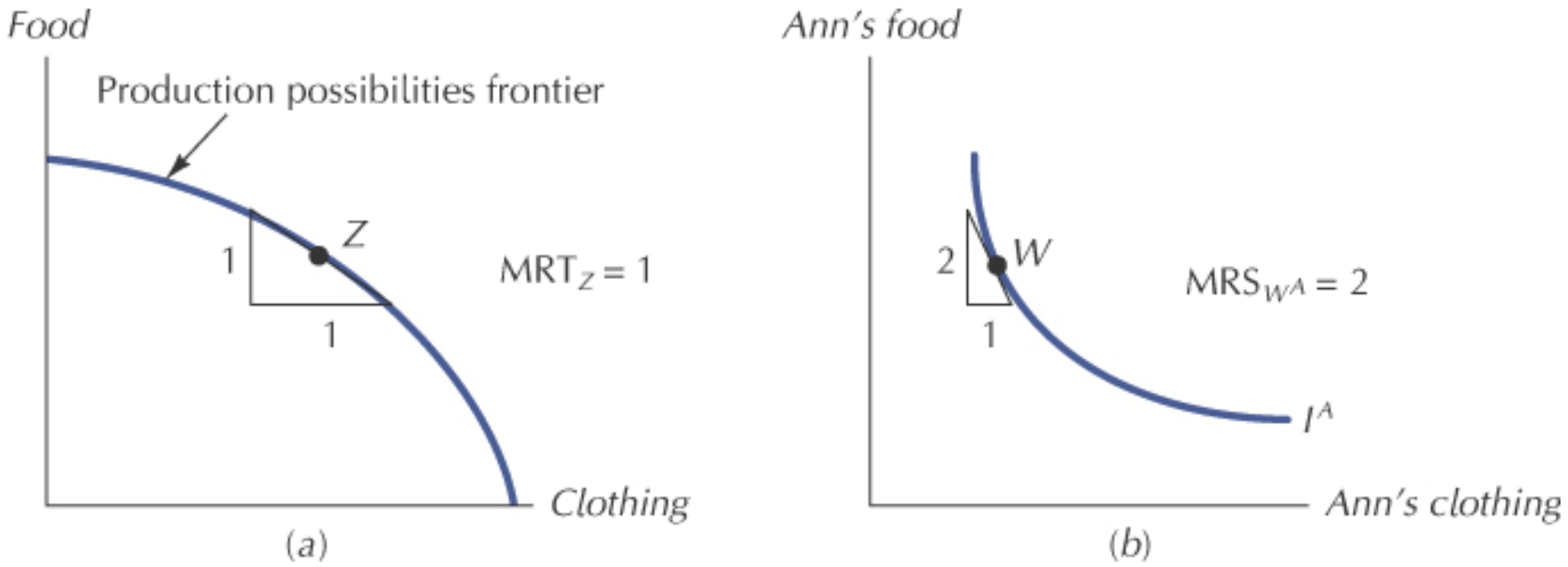


Definition

Marginal rate of transformation (MRT) is the rate at which one output can be exchanged for another at a point along the production possibilities frontier.

Production

Efficiency in Production

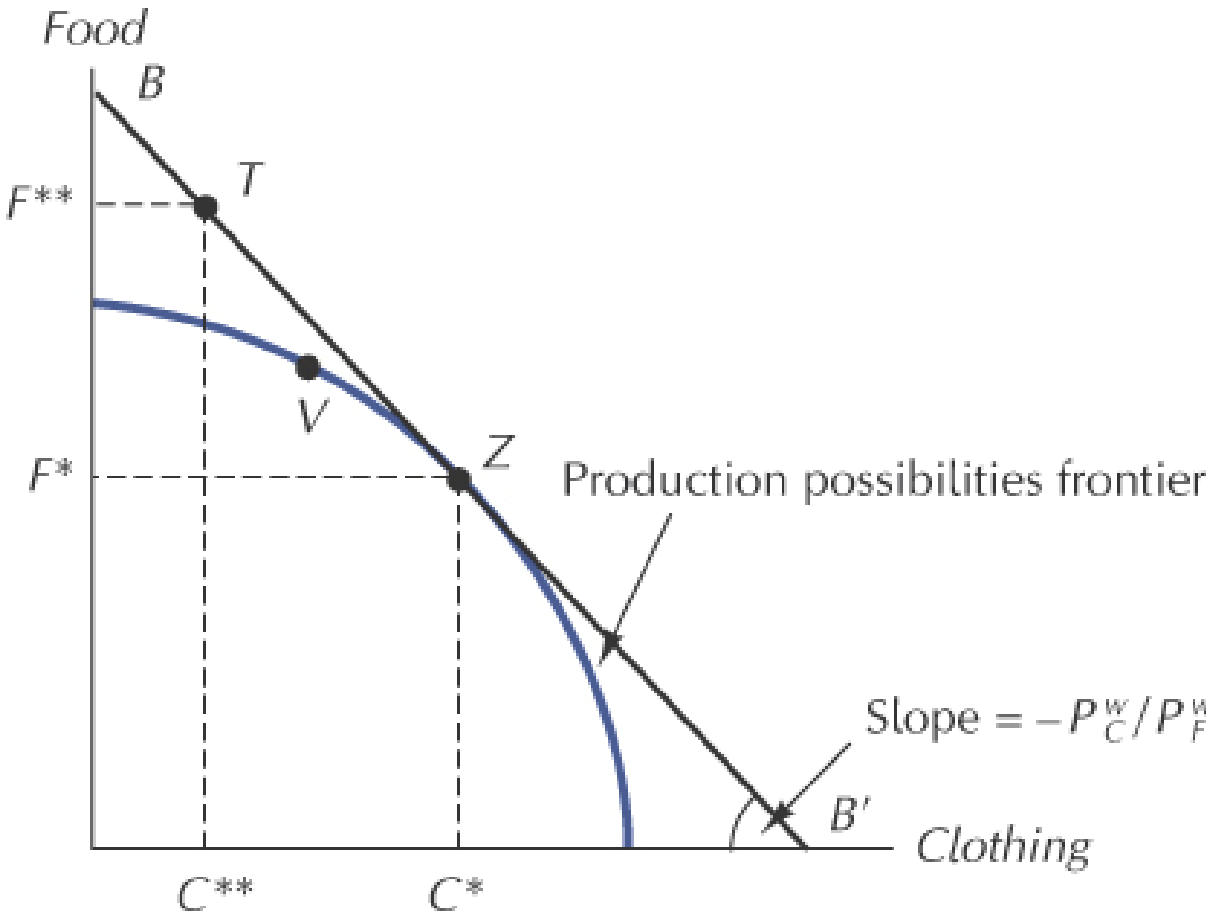


Fact

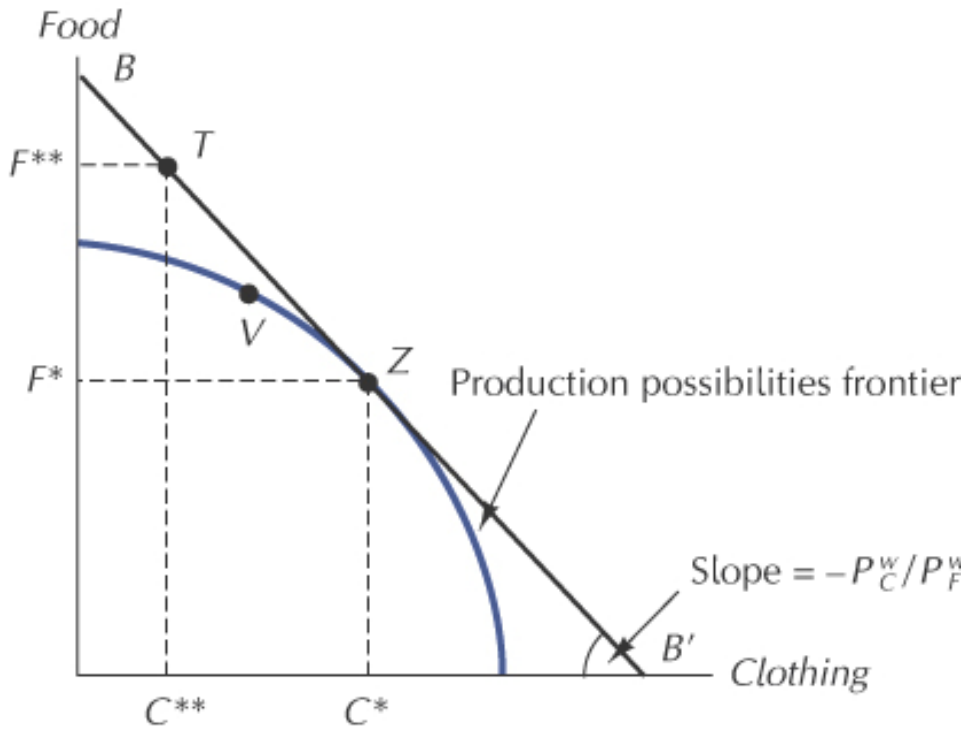
For an economy to be efficient in terms of its product mix, it is necessary that the marginal rate of substitution for every consumer be equal to the marginal rate of transformation.

Efficiency in the World Market

International Trade



International Trade



Fact

The international budget constraint contains the original competitive equilibrium point thus **it is possible to make everyone better off than before.**

International Trade

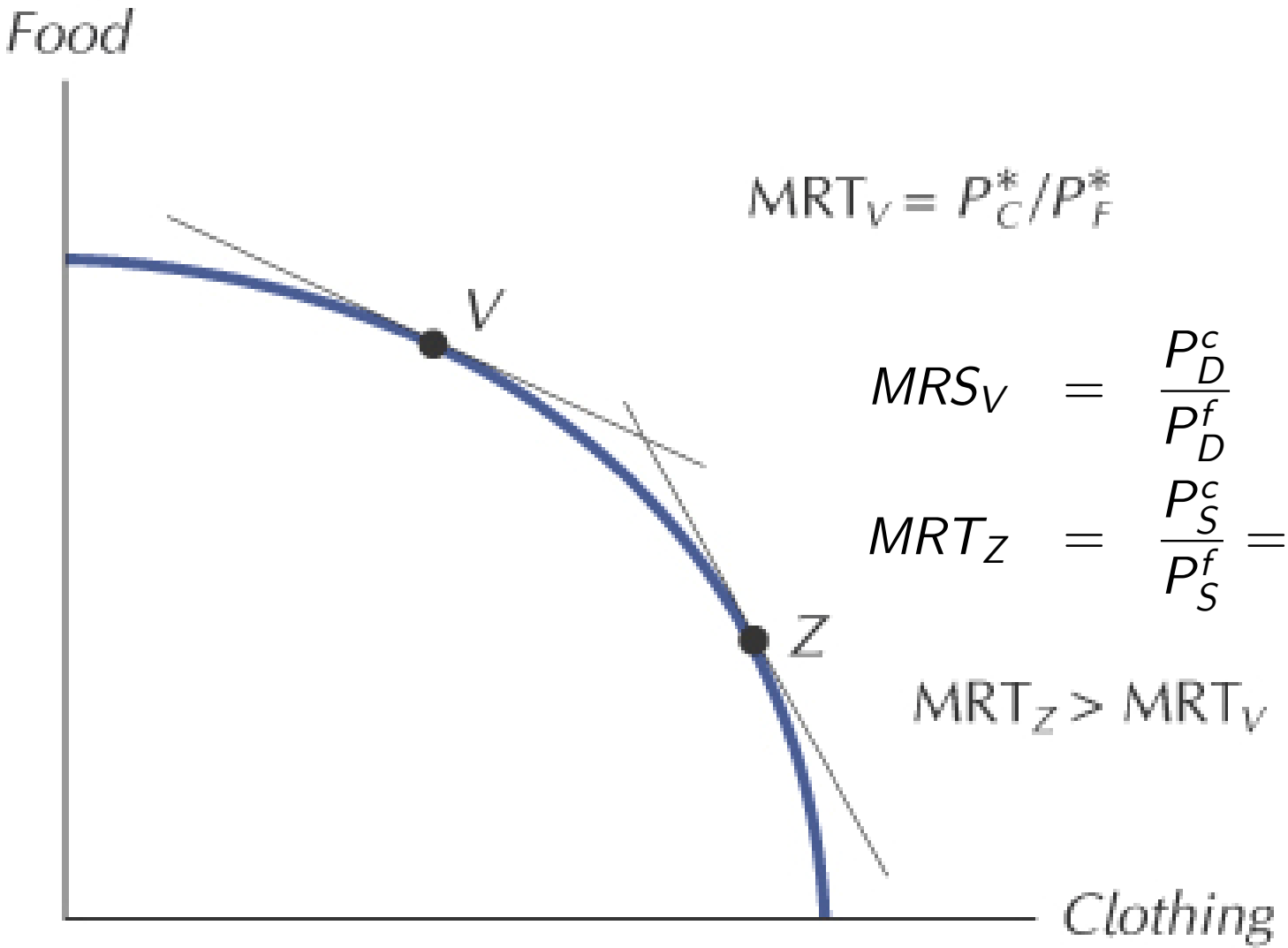
Fact

But the impersonal workings of international trading markets provide no guarantee that every single person will in fact be made better off by trade.

Equilibrium and Inefficiencies

Equilibrium, inefficiency and the government

Equilibrium and Taxes



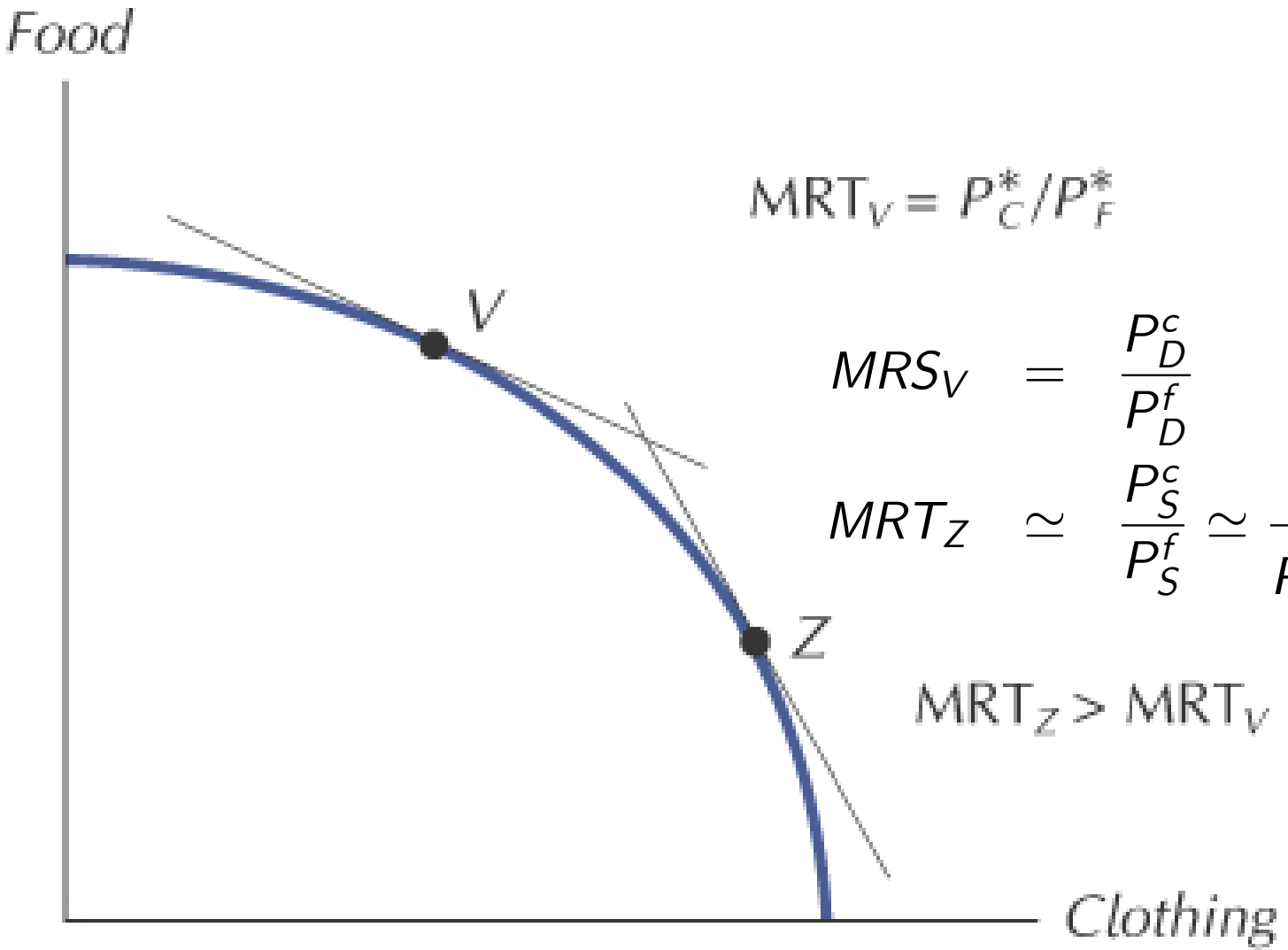
$$MRT_V = P_C^*/P_F^*$$

$$MRS_V = \frac{P_D^c}{P_D^f}$$

$$MRT_Z = \frac{P_S^c}{P_S^f} = \frac{P_D^c}{P_D^f - t}$$

$$MRT_Z > MRT_V$$

Equilibrium and Monopolist (in Food)



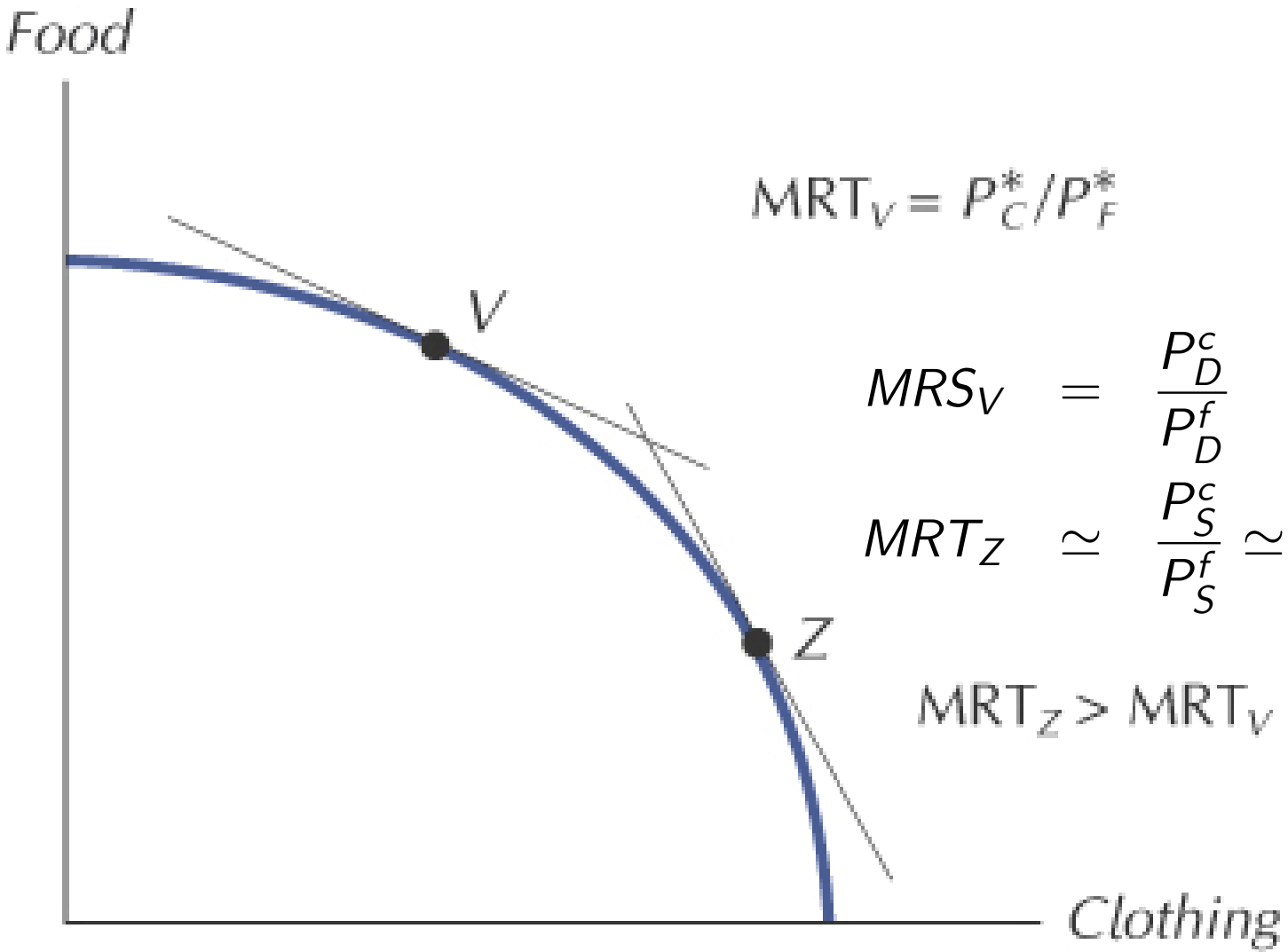
$$MRT_V = P_C^*/P_F^*$$

$$MRS_V = \frac{P_D^c}{P_D^f}$$

$$MRT_Z \simeq \frac{P_S^c}{P_S^f} \simeq \frac{P_D^c}{P_D^f \div \left(1 - \frac{1}{\|\varepsilon\|}\right)}$$

$$MRT_Z > MRT_V$$

Equilibrium and Externality (Positive in Food)



$$MRT_V = P_C^*/P_F^*$$

$$MRS_V = \frac{P_D^c}{P_D^f}$$

$$MRT_Z \simeq \frac{P_S^c}{P_S^f} \simeq \frac{P_D^c}{P_D^f - C}$$

$$MRT_Z > MRT_V$$

Government in Equilibrium

- Taxing cautiously
- Dealing with Monopoly caused Inefficiencies
- Dealing with Externality caused Inefficiencies
- Delivering Public Goods
- *other*

Next lecture

Externalities and Public Goods