Thammasat

Applications of Demand and Supply
EE311

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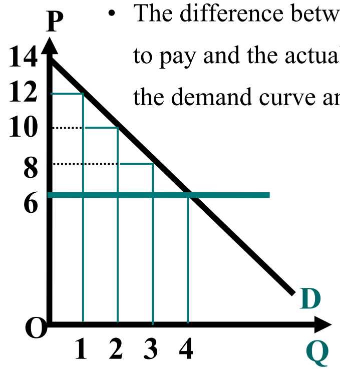
Apply Demand and Supply

- Consumer and producer surplus
- Sale Taxes and Subsidies
- Price ceilings
- Price floors
- Price supports
- Import Tariffs and Quotas
- Cobweb model

Consumer surplus: CS



- The difference between the maximum willingness to pay and the actual price paid or area between the demand curve and the price

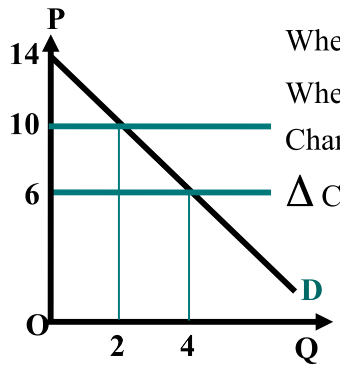
CS = (12-6)+(10-6)

+(8-6)+(6-6) = 12

For continuous case

CS = =

Change in Consumer's welfare



When P = 6, CS = A + B

When P = 10, CS = A

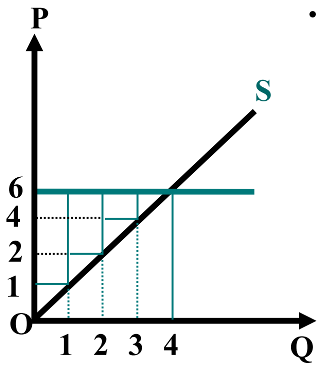
Change in welfare:

Δ CS =

=

=

Producer surplus: PS



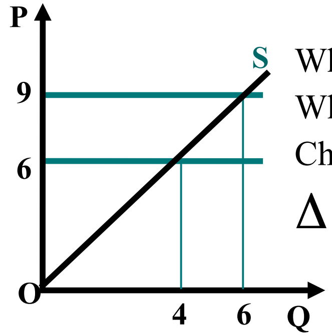
- The difference between the minimum acceptable price and the price actually received or area between the price and the supply curve.

PS = (6-1)+(6-2) + (6-4)+(6-6) = 11

For continuous case

PS =

Change in Producer's welfare



When P = 6, PS = C

When P = 8, PS = C + F

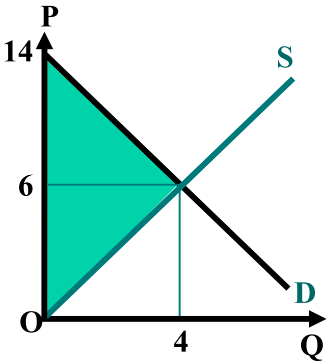
Change in welfare:

Δ PS =

=

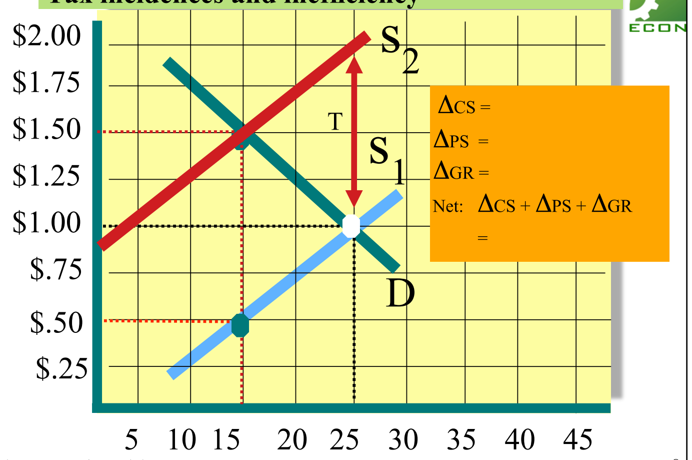
=

Social welfare



- Social welfare define by the summation of CS and PS is maximize under free market condition with perfect competition
- Consumers and producers are given the same weight

Tax incidences and inefficiency



Domestic taxes and subsidies

- If the tax is imposed on the producer, the S curve shifts upward by the size of the tax rate.
- Depending on the relative sizes of the price elasticities of demand and supply, consumers and producers share the tax burden.
- The side that has lower (absolute) price elasticity bears more tax incidence.
- Domestic taxes generate tax revenue but create consumption distortion (B) and production distortion (C) which are deadweight losses.

Domestic taxes and subsidies

- If the tax is imposed on the consumer, the D curve shifts downward by the size of the tax rate.
- If the tax is a unit tax, which side pay the tax first does not change neither the tax incidence borne by each side, nor the deadweight losses.
- Subsidies are negative taxes, hence the impacts are the opposite of the taxes.
- Exercise: Analyze the impacts of a tax imposed on the producer when the S curve is vertical and the D curve is downward sloping.

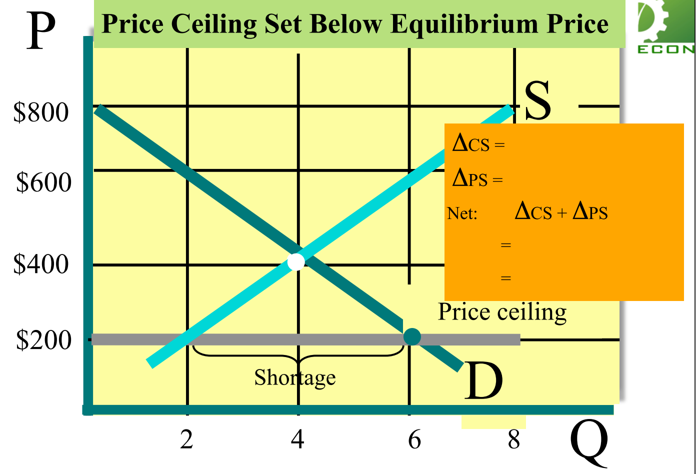
Exercise

1. Analyze the impact of a specific sale tax imposed on the supplier with a normal downward sloping demand curve. Which side should bear more tax burden? What kind of distortion is created? Explain.
2. Analyze the impact of a specific production subsidy on equilibrium price and production, welfare change of the consumer, producer, and the society. What kind of distortion is created? Explain.

Price ceilings

- Legally established maximum prices sellers can charge.
- They are used to help consumers.
- A price ceiling will have no impact when it is set above the equilibrium price.
- Examples: Tuition fees and bus fees.

Price Ceiling Set Below Equilibrium Price



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Price ceilings are counterproductive

- If B > A, consumers are worse off.
- Deadweight losses: B = consumption distortion, C=production distortion
- Black markets: economic rents
- Less maintenance
- Less investment
- Discrimination

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Exercises

1. What is the purpose of price ceilings on bus fees?
2. Why may bus fee controls be counterproductive?

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Price floors

- A legally established minimum price a seller can be paid
- They are used to help producers.
- Examples: Minimum wage, Agricultural price supports, Agricultural pledging program

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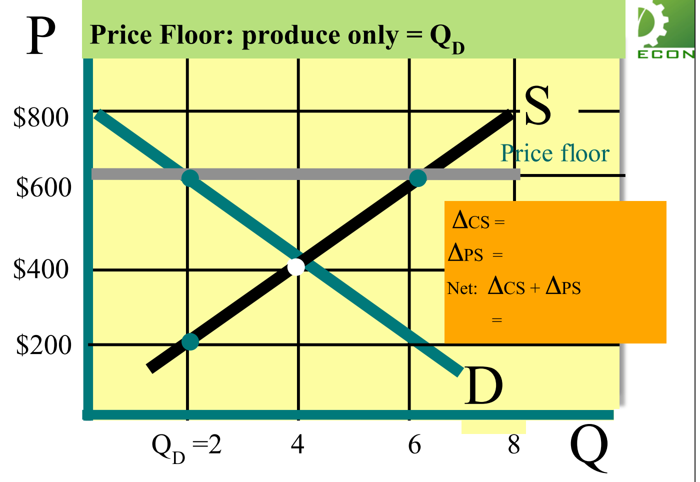
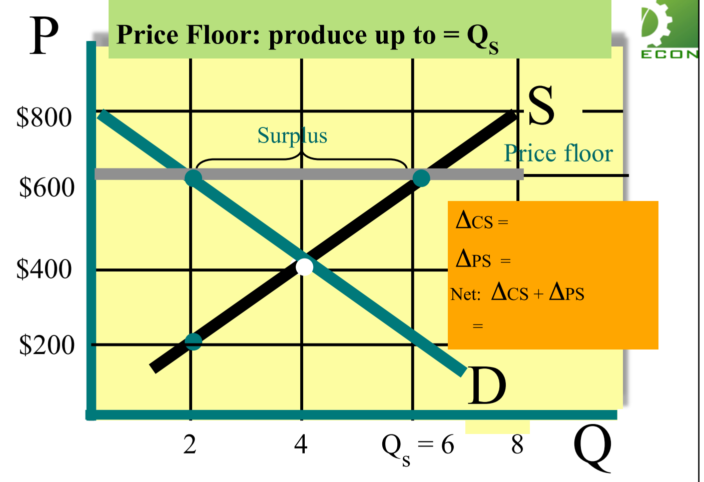
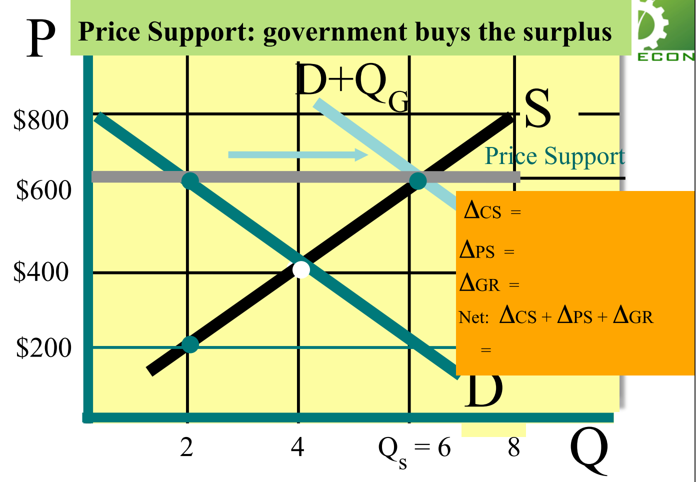
Price Floor: produce only = Q_D



Price Floor: produce up to = Q_S



Price Support: government buys the surplus



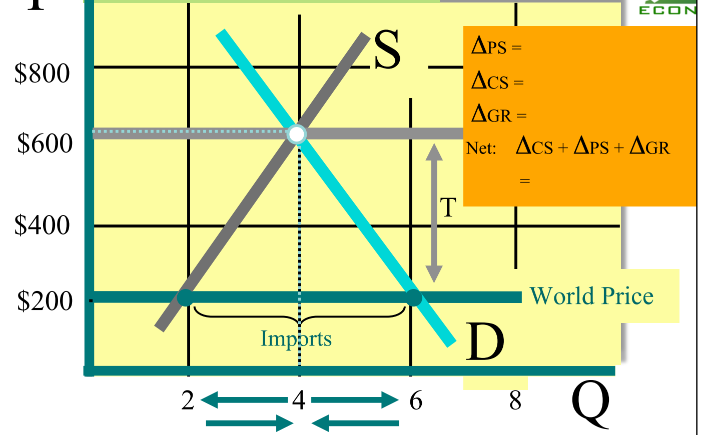
Exercises

1. Why may rice pledging program be inefficient?
2. Compare its impacts with the price guarantee program.

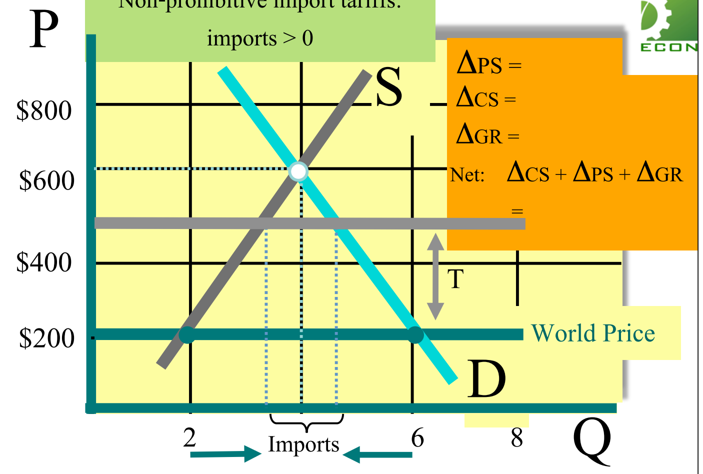
Import tariffs

- Import tariffs are taxes imposed on imported goods to protect domestic producers
- An import tariff will increase the price of the imported good by the size of the tax.
- Domestic producers will charge their price at the same level as the imported good and can produce more.
- Consumer will consume less since the price is higher and imports are less.

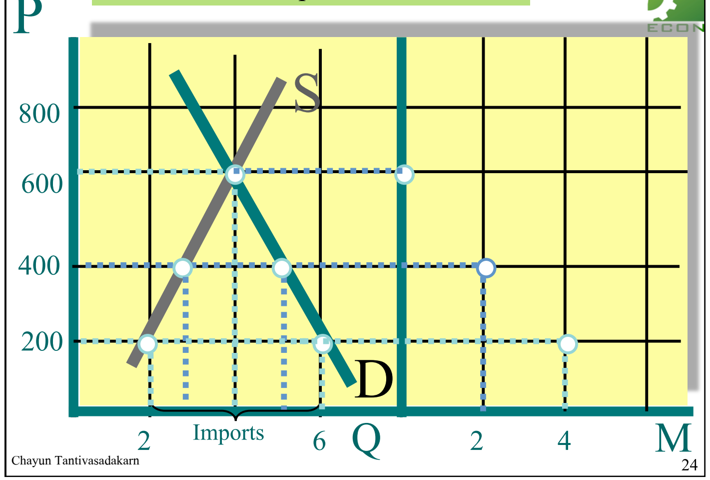
Prohibitive import tariffs: imports = 0



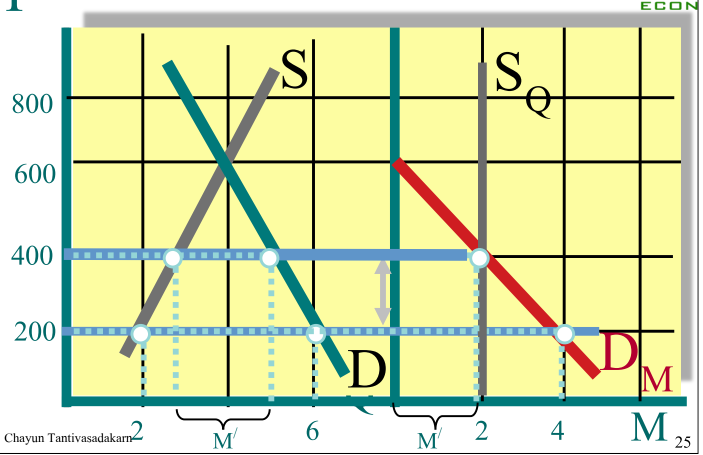
Non-prohibitive import tariffs: imports > 0



Derivation of import demand curve



Impacts of an import quota



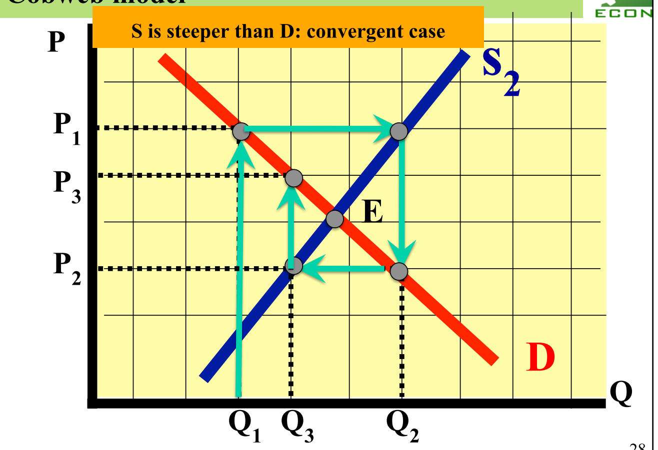
Impacts of import quotas

- ΔPS = A
- ΔCS = – [A + C + R + B]
- ΔGR = 0 if the quota is given freely
  = R if the government uses open bid
- Lucky importers welfare =R or 0
- Net welfare = – [C + B]
- Rent seeking activities and corruption
- Worsening distribution of income

Cobweb model

- Agricultural products, especially livestock, often suffer from cyclical price and output fluctuation
- Cobweb model explain this phenomenon by assuming that farmers need to choose the output level before the actual price is realize
- Farmers use the price in the past to form the expected price in the future. But consumer buy according to the current price
- The time lag between consumers and farmers causes the fluctuation

Cobweb model



Cobweb model