




Applications of Demand and Supply EE311

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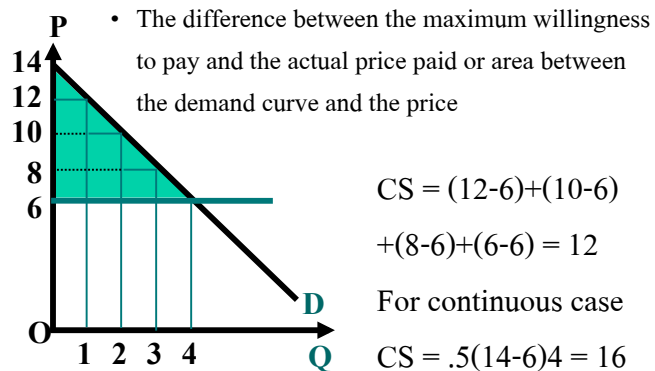
Apply Demand and Supply

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

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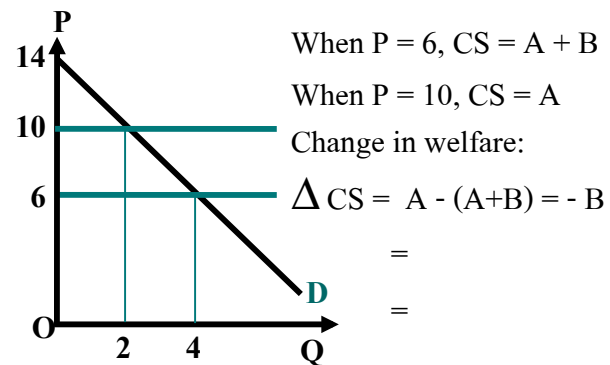
Consumer surplus: CS



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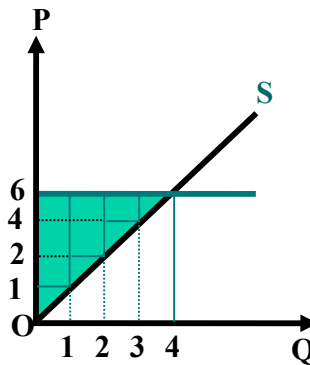
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Change in Consumer's welfare



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Producer surplus: PS



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

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

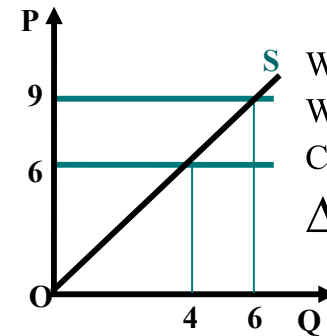
For continuous case

$$PS = .5(6-0)4 = 12$$

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Change in Producer's welfare



When $P = 6$, $PS = C$

When $P = 8$, $PS = C + F$

Change in welfare:

$$\Delta PS = C + F - C = F$$

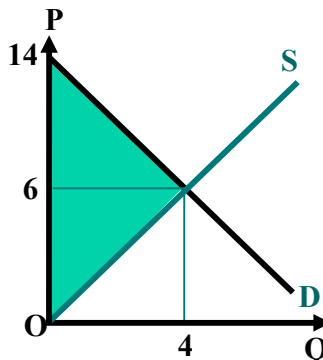
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Social welfare



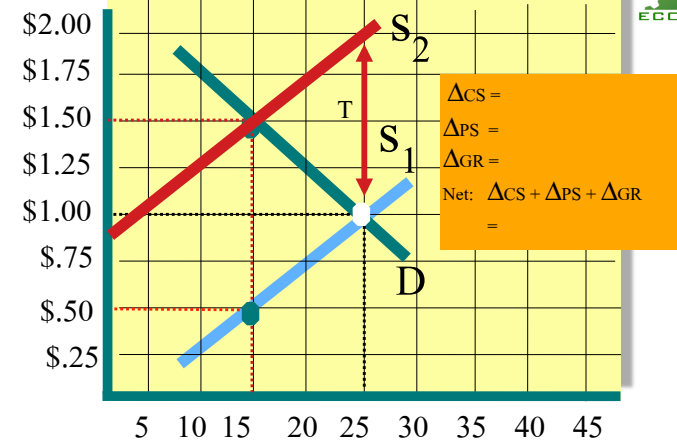
- Social welfare define by the summation of CS and PS is maximize under free market condition with perfect competition

- Consumers and producers are given the same weight

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Tax incidences and inefficiency



$$\begin{aligned} \Delta CS &= \\ \Delta PS &= \\ \Delta GR &= \\ \text{Net: } \Delta CS + \Delta PS + \Delta GR &= \end{aligned}$$

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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.

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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.

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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.

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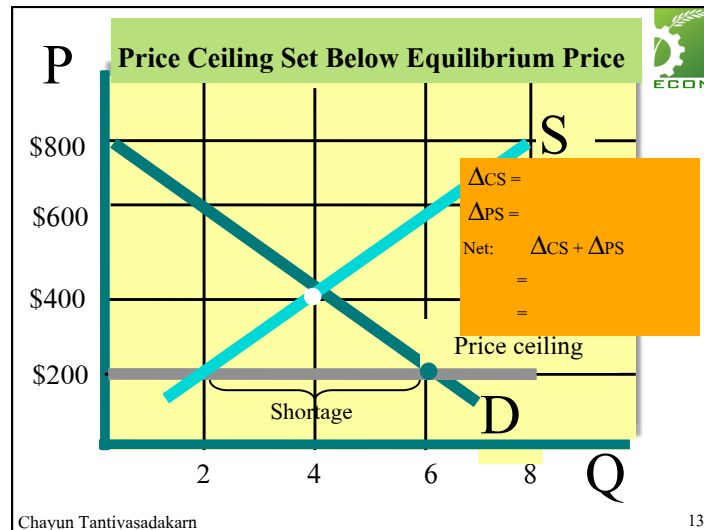
Price ceilings



- 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.

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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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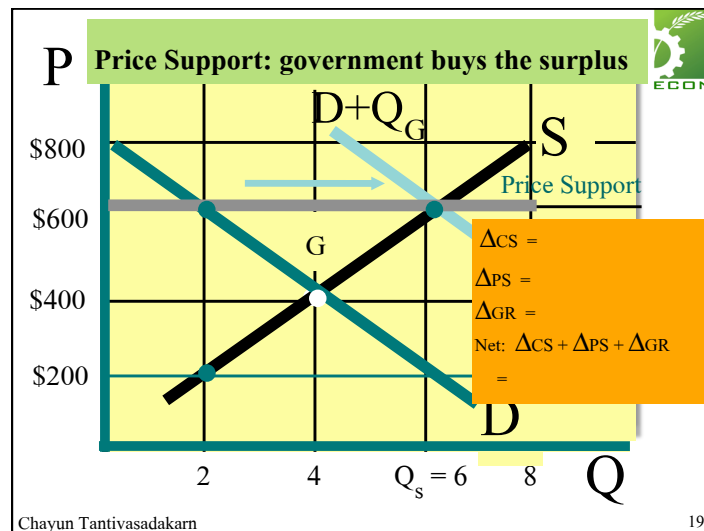
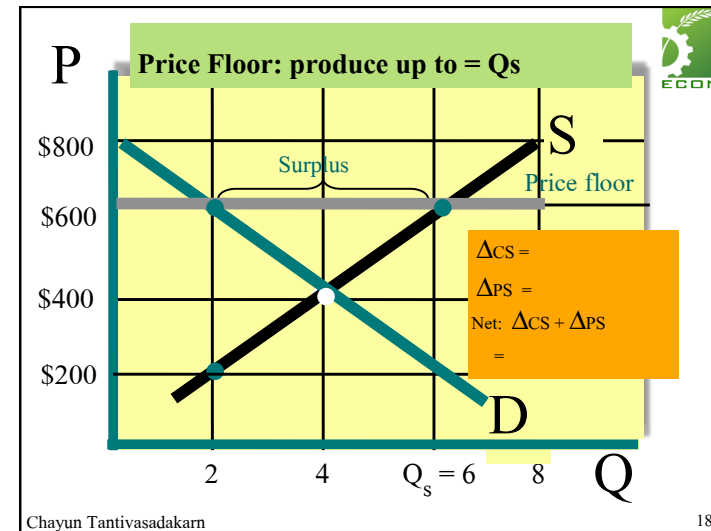
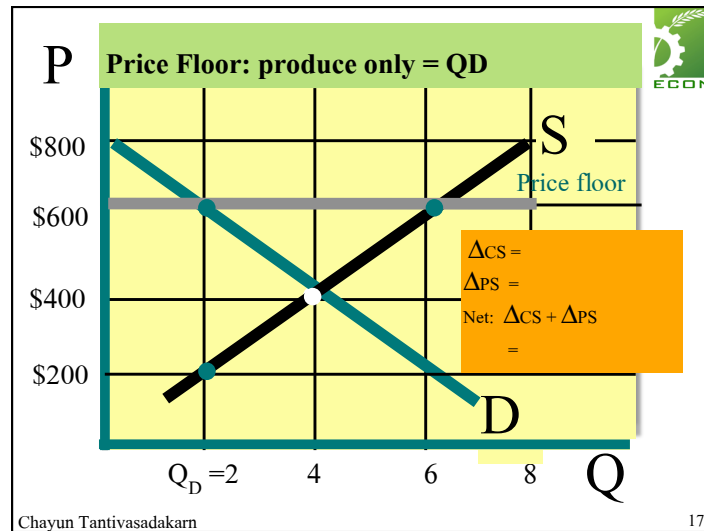
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Price floors

- 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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Exercises

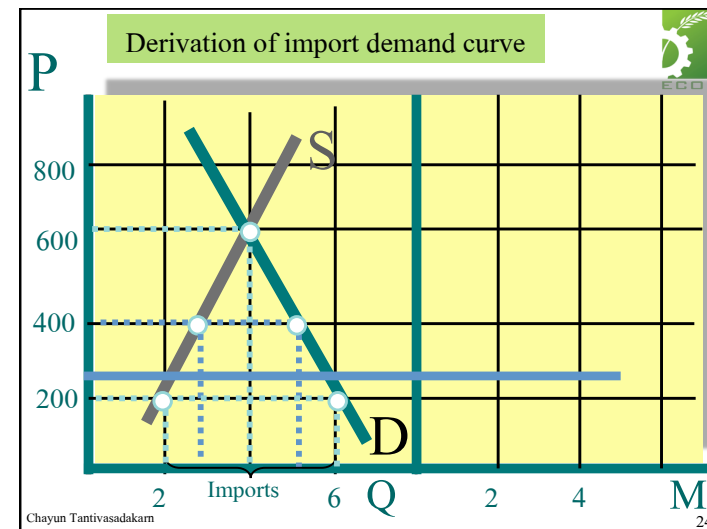
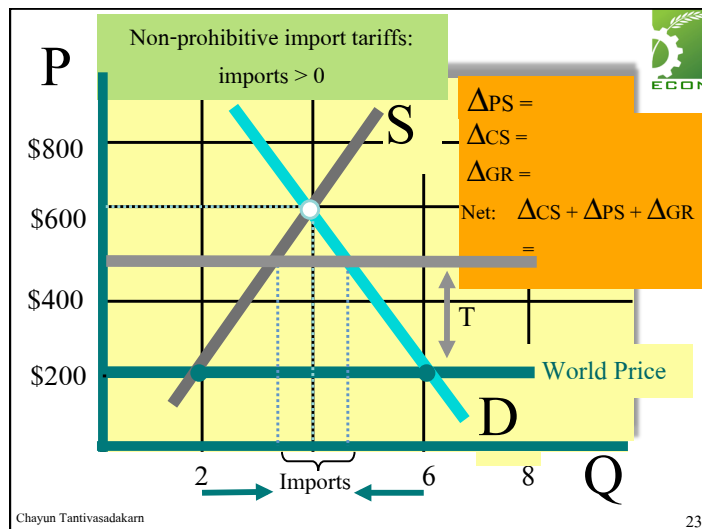
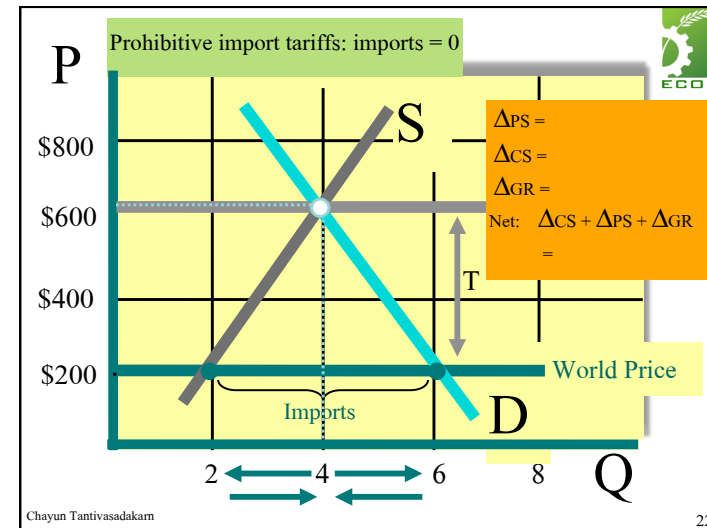
1. Why may rice pledging program be inefficient?
2. Compare its impacts with the price guarantee program.

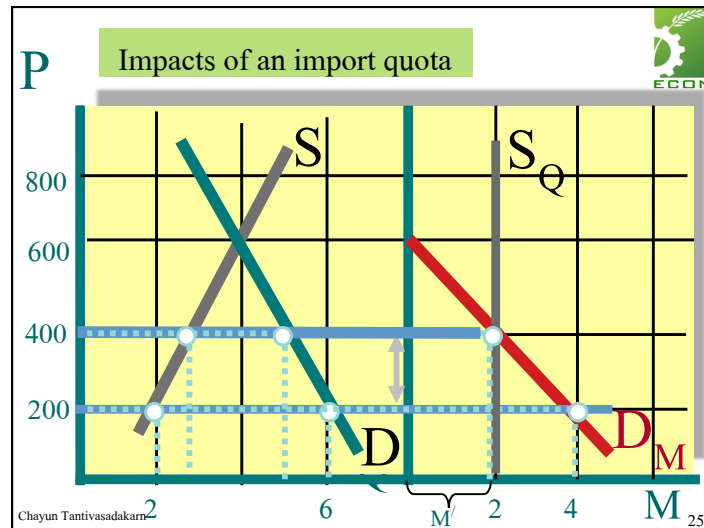
Import tariffs

- 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.

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Impacts of import quotas

- $\Delta PS =$
- $\Delta CS =$
- $\Delta GR =$
- $=$
- Lucky importers welfare =
- Net welfare =
- Rent seeking activities and corruption
- Worsening distribution of income

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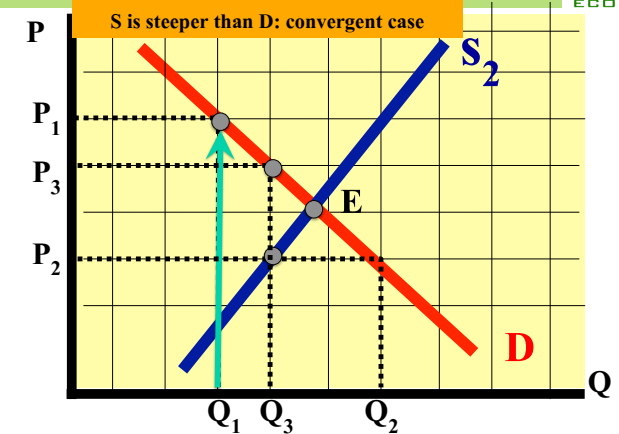
Cobweb model

- 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 realized
- 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

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Cobweb model



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