

Handout 3

DEMAND AND SUPPLY APPLICATIONS

(CFO, Chp. 4)

Outline of today's course:

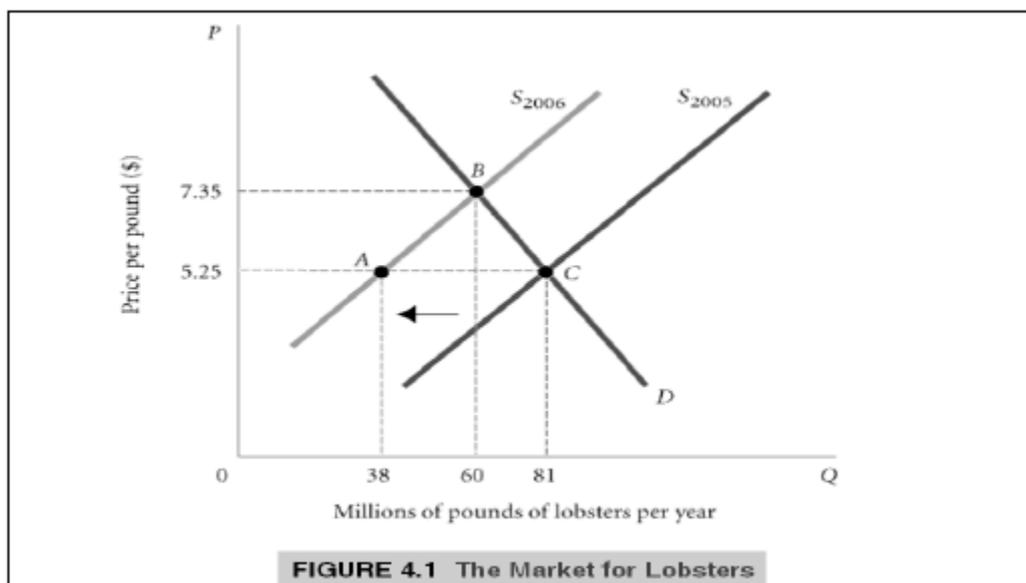
- 1) Price System (or Market System)
- 2) Consumer and Producer Surplus

1. The Price System

a. Price Rationing

Price Rationing:

Process by which the market system allocates goods and services to consumers when there is shortage (quantity demanded exceeds quantity supplied).



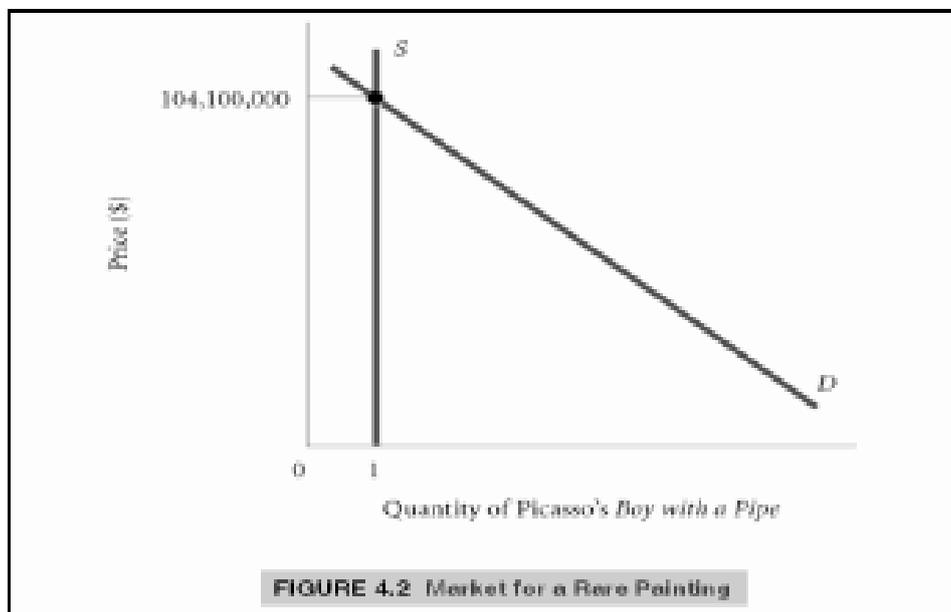
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o Suppose 15,000 square miles of the coast is closed.

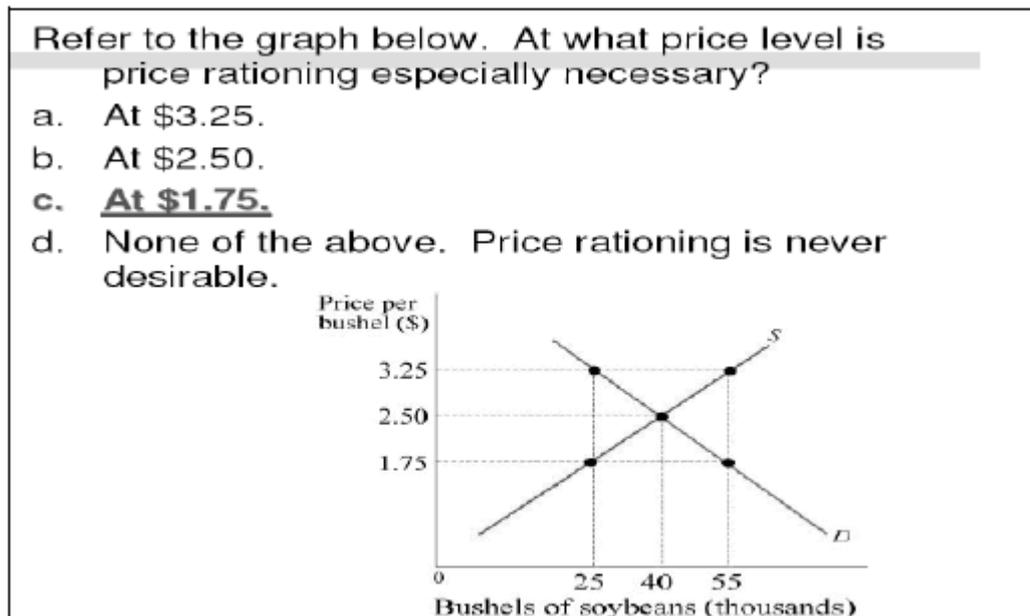
- The supply curve shifts to left.
- A decrease in supply creates a shortage at the original price.
- The lower supply is rationed to those who are willing and able to pay the higher price.

o When supply is fixed, its price is demand determined.

- Price is what the highest bidder is willing to pay.
 - In 2004, the highest bidder was willing to pay \$104.1 million for Picasso's Boy with a Pipe.



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Alternative Rationing Mechanisms

- On occasion, both governments and private firms decide to use some mechanism other than the market system to ration an item for which there is excess demand at the current price.

- Regardless of the rationale, two things are clear:

(1) Attempts to bypass price rationing in the market and to use alternative rationing devices are much more difficult and costly than they would seem at first glance.

(2) Very often, such attempts distribute costs and benefits among households in unintended ways.

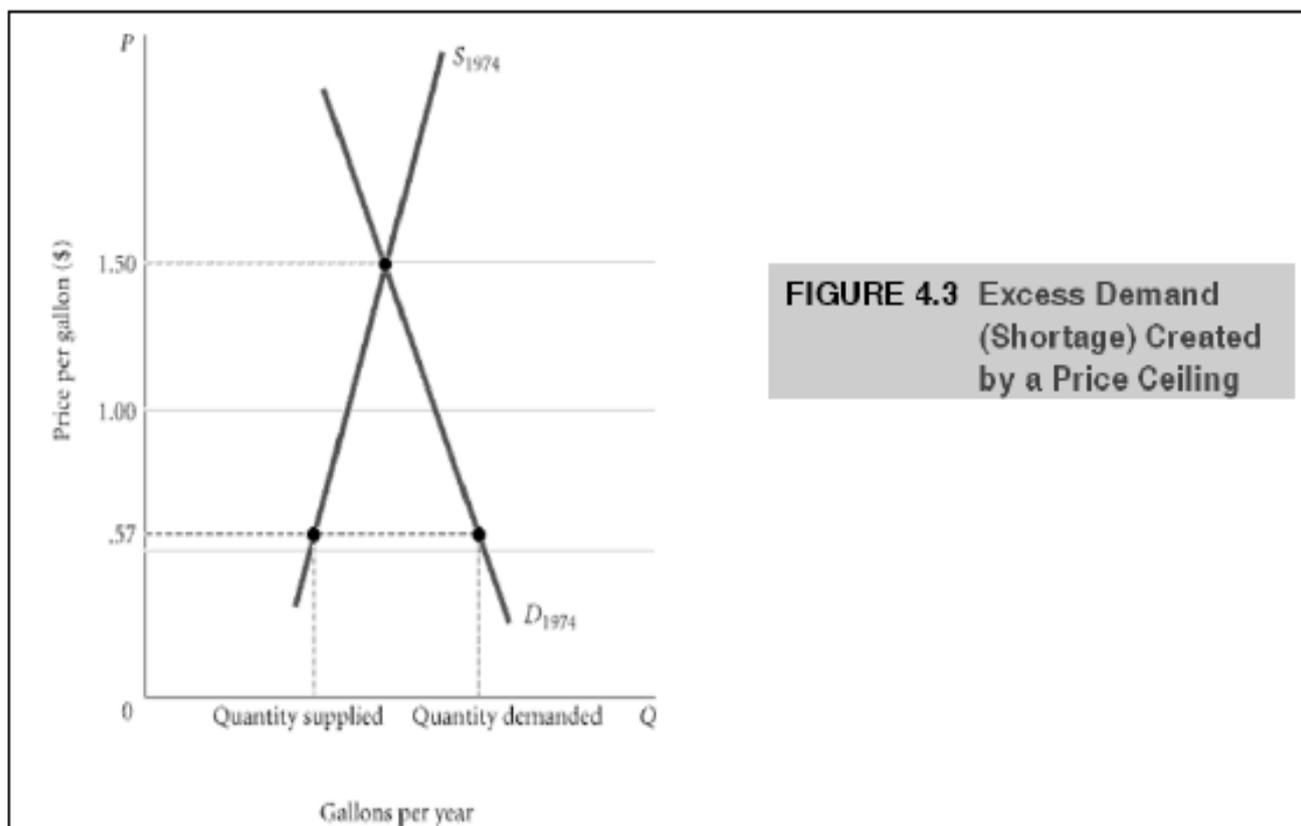
Example: Oil, Gasoline, and OPEC

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Price Ceiling

A maximum price that sellers may charge for a good, usually set by government.

- In 1974, a ceiling price \$ 0.57 cents per gallon of gasoline was imposed.
 - At that time the equilibrium price was about \$ 1.50 per gallon.
 - At \$ 0.57 per gallon, the quantity demanded has exceeded the quantity supplied.
- Because the price system was not allowed to function, an alternative rationing system had to be found to distribute the available supply of gasoline.



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Types of Non-Price Rationing

Nonprice Rationing: A system for choosing who gets how many goods when there is a shortage.

(1) Rationing by Waiting (Queuing or First-come first-served)

People in the front of the line can buy goods; those at the end can not.

(2) Favored Customers (Rationing by Bribery)

Sellers provide goods to friends or other persons who do favors for them.

(3) Rationing by Coupons

Government gives certain persons the right to buy goods.

- Even when trading coupons is declared illegal, it is virtually impossible to stop black markets from developing.
- In a black market, illegal trading takes place at market determined prices.

Price Floor

A minimum price below which exchange is not permitted.

- **Minimum Wage** A price floor set under the price of labor.

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- No matter how good the intentions of private organizations and governments, it is very difficult to prevent the price system from operating and to stop willingness to pay from asserting itself.
- Every time an alternative is tried, the price system seems to sneak in the back door.
- With favored customers and black markets, the final distribution may be even more unfair than that which would result from simple price rationing.

b. Resource Allocating

- Price changes resulting from shifts of demand in output markets cause profits to rise or fall.
 - Profits attract capital; losses lead to disinvestment.
 - Higher wages attract labor and encourage workers to acquire skills.
- At the core of the system, supply, demand, and prices in input and output markets determine the allocation of resources and the ultimate combinations of things produced.

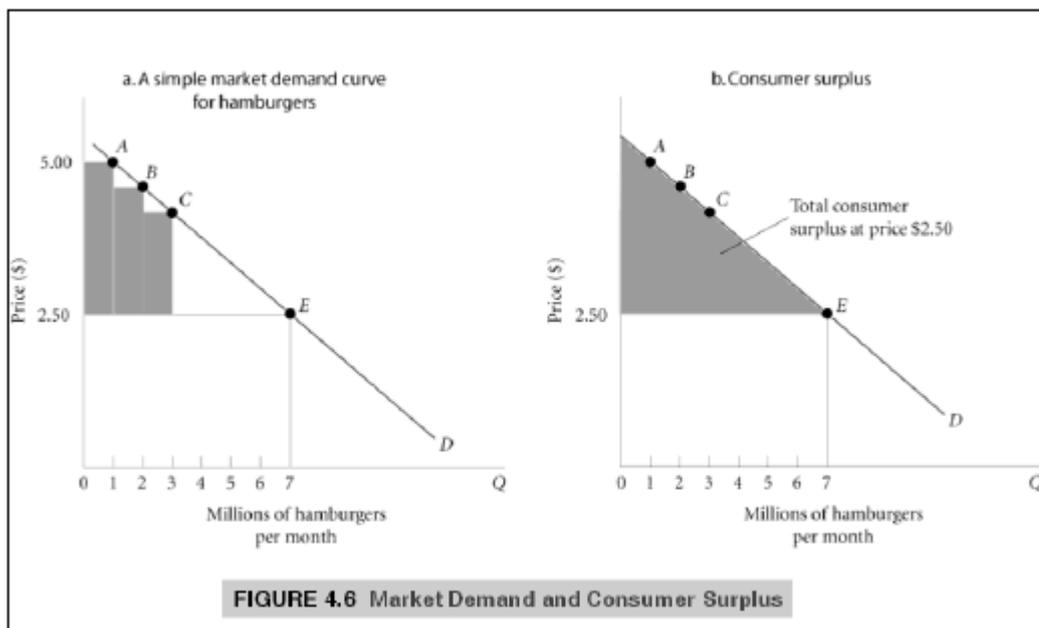
(2) Consumer and Producer Surplus

Consumer Surplus (CS)

Difference between the maximum amount a person is willing to pay for a good and its current market price.

- Area between the demand curve and the current market price

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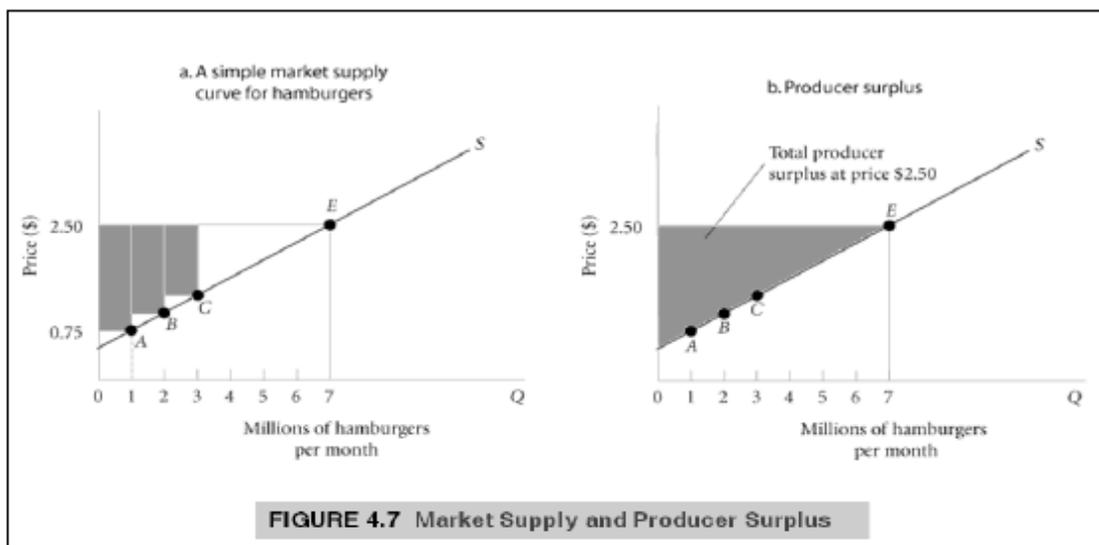
- Some consumers (point A) are willing to pay \$ 5.00 for each hamburgers.
 - o Since the market price, is just \$ 2.50, they receive a consumer surplus of \$ 2.50 for each hamburger that they consume.
- Area of the shaded triangle in Figure is equal to total consumer surplus.

<p>Refer to the figure. What is the impact of the shift in supply on consumer surplus?</p> <p>Answer: Consumer surplus decreases, from <i>acf</i> to <i>abg</i>.</p>	
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Producer Surplus (PC) Difference between the current market price and the full cost of production for the firm.

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- Area between the supply curve and the current market price



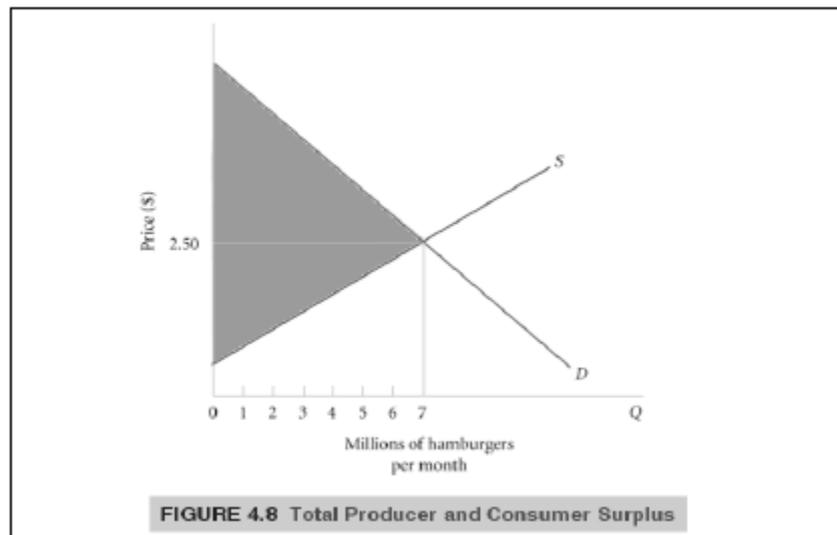
- At the current market price of \$ 2.5, producers will produce and sell 7 million hamburgers.
- However, if the price were just \$ 0.75 a few producers would be supplying hamburgers.
 - o They will, in fact, supply 1 million burgers to the market.
 - o These firms must have lower costs.
 - They are either more efficient, or
 - They have access to inputs at a lower price, or
 - Perhaps they can hire low wage labor.
- If these efficient, low cost producers are able to charge \$ 2.5 for each hamburger, they are earning what is called a **producer surplus (PC)**.
- Since the market price is \$ 2.50, the area of the shaded triangle is equal to total producer surplus.

$$\text{Economic Surplus} = \text{PS} + \text{CS}$$

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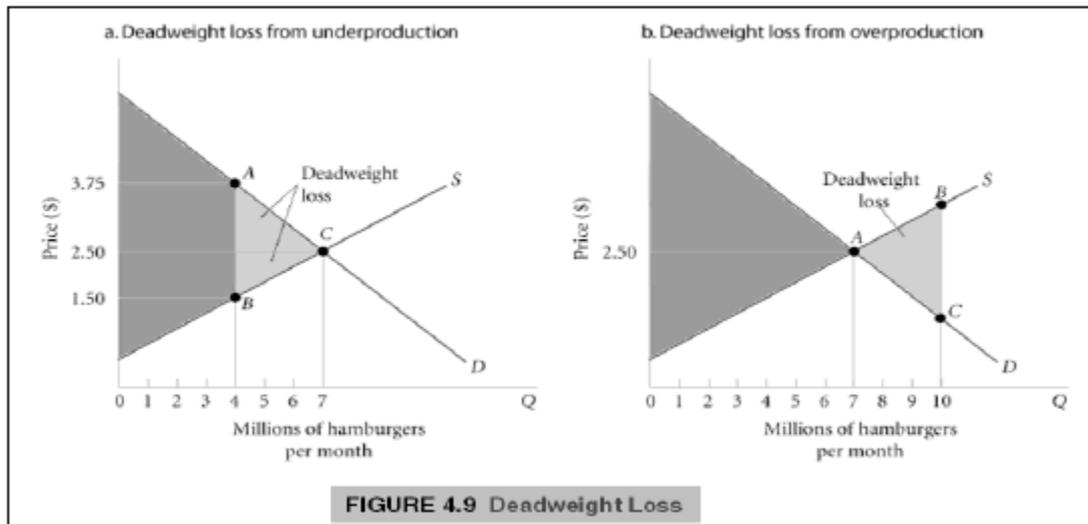
Marshallian Surplus and Competitive Market

- Competitive markets maximize the sum of producer and consumer surplus (Marshallian Surplus).
- Total producer and consumer surplus is greatest where supply and demand curves intersect at equilibrium



Deadweight Loss Net loss of producer and consumer surplus from underproduction or overproduction.

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- Figure (a) shows the consequences of producing 4 million hamburgers per month instead of 7 million hamburgers per month.

(1) Total producer and consumer surplus is reduced by the area of triangle ABC.

(2) This is called deadweight loss from the underproduction.

- Figure (b) shows the consequences of producing 10 million hamburgers per month instead of 7 million hamburgers per month.

(3) As production increases from 7 to 10 million hamburgers, the full cost of production rises above consumers' willingness to pay resulting in

- o A deadweight loss equal to the area of triangle ABC.

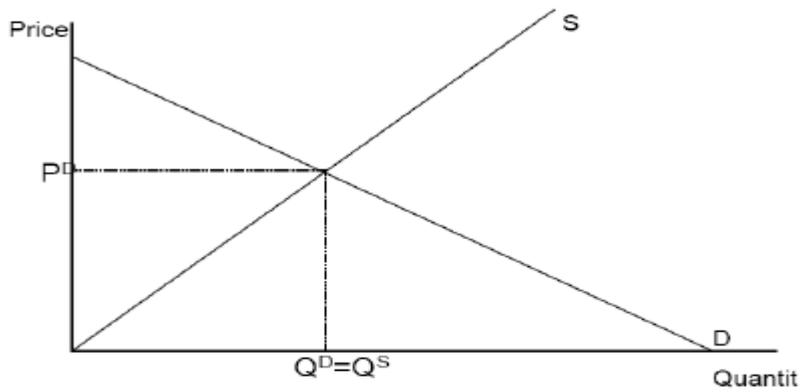
Sources of Deadweight loss:

- (1) Taxes and subsidies
- (2) Monopoly power
- (3) External costs

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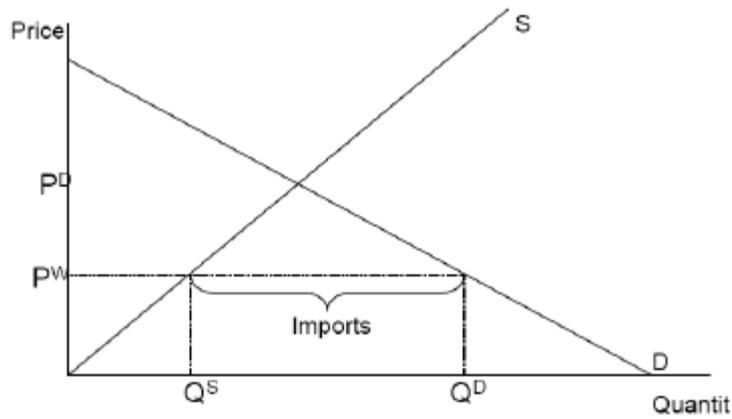
Welfare Analysis of Free Trade and Import Tax

No Trade (Autarky)

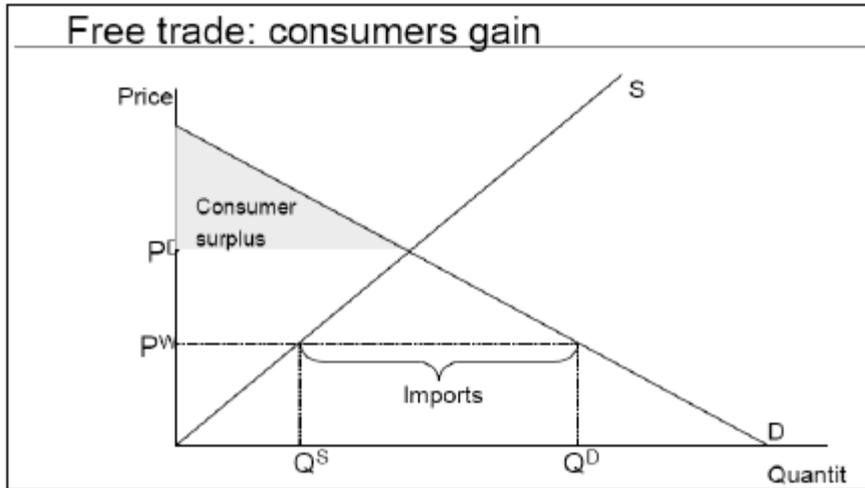


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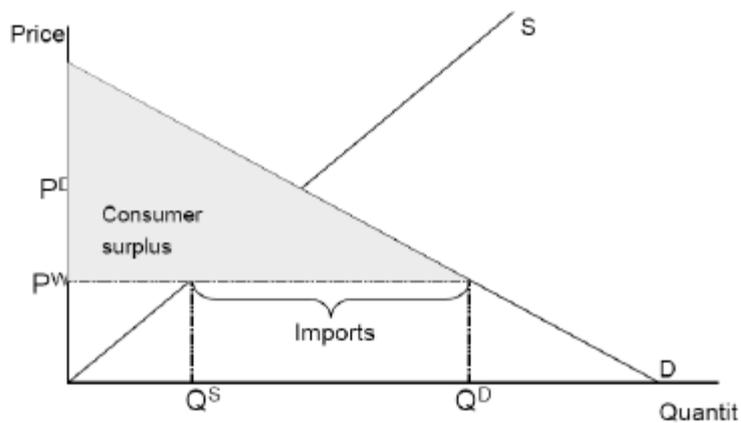
Free trade for a small country



Free trade: consumers gain

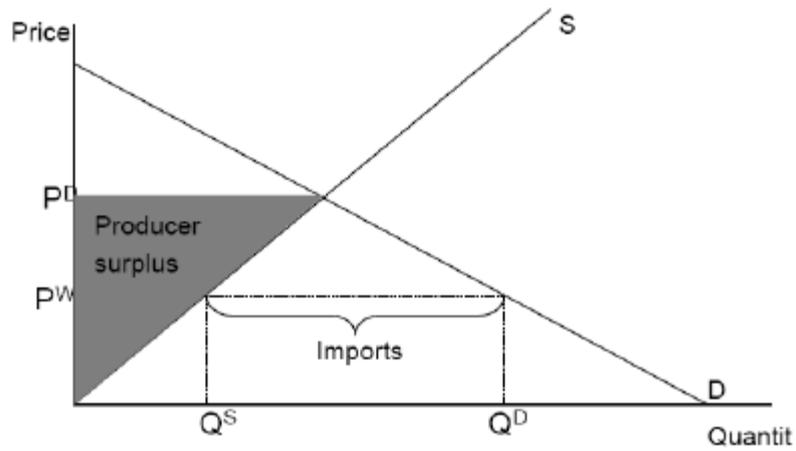


Free trade: consumers gain

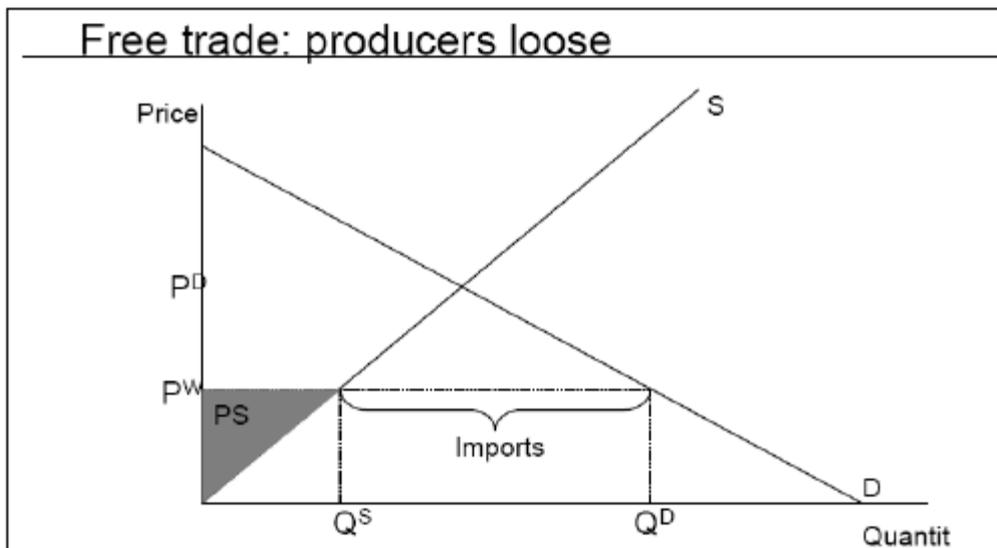


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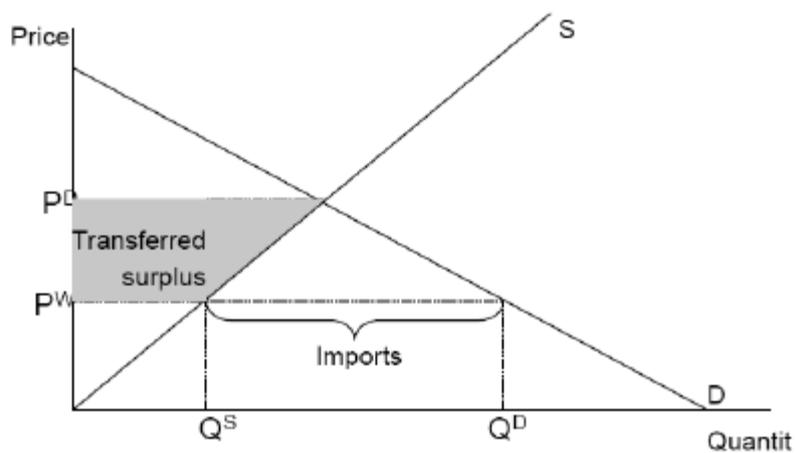
Free trade: producers lose



Free trade: producers lose

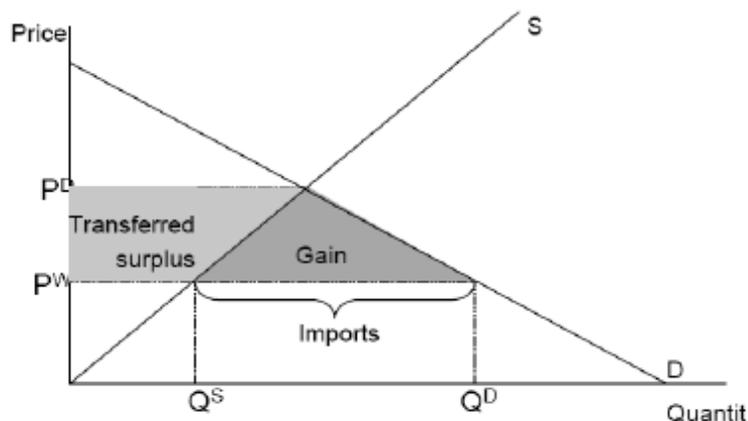


Free trade: economy as a whole gains

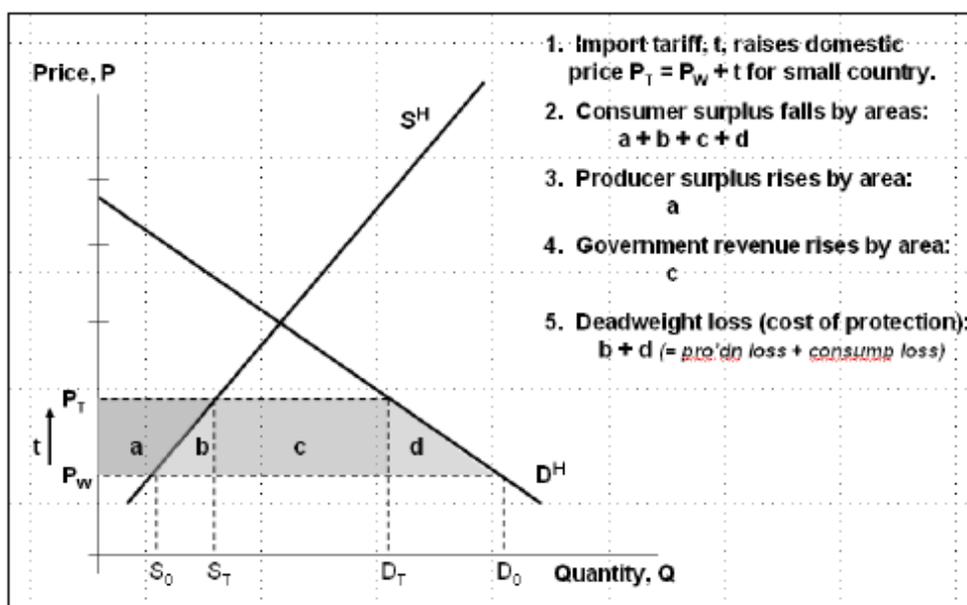


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Free trade: economy as a whole gains



Now, suppose government imposes an import tariff →



Area b

- It measures the additional payments to variable inputs needed to attract them away from other uses into the Q sector so that the output can expand from S_0 to S_T .

Area d

- Loss created because potential trade are not executed

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But, an oil import tax will:

1. Reduce quantity of oil demanded
2. Increase domestic production
3. Generate revenues for the government