

**ECON 1000**  
**Dec Test Solutions**

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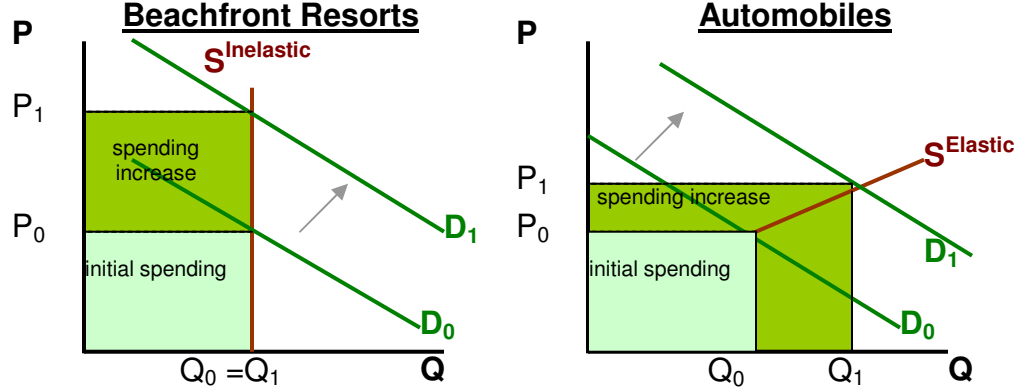
Fall 2009

**PART A. MULTIPLE CHOICE**

1. A
2. B
3. C
4. C
5. C
6. A
7. B
8. B
9. B
- 10.A
- 11.A
- 12.A
- 13.A
- 14.E
- 15.A
- 16.B or E
- 17.C
- 18.D
- 19.C
- 20.B

## B. Short Answers

1.

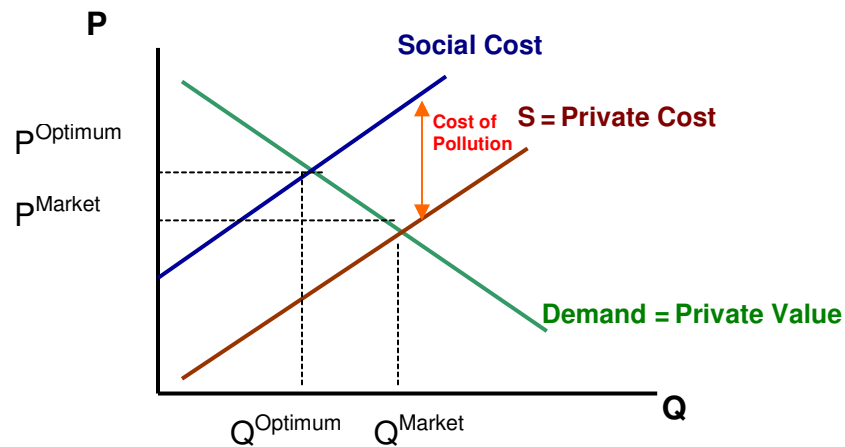


- a. Beachfront Property: price **doubles**; quantity remains the **same**
- Automobiles: price increases by **less than double**  
 quantity increases by **less than double**
- b. beachfront property: **price** increase is **greater**
- automobiles: **quantity** increase is **greater**
- c. beachfront property: consumer spending (revenue) **doubles**
- Automobiles: consumer spending **increases** (exact amount would depend on elasticity of demand)

*Note:* The question specified only that the supply of beachfront properties was inelastic, not necessarily perfectly inelastic (vertical) as above. Given the ambiguity, students may use a slightly upward sloping supply, and the price increase would be less than double, and quantity would increase by a small amount following the increase in demand.

2. **Def<sup>n</sup>: Externality** -- When an economic actor producing or consuming a good engages in an activity that influences the well-being of other parties not involved in the market exchange, and neither pays nor receives any compensation for that effect.

Consider the example of a negative externality in which pollution resulting from the production of each unit of a good.



Each unit of production results in pollution damages equal to the orange arrow above.

The supply curve represents the private cost of producing the good. It does not take into account the costs of pollution (the orange distance). This raises the costs to society as a whole above the private costs to producers only. Hence the Social Cost curve adds the pollution costs on affected third parties.

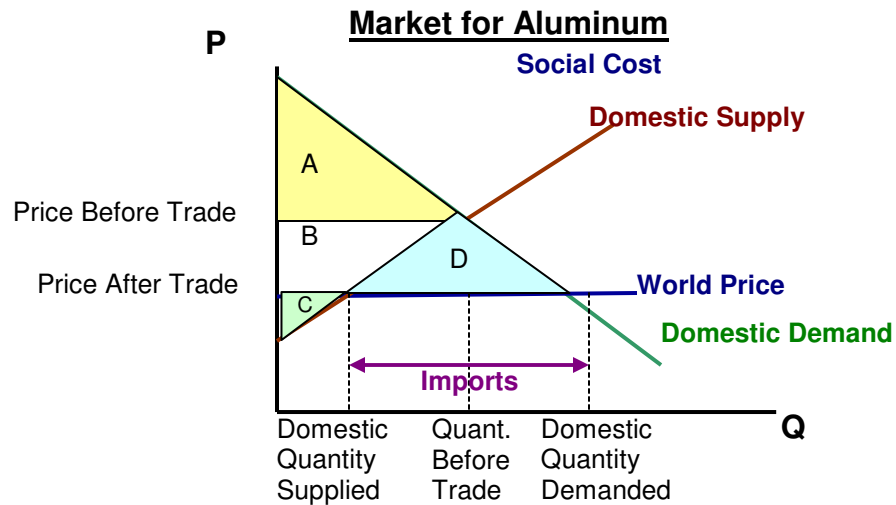
Since the external effect is not priced, the polluting suppliers have no incentive to take into consideration the detrimental effect of their production on the affected third party outside the transaction. The market equilibrium quantity is  $Q^{\text{Market}}$  at a price of  $P^{\text{Market}}$ .

However, the efficient level of output would be at  $Q^{\text{Optimum}}$ , where social cost is equal to demand. The corresponding efficient price would be  $P^{\text{Optimum}}$ .

Government Solutions:

- i. Regulation
- ii. Pigouvian/Corrective Taxes
- iii. Tradeable Pollution Permits

3.



When the UK opens up to international trade in aluminum, the domestic price falls to the world price.

The difference between domestic quantity demand and the domestic quantity supplied is imported from other countries.

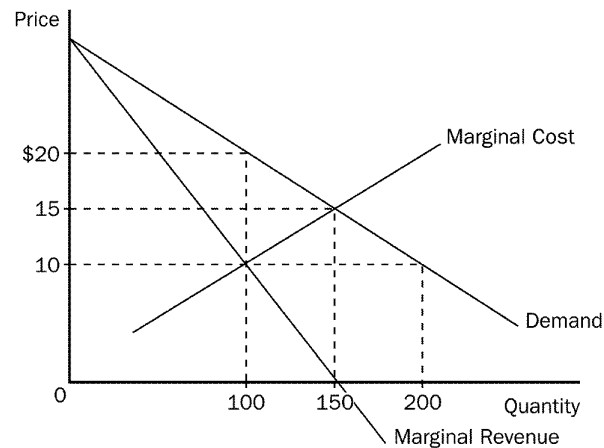
|                  | <u>Before Trade</u> | <u>After Trade</u> | <u>Change</u> |
|------------------|---------------------|--------------------|---------------|
| Consumer Surplus | A                   | A + B + D          | +(B+D)        |
| Producer Surplus | B + C               | C                  | -B            |
| Total Surplus    | A + B + C           | A + B + C + D      | +D            |

Domestic **Consumers** of aluminum become **better off** (by B+D).

Domestic **Producers** of the good become **worse off** (by B).

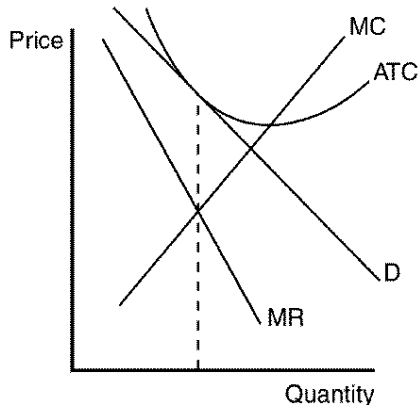
Trade raises the economic well-being of the UK as a whole since the gains of the winners (consumers) exceed the losses of the losers (producers) by amount D.

4.



- a. To maximize total surplus, a benevolent social planner would choose the quantity where Demand (Marginal Benefit) = Marginal Cost  $\rightarrow$  **P=15**; **Q=150** since this maximizes Total Surplus (Consumer Surplus + Producer Surplus).
- b. A monopolist would choose the quantity where Marginal Revenue = Marginal Cost  $\rightarrow$  **P=\$20**; **Q=100** since this maximizes profit.
- c. DWL = area of triangle =  $\frac{1}{2} * \text{base} * \text{height}$   
 $= \frac{1}{2} * (150 - 100) * (\$20 - \$10)$   
 $= \frac{1}{2} * 50 * 10$   
 $=$  **\$250**

## 5. A Monopolistic Competitor

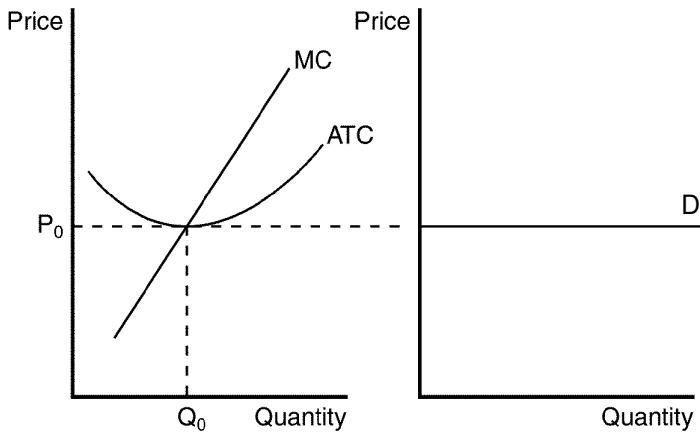


A monopolistic competitor offers a slightly differentiated good from its competitors and therefore has a downward facing Demand Curve.

It chooses its optimal (profit-maximizing) output by setting  $MR=MC$  and setting the price from the corresponding point on the Demand Curve.

In the long run, Demand will shift to the point of zero profit. This occurs at a point where it is tangent to the ATC curve. For downward sloping Demand Curve, this must occur at a point to the left of the minimum ATC.

## A Perfect Competitor

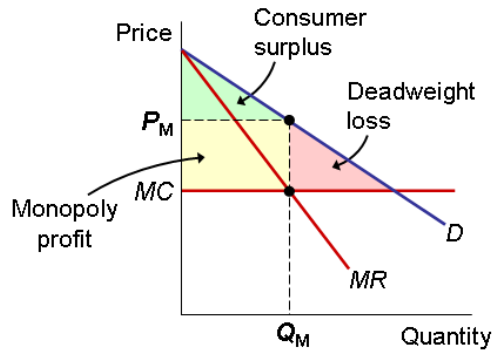


In contrast, a perfect competitor offers an identical product to its competitors and so demand is perfectly horizontal.

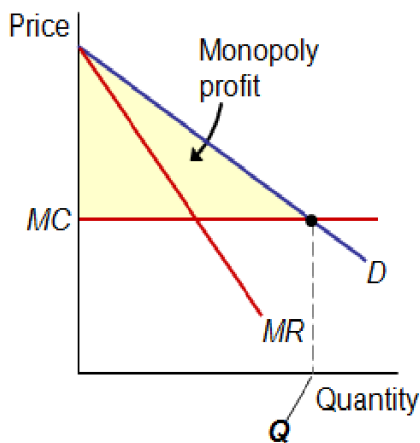
Since profits are also driven to zero in the long run, this must occur where Demand is driven to the minimum point of the ATC curve.

**6. Price Discrimination** is the practice of selling the same good at different prices to different buyers based on different willingness to pay among consumers.

*Price Discrimination vs. Single Price Monopoly*



A single-price monopolist would set  $MR=MC$  and charge all buyers the same price ( $P_M$ ). This would result in a deadweight loss compared to a competitive market.



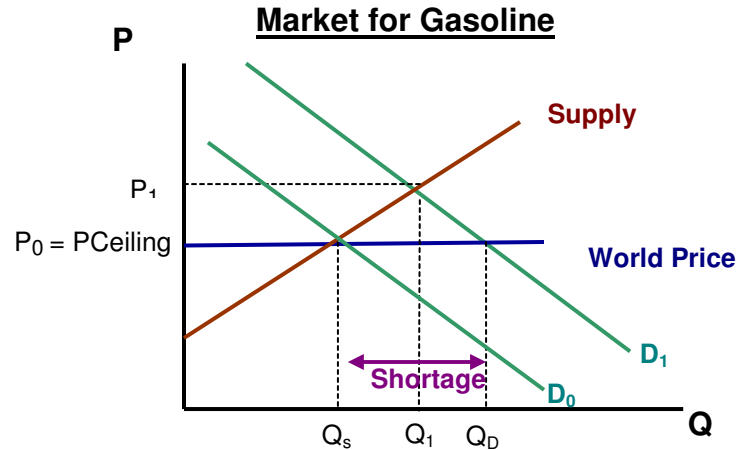
*Perfect Price Discrimination:*  
If the monopolist were able to charge each buyer his or her Willingness to Pay, the monopolist would capture all CS as profit. Furthermore, it would also eliminate the DWL, capturing it as profit.

Thus price discrimination results in more efficient outcomes than under a single price monopoly.

However, all of the social gain is captured by the monopolist; none is gained by consumers.

This question asked about a monopolist charging only 2 different prices: one for newly released hardcover novel, and a second lower price for a subsequent release for the paperback edition. Results will be less pronounced, but in the same direction as the results above for perfect price discrimination.

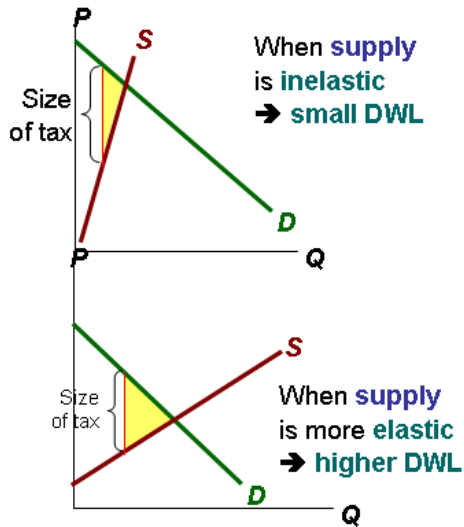
7a.



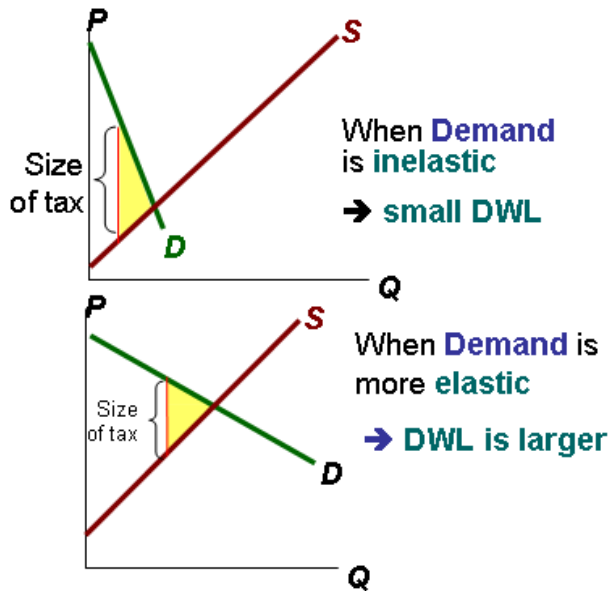
- a. With an increase in demand for gasoline, the Demand Curve will shift upward and to the right, from  $D_0$  to  $D_1$ . Without market intervention, the price would rise to the new intersection of supply and demand at  $P_1$  and the Quantity would rise to  $P_2$ .
  - b. The *price ceiling* imposed by government would create
    - Shortages
      - Quantity Demanded > Quantity Supplied
        - e.g., gasoline shortages – in the 1970s
  - c. *Non-Price Rationing* - alternative mechanisms for allocating the good:
    - Long Lines – first-in-line, friends of seller, etc.
    - Discrimination Criteria – set by seller (e.g., most desirable large business customers vs. small individual consumers, etc.)
    - Black Markets – underground activity above the ceiling price
9. Both are problems that occur in insurance markets.
- a. **Moral hazard:** People with insurance have less incentive to avoid risky behaviour.
    - e.g., incentive to buy smoke detectors or fire extinguishers diminishes after buying home insurance
  - b. **Adverse selection:** high-risk customers are more likely to benefit from insurance, so more likely to purchase it
    - e.g., dangerous drivers buy insurance; safe ones don't

## C. Long Answers

### 1a. Elasticity of Supply and the Size of the DWL



### Elasticity of Demand and the Size of DWL



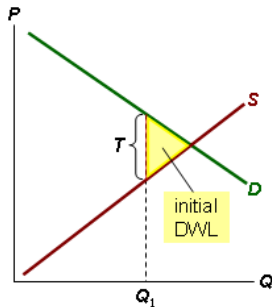
### b. Tax Burden

- The figures in part (a) show the burden falls on the side of the market with the **smaller price elasticity**
  - Consumer pays more, the more *inelastic* the demand; and *elastic* the supply.
  - Producer pays more, the more *elastic* the demand; and *inelastic* the supply.

### c. DWL and the Size of the Tax

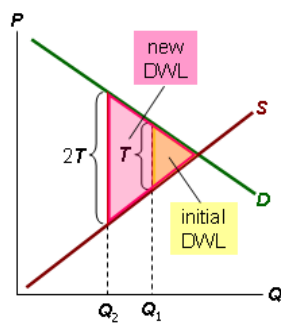
Consider a small, medium and large tax, where the small tax =  $T$  per unit, the medium tax =  $2T$  and the large tax =  $3T$ .

#### Small Tax: $T$



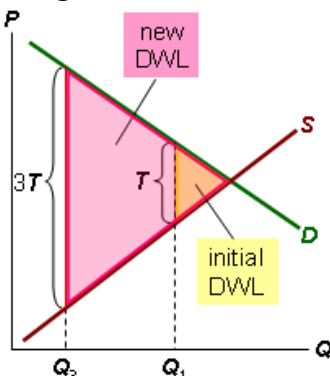
The small tax results in an initial tax of  $T$  per unit.

#### Medium Tax: $2T$



Doubling the tax causes the DWL to more than double.

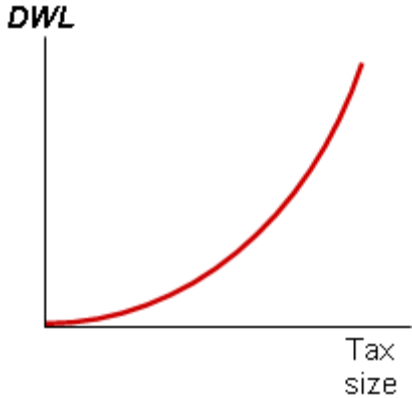
#### Large Tax: $3T$



Tripling the tax causes the DWL to more than triple.

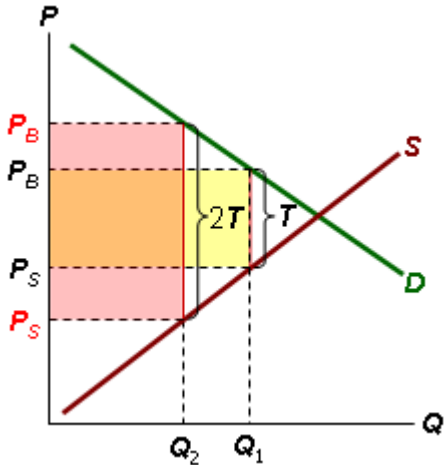
**Summary**

As a tax increases, DWL increases at an increasing rate.

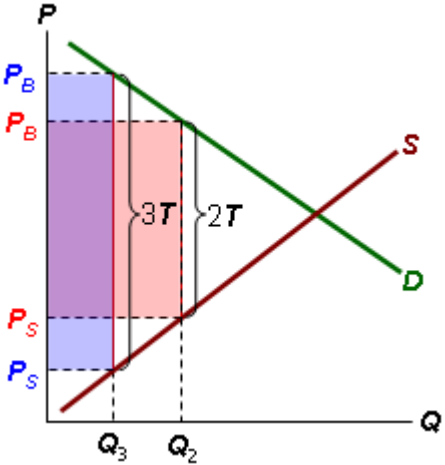


**Revenue and the Size of the Tax**

When the tax is small, increasing it causes tax revenue to rise (as seen by the larger area of the revenue rectangle).

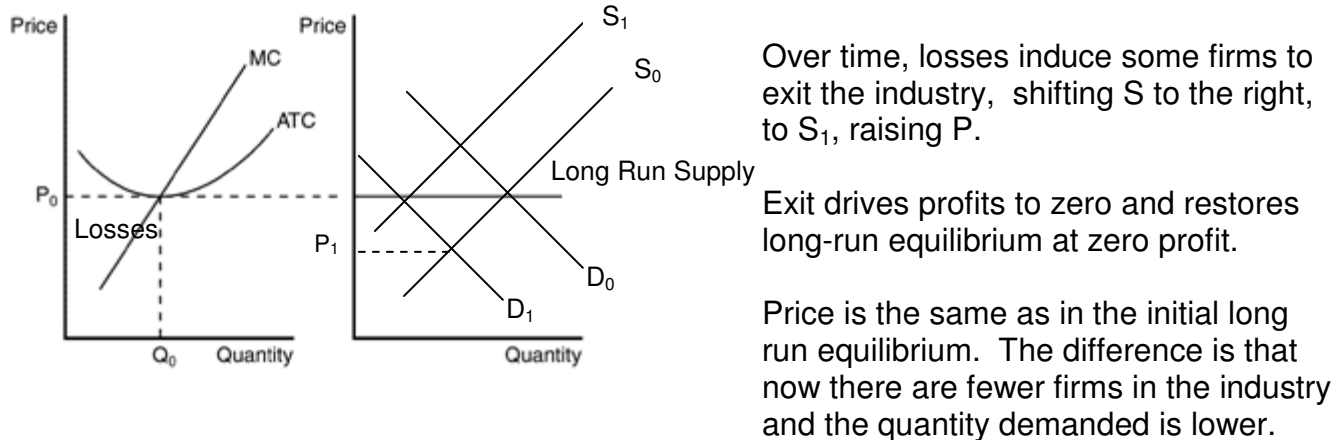
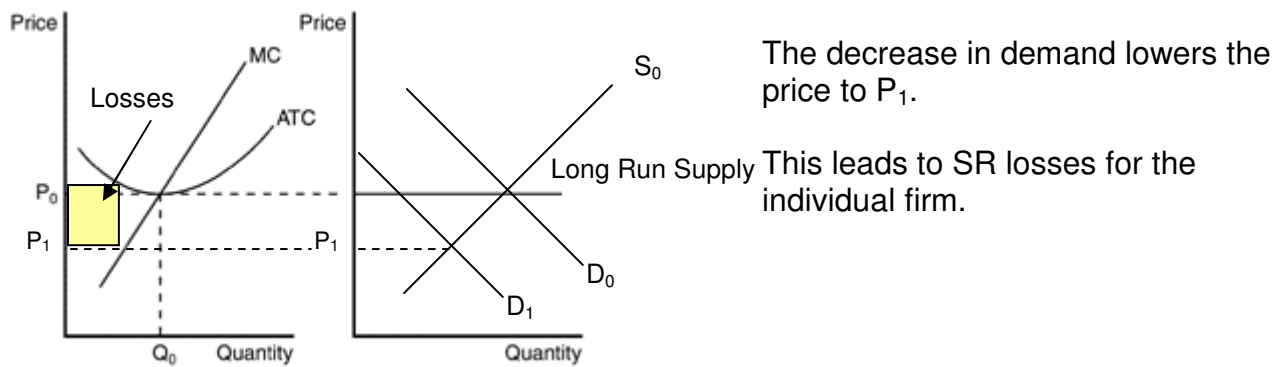
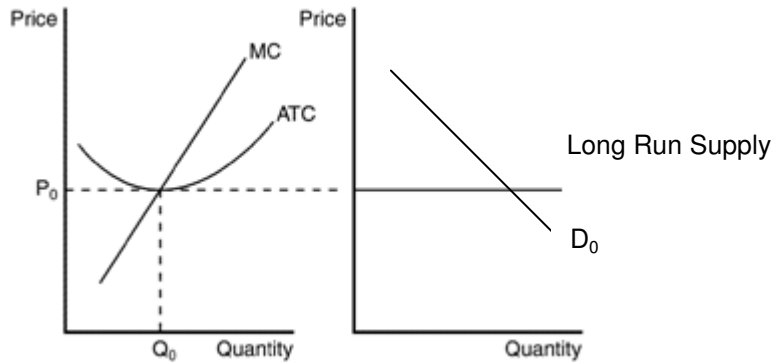


But when the tax is large, increasing it causes tax revenue to fall. (smaller revenue rectangle).



## 2. SR & LR Effects of a Decrease in Demand

Suppose the firm begins in LR equilibrium.



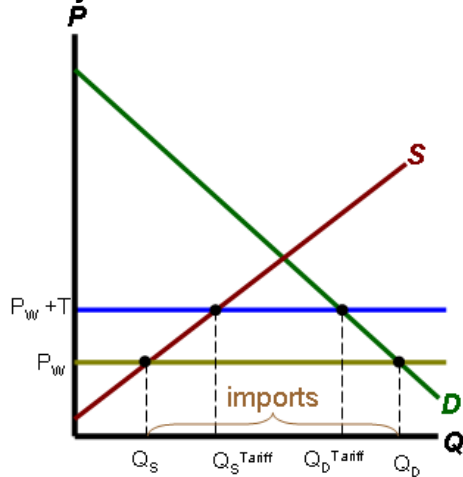
### 3. The Impacts of a Tariff

Tariffs distort incentives

→ pushes the allocation of scarce resources away from the optimum

- raises domestic prices
  - encourages more domestic production
  - reduces the amount purchased by domestic consumers

#### Analysis of a Tariff on Shoes



#### Free Trade:

Initially, the price is equal to the World Price,  $P_w$ .

Buyers demand  $Q_D$

Sellers supply  $Q_S$

imports =  $Q_D - Q_S$

#### Tariff

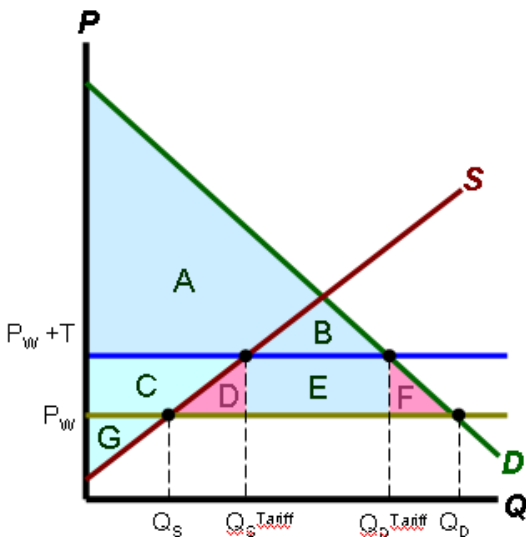
Next, introduce a Tariff:  $T$

price rises to  $P_w + T$

Demand falls to  $Q_D^{Tariff}$

Supply rises to  $Q_S^{Tariff}$

#### Welfare Analysis of a Tariff on Shoes



#### Free Trade

CS = A + B + C + D + E + F

PS = G

Total surplus = A + B + C + D + E + F + G

#### With Tariff

CS = A + B

PS = C + G

Revenue = E

Total surplus = A + B + C + E + G

Deadweight loss = D + F

$P_w$  D = deadweight loss from the overproduction of shirts

F = deadweight loss from the under-Consumption of shirts

- c. Although Canadian producers are better off with the tariff (C+G) vs. C above, Canadian consumers lose even more (C + D + E + F) resulting in an overall reduction in total surplus. The argument is, therefore, invalid in efficiency terms.