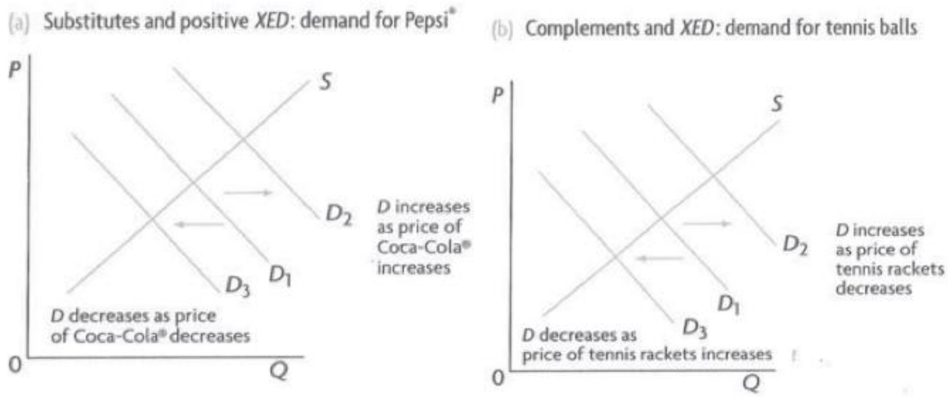
Graphs for Cross Price Elasticity:



- Substitutes are produced by rival firms
- Substitutes and mergers between firms: Two firms that produce substitute goods sometimes merge (come together to form a new firm) to decrease competition and to increase customer base.

Income Elasticity of Demand (YED)

YED shows the relationship between the percentage change in quantity demanded of a good, X, and the change in income.

Equation:

YED = (percentage change in quantity demanded) / (percentage change in income)

Important Factors	Explanation

The sign (+) or (-) or (0) as the answer	• (+) Value (YED > 0) means that the good being considered is a normal good.
	  ○ Both change in the same direction
	• (-) Value (YED < 0) means that the good being considered is an inferior good.
	  ○ As one increases, the other decreases

The value of YED	• YED < 1 : Necessities. If a good has a YED that is positive but less than one, it has income inelastic demand.
	  ○ A small increase in income produces a smaller percentage increase in quantity demanded.
	• YED > 1 : Luxuries. If a good has a YED greater than 1, it has income elastic demand.
	  ○ Percentage increase in income produces a larger percentage increase in quantity demanded.

Price Elasticity of Supply

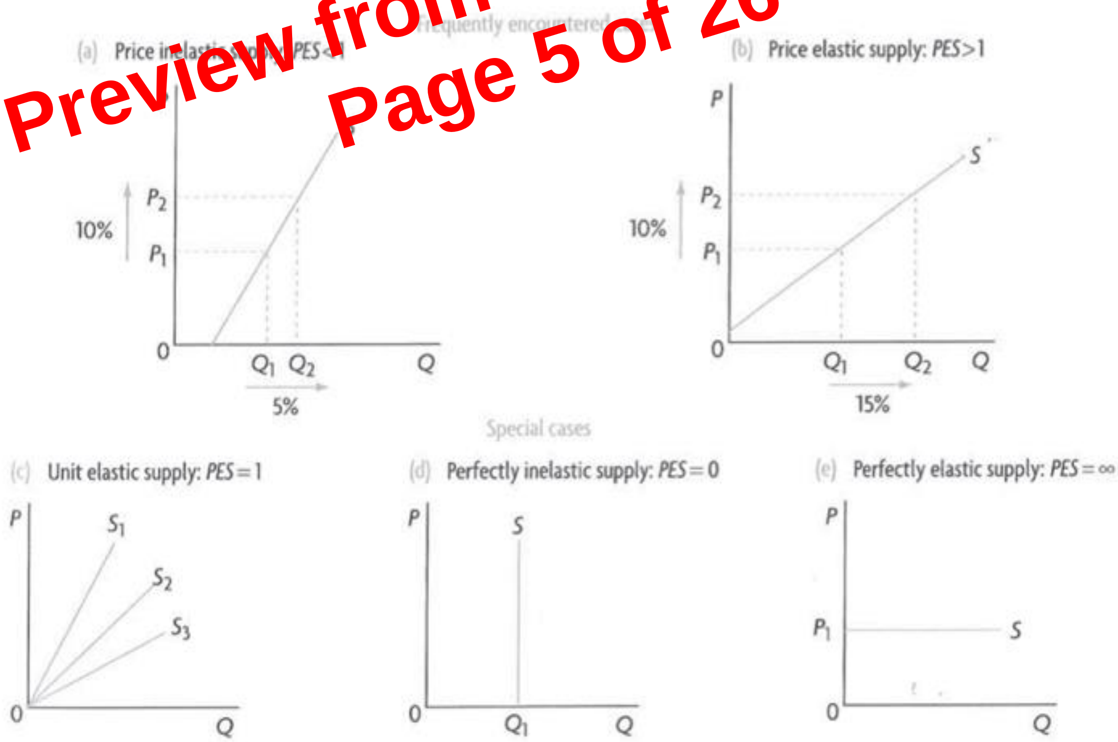
PES measures the responsiveness of the quantity of a good supplied to changes in its price.

Equation:

PES = (percentage change in quantity of good X supplied) / (percentage change in price of good X)

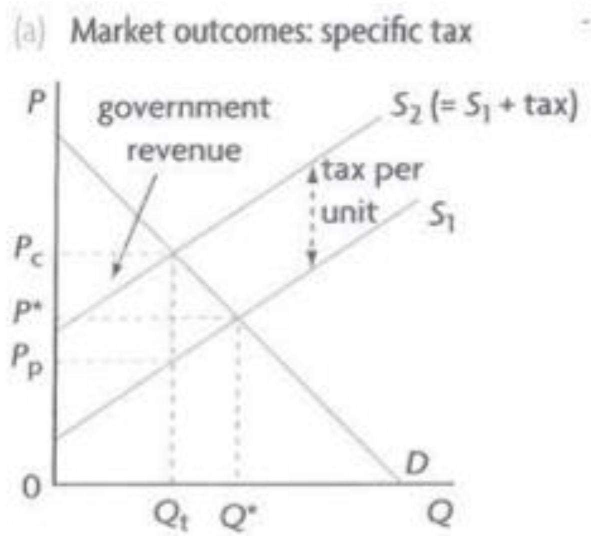
Value of PES	Classification	Interpretation
0 < PES < 1	Inelastic supply	Quantity supplied is relatively unresponsive to price
1 < PES < ∞	Elastic supply	Quantity supplied is relatively responsive to responsive to price
PES = 1	Unit elastic supply	Percentage change in quantity supplied equals percentage change in price
PES = 0	Perfectly inelastic supply	Quantity supplied is completely unresponsive to price
PES = ∞	Perfectly elastic supply	Quantity supplied is infinitely responsive to price

Graphs of PES:

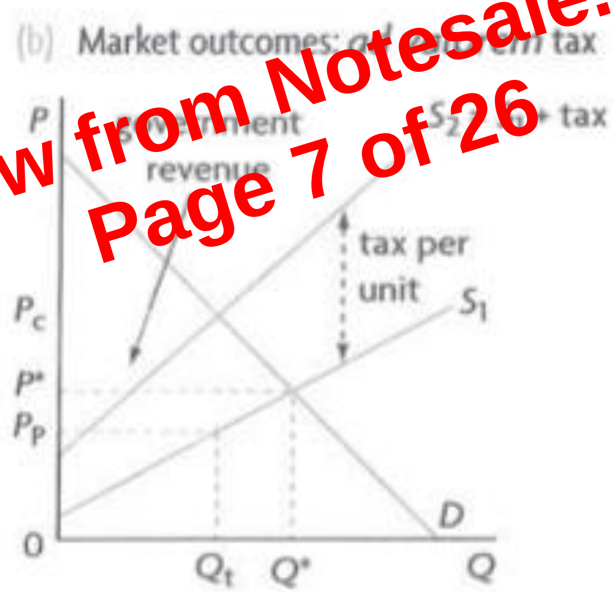


Impacts of market outcomes of these taxation types:

Specific Tax:

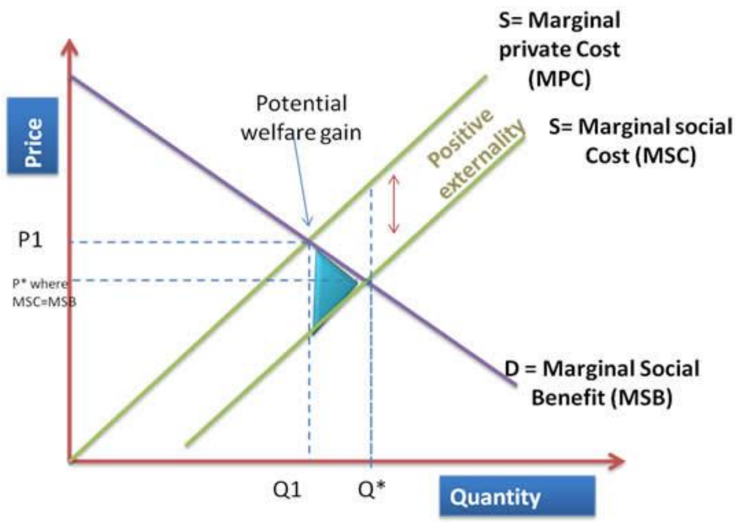


Ad Valorem Tax:



Explanation of the Market Outcomes of Ad Valorem and Specific Tax:

- Equilibrium quantity produced and consumed falls from Q* to Q1
- Equilibrium price increases from P* to Pc for consumers
- Consumer expenditure changes from P* x Q* to Pc x Qt
- Price received by firms fall from P* to Pp
- Firm's revenue falls from P* x Q* to Pc x Qt
- Government receives tax revenue of (Pc - Pp) x Qt
- Underallocation of resources to the production of the good (Qt < Q*)



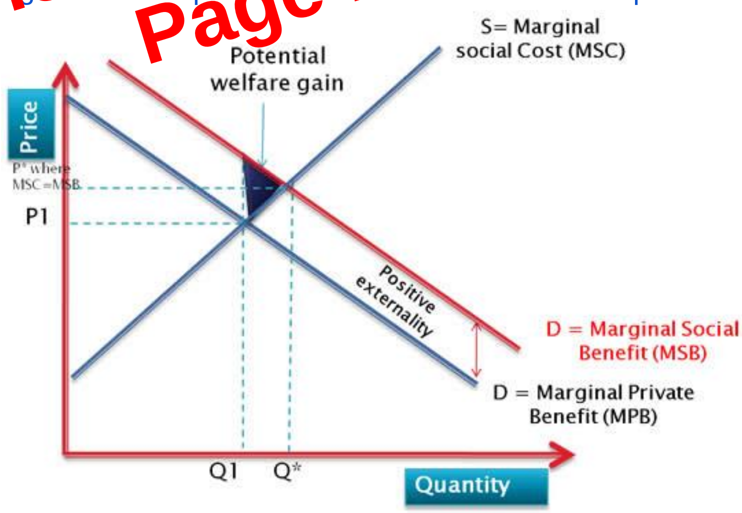
- Current: Q1&P1
- Social optimal: Q*&P*
- There is an under allocation of merit goods/services.
- There is a potential welfare gain that may arise if the market failure were to be corrected.

To fix:

- Direct government provision
- Subsidies

Consumption

Consumption of the good/service provides external benefits to third parties.



- Current: Q1&P1
- Social optimal: Q*&P*
- MSB>MPB there are external benefits to consumers because of the provision of merit goods.
- There is an under consumption of merit goods, the amount shown between Q1 and Q*.