**Chapter 1.2 Price elasticity of Demand and Supply**

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**Chapter 1.2 Price elasticity of Demand and Supply**

**1. Concept of Price elasticity of Demand and Supply**

## **Meaning of concepts**

### **1.1 Elasticity of Demand**

* Elasticity of demand measures the responsiveness of change in quantity demanded as a result of change in the variables influencing it.
* The changes in the variables are the change in the price of the goods itself, price of other goods and income of the consumers.

### **1.2** **Price Elasticity of Demand (PED)**

* Price elasticity of demand measures the responsiveness of change in quantity demanded as a result of change in its price.
* It is **NOT** equivalent to the slope of the demand curve.
* Formula



**2. Factors affecting Price Elasticity of Demand**

### **2.1 Degree of Necessity**

### When the degree of necessity of demand for a good is high, consumers will have a less than proportionate decrease in quantity demanded when there is an increase in the price level of the good concerned as the good and does not mind the higher price level.

### The degree of necessity is influenced by the habitual and staple nature of consumption (e.g. rice; Oil-essential resources àHigh degree of necessity of demand)

### **2.2 Availability of Substitutes**

### Price and cross elasticity of demand will be price-inelastic if there are less close substitutes available.

### This depends on the classification of the goods based on and how broadly the good is categorized in relation to other goods. The broader the market is classified, the more choices are available to the consumer and the more price elastic the demand will be when there is a change in price level.

### The degree of availability of substitutes is also influenced by the degree of market competition; which is indirectly affected by the market demand and the number of firms in the industry. When the market competition is high as the market demand is low, the consumers will have more choices, making the demand more price-elastic.

### **2.3 Proportion of Income Spent on the Good**

* If the good takes up only a small proportion of the consumer’s income, the price elasticity of demand is price-inelastic as the consumer is not that price sensitive since their purchasing power is not compromised extensively. (Air passengers àPed elasticàLargeàAverage income earners)

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### **2.4** **Time Period for Consideration of Purchase**

* The longer the time period available for the consumer to consider their purchase, the demand will be more price-elastic as the consumers have time to look for alternatives and to consider other substitutes.

### **2.5 The Number of Possible Substitutes’ Uses**

* When a good can be used in many ways, the quantity demanded for it will be elastic as the price reduction will be demanded by many users.
* Even if the one group of consumers do not increase their quantity demanded as price decreases, other groups of consumers will increase their quantity demanded contributing to large change in quantity demanded of the good, influencing the demand to be elastic.

## **2.6 Explain why the price elasticity of demand for 7-11 goods is price-inelastic.**

PED for 7-11 good are price inelastic for the following reasons:

* Most 7-11 goods are necessities like toothpaste, food, etc and they have a high degree of necessity which is influenced by the need for use and it is also habitual in nature of consumption like cigarettes.
* Since 7-11 is open for 24 hours, there is no close substitute for a convenience store where the consumer can make purchases at 7-11 round the clock. 7-11 stores can also conduct product differentiation by distinctive renovation of the shop and strategic location of stores that make it very convenient for the consumers that it is a logical choice for them to purchase at 7-11 stores. Hence the lack of close substitute makes PED for 7-11 goods price inelastic.
* Good sold in 7-11 are usually goods that are for daily use and they do not take up a large portion of the consumers’ income. Consumers are not price sensitive and the value PED is small.
* The time available for a consumer to consider buying a 7-11 good is short. For example, late night hunger pangs induce consumers to look for ‘fast food’ from 7-11. As the time for consideration is short, price elasticity is low for the goods.

**3. Concept of Price elasticity of Supply**

## **Meaning of concepts**

**3.1 Price Elasticity of Supply (PES)**

* Price elasticity of supply measures the responsiveness of the change in quantity supplied due to a change in the price of the good concerned.
* Formula



**4. Factors affecting Price Elasticity of**

**4.1 Capacity of Production/ Stock of Products**

* The more limited the capacity of production *(e.g. agricultural product – yield from fixed land capacity),* the more price-inelastic the supply as limited production capacity means that the production capacity cannot be increased easily to accommodate the increase supply despite an increase in the price level.
* If products are non-perishables with low storage cost, supply tend to be more price elastic.

### **4.2 Time Period for Production Capacity**

* The longer the time period for production, the more price-inelastic the supply as the industry has a **limited capacity of production** and cannot easily increase production extensively despite an increase in the price level.
* E.g. Agricultural products – Long gestation period àcannot ­SS extensively in SRà PES inelastic

### **4.3 Cost of Resources**

* If the unit cost of resources is high, the cost of production is high and the industry may find it hard to increase the production capacity. Consequently a larger percentage increase in price of the good is needed to increase a certain percentage increase in the quantity supplied, contributing to a price-inelastic supply.

### **4.4 Number of Firms in Industry**

* The greater the number of firms, the more price elastic as the production capacity can be easily increased where there is an increase in the price of good concerned.

**5. How to use Price Elasticity of Demand to increase total revenue**

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### 5.1 To Help to Derive the Price Strategy – To Increase Total Revenue

When the demand is **price-elastic**, a decrease in the price of the good will lead to an increase in the total revenue as the gain in revenue due to the increase in quantity demanded is greater than the loss in revenue due to a reduction in the price of the good concerned.

When the demand is **price-inelastic**, an increase in price of the goods will lead to an increase in the total revenue as the gain in revenue due to an increase in price of the good concerned is greater than the loss in revenue due to a reduction in the quantity demanded.

5.2 Draw Diagram

 

5.3 Description of diagram

As seen from the diagram 1, an increase in price from Po to P1 will cause a less than proportional decrease in quantity demanded from Qo to Q1, contributing an increase in total revenue as the gain in revenue due to the increase in price is greater than loss in revenue due the reduction in quantity demanded, given that the demand is price-inelastic.

As seen from the diagram 2, a decrease in price from Po to P1 will cause a more than proportional increase in quantity demanded from Qo to Q1, contributing an increase in total revenue as the gain in revenue due to the increase in quantity demanded is greater than loss in revenue due the decrease in price, given that the demand is price-elastic.

**6. Why does the price of raw materials fluctuate extensively?**

The price of raw materials is determined by the demand and supply analysis and its rise and fall are usually quite drastic as this extensive change in the price of the raw material is greatly affected by the price inelastic demand and supply of raw material.

Price of coffee beans will vary both extensively when there is an increase in demand and supply as the demand and supply of coffee are both price-inelastic. When demand for coffee increases, the price rises more extensively as the supply of coffee beans is price-inelastic, implying that the increase in quantity supplied is less than proportional to the increase in price. This will reflect the change in quantity supplied is unable to respond to increase in demand due a price-inelastic supply condition, creating an excess demand condition they will prompt price to increase excessively. On the other hand, the increase in supply of coffee beans will contribute to the extensive fall in price when the demand is price-inelastic since the fall in price will contribute to a less than proportional increase in quantity demand.

 

As seen from diagram 1, the increase in price due to an increase in demand will be more extensive from P0 to P1 when the supply is price-inelastic along supply curve S0. As compared to supply curve S1, the increase in price from P0 to P2 is less extensive when there is an increase in demand as the supply S1 is price-elastic.

Also, as seen from diagram 2, the fall in price due to an increase in supply will be more extensive from P0 to P1 when the demand is price-inelastic along the demand curve D0.

As compared to demand curve D1, the decrease in price from P0 to P2 is less extensive when there is increase in supply as the demand curve D1 is price-inelastic.

The price elasticity of demand for coffee beans is price-inelastic as there is limited availability of substitutes for the use of coffee beans for production of coffee since it is the only form of resource, being a derived demand based on demand for coffee producers. Furthermore, the demand for coffee is planned and stipulated and will not correspond extensively to sudden fluctuation in the price contributed by increase in supply.

As for the price-elasticity of supply of coffee bean, it is price-inelastic as there is limited capacity of production due to land space and long gestation period of agricultural products, implying that quantity supplied cannot be increased extensively in the short run, contributing to the price-inelastic supply condition.

**7. Identify the factors that contributes the extent of rise in price of the good after the imposition of sales tax**

The imposition of the sales tax will cause the price of the good to rise but the extent of increase in the price of the good differs extensively due to certain factors. As sales tax is ad valorem based tax, the amount of tax increases as the price increases as tax rate is at a percentage of the price level, implying that the tax per unit is higher as price increases. Thus, the price of the good increases more if the price of the good is higher as sales tax is imposed.

Besides this, the tax rate is another factor that raises the price of goods when the sales tax is imposed as the value of sales tax is higher if the tax rate is higher. This means that the tax per unit is raised as the rate of the tax raises the amount of tax per unit, contributing to the increase in price of the goods.



As seen from the diagram, the supply pivots from So to S1 when sales tax is imposed as the tax per unit is higher, given that the tax rate is higher and the sales tax is ad valorem based. The fact that the demand curve is price-inelastic which contributes to a larger percentage increase in price