**Chapter 1 - Theory of Demand and Supply / Price Elasticity of Demand and Supply**

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### **Chapter 1 - Theory of Demand and Supply**

**1. Demand: Main Definitions and Concepts**

**1.1 Demand**

Demand refers to the consumer’s desire and willingness to purchase based on consumer satisfaction and the ability of the consumers' purchasing power to purchase goods and/or services at a particular period of time and the maximum level of price.

**1.2 State the factors that affect the demand**

Determinants of Demand can be classified as price and non-price determinant. Price determinant will cause a change in quantity demanded while the non-price determinants will cause a change in demand.

1. **Price of the good concerned**

An increase in the supply of the good concerned will lead to a fall in the price of the good concerned and thus, contributes to an increase in quantity demanded and vice-versa.

Demand may shift when there is a change in the price of related goods

* Substitute is a commodity that can be used in the place of another. The decrease in price of the substituting good leads to a decrease in demand of good concerned. (nature of usage)
* Complement is a good that can be used in conjunction with another. An increase in price of a complementary good results in a decrease in quantity of the good concerned. (nature of usage)
1. **Change in the consumer’s real disposable income**
* Increase in income will increase the demand of a **normal** good (large proportion of income spent on it
* Increase in income will decrease the demand of an **inferior** good (small proportion income of spent on the good)
* **depends on the income of the average earners**
1. **Change in tastes and preferences**
* A change in tastes and preferences changes the consumers’ desired demand of the good.
* Changes in preference can be brought about by advertisements, promotions, education, culture, etc.
1. **Population and demographics**
* Change in demographics of the population affects the potential consumers and market size of the good concerned.
* For example, an ageing population increases the demand of elderly healthcare services.
1. **Government policies**
* Implementation of government policies and law can compel consumers to demand more for certain goods.
* For example, implementation of ERP leads to an increase in demand for cash cards and in-car payments units.
1. **Expectation of future prices**
* An expected decrease in future prices would decrease current demand for good concerned as consumers would postpone consumption now and increase demand in future

**2.Supply: Main Definitions and Concepts**

**2.1 Supply**

The supply curve shows the positive relationship between the price of good and the quantity of goods supplied by all the producers in the industry.

**2.2 State the factors that affect the supply**

Determinants of supply can be classified as the price determinant (factor - r in COP) and non-price determinants. For price determinant, it will contribute to an increase in quantity supplied (r in SS) while for non-price determinants they will contribute to a change in supply.

1. **Price of the good concerned**

An increase in demand for the good concerned will contribute to an increase in price of the good concerned and thus, it will lead to an increase in quantity supplied.

1. **Prices of inputs /cost of production**
* A rise in the price of the resources such as wages or price of raw materials will increase the cost of production, leading to a decrease in supply of the goods.
1. **Availability of resources**
* If the availability of resources is limited, the production capacity will be lesser, thus making it difficult for the industries to increase production. It is likely the cost of production will increase and thus, the supply of goods will reduce.
1. **Prices of related goods**
* Change in the price of related goods can affect the supply of goods concerned.
* For example, whale meat and whale blubber are of joint supply. Hence the increase in supply of one good results in the increase of supply of another.(by-products from production can increase the SS of the other good) (beef and leather)
* Beef and milk are of competitive supply. The more cows are slaughtered for beef the less there is to produce milk.(need for similar resource) corn and rice – demand for land
1. **Technology**
* An improvement in technology will raise productivity of the industries and help to lower the cost of production and this enables the industry to increase the supply of goods.
1. **Taxation and subsidies**
* Increase in taxation will lead to an increase in cost of production which will lead to a decrease in supply of the good.
* Increase in subsidies will lead to a reduction in cost of production which will lead to an increase in the supply of the good.
1. **Numbers of firms** - more firms - ↑ in SS
* An increase in the number of firms in the industry will lead to an increase in the supply of the goods.
1. **Goals of the firm**
* If the aim of the firm is to increase the production level so as to reap benefits of large scale production (reap EOS), the supply of the good will increase.
1. **Weather and endowment of resource** (natural endowment)
* Certain products’ production capacity is constrained by the weather condition distribution of the endowment of the natural resources and hence the supply of the good may increase or decrease.

**3. Types of Demand**

* **Joint demand**: The relationship of the two goods is complementary in nature, implying that the increase in quantity demanded for good A will lead to the increase in demand for good B. (demand for bread – demand for butter)
* **Competitive demand** (substitutes in nature): The two goods are substitutes for each other, implying that the increase in quantity demanded for good A will lead to the reduction in demand for good B. For example, specially-brewed coffee and soft drinks. – serving the same need as beverages
* **Derived demand** (dependency in nature): The relationship of the two goods is linked in such a way that the demand for good A is dependent on the quantity demand of good B. For example, brick and houses. – petrol and cars
* **Increase in demand for cars will lead to increase in demand for goods which are derived demand like petrol.**
* **Composite demand**: The demand for the goods comes from many sources. (It can be used in many ways by different types of consumers.) For example, steel – can be used for ship building, cars, TV.

 **4. Types of Supply**

* **Fixed supply curve**: The supply of the production is restricted and fixed, and it will not change in accordance to the change in the price level. For example, the fishery industry has its production capacity fixed by the natural environment factor.
* **Joint supply**: The increase in quantity supplied of a good will lead to the increase in the supply of another good as the production of one good will create the by-products which can be used for the production of another good. The increase in the supply of these resources will lower down the cost of production for latter, thus leading to an increase in the supply of the good.
* **Competitive supply**: The increase in supply of one good will lead to the reduction of another good as the production of one good (competing for same resources) requires resources for production which is also used for the production of the good. Due to the condition of limited resources, the cost of these resources will increase which will raise the cost of production and thus, contributing to the fall in supply of the good concerned.

Why is there excess demand when there is a resale market for a market for football match?

→

**5. Explain how the market equilibrium of the rice market is attained**

5.1. Concept of market equilibrium

* This condition of market equilibrium is attained when the market demand is equal to market supply. At equilibrium, the **market clearing price** and quantity is determined.
* In this situation, buyers and sellers have no incentive to deviate from their current economic actions
* Any change in demand and supply condition will lead to a change in market equilibrium that will depict the impact of the change in demand and supply on the market which will depict the new equilibrium price and output level
* Impact on market for air travel due to rise in oil price and global recession

5.2 Diagram

Price of Rice

Quantity of Rice

S0

D0

P0

Q0

5.3 Description of diagram

When the market is in equilibrium, the demand and supply curves for rice will intersect at the point marked E0 where equilibrium price is P0 and equilibrium quantity is Q0.

Consumer surplus is the difference between the maximum amount that consumers are willing to pay for a given quantity of goods and what they actually pay (equilibrium price).

Producer surplus is the difference between the amount received by producers and the minimum amount that they are willing and able to accept for supplying the good

**6. Explain how the price of property will rise despite an increase in the supply of property**

In this question, there is a need to understand that the answer is built through several steps:

6.1 Introduction
State that the economic development stated in the property market above can be explained through the demand and supply analysis which shows how the price of property increases despite an increase in the supply of the property. This is explained when the market equilibrium for the property market is attained where the price and output is seen after considering how the above changes are reflected in the demand and supply analysis.

6.2 Main body

6.2.1 Explain how the price and output level of the property market is set when the market equilibrium is attained

6.2.2 Explain the economic causation

* Explain how the increase in supply of property occurs and lower the price of the property
* Explain how the price of the property when there is an increase in the demand for property which is greater than the increase in supply of property

6.3 Diagram - Increase in demand is greater than the increase in supply

D0

D1

S0

S1

P of property

Qty of property

P1

P0

Q0

Q1

6.4 Description of the diagram

As seen from the diagram, the increase in demand for property from Do to D1 is greater than the increase in supply from So to S1 which causes an excess demand in the property market at the original price level at Po. Consequently, there is an upward pressure which causes the price to rise from Po to P1 while the output increases from Qo to Q1, explaining how the property market price of property will rise despite an increase in the supply of property.

6.5 Analysis

The impact in terms of the extent of the change in price depends on the value of the price elasticity of the supply as the price inelastic condition of demand for the property market will see the price rise higher.

6.6 Conclusion

Thus, it can be observed that the change in price can be explained by the demand and supply analysis where the changes in demand and supply analysis helps to explain how price will change. It is also imperative to consider the influence of the price elasticity of demand and supply would affect the extent of change in the price and output..

**7. Explain how the price of tickets and sale of tickets are determined in a football match**

7.1 Introduction

State the price and sale of tickets for the football match can be explained through the demand and supply analysis and this is explained when the market equilibrium for the football match is attained where the price and output is seen after considering the nature of demand and supply of the football market.

7.2 Main body

7.2.1 Explain how the price and output level of the football market iis set when the market equilibrium is attained

* Explain the economic causation in this analysis
* Explain why the market supply is fixed - there is a fixed stadium capacity which determines the fixed supply curve - the supply cannot be increased even if there is an increase in price
* Explain how the demand is perfectly elastic as there is perfect market information, shaping the demand curve to be perfectly elastic as there is only one prie level. This means that the organiser of the football match will not sell below the price and the consumers will not buy above the price level.
* Consequently, the price and output level is set at the market equilibrium where the demand curve intersects the supply curve.

7.3 Diagram - Vertical supply and perfectly elastic demand

S0

D0

P0

Q0

P of stadium seat

Qty of stadium seat

D1

Resale Market

Price of good Z

Quantity of good Z

SZ

D0

P0

Q0

D1

Q1

P1

7.4 Description of the diagram

As seen from the diagram, the supply is vertically sloped as in So at qo while the demand curve is perfectly elastic at Do at Po and the market equilibrium is attained at Eo where the demand and supply curve intersect. The price is set at Po and output is at Qo.

7.5 Analysis

It can be observed that there is a fixed amount of quantity and price is set only at a price which explains why the demand and supply curve is horizontally and vertically sloped.

**Qn: EXplain how the presence of resale market will affect the market equilibrium**

**8. Explain how the market of rice affects the market of corn**

8.1 Explain how demand for substitutes affects related markets.

Good X (coffee) and good Z (tea) are substitutes as they have the same nature of use and this implies that the consumers can consume more coffee and less tea when there is a change in taste and preference. This means that there will be an increase in demand for coffee while there is a fall in demand for tea in their respective markets.

Price of good X

Quantity of good X

Sx

D0

P0

Q0

D1

Q1

P1

When demand for good X increases from D0 to D1, demand for good Z decreases from D0 to D1 since they are substitutes. As a result, the quantity and price of good Z (tea) will decrease from Q0 to Q1 as the price of tea falls from Po to P1.

8.2 Explain how supply of substitutes affects related markets.

For goods like corn and rice, they are classified as competitive supply, given that the increase in quantity supplied of the rice increases due to an increase in demand for corn can cause a fall in the supply of rice as there will be less resources like land to increase the production of rice. This means that the cost of production of rice increases as there are fewer resources for the production which increases the cost of resources of rental of land for farming of rice. Consequently the supply of rice reduces, causing an increase in the price of rice and reduction in quantity of rice.

P of corn

Qty of corn

P0

P1

Q0

Q1

D0

D1

S0

P of rice

Qty of rice

D0

S1

S0

P1

P0

Q1

Q0

As seen from the diagram, there is an increase in demand for corn in the market for corn from Do to D1 and this causes the price of corn from p0 to P1 which induces an increase in the quantity supplied of corn Q0 to Q1. As a result, there is a reduction in supply of rice from S0 to S1 and this causes the price of rice to rise from Qo to Q1 as there are fewer resources for production of rice.

**9. Explain how the process of globalization and advancement in video conferencing technology affects the air aviation market**

9.1 Economic Causation

As the world globalised, there is a higher degree of global interaction and socialization and greater business activities that demands people to travel more, which creates a new preference for traveling and this contributes to an increase in market demand for air travel. It is reported that air travel was at an all time high of $872 bn in 2019. On the other hand, the development of video conferencing technology like zoom and hangouts reduces this need for traveling and the new way of life that has dependency on air travel. Consequently, the demand for air travel falls.

However, we can observe that the reduction in demand for air travel due to video-conferencing technology is lesser than the increase in demand for air travel due to globalization and this still contributes to an overall increase in demand for air travel.

9.2 Diagram

9.3 Description of diagram

S1

D0

D1

D2

P1

P2

P0

Q0

Q1

Q2

Qty of Air Ticket

Price of Air Ticket

As seen from the diagram, the increase in demand for air travel from Do to D1 is greater than the fall in demand from D1 to D2 and this will still create an excess demand condition for air travel at original price level at Po. Consequently, the price and output for the travel market increases from Po to P2 and Qo to Q2

9.4 Analysis

The above development in the air travel market depends on the extent of change in demand and the influence of the factors affecting the change in demand. The extent of change in price can also be affected by the value of the price elasticity of demand and supply

**10. Is demand or supply factor more significant in influencing the oil market?**

In the oil market, both the demand and supply factors can affect the changes in the oil market in terms of the change in price and output but the debate lies around whether the demand or supply factors would be significant in influencing the changes in demand and supply factors. As observed, there are several factors that would determine the results under different considerations.

**1. Context of the CSQ or the preamble in the question**
As stated in the extract, the innovation of fracking technology has enabled oil producing firms in the US to increase production three times more than before and the legislation by the US government to export oil further increases the supply of oil in the global market. This increase in supply in the short run will be a good reason to explain the supply factor is more important than the demand factor as these changes in the supply can increase supply extensively in the short run. As for the fact that the world economy is in recession and may not demand so much oil, the demand factor is therefore seen to be less significant. Nonetheless, as oil is still an essential resource and production will be reduced extensively, the influence of oil is still significant as the reduction by the users is not that great.

2. Nature of product

It is also imperative to consider that oil is a derived demand and the product is non-perishable and can be stored. The usage of oil is dependent on world production as oil is an essential resource for production and its influence on the oil market will depend on the demand for goods and services. Besides, our high reliance on the usage of oil will make the demand for oil more significant in the short run but as technology advances, allowing other sources of renewable technology to replace the usage of oil, the demand for oil will fall. Furthermore, the supply of oil can be stored and is not perishable and this will enable the economy to supply oil, lessening the influence of supply in affecting the oil market. Nonetheless, the recent COVID-19 impact shows how the high cost of storage of oil will contribute to the drastic fall in the price of oil and the future price of oil falls will become negative. Hence, the nature of the product and how it behaves under certain economic conditions also determine the significance of the influence.

3. Price elasticity of demand

The price elasticity of demand and supply is also another consideration on the significance of the influence of the demand and supply in affecting the oil market. If the goods are price inelastic in the short run and the factors like high degree of necessity of demand for oil as a resource for production and the substitutability of oil by other resources makes demand significant in influencing the oil market. Supply becomes a more significant influence in the long run when capacity of production is limited by the finite supply of oil as we have a limited supply of this resource on earth.

4. Time period

In the short run, the demand for oil is more significant in influencing the market for oil as oil is used when there is a greater production level of goods and services due to the growth of the global economy. This is a major consideration as the supply factor is less influencing on the market as the supply can be stabilized with storage to ensure less fluctuation of the price of oil in the short run. Furthermore, it is easy for oil producing countries like OPEC to increase supply in the short run.

In sum, the significance of the influence of demand and supply in influencing the oil market depends on the given factors identified above. However, the singling out which factor is the pivotal factor depends on the circumvent of the economic development.

**11. Definition of PED and PES**

**Price Elasticity of Demand (PED)**

Price elasticity of demand measures the responsiveness of changes in quantity demanded as a result of change in its price of the goods concerned.

**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.

**12. Formula**

PED = $\frac{Percentage change in quantity demanded}{Percentage change in the price of the good concerned }$

PES = $\frac{Percentage change in quantity supplied}{Percentage change in the price of the good concerned}$

**13. Determinants of PED**

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 → High degree of necessity of demand) the demand CURVE WILL BE PRICE-INELASTIC)

2. Availability of Substitutes

· **Price and cross elasticity of demand will be price-inelastic if there are less close substitutes available**. MORE SUBSITUTIES - THE DD CURVE WILL PRICE ELASTIC

· This depends on the classification of the goods based on and how broadly the good is categorized in relative 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.

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 → Ped elastic → Large → Average income earners)

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 more time to look for alternatives and to consider other substitutes.

5. Number of Possible Substitutes' Uses

· When a good can be used in many ways, the quantity demand for it will be price-elastic as the price reduction will be demanded by many users.

· Even if 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.

**14. Determinants of PES**

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.

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 → cannot ↑­SS extensively in SR → PES inelastic

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. Number of Firms in Industry

· The greater 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.

**14. Limitations of PED and PES**

· Used to explain why concepts of elasticity are irrelevant

· Magnitude of the value of PED and PES will vary as time span is longer

· Ceteris paribus condition is not possible in reality, and thus, the complexity of the economic environment will affect the value PED and PES simultaneously

· Social variables will distort the implication of the value of PED as the consumer with similar proportion of income spent on a good will have different response to change in quantity demanded because of their family background

· Concepts of elasticity cannot account for social variables which will distort the value (e.g. marriage status will distort price sensitivity), as concept of elasticity of dd/ss is a general concept

J1 June Intensive Revision

## Demand and Supply – Q2 (H2 A Level 2012)

**The Market for Cotton**

**Table 1: Cotton in selected economies (million bales)**

|  |  |  |
| --- | --- | --- |
|  | **Production** | **Consumption** |
|  | **2008/09** | **2009/10** | **2008/09** | **2009/10** |
| **Brazil** | 5.4 | 5.3 | 4.2 | 4.4 |
| **China** | 36.7 | 32.0 | 44.0 | 48.5 |
| **India** | 22.6 | 23.2 | 17.7 | 19.5 |
| **Pakistan** | 8.7 | 9.6 | 11.3 | 11.0 |
| **United States** | 12.8 | 12.2 | 3.6 | 3.5 |
| **World total** | 107.1 | 101.2 | 109.9 | 117.2 |

 *Source: United States Department of Agriculture*

**Extract 1: Brazil's cotton growers seek to boost output as India restricts exports**

Cotton prices have soared 73% in the past year and reached a 15-year high of US$1,064 on 28 September 2010 after India, the world's second-biggest exporter after the United States, said it would limit exports. The Indian government will limit exports to 5.5 million bales in 2011, compared to 2010 when exports were 8,3 million bales. The price of cotton is expected to stay above US$1 until June 2011.

Cotton growers in Brazil, the world's fifth-largest exporter of the fibre, plan to increase output in 2011 after the rise in world prices. Planting for the 2011 harvest may rise to 1.1 million hectares from 830 000 hectares in 2010.

Brazil's government may consider increased financial support for cotton growers to encourage them to raise output in 2011, according to the Brazilian Agriculture Ministry. A four-month drought hurt the quality of the crop this year in Brazil, causing output to fall. In September the government temporarily eliminated a 10% tariff on cotton imports as domestic supplies fell short of demand.

*Source: Bloomberg, 1 October 2010*

**Extract 2: UK retail clothing firms far from cheerful about future of cheap fashion**

It was a sign of the times; fashion so cheap it became "disposable’ as globalisation brought container-loads of low-cost clothes to the UK. But clothes retailers are now warning that the era of constantly falling prices is coming to an end and that prices could rise in 2011. A huge rise in the price of cotton to a 15-year high could not be ignored, they said. At the same time, retailers are facing higher labour costs in Asia, the impact of a weaker pound and a rise in Value Added Tax (VAT) from 17.5% to 20% from January 2011.

The chief executive of clothes retailer Next predicted that the prices of Next's clothes were going to rise by up to 8% in 2011. He said that he suspected that shoppers would have to cut back on the number of new outfits they buy: 'Our best guess is that if prices do rise by 8%, then volume of sales will be down by 10%. The clothing retail industry hasn't experienced price increases for 15 years and the truth is we don't really know what the response will be.’

The director of a leading research company said consumers are facing what could be a permanent change in the clothing market: 'Prices can't keep failing forever: they reach a floor, and we are now at a point where retailers' profits are really quite low. Because of the recession they are finding it difficult to maintain sales. This means that when costs rise, they have to be passed on to the consumer.'

Primark, a clothing company known for its ability to emulate designer looks at rock-bottom prices, has been at the forefront of the disposable fashion movement. Its breathtaking prices - this autumn you can still buy jeans for £8 and a top for £4 - caused a stampede when its first store opened, on London's Oxford Street in 2007, Another company. Asda, sold its cheapest pair of own brand jeans for £14.97 in 2000; now the price is down to £4.

Some have argued that the increase in the cotton price has its roots in the financial crisis of 2008, when farmers stopped planting low-value cotton and switched to higher-value crops such as corn and soya, When retail sales picked up, demand for cotton also rose and prices shot up - just at a time when major cotton-producing regions such as China and Pakistan were suffering devastating floods, and India, the second largest producer, was limiting exports.

The deputy chief executive of a well-known department store explains that 60% of the cost of clothing is in the fabric and about 30% of the fabric cost is in the raw materials: ‘The approach we are taking is to pass it on to customers and we think most other retailers will have to do the same.’ He says its prices will rise, like Next's, by up to 8%, He also points to Increased labour costs all around the world’, less spare capacity in Chinese factories, rising freight costs and the unfavourable impact of foreign exchange movements as other pressures being faced by retailers.

Some analysts argue, however, that the gloom is being overdone. The chairman of the department store John Lewis Partnership, which last week reported a 20% increase in fashion sales, certainty thinks the future is brighter than some of his peers say. ‘Prices may rise a little but tough competition will take some of the heat out of these rises.’

*Source: The Observer, 19 September 2010*

**Extract 3: Tesco, the supermarket chain, is set to take on its rivals with the opening of a specialist clothing store in London**

Tesco, which is more used to selling clothes in its supermarkets than high street boutiques, is planning to open a store dedicated to selling clothing in London's West End. The store would be branded F&F, after Tesco’s own-label clothing range. The move will see Tesco try to succeed where its competitors have failed. In 2008 arch-rival Asda closed its chain of specialist high street clothing shops following a four-and-a-half-year trial run, because it could not make sufficient profit,

Tesco's move could be partly driven by the fact that fashion brands are having to compete more aggressively in an ever-more-crowded marketplace. As well as being home to thousands of stores from established brands like Primark and Next, the UK is attracting a large number of international clothing brands. US chain Abercrombie & Fitch entered the UK market a few years ago, and chains such as Forever 21, Vero Moda and Victoria's Secret are also set to enter the UK.

If Tesco can get the look and feel right in a dedicated clothing store, then it could be a good way of building brand awareness.

*Source: Daily Telegraph, 9 July 2010*

**Questions**

(a) (i) Why might the changes shown in Table 1 have led to an increase in the world price of cotton? [1]

(ii) Given the information contained in Table 1, identify the country that has had the greatest impact on world prices. Justify your answer. [3]

(b) What can you conclude from the evidence in Extract 1 about the price elasticity of supply of cotton in Brazil? [2]

(c) Explain the likely reason why the Brazilian government eliminated the 10% tariff on cotton imports and the Indian government restricted cotton exports. [3]

(d) In Extract 2, the chief executive of Next considers the effect of an 8% rise in the price of Next’s clothes. With reference to the concept of price elasticity of demand, explain the expected impact of this price rise on the firm's total revenue. [3]

(e) With reference to the data where appropriate, discuss the view that supply factors are likely to be more important than demand factors in explaining changes in the price of cotton. [8]

(f) Using the evidence in the data, discuss how the market structure of the retail clothing industry in the UK will affect the ability of firms in this industry to make excess profits in the long run when faced with an increase in the price of cotton. [10]

**[Total: 30]**

**Suggested Answers**

**(a) (i) Why might the changes shown in Table 1 have led to an increase in the world price of cotton? [1]**

There was an increase in world demand from 109.9 million bales in 2008/09 to 117.2 million bales in 2009/10 while there was a fall in supply from 107.1 million bales in 2008/09 to 101.2 million bales in 2009/09. As a result, an excess demand condition occurred in the world market for cotton, contributing to the increase in world price of cotton.

**(a) (ii) Given the information contained in Table 1, identify the country that has had the greatest impact on world prices. Justify your answer. [3]**

China. It is the country with the largest production in the cotton market and the largest consumer market. As the production capacity of cotton in China has decreased from 2008/09 to 2009/10 while its consumption capacity has increased from 2008/09 to 2009/10. This will create an excess demand condition in China’s market which will raise the price of cotton in China. This is likely to influence China to resort to import more from other countries, such that there will be an increase in demand for cotton in the world market while it cuts down the export of cotton to the world market. Furthermore, China is a significant importer in the world market, given that her consumption is greater than her production and this difference between the consumption and production capacity has widened which will raise her import demand more significantly. As a result, China’s demand in the world market for cotton will rise, contributing to an extensive rise in world price for cotton.

**(b) What can you conclude from the evidence in Extract 1 about the price elasticity of supply of cotton in Brazil? [2]**

The price elasticity of cotton is price-inelastic as there is a limited capacity of production in Brazil and the source of supply is restricted. As cotton is an agricultural product, it is limited in production due to long gestation and limited supply of resources like land. At the same time, the imposition of 10% tariff will mean that the supply is also limited by high imported price of cotton.

**(c) Explain the likely reason why the Brazilian government eliminated the 10% tariff on cotton imports and the Indian government restricted cotton exports. [3]**

The Brazilian government eliminated the 10% tariff to lower the price of import of cotton so as to ensure that there is an increase in the supply of cotton to meet the rising demand. As seen from table 1, Brazil has an increase in production of cotton by 0.1 million bales from 08/09 to 09/10 while the demand for cotton increases by 0.2 million bales for the same time period. As for India, it has restricted cotton export as there is greater increase in the local consumption which is greater than the increase in production of cotton in India. This will mean that it may have shortage in the local market, indicating that it may need to increase in import. To avoid importing more cotton, which will push price of cotton higher compared to the local market, leading to higher cost of living, it will prompt India to reduce export of cotton to ensure that there is sufficient supply in the local market. Furthermore, the higher degree of import expenditure will lead to outflow of currency, leading to depreciation. This will mean higher price of import in local value, undermining the cost of living of India, which is very import-dependent on resources like oil.

**(d) In Extract 2, the chief executive of Next considers the effect of an 8% rise in the price of Next’s clothes. With reference to the concept of price elasticity of demand, explain the expected impact of this price rise on the firm's total revenue. [3]**

As considered by Next’s chief executive, the effect of an 8% rise in the price of Next’s clothes will lead to a reduction in quantity demanded of Next’s clothes. If as projected, the fall in quantity demanded is about 10%, which has more than proportionate decrease in quantity demand in response to increase in price and this will contribute to a fall in total revenue.

Price of Next’s Clothes

P1

Gain

Fig. 1 – Price-elastic demand for Next’s Clothes

P0

SS

Loss

Qty of Next’s Clothes

Q0

Q1

As seen from the diagram, there will be a fall in the total revenue for Next’s clothes as the gain in revenue due to the rise in price of Next’s clothes is lesser than the loss in revenue due to the fall in quantity demanded of Next’s clothes, given that the demand is price-elastic, given that the price elastic demand for clothing is price-elastic.

It is likely that the demand is price-elastic since there are extensive substitutes like Primark and Asda and other stores, given its high degree of competition. As clothes are durables, which means there is low degree of necessity of demand for the good, shaping it to be price-elastic in demand.

**(e) With reference to the data where appropriate, discuss the view that supply factors are likely to be more important than demand factors in explaining changes in the price of cotton. [8]**

In the determination of the price of cotton, the forces of demand and supply will affect the price of cotton. Whether the supply or demand is more influential, there is a need to consider the nature of the good based on the understanding of the market forces influencing the demand and supply and the factors affecting the price-elasticity of demand and supply.

It is likely that supply is more significant in influencing the change in price of cotton as cotton is an agricultural product. This means that the production is affected by factors like weather factors and lack of resources like land. As stated in the Extract 2, major cotton-producing regions such as China and Pakistan were suffering devastating floods’, implying that cotton can be reduced extensively in the short run by weather conditions. In addition, as an agricultural product, it has long gestation and is limited by the availability of land for planting. This would mean that the supply is price-inelastic since the production capacity cannot be increased easily within a short period of time. Consequently, if there is an increase or decrease in demand, the price will fluctuate more extensively for cotton as the supply is price-inelastic.

The control by the government as seen in the measures adopted by India and Brazil (export restriction and tariff imposition) will also add on the cost of goods sold in the world market, leading to reduction in supply of the goods persistently and this will imply that supply can affect extensively the change in price of cotton.

Although the percentage increase in demand is at 6.6% which is greater than the percentage reduction of 5.6% for the world market for cotton as calculated from the table over the two time periods, the demand factor still has a less significant influence on the price of cotton. The demand for cotton seemed to increase only from developing countries which has lower purchasing power and may not have a sustainable demand in the long run. Furthermore, the demand is price-elastic as there are many other forms of materials which can be manufactured synthetically to substitute cotton as a raw material for clothing, implying that the change in price is less extensive, given a reduction in supply when demand is price-elastic.

In sum, the supply factor is the persistent and pivotal factor influencing the price of cotton. However, in short run, a rise in demand may also affect the price of cotton. The key factors to consider in this demand and supply analysis would be the nature of agricultural products and the growth of population.

**(f) Using the evidence in the data, discuss how the market structure of the retail clothing industry in the UK will affect the ability of firms in this industry to make excess profits in the long run when faced with an increase in the price of cotton. [10]**

 In the examination on whether the firms in the UK retail clothing industry will make excess profit condition, it is imperative to consider the nature of the market structure and how the cost condition will affect the production of cloth as seen from the rise in price of cotton.

 In the retail clothing industry, the firms will face a monopolistic market structure and it will affect the slope of the marginal and average revenue of the firms.

 The change in the price of cotton will lead to a rise in cost of production which will affect the excess profit of the firms in the cloth retailing industry. It is also important to take note of the nature of the market structure of retail clothing as the market demand is affected by the characteristics of this type of industry.

To determine the level of profit in the retail clothing industry, we need to derive the production equilibrium of the firm in this industry, which is based on profit maximization where the price and output level is set at the level where MC=MR. As the firm in the cloth retailing industry is under the monopolistic competition market structure, where there are many buyers and product is differentiated in an imperfect market structure and immobility condition, the marginal revenue (MR) and average revenue (AR) will be downward-sloping but price-elastic as there is limited market power for the firm as it is created through product differentiation. As for the marginal cost (MC), it will slope upwards and from left to right as it is subjected to over-utilization of capacity of production in the short run. Thus, the firm will produce at the level where marginal cost is equal to marginal revenue and price is set based on the equilibrium on average revenue. As for the profit, it will be based on the difference between the average revenue and average cost, multiplied with the output level.

Price

MC2

MC

AC

P1

P0

Qty

Q0

Q1

MR

AR

As seen from the diagram, the price and output is at P0 and Q0, where the firm’s marginal cost (MC) is equal to the marginal revenue (MR). The firm will experience normal profit at this level as average revenue (AR) is equal to average cost (AC) at Q­0.

The rise in the price of cotton will lead to a rise in the cost of production which will raise the marginal cost from MC0 to MC1 as the rise in raw material is seen as an increase in variable cost. Given that the profit maximization level is now at Q1, where the MR now intersects MC, and thus the price and output level is at P1 and Q1, contributing to the subnormal profit condition as AR is less than AC at Q1. Hence, it can be observed that the firm is making subnormal profit.

In the long run, the profit condition for the firm will be at normal profit, when the industry adjusts to the subnormal profit condition, contributed by the characteristics of the monopolistic market structure of the barriers to entry. Due to subnormal profit condition, firms which are experiencing loss will exit from the industry and this will lead to an increase in market demand for the remaining firms and the MR and AR will become more price-elastic as there are less firms in the monopolistic competitive market. This adjustment will continue until the firm reaches the production level where there is normal profit and production level will be at profit maximization level.

Price

LRMC

LRAC

P0

MR0

Qty

Q**0**

AR1

As seen from the diagram, the production level is set at P0 and Q0 based on profit maximization and the profit level is now at AR=AC.

It can be observed that the firm will adjust to the condition of normal profit in the long run despite the rise in the price of cotton which will raise the cost of production. This is due to the condition of low barriers to entry which will allow the exit of firms till the remaining firms in the industry attain normal profit. This is seen from how the industry adjusts the slope of MR and AR, which is influenced by the degree of substitution for goods produced by lesser firms existing in this industry.