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

**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 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.

**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

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 good 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 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

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

D1

P0

Q0

P of ticket

Q of ticket

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 intersects. 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.

**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

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 US to increase production three times more than before and the legislation by 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 the 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 for 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 the drastic fall of price of oil and the future of price of oil falls become negative. Hence, the nature of product and how it behaves under certain economic conditions also determine the significance of the influence.

3. Price elasticity of demand

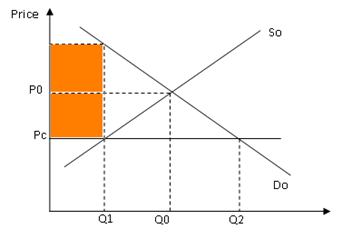
The price elasticity of demand and supply is also another consideration on the significance of the influence of the demand and supply in affecting the oil market. If the goods are price inelastic in short run and the factors like high degree of necessity of demand for oil as a resource for production and the substitutability of oil by other resources makes demand for significant in influencing the of 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 in 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.

A maximum price set artificially by the government of firms so that goods are bought and sold at that price level which is below the market equilibrium price level. The purpose in setting the price ceiling is to prevent excessive increase in price so that consumers will not pay a higher price at the market price level which may be controlled by the seller to exploit the consumer. In doing so, the government is trying to allocate goods in a more equitable approach to ensure that there is no unequal distribution of the benefits of the goods especially for scarce resources during a crisis.



As seen from the diagram, the price is lowered from Po to Pc when there is the imposition of price ceiling and this causes an increase in quantity demanded from Qo to Q2 while the quantity supplied decreases from Qo to Q2. This creates an excess demand condition between Q1 to Q2 that may lead to a rise in black market condition where the price rises from Pc to Pm at the quantity level at Q1.

Main concerns of discussion

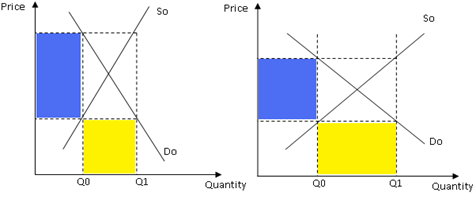
**2. Price Floor**

**2.1 Explain the mechanism of Price Floor**

A minimum price is set by the government where the goods are bought and sold at the price level which is above the market equilibrium price level. This is applied to ensure that the producers can sell the goods at a higher level than the market price level so that the resource owner receives a reasonable level of revenue to keep them to continue production

A minimum wage scheme is the same as a floor price to ensure that the workers who are the resource owner for their work can get a certain level of income that enables the workers to cover their cost of living. This enables the workers to maintain their livelihood and have a reasonable level of income to counter inflation which may erode their purchasing power.

**2.2 Explain how the price ceiling works**



As seen from the diagram, the imposition of the price ceiling set the price at Pf which is above the market price at Po. This leads to a fall in quantity demanded from Q\* to Qo while there is an increase in quantity supplied Q\* to Q1, creating an excess supply condition at Pm. This means that there is a need to stock up the excess stock and keep as storage and used later. However, stockpiling can only be done if the product is non-perishable and the cost of storage is low.

**3. Tax**

**Indirect Tax (Types of Indirect Tax)**

**Indirect tax is imposed on the price of the good concerned based on the benefit of consumption where the tax burden is imposed on the seller or buyer.**

**3.2.1 Explain the mechanism of Specific Tax.**

* Graphical Description

- Description of the graph

**3.2.2 Explain the mechanism of Ad Valorem tax.**

Price of good X

Quantity of good X

Stax

D0

Ptax

Qtax

Q0

P0

S0

Consumer tax burden

Producer tax burden

tax (20%)

Deadweight loss

Description of the graph

Main issues on taxation

**4. Subsidy**

**4.1 Explain the mechanism of Subsidy**

* Subsidy is a transfer payment to the producers by the government to lower the price of the good concerned. The effect of this subsidy either raises the consumer benefit or producer benefit, depending on the value of price elasticity of demand
* Specific subsidy causes a parallel shift downwards and to the left.
* Ad valorem subsidy causes a pivoted shift in the clockwise direction.

4.2 Explain how the provision of subsidy affects the consumers and producers

4.2.1 - Diagram

4.2.2 - Description of the diagram

**Main issue**

**7. Agriculture, water crisis and poverty**

**Extract 3: Madhya Pradesh farmer protests**

In June 2017, farmers in Madhya Pradesh, India, protested by demanding higher Minimum Support Prices (MSP), as well as a complete debt waiver. Farmers there had asked the central government to deliver on its promise of adjusting MSP to be cost of production plus 50 percent profit – a price that was declared impractical by the government in 2015.

After two years of drought resulting in successive crop failures farmers were finally relieved to receive abundant rainfall and a good harvest. Yet, they are still struggling to make a profit on their produce. Overproduction of food can push farmers into distress just as much as a failed harvest. A supply glut, such as the one presently faced by pulses, chili, potato, and onion cultivators in India, generally leads to a price crash, resulting in poor returns. But it is exactly for situations such as these that the MSP policy is in place in the country – to shield farmers from market volatility.

The MSP scheme forms part of India’s agricultural price policy. It is the price at which farmers’ produce in certain crops is bought by the government during the relevant seasons. When the market prices dip to a level that is below the MSP, the government agencies step up and buy over the produce in order to protect the farmers.

However, the states have either failed to procure most of the produce at MSP or are really slow in the process, forcing many farmers to sell far below the set price. There could also be exploitation by commission agents. They have been reported to have bought the farmers’ produce at much below the MSP.

*Sources: 14 June 2017, YourStory Research and 1 August 2018, Citizen Matters*

(e) Discuss the effectiveness of the minimum price support scheme (MPS) to improve the livelihood of farmers in India during a good harvest. [8]

**Market Failures**

1. Explain how different types of market failures occur in Singapore.

**Consider different forms of market failure in Singapore and evaluate their significance for the efficient working of the economy. [25]**

* **Value of the welfare loss (external cost and DWL)**

Introduction

* Definition of market failures – failures of the price mechanism to conduct efficient resource allocation, implying that there is maximization of net social benefit gain when there is no government intervention.
* State that the main causes of market failures can be seen in terms of the presence of positive and negative externalities, imperfect market information, absence of public goods or the condition of unequal distribution of income and wealth. These causes of market failures will lead to partial or complete loss of welfare. The loss of these welfare is of great economic significance to the country as it will undermine the efficiency of the working economy

Main Body

**1. Explain how various forms of market failures occur**

One of the causes of market failures is due to the absence of public goods which will lead to **complete of loss of welfare** when problem of free ridership arises. Private sectors are **unwilling to produce public good despite the need of a growing population as there is problem of free-ridership**, implying that the producers cannot charge the non-payee, thus reducing the profit incentive to produce the public good. Free-ridership occurs because public goods are **non-excludable and non-rival.** When consumption is non-excludable, non-payee cannot be denied the consumption, allowing the opportunity to for the non-payee to free-ride. As for non-rival, it implies that the consumption of the good by one consumer will not deny any consumer to consume the good, allowing sharing and thus, it facilitates free-ridership. This can be seen from the lack of **public facilities like drainage system which will lead to the rise of flooding incidents**. Consequently, free-ridership will occur and there is absence of the provision of public good and this is the source of market failure.

Besides, there will be **higher degree of negative externalities** created by overconsumption or overproduction. Traffic congestion in Singapore is frequent and it is one form of **negative externality which will lead to a rise in external cost seen in term of higher cost of travelling**. This will lead to overproduction or overconsumption as **the market equilibrium without the external cost will be below the social equilibrium where external cost is considered**. Consequently, the society will incur the **welfare loss, seen in terms of low productivity which will reduce investment and dampen economic growth**. (draw diagram / describe)

There is also the problem of **positive externality** which will occur when the industry is under-consuming merit good. Globalization promotes higher degree of competition in the global economy and there is a greater need for training and development for Singapore workers which will **provide positive externality like higher efficiency which will raise the competitiveness of the economy**. However, the society may ignore the need for training and there will be under-consumption and this will mean that the level of training in the society will be below the social optimal level. This is so as the consumption at market equilibrium **fails to consider the external benefit like higher productivity or lower cost of production** where the production is below social equilibrium level of consumption which will include the external benefit. Consequently, there will be **welfare loss as the society fails to reap the external benefit at higher production level due to under-consumption of training and development programmes. (draw diagram and describe)**

There is also a condition of **imperfect market condition** which will warrant more **market dominance** as more international firms invest or when there are more big firms due to mergers and acquisition in Singapore. These firms are well-known and have **greater control of the market demand as seen in Apple and Samsung which can set higher price or output to their advantage**. Consequently, the firm will under-produce at the level where market equilibrium which is based on profit maximization (MC=MR) is below the social equilibrium level (P=MC) and this will **give rise to welfare loss seen in terms of lower consumer or producer surplus.**

Lastly, **unequal distribution of income and wealth** will also occur from globalization which will contribute to market failures. Structural unemployment and global rising prices will raise the wealth of the rich while it lowers the purchasing power of the poor. This will lead to market failure as **the net social benefit gain will be unequally distributed among the population** and thus, the lower income group’s consumer welfare will be undermined, indicating that the society is experiencing welfare loss for some people.

**2. Explain why these market failures are of economic significance as seen in term of the adverse impacts they have on the economy**

1. The impact of the deadweight loss created by positive externalities

Significance:

The loss of welfare has significant repercussion on the economy **as seen in terms of lower productivity** which can affect the competitiveness of the economy.

The presence of positive externalities will incur government expenditure as there is a need for the government to **provide subsidies to induce consumption and production and to fund the provision of merit good** by the government to solve under-consumption or production. Therefore, this will be a significant impact as **it may cause budget strain and public debt.**

1. The impact of the deadweight loss created by negative externalities

* Welfare loss seen in terms of the effects of smoking on the society is costly and has long term impact on the society
* Can provide tax revenue to the government but it may invite more political protest which the government must take note.

1. The impact of the deadweight loss created by imperfect market condition

* Problems of consumer exploitation – decrease consumer surplus – unfair to the consumers – need to protect the interests of the consumers – safety of the goods
* However, the government cannot excessively curb the market dominance as some industries need to have market power to gain benefits for the society like economies of scale and product innovation through R & D.
* High administrative cost and complexity in regulation

1. The impact of complete loss of welfare due to absence of public goods

* The impact is significant as it affects the whole society
* It also has extensive impact on the standard of living of the society as public goods serve to make life more convenient and comfortable for the citizens
* There public facilities are important in raising the productivity of the economy

1. The impact of uneven distribution of welfare due to unequal distribution of income and wealth

* Will contribute to social dissatisfaction and this will lead social unrest and instability
* The measures introduced to solve this issue will affect the budget and public debt and the incentive for work and economic growth

**3. Assess the relative economic significance of these impacts – which form of adverse impacts would affect the economy extensively**

Given the consideration of the significance of the various forms of market failures that Singapore will experience, the concern over the provision of public good is of greater priority. As for the forms of market failures, the government will only consider its impact when there is severe impact on our economic growth and development.

The value of the welfare loss must be calculated and based on the monetized value which means that the complete loss of welfare due to the absence of public goods like firework will have a smaller value loss of welfare loss as compared to the deadweight loss of merit goods like education when underproduced.

Conclusion

**Explain how market failures occur due to presence of negative externality and imperfect market information.**

### In the consumption and production of cigarette which is considered a demerit good by the government as it gives rise to negative externality in the form of air pollution. This will contribute to the rise of external cost like medical expenditure to the third party. Consequently, we can observe that there will welfare loss (dead-weight loss), seen in terms of lower productivity leading to higher cost of production. This will undermine the industry from attaining maximization of net social benefit gain, indicating that market failures have occurred.

The market for cigarette can also occur due to lack of information about the ill effect of smoking. The excessive consumption due to lack of market information will lead to the rise of external cost which causes the problem of market failures. Consequently, there is presence of welfare loss which undermines the industry from gaining maximization of net social benefit gain as market failures has occurred.

Draw diagram

Description of diagram

Explain how market failures occur due to presence of positive externality and imperfect market information

Explain the causes of market failures in the university education

Explain the causes of market failures in the plastic industry.  
  
Discuss if subsidy is the best solution to solve market failures in the university education.

Discuss if government should directly provide primary education.

Discuss why a ban is suitable for certain demerit good but not on demerit good.