2021 Notes – Market Structures

**H2 Economics**

# 1. Definition and Characteristics of Perfect Competition

# 2. Definition and Characteristics of Monopoly

# 3. Definition and Characteristics of Oligopoly

# 4. Definition and Characteristics of Monopolistic Competition

# 5. Aims of Firms

# 6. Key factors in the classification of different market structures

# 7. Advantages and Disadvantages of Large Firms like Monopoly and Oligopoly

# 8. Main Graphs to consider

**H2 Economics – Market Structures**

**Market Structure**

Imperfect Market

* Imperfect market information
* Imperfect mobility of resources

Perfect Market

* Perfect market information (price/cost)
* Perfect mobility of resources
  + Occupational
  + Geographical

***Collusive***

* *Abide to price of the industry*

**Monopoly**

* One firm
* Unique product
* Strong barriers to entry

**Monopolistic Competition**

* Many small firms
* Differentiated product
* Weak barriers to entry

**Oligopoly**

* Few firms
* Homogenous/differentiated product
* Strong barriers to entry

**Perfect Market Structure**

* Many firms/users
* Homogeneous product
* No barriers to entry

**Non-Collusive**

* Price rigidity

1. **Definition and Characteristics of Perfect Competition**

In the perfect market structure, there is perfect market information, market price and cost of production and mobility of factors of production, in terms of occupation and geography. There are many, firms and the product is homogeneous. The firms are also price-takers as no firms can control the production level and thus cannot set the price level.

Under this market structure, the marginal and average revenue is horizontal and constant as output increases, which means that the demand curve (AR) is perfectly elastic implying that the firms in this market structure are price-takers, abiding to the price level set by the industry as there is prefect information about the price level while the marginal cost will rise as there is over-utilization of fixed capacity of production in short run. As a profit-maximizing firm, the production level of the firm is at the level where the marginal cost is equal to the marginal revenue. As the marginal revenue is perfectly elastic, the firm can attain production efficiency and allocative efficiency in the long run. Since the average cost can be at the lowest level and price is equal to MC. (SR/LR)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **P** | **Q** | **MR** | **TR** | **AR** |
| 3 | 1 | 3 | 3 | 3 |
| 3 | 2 | 3 | 6 | 3 |
| 3 | 3 | 3 | 9 | 3 |

**Profit-maximising rule**

* MR>MC → additional net profit
  + ↑Qty
* MR<MC → additional net loss
  + ↓Qty
* Production equilibrium
  + MR = MC

**Diagram for Perfect Market Condition (Normal/ Subnormal/ Supernormal in the short-run)**

MC

ATC

P0

Q0

0

Price

Qty

DD = AR =MR

S0

D0

Qty

Q0

P0

Price

D1

Firms

-Production Equilibrium🡪MC=MR

🞽Price is set by the industry if output is set by the firm base on profit-maximizing rule

Q1

P1

Industry

-Market Equilibrium🡪dd/ss

Q1

P1

D1=AR1=MR1

**Profit Level**

* At QM,
  + AR>AC → supernormal ∏
  + AR<AC → subnormal ∏
  + AR = AC → normal ∏
* Shutdown equilibrium, where AR = AVC

**The notion of Profit Maximization**

Firms in the perfect or imperfect market structure abide by the notion of profit maximization to set their price and output decisions. At the level where, marginal revenue (MR) is equal to marginal cost (MC). When MR > MC, the firms will experience additional net profit and thus, it is rational to increase production level. When MR < MC, the firms will experience additional net loss, and thus, the firm will reduce output. Thus, the production equilibrium based on a profit maximization will be at MR = MC.

**Allocative Efficiency**

Allocative efficiency refers to the condition where the industry can attain maximization of welfare seen in terms of the consumer and producer welfare. When the firm attains attain allocative efficiency, the production level is set at the level where price is equal marginal cost. When the price charged by the producer is equal to marginal cost, the consumer will not be charged excessively and his consumer surplus will be maximized, implying that the industry has maximized consumer welfare.

**Production Efficiency**

Production efficiency refers to the condition where the firm sets the output level at the minimum average cost and this will enable the firm to lower price and raise consumer welfare. In the short run, firms in the imperfect market structure will not produce at the excess capacity where the average cost is not minimum and thus, the society will not be able to attain lower price level. However, in the long run, all firms will attain production efficiency as they are able to attain the lowest average cost at the respective level of output.

**Capacity of Economies of Scale**

All firms will be able to reap internal and external economies of scale (EOS) and incur diseconomies of scale (DEOS) in the long run. However, the smaller firms in the perfect market structure and monopolistic competitive are unable to achieve economies of scale as they cannot expand their production. As for the larger firms in oligopolistic market structure and the monopoly, it is easy to experience EOS, but they are also easily subjected to DEOS too.

**Dynamic Efficiency** is attained when the firm embarks on research and development. The firm can raise efficiency of production to lower cost of production and improve the quality of goods and services to raise their competitive edge and enhance the welfare of the economy.

Types of firm in The Imperfect Market Structure

1. **Definition and Characteristics of Monopoly**

In the monopoly form of market structure, there is imperfect market information and immobility of factors of production. There is only one firm and the product is unique. The firm has strong market control as it can impose strong barriers to entry, either naturally or artificial. The firm in this industry is price-setter whereby the firm can set the price or the quantity level.

Under this market structure, the marginal revenue and average revenue is downward sloping from left to the right due to the market power and thus, allowing it to exercise as a price setter while the marginal cost will rise as there is over-utilization of fixed capacity of production. As a profit maximizing firm, it will produce at the level of output where the marginal revenue is equal to the marginal curve. However, the firm is unable to attain production efficiency and allocative efficiency since the market equilibrium level of production at MC = MR does not equal the production efficiency level where output level is at min AC or P = MC, as the firm is producing at excess capacity of production (SR).

As seen from the diagram, the marginal and average revenue is downward-sloping from left to right due to high degree of market power while the marginal cost is upward-sloping as there is over-utilization of resources. The production equilibrium is at Q­M where the firm (monopoly) abides to the profit-maximising rule, setting the quantity based on MC=MR. At this level of output at QM, the firm is making normal profit as AR=AC.

At Q0,

* MC = MR
* AR = AC → normal profit
* P ≠ MC → P > MC
* Output ≠ minimum AC
* No allocative or production efficiency

AR < AC1 → Subnormal profit

AR > AC2 → Supernormal profit

**Evaluation (focus)**

* Consumer exploitation → P>MC → DWL
  + ↓ consumer surplus
* The firm is making excessive profit
  + AR > AC → unequal distribution of income
* High degree of market power → allocative and production inefficiency
  + MR/AR – price-inelastic
    - P is higher, o/p is lower → higher value of DWL → high degree of allocative inefficiency

**Essay Question for Discussion –**

**How to apply the concept of Profit Maximization to determine the price and output level**

**Explain how, in economic theory, firms in imperfect markets would determine the price that would maximize profits. [10]**

Introduction (**requirements of the question / economic principles**

Imperfect market structures are market structures that have imperfect market information (price and cost of production) and immobility of factors of production (occupational and geographical). The firms under these forms of market structures possess certain degree of market power which will affect the production equilibrium that will determine the price level set by the firm. Regardless of the types of market structures, the firm will base on the notion of profit maximization to determine production equilibrium when the firms aim to maximize profit.

Main Body

**1. Explain the various types of market structures**

Under the imperfect market structures, it can be classified as monopolistic, oligopolistic or monopolistic competitive market where the industry may have one firm, few firms or many firms. For the monopoly, the produce of the firm is unique and there is high degree of market power while the product of the firm in the oligopoly is classified as homogeneous or differentiated and has strong market powers. However, the product of the firms in the monopolistic competitive market is classified as differentiated and there is small degree of market power.

**2. Explain how the firms in the imperfect market is affected by the market power of the firms**

Due to the influence of the market power, the firms in the imperfect market structure will have a downward-sloping MR and AR, indicating that the firm is capable of practicing price-setting whereby the firm can either decrease price to increase quantity demanded or increase price but face a lower level of quantity demanded. For the monopoly and oligopoly, the market power is derived from the barriers to entry while the market power for the monopolistic competition is based on product differentiation.

**3. Explain how the price level is determined by the production equilibrium based on profit maximization**

Based on this downward-sloping MR and AR, the firms in the imperfect market can set the price level when the production equilibrium is attained; abiding to the profit-maximising rule, Under this rule, the firm will increase production when the MR is greater than the MC since additional net profit can be earned and decrease production level when the MR is less than MC since additional net loss may be incurred. Thus, it will attain production equilibrium at the level of output where MR is equal to MC

**MR > MC – presence of additional net profit – increase production**

**MR < MC – presence of additional net loss – decrease production**

**MR = MC – production equilibrium**

AR=DD=P

Q0

Qty

MR

MC

Price

PC

P0

As seen from the diagram, it can be observed that the MR and AR are downward-sloping while the MC is upward-sloping as there is a higher rate of utilization of resource capacity. The production equilibrium is set at the quantity level of Q0 while the price level is set at P0 where MR = MC, abiding the rule of profit maximization when the firm determines price and output level.

**Different profit levels (optional)**

The firms in the imperfect market structures will make different levels of profit in the short-run and long run when it attains production equilibrium. In the short run, it can make subnormal profit, normal profit or supernormal profit. But in the long run, the firm can make only normal or supernormal profit as the firm will have to shut down when it incurs subnormal profit.

**Production and allocative efficiency**

It is imperative to note that the firm in the imperfect market structure will not be able to attain allocative efficiency as the price level is set at profit-maximising level does not equal to the marginal cost. It is not able to attain production efficiency in the short-run as the firm is producing at the excess capacity at the profit-maximising level of output though they are able to achieve production efficiency in the long run from the profit-maximizing level of production.

Conclusion

In sum, the profit-maximising rule will influence how the firm determines its price strategy in the imperfect market structure. The downward-sloping AR and MR condition will mean that the firms may not satisfy other aims of the firms when it set price level based on profit-maximising rule.

Until the price and output is set – what would you want to discuss further

Qn: Why the price is higher at the rural area and why it is lower at the urban city?

Variation of price-elasticity of MR and AR 🡪 degree of substitution 🡪 affected by number of firms 🡪 the price is higher when the MR and AR is price-inelastic and the price is lower when the MR and AR is price-inelastic

**Barriers to Entry (Reasons for the existence of monopoly)**

* Barriers to entry are restrictions imposed by the firms/monopoly to block entrance of new firms to prevent competition
* There are two types of barriers to entry, natural and artificial

**Types of barriers to entry**

* + Legal barriers - created by the presence of patent rights and intellectual property rights

* + Technical barriers (Economies of Scale) – the firm is able to gain advantage in the technological advancement to lower cost of production to a level where other firms cannot attain and thus, prevent the other firms from joining this industry
  + Ownership of or control over key factors of production – the monopoly can control certain essential resources which are critical in the production of the goods and thus, making it impossible for other firms to enter the industry.
* Existence of high transport costs and tariffs – it will raise the price of the goods sold by the foreign companies and thus, enabling the local firm to develop itself as the sole firm which can supply the good at the lower price level.
* E.g. Rare earth 🡪 Controlled by China industries🡪determines production capacity for micro-chips
  + Lower costs for an established firm – this is attained by economies of scale which will enable to lower the cost of production and thus, selling at a lower price to force out competition.
  + Product differentiation and brand loyalty – the product can be differentiated and make it most favoured by consumers and thus, cultivating the brand loyalty which will create market power for the firm.
  + Contrived barriers (Deliberate restrictive practices) – this is achieved when the firms or the firm in the industry creates certain professional requirement and condition of business which will allow the firm the exclusive control of the market

**Qn: Explain how barriers to entry influence price and output decisions.**

1) The features of barriers to entry

2) How barriers to entry affect MR/AR

3) How the firms determine price and output level

* Profit maximizing rule
* Diagram
* Description of diagram

**Qn: Why MR/AR become price-inelastic when there is high degree of barriers to entry?**

* Lower degree of substitutes

**Qn: Analyse how the introduction of intellectual property rights will affect the price and output decision of the firm in the imperfect market (production equilibrium). [15 marks]**

Introduction

* Definition
* Economic principles/requirement of question
  + Relate intellectual property rights to barriers to entry
  + State how this price and output decision is based on profit maximizing and the concept of the determinants of PED

Main Body

1) Why intellectual property rights will contribute to rise in market power in terms of setting barriers to entry

2) How the above will affect MR/AR and profit maximizing rule in affecting price and output decision of firms

* MR>MC
* MR<MC
* MR=MC
* How are these affected by the value of PED?

3) Draw diagram and description of diagram

4) Analysis

* Value of PED
* Steepness of slope → level of price

Conclusion

Use the concept of PED to explain the influence of barriers to entry → based on profit maximization in determining price and output of firms

**Price Discrimination: Definition & Characteristic**

* **3rd degree** price discrimination – The practice of charging different prices to different groups of customers for the exact same product
* **2nd degree** price discrimination – A producer sells different quantities of a specific product at two or more prices, for reasons not associated with cost differences.
* **1st degree** price discrimination – Price difference rest merely on different buyers’ valuation of the same product, they are discriminatory.
* Price discrimination, if successful, will increase the firm’s total profits.

**Conditions for Price Discrimination**

* Two or more prices being charged
* The good in all situation must be exactly the same good
* Price differences must not arise out of cost differences
* The seller must be able to control the supply of the good and thus prevent the resale of the good from one market to another
* Ability of the monopolist to separate markets:
  + Geographically
  + Type of demand
  + Time
  + Nature of product (Different value of PED)
* Basis of assessment for discussion on whether price-setting is an act of price-discrimination
  + Examples – Weekend/Weekdays
    - Cinema tickets
    - Cruise tickets
  + Other examples
    - Photocopying
    - Auction

**Diagram to show how price discrimination is conducted for 3rd degree price discrimination**

**Qn: Is this price behavior a form of price discrimination?**

**Qn: Is the price discrimination feasible?**

**CSQ Application**

* Definition of PD
* Requirement of QN
  + Condition of PD

**Advantages of Price Discrimination (Justification for price discrimination)**

* Price discrimination makes it possible to supply a good which otherwise could not have been produced. For example, the services of a surgeon
  + Allow the surgeon to charge high price to sustain the provision of services – ensure that the loss from the lower price market is covered by the high price market
* Price discrimination makes it possible for a greater number of consumers to benefit from the product/services.
* May be used to cultivate customer loyalty
  + Encourage greater consumption
* Can allow the firm to produce above a larger quantity so as to reap EOS
  + Lower AC – raise profitability

**Disadvantages of Price Discrimination**

* It may be a form of consumer exploitation
  + Some consumers will pay at a higher price and there is allocative inefficiency
* It may also increase the cost of production
  + Cost of separation of market
* Cost in engaging in the change of product imagery
  + Inform the consumers about the change

|  |  |
| --- | --- |
| **Types of Oligopoly** | |
| **Collusive Oligopoly** | **Non-Collusive Oligopoly** |
| * Abide to price set by market * Reasons * Reduce market unpredictability * ↑ Market power * Downward-sloping MR/AR * Underproduction * Allocative and production inefficiency | * Price rigidity * Reasons * Absence of advantage to ↑P/↓P * High degree of mutual interdependency * Kinked demand curve |

1. **Definition and Characteristics of Oligopoly**

In the oligopolistic form of market structure, there is imperfect market information and immobility of factors of production. There are a few firms and the product is differentiated or homogenous. The firms have strong market power as they can create barriers-to-entry but the firms are mutually interdependent. The firm in this industry is price-setter whereby the firm can set the price or the quantity level.

Under this collusive oligopolistic market structure, the marginal revenue and average revenue is downward sloping from left to the right as it can exercise as a price setter due to the market power while the marginal cost is rising due to over-utilization of fixed capacity of production in short run. As a profit maximizing firm, it will produce at the level of output where the marginal revenue is equal to the marginal cost. However, the firm is unable to attain production efficiency and allocative efficiency since the market equilibrium level of production at MC = MR does not equal the production efficiency level where output level is at min AC or P = MC. (production is at excess capacity)

The firms in the oligopolistic market structure compete differently based on the nature of competition. It may collude as a cartel whereby the firms establish a virtual monopoly by agreeing upon one common uniform price in the market. E.g. OPEC oil cartel.

**Conditions necessary for successful collusion (feasibility of cartel)**

* The fewer the number of sellers – easier to agree on terms
* The more identical their products i.e. standardized products – less controversy
* The more nearly identical their costs of production – easier to set price
* The more certain firms can be that their rivals will adhere to the agreed-upon tactic of avoiding price competition – efficient monitoring system

They may also compete under different price leadership whereby the firms in the industry tend to set their prices according to that charged by a firm called the price leader. The firms may operate under such situations:

1. **Dominant firm**: This is where firms (the followers) choose the same price as that set by the dominant (largest) firm in the industry, without the consultation of other firms. (E.g. iPod)
2. **Barometric price leader**: The firm makes price changes more quickly and successfully than its rivals in response to changing costs and demand conditions. The other firms watch it and emulate its decision. Barometric price leadership is indicated by a number of market characteristics, for example, occasional switching between firms in the role of price leader. (E.g. Computer chips/Hard disk)
3. **Low-cost price leader**: The firm with insignificant cost has an advantage over its rivals and set the price. (E.g. Seagate)

The firm may also engage in non-collusive market competition whereby there is NON-collusive conduct.

**Kinked-Demand Curve Model**

This model explains why once a price-output combination has been decided upon and the oligopolistic firms will not want to experiment with further price changes.

When the firm increases price, the rival firm will not increase price as the rival firm can gain as the customers will switch the consumption from the firm to the rival firm. This will lead to a large reduction in quantity demanded since the degree of substitution is large, contributing to the demand curve for this portion to be price-elastic. However, when the firm decreases the price, the rival firms will follow suit as they will lose out if the customers of the rival firms may switch the demand to the firm. This means a smaller degree of substitution which will lead to a less than proportional increase in quantity demanded, contributing to the demand curve for this portion to be price-inelastic. It also implies that there is price rigidity as the firm is unlikely to change price as there is little to gain from price changes unless there is large percentage change in cost condition. This reflects that there is high degree of mutual interdependency which contributes to the condition of price rigidity, thus the development of a kinked demand curve.

Oligopoly (Supernormal profit condition)

AC

MC

Price

Qty

D=AR

MR

QE

As seen from the diagram, the MR and AR is kinked with the portion being price-elastic when price ↑ and the portion being price-inelastic when price ↓. The MC is upward sloping when the MC rises, and thus production equilibrium is set at MC=MR, where profit maximization condition is attained.

* High degree of mutual interdependency🡪 creates the condition of price rigidity🡪 reactionary to competitors
  + the firm ↓P 🡪 competitors will follow suit🡪 low degree of substitution (competitors’ consumers will not switch to the current firm – **Ped –inelastic**
  + the firm ↑P 🡪 competitors will not increase price – high degree of substitution (consumers of the current firm will switch to buy from competitors) 🡪 **Ped-elastic**

⇨No advantage to be gained from changing price🡪price-rigidity🡪 therefore, will settle the price level where profit maximization is attained @ MC=MR

⇨Demand curve is kinked due to different value of PED at different portion of demand curve

**Qn: How production equilibrium → price and output decisions?**

1) Slope of MC

2) Slope of MR/AR

* Affected by the nature of market power → Types of market structure

3) Profit maximization rule

* MR>MC
* MR<MC
* MR=MC (equilibrium)

## **Definition and Characteristics of Monopolistic Competition**

In the monopolistic form of market structure, there is imperfect market information and immobility of factors of production. There are many firms and the product is highly differentiated. The firm also possesses slight market power as it can create its own market share through product differentiation but the control of the market is limited. The firm in this industry is price-setter whereby the firm can set the price or the quantity level but has a high degree of substitution, contributing to the presence of a price-elastic demand curve.

Under this market structure, the marginal revenue and average revenue is downward sloping from left to the right as it can exercise as a price setter due to the market power while the marginal cost rises due to over-utilization of fixed capacity of production in short run. As a profit maximizing firm, it will produce at the level of output where the marginal revenue is equal to the marginal curve. However, the firm is unable to attain production efficiency and allocative efficiency since the market equilibrium level of production at MC = MR does not equal the production efficiency level where output level is at min AC or P = MC.

As there are no barriers to entry and the impact of profit condition in short run, thefirm will make only normal profit in the long run. When the firms are making losses in the short-run, there will be firms which exit from the industry. This will contribute to the increase in market demand for the remaining firms and the demand curve will become more price-inelastic as there is lower degree of substitution until the cost and revenue condition adjust to the normal profit level. On the other hand, when the firms make supernormal profit, there will be the entrance of more firms as they are attracted by the profit level. This will contribute to the fall in the market demand for the firms and the demand curve will become more price-elastic as there is higher degree of substitution until the cost and revenue condition adjust to the normal profit level.

**How the firm will adjust to normal profit in the long run when they make super-normal profit in the short run**

* Firms make normal ∏ in the MC in LR
* Different profit condition in SR
* Ease of entry and exit – low barriers to entry
* SR – Supernormal ∏ condition

– Entrance of new firms

* ↓ in market demand for the firm in industry (D0 to D1)
* Demand becomes price-elastic because of high degree of substitute (D1 toD2)
* Adjust until firms make normal ∏ where production is at profit-maximising level, where MC=MR

MC

AC

P0

D1

D2

D0

Q0

D0 to D1 →↓Market demand

(more firms enter into the industry)

**Qn: Explain and evaluate the effects of a successful advertising campaign on the product equilibrium of the firm in the MC market in the SR and LR**

## **Why firms under market imperfect condition cannot attain allocative efficiency and production efficiency?**

The firms will not be able to attain allocative efficiency as the firms focuses on profit maximization which is at a production level where the marginal cost is equal to the marginal revenue and this is below the social efficiency level of production where the production level is where the price is equal to marginal cost. This is so as the downward sloping demand curve due to the market power of the firms will contribute to the difference of the production in the SR.

Similarly, the firms are unlikely to produce at the optimal capacity of production whereby the average cost of production is lowest as the firms are usually producing at the excess capacity of production.

All the firms in different market structures will attain production efficiency in LR as the LRAC is at the minimum level of production for that production level.

1. **Aims of the Firms**

The production equilibrium attained by the firm is based on the following notions:

* **Profit maximization** – Firms seek to attain the highest net profit and produces at the level of production where MC=MR
* **Revenue maximization** – Firms seek to attain the highest revenue to increase the cash-flow for the firm by producing the production level where MR=0
* **Growth maximization** – Firms seek to produce at the level of production where the production level is largest that the firm can sell and produce at least with normal profit. The main purpose is to increase the market share.
* **Cost Minimization** – Firms seek to produce at the minimum level of average cost and in doing so, the firm attains production efficiency where by the production is the optimal capacity.
* **Allocative and production efficiency** – Firms seek to produce at the level of production where P+MC as there will be no deadweight loss, implying maximization of welfare while production efficiency is at the level where production is at minimum AC.

1. **Key factors in the classification of different market structures**

**Perfect Competition**

* Many buyers and sellers
* Perfect market information
  + While buyers and sellers can have information about the price and output level transacted

**Monopoly**

* Complete market share
  + Supply only provided by one firm
* Higher degree of barriers to entry
* Practice of Price Discrimination
* Exclusive Property Rights

**Oligopoly**

* High Concentration Market Share
  + 50% of market share dominated by top few firms in the industry
* High degree of mutual interdependency
  + Price rigidity/reactionary behaviours in the market seen in terms of mergers
* High degree of barriers to entry
* Practice of Price Discrimination
* Economies of Scale
* Exclude patent rights

**Monopolistic Competition**

* Lack of significant market shares
  + Many small firms
* Imperfect market information
* Product differentiation
  + Advertising and branding activities

1. **Advantages and Disadvantages of Large Firms like Monopoly and Oligopoly (How it will affect the society?)**

**Disadvantages of a large firm to the society**

* Consumer exploitation – charge higher price and produce at lower output as the firm has market control and domination
* Incur increasing COP efficiency as the firm fails to gain production at production efficiency (Production = min AC)
* Fail to produce at allocative efficiency. As a result, the firm will incur deadweight loss leading to loss of consumer surplus and welfare
* Lack of competition will impede the organization from the pursuit of innovation, degrade the quality of product and reduce product variety and consequently, decrease consumer satisfaction
* Negative effects of price discrimination – higher price

**Advantages of a large firm to the society**

* May pass the cost saving to the consumer in the form of lower price
* Provide greater assurance of product quality as the firm have better machinery and technology
* Positive effects of price discrimination — able to produce goods that are not possible to produce under single pricing when the firm exert monopoly power and conduct price discrimination
* Greater stability for the economy as the company has the resources to withstand economic downturns and will not likely to fail, leading to massive unemployment.
* Ensure the supply of critical resource for the economy to ensure the smooth and efficient production and distribution of goods and services. This will lead to a higher level of economic growth and standard of living as seen in turn of the supply of infrastructural development.

**How the government regulate the monopoly?**

* **Legislation** – the use of law to prohibit the formation of monopoly as seen in Anti-trust law (US) and Competition Act (Singapore)
* **Nationalization** – the government take over the production of the goods and services as it will able to reap the advantages of large scale production and ensure the absence of exploitation by the monopoly.
* **Taxation** – the government can introduce lump-sum tax or variable tax to eradicate the supernormal profit on a unit basis or fixed portion basis.
* **Price Regulation** – the government can introduce marginal cost pricing or average cost pricing to ensure that the firm will produce at allocative efficient level or normal profit to reduce consumer exploitation and yet enabling the industry to attain large scale production.

**Reasons for merger of firms**

* Reap EOS
* Gain shares
  + Increase revenue and greater market exposure
* Increase market power
  + Achieve product innovation through R&D
  + Increase price competitiveness
  + Create barriers of entry
  + Overcome stiff and fierce competition

**Reasons for the government to regulate merger**

* The problems of retrenchment
* Consumer exploitation
* The degradation of the quality of product
* Effects of price discrimination
* Impact on the smaller firms - affecting the fairness of competition
* Impact on the stability of the economy

1. **Main Graphs to consider:**
2. 1. How price and output is determined by firms in prefect market structure
3. 2. How price and output is determined firms in imperfect market structure.
4. 3. How higher degree of market competition affects production equilibrium
5. 4. How lower degree of market competition affects production equilibrium
6. 5. How price and output is determined in the oligopolistic non-collusive (kinked demand)
7. 5. How lumpsum tax reduces profit and solve unequal distribution of income
8. 6. How specific tax imposition reduce market equilibrium

**Graph to show how the rise in degree of market competition will affect the firm’s price and output level (lower degree of BTEs)**

**Graph to show how the fall in degree of market competition will affect the firm’s price and output decision (higher degree of BTEs)**

**Graph to show how intellectual property rights will affect the price and output decision (higher degree of market competition)**

**Graph to show how increase in specific tax affects the price and output level**

**Graph to show how increase in lumpsum tax affect the price and output**

**Explain how the price of goods can be high in the rural area and in the city.**