

J2 June Intensive Revision

Essays – Market Failures

Essay Question 1

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

Essay Question 2

In Singapore, museums offer free entry to Singapore citizens and Permanent Residents. However, New York's Metropolitan Museum of Art charges a recommended entrance fee of US\$25. Assess the economic case for these two approaches. [15]

Essay Question 3

With policymakers around the world grappling with the forces of globalisation, Singapore as one of the most open economies, has been feeling the brunt, including the growing income disparity."

TodayOnline 2 Jul 2012

Explain, with examples, the main sources of market failure in Singapore in recent years and evaluate the effectiveness of government responses in correcting them. [25]

Essay Question 4

The pricing of water should be left to market forces. However, some governments choose to subsidise water while others place a tax on it. Comment. [25]

Essay Question 5

According to The World Bank, 18 of the 20 most polluted cities in the world are in China. A plan to lift Beijing's shroud of pollution ahead of the Olympic Games includes stopping half of Beijing's 3.3 million vehicles and shutting down chemical plants, power stations and foundries to cut emissions by 30%.

Adapted from <http://www.hyggingtonpost.com/2008/07/29/beijing>

(a) Using appropriate examples, explain and illustrate the terms 'externality' and 'public goods'. [10]

(b) Assess whether the measures stated above is the best way to curb pollution in China. [15]

Essay Question 1

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

- **how different forms of market failures occur**
- **identify the impact of the welfare loss – nature and type of market failures**
- **rank their impact – degree of significance**

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 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**.

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**.

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

- a. 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**.

- b. 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.
- c. 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
- d. 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
- e. 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.

degree of economic cost
immediacy of the impact
cost and benefit analysis

Conclusion

Essay Question 2

In Singapore, museums offer free entry to Singapore citizens and Permanent Residents. However, New York's Metropolitan Museum of Art charges a recommended entrance fee of US\$25.

Essay Question 4

The pricing of water should be left to market forces. However, some governments choose to subsidize water while others place a tax on it. Comment. [25]

Perspective Setting

- How price of water is determined by price mechanism?
- Why should price mechanism be left to market forces? (Advantages of PM)
- Why should price mechanism not be left to market forces? (disadvantages)
- Why government needs to intervene? (reasons for market failures)
- How does taxation work? What are its benefits?
- How subsidies solve the misallocation of water? What are its benefits?

Essay Structure

Introduction

- i) State that the pricing of the good whether it is based on market forces or to be regulated by the government, it will depend on the nature of the goods and the effectiveness of the market system and mechanism of government regulations
- ii) The form of regulation by the government in terms of taxation or benefits is debatable as both forms of intervention have to benefit under different circumstances
- iii) For water, the pricing of water is set in different ways for different economies, depending on the nature of the economy.

Main Body

1a) Explain the price is determined by price mechanism

When the price of water is set by market forces, its price will be set by market forces of demand and supply. When there is a major demand for water due to rise in population and more economic activities that require water, there will be an increase in price of water. Similarly, when there is a rise in cost of production, there will be a reduction in the supply of water, thus price of water rises. Therefore, the factors that affect the demand and supply of water will influence the price of water.

1b) Explain why the price of water needs to be determined by the market forces

It is a private good that private sectors can produce since there is profit incentive since water is rival and excludable in nature.

There will be optimization in usage as high price can be used as deterrence for wastage of water. As a scarce resource, there is a need for optimization in usage.

There is also a greater concern for cost efficiency as the private sector will strive to lower the cost of production of water and this will ensure that the market can attain the lowest price of water since the cost of production can be lowered.

1c) Explain why the price of water should not be left to the price mechanism (problem of market failure)

Possibility of the rise in negative externality that will affect the allocation of scarce resources like water → prevent contamination

Presence of market power as the production of water is usually done by a large firm, since there will be consumer exploitation since high degree of market power is attained by the large firm → conditions of underproduction – high fixed cost of investment, consumers may be overcharged

Problem of unequal distribution of income may lead to unequal distribution of scarce and essential resources like water, which will deprive the poor in certain economies that lack such resources

- Serious effect on social stability
- A form of market failure as not every individual is maximized and equal share of net social benefit gain

2) Explain why government intervention is needed in the pricing of water

To ensure the allocation of water is at allocative efficiency when price is equal to the marginal cost ($P=MC$)

→ *Why must the society set price equals to marginal cost?*

→ Net social benefit gain will be maximized due to absence of deadweight loss

To prevent unequal distribution of water which will undermine the allocation of water – it is imperative to note that water is an essential resource for survival

To ensure that the industry can reap the benefit of large scale production to attain minimum efficient scale of production as a natural monopoly

High initial fixed cost of infrastructure → government funding is needed to increase production to prevent underproduction

The need of state authority to regulate natural resources belonging to the state

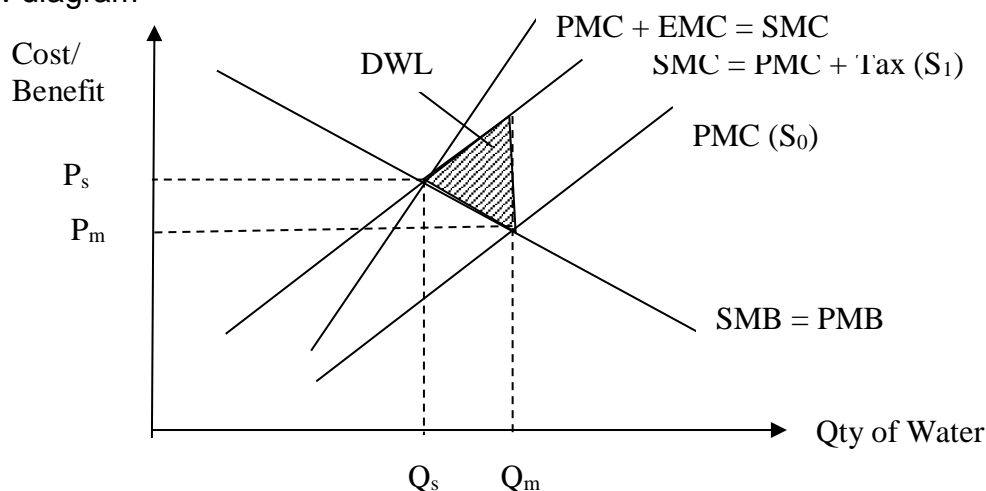
There is also the need for the state to ensure optimal allocation of resources, given that it is likely that there will be effects of externalities of overconsumption or underproduction that will lead to inefficient allocation of water

3a) Explain how the government uses the form of taxation to prevent overconsumption of water → the meaning of taxation

Economic causation, diagram and description of diagram

↑tax → ↑cost of goods sold / cost of production → ↓SS → ↑P → ↓Qty dd from Q_m to Q_s

Draw diagram



3b) Explain why taxation is effective

Internalise the external cost – prevent the rise of negative externalities

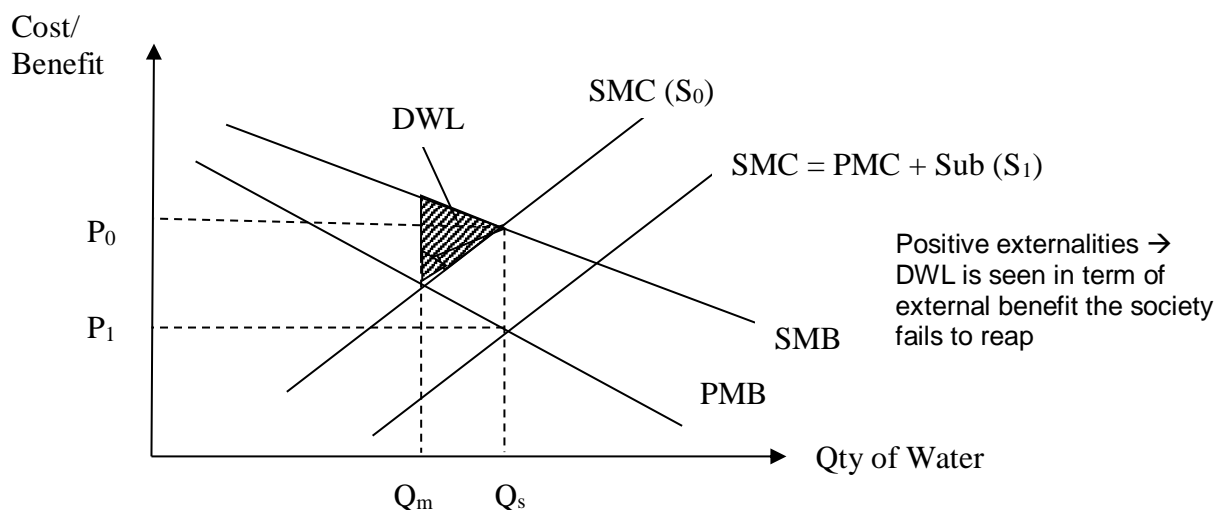
Act as a strong deterrence to reduce over-consumption

Provide the government revenue to ensure that there will be more funding for the infrastructure to support the distribution of water

4a) Explain how the government uses which form of subsidies to ensure production or provision of water is at social optimal level

Economic causation, diagram and description of diagram - Subsidies to producers

Subsidies to producer → ↓COP → ↑SS → ↓P → ↑Qty_{dd} from Q_m to Q_s (solve underproduction)



4b) Explain why the use of subsidies is effective

Ensure that the provision of water will be set at the optimal level as the private sector may under-produce due to the lack of funding

If the provision of given to producers, there is assurance that the consumers will be able to consume at the social optimal level to maximize the net social benefit gain at the social efficient level of production

Raise the quality of life and ensure that the welfare of the lower income group is taken care of

Evaluation

The weaknesses of the two policies: High cost of expenditure in term of subsidies & taxation is not a favourable policy

Alternative solution by the government → ensure that the provision will be set at $P = MC$ (Natural Monopoly – MES at large quantity) → the total fixed cost (TFC) can be covered by the government

Conclusion

Essay Question 5 – E-learning and Home work

According to the World Bank, 18 of the 20 most polluted cities in the world are in China. A plan to lift Beijing’s shroud of pollution ahead of the Olympic Games includes stopping half of Beijing’s 3.3 million vehicles and shutting down chemical plants, power stations and foundries to cut emissions by 30%.

Adapted from <http://www.hyggingtonpost.com/2008/07/29/beijing>

(a) Using appropriate examples, explain and illustrate the terms ‘externality’ and ‘public goods’. [10]

Introduction

Definition of externality and public good

Main body

1. Explain the characteristics of public good and how it is a form of market failures

Public goods are non-rival and non-excludable. Being non-rival, the consumption and production of the good will not deny another party from consuming, implying that there is zero marginal cost in the production and consumption of the good. As for non-excludable, it means that the non-payee will be able to consume the goods without paying for it. Due to these characteristics, it will create the problem of free-ride which means that the private producer will not produce the goods since it cannot charge the consumers. Consequently, there is the absence of public goods if there is no intervention by the government to correct this form of market failures whereby there is complete loss of net social benefit gain and this accounts for complete market failure.

2. Explain why national defence is a public good

National defence is an example of public good as it is non-excludable in production and consumption as the benefits of political stability and political and social stability will be enjoyed by every individual even if they have not paid for the service as there is no parameter to exclude non-payer since the benefit is for the whole community. It is also non-rival as there is no additional cost incurred when the benefit is extended to more citizens since the cost of production of the defence services will remain the same.

3. Explain the characteristics of externality and why it is a form of market failures

It refers to the third-party effects that the society will experience despite not engaging in the direct consumption and production. This effect of production or consumption of good or service on the welfare of the 3rd party is neither paid for nor compensated. For positive externalities, it is seen in term of the external benefit that the society will receive and it is not accounted by the consumers while negative externality is seen in term of the external cost the society will have to pay for.

With the presence of positive externalities will create positive benefit that lead to the divergence of the private marginal benefit and social marginal benefit. This will lead to the condition of under-production which will incur deadweight loss. As for the presence of negative externalities, it will create external cost that lead to the divergence of the private marginal cost and social marginal cost. This will lead to the condition of over-production and thus, causes deadweight loss.

4. Explain how the productivity gain from education services is form of positive externality while the problem of traffic congestion from road usage is a form of negative externality

In the consumption and production of education services, the positive externality is seen in term of the development of a productive labour force which will lower the cost of production, denoting the value of external benefit that the individuals will ignore in the consumption. When the education services are under-produced or consumed, there will be welfare loss to the society seen in term of the benefit the society fails to reap which is the failure to attain more investment and employment opportunities since the lack of productive workers to attract more investment.

In the consumption of and production of road usage, the negative externality is seen in term of the problem of traffic congestion which will increase the cost of travelling and thus raise the cost of production, denoting the value of external cost the individuals will ignore. When the quantity of road usage is over-consumed or produced, there will be welfare loss to the society seen in term of the additional cost the society will incur which will raise the cost of production and thus, the level of investment will fall and there is lower level of investment and employment opportunities.

Conclusion

The understanding of external and public goods are noted with the understanding of their characteristics of these terms. By understanding these characteristics, we can know how these goods will contribute to market failure

Essay Question 5 – E-learning and Homework

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(b) Assess whether the measures stated above is the best way to curb pollution in China. [15]

Introduction

State that there is a need for the government to curb pollution as it will create negative externality which will lead the rise of deadweight loss and thus, creating a condition of market failures that will undermine the society. Though the above measures may solve the problem of negative externalities, there are still drawbacks which may not make them the best policy.

Main body

1. Explain how the pollution will be a form of negative externalities that lead to market failures in above situation

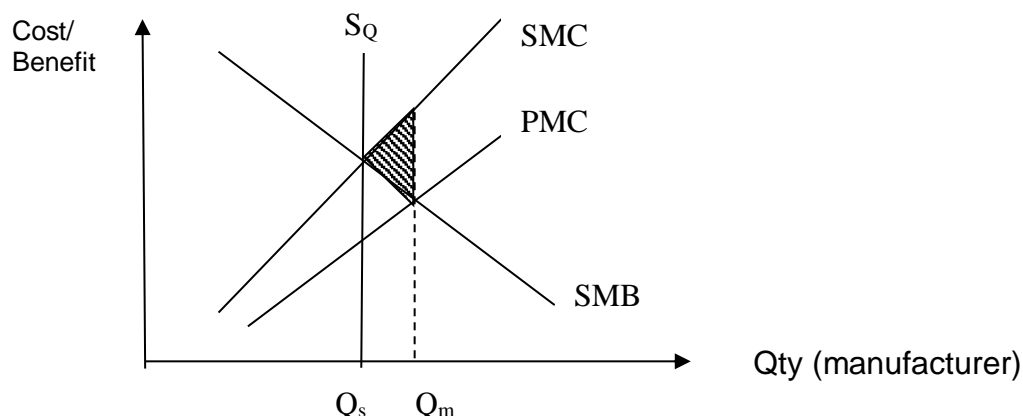
Pollution will raise the external cost of production and consumption and it will not be taken as part of the cost of consumption and production – seen in term of higher medical cost and lower of productivity – this will lead to a condition of over-production – DWL will be incurred – seen in term of the loss of investment, employment opportunities and national income when there is lesser investment due to the fall in labour productivity and the loss of international profile of China's prestige– market failures – as there is no maximization of net social gain

(Draw diagram and describe)

2. Explain how the policy works like a form of direct regulation in solving market failures

Direct regulation set the level of pollution with the fixing of the quantity of production – limit the amount of production to the socially optimal level – cut down the level of pollution to this desired level

(Draw a vertical line to show how the social optimal level is attained) → Fixed supply of pollution (S_Q) – a quota is set



As seen from the diagram, the production and consumption level will fall from the quantity Q_m to Q_s when there is a direct control of the output at Q_s set by the quota of pollution.

Evaluate why this policy is most effective

- Impact is immediate and forceful
- Enable China to ensure that the effect of cleaner air is achieved instantly to solve the problem to meet the needs of the Olympic Games
- Clear rules and regulation makes the administration easier

Evaluate the limitations of this policy

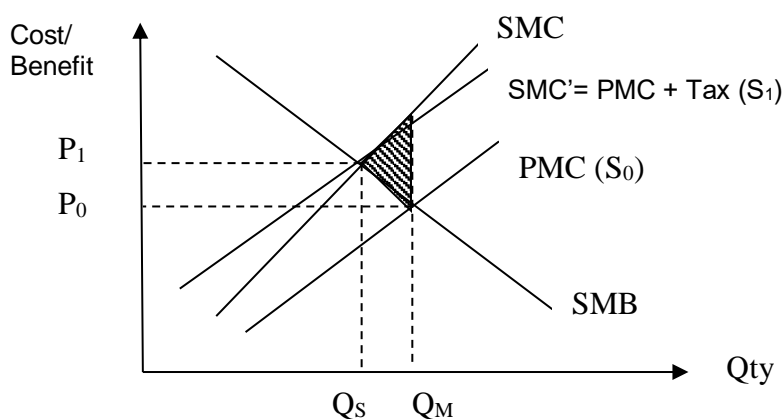
- High cost of administration in term of higher wage rate will lead to inefficient administration
- The effectiveness of the regulation greatly depends on the efficiency of the administrative bodies
- Excessive regulation may undermine the functioning of the economy
- Is banning effective? (depends on the value of DWL and Net Private Benefit Gain)
- DWL (Welfare loss from the Olympic Games) > Net private benefit gain of the producers of goods

3. Evaluate why other policies will be better than the use of regulation

(Other Policy #1: Taxation)

Taxation – impose taxation on production – increase the cost of production – decrease the supply – increase the price – reduce the quantity demanded from Q_M to Q_S

- It will adjust the production and consumption level for the industry to the social optimal level.
- It reduces the external cost due to lower quantity of production by forcing the consumers and producers to cut down production and consumption.
- It will also encourage the market to adopt consumption and production level with less externality as the firms have to take in part of the external cost as part of cost of consumption and production.
- Eventually, it will provide revenue for the government to improve the public project to minimize the effects of externalities.



Why is taxation not a suitable policy for the Olympic Games?

- Effect on taxation is not immediate
- PED-inelastic will undermine the effectiveness of the policy – reduction in quantity will not be at social optimal level

(Other policy #2: Public education)

Public education – used to change the mindset of the general public – to make them understand the importance of the need to curb pollution

- Can solve the root causes of the problem – more persuasive
- Help to ease the frictions and objections of the use of direct regulation
- Cultivate environmental consciousness for a permanent view about the issue

Conclusion