**Essay Question 10**

**Assess the view that the Singapore government should use taxes rather than any other economic policies when dealing with the market failure associated with negative externalities. [25]**

Introduction

-Definition of negative externalities

-State that there is a need to introduce policies to curb the effect of negative externalities so as to ensure social optimization of resource allocation which will allow the industry to maximise the net social benefit gain. In doing so, the government can either use taxation or subsidies to deal with the negative externalities. Whether tax imposition would be a more appropriate policy than the introduction of subsidies, it depends on the manner how these negative externalities would be curbed.

Main Body

**1) Explain how negative externalities would be created by the consumption and production of demerit goods**

-Economic causation how **over-production (road usage)** of demerit goods such as manufacturers of goods would occur/diagram/description of diagram

**2) Explain how taxation can be used to reduce over-consumption and production of demerit goods to social optimal level (illustrate with a graph)**

**3) Briefly explain how rules and regulations, public education and direct provision can be used to ensure that the negative externalities will be curbed**

**4) Evaluate the appropriateness in using taxation to solve market failures due to negative externalities**

-Benefits/Conditions for the use of taxation

* Tax revenue
* Allows market forces to operate 🡪 reduces administrative cost and time wastage

-Detriments/Conditions against the use of taxation

* ↑COP/↑COL
* PED-inelastic condition

**5) Evaluate the circumstances why other policies would be more appropriate and effective in curbing the negative externalities** 🡪 eradicate the root cause (public education), Rules and Regulations 🡪 direct control/enforcement

Conclusion

It is imperative that the government introduce policies to correct negative externalities to ensure that there is social efficient allocation of resources. However, the types of policies to be used would depend on the circumstances as different types of merit goods have different complexities in their production and consumption.

Introduction

Negative externalities are adverse effects imposed on third parties from the production or consumption of a good or service, which will cause market failure, where the price mechanism will fail to maximise net benefit gain. Due to these adverse effects, there is a need to introduce policies to curb the effect of negative externalities so as to ensure social optimization of resource allocation. In doing so, the government can either use taxation or other policies to deal with the negative externalities. Whether tax imposition would be a more appropriate policy than other solutions, it depends on the manner how these negative externalities would be curbed.

Main Body

**1) Explain how negative externalities would be created by the consumption and production of demerit goods, introducing overconsumption of road usage of demerit goods**

Economic causation how **over-production (road usage)** of demerit goods such as manufacturers of goods would occur/diagram/description of diagram

In the consumption of and production of road usage, the negative externality is seen in terms 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. As such, in the absence of government intervention, the overconsumption or production of road usage will result in the market equilibrium level of production is higher than the social equilibrium level of production, thus giving rise to social welfare loss, also known as deadweight loss. Such welfare loss is seen in terms of additional cost the society will incur which will raise the cost of production. Consequently, the level of investment will fall and there is lower level of investment and employment opportunities.

Qty of Road Usage

SMC

PMC

QS

QM

SMB

DWL

Cost/Benefit

P0

Diagram 1 – Market Failure due to over-consumption of road usage

As seen from the diagram, private marginal cost (PMC) refers to costs incurred by producers in their production of road usage, while the private marginal benefit (PMB) represents benefits of consumers is assumed to social marginal benefit. However, the presence of negative externalities will lead to the rise of external marginal cost which will lead to the pivotal rise of PMC to social marginal cost (SMC), implying that the social equilibrium of production of road usage is QS is lower than the market equilibrium of road usage at QM. Without government intervention, the economy will experience deadweight loss, as seen by the shaded area in the diagram.

**2) Explain how taxation can be used to reduce over-consumption and production of demerit goods to social optimal level (illustrate with a graph)**

One of the essential policies to reduce negative externalities is the use of taxation. In taxation, this will internalize the external cost as part of the cost of production by raising the price of the goods and thus reduce the market equilibrium to the socially efficient level. In the course, the deadweight loss is eradicated and social optimal level is achieved. One example of such a tax on road usage is Electronic Road Pricing (ERP), which is considered a charge of congestion to internalise the external cost as part of the cost of production of road usage.

P1

P0

PMC (S0)

Qty of Road Usage

Cost/Benefit

QS

QM

SMC

SMC’ = PMC + ERP (S1)

SMB

DWL

Diagram 2 – Taxation to correct market failure

As seen from the diagram, the imposition of taxation, such Electronic Road Pricing (ERP) as used in Singapore to reduce the quantity of road usage, will raise the PMC to SMC’ (PMC+tax) where the supply curve shift from S0 to S1, contributing to the increase in price of quantity from P0to P1 and thus lead to a decrease in quantity demanded from QM to QS. Consequently, the DWL (shaded area) incurred will be eradicated as the production level is at QS instead of QM.

**3) Evaluate the appropriateness in using taxation to solve market failures due to negative externalities**

In using taxation (ERP), it will help to conduct route and time allocation of road usage, whereby it will solve the problem of traffic congestion which is the result of too many cars using the same routes at the same time. Thus in doing so, it will reduce the external cost due to lower quantity of production by forcing the consumers to internalise the external costs. Furthermore, it will provide revenue for the government to improve the public project to minimize the effects of traffic congestion. Such market-based policies also allows market forces to operate which reduces administrative cost and time wastage.

However, taxation may not be a favourable policy to adopt as it is politically difficult in increasing the cost of living and cost of production. In the case of road usage, the demand for private vehicles is highly price inelastic, rendering it ineffective given that ERP constitutes a small proportion of income of the average consumer. As such, the imposition of ERP charge has to be sizeable, but this will worsen the cost of living and cost of production. The ERP charge system is also criticised for not being able to solve the root cause of traffic congestion as it only directs traffic congestion to other routes, given that there is poor and ineffective public transport system currently to provide consumers to switch to alternative modes of transport.

**4) Briefly explain how rules and regulations, public education and direct provision can be used to ensure that the negative externalities will be curbed**

Besides the use of taxation, an alternative policy would be to use rules to ban or control the amount of consumption such that negative externalities will not occur. This is seen by the use of bus lanes for road usage as seen in countries like Singapore, or to impose partial ban through allowing even and odd number plate vehicles on the roads on selected days as seen in China.

While such command and control approach may be forceful and direct to ensure the socially optimal level is attained as well as the easy administration, the high cost of administration in terms of higher wage rate will lead to budget strain and public debt. The effectiveness of the regulation therefore greatly depends on the efficiency of the administrative bodies. Moreover, excessive regulation may undermine the functioning of the market mechanism.

In addition, public education to change the mindset of the general public in understanding the importance of reducing road usage may be adopted. Such persuasive methods may solve the root causes of the problem while easing the frictions and objections from using direct regulations as well as tax imposition, as well as cultivating awareness to derive a more permanent view about the negative externalities such as road congestion. However, the high cost of promotional campaigns may not lead to effective outcomes when there is no proper planning towards the target audiences, thus wasting public funds and undermining the aims of the policies.

Finally, the government can also sell permits to users to ensure that the road usage is used by a reasonable size of car population. In this case of excessive road usage, the Singapore government uses certificate of entitlements (COE) to limit the number of private vehicles on the roads so that socially optimal level of road usage is attained.

Such an approach allows the price mechanism to continue operating but adjusting to the constraint, which is kept at the socially optimal level. However, the COE system have failed to internalise the external costs appropriately due to asymmetric information, whereby excessive rise in price of COEs increase cost of living and cost of production and unusually low prices will fail to optimise car population. As such, COEs will fail to play their role in their optimising of road usage.

COEs often encourages road usage given that road users will try to increasing their road usage in attempts to lower their average COE per ride, causing the market equilibrium to be above socially optimum.

**5) Evaluate the circumstances why other policies would be more appropriate and effective in curbing the negative externalities**

In comparison to other policies, taxation may provide the most administratively efficient and fastest way in reducing the negative externalities such as the overconsumption and production of road usage which still relies on the price mechanism to conduct optimisation.

However, in the event of negative externalities which the public needs to acknowledge and fully understand, the use of public education and campaigns may be more capable in eradicatingthe root cause. In occasions where the level of negative externalities are significantly large, the use of direct control and enforcement via total banning such as the sale of firearms may be necessary. It is imperative to note that the use of more direct regulations and non-market based solutions are preferred to taxation when the demand are price inelastic.

Conclusion

In sum, both taxation and other policies have their respective advantages and disadvantages. Thus, its adoption is dependent on the different types of demerit goods as different types of demerit goods incurs different forms of negative externalities with different complexities in their production and consumption.