2016 H1 Prelim Exam Essay Q3
Suggested Answer

Q3. The fashion industry is a large polluter. Pesticides used in cotton farming, the toxic dyes used in manufacturing and the great amount of waste discarded clothing creates causes tremendous carbon footprint.

(a) Explain why production of clothing leads to market failure. [10]
(b) Discuss the view that tradable permits represent the best option for governments to tackle the market failure. [15]

Suggested Answer:

(a) Explain why production of clothing leads to market failure. [10]

Introduction:

- **[Define market failure]** Market failure occurs whenever the price mechanism fails to allocate resources efficiently and equitably.
- **[Define efficiency]** Efficiency refers to economic efficiency which consists of both allocative and productive efficiency. Allocative efficiency is when the right amount of the right goods is produced. No one can be made better off without someone else being made worse off. Productive efficiency is when firms are producing using the least cost method.
- **[Set essay direction]** In this essay I will be analysing how negative externalities in production of clothing leads to over allocation of resources into the market.

Development:

Explain & elaborate how market failure can result from the existence of a negative externality

- **[Identify the type of externality]** The production of clothing leads to negative externalities.
- **[Give examples of private costs and benefits to the producer]** The private costs to the firms will include the cost of production which is made up of costs of the pesticides, dyes and other raw materials needed to produce clothing and rental of the space. The private benefit to the firm is the revenue earned from selling clothing.
- **[Explain the externalities]** However, there is the presence of negative externalities in production which are external costs that are incurred by third parties without compensation by the consumers and producers of clothing. Examples of these negative externalities could be dumping of industrial waste into the atmosphere & rivers which results in a deterioration of the environment. The pollution creates health hazards for nearby residents who may incur higher medical costs and there might be income foregone if they are unable to go to work. Fishermen may also earn lower income due to smaller catch. . These external costs are not compensated for by the producers or consumers of clothing.
- **[Divergence in cost curves]** The presence of the negative externalities in production results the Marginal Social Cost (MSC) being greater than Marginal Private Cost (MPC) (Fig 1).
- **[No externalities in consumption]** I have assumed that there is no divergence in the benefit curves as there may not be any externalities in consumption present. Thus, D=MPB=MSB (Fig 1).

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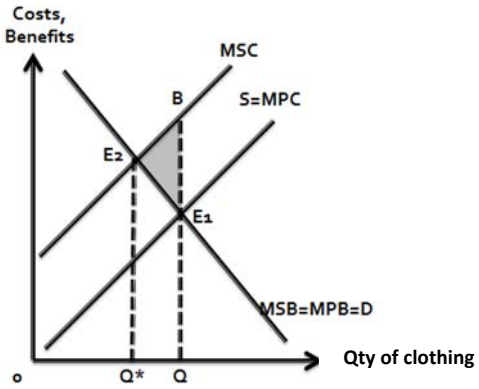

Fig 1

- **[Market equilibrium]** The market equilibrium occurs where demand equals supply (D=MPB = MPB=S), E1 with an output at Q. At this point, producer and consumer welfare is maximized.
- **[Social optimum equilibrium]** However, society's welfare is maximised at point E2, where MSB=MSC. Producing one more or one less unit than the socially optimal output at Q* will result in a fall in society's welfare. For example, if output is at Q which is more than Q*, the additional cost to society (QB) is greater than the additional benefit to society (E1Q). Society can do better by producing fewer units of clothing. The converse holds true.
- **[Allocation of resources]** There is thus an overproduction and overconsumption of clothing by Q*Q units. This means that there is an overallocation of resources in the clothing market and thus the right amount of the right good is not produced resulting in allocative inefficiency.
- **[Derivation of deadweight loss]** Total social cost of producing Q*Q units is area Q*E2BQ. Total social benefit is area Q*E2E1Q. This will result in a deadweight loss of E1E2B which means that society's welfare is not maximised.
- The market has not achieved allocative efficiency and has thus failed.

Conclusion:

- As stated in the signpost, the fashion industry a large polluter and also creates a tremendous carbon footprint. This suggests that the negative externalities created are very large, which would lead to a large divergence between MPC and MSC and therefore a large deadweight loss to society.
- When the market fails, the governments may need to intervene to provide a non-market mechanism to correct the allocation of resources.

Marking scheme:

Knowledge, Understanding, Application , Analysis		
L3	For an accurate and well-developed analysis of how production of clothing might lead to market failure.	7-10
L2	For an undeveloped analysis of how production of clothing might lead to market failure.	5-6
L1	For an answer which shows some knowledge of what externalities is but is largely unexplained or contains errors.	1-4

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(b) Discuss the view that tradable permits represent the best option for governments to tackle the market failure. [15]

Introduction:

- **[Link to (a)]** As seen in part (a) above, production of clothing leads to market failure and hence there is a need for the government to intervene through the use of policies to correct the problem.
- **[Define tradable permits]** Tradable permits are carbon permits issued by the government to limit the amount of pollution that firms can discharge.

Thesis: Tradable permits are a good option for governments to tackle the market failure due to production of clothing

1. Tradable permits:

[How tradable permits work]

- A government sets a limit on the amount of pollution which firms can discharge. This allow firms to produce up to a maximum quota, which is set by the government.
- The government will then stipulate the number of permits to be made available for trading in the permit markets. Ideally the number of permits should be aligned with the socially optimal level of pollution that will maximize society's welfare.
- Tradable permits aim to solve pollution by getting firms to internalize the external cost.

[How well it works - advantages]

- Tradable permits, which are market based solutions, are good because they operate through demand and supply forces and do not require excessive government monitoring. For example, pollution permits are allocated to those who are willing and able to pay for it and price of the permits is determined by the forces of demand and supply which ensures efficiency.
- It is cost efficient as it allows firms to choose the cheapest option to reduce pollution with clear market signals.

Anti – thesis: Tradable permits may not be a good option for governments to tackle the market failure due to production of clothing + Alternative policies that can be used

2. Disadvantages of using tradable permits

- Economists argue if there is a dominant firm, it may buy up all the available permits and refuse to sell them, leading to a barrier to entry for new firms.
- Developing countries, in particular, have expressed concern that using tradable permits on an international scale may reduce the pressure on the main polluters, notably the USA, to reduce pollution. It is the people in less developed countries who will continue to suffer the effects of pollution. Industrialised countries are likely to be able to afford to buy up other countries' rights to pollute while many of the worst effects of air pollution are experienced in developing countries.

3. There are other ways to correct market failure due to negative externalities:

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(i) Legislation:

[What it is]
- Legislations are rules and regulations for compliance.

[How it works]
- The government could set a law requiring all producers of clothing to install filters that cut down the carbon emissions. This installation of the equipment may increase the unit cost of production which may reduce production closer to the socially optimal level similar to Fig 2, reducing the deadweight loss. The government will have to enforce this through regular checks and firms who do not comply will be punished with heavy fines.

[How well it works]
- The strength of such a policy is that it is mandatory and all firms impacted will have to comply.
- The limitation of the policy is that it is a blunt instrument where it is not sensitive to individual firms' needs whereby both cloth producers that pollute a lot or a little are penalised similarly.

Alternative policy: Subsidising R&D on clean technology.

Synthesis and conclusion:

- Tradable permits and legislation are effective measures to tackle the market failure in the short run whereas R & D takes a longer time to take effect.
- Given that the extent of market failure is large (as stated the fashion industry a large polluter), it may be better to use legislation, a command-and-control measure, to tackle the severity of the problem in the short run rather than using market-based solutions like tradable permits. In the long run, R & D may be better to complement permits, legislation and taxes to resolve the problem in a holistic manner.

Marking scheme:

Knowledge, Understanding, Application , Analysis		
L3	For an analytical discussion of tradable permits and other alternative policies that can be used by a government to correct the market failure.	9-11
L2	For an undeveloped explanation of tradable permits and other policies or an explanation lacking scope.	6-8
L1	For an answer which shows some knowledge of policies.	1-5
Evaluation		
E2	For an evaluative discussion that considers the strength and limitations of the policy and is based on economic analysis.	3-4
E1	For an unexplained judgement, or one that is not supported by analysis.	1-2