

ECON 204

(the real) Quiz 7: Externalities and Public Goods.

Kevin Hasker

1. (2 Points) Please read and sign the following statement:

I promise that my answers to this test are based on my own work without reference to any notes, books, calculators or other electronic devices. I further promise to neither help other students nor accept help from them.

Name and Surname: _____

Student ID: _____

Signature: _____

2. (10 points) About controlling externalities.

- (a) (3 points) Define a *quota* and then explain when and why it might be worse than a tariff.

Solution 1 A quota is a straightforward limit on the amount of pollution one can produce, also called an emission standard.

If we have heterogeneous firms, then requiring each of them to produce no more than \bar{q} units of pollution can result in them having radically different marginal costs of limiting their pollution. This is not productive efficient, and also not Pareto efficient.

- (b) (3 points) Define a *tariff* and then explain when and why it might be worse than a quota.

Solution 2 a tariff or pigouvian tax is a fee per unit of pollution that is produced.

If there are many homogenous firms then any error in the tariff can result in everyone over or underproducing pollution, resulting in a large error on a market wide level. In contrast since the quota is set at market level there will be no magnification of the problem when there are many firms.

- (c) (4 points) Define *transferable emission points*, explain how it can potentially be better than a tariff or a quota and what problems makes it use not widespread.

Solution 3 Transferrable emission points are like lunch tickets, you buy or are given the right to produce a unit (of some size) for each point. Unlike lunch tickets, you are allowed to sell or buy these if you do not need them or need more.

The government only has to set the quantity of emission points at a market level—making it much easier to determine. Because polluters can buy and sell these in something like a stock market, the price in

that market will guarantee that all firms have the same marginal cost of not polluting. Thus it is always superior to either of the above methods.

The downside is that if anything monitoring of polluters has to increase. Now the regulators have to keep track of how much pollution is being produced and how many points a company has. While it has been successfully applied to sulfur dioxide in the US, it is not clear if this success can generalize. The primary polluters in that case were all large electricity producers, so they were already being extensively monitored and the additional administrative cost of this program was not significant.

3. (8 points) About the classification of goods.

- (a) (2 points) What difference is there between an *excludable* good and a *non-excludable* good? Is this a characteristic of the producer or the consumer?

Solution 4 An *excludable* good is one that the producer can control who consumes the good. For a *non-excludable* good (like car exhaust) the producer (the driver) can not control who consumes it.

- (b) (2 points) What difference is there between a *rival* good and a *non-rival* good? Is this a characteristic of the producer or the consumer?

Solution 5 A *rival* good is one where if one person consumes it another one can not, it is a consumption characteristic. A *non-rival* good (like National defense) is one that everyone consumes the same units of.

- (c) (4 points) What is a common property resource? Is it excludable or not? Rival or not? Give a couple of examples and explain the basic welfare problem with this class of goods.

Solution 6 A common property resource is rival but not excludable. Goods of this sort are unfenced pasture land or fisheries like the Black Sea.

The exclusive problem with these sorts of goods is that if not properly regulated their can be too much entry, too many people fishing in the Black sea or too many cattle grazing the same patch of ground. This can cause these resources to loose their value.