

Fall 07
F. Gahvari

PUBLIC ECONOMICS Name _____
(Econ 411)
Midterm

Instructions: This exam has three parts. Part I consists of four questions (for ? points) which you should answer in the spaces provided. You will get credit only for the answers which have been justified. Part II consists of 30 multiple choice question (for ? points). Part III is an extra credit question (for ? points). **Write legibly.**

Part I.

1. (i): State and explain the main two characteristics of public goods and give an example that applies to that characteristic.

Characteristic 1:

Characteristic 2:

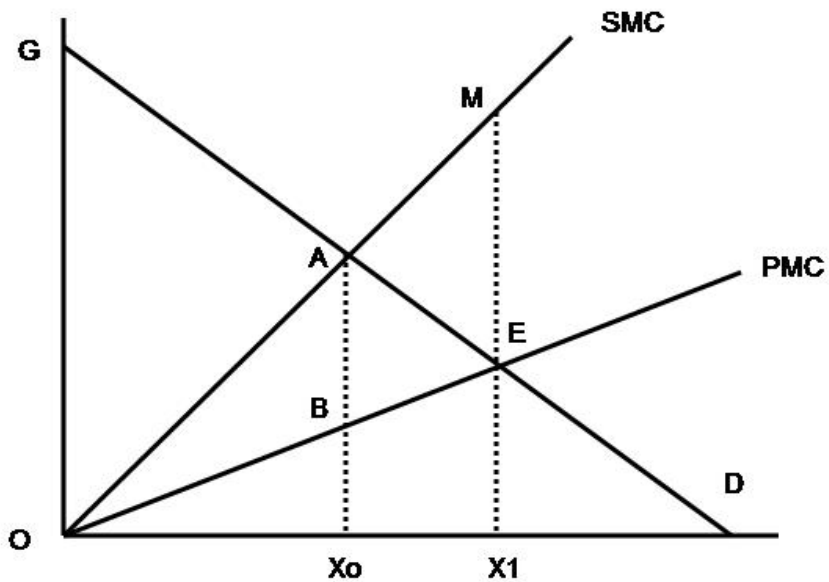
(ii): What is the efficiency condition for providing a public good efficiently?

(iii): At what price the public good should be sold and why?

2. (i): Briefly explain what an externality is and what its significance is for the working of markets.

(ii): What is a "pecuniary externality"?

(iii): Consider the following diagram



(a) Indicate the market output:

(b) Indicate the efficient output:

(c) Indicate the welfare loss associated with the market output:

(d) Indicate the total damage imposed on others at X_0 :

(e) Indicate the welfare loss associated with zero output:

(f) Indicate the per unit tax that can achieve efficiency:

3. Assume that for planting flowers in people's gardens in some isolated place the demand curve is given by: $P = 45 - 2Q$, where Q denotes the number of flowers planted, and P is the consumer price. The supply curve for flowers (which is competitively produced) is given by: $P = Q$.

Having flowers in one's garden also benefits the neighbors. Assume the marginal benefit (MB) to neighbors is constant and given by: $MB = 3$

There are no Coasian bargains.

(i): Draw the graph and label the private demand curve, social demand curve, supply curve, market output and socially optimal output.

(ii): Calculate what the efficient output is:

(iii): Calculate what the market output is:

(iv): What happens to the externality in the Coasian situation? What is the output?

4. (i): State what Lindahl pricing is and briefly explain why it fails.

(ii): Majority voting is a means of aggregating individual preferences in order to determine a policy option. Please state and briefly explain the three goals a successful aggregation mechanism must satisfy.

Goal 1:

Goal 2:

Goal 3:

(iii): Please state Arrow's Impossibility Theorem and explain the most common solution to Arrow's Impossibility Theorem.

(iv): Does majority voting work in the following scenario? If majority voting does not work, briefly explain why not.

Rankings of Voter	Policy A	Policy B	Policy C
A	High	Low	Medium
B	Medium	High	Low
C	Low	Medium	High

(v): Please state the Median Voter Theorem. List and explain the two main assumptions behind the Median Voter Theorem.

Assumption 1:

Assumption 2:

Extra credit question: Assume that the only cost of moving from point A to point B is the traveling time. Further assume that each minute is worth one dollar to everybody. In moving from A to B, people can either use a particular highway or take another route. If they do not take the highway, it will take them 19 minutes to go from point A to point B. The time taken for the same trip using the highway is given by t according to the table below:

Number of Vehicles on the Road	t (minutes)
1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

(i) If this is a public road (no charge), then what is the number of vehicles you would expect to see on the road? Show your calculations.

(ii) Find the socially optimal number of vehicles which should be using the highway at any moment in time. Show your calculations.

(iii) If your answers in parts (i) and (ii) differ, how can the social optimum be achieved?