MASTER 1

PUBLIC ECONOMICS
(durée 2h00)

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Monday 6th may 2013 ~ 10h00 – 11h30

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Instructions

- Please use the answer sheets that are provided.

- For each question there is one and only one correct answer.

- All questions are worth 1 point except those marked with a " * " which are worth 2 points.

Questions

1. In an exchange economy, efficiency requires that, in equilibrium, for any two goods

    (a) all consumers have the same marginal rate of substitution.
    (b) consumption be allocated as represented in either the upper left or the lower right corner of en Edgeworth box.
    (c) their values are equal.
    (d) all consumers have the same consumption level.

2. The welfare loss from monopoly can bee seen from the difference in equilibrium between

    (a) marginal revenue and marginal benefit.
    (b) marginal revenue and marginal cost.
    (c) marginal cost and marginal benefit.
    (d) supply and demand.

3. Increasing returns to scale cause market failure because,

    (a) one firm makes infinite profits.
    (b) at the competitive equilibrium, price exceeds marginal costs.
    (c) there is a tendency for such markets to become monopolized.
    (d) marginal rates of transformation tend toward zero.

4. Public expenditures in the United States are roughly

(a) 10% of GDP.

(b) one-quarter of GDP.

(c) one third of GDP.

(d) one half of GDP.

5. Public expenditures in France are roughly

(a) 10% of GDP.

(b) one-quarter of GDP.

(c) one third of GDP.

(d) one half of GDP.

6. Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$, where G is their expenditures on public goods they share in their apparmtent and where X_L and X_M are their respective consumption expenditures. The total amount they have to spend on private goods and public goods is 33000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 9000. How much do they spend on public goods?

(a) 8000

(b) 16000

(c) 8550

(d) 4000

(e) There is not enough information to be able to determine the answer.

7. * Nadia Comeneci and Mr. X. have preferences defined over pizza, p, and trampolines, t. They have identical utility functions, $U(p, t) = p + 2000t^{1/2}$. Each pizza costs 1€ and each trampoline cost 1000€. Nadia and Mr. X. like to share and indeed, trampolines are a public good for them. Pizza, however, is a private good. We don't know their exact income, but we do know that each of them earns at least 10000€. Which of the following is true

(a) The Pareto efficient number of trampolines for them is 4.

(b) The Pareto efficient number of trampolines for them is 1.

(c) The Pareto efficient number of trampolines cannot be determined without knowing how the cost will be shared.

(d) Since their prefereneces are homothetic, their income elasticity of demand for pizza is -1.

8. Which of the following is the best example of a public good as defined in your text?

(a) cable television

(b) day care

(c) radio broadcast

(d) medical care

(e) Disneyland

9. *Take an allocation with two consumers, one private good (x, the numeraire), and one public good (G). Let each consumer have an income of 100. The public good is produced from the private good according to a linear technology with a per unit cost of 1. Let the consumers have the utility functions

$$U^A = \left[2\ln x^A + 4\ln G\right]^2, \qquad\qquad U^B = 3\ln x^B + 6\ln G.$$

Assume that the public good is privately provided, so $G = g^A + g^B$ (where $g^i \geq 0$ is the contribution of individual $i = A, B$. The (Nash equilibrium) level of private provision of the public good (level of G) is given by

(a) 100

(b) 1

(c) 50

(d) 200/3

(e) 1/4

10. For the economy defined in the previous question, the Pareto efficient level of public good given by

(a) 100

(b) 1

(c) 50

(d) 400/3

(e) 1/2

11. The voting (or Condorcet) paradox refers to

(a) the power of the median voter who may be poor.

(b) the lack of incentives for people to vote.

(c) the power of ill-informed voters to achieve efficient outcomes.

(d) inconsistent choice making through majority voting.

12. An optimal corrective tax on the output from an externality producing activity will

(a) eliminate the externality.

(b) alter private marginal costs to equal social marginal costs, at least at one output level.

(c) increase the output of the good and reduce the output of the "bad" (the externality).

(d) be negative for negative externalities and positive for positive externalities.

13. Figure 1 illustrates preferences of individuals 1 to 5 over a single issue. Which of the preferences are single peaked?

(a) Individual 1's, individual 2's, individual 3's.

(b) Individual 1's, individual 3's, individual 5's.

(c) Individual 3's, individual 4's, individual 5's.
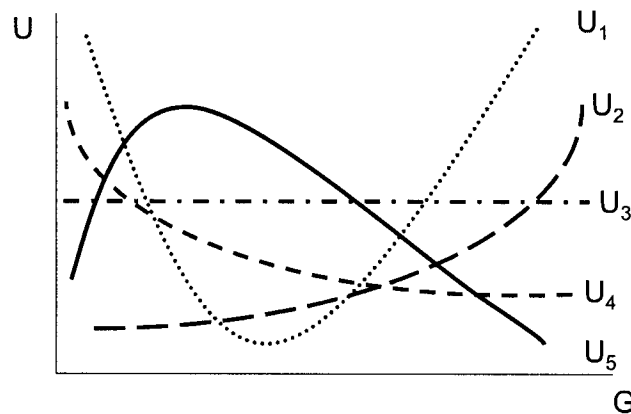
(d) Individual 2's, individual 4's, individual 5's.

Figure 1

14. * Let G be the number of hours of television broadcast each day. Consider three individuals of type A, two individuals of type B, and two individuals of type C with preferences:

$$U^A = \frac{G}{4}, U^B = 2 - G^{3/4}, U^C = G - \frac{G^2}{2}.$$

If G can take any value $0 \le G \le 2$, what is the majority voting outcome?

(a) 0.

(b) 1.

(c) 1.5.

(d) 2.

15. * Consider the market inverse demand $p^d(q) = 20 - 2q$ and the market inverse supply: $p^s(q) = 2q = MC^{pr}(q)$, where $MC^{pr}(q)$ is the private marginal cost. The total cost of externality is: $CE(q) = 2q^2/2$. The optimal solution implies

(a) $q^* = 20/3$ and a per unit tax $t^* = 20/3$.

(b) $q^* = 10/3$ and a per unit tax $t^* = 10/3$.

(c) $q^* = 5$ and a per unit tax $t^* = 0$.

(d) $q^* = 5$ and a per unit tax $t^* = 5$.

16. A compensated demand curve

(a) equals consumer surplus.

(b) is a demand curve without income effects.

(c) is a demand curve without substitution effects.

(d) is a demand curve derived by allowing the prices of complementary projects to vary with the size of the project under consideration.

17. Consider the project of a subway train line connecting Toulouse and the airport Toulouse Blagnac. Suppose we agree that taxi drivers should be compensated. Then, they should be given

(a) the compensation variation because they would be as well-off as before the project.

(b) the equivalent variation because that would be what the taxi drivers would be willing to pay to avoid the project.

(c) the variation of the consumer surplus because with decreasing marginal utility of income this measure is higher than the compensation variation or the equivalent variation.

(d) it is indiferent because the three measures coincide with decreasing marginal utility of income.

18. The project of a new highway connecting two important Portuguese cities has numerous benefits:

(a) In such a crisis context it would provide jobs to many unemployed.

(b) New openings of restaurants and fuel stations although as many would close along the old national road.

(c) Reduction of deaths on traffic accidents.

(d) All of the above.

19. Consider Figure 2 which plots the possible distribution of income among two individuals in two different situations. One without the project and the other with the project. Initially, without the project, the economy is at y.

(a) Allocation x constitutes a potentially Pareto improvement.

(b) Allocation z constitutes a potentially Pareto improvement.

(c) Allocation w constitutes a potentially Pareto improvement.
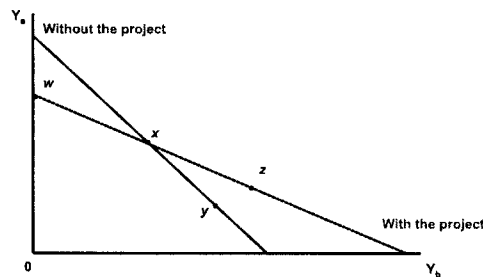
(d) All of the above.

Figure 2

20. Given an income distribution $\{M_1, ..., M_H\}$, let the poverty line be fixed at z. The number of households in poverty is q where $M_q \leq z$ but $M_{q+1} > z$. The head count ratio is defined as $E = \frac{q}{H}$. According to this measure, which of the statements below is true:

(a) A transfer from the poorest towards the richest may decrease poverty.

(b) The head count ratio is sensitive to the poverty gap.

(c) The head count ratio is insensitive to the number in poverty.

(d) None of the above.

21. There are two senior advisors to the government, A and B, who both agree that the poverty line is at 4,000EUR for a single person. However they have different equivalence scales. Mr. A believes that the scale factor in determining equivalent income should be 0.5 for each additional family member. Mrs. B suggests that the scale factor should be 0.75. Suppose the government is committed to provide welfare eligibility to every family below the poverty line. If this government wishes to keep total spending to a minimum, which of the two views should it support?

(a) Mr. B's view because Mrs. A's does not consider any economies of scale.

(b) Mr. B's view because the income gap is lower for all family sizes.

(c) Mr. A's view because its poverty line is lower for all family sizes.

(d) a) and b).

22. The precept that people who are equals in all relevant ways should be taxed equally is known as

(a) nondistortionary taxation.

(b) horizontal equity.

(c) specific equalitarianism.

(d) Rawlsian justice.

23. Which of the following is a lump sum tax?

(a) A sales tax

(b) A payroll tax

(c) A head tax

(d) An income tax

24. A tax system is called progressive if

(a) tax liabilities increase with income.

(b) marginal tax rates increase with income.

(c) after-tax incomes are less unequal than before-tax incomes.

(d) average tax rates increase with income.

25. If a tax is levied on the output of a competitive firm, the firm acts as though

(a) its marginal cost has increased at all output levels by the amount of the tax.

(b) the price of its output has risen by the amount of the tax.

(c) the government is encouraging more production of the good.

(d) consumers must pay a higher price equal to the old market price plus the tax.

26. General equilibrium analysis is especially important when taxes in a particular market are levied

(a) on perfectly inelastically supplied inputs.

(b) on perfectly inelastically demanded outputs.

(c) on elastically supplied inputs.

(d) at all; partial and general equilibrium analyses always give different answers.

27. * Consider the inverse demand function given by $p = 100 - 2q$, where q is the quantity of goods, and the inverse supply function given by $p = 1 + q$. The government imposes a unit tax of 10 on producers.

   (a) The tax burden is fully borne by producers.

   (b) Consumers' surplus is reduced.

   (c) Producers' surplus is increased.

   (d) All of the above.

28. Consider a competitive market for diapers where the demand is completely inelastic and the supply is upward sloping .

   (a) Imposing a unit tax on consumers or suppliers has, in this specific example, different consequences in terms of who bears the burden of the tax.

   (b) Imposing a unit tax on consumers does not change the quantity traded nor the equilibrium price.

   (c) Imposing a unit tax on consumers changes the quantity traded.

   (d) Imposing a unit tax on producers implies that the full burden of the tax is levied on consumers.

29. A lump-sum tax causes

   (a) income and substitution effects that reinforce each other.

   (b) income and substitution effects that offset each other.

   (c) no income effect.

   (d) no substitution effect.

30. Which of the following is not true of a compensated demand curve?

   (a) It can be used to derive consumer's deadweight losses due to commodity taxation.

   (b) It is derived holding the prices of other goods fixed.

   (c) An individual has the same level of income at all points along the curve.

   (d) An individual has the same level of utility at all points along the curve.

31. Consider two goods and contrast the effects of a lump-sum tax on consumers and of a consumption tax that leave the consumer as well off.

   (a) The revenue raised by a lump-sum tax is always higher than the revenue raised by a consumption tax.

   (b) The revenue raised by a lump-sum tax is the same as the revenue raised by a consumption tax if the goods are substitutes.

(c) The revenue raised by a lump-sum tax is the same as the revenue raised by a consumption tax if the goods are perfect complements.

(d) The revenue raised by a lump-sum tax is always lower than the revenue raised by a consumption tax.

32. A tax on intermediate goods

(a) is the optimal tax since consumers do not pay it.

(b) is distortionary because it upsets product mix efficiency.

(c) is not optimal because it is regressive.

(d) meets the Ramsey rule for optimal taxation.

33. When supply curves are perfectly elastic, Ramsey rules dictate that commodity tax rates should be proportional to the

(a) sum of the price elasticity and the income elasticity of demand.

(b) sum of the inverses of the price elasticity and income elasticity of demand.

(c) price elasticity of demand.

(d) inverse of the price elasticity of demand.

34. * Consider the utility function $U = \alpha log(x_1) + \beta log(x_2) - l$ and budget constraint $wl = x_1 + x_2$. Letting $w = 100$ and $\alpha + \beta = 1$, calculate the tax rates required to achieve revenue of $R = 10$.

(a) $t_1 = 1/9$, $t_2 = 1/9$.

(b) $t_1 = 2/9$, $t_2 = 2/9$.

(c) $t_1 = 1/9$, $t_2 = 2/9$.

(d) $t_1 = 2/9$, $t_2 = 1/9$.

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Public Economics

Economie Publique

QCM

Multiple choice, 6 May 2013

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