Università di Roma "Tor Vergata"
European Public Choice & Public Economics

31st May, 2018

Rules for the examination.

1. Leave all bags, books, notebooks, pads and telephones at the side of the room. ANYONE FOUND WITH EXTRANEOUS WRITTEN MATERIAL OR A TELEPHONE DURING THE EXAM WILL BE AUTOMATICALLY FAILED. THERE IS NO APPEAL TO THIS RULE. The exception is an English dictionary, which non-native English speakers can keep at their desk.

2. Do not turn your sheet until the teacher in charge has given you permission.

3. If you need more scratch paper, raise your hand and follow rule 4 below.

4. You may NOT leave your seat without the teacher's permission. if you need to ask a question, raise your arm, and wait for the teacher to approach you. Then ask the question quietly. Follow the same procedure if you have finished the exam and wish to leave the room.

5. Write clearly your name, surname, student ID, programme on the first sheet. WRITE YOUR NAME AND STUDENT ID ON EVERY SHEET. At the end of the exam, turn your exam sheet on your desk in such a way that it cannot be seen by any of your colleagues, and after you have obtained the permission to leave the room, LEAVE your exam paper at YOUR DESK, collect your stuff at the side and leave in silence.

6. Time allowed THREE HOURS.

7. The exam has six questions: answer every question. Plan your work so as to leave enough time to answer each satisfactorily. To pass the exam it is necessary to obtain a mark of 18 in at least four questions. The mark for the written exam is given by the average mark of the four questions.

8. When answering, please USE THE EXAM SHEET ONLY (whatever is written in the scratch paper will not be graded).

9. Support your answers with graphs where this is helpful or requested. Answers with a simple number/word but without explanation (especially when explicitly asked to comment) or the appropriate algebraic passages, will receive fewer points. For true/false/uncertain questions, if the statement is true or false, explain why. If the statement is uncertain, give conditions under which it is true and those under which it is false

Name and student ID:

Question 1.

a) Assume a society made of 5 individuals (labelled from A to E), whose preferences over a unidimensional policy (with values from a to c) are as follows:

	A	B	C	D	E
a	1	3	1	2	3
b	2	1	2	3	1
c	3	2	3	1	2

where the elements of the matrix represent utility values (from a min of 1 to a max of 3). Which is the Condorcet winner in a pairwise comparison? Explain **(20 points)**

b) Suppose now that the unidimensional policy has an additional value d. Assign the utility values (from a min of 1 to a max of 4) for this policy such that there is a Condorcet winner. Explain **(14 points)**

Question 2.

In the Meltzer and Richard (1981) model, assume that the median income Y_m is larger than the mean income μ.

a) Under the above assumption, if the substitution effect of the tax rate (t) on labor supply (l) prevails over the income effect, what will be the effect of an increase in income inequality? Explain **(20 points)**

b) What would be instead the level of the equilibrium tax rate if $Y_m = \mu$? Explain **(14 points)**

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Question 3.

a) Summarize the paper by Ferreira and Gyourko (2009), "Do Political Parties matter? Evidence from U.S. Cities " **(14 points)**

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b) How do the results of the paper compare to a standard Downsian model? Explain **(10 points)**

c) What is the suggested mechanism for the main result of the paper? Explain **(10 points)**

Question 4.

Assume the following inverse demand for cigarettes:

$$P = 80 - Q$$

where P and Q are the price and the quantity of cigarettes. The inverse supply curve is

$$P = 2Q$$

Market is competitive.

a) Compute the equilibrium price and quantity and the total surplus. Provide a graphical representation. Provide a definition of the consumer surplus. (**10 points**).

The market clearing condition $P^D = P^S$ gives $Q = 80/3$ and $P = \frac{160}{3} = 53.333$. Consumer surplus is the difference between the willingness to pay for each unit and the price effectively paid.

b) Assume now that the government imposes a tax of 5\$ on each cigarette bought in order to reduce its consumption. Compute the new quantity and price. Compute and show in the graph the deadweight loss and the tax revenue. (**12 points**)

$Q = 25, P_N = 50, P_G = 55$. Note that the supply sides pays the higher burden of the tax. The $DWL = 4.15$ and $TR = 125$

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c) Assume that the government imposes a tax of 5$ on each cigarette sold. Compute the new equilibrium quantity, prices, tax revenue and deadweight loss and compare with the result in point (b) (**12 points**)

Since the market is competitive, the results do not change with respect to point (b)

Question 5.

Your university decides to run a competitive procedure to award the provision of the restaurant plus bar service. Two firms $(1, 2)$ decide to participate to the competitive procedure that is a first-price auction in which firms bid the price at which the service would be provided and the university awards the contract to the lowest price bid. The costs of delivering the service (*restaurant+bar*), if awarded the contract, are $c_1 = 6$ and $c_2 = 7$. Assume each firm perfectly knows its own and the rival's cost.

a) Find the winner of the contract, the equilibrium price bids and profits for each firm (**12 points**)

Firm 1 wins and bids $b_1 = 7$ and makes profit equal to 1, firm 2 bids $b_2 = 7$ and makes zero profit

b) Assume now the university splits the contract in two lots (one lot for the *bar* service and one lot for the *restaurant* service) (two separated contracts to be awarded) and runs a competitive procedure (first price auction as in point (a) in each lot). The firm is required to bid only one price for each lot and the firm bidding the lowest price, in each auction, is awarded the lot. Both firms participate in each lot, with the following costs of delivering the service (if awarded), $c_{1,bar} = 12$, $c_{1,rest} = 11$ and $c_{2,bar} = 7$, $c_{2,rest} = 15$. Find the winner and the equilibrium price of each firm in each lot. (**12 points**)

Lot *bar*: firm 2 wins, bids $b_2 = 12$ and makes profit of 5. Firm 1 bids 12, and makes zero profit.

Lot *restaurant*: firm 1 wins, bids $b_2 = 15$ and makes profit of 4. Firm 2 bids 15, and makes zero profit.

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c) Assume now the firms are allowed to bid one price for the aggregated lot $bar+restaurant$ and that the costs of each firm, if awarded the aggregate lot $bar+restaurant$, are $c_{1,B+R} = 22$ and $c_{2,B+R} = 10$. Find whether the firms prefer the lots aggregation instead of splitting the competitive procedure over two (separated) lots.**(10 points)**

In this case of aggregation firm 2 is awarded the contract by biding $b_2 = 22$ and making profit of 12. Firm 1 bids $b_1 = 22$ and gains zero profit.

If we compare the profits for each firm with and without separation it is possible to note that firm 1 prefers separation because it would win lot $restaurant$ by making profit of 4. Firm 2 prefers aggregation because the profit under separation is only 5 with respect to 12 obtained under aggregation.

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Question 6.

a) Summarize the main points of the article "*Public Goods and Why we Need Them*". (**14 points**)

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b) The article reads:

"*Public goods and services are things which need to be supplied-or at least regulated-by the public sector because they are by their very nature collective. Clean water, unpolluted air, education and law and order are obvious examples; there is no doubt that everybody should have such goods, not merely those who can afford to by them privately*".

Explain whether you agree on this sentence according to the economic theory. (**20 points**)