YORK UNIVERSITY, Faculty of Arts

Final Examination, April 25 2006

Economics 4080.03MW : Public Finance II

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time=2 hours

The exam contains two sections, A and B. Section A is worth 40 % of the marks, section B 60 %. Note that there is some choice in each section.

A : 40 %(5 % per question)

Explain **briefly** the significance for the economics of public expenditure of any **8** of the following 10 terms.

1. pure public good

2. free rider problem

3. positive externality

4. pairwise majority rule

5. Borda count

6. budget–maximizing bureaucrat

7. adverse selection

8. pay–as–you–go pension plan

9. local public good

10. flypaper effect

Answer any **4** of the following 8 questions.

1. What are all the Pareto optimal allocations in the following 2–person, 2–good economy? Good X is a pure private good, and good Z is a pure public good. The feasible production possibilities for the economy are those (X, Z) combinations for which

$$X + Z \leq 12$$

where X is aggregate production of the pure private good and Z is aggregate production of the pure public good. Person 1's preferences can be represented by the utility function

$$u^1(x_1, z_1) = x_1 - \frac{10}{z_1}$$

and person 2's by the utility function

$$u^2(x_2, z_2) = x_2 - \frac{15}{z_2}$$

where x_i is person i's consumption of the private good, and z_i is person i's consumption of the public good.

2. Give at least two different methods for allocating water efficiently in some arid area, in which a limited amount of water is needed both for agriculture and for residential use.

3. If the incomes of people in the top 20 percent of the income distribution grew significantly, but if incomes of the lowest 80 percent of the population did not grow much, how would voters' choice of public expenditure level change in the country in question, if the public sector were financed by a proportional income tax? Explain briefly.

4. Three towns are located along a straight road. Town 1 is at the south end of the road, and has 20,000 inhabitants. Town 2 is located 5 kilometres north of town 1, and has 10,000 inhabitants. Town 3 is located 25 kilometres north of town 2, and has 25,000 inhabitants.

People can travel along the road at 1 kilometre per minute.

The three towns are all in the same county (and contain all the people in the county). Two parties are running for election to the county council ; each wants to win. The one issue in the election is where to locate the new events centre for the county. Each voter wants her travel time to the events centre to be as low as possible.

What location will each party propose as a location for the event centre, if they each want to win the election?

5. Suppose that the government of some country provided compulsory employment insurance to all its residents. This insurance provides full coverage, at the same price per dollar of coverage, to every resident (regardless of the resident's likelihood of losing her job). The price of the insurance is set so that the programme breaks even.

Is there some other policy which could make all residents at least as well off, while still breaking even? Explain briefly.

6. Suppose that people's preferences could be represented by the utility function

$$u(C_y, C_o) = C_y + a \ln(C_o)$$

where C_y is total consumption in the person's working life, C_o consumption when retired, and a was some positive constant.

Suppose that the person could save as much (or as little) as she wanted on private markets, at net rate of return r. She earns an income of Y during her working life (and nothing when retired).

How would her saving choice be affected by a government pension plan, which paid her a pension of P when retired, and levied a payroll tax at the rate t on her income earned when working?

7. How would education expenditure per person vary across (many) jurisdictions in a metropolitan area, if education in each jurisdiction were funded by a local head tax, and if people in the metropolitan area all had different levels of (exogenous) income, but all had the same preferences, which could be represented by the utility function

$$u(x, z) = x^3 z$$

where x is the person's private consumption, and z is education expenditure per person in the jurisdiction in which the person lives?

8. Under the current Canadian system of equalization grants to the provinces, how would the level of grants be affected by an increase in the world price of oil? Explain briefly.

the end