YORK UNIVERSITY

Faculty of Arts

Final Examination

April 14 2005

**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. excludable good

2. pivot tax

3. common property resource

4. independence of irrelevant alternatives

5. single–peaked preferences

6. principle of minimum differentiation

7. pooling equilibrium

8. golden rule of economic growth

9. local public good

10. conditional matching grant

**B : 60 %** ( 15 % per question )

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

$$X + Z \leq 9$$

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

$$u^1(x_1, z_1) = x_1 + \ln z_1$$

and person 2's by the utility function

$$u^2(x_2, z_2) = \ln x_2 + \ln z_2$$

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. Is there an externality problem if research undertaken by computer monitor manufacturers leads to improved quality of the monitors, and if this improved quality results in increased consumer demand for computer video cards (which are manufactured by different firms than those manufacturing monitors)? Explain briefly.

3. Suppose that the yield of each oil well in some region was $x$ million barrels of oil, with

$$x = \frac{4}{\sqrt{N}}$$

where $N$ was the total number of oil wells in the region. If the price of oil was $50 a barrel, and if it cost $20 million to drill an oil well, then

$i$ What is the efficient number of oil wells to drill?

$ii$ If the government could levy a tax $t$ on each well drilled, what tax should be levied?

4. Suppose that three legislators get to choose both the level of spending on snow removal, and the level of spending on street lighting. They vote separately on these two categories of spending, using pairwise majority rule for each. Each committee member expects her district to pay for one third of the cost of both services. Committee member $i$ has preferences

$$U_i = X_i + a_i \ln R + b_i \ln L$$

where $X_i$ is the net disposable income in her district, after taxes, $R$ is total spending on snow removal, $L$ is total spending on street lighting, and the values of $a_i$ and $b_i$ for the three legislators are listed below. Each district's total income ( available for taxes or for disposable income ) is 200.

What level of spending on snow removal, and what level of spending on street lighting would be chosen? Explain briefly.

| legislator | $a_i$ | $b_i$ |
|---|---|---|
| 1 | 10 | 12 |
| 2 | 15 | 8 |
| 3 | 40 | 10 |

5. If police protection is a normal good, and if the cost of the police department is paid for from income tax revenues, will higher income people be more likely (than lower income people) to vote for a party promising more expenditure on police protection? Explain briefly.

6. Would it be a good idea to abolish annual contribution limits for peoples' Registered Retirement Savings Plans (RRSP's), and, at the same time, to get rid of the Canada Pension Plan (CPP)? Explain briefly.

7. In 1956, Charles Tiebout wrote : "local government represents a sector where the allocation of public goods (as a reflection of the preferences of the population) need not take a back seat to the private sector". What assumptions underlie that conclusion?

8. Discuss what might happen to provincial public expenditure if the federal government required that 25% of each province's revenues from the Canada Health and Social Transfer (CHST) programme must be spent on health care.

**the end**