YORK UNIVERSITY

Faculty of Graduate Studies

Annual Examination

April 7, 2006

Economics 5300.03A : Public Economics I

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time=2 hours

Answer any **five** of the following eight questions.

1. Suppose an individual can allocate her fixed wealth between a safe asset with a certain rate of return r_0, and a risky asset with a stochastic rate of return r. If she is an expected utility maximizer, with utility–of–wealth function

$$u(W) \equiv A - e^{-BW}$$

with $A, B > 0$, how would a proportional tax on her net return to saving (with full loss offset) affect the amount which she invested in the risky asset?

2. If the only sources of government revenue are excise taxes on food and on clothing, then what is the relation between the optimal tax rates on those two goods, in a one–person economy, if the person's preferences can be represented by the utility function

$$u(H, F, C, E) = H + \sqrt{F} - \frac{1}{C^2} + \ln E$$

where H is the person's housing consumption, F her food consumption, C her clothing consumption, and E her entertainment consumption?

3. Why should the marginal personal income tax rate be 0 on the highest observed level of income?

4. How could the corporate income tax be modified, so that changes in the corporate income tax rate had no impact on firms' investment decisions? Would this modified corporate income tax raise any revenue?

5. Suppose that the Canadian personal income tax were changed, so that the imputed income from owner–occupied housing were taxed as part of personal income. If the tax rates were also adjusted, so as to keep the tax yield constant, how would this change affect personal saving in Canada?

continued

6. What would be the incidence of the local property tax in a jurisdiction with the following characteristics? The jurisdiction has a fixed land area. All land in the jurisdiction is used for residential housing. Residential housing is produced from land, and from other inputs, using a fixed–proportions technology. Other inputs (other than land) to housing are available in perfectly elastic supply. Land costs account for 30 percent of the cost of housing in the jurisdiction. The elasticity of demand for residential housing, with respect to the user cost of owner–occupied housing, is -0.5.

7. What would be the equilibrium allocation of capital in the following situation? Capital owners in country 1 can invest at home, or in country 2. All foreign investment takes the form of direct investment in incorporated subsidiaries in country 2. Capital owners in country 2 invest only in their own country. There is a fixed amount of capital in each country. The government of country 1 can choose separate corporate tax rates on domestic earnings of firms, and on the profits of their foreign subsidiaries. The government of country 2 chooses its own corporate income tax rate, on all corporate profits in the country. Each government seeks to maximize the total net income of its residents. The credit system is used to deal with foreign taxes paid by multinationals.

8. What would be the efficient level of public expenditure in the following situation, and what would be the equilibrium level if countries depended (only) on source–based capital taxation to finance their public expenditure, and chose tax rates non–cooperatively?

There are a large number of identical small countries. Total output in each country i is

$$f(k_i) = 10k_i - 2(k_i)^2$$

where k_i is the total capital invested in country i. Each country has an endowment $\bar{k}$ of capital of $\bar{k} = 1$. Capital is perfectly mobile among countries. The only government revenue source is a tax on the quantity of capital invested in the country.

Output can be used either for public expenditure or private consumption, and each resident of each country has preferences which can be represented by the utility function

$$u(c, g) = c - 4 \ln g$$

where c is private consumption and g is public expenditure.

the end