

OLLSCOIL NA hEIREANN, GAILLIMH
THE NATIONAL UNIVERSITY OF IRELAND, GALWAY

SUMMER EXAMINATIONS 2002
B.A. AND B.COMM. Degree Examination
Visiting Students

EC386 Public Economics

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5 Questions, Attempt 3.

Time allowed: 2 hours

1. Income Taxation

- (i) Briefly describe the structure of income taxation in Ireland. What have the principle trends been in the structure and importance since the 1950's?
- (ii) What do we mean by progressive income taxation? Show using an example, that linear income taxation can be progressive.
- (iii) Why can we not say from economic theory what effect the introduction of a proportional income tax will have on labour supply? Answer giving a graphical example.
- (iv) Consider an income taxation system with an allowance, a 20% band and a 40% band. What happens to labour supply if the basic rate fell from 20% to 10%? Consider separately individuals who fall into each of the three income categories.

2. Excess Burden

- (i) Explain what we mean by excess burden in the case of a two good model of consumption.
- (ii) What is the excess burden of a lump sum tax? Highlight your answer graphically. Why are lump sum taxes not used more often?
- (iii) Derive the formula for excess burden in terms of taxation, elasticity, price and quantity (the formula based upon a single good using a supply and demand curve).
- (iv) In a two good economy, where goods are independent in consumption, derive the relationship between tax rates that minimise excess burden and the price elasticity of those goods.

3. Insurance Market Failure

- (i) Show how pooling reduces insurance risk.
- (ii) What is an annuity? How does it serve to reduce risk? What factors influence the value of an annuity?
- (iii) What characteristics are necessary for an insurance market to operate efficiently?
- (iv) What is adverse selection? Show that the marginal rate of substitution (the slope of the indifference curve) for a low risk individual is steeper than for a high risk individual. Show that in the presence of adverse selection, a pooling equilibrium will not be possible.

4. Social Welfare Functions

- (i) What is a social welfare function?
- (ii) Describe the difference between Utilitarian and Rawlsian theories of State. Describe this difference in relation to their social welfare functions.
- (iii) What is an isoelastic social welfare function? Show that if the inequality aversion parameter, e is greater than zero that more weight is placed on welfare gains of poorer individuals. What is the relationship between the Utilitarian, Rawlsian and Isoelastic social welfare functions.
- (iv) Optimising a social welfare function, to determine an optimal linear income tax, what four characteristics will result in a higher marginal income tax rate?

5. Environmental Taxation

- (i) Briefly describe the proposed EU Carbon Tax.
- (ii) What do we mean by a double dividend?
- (iii) What are the economic grounds for introducing such a tax? Compare and contrast with the use of regulation.
- (iv) Assess the distributional impact of a carbon tax.