



Summer 2012 examination

EC426

Public Economics

Suitable for all candidates

Instructions to candidates

Time allowed: 3 hours

This paper contains **fourteen** questions and is divided into **two** sections.

ALL candidates should answer **two** short questions and **one** long question from **each** section.

Each short question has a weight of 10% (of the overall mark) and each long question a weight of 30% (of the overall mark). In multipart questions, answer all parts.

Calculators are **not** allowed in this examination.

Section A

Short questions: Answer TWO questions (each question carries 10 marks)

- 1 Suppose social values concerning income distribution are determined by individual preferences behind a veil of ignorance. Will social values determined in this way always indicate that equality of outcome is desirable?
- 2 What problems does the "hidden action" phenomenon create for the provision of insurance? Are they also present if social insurance is publicly provided?
- 3 'In a two-person public good economy, the Nash-Cournot equilibrium is Pareto efficient.' True or False? Explain.
- 4 Why do small countries 'win' tax competition for international investment in some models, while in other models large countries 'win'?

Section A

Long questions: Answer ONE question (each question carries 30 marks)

5 In the context of tax design:

- (a) Explain the role of the incentive-compatibility constraint. [9 marks]
- (b) Why might the constraint be violated by income taxes in practice? [7 marks]
- (c) Will such problems arise in the case of a linear income tax? [7 marks]
- (d) Will such problems arise in the case of commodity taxes? [7marks]

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- (a) Compare the first-best and second-best optimal taxation of consumption goods generating negative externalities. How and why do the two differ? [10 marks]
- (b) Suppose the government were to introduce a Pigovian tax on a polluting good and use the revenue to cut the labour tax rate. What would be the overall impact on efficiency? [10 marks]
- (c) In comparing measured emissions taxes with quantity-based instruments such as tradable emissions permits, does it matter whether future abatement costs are uncertain? Discuss. [10 marks]

7 Consider the model of optimal 'sin' taxes developed in O'Donoghue and Rabin (2006).

- (a) What assumptions on preferences are used to represent self-control problems? Explain. [8 marks]
- (b) What issues arise in undertaking a welfare analysis? How do the authors address these issues? [12 marks]
- (c) Can a 'sin' tax generate a Pareto improvement in this model (i) if consumers have homogeneous preferences? (ii) if consumers have heterogeneous preferences? Discuss. [10 marks]

Section B

Short questions: Answer TWO questions (each question carries 10 marks)

- 8 “If a well-identified estimate of the elasticity of taxable income with respect to the marginal tax rate implies a Laffer rate that is smaller than the actual marginal tax rate, then the best policy response is always to reduce the marginal tax rate.” True or false? Discuss.
- 9 “The world distribution of income: falling poverty and . . . convergence, period” (Sala-i-Martin 2006) Outline the analytical issues involved in substantiating this claim.
- 10 The Mirrlees Review of UK taxation proposed merging employer and employee social security contributions with the personal income tax. Would this change the incidence of taxation?
- 11 Consider *either* a Tobin tax on foreign currency transactions *or* a tax on international air travel. The revenue is used to finance education in Africa. What is the likely impact? Is there a double dividend?

Section B

Long questions: Answer ONE question (each question carries 30 marks)

- 12 Consider a two-bracket piecewise linear income tax schedule with marginal tax rates t_1 and t_2 .
- (a) Show how labour supply for individuals in the upper bracket can be written as a function of their marginal net-of-tax rate $(1 - t_2)$ and virtual income Y_2 . [8 marks]
 - (b) In this labour supply function, does the elasticity with respect to $(1 - t_2)$ capture a compensated or uncompensated labour supply response? Explain. [6 marks]
 - (c) Imagine that an empirical study finds that the elasticity of labour supply with respect to $(1 - t_2)$ is close to zero while the elasticity with respect to Y_2 is negative and large in absolute value. Do these elasticity estimates imply that the efficiency cost of raising taxes is small or large? Explain. [8 marks]
 - (d) Imagine that the empirical labour supply study mentioned above is based on a series of tax reforms that sometimes increase t_2 and sometimes reduce it. How can reforms changing only t_2 be used to estimate the elasticity with respect to virtual income Y_2 ? Explain. Do you think that these reforms provide plausibly exogenous variation allowing us to estimate elasticities without bias? Discuss. [8 marks]
- 13 In the context of tax compliance policy:
- (a) Why might a policy of auditing all low-income reports be inappropriate? [10 marks]
 - (b) How should the policy be determined if the tax authority is constrained to apply the same audit probability to all reports? [10 marks]
 - (c) What is "relative auditing"? In what ways might this be effective? [10 marks]

14 The government has decided to pay off part of the national debt today by raising taxes.

(a) Examine in a simple model of overlapping generations (where each generation lives 2 periods) how this affects the consumption of different generations, explaining carefully the assumptions made. *[12 marks]*

(b) What happens to wages and to the rate of return? *[6 marks]*

(c) How would the conclusions be different if, instead, the government announced today that the national debt will be reduced by taxes raised next period? *[6 marks]*

(d) What would happen if the government reduced the debt by cutting public spending today? *[6 marks]*.

