



Summer 2014 examination

EC426

Public Economics

2013/2014 Syllabus

Instructions to candidates

Time allowed: 3 hours

This paper contains **Twelve** 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 If social values are determined by individual preferences behind a veil of ignorance, will equality of outcome always be considered as socially desirable? *[(i) Answers should outline the Rawls and Harsanyi approaches, making clear the type of SWF that emerges in each case. (ii) Answers should distinguish between inequality of opportunity (taking into account only individuals' circumstances) and inequality of outcome (circumstances and effort) They should explain that even with fixed effort and max-min preferences one would not necessarily have equality of outcome.]*
- 2 Could the inefficiencies of voluntary schemes for providing public goods be overcome by the use of lotteries? *[A fixed-prize lottery will perform better than a voluntary-contribution or subscription scheme: candidates should give a brief explanation why this is so. But it will still not produce a Pareto-efficient outcome. A pari-mutuel lottery will perform in the same way as a voluntary scheme]*
- 3 The young unemployed have to put in more effort than average to find jobs due to their lack of experience. At the same time, they have limited access to savings and credit. Use the Baily formula to argue whether these two observations suggest that unemployment benefits should be more or less generous for the young. *[The Baily formula states that for the optimal UI benefit level the consumption smoothing benefit and the moral hazard cost of a further increase in the unemployment benefit are equal. The fact that the young unemployed have less savings increases the consumption smoothing benefits of the unemployment policy. The moral hazard cost is likely to be lower. This cost is captured by the elasticity of unemployment duration wrt benefits and this is likely to be lower for young workers (i.e., the response in search effort in response to a change in benefits is unlikely to change the unemployment duration when the demand for young workers is low). A higher consumption smoothing benefit and a lower elasticity imply that a higher replacement rate would be optimal.]*
- 4 Discuss some empirical evidence for the existence of 'passive' savers and argue how this affects the desirability of saving mandates vs. subsidies. *[Chetty et al. (2012) show that many savers do not respond to changes in mandated savings and savings subsidies (an increase in the mandated savings rate through employer-provided savings accounts increases the total savings rate almost 1-for-1; a decrease in the savings subsidy only decreases the contributions of some savers). Because of the non-response a savings mandate is more effective in increasing total savings. Moreover a savings mandate increases the savings of the passive savers, while a savings subsidy only increases the savings of the active savers. The passive savers are likely to be less prepared for retirement.]*

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 participation constraint and the incentive-compatibility constraint. [8 marks] *[Answers can use simple two-ability model to describe the issue in income-tax design and then discuss extension to many individuals]*
- (b) Explain why the incentive-compatibility constraint is usually satisfied by income-tax schedules that have a constant marginal tax rate and by commodity taxes. [13 marks] *[Briefly explain linear (affine) tax function and use standard diagram to show the result for the income tax. Commodity taxes are usually proportional and so a similar argument applies. Attempts at non-linear commodity taxation might cause the problem to arise.]*
- (c) Why might the incentive-compatibility constraint be violated by income taxes in practice? [9 marks] *[Discuss notch problem and explain how simultaneous redistributive programmes run by different agencies can contribute to the problem]*

6 Consider the following stylized market for health insurance. A uniform health plan is offered by competing insurance companies. The share of individuals buying the plan at price p equals $D(p) = 1 - 0.001 \times p$. The (marginal) cost of providing the plan to individuals with willingness-to-pay p equals $MC(p) = 400 + 0.2 \times p$.

- (a) Explain why the cost of providing insurance can be higher when insurance companies charge a higher price. [8 marks] *[Adverse selection. (1) Individuals may have private information about their expected health expenses. (2) Individuals who expect low expenses will have a lower willingness-to-pay for insurance. Hence, they will stop buying insurance when the price increases and thus increase the average cost to the insurance company]*
- (b) Explain why the efficient price in this market equals 500. Illustrate this graphically. [7 marks] *[At the efficient price, $p=MC(p)$. That is, the expected value for the marginal buyers of insurance equals the marginal cost. Graphically, this allocation is determined by the intersection of the demand and marginal cost curve.]*
- (c) Do you expect the equilibrium price to be higher or lower? Discuss and illustrate this graphically. (Hint for the graphical illustration: the average cost of providing insurance for the total population equals 500) [8

marks] *[The equilibrium price is determined by $p=AC(p)$. This price will be higher since the average cost is higher than the marginal cost in an adversely selected market. Graphically, this allocation is determined by the intersection of the demand and average cost curve.]*

- (d) Would a universal mandate increase the total surplus (i.e., consumer plus producer surplus)? Discuss and illustrate graphically the benefit and cost from imposing a universal mandate. [7 marks] *[The small triangle between the demand and the marginal cost curve, bounded by the equilibrium and efficient allocation shows the gain from mandating those who are inefficiently uninsured. The triangle bounded by the efficient allocation and full coverage shows the cost from mandating those who are efficiently uninsured. For the given demand and cost curve the cost exceeds the gain.]*

Section B

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

- 7 Claim: the government revenue effect from behavioural responses to taxes is sufficient to calculate deadweight loss. True or False? Explain.

Outline answer: the students could argue both ways; the claim is true if the fiscal externality from behavioural responses is the only externality. Students should provide the standard envelope argument underlying this and discuss the key assumptions.

- 8 Claim: discrete jumps in marginal tax rates in piecewise linear income tax schedules produce holes in the income distribution. True or False? Explain.

Outline answer: the claim is false. Such kinks produce bunching at bracket cutoffs, but no holes above cutoffs. The reason is that the distribution above the cutoff shifts and fills up the area left by the bunchers. Students may note that notches—discrete jump in average tax rates—do produce holes.

- 9 '[...]after remaining constant during the 1970s, [global] inequality declined substantially during the last two decades [...] we find that individual incomes have followed a process of “convergence, period!” ' (Sala-i-Martin 2006) Explain why this conclusion may be sensitive to the specific assumptions made about the measurement of inequality. *[Sala-i-Martin and others have shown that while within-country inequality grew over the period there was a reduction in between-country inequality sufficient to outweigh the within-country effect. But this conclusion rests on the assumption of scale-independence in inequality assessments (as with the conventional Gini coefficient or Atkinson indices) If one were to make some other assumption, such as translation independence (as with the absolute Gini and Kolm indices), a dramatically different picture emerges]*

- 10 Can the income-tax compliance problem for firms be modelled in a way similar to that for individuals? *[If one assumes that the firms are in competitive equilibrium then the model is very similar and compliance decisions can be separated from output decisions; it's also similar if one examines the case of a monopoly. But if firms are in an oligopoly then, under some tax-enforcement regimes the above separation result no-longer applies (Bayer-Cowell 2009)]*

Section B

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

- 11 Consider the Saez (2002) extensive margin optimal tax model. The optimal tax rule in this model can be represented as

$$\frac{a(n)}{1 - a(n)} = \frac{1 - g(n, 1)}{\eta(n)},$$

where $a(n)$ is the participation tax rate at earnings level n , $g(n, 1)$ is the social marginal welfare weight on participants at n , and $\eta(n)$ is the participation elasticity at n .

- (a) Derive this tax rule using a tax perturbation approach. [12 marks]

Outline Answer: provide a tax perturbation proof as laid out in the lecture notes on optimal transfer programs (or in the paper by Saez 2002).

- (b) Provide an interpretation of the tax rule. Is an EITC optimal? Discuss. [12 marks]

Outline Answer: provide an interpretation distinguishing between equity effects (numerator) and efficiency effects (denominator). Explain why $a(n) < 0$ whenever $g(n, 1) > 1$ and relate to the EITC (defined as a negative participation tax rate).

- (c) Claim: public provision or subsidization of child care has no implications for the optimality of an EITC, because such programs are universal and therefore do not distort participation. True or False? Discuss. [6 marks]

Outline Answer: this is in general false, because child care is complementary to labor force participation and so, even if such programs are universal, they effectively subsidize participation and thereby weaken the case for an EITC (which is also a participation subsidy).

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- (a) Explain the theoretical and practical role of bequests in modelling the wealth distribution and its evolution. [8 marks] [*Outline principal models of bequest motive. Review recent evidence on the importance of inherited wealth in the distribution of net worth*]

- (b) In a simple multi-generational model explain how inheritance taxation can restrain the level of wealth inequality in the long run. How is this conclusion affected by assumptions concerning within-generation wealth accumulation? [12 marks][*Explain using models provided in lecture how modest rates of inheritance tax affect the equilibrium bequest decisions of (i) the very wealthy and (ii) the moderately wealthy. Show the implications in terms of whether the wealth distribution will converge to an equilibrium distribution and, if there is an equilibrium, its response to the tax rates*]

- (c) How does the pattern of family formation affect the long-run impact of inheritance taxation? [10 marks] *[Outline model of wealth distribution with heterogeneous family size (as in lecture). Explain the impact of (i) assortative mating and (ii) random mating on the long-run wealth distribution given alternative assumptions about the inheritance tax.]*