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Econ 4620 Public Economics A2013: Seminar assignment for 23 September

Please, prepare for the seminar.

Problem 1

Brewer et al. derive the following optimal tax conditions:

$$\text{a) } \tau = \frac{1-g}{1-g+ae} \quad \text{where } a = \frac{z}{z-\bar{z}}$$

$$\text{b) } \frac{t(z)}{1-t(z)} = \frac{1}{\eta}(1-g(z))$$

- Explain verbally in each case what is the underlying optimisation problem.
- Consider a). What happens to τ when z approaches \bar{z} ? What is the intuition for this result?
- Consider a). What happens to τ when e approaches 0? What is the intuition for this result?
- Present the insights from a) and b)

Problem 2

In Norway it has been debated whether it is appropriate to let the surtax on high income ("toppskatt") kick in already at a level where it hits "ordinary" (not particularly high) income. Suppose it is argued that the surtax kicks in at a too low income level. Present a suitable framework for discussing such a claim. (You may simplify by assuming that there is a single surtax rate.)

Problem 3

Suppose that if an income tax is used, capital income must be included in the tax base besides labour income. What may then be an efficiency case for imposing a general commodity tax, say in the form of a VAT (allowing a lower income tax)? Try to sketch a model capturing the relevant efficiency effects.

Problem 4

A formula for optimal differentiation of commodity taxes is the following:

$$\frac{t_1 / q_1}{t_2 / q_2} = \frac{\varepsilon_{11} + \varepsilon_{22} + \varepsilon_{10}}{\varepsilon_{11} + \varepsilon_{22} + \varepsilon_{20}}$$

where t_k , p_k , q_k are respectively the tax on commodity k , the producer price of commodity k , and the consumer price of commodity k , and ε_{ik} is the compensated price elasticity of good k wrt q_k (for $k=0,1,2$).

- What is the underlying model?
- What is the main insight conveyed by the formula?
- What is the effect of a larger value of $-\varepsilon_{11}$ or $-\varepsilon_{22}$ for fixed values of ε_{10} and ε_{20} ?
- Explain your finding. (Recall that $\varepsilon_{11} + \varepsilon_{12} + \varepsilon_{10} = 0$, $\varepsilon_{22} + \varepsilon_{21} + \varepsilon_{20} = 0$.)
- Discuss revenue and efficiency effects in case commodity 1 and commodity 2 are perfect substitutes.

Problem 5

Some countries have lower commodity taxes on close substitutes for commodities that the households can produce themselves. What may be the rationale for such a tax policy?

Problem 6

Suppose that because of soaring oil prices the fuel price (on petrol, diesel, etc) is much higher than before. As consumers pay VAT on fuel some politicians have argued that government revenue has increased a lot due to larger amount of VAT from fuel consumption. They have further argued that the increase in VAT on fuel should enable the government to lower other taxes.

Discuss these arguments.

Problem 7

Where a commodity generates an external cost there is case for imposing an externality-correcting tax, often referred to as a Pigouvian tax. Consider such a good. Suppose also that there is a general VAT in the economy. Denote by v the VAT rate. Suppose that the cost of producing the good in question, not including the external cost, is normalised to unity, and assume that the good generates an external cost e per unit. It is debated how to tax the good. One option is to set the total tax per unit, denoted by t , equal to $t=v+e$. The alternative is to set $t=e+v+ve$. Disregarding labour supply incentives for the moment, what would you recommend?

Problem 8

Present alternative measures of tax progressivity.