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Econ 4620 Public Economics A2013: Seminar assignment for 9 September

I request everybody to prepare for the seminar.

Problem 1

Suppose that a person freely chooses how much labour to supply in a perfectly competitive market. Assume that the person earns a wage-rate equal to 200 and faces a tax rate equal to 0.4.

What is the

- a) loss of output value,
- b) private income foregone,
- c) net private loss (of utility)
- d) social loss

if the person withdraws one unit of labour (for some exogenous reason.)

Explain the results.

Problem 2

Set up the simplest possible one-period model that you can think of in order to demonstrate that an excise tax on a consumption good is distortionary. You may assume there are no other distortionary taxes.

Also explain the distortion(s) verbally.

Problem 3

Most financial services are exempted from VAT in the sense that financial institutions pay VAT on inputs from other sectors without being refunded but do not charge VAT on deliveries.

1. Discuss the impact of VAT on prices of financial services delivered to firms and to consumers, respectively. What would have been different in the absence of the exemption?
2. Discuss also the effect on the prices of consumer goods delivered by (non-financial) firms that use financial services and that are not tax exempt. What would have been different in the absence of VAT exemption?

In the discussion above you may assume that any VAT is fully included in the sales prices.

Problem 4

Consider the following model:

There is a private sector producing a homogeneous output x and a government sector producing another homogeneous output g . Let x be the numeraire. Assume labour is the only input. An exogenous amount of labour N is available of which L is used in the private sector and H is used in the government sector: (1) $N=L+H$. The respective production functions are given by (2) $x=wL$ and (3) $g=H$. In both sectors labour is paid a wage equal to the exogenous labour productivity in the private sector, w . Assume that public provision is financed by a tax, at rate t , on labour income.

- a) Explain why this model may be suitable for discussing Baumol's Law.
- b) Which parameter may be changed to model technological progress in the private sector?
- c) Show how the tax rate and the allocation of labour are affected by technological progress in the private sector when
 - i) g is kept unchanged
 - ii) g and x are consumed in fixed proportions.

Assume that the population has a utility function $u(x, g)$.

- d) Explain why the allocation problem of the economy can be modelled as a utility maximisation problem subject to the budget constraint $\frac{1}{w}x + g = N$.
- e) Discuss by means of consumer theory the effects of an increase in w on the allocation and the tax.

Problem 5

Define the following concepts:

- a) Lump sum tax
- b) Poll tax
- c) Marginal tax
- d) Progressive income tax (Show that the tax is progressive if the marginal tax exceeds the average tax.)
- e) First best allocation
- f) Second best allocation
- g) Tax distortion