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Econ 4620 Public Economics S2012: Seminar assignment for week 5

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

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 4

Explain what it means that a tax has income effects and substitution effects. Discuss how income effects and substitution affect allocative efficiency.

Problem 5

Define the following concepts:

- a) Lump sum tax
- b) Poll tax
- c) Marginal tax
- d) Progressive income tax
- e) First best allocation
- f) Second best allocation
- g) Tax wedge
- h) Tax distortion
- i) Deadweight loss (excess burden)
- j) Illustrate a deadweight loss (excess burden) in a figure.