Seminar 3 in Public Economics 4620 – 30^{th} March - 2016

1 Public goods and taxation (exam question 2015)

Consider an economy with one public good, g, and two private goods, x and y. Technology is such that producer prices are fixed and satisfy $p_g = p_x = p_y = 1$. The economy has n identical agents with endowments w of good x and utility functions

$$u^h(x, y, g) = x^h + ln(y^h) + \alpha ln(g)$$

for $h = 1, 2.., n$

1. What is the first-best optimal provision of the public good in this economy?
2. Suppose the government has to finance the public good with a per unit tax on the consumption of good y. Write down the budget constraints and solve for the optimal level of public goods in this case.
3. Could you think of a situation where the fact that the public good must be financed by a distortionary tax makes it optimal to provide more public good than if it was financed with a lump sum tax? Explain your answer.

Problem 2 Consider an economy where the government sets a flat tax at rate τ on earnings to raise revenue. Individual i earns gross income $y_i = y_i^0(1-\tau)^\varepsilon$, where y_i^0 independent of taxation and is called potential income. ε is a positive parameter equal for all individuals in the economy.

1. Show that ε is the elasticity of income with respect to the net-of-tax rate $1-\tau$
2. Is ε the compensated or uncompensated labour supply elasticity?
3. Show that the tax rate maximizing total tax revenue is equal to $\tau^* = \frac{1}{1+\varepsilon}$ and explain why it decreases in ε.

Problem 3 Consider the model developed in "Public provision of private goods and the redistribution of income" by Besley and Coate.

1. Explain why it is inefficient (stupid) to have a publicly financed private good of quality $q*$ that are consumed by both H and L optimal?

2. Explain why a publicly provided good that is consumed only by L individuals redistributes income towards this group.

3. Explain why there is an efficiency loss associated with this redistribution.