Introductory Economics

MichaelmasTerm 08 - Hilary Term 09

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Week 2.

Reading. This week the main topics are *market equilibrium* and *budget constraints*. You should read on these topics and take notes to supplement the lecture material. The relevant chapters in the course textbooks are Varian Chapters 1 and 2; Perloff Chapters 1, 2 and 3.3. If you are confident with the budget constraint try A. Deaton and J. Muellbauer *Economics and Consumer Behavior*, Chapter 1.1.

Market Equilibrium.

1) Use a supply and demand diagram to explain the statement "Talk is cheap because supply exceeds demand".

2) Suppose market demand and supply are given by

$$\text{Demand: } x_D(p) = a - bp$$

and

$$\text{Supply: } x_S(p) = c + dp$$

respectively.

a) Solve for the equilibrium price. Briefly describe how the equilibrium price depends on the parameters of the curves and provide some intuition for this.

Now suppose that in order to comply with EU rules on indirect taxation government has to levy value-added-tax on the good. The tax rate is t which is a number greater than 0 and less than or equal to 1. The price the demander pays (p_D) equals the price the supplier charges (p_S) multiplied by one plus the VAT rat:

$$p_D = p_S(1+t)$$

d) Draw a demand-supply diagram illustrating the situation.

c) Solve for the new equilibrium **prices**.

d) Briefly explain how the equilibrium prices depend on the slopes of the demand and supply curves. What is the economic intuition for this? What general implications can you draw about the economic incidence of the VAT?

3) Between 1971 and 2006 the US, from time to time, imposed import quotas on steel.

(a) Use a supply curve diagram to discuss the effect of a quota on the aggregate (i.e. domestic plus imported) supply of steel - you can assume (if you want) that the domestic and foreign supply curves for steel are both linear and upward-sloping - possibly even the same).

(b) Use a demand and supply diagram to predict the likely effect on US steel prices in equilibrium.

Budget Constraints

1) Suppose that the consumer's consumption bundle contains a consumption good C and leisure time L. The price of the consumption good is p and the pre-tax wage rate is w. If the individual's earnings falls below a certain level Y then the government gives them welfare benefits (B) equal to the difference between their earnings and Y. This benefit cannot be negative. There is a higher rate tax threshold set at Y^* (which is higher than Y). For any earnings above Y and below $Y*$ they pay lower-rate tax on the difference between their earnings and Y at a tax rate t where $0 < t < 1$. For any earned income above the higher rate threshold they pay higher rate tax on the difference between their earnings and the threshold at the higher rate t^* where $0 < t^* < 1$ and $t^* > t$. Assume that their wage rate is such that if they worked as much as possible their earnings would exceed Y^*.

a) Draw and fully label the budget line between the consumption good on the vertical axis and leisure on the horizontal axis.

b) Write down the expression for the budget constraint.

c) Sketch what would happen to the budget line if the standard/lower tax rate goes up.

2) There are three brands of beer. They vary by their alcohol content and the number of calories in a pint.

Brand A: 3.5% alcohol by volume and 200 calories per pint; Price = £2.10
Brand B: 6.0% alcohol by volume and 180 calories per pint; Price = £2.00
Brand C: 9.5% alcohol by volume and 150 calories per pint; Price = £2.50

If the consumer has £20 to spend in an evening on beer; draw his/her budget set in Alcohol/Calorie space. [Hint: first locate the "corners" (where he/she only buys one brand), then consider what happens if he/she buys combinations of different brands].