University of California, Davis
Department of Economics
ECONOMICS 131

Spring 2010 L. Jay Helms

Problem Set #1: Tax Incidence and Progressiveness

1. Partial Equilibrium Tax Incidence Under Competition

Suppose the market for root beer is characterized by a downward sloping demand curve and an upward sloping supply curve. When there is no taxation, the price is $2.00 per six pack. Now suppose that Congress imposes a 50¢ per six-pack tax on root beer, to be paid by the *seller*.

a. Use a fully labeled diagram to explain how the prices faced by the sellers and buyers of root beer will be affected by the imposition of this tax. (A graphical, not a numerical, result is expected here.)

b. Suppose instead that the Root Beer Producers' Association manages to get the law changed so that the 50¢ tax is paid by the *buyer* (in addition to the posted price) rather than by the seller. Use a diagram to explain how this change affects the economic incidence of the tax, contrasting your results to those from part (a).

c. Now suppose that the tax must still be paid by the *seller*, but that it is changed to an *ad valorem* tax at the rate of 20% (of the posted price). Again, use a diagram to explain how this change affects the incidence of the tax, comparing the burden borne by both sides of the market with your answer in part (a).

d. Finally, suppose that the 50¢ unit tax (to be paid by the *seller*) were imposed only on root beer sold in the City of Davis. Use a diagram to contrast the incidence of this local tax with the incidence of the national tax, taking into account the expected difference between the elasticity of the supply curves for a city and for the country as a whole.

2. The Incidence of Cost Increases Under Monopoly

Consider a monopolist with a U-shaped average cost curve who maximizes profits by selling beer at $1 per bottle to consumers who have a downward-sloping linear demand curve.

Now suppose a government agency imposes health and safety regulations on the firm which have the effect of raising its costs by $c per bottle.

a. Using a careful diagrammatic analysis, show how much the price the consumer pays will increase as a result of the regulations.

b. Also show on the diagram the effect of the regulations on the monopolist's profits.

3. Progressiveness and Consumption Taxation

Suppose that consumption is linearly related to income according to

$$C = a + bY$$

where $a>0$ and $0<b<1$.

a. Define what is meant by a "regressive" tax.

b. Now suppose that a flat 5% tax on all consumption is imposed. Assuming that the consumption function is unaltered by the tax, is this tax regressive, progressive, or proportional? Explain.

4. The Spreading of the Burden of a Selective Payroll Tax

Suppose that the government decides to impose an extra payroll tax on employees of educational institutions to finance the maintenance and improvement of national parks. Assume that all workers are equally productive and that labor is perfectly mobile between the educational and the noneducational sectors. Use fully labeled diagrams to illustrate the process by which the tax would also burden labor *outside* of the educational sector.