EFFICIENT AND EQUITABLE TAXATION

Chapter 16

In Adam Smith's *The Wealth of Nations*, he describes a "window tax" that was imposed on dwellings in England. The tax per window increased with the number of windows.

a. Evaluate this tax in terms of the likely cost of administering it.

b. Evaluate it in terms of vertical equity.

c. Describe a simple way by which people with already existing dwellings could avoid tax.

d. Relate such avoidance behaviour to the concept of excess burden.

Question 1 – Key Points

a) Administering the tax is arguably cheap or expensive. Is sending inspectors to count windows more/less expensive than hiring accountants or lawyers to evaluate more complex taxation schemes?

b) Arguably, there is some vertical equity if we declare that wealthier people are more likely to have bigger homes with more windows. However, there is room for argument here (what if a wealthier person lives in a more expensive city, and their house, in fact, has less windows? What if they own a greenhouse?)

c) People could board up the windows, declare their house under construction and therefore incomplete, etc.

d) If they board up the windows as a result of the tax, their excess burden could be interpreted as a loss of fresh air and sunshine

In Thailand, where commodity taxes account for almost 60 percent of tax revenues, the price elasticities for food, alcohol, and telecommunications are estimated to be −0.10, −0.84, and −0.25, respectively (Chandoevwit and Dahlby, 2007). If the goal of policy is to raise tax revenue with the least excess burden possible, what tax rates should be applied to alcohol and telecommunications, when the tax rate on food is fixed at 1.6 percent? (Suppose the commodities are neither substitutes nor complements.)

$$T_F \, \varepsilon_F = T_A \, \varepsilon_A = T_T \, \varepsilon_T$$

Question 2 – Key Points

T_7/T_A z_A/z_7

- 0.016/t_a = -0.084/-0.10, t_a = 0.0019 = 0.19% (alcohol tax rate)

- 0.016/t_c = -0.084/-0.25, t_c = 0.0064 = 0.64% (telecommunications tax rate)

The demand for X is given by $X = 100 - 2P_x$, and its supply is perfectly elastic at $P_x = 14$. The demand for Y is given by $Y = 350 - 3P_y$, and its supply is perfectly elastic at $P_y = 18$. The government aims to raise R dollars by imposing ad valorem taxes t_x and t_y on the consumption of X and Y. What is the optimal ratio of taxes t_x/t_y according to the inverse elasticity rule? If $R = \$1{,}000$, what are the optimal solutions for t_x and t_y?

(handwritten annotations near top): $x = 72$, $Y = 296$

Hint: As a shortcut, the elasticity of demand for good X is –0.39 and the elasticity of demand for good Y is –0.18

(handwritten work):

$$1000 = 72\, t_x + 296\, t_y$$

$$\varepsilon_x = -2 \times \frac{14}{72} = -0.39$$

$$\varepsilon_y = -3 \times \frac{18}{296} = -0.18$$

$$t_x\, \varepsilon_x = t_y\, \varepsilon_y$$

$$t_x / t_y = \frac{-0.18}{-0.39} = 0.46$$

Suppose that Sharlene faces a marginal income tax rate of 35 percent, and if she cheats on her taxes, there is a 2 percent chance that she will be caught. Suppose also that the marginal penalty of tax evasion is $10R$, where R is the amount of unreported income (in thousands of dollars). How much income will Sharlene fail to report?

$$tax = possibility \times penalty.$$
$$35\% = 2\% \times 10R$$
$$R = 175\%.$$

- 0.35 = (0.02)(10R), R = 1.75, Sharlene underreports $1,750

  0.2R