Homework #8
(Econ 512M)

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I. One of the key results from our study of optimal taxation is that there should be no distortionary taxation on production. This result came out of models that make two crucial assumptions: (a) constant returns to scale (so that profits are zero) and (b) it is possible to tax all transactions between producers and consumers. The question of the how applicable this result from the optimal tax literature is to the taxation of agriculture, then, depends on if these two assumptions hold in the agricultural sector.

Regarding Assumption (a):

(i) While agriculture does not experience constant returns to scale (because land is a fixed input), it might be possible to ensure zero profits by simply taxing all the rent that accrues to land. What are the advantages of using a land tax (is it distortionary)?

(ii) In practice, the use of land taxes has been of declining importance in developing countries. Identify two problems associated with the use of land taxation?

Regarding Assumption (b)

(iii) In the agricultural sector, is it possible to tax all the transactions between producers and consumers (hint: are they always separate groups)?

(iv) In light of your answer above, we may have to impose a tax on agricultural production. Is there a difference between imposing a tax on net agricultural supply or a tax on gross agricultural output? Is there any difference between either of these two taxes versus a tax on purchases of non-agricultural products.

II. Assume a rural agricultural sector that produces an agricultural product for both rural consumption and sale to domestic urban consumers and to the world market. Furthermore, assume that the output of the country is small compared to the world market. The domestic urban demand, rural net supply, and world price are given below:

$$\begin{aligned} Q_d &= 50 - P/2, \\ Q_s &= P, \\ P_w &= \$60. \end{aligned}$$

(i) At the world market price, what is the net rural supply and urban demand? How much of the product is exported?

(ii) Calculate the domestic urban consumer surplus and the rural producer surplus.

(iii) In order to raise revenue, the government decides to implement a \$10 tax on exports. What is the new price received by rural producers on the world market?

(iv) At this new price, do domestic urban residents consume more or less? Calculate the change in CS.

(v) At this new price, do rural producers supply more or less? Calculate the change in PS. Calculate the government revenue from the tax and the change in total surplus. Finally, provide a diagram that illustrates this DWL.

III. A dual economy is one with a significant difference in the economic and/or social organization of the rural (agricultural) sector and the urban (manufacturing) sector.

(a) One of the aspects is the extent to which transactions within the traditional (agricultural) sector can be taxed. Discuss the relevance of this for the incidence and efficiency of a tax on unskilled labor (hint: labor in the traditional sector cannot be taxed).

(b) The second defining characteristic is labor market segmentation. The early models of labor market segmentation assume that labor markets work efficiently in the urban sector, but not in the traditional sector.

  (i) What is the supply price of labor (the minimum wage they are prepared to accept) in the urban sector? Why?

  (ii) What is the shadow price of labor?

(iii) Is this hypothesis consistent with a family maximizing its income. Why or why not?

(iv) Is this hypothesis consistent with the existence of a class of landless laborers in the traditional sector?

(v) What is the policy implication of such a model

(c) The more recent models of labor segmentation assume that the labor market works efficiently in the rural sector but not in the urban sector.

(i) What are the three hypothesizes put forward to explain this?

(ii) Why are wages set above the supply price in the “labor turnover’ model?

(iii) What is the effect of an increase in rural wages on demand for labor in the urban areas in a labor turnover model?

(iv) Why are wages set above the supply price in the “efficiency wage’ hypothesis? Why can’t unskilled workers undercut the wage?

(v) What is the relationship between average productivity and marginal productivity of workers at the efficiency wage?

(d) What is the Harris-Todaro model and what does it try to explain?