University of California, Davis
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ECONOMICS 131

Spring 2010 L. Jay Helms

Problem Set #4: Optimal Taxation

1. Tax Equity and Optimal Taxation

Suppose there are three taxpayers described as follows:

Mr. X is a farmer earning $10,000 per year.
Ms. Y is a construction worker also earning $10,000 per year.
Mr. Z is a farmer earning $30,000 per year.

Both farmers have labor supply schedules which are much less elastic than the construction worker's schedule.

Comment on how the desirable pattern of income taxes to be imposed on the income of X, Y, and Z is influenced by the following considerations:

a. horizontal equity;
b. vertical equity; and
c. optimal tax principles.

2. Optimal Commodity Taxation

Suppose there are two goods (X and Y) with compensated elasticities of demand of -1.0 and -0.5, respectively. They are neither substitutes nor complements.

a. What can you say about the relative rate of *ad valorem* commodity taxation on X and Y based on the principles of optimal taxation?

b. What can you say about the reduction in compensated demand for X and Y which will occur due to optimal commodity taxation?

c. Comment on these taxes using the criteria of *horizontal equity* and *vertical equity*.

d. Could excess burden be reduced by replacing optimal commodity taxes with a lump-sum tax which yields the same revenue?