University of California, Davis
Department of Economics
ECONOMICS 131

Spring 2010 L. Jay Helms

Problem Set #6: The Effects of Income Taxes

1. Taxation and Labor Supply

a. In a diagram showing leisure per week and income per week, draw the budget set for George, an individual with wage rate w, when there is no income tax.

b. Suppose that George would choose to earn $400 per week if there were no negative or positive income tax. Illustrate his chosen point and the corresponding indifference curve.

c. Now suppose there is a negative income tax system which provides a basic grant of $100 per week. The grant is reduced by 25¢ for each dollar earned, until it is eliminated altogether. (There is no positive income tax.) Draw the budget set and indicate its slope.

d. Now show George's labor supply in the presence of this negative income tax system, and explain how you determined whether labor supply increased or decreased.

2. Incentives and Progressive Income Taxation

a. Using an appropriate diagram showing indifference curves between leisure time and income, illustrate the budget line and chosen point for an individual with wage rate w when there are no taxes. Explain.

b. Now suppose there is a progressive income tax under which persons with zero income pay zero tax and those with positive incomes face marginal rates which become higher as income increases. Draw in the after-tax budget line and chosen point. How much taxes are paid? Explain.

c. Now suppose that the government replaces the progressive tax with a proportional tax which would raise the same revenue from this individual if

work effort were unchanged. What will happen to (i) work effort, (ii) utility, and (iii) taxes actually paid? Explain, using your graph.

3. Saving and the Taxation of Interest Income

In order to focus on the saving incentives provided by the taxation interest income, assume that it leaves lifetime earnings patterns unaffected. Answer the following questions using two-period diagrams for consumption by taxpayers who itemize deductions and face a marginal tax rate of t:

a. Assuming that all interest *received* is fully taxable and that all interest *paid out* by consumers is fully deductible (as is mortgage interest paid by itemizers), show the budget set and illustrate indifference curves reflecting the utility of person X (who is a borrower) and of person Y (who is a saver).

b. Suppose instead that no deduction were allowed for interest expenses incurred by a borrower. (This is the way the tax code treats personal interest expenses, such as credit card or auto loan payments). Show how the savings behavior of both X and Y would be affected by the *elimination of the deduction for interest paid*, while interest *received* remains fully taxable.