Problem Set 9

Overview: In this problem set you will examine a Negative Income Tax type assistance programs using budget line and indifference curve analysis. This Negative Income Tax type program has the following characteristics.

$500 = a = maximum payment

.25, i.e. 25% = b = marginal tax rate

320/month = Max leisure hours available

Step 1 (Graph 1):

a. On a sheet of graph paper or a spreadsheet printout, neatly and accurately draw a budget lines showing 1) gross and 2) disposable income for someone, given the above Negative Income Tax program, and a wage of $6/hr. Label your curves, axes, and major points. Label this graph; “Graph 1”.

b. In Blue, draw a set of indifference curves for a person, Bob, who decides to work at a level in which he receives payments from the government. Label these curves $U_{Bob}^1$, $U_{Bob}^2$, etc.

c. In Red, draw a set of indifference curves for a person, Chuck, who decides to work at a level in which he pays taxes to the government. Label these curves $U_{Chuck}^1$, $U_{Chuck}^2$, etc.

Note: This will be scored as follows: Score = 5 × Raw × Graph × Color × Neat

Where: Raw = How accurately your graph reflects the correct budget line. Raw can run from 0 (very sucky) to 1 (perfect).

Graph = Whether or not you used graph paper or a spreadsheet printout. Graph = 0 if you did not and 1 if you did. Graph will equal either 1 or 0; nothing in between.

Color = Whether or not you used the colors as instructed Color = 0 if you did not and 1 if you did. Color will equal either 1 or 0; nothing in between.

Neat = How neat and accurate your graph is. Neat can run from 0 (very sucky) to 1 (beautiful and precise).
Step 2 (Graph 2):

a. On a sheet of graph paper or a spreadsheet printout, neatly and accurately draw budget lines showing 1) gross and 2) disposable income for someone, given the above Negative Income Tax program, and a wage of $12/hr. Label your curves, axes, and major points. Label this graph; “Graph 2”.

b. In Blue, draw a set of indifference curves for a person, Bill, who decides to work at a level in which he receives payments from the government. Label these curves $U_{1}^{Bill}$, $U_{2}^{Bill}$, etc.

c. In Red, draw a set of indifference curves for a person, Celia, who decides to work at a level in which she pays taxes to the government. Label these curves $U_{1}^{Celia}$, $U_{2}^{Celia}$, etc.

Note: This will be scored as follows: Score = 5 × Raw × Graph × Color × Neat

Where: Raw, Graph, Color, and Neat are defined the same as in Step 1.

Step 3 (Graph 3):

a. On a sheet of graph paper or a spreadsheet printout, neatly and accurately draw a budget lines showing 1) gross and 2) disposable income for someone, given the above Negative Income Tax program, and a wage of $24/hr. Label your curves, axes, and major points. Label this graph; “Graph 2”.

b. In Blue, draw a set of indifference curves for a person, Brent, who decides to work at a level in which he receives payments from the government. Label these $U_{1}^{Brent}$, $U_{2}^{Brent}$, etc.

c. In Red, draw a set of indifference curves for a person, Cristi, who decides to work at a level in which she pays taxes to the government Tax. Label these curves $U_{1}^{Cristi}$, $U_{2}^{Cristi}$, etc.

Note: This will be scored the same as in Steps 1 and 2.

Step 4: On a separate sheet of paper, neatly answer the following.

a. (2 pts) Were you able to draw all of your indifference curves as instructed? Why or why not?

b. (3 pts) Many have argued that the tax system needs to be relatively progressive. Progressive simply means $\frac{\text{taxes}}{\text{income}}$ rises as income rises. A progressive tax system is usually achieved by increasing the marginal tax rate as one’s income rises. Other critics have argued that marginal tax rates need to be constant to discourage people from hanging up on the “kinks” where marginal tax rates change. How does the negative income tax address (or fail to address) these issues of 1) progressivity versus 2) unchanging marginal tax rates. Explain your answer.