Spring Semester 2009 | **Economics 4300** | **Prof. Greg Trandel**

Public Sector Economics

"As-If" Homework Assignment # 3

(students need *not* hand in answers)

1. (a) The Haig-Simons definition of income can be expressed as: income (during a period) = consumption (during that period) + change in wealth (over the same period). Using this formula, explain whether or not the following three behaviors — all related to an asset that has increased in value from $10,000 to $12,000 over the relevant period — effect Haig-Simons income in identical ways: *(i)* the owner of the asset continues to own it, *(ii)* at the end of the period, the owner sells the asset and reinvests the $12,000 into some other asset, and *(iii)* the owner sells the asset, and uses the $12,000 to (exactly) pay for a vacation to Europe.

   (b) For each of scenarios *(i)*, *(ii)*, and *(iii)*, explain whether the (current) U.S. tax system imposes a tax liability on the asset owner. [Assume that any special retirement savings rules aren't relevant.]

   (c) How does the (current) U.S. tax code affect a person's desire to reallocate his or her investment holdings (as in situation *(ii)*)?

2. Raphael is a painter. If he donates one of his paintings to a museum, he is permitted to claim a deduction on his taxes equal only to the value of the canvas he used, his paint, etc. If, however, Raphael sells the painting to Gates, and Gates in turn donates it to a museum, Gates may take as a deduction the full purchase price of the painting. Does this feature of the tax law make sense? Is it fair to the painter? [*Hint*: think about the situation in terms of the Haig-Simons definition of income.]

3. Rosen and Gayer; chapter 17; question 5.

4. Suppose that the current income-tax deduction for mortgage interest was converted to a tax credit set at 25% of family's mortgage interest payments. How would a family who is paying mortgage interest be affected by this change if: *(a)* the family is currently employing the standard deduction, and *(b)* the family is itemizing, and is in the 33% marginal tax rate bracket? Also, *(c)* how might the market prices of very large, very expensive houses be affected (other things equal) by such a change?

5. Suppose that a family faces a marginal tax rate of 28%, has one child, and currently has income that places it in the phase-out range of the child tax credit. If this family's income rises by $200, how much of an increase is there in the tax it must pay the government?

6. Rosen and Gayer; chapter 18; question 1.

7. Mr. X could react to an *increase* in his hourly wage in two ways. *(i)* "Since an hour of work now offers a larger reward (put another way, staying away from work has a bigger cost), I'll increase my hours of work." *(ii)* "Since my weekly earnings have increased, I feel I can now afford to decrease my hours of work." If Mr. X reacts as described in *(i)*, which "effect" (either the "income effect" or the "substitution effect") has the stronger influence on his behavior? If, instead, Mr. X reacts as described in *(ii)*, which "effect" has the stronger influence on his behavior?

8. Bill took five yearly plane trips to visit his parents. Suppose that the price of a (round-trip) ticket for such a trip rises by $100. Simultaneously (and for a completely unrelated reason), Bill's yearly income rises by $500.

   (a) Could Bill continue to take the same number of trips without altering any of his other spending decisions?

   (b) If Bill decides to take four plane trips a year instead of five, which effect — income or substitution — must have influenced his behavior?

9. This is a modification of Rosen and Gayer; chapter 18; question 7.

   Suppose that an person who is already saving for her retirement behaves in a way consistent with the following description: "to compensate for a reduction in interest rates, one should save more every month". Would a person acting in such a way be most influenced by the income effect (caused by the fall in interest rates) or by the substitution effect (caused by the fall in interest rates)?

10. This is a modification of Rosen and Gayer; chapter 21; question 8.

    Amy and Shirley both live two periods (call the two periods the "present" and the "future"). Both have (pre-tax) earnings of 1,000 in the present and 0 in the future. The interest rate is 10 percent. Both people face an income tax rate (on all income) of 20%.

    (a) If Amy's consumption in the present is 600, what will be her consumption in the future? What is her total lifetime tax payment (compute this by simply adding taxes paid in the present and taxes paid in the future (with no discounting))?

    (b) If Shirley's consumption in the present is 400, what will be her consumption in the future? What is her total lifetime tax payment?

    (c) If tax was imposed on consumption rather than on income, but Amy still consumed more in the present than does Shirley, how would the present values of the lifetime tax payments of these two people compare? [These no need do numeric calculations to answer this question. If you decide to compute an answer, use a 25% consumption tax rate, and use a 10% discount rate when finding the present value of lifetime tax payments.]

    (d) Suppose that an (unexpected) switch from income taxation to consumption taxation is made between the "present" and the "future". Now, how do Amy and Shirley's lifetime tax payments compare?

11. Consider two families, each of which has family income of $80,000. In a given year, one family has $20,000 of out-of-pocket medical expenses; the other family has no such expenses.

    (a) Does the current U.S. Tax Code impose the same tax burden on these two families. If not, how does the tax code differentiate between them?

    (b) Would a pure Flat Tax system impose the same tax burden on these two families?

    (c) In your opinion, are the different outcomes under the two tax systems equally desirable? If not, which (in your opinion) is preferable?

12. Rosen and Gayer; chapter 22; question 2. *[Note that legislation has been introduced in the Georgia legislature that would change the property tax rules throughout Georgia to be similar to those described in the question.]*

13. Rosen and Gayer; chapter 22; question 7.