

14.41 Problem Set #4
Due: November 18th, 2005

1.) A presidential campaign hires you to advise them on how to expand public health insurance to best improve the health of the U.S. population. The candidate has four proposals in mind:

- a) Providing Medicaid benefits package to all children living in households with incomes between 200 and 300% of the poverty line
- b) Providing the Medicaid benefits package to all women living in households with incomes below 185% of poverty, for all their medical expenses
- c) Providing free catastrophic insurance coverage (with high copayments for medical services, but limits on the total amount of medical care that is financed out of pocket) to all persons living in households with incomes below the poverty line

For each of the above proposals, discuss how you expect the program to impact: i) health care coverage, ii) medical utilization, and iii) health (mention whatever theory or empirical evidence we've discussed in lecture that you feel is relevant). Which do you expect to be most cost effective in improving overall health in the U.S.? Which program would you recommend, and why?

2.) In 1981, the federal government passed a law that gave permission to states to change the structure of their Medicaid program. States could now, if they wished, require Medicaid beneficiaries to enroll in a Medicaid "Managed Care Organization" (MCO), so long as the Medicaid recipients were offered a choice of several plans. Medicaid recipients would be required to receive their medical care only through their MCO. These MCOs would receive fixed, regular payments from the state and, in return, would cover the medical expenses of their Medicaid enrollees.

- a) Using what you know about Medicaid and managed care, explain several reasons why policymakers might support the requirement that Medicaid beneficiaries enroll in an MCO.
- b) Again, applying what you know about Medicaid and managed care, how do you think that this requirement would affect the decision of people who are eligible to enroll in Medicaid? Be specific about which Medicaid eligibles are likely to change or not change their takeup decision.
- c) How might this requirement affect overall access to care for Medicaid eligibles?

3.) You are hired by the Commonwealth of Massachusetts to evaluate the recent welfare reform put in place by the state, which made it very unpleasant to be on welfare by imposing harsh training requirements on those on the program. Specifically, Massachusetts wonders if the harsher requirements induced women to supply additional labor supply, and hence earn more in labor income. Welfare is only available to single mothers in the state. Fortunately for you, welfare was reformed for residents of Boston in 1995, but not for residents of Springfield (a town in western Massachusetts) until 1997. For your evaluation, you are provided the following data on the average monthly earnings of different groups of women in the two cities for two years, 1994 and 1996.

City	Year	Marital Status	Earnings
Boston	1994	Single Mother	175
Boston	1994	Married Mother	300
Boston	1996	Single Mother	210
Boston	1996	Married Mother	290
Springfield	1994	Single Mother	120
Springfield	1994	Married Mother	200
Springfield	1996	Single Mother	125
Springfield	1996	Married Mother	210

- a) Propose two difference-in-difference estimators of the impact of the 1995 welfare reform in Boston. For each, give
 - i. The assumptions required for the DD estimator to be valid.
 - ii. A scenario under which the assumptions would be violated.
- b) Which estimator do you prefer and why?

You are worried that the state will not believe the DD assumptions. Because you have taken 14.41, you decide to use a DDD estimator.

- c) Construct the estimator.
- d) Explain the assumptions required for the DDD estimator to be valid.
- e) Give a scenario under which the assumptions would be violated.
- f) Based on your DD and DDD estimates, was the welfare reform successful in increasing the labor earnings of single Boston women?

4.) Consider the case of a single mother with two children, who is trying to decide how many hours to work each month. Suppose, due to constraints such as child care, she is limited to working a maximum of 40 hours per week, for a total labor supply endowment of 160 hours per month. This mother has no other source of labor income, and if she works, would receive a wage of \$6 for each hour worked.

Assume that the mother's utility function is defined over money (C) and leisure (L), and takes the following form:

$$U = 3 \log C + 5 \log L$$

- a) Solve for the mother's optimal choice of labor supply. How much money does the mother have for consumption?
- b) Suppose the state government introduces a welfare program for single mothers (similar in nature to TANF). Under this new program, a mother with no labor income would receive \$120 per month from the government (i.e. \$120 is the *benefit guarantee*). However, if the mother chooses to work, this benefit amount is reduced by 20% of her labor income (i.e. the *benefit reduction rate* is 20%).
 - i. Intuitively, how might you expect labor supply to differ under this program than if no welfare program existed? Should the mother work more or less if welfare is provided, or is the answer uncertain? Demonstrate graphically what happens to the budget set that this mother faces due to the introduction of welfare (labeling the number of hours at which she stops receiving any benefits from the government).
 - ii. Now, solve for the optimal choice of labor supply. How many hours of work will the mother now provide? What is her total labor income? What is her total income (including the welfare benefit)? How has labor supply changed from in (a), and how has total income changed? Is the woman better off?
- c) The single mother moves to a neighboring state. This new state also has a welfare program, similar in nature to the one considered in (b) – the difference is that the benefit guarantee in this state is \$300 and the benefit reduction rate is 50%.
 - i. Intuitively, how might you expect labor supply to change relative to the TANF regime represented in (b)? Demonstrate graphically how the budget constraint is different from that in (b), and how the optimal choice of labor supply may change.
 - ii. Now how many hours does the mother work? How is her labor income and total income different from that in (b)?
- d) Now, let's apply these theoretical results. Consider a state that has an established welfare regime as in (b). The Governor of the state is concerned that too many single mothers are out of the labor force. To remedy this, he is trying to decide between implementing one of three different welfare policy reforms:
 - 1) lowering the benefit amount, but keeping the benefit reduction rate the same
 - 2) keeping the benefit amount the same, but lowering the benefit reduction rate
 - 3) lowering the benefit amount the same amount as (1) and lowering the benefit reduction rate the same as (2)

- i. Theoretically, how should each proposal affect the labor supply of unemployed single mothers, and why?
- ii. How should each proposal affect the labor supply of welfare mothers who are working?
- iii. Which proposal do you expect to result in the largest number of workers who were previously not receiving benefits to now start receiving welfare benefits?
- iv. Based on these conclusions, which proposal would you suggest the Governor implement? Why?

5 a) Suppose Arizona establishes an income tax schedule that has a tax rate of 10% on the first \$20,000 of income, then 25% on the next \$30,000, and then 40% on all taxable income above \$50,000. Arizona provides a \$4,000 exemption per family member.

- i) The Wilkening Family has three members (Tom, the sole earner – and his two sons), and earns \$54,000 per year. Calculate their marginal tax rate, average tax rate, and effective tax rate.
- ii) The Didier Family has four members (Tatiana, the sole earner – and her three daughters), and earns \$74,000 per year. Calculate their marginal tax rate, average tax rate, and effective tax rate.
- iii) Suppose that under Arizona's tax system, taxes are levied at the household level (i.e. the marginal tax rates apply to combined spousal income). Does this tax system provide Tom and Tatiana a financial incentive to marry each other – or does it provide a disincentive?

b) Suppose that Arizona decides to move to a flat tax rate of 30%, keeping the \$4,000 per family member exemption. Furthermore, suppose that all families in Arizona are identical to either the Wilkening or Didier families, and in fact these two types of families exist in equal numbers.

- i) Would this change in the tax system make the system more progressive, more regressive, or neither? Explain. Which family benefits from the new tax system - or are both types better off?
- ii) How has the incentive or disincentive for marriage changed from that in the previous system?
- iii) From studying prior tax reform, you know that the elasticity of pre-tax income with respect to the marginal tax rate is -0.2 .
 - 1) Why is it necessary to know the elasticity of pre-tax income with respect to the marginal tax rate to correctly identify the revenue costs or gains of this change in the tax system?
 - 2) Assuming that the elasticity of -0.2 is a correct estimate, would revenues increase or decrease from the tax system in (a)?