

**Public Finance  
Problem Set Four**

1. In California, homeowners pay property taxes of one percent of the assessed valuation of their home. Their property taxes remain the same (adjusted for inflation) as long as they stay in the same home (i.e. their assessed value is locked as long as they stay in the same home). If they move, however, they must pay property taxes based on the assessed value of the new home that they purchase. Thus, if property values have increased since the time they purchased their first home, moving will entail higher property taxes.
  - a) Explain the ramifications of this unique feature of California's property tax system for the Tiebout model. Specifically, how does it affect the conclusion that local public goods will be provided efficiently?
  - b) Relative to states where property taxes are not capped until you move (i.e. moving has direct impact on your property taxes), are communities in California likely to be more or less homogeneous? Explain.
  
2. The identical residents of Hamden (a sleepy little town in Connecticut) each have \$100,000 to spend on police protection,  $P$ , or private goods,  $x$ . Each unit of police protection costs a resident \$100 (i.e. the tax price of increased police protection is \$100 per unit) and each unit of private goods cost \$1.
  - a) Graph a given resident's budget constraint for police protection and private goods. Draw in a hypothetical indifference curve that illustrates the case where the resident chooses to purchase 20 units of police protection.
  - b) Now suppose that the state government decides to subsidize police protection in Hamden by providing one unit of police protection for every two units the town purchases. Create a new diagram that illustrates the budget constraint and indifference curve from part a) and the new budget constraint with a new hypothetical indifference curve.
  - c) Will the residents of Hamden purchase more or less units of police protection with the subsidy? Will they purchase more or less units of the private good with the subsidy? Explain.
  - d) Now suppose that the state government decides to replace the subsidy with a restricted block grant that can only be spent on police protection. Further, suppose the amount of the block grant is identical to the amount of the subsidy the state government provided Hamden in part b). That is, the block grant allows the residents of Hamden to choose the same bundle of police protection and private goods that they chose with the subsidy. Create a diagram that illustrates the budget constraints and indifference curves from parts a) and b) and the new budget constraint and indifference curve with the block grant.
  - e) With the block grant, will the residents of Hamden purchase more or less units of police protection than with the subsidy? Will they purchase more or less units of the private good than with the subsidy? Explain.
  - f) Are the residents of Hamden better off with the block grant or with the subsidy? Explain.
  
3. Problem 4 on page 282 of your text. Brunner, Sonstelie and Thayer (2001) studied how home ownership and community income influenced votes on a proposed initiative in California to allow children to obtain their locally funded education at any public or private school rather than being restricted to their local public school. Think about how public

services such as education are capitalized into housing values. Why would renters in high-income communities be more likely than owners to support this school choice plan? Why would the reverse be true of low-income communities?

4. The town of Smallville has three families, each with one child, and each of which earns \$20,000 per year (pre-tax). Each family is taxed \$4,000 per year to finance the public school system in the town, which any family can then freely attend. Education spending is \$6,000 per student in the public school. The three families differ in their preferences for education. Though families A and B both send their children to public school, family B places a greater value of education than family A. Family C places the greatest value on education and sends its child to private school.

- a) Graph the budget constraints facing each of the three families and draw a possible indifference curve that could correspond to the choice each family makes.

The town is considering replacing its current system with a voucher system. Under the new system, each family would receive a \$6,000 voucher for education and families would be still able to send their children to the same public school or choose a private school. Since this would be more costly than the current system, they would also raise taxes to \$6,000 per family to pay for it.

- b) Draw the budget constraint the families would face under this new system.

Suppose that when the new system is introduced, family A continues to send their child to public school, but family B now sends their child to private school along with family C's child.

- c) Explain how you know that family C is made better off and family A is made worse off by the voucher policy.
- d) Show, using diagrams, that family C is made better off and family A is made worse off by the voucher policy.