

2. Public goods (14 pts.)

Imagine an economy with two consumers, A and B, and two goods. x^i denotes consumer i 's consumption of private good x , and G denotes the level of a pure public good g . Let p_x be normalized to 1. w^i denotes wealth of consumer i . $U^i = U^i(x^i, G)$

- a. If the level of G is determined by voluntary contributions by A and B of g^A and g^B respectively so that $G = g^A + g^B$, and consumers A and B know one another's utility functions, how will consumer A choose g^A ? Write the constrained optimization problem and first-order condition, and manipulate the FOC so that the marginal rate of transformation is on one side of the equation. Explain intuitively what is on the other side of the equation. (6 pts.)
- b. What condition holds at the optimal (Lindahl-Samuelson) level of G , assuming (now and for the rest of the problem) that all consumers are identical? You do not need to derive the condition here, just to state it with an equation and in words. (1 pt.)

c. How does the voluntary contribution level of G relate to the optimum? How does the distance between the voluntary contribution equilibrium and the optimum change as the number of consumers increases? Explain with reference to the equations in (a) and (b) and intuitively. (3 pts.)

d. Write any new utility function for consumer A that reflects the presence of an Andreoni-style “warm glow” effect and explain what this means. (3 pts.)

e. What is Brunner and Sonstelie’s alternative explanation for the “warm glow” in explaining voluntary contributions to public school foundations? (1 pt.)

3. Social choice (12 pts.)

a. Getting individuals to reveal their true preferences and aggregating those preferences both pose significant difficulty in determining the optimum level of public goods. Explain (in words) why. (8 pts.)

- b. Even if preferences are truthfully revealed and can be consistently aggregated, how can the presence of politicians and bureaucrats (discuss each in turn) result in suboptimal levels of public goods? Be explicit about any assumptions. (4 pts.)

4. Public finance with multiple jurisdictions (17 pts.)

- a. The purest form of the Tiebout model relies on a number of assumptions which do not appear to hold in practice. Extending the model to incorporate the presence of zoning laws or commercial land developers reduces the need for one of these assumptions. Which one? Explain how. (4 pts.)

- b. “Ignoring the endogeneity of lump-sum intergovernmental grants yields biased estimates of the degree to which grants stick to spending.” Drawing on Knight (2002) and Gordon (2004), explain two ways in which lump-sum grants may be endogenous, and, in each case, *how* that endogeneity will bias results estimated in a cross-section. (6 pts.)

- c. If you were conducting a cost-benefit analysis of the Medicaid disproportionate share hospital program and saw Baicker and Staiger's estimates of "effective" and "ineffective" DSH payments, which one would you use for your analysis and why? (3 pts.)
- d. True/false/uncertain, *explain*: Farnham and Sevak's work on school finance equalizations suggests that the Tiebout model does not hold. (4 pts.)