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Economics 231  
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### FINAL EXAMINATION

You may use the full 180 minutes allotted for this exam. I anticipate that it will take 50 minutes or less. There are a total of 50 points which correspond to minutes anticipated per question. No outside materials are permitted.

1. What is Coasian bargaining? Describe one externality which Coasian bargaining *is* likely to optimally resolve or “internalize” and one in which it is not likely to resolve. Explain why. (5 pts.)

2. Public goods (11 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. (2 pts.)
- d. Write any new utility function for consumer A that reflects the presence of a social penalty if one does not contribute to the public good. Is there evidence for such a penalty? Describe. (2 pts.)



4. Public finance with multiple jurisdictions (22 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), explain why lump-sum federal highway grants to states may be endogenous. How will such endogeneity bias results estimated in a cross-section? Explain in detail how Baron and Ferejohn’s insights into strategic legislative behavior help Knight find exogenous variation in grant amounts. (10 pts.)



- c. True/false/uncertain, *explain*: Baicker and Staiger's work on Medicaid's Disproportionate Share Hospital program shows that crowding out of federal grants makes them undesirable from a cost-benefit perspective. (3 pts.)
- d. Farnham and Sevak exploit "empty nest" movers to estimate the extent to which state redistribution across school districts limits the ability for people to Tiebout sort within states. Why is their reliance on these empty nest movers important to identifying their effect of interest? How might estimates be biased if they did not look at this group specifically? (5 pts.)