Economics 5300.03

Public Finance

Midterm Exam — Monday February 11, 1991 : 7 pm

Do all 3 questions. All count equally.

1. Suppose that all people in a country have utility functions of the form

$$u^h(x_h, G) = x_h + b_h\sqrt{G}$$

where x_h is the private good consumption of person h, G is the level of provision of a pure public good, and b_h is a positive parameter which varies among people. Let $\overline{b}$ denote the average level of b_h among the H people. If the marginal cost of the public good, in terms of the private good, is c, write down as precisely as possible the conditions for a Pareto optimal allocation.

2. Suppose that a government wished to learn the demands for a public good of its citizens. It plans to ask them their demands, and use these announced demand curves to calculate how much to tax the citizens, and how much to provide of the public good. Write down a set of rules for these taxes and the level of public good provision such that telling the truth is a dominant strategy for each citizen. What, if any, are the defects of the mechanism you have described?

3. State (without proof) Arrow's impossibility theorem.