

Maximal Domain for Strategy-proof Probabilistic Rules in Economies with One Public Good

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April 12, 2011

Abstract

We consider the problem of choosing a level of provision of public good on an interval of the real line among a group of agents. A probabilistic rule chooses a probability distribution over the interval to each preference profile. We investigate *strategy-proof* probabilistic rules in the case where distributions are compared based on stochastic dominance relation. First, on a “minimally rich domain”, we characterize the so-called “probabilistic generalized median rules” (Ehlers *et al.*, 2002, *Journal of Economic Theory* 105: 408-434) by means of *stochastic-dominance (sd) strategy-proofness* and *ontoness*. Next, we study how much we can enlarge a domain to allow for the existence of *sd-strategy-proof* probabilistic rules that satisfy *ontoness* and the *no-vetoer condition*. We establish that the domain of “convex” preferences is the unique maximal domain for these properties.

Keywords: public good, probabilistic rule, stochastic dominance relation, strategy-proofness, minimally rich domain, maximal domain

JEL Classification Numbers: D71