Abstract

This paper studies probabilistic allocation among a number of agents with payment. We introduce a large class of allocation rules, each of which is strategy-proof, envy-free, no imposition and "solidary" on the domain of quasi-linear preferences. We refer to these rules as ascending-price sequential selling (APSS) rules. VCG rule is a member of APSS rules. We consider two types of surplus maximization. First, given a prior distribution, we explore the expected surplus maximization problem with APSS rules. Second, we investigate the worst-case efficiency ratio maximization problem without a prior distribution. We have specified the conditions that the particular ASSP rules, satisfying these maximization problems, need to meet.