

# The MDP Procedure for Public Goods and Local Strategy Proofness\*

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## Abstract

This paper revisits the procedure developed by Sato (1983) which achieves *Aggregate Correct Revelation* in the sense that the sum of the Nash equilibrium strategies always coincides with the aggregate value of the correct MRSs. The procedure named *the Generalized MDP Procedure* can possess other desirable properties shared by continuous-time locally strategy proof planning procedures, i.e., feasibility, monotonicity and Pareto efficiency. Under myopia assumption, each player's dominant strategy in the local incentive game associated at any iteration of the procedure is proved to reveal his/her marginal rate of substitution for a public good. In connection with the *Generalized MDP Procedure*, this paper analyses the structure of the locally strategy proof procedures as algorithms and game forms. An alternative characterization theorem of locally strategy proof procedures is given by making use of the new Condition, Transfer Independence. A *Measure of Incentives* is proposed to show that the exponent attached to the decision function of public good is characterized. Coalition incentive compatibility, and equivalence between price-guided and quantity-guided procedures are also discussed.

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**Key Words:** aggregate correct revelation, coalition local strategy proof, Fujigaki-Sato Procedure, Generalized MDP Procedure, local strategy proof, measure of incentives, price-quantity equivalence, transfer independence

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