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Testing Pareto efficiency and competitive equilibrium in economies with public goods*

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Abstract

We characterize the nonparametric testable implications of Pareto efficiency and competitive equilibrium in economies with public goods, with and without warm-glow preferences, using mixed integer programming (MIP). Compared with tests based on the Tarski-Seindenberg algorithm, our tests are linear with respect to real and integer variables, and therefore operational, i.e., applicable to real data with multiple individuals and multiple observations. Monte Carlo simulation shows our tests can be implemented within reasonable time and have reasonable power when individual consumption can be (partially) observed.

Keywords: public goods; warm-glow; Pareto efficiency; Nash-Walras equilibrium.

JEL Classification Number: C68; D58; D61; H41.

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