Revealed Preference Test and Shortest Path Problem; Graph Theoretic Procedure of Rationalizability Test

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This paper shows substantial relations between revealed preference tests of a data set and *shortest path problems* of a *network* (a directed graph with weighted edges) by using a simple and straightforward graph theoretic argument. It clarifies the interpretation of the revealed preference tests, refines the Afriat inequality, and give us an unified perspective of several forms of rationalizability tests and the classical utility representation problem of preferences. Furthermore, I provide a graph theoretic procedure to check rationalizability condition (GARP) which is more efficient than the most frequently used procedure of Varian (1982).

Keywords: Revealed Preference; Afriat Inequality; Cyclical Consistency; Generalized Axiom of Revealed Preference (GARP); Shortest Path Problem

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