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Testable Restrictions of Nash Equilibrium in Games with Continuous Domains

Borrador número 229 Tenga en cuenta
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This paper studies the falsifiability of the hypothesis of Nash behavior, for the case of a finite number of players who choose from continuous domains, subject to constraints. The results obtained here are negative. Assuming the observation of finite data sets, and using weak, but nontrivial, requirements for rationalizability, I show that the hypothesis is falsifiable, as it imposes nontautological, nonparametric testable restrictions. An assessment of these restrictions, however, shows that they are extremely weak, and that a researcher should expect, before observing the data set, that the test based on these restrictions will be passed by observed data. Without further specific assumptions, there do not exist harsher tests, since the conditions derived here also turn out to be sufficient. Moreover, ruling out the possibility that individuals may be cooperating so as to attain Pareto-efficient outcomes is impossible, as this behavior is in itself unfalsifiable with finite data sets. Imposing aggregation, or strategic complementarity and/or substitutability, if theoretically plausible, may provide for a harsher test.

Fuente: https://d1b4gd4m8561gs.cloudfront.net/es/testable-restrictions-nash-equilibrium-games-continuous-domains