

EQUITABLE ALLOCATION OF DIVISIBLE GOODS AND MARKET ALLOCATION OF INDIVISIBLE GOODS

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Abstract

The existence of equitable allocations of divisible goods is established. The methods used give divisions of a good into geometrically simple sets, such as simplexes or polyhedral convex cones. Market for indivisible goods is modelled, in which a financial intermediary plays the role as an income re-distributor and each consumer can demand as many goods as he wants subject to his budget constraint, and the existence of a competitive equilibrium is proved. These two seemingly unrelated economic problems are solved by applying David Gale's covering lemma and a dual version of its extension. The extension of Gale's lemma and its dual versions are established here; the proofs are based on Ky Fan's fundamental theorem on coincidence of two set-valued functions.

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