A Model of Decentralized Matching without Transfers

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We propose a non-transferable utility (NTU) model of matching with unobserved heterogeneity in tastes that serves as a counterpart to Choo and Siow's celebrated model in the transferable utility (TU) case. Our model captures an exchange economy with indivisible goods, fixed prices and no centralized assignment mechanism. To study such decentralized matching markets, we suggest a solution concept called "equilibrium under rationing-by-waiting", which is new in a matching context, and in which a non-transferable numeraire (e.g., time) replaces a transferable numeraire (e.g., money) as the competitive market-clearing device. The matching function that we obtain is a Leontief function, whereas Choo and Siow obtained a Cobb-Douglas function. We then investigate the properties of equilibrium (existence, uniqueness, and welfare) and show that the equilibrium outcome can be obtained using a modified deferred-acceptance algorithm, with Gale-Shapley's proposal/disposal phases replaced by linear programming problems. Finally, we study the connection of equilibrium under rationing-by-waiting to the classical NTU matching theory based on pairwise stability and aggregate/large NTU matching.