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Aggregating Buyers and Sellers for E-Commerce: How Demand and Supply Meet in Fairs

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Abstract : In recent years, many new and interesting models of successful online business have been developed. Many of these are based on the competition between users, such as online auctions, where the product price is not fixed and tends to rise. Other models, including group-buying, are based on cooperation between users, characterized by a dynamic price of the product that tends to go down. There is not yet a business model in which both sellers and buyers are grouped in order to negotiate on a specific product or service. The present study investigates a new extension of the group-buying model, called fair, which allows aggregation of demand and supply for price optimization, in a cooperative manner. Additionally, our system also aggregates products and destinations for shipping optimization. We introduced the following new relevant input parameters in order to implement a double-side aggregation: (a) price-quantity curves provided by the seller; (b) waiting time, that is, the longer buyers wait, the greater discount they get; (c) payment time, which determines if the buyer pays before, during or after receiving the product; (d) the distance between the place where products are available and the place of shipment, provided in advance by the buyer or dynamically suggested by the system. To analyze the proposed model we implemented a system prototype and a simulator that allows studying effects of changing some input parameters. We analyzed the dynamic price model in fairs having one single seller and a combination of selected sellers. The results are very encouraging and motivate further investigation on this topic.

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