A quasi-equilibrium approach for market clearing in land use microsimulations

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Abstract

A method for market clearing in land use models with a microsimulation approach for location choice of agents is proposed. The method, based on the Bid-auction theory and random utility models, assumes that agents individually adjust their perceived expected utility by observing market prices before entering auctions for a real estate good, hence modifying their overall willingness to pay for locations. The adjustment translates into a correction of each agent's bid level that follows the direction of supply-demand equilibrium, as they attempt to ensure their location. In each period, auctions for each available real estate good are simulated and prices are computed as the expected maximum bid of all agents in the market. The proposed method is tested for the city of Brussels, validated against real data and compared with results obtained when the bid adjustment is not included. Simulation results reproduce price trends that were observed in reality between the year 2001 and 2008, outperforming results obtained without a quasi-equilibrium bid adjustment approach. The proposed method is feasible to be implemented in large scale microsimulations and agent-based models because it does not require solving large fixed-point equilibrium problems.

Keywords: Land use || Agent based || Market clearing || Microsimulation || Location choice **Creado:** Sábado, 21 de Noviembre, 2020