Simulation for the Consumer's Decision-making Process of Purchase by the Agent Based Model
(Agent Based Model による潜在的購買人口の移動と分布の統計解析)

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The Agent Based Model is a simulation technique composed of agent interaction, autonomy and self-organization. Recently, it comes into use in Business Demography or Applied Demography which is deviated from methods of the traditional demography.

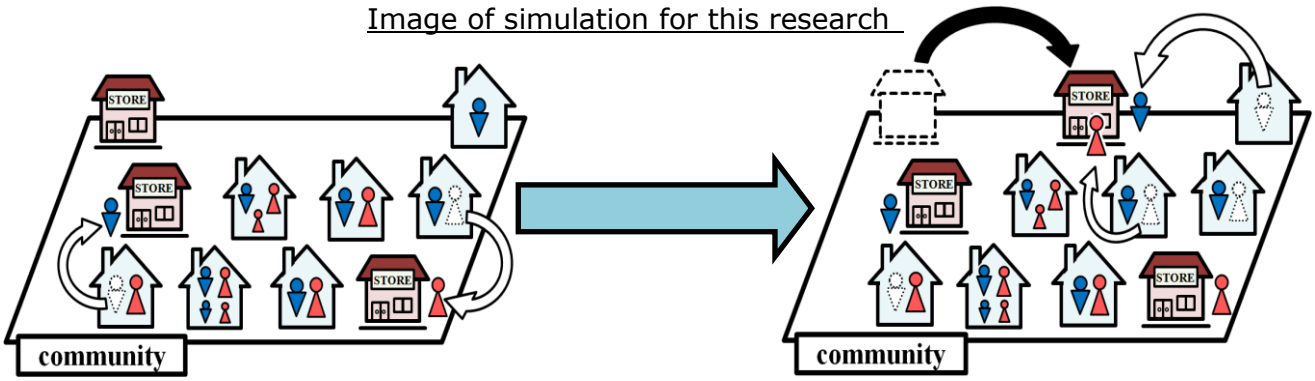
The consumer's decision making process for purchase should be simulated by Agent Based Model in the research due to the expensive or undeveloped data, moreover data restriction for academic research use, such as "Big data" in Japan.

To be specific, we observe how the behavior of each consumer with certain rules makes an effect to the whole market. Through real and diverse rules of each consumer of our analysis, more real result could be expected

The simulation settings are as follows. First of all, we assume there are a number of households and retail stores in the community as configuration for simulation. Then, the agents are consisting of households and companies which are managing the retail stores. Finally as behavioral characteristics, companies perform the reasonable actions in order to maximize their profits. Households also perform the reasonable actions to maximize their utility.

Company's actions in view of behavioral characteristics of other companies and consumers should make the prices set and the retail stores move reasonably. In contrast, consumers select the retail stores with willingness to pay, movement to stores, speed for action, the quality and quantity of information, demographic characteristic such as sex or age, and they have a different purchase decision-making with each other.

Image of simulation for this research



1. Companies make the prices set.
2. Consumer goes to buy at the store with their incentives.
3. The store moves to reasonable place to maximize own profit.
4. Consumer probably goes to buy at the new near store.
5. Repeat 1. ~ 4.