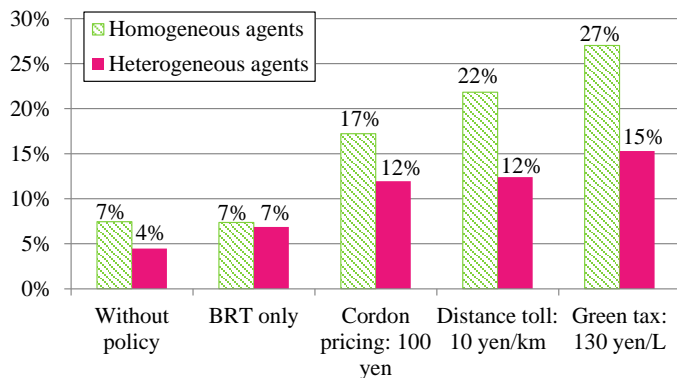
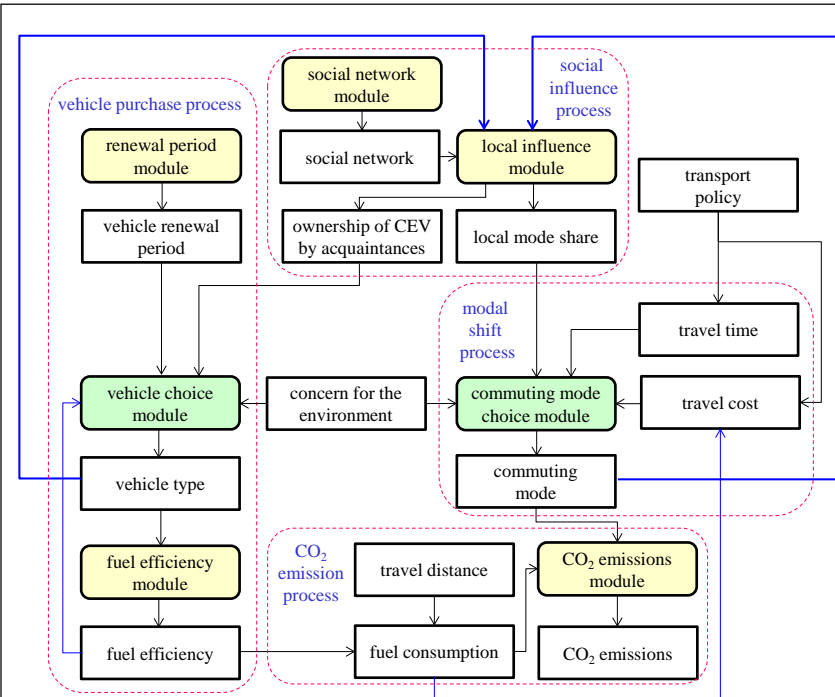




# Simulating Social Influences on Sustainable Mobility Shifts

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### Content:

The research question is how much do heterogeneity and local interaction influence mobility shift with the policy for sustainable transport. A multi-agent mobility shift simulation model that considers heterogeneity and local interaction is developed. For this purpose, the stated preference (SP) for mode change and purchase CEV policies is investigated via a questionnaire survey. The proposed multi-agent simulation model includes the decision process of the agent regarding mobility shift, the social influence process in the social network, and the CO<sub>2</sub> emission process. The decision process for commuting mode is modeled using the hierarchical Bayesian method mainly to describe the heterogeneity of the influence of the local mode share. The day-to-day dynamics of commuting mode choice and the purchase of CEVs corresponding to the transport policy are estimated using the proposed multi-agent simulation model.

The results confirm that the heterogeneity of influence on social conformity should be considered in the modeling of modal shift as both conformity effects and non-conformity effects are observed. However, the assumption of homogeneous commuters might cause estimates that are too high, since the heterogeneity of commuters decreases the share of the sustainable transport mode. Furthermore, the green tax policy is confirmed to be suitable for maximizing the reduction rate of CO<sub>2</sub> emissions, as pricing based on fuel consumption maximizes reduction efficiency.

**Keywords :** local interaction, mode choice, hierarchical Bayesian modeling, multi-agent simulation, pricing policy

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