Inertia, Interaction and Clustering in Demand

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Interaction

- consumer interaction in economics
  - rare
  - based on revealed preferences
- “social animals” : we interact on deeper levels
  - we diffuse much more information than can be obtained through revealed preferences
  - what type of information?
  - who receive the information? (localization of the interaction)
Inertia

- well explored in economics (habit formation)
- macro prospective
- micro prospective
The Model

- what are the implications for the organization of consumer behaviour?
- we setup a dynamic discrete choice model based on two features (I&I)
- with few assumptions one can describe the linear approximation of the system with the set of PDE’s

\[ \frac{\partial v_i}{\partial t} = \alpha v_i + \mu \frac{\partial^2 v_i}{\partial s^2} \]

where

- \( \alpha \) controls the rate of inertia
- \( \mu \) controls the rate of interaction
Equilibria

- a dominant product – clustering (boring solution)
- several survivors
  - no clustering: completely random choices
  - clustering in small neighbourhoods
  - the value deciding on whether there is clustering or not, as well as on the size of a typical cluster:

\[ \sqrt{\frac{\mu}{\alpha}} \]
Out-of-Equilibria

- the flavour of the model
- numerical analysis
- emergence of new type of activity in a neighbourhood without the history of such activity
- not possible in models with RP-based interaction
- important for innovation / new market emergence analysis
Figure: Dynamics of product purchases