

How Do Communications between Consumers Construct Brand Value?

Agent-Based Simulation of Market Dynamics

Graduate School of Business and Commerce,
Keio University, Japan.

Kosaku Morioka

(mailto: cultivation.foresthill@gmail.com)

Agenda

1. Introduction
2. Theoretical Background
3. The Model
4. Results of Simulations
5. Findings
6. Conclusion

1. Introduction

Introduction

Which shirt do you choose?



Introduction

Which shirt do you choose?



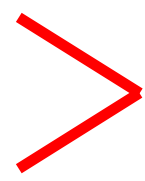
Introduction

Which shirt do you choose?



Introduction

Which shirt do you choose?



Research Motivation

Brand value : the value added to a certain product because of its
(Brand equity) brand name even if the product is the same as other
products.

Aaker (1991), Ailawadi, Lehmann, and Neslin (2003)

Why does brand name add value to a certain product?

Research Overview

Customer-Based Brand Equity

--the different values added by brands result from the consumer's knowledge about these brands.

Keller (1993, 1998)

Brand Identity

--the various marketing activities based on the particular brand identities of the firms result in consumers having different knowledge about the products.

Aaker (1991, 1996)

Research Overview

Although the difference of firms' marketing activities is clearly a significant factor that influences consumers' knowledge, is that really all there is?

- Do brand values emerge when firms' marketing activities are not different or when consumers does not/can not perceive the difference of these activities?

Research Objectives

(1) To explain how communications between consumers can construct brand values.

➔ Social system theory + α

(2) To understand the phenomenon through simulation experiments.

➔ Agent-based simulation

2. Theoretical Background

Social System Theory

What is a social system?

-Luhmann regard societies as “autopoietic” systems.

--Autopoiesis of the social system means the self production of the system’s components, and therefore a chain of components.

Luhmann (1984, 1989)

Assuming the consumption system as an autopoietic system, we infer that the consumption system can produce its components and structure.

Social System Theory

What is the component of the social system?

- Luhmann insist that only communications are the components of the social system.

Luhmann (1984)

We can assume that consumers' communication have the potential to construct the brand value.

Bandwagon and Snob Effects

Leibenstein (1950) implied two types of consumer communications.

(1) Communications with bandwagon effects

--Communications which produce increasing demands for a certain product.

(2) Communications with snob effects

--Communications which produce increasing demands for a certain product.

Threshold Model

Granovetter's (1978) threshold model

- (1) Each consumer has a threshold of whether or not to adopt the behavior of the group.
- (2) Each consumer has a different personal threshold.

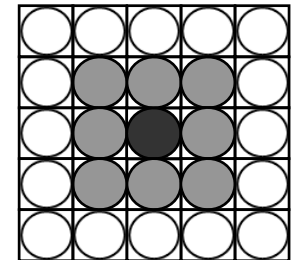
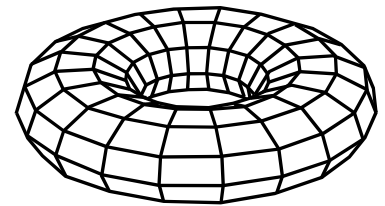
Although his threshold model focus only on the threshold relating to the communications with bandwagon effects (bandwagon threshold), we assume that consumers have the threshold as to the communications with snob effects (snob threshold).

3. The Model

Environment

The environment of agents is set as follows;

- (1) Each agent lives in one of 20×20 squares.
- (2) The edges of the world in which the agents live are eliminated by closing the array like a torus.
- (3) Each agent has 8 neighbors to communicate with.
- (4) There are two product (x and y) in the market.
- (5) Time is discrete.



Equipment

Each agent has three fixed parameters;

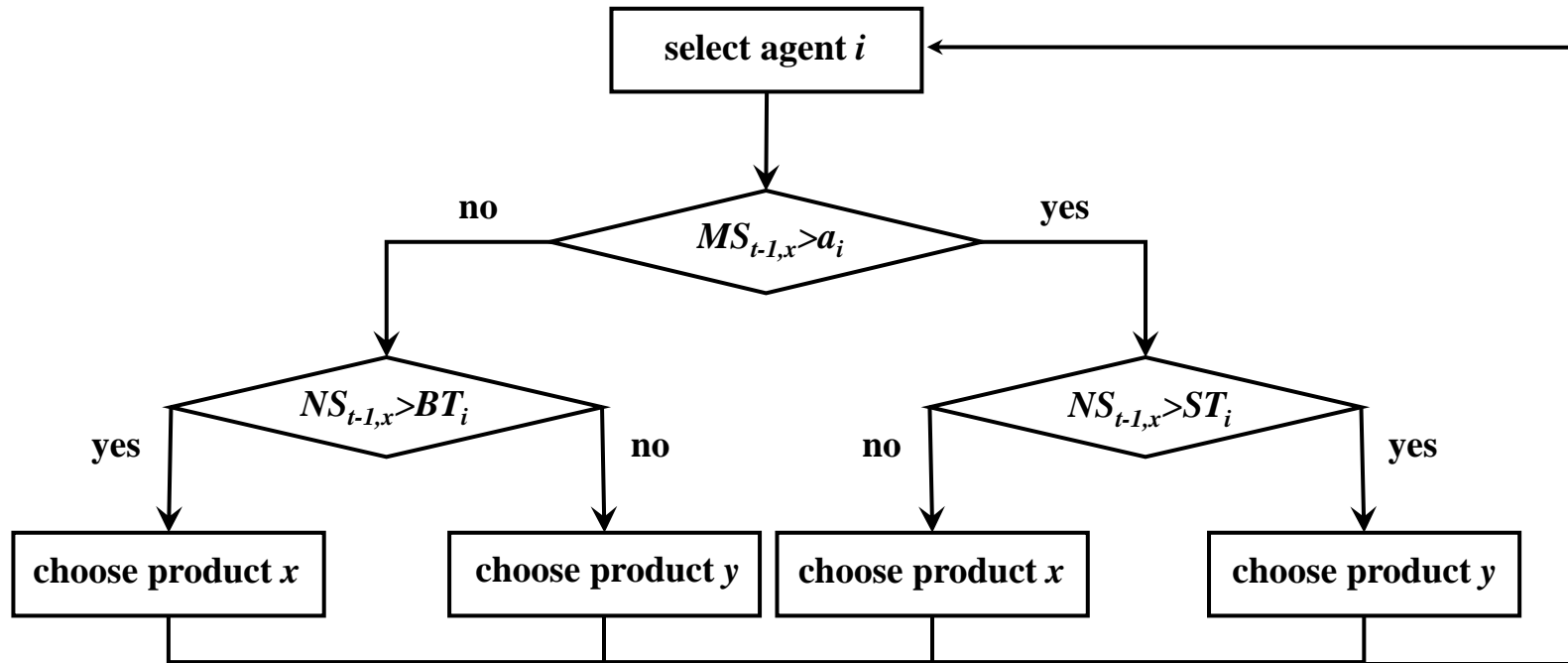
- (1) BT_i : bandwagon threshold
- (2) ST_i : snob threshold
- (3) a_i : parameter that determine which effect the agent involve with.

} assigned
at random

Each agent has two types of information;

- (1) $MS_{t-1,x}$: the market share of product x at $t-1$
- (2) $NS_{t-1,x}$: the network share of product x at $t-1$

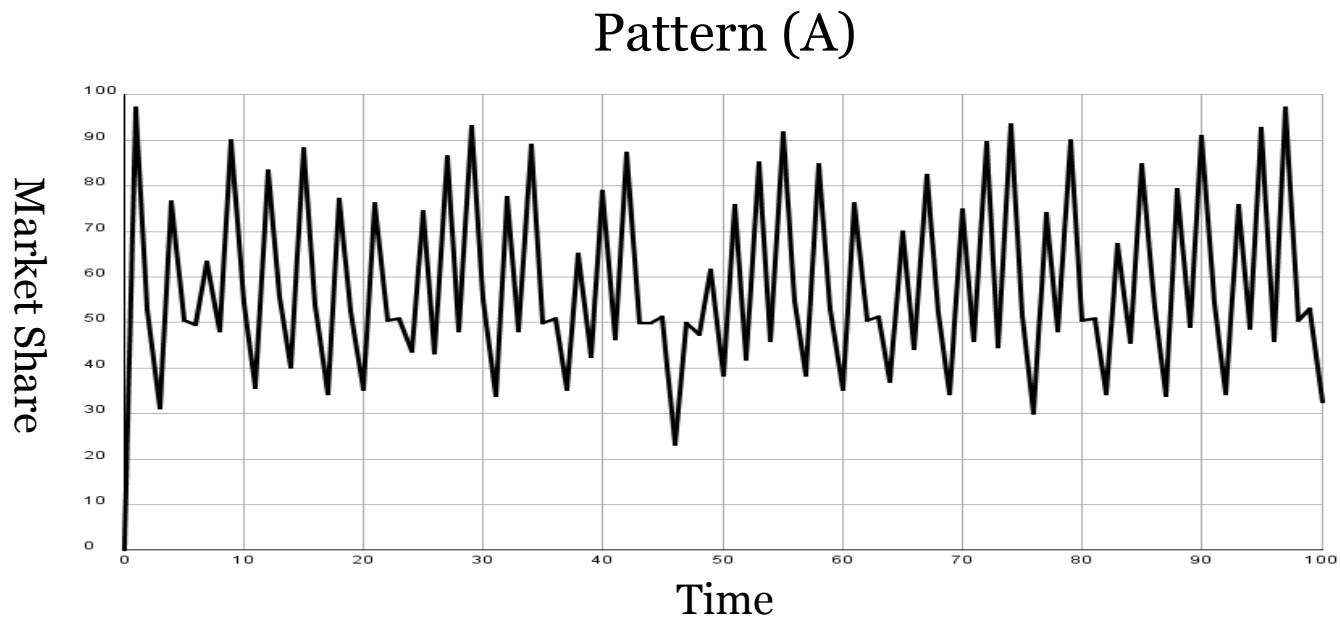
Communications between Agents



4. Results of Simulations

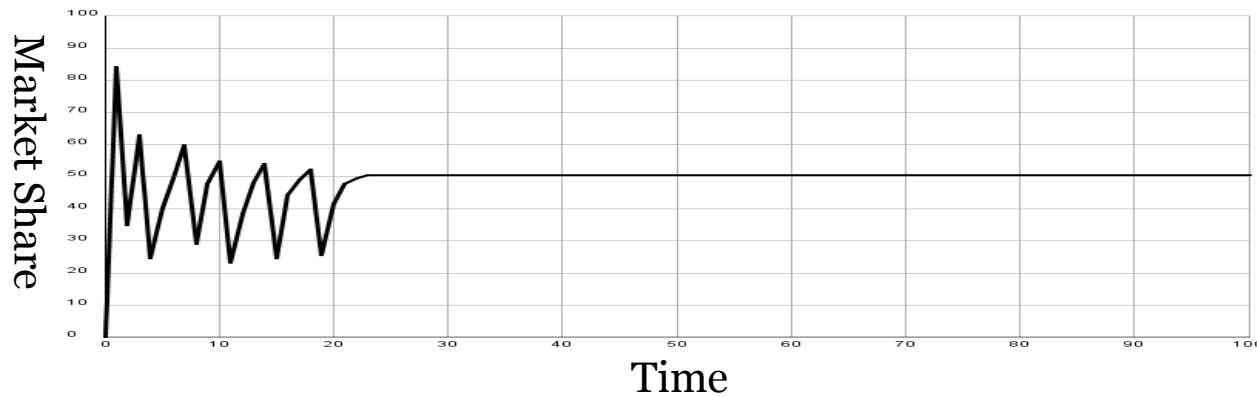
Results

The typical results that we observed are as follows.



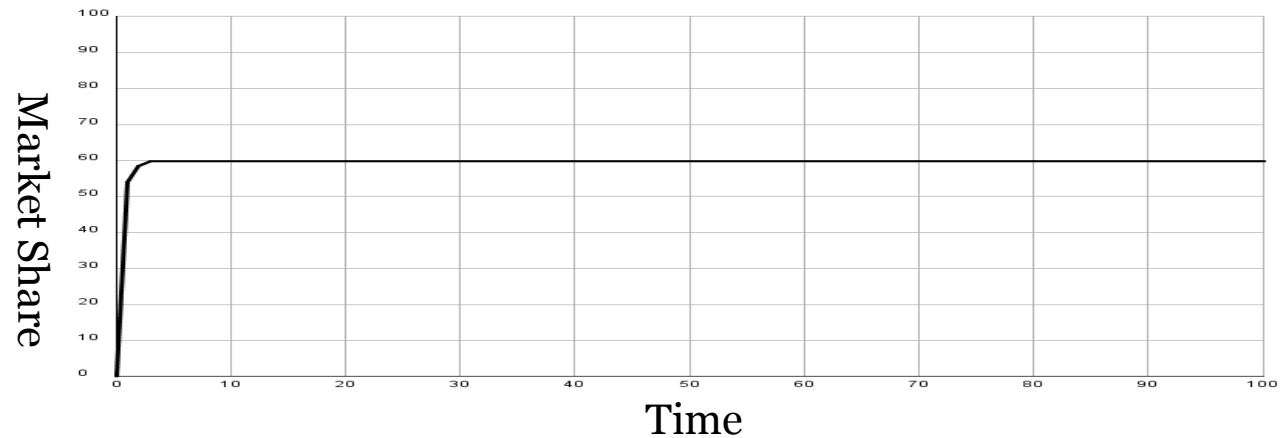
Results

We observed the following results (Pattern B and C) sometimes.



← Pattern (B)

Pattern (C) →



5. Findings

Findings

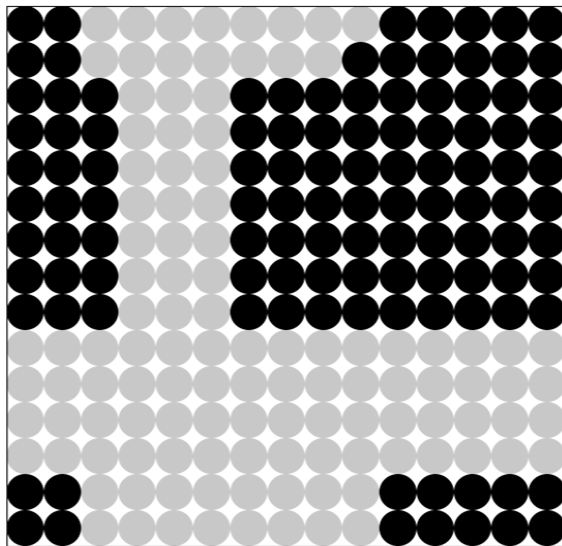
The most typical result (Pattern (A)) shows that;

- (1) Brand values can emerge only thorough consumers' communications.
- (2) Brand values can also collapse thorough consumers' communications.
- (3) No equilibrium is not observed.

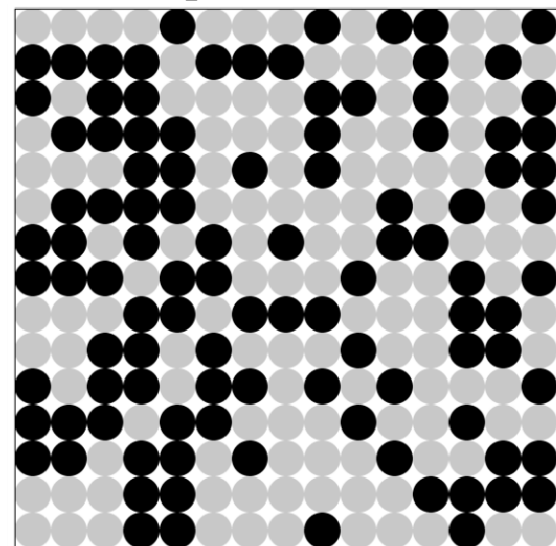
Findings

In contrast, the equilibrium is observed in the Pattern (C) and (B)

In equilibrium (Pattern (C) and (B) partly)



Not in equilibrium (Pattern (A))



These results imply that the emergence and collapse of the brand value are determined partly by the spatial conditions.

6. Conclusion

Implication

This research implies that;

- (1) Consumers themselves have the potential to construct the brand value by their communications.
- (2) The social system gives the theoretical foundation to the research on the brand.
- (3) Agent-based simulation is a useful tool to understand the dynamic marketing phenomena such as the dynamics of the brand value.

Limitation

This research has some limitations;

- (1) Only two products are assumed.
- (2) The number of agents are fixed 400.
- (3) Agents have no ability of learning.

If we assume what the limitations imply, the results of the simulation may vary.

Future Research

The empirical test was not conducted in this research.

- To test our model empirically, we are required to use longitudinal data about the consumers' communication and the brand values of products.

Thank you !!