A Comparative Study on Hospitality in the Urban and Rural World

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Abstract. The purpose of this research is to consider hospitality as a strategy and to explain individual behaviors in urban and rural society through game theory. According to Sorokin and Zimmerman, the size of a community in the rural society is relatively small and the density of population of is lower than that of an urban community. Furthermore, the social mobility of the population is comparatively less intensive in the rural society. Thus, there is a higher possibility to meet the same person one happened to have met previously once again in the rural world and it is rational to behave with hospitality. On the other hand, we can imagine that in an urban society it is easier to trust unknown people. Hence, in regards to transactions with new customers, one can expect hospitality from others at an early stage of business in an urban society.

Keywords: The Urban and Rural World, Strategy, Game Theory

1. INTRODUCTION

The purpose of this research is to consider hospitality as a strategy and to explain individual behaviors in urban and rural society through game theory. Game theory is "the study of mathematical models of conflict and cooperation between intelligent rational decision-makers" (Myerson, 1991, p. 1). The theory is utilized within the fields of economics, political science, psychology, computer science, biology, and so on. Thus, game theory is inimitably catholic, and might be a useful tool with which to consider the superiority and effectiveness of hospitality as a strategy within business and everyday life.

However, it has been difficult to find existing research based on game theory in the field of hospitality, even though there are many such studies in other fields. Therefore, the objective of this study is to examine whether game theory can be applied to hospitality studies. If this were possible, game theory would contribute significantly to the further development of such studies.

2. METHOD

First, I briefly survey previous relevant studies. Next, I conduct a basic model simulation based on game theory, and then consider its applicability to hospitality research.

3. PREVIOUS STUDIES

Few studies have associated hospitality with game theory. Therefore, I survey previous studies that analyze hospitality as a strategy or that approach hospitality from a strategic point of view.

Previous studies that associate hospitality with game theory include those of Yamamoto (2004) and Minamikawa and Akakabe (2006). Yamamoto (2004, pp.13-21) discusses self-organization within urban areas and urban growth management. However, that paper merely refers to game theory in the introduction.

On the other hand, Akakabe (2006, pp. 43-56) considers how business-to-business relationships and pricing policy influence price and service competition. The authors use game theory model to analyze competition in the hospitality industry from a marketing perspective.

Although these studies refer to both game theory and hospitality, they do not necessarily regard hospitality as a strategy.

Previous hospitality studies that examine a "strategic" approach include Demise (1996), Ozawa (2000), and Kotler, Bowen, and Makens (2006). These studies evaluate hospitality from the strategic perspective of companies and organizations.

Demise (1996, pp. 25-40) discusses management strategies in the hospitality industry, enumerating expansion and diversification strategies in the domestic

market and as an internationalization strategy (i.e., expansion into overseas markets). He also examines the effectiveness of Porter's competitive strategy (i.e., cost leadership strategy, differentiation strategy, and focus strategy), finding that the focus strategy and differentiation strategy are effective in the hospitality industry.

Ozawa (2000, pp. 175-194) attempted to clarify the characteristics of marketing and management strategies of companies within the hospitality industry, based on a case study of McDonald's, Japan.

Kotler, Bowen, and Makens (2006, pp.657-660) cite six marketing strategies within the hospitality industry, stressing the importance of building good, long-term relationships with customers and suppliers.

These studies all examine marketing strategies within the hospitality industry. As stated above, few studies have analyzed hospitality as a "strategy."

Why can we not find research based on game theory in conventional hospitality studies? "Segregation" between economics and hospitality studies might be part of the answer to this question. Game theory has been used in a wide range of disciplines, and particularly in the field of microeconomics. If economists were more involved in hospitality research, analyses based on game theory would likely be more common.

4. THE EFFICACY OF GAME THEORY WIT HIN HOSPITALITY RESEARCH

Game theory assumes a situation in which parties (i.e., players) with different interests influence each other under certain conditions (i.e., the "*game*") and analyzes their behavior from a theoretical point of view. The game is normally represented as a matrix, which shows the players, strategies, and payoffs.

I think it is possible to explain hospitality (i.e., friendly and generous behavior towards others) in terms of game theory because behavior could be influenced by others' behavior, as well as by a strategy. Using a simple game theory model, I consider the effectiveness of hospitality as a strategy. Players can select a strategy (selectable behaviors or attitudes in the game). Here, hospitality behavior is regarded as one possible strategy.

Here, I regard the interpersonal communication between individuals as a game. The strategy "high hospitality" represents a positive and friendly attitude towards others, whereas "low hospitality" represents a passive and aloof attitude.

I assume there are two players (A and B). If one player selects "high hospitality," the payoff for the other player is 2. When "low hospitality" is chosen, the payoff is 1. The payoffs are illustrated in Table 1. In this case, player A's payoff depends on player B's strategy, and vice versa. Therefore, there is no incentive for either of them to choose a particular strategy.

Table 1. Payoffs for Two Players

		Player B	
		High Hospitality	Low Hospitality
Player A	High Hospitality	(2 , 2)	(1 , 2)
	Low Hospitality	(2 , 1)	(1 , 1)

Note: The numbers on the left side in each cell denote the payoffs for player A. The numbers on the right side denote the payoffs for player B.
Source: Produced by author

Then, I assume that the probability of player A adopting the high hospitality strategy is p, while that of player B is q. Thus, the probability of player A adopting a low hospitality strategy is $1 - p$, while that of player B is $1 - q$. The expected payoffs can be expressed as follows:

a. Player A's Expected Payoff (Ua):

$$Ua = p \cdot q \cdot 2 + (1 - p)\, q \cdot 2 + p\,(1 - q) \cdot 1 + (1 - p)\,(1 - q) \cdot 1$$

b. Player B's Expected Payoff (Ub):

$$Ub = p \cdot q \cdot 2 + (1 - p)\, q \cdot 1 + p\,(1 - q) \cdot 2 + (1 - p)\,(1 - q) \cdot 1$$

Thus, we have:

$$Ua = 1 + q$$

$$Ub = 1 + p$$

As a result, each player's expected payoff depends on the probability of the other player adopting the high hospitality strategy.

If there is no possibility of a reunion with the other player, there would be no incentive to choose a high hospitality strategy. However, if the players frequently encounter one another, and determine their strategies based on the other player's previous strategy, the probability that both players will adopt a high hospitality strategy (p, q) is approximately equal. For example, if player B adopts the high hospitality strategy towards A, player A will choose the same strategy in the next round. In other words, "tit for tat" could be a rational strategy, as shown in Axelrod (1997, pp.15-17). The higher the probability becomes of a player adopting the high hospitality strategy, the greater his expected payoff in the next round will be.

Next, I suppose that the high hospitality strategy would exhaust a player (i.e., there is a mental cost). In this case, the player's own payoff decreases by 1, while that of the other player increases (see Table 2).

Table 2. Payoffs Considering the Mental Cost

		Player B	
		High Hospitality	Low Hospitality
Player A	High Hospitality	(3 , 3)	(1 , 4)
	Low Hospitality	(4 , 1)	(2 , 2)

Note: The numbers on the left side in each cell denote the payoffs for player A. The numbers on the right side denote the payoffs for player B.
Source: Produced by author

In this case, each player's expected payoff can be illustrated as follows:

a. Player A's Expected Payoff (*Ua*) :

$$Ua = p \cdot q \cdot 3 + (1 - p)\, q \cdot 4 + p\,(1 - q) \cdot 1 + (1 - p)\,(1 - q) \cdot 2$$

$$= - p + 2q + 2$$

b. Player B's Expected Payoff (*Ub*):

$$Ub = p \cdot q \cdot 3 + (1 - p)\, q \cdot 1 + p\,(1 - q) \cdot 4 + (1 - p)\,(1 - q) \cdot 2$$

$$= 2\,p - q + 2$$

For each player, the higher the probability that the player will adopt the high hospitality strategy, the higher the other player's expected payoff will be. Conversely, the lower the probability that the player will adopt the high hospitality strategy, the higher his own expected payoff will be.

The higher the possibility of a reunion, the more likely that p and q will be the same. As a result, they increase p (or q) in order to increase the possibility of the other player selecting the high hospitality strategy (p and q).

If the possibility of a reunion is 100% and the other player repeats his strategy, p would ultimately approximate q, in the long run ($p \fallingdotseq q$). Then, we obtain the following formulae:

$$Ua \fallingdotseq p + 2$$

$$Ub \fallingdotseq q + 2$$

From these formulae, we can deduce that the higher the probability of a player adopting the high hospitality strategy, the higher the player's expected payoff will be.

Suppose the possibility of a reunion is r and the possibility of meeting a stranger is $1 - r$ (the possibility that strangers are likely to adopt the high hospitality strategy is η). Then, the possibility that player A can expect the stranger to adopt the high hospitality strategy (q) is expressed as follows:

$$q = rP + (1 - r)\eta$$

Assigning this formula to player A's expected payoff (*Ua*), we obtain the following equation:

$$Ua = 2(r - 1)p + 2(1 - r)\eta + 2$$

If r is larger than 0.5 (the possibility of a reunion is relatively high), the player can enjoy a better payoff by increasing p. That is, a hospitality effort would pay off.

Conversely, when r is smaller than 0.5, the player will attain a smaller payoff by increasing the value of p.

5. CONCLUSION

From the above discussion, whether our hospitality effort towards others is rewarded depends on the possibility of a reunion with the other parties (given "tit for tat" by the other parties). Furthermore, game theory is useful when examining the strategic effectiveness of the hospitality.

In general, it is said that rural people are more kind-hearted than are urban people. Although I do not entirely agree with this idea, it might be true that rural people sometimes display a relatively intimate attitude towards others. Sorokin and Zimmerman (1969) point out the following eight differences between urban and rural worlds:

①occupation
②environment
③size of community
④density of population
⑤heterogeneity and homogeneity of the population
⑥social differentiation and stratification
⑦mobility
⑧system of interaction

In rural areas, the mobility of people and the population density are relatively low. Thus, the possibility of a reunion can be considered larger than in urban areas. Those who live in rural areas, where reunions are more likely, should be more hospitable and amicable. This can be said to be a rational choice.

This study examined the possible effectiveness of applying game theory to hospitality studies. Future research should examine this possibility further.

Finally, future research needs to clarify the difference between a "high hospitality" strategy and a so-called "cooperative strategy," as well as to evaluate "mental costs" appropriately.

Table 3. rural world and urban world (Sorokin and Zimmerman)

	rural world	urban world
occupation	Totality of cultivators and their families. In the community are usually few representatives several non-agricultural pursuits. They, however, do not compose the proper object of rural sociology.	Totality of people engaged principally in manufacturing, mechanical pursuits, trade, commerce, professions, governing, and other non-agricultural occupations.
environment	Predominance of nature over anthropo-social environment. Direct relationship to nature.	Greater isolation from nature. Predominance of man-made environment over natural. Poorer air. Stone and iron.
size of community	Open farms or small communities, "agriculturalism" and size of community are negatively correlated.	As a rule in the same country and at the same period, the size of urban community is much larger than the rural community. In other words, urbanity and size of community are positively correlated.
density of population	In the same country and at the same period the density is lower than in urban community. Generally density and rurality are negatively correlated.	Greater than in rural communities. Urbanity and density are positively correlated.
heterogeneity and homogeneity of the population	Compared with urban populations the populations of rural communities are more homogeneous in racial and psychosocial traits. (Negative correlation with heterogeneity.)	More heterogeneous than rural communities (in the same country and at the same time). Urbanity and heteregeneity are positively correlated.
social differentiation and stratification	Rural differentiation and stratification less than urban.	Differentiation and stratification show positive correlation with urbanity.
mobility	Territorial, occupational, and other forms of social mobility of the population are comparatively less intensive. Normally the migration current carries more individuals from the country to the city.	More intensive. Urbanity and mobility correlated. Only in the periods of social catastrophy is the migration from the city to the country greater than from country to the city.
system of interaction	Less numerous contacts per man. Narrower area of the interaction system of its members and the whole aggregate. More prominent part is occupied by primary contacts. Predominance of personal and relatively durable relations. Comparative simplicity and sincerity of relations. "Man is interacted as a human person."	More numerous contacts. Wider area of interaction system per man and per aggregate. Predominance of secondary contacts. Predominance of impersonal casual and short-lived relations. Greater complexity, manifoldedness, superficiality, and standardized formality of relations. Man is interacted as a "number" and "address."

Source: Sorokin, P and Zimmerman, C, C, *Principles of Rural-Urban Sociology*, Kraus Reprint Co, 1969, pp.56-57

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