



## Decisive mechanism of organizational citizenship behavior in the hotel industry – An application of economic game theory

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### ABSTRACT

This paper applies an economic game theory model to explain the decisive mechanism of organizational citizenship behavior (OCB). The Sub-game Perfect Nash Equilibrium (SPNE) indicates that an employee's unique motivation of OCB is to maximize his or her own performance outcome. The findings also suggest that workload, importance of work to performance outcomes and cost of OCB jointly determine the amount of OCB that each individual employee exhibits. An empirical test utilizing frontline hotel employees was performed ( $N=175$ ). Using a partial related test and logistical model, the results supported three propositions, suggesting that the amount of OCB exhibited by each employee is jointly influenced by the workload, cost of OCBs and OCBs performed by coworkers.

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## 1. Introduction

### 1.1. Background of the study

This paper focuses on the perfect information dynamics of an economic game theory model considering 2-stage in which organizational citizenship behavior (OCB) enters the employee's performance outcome function. A game model is proposed to answer the questions of why and how OCB influences an individual's performance outcome. Additionally, the question of what are the real determinants of the amount of OCB is asked. The theoretical model was tested in the context of China's hotel industry.

This paper proposes a new theoretical model of OCB based on classic game theory in modern microeconomics. Specifically, the model is used to characterize the real situation and interactive processes among employees, customers and the organization. A dynamic two-stage perfect information game was adopted to monitor how employees maximize their OCBs. The formal method used to solve this kind of game model was originated from Rubinstein (1982), who carried out a classical solution structure of perfect information dynamic game through a bargaining model. A unique contribution of the model is taking the cost of OCB (Bergeron, 2007; Vigoda-Gadot and Angert, 2007) into consideration.

As suggested by Bergeron (2007), a zero-sum relationship exists when any change in time allocated to OCB is at the cost of task performance. This is also consistent with the rationale of Time Allocation Theory (Becher, 1965). However, most previous studies indicated that there is a strong positive correlation between OCB and task performance (William and Anderson, 1991; Conway, 1999; Johnson, 2001; Turnley et al., 2003). One possible explanation for the controversial results, as suggested by Bergeron (2007), is that research that found positive correlations between OCB and task performance did not control the amount of hours spent in working. In the present framework, OCB we considered as a substitution to in-role task performance based on the Time Allocation Theory, as well as extra-role performance, which directly contributes to the agent's performance (an hotel employee in this case). In this way, it allows for both types of performance (in-role task performance and OCB) to make a positive contribution to job outcomes, as well as considering the cost of OCB.

### 1.2. Suitability of using game theory in OCB studies

The antecedents and consequences of OCB have been commonly researched for almost three decades (Bateman and Organ, 1983; Organ, 1988; Torlak and Koc, 2007). Researchers have attempted to explain the motivational mechanisms of OCB from various perspectives, such as social exchange (Organ, 1990; Zellars and Tepper, 2003; Ma and Qu, 2011), impression management (Bolino and Turnley, 1999; Rioux and Penner, 2001) and personality traits (Borman and Motowidlo, 1993; Morgeson et al., 2005). However,

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very few studies examined OCB motivation from the economic theory perspectives, for example the classic game theory perspective. Several important considerations warrant the analysis of OCB using game theory.

First of all, game theory in modern economy is the best tool to tackle interactive processes with interdependent players (Nolan and Adam, 2007; Song, 2008). OCB is the type of behavior that falls into this category, as employees who perform OCB are interdependent and interactive with his or her co-workers, customers and the organization (Lambert, 2000; Bell and Mengüç, 2002). The dimensionality of OCB also indicates this feature. For example, according to Organ's Five-dimensional Framework of OCB (1988), both courtesy and sportsmanship involve interactions between the employee and his or her co-workers (Morrison, 1994), while civic virtue represents the interaction between an individual employee and the organization (Podsakoff et al., 2000).

Second, recent studies revealed that OCBs can be viewed as reflective behaviors. This is due to the fact that employees' OCB performance reflects the degree of an employee's Perceived Organizational Support (POS) as well as the OCBs that employee received from others (Organ and Ryan, 1995; Moorman et al., 1998; Lambert, 2000; Moorman and Harland, 2002; Vigoda-Gadot and Angert, 2007). The interactions and interrelationships involved in this process make the introduction of an interdependent game model necessary.

Third, one basic premise of the OCB theory is that an employee will engage in OCB when he or she perceives that their employment relationship is based on social exchange (Organ, 1990; Moorman, 1991). Another premise of OCB theory is that OCB is a reciprocate behavior (Organ, 1988, 1990; Rousseau, 1990; Lambert, 2000). Both premises reveal that OCB is an interactive process. However, both of these two premises are unable to demonstrate the decisive mechanism of OCB mathematically, which clearly shows the interactive path from the determinants of OCB to actual OCB performance. Fortunately, game theory is a useful mathematic tool to determine the decisive path of interactive behaviors.

Therefore, the main purpose of this paper is to highlight the major determinants of OCB. To deduce the decisive mechanism of OCB, an optimization solution of individual performance function was made with OCB to figure out how much OCB is decided by individual's dynamic game interaction.

## 2. Literature review

### 2.1. Antecedents of OCBs-influencing factors or motivators?

Although a few studies consider OCB as "discretionary" in nature (MacKenzie et al., 1993; Appelbaum and Roy-Girard, 2007), the benefits of OCBs to organizations inspired growing interest on OCB motivation studies. The most well cited conclusions include that there is a positive relationship between employees' job satisfaction and OCB (Bateman and Organ, 1983; Puffer, 1987; Organ and Konovsky, 1989; Witt, 1991); OCB is motivated by the premise that an employee believes they are being treated fairly (Organ, 1990); OCB is induced through social exchange, reciprocity and equity (Moorman, 1991; Lambert, 2000). Therefore, OCB may be used as an employees' currency of reciprocity (Huang et al., 2004). In addition, POS is considered as a strong antecedent of OCB (Rioux and Penner, 2001) although Moorman et al. (1998) believe that POS is a mediating variable. Researchers also suggest that psychological contract fulfillment plays a significant role in the elicitation and maintenance of OCB (Robinson and Morrison, 1995). Other variables found to predict OCB include leadership style (Podsakoff et al., 1990), employee commitment (O'Reilly and Chatman, 1986) and interdependence (Karambaya, 1990).

Compared with the studies investigating why OCB occurs, recent research has paid more attention to exploring factors influencing OCB. For instance, some meta-analyses reveal that OCB is influenced by job satisfaction (Smith et al., 1983), perceived fairness (Moorman, 1993), organization commitment (Becher, 1991), leader supportiveness (Organ and Ryan, 1995) and perceived obligation (Eisenberger et al., 1999). In addition, researchers have also explored the effects of personality, attitudes, moods, and task characteristics on individuals' OCB performance (Podsakoff et al., 2000). Further, culture and level of economic development have also been found to influence OCB. A comparative study performed in the USA and Romania suggested that national culture is a significant moderator of OCB (Turnipseed and Murkinson, 2000). This finding is also supported by Tang and Ibrahim (1998), who suggest that POS has a stronger influence on people's OCB in Middle East than in the US. Huang et al. (2004) also state that the effect of POS on OCB would likely be stronger in Taiwan than that experienced by employees in North America and Western Europe. They further discovered that gender influences the amount of OCBs exhibited by employees specifically women are more likely to conduct OCBs than men.

In addition, studies also found which factors influence OCB. While need for independence, task feedback, cohesive group dynamics, and intrinsically satisfying task positively influence OCBs, a reward outside leaders' control negatively affects OCB (Torlak and Koc, 2007). Similarly, leadership behaviors such as, transformational leadership, contingent reward behavior, leader role classification, and supportive leader behaviors encourage OCBs, while non-contingent punishment behaviors discourage OCBs (Podsakoff et al., 2000). Many studies after the year 2000 have examined factors influencing OCB, leading to several new findings. Lambert (2000) found that work-life benefits have a significant positive effect on OCB. Bell and Mengüç (2002) showed that organizational identification has a significant and positive influence OCB. Yoon and Suh (2003) suggested that OCB is based on trust. Turnley et al. (2003) pointed out that psychological contract fulfillment positively affects OCB performance. This finding is different from Robinson and Morrison (1995) who consider psychological contract fulfillment as a cause of OCB. Some researchers also report that contingent employees perform fewer OCBs than regular employees (Stamper and Van Dyne, 2001), which suggests that employment status affects OCB.

Here unto, we have explored two main streams of OCB literature: one that focuses on OCB motivations, while the other focuses on influencing factors of OCBs. The former asks why OCBs occur and the latter asks what can change the amount of OCBs. However, an issue remains unsolved in the previous literature: how to identify whether an attribute is a motivator or an influencing factor. For instance, job satisfaction is considered as a motivator according to Bateman and Organ (1983), and is considered as an influencing factor by Smith et al. (1983). Rioux and Penner (2001) consider leadership support as a motivator. However Podsakoff et al. (2000) indicate that leadership support is an influencing factor. Psychological contract fulfillment had the same fate between Turnley et al. (2003) and Robinson and Morrison (1995). It is well understood that the existence of the paradox is problematic (Podsakoff et al., 1990; LePine et al., 2002), so it is necessary to clarify the paradox under clear mathematic economics framework.

### 2.2. Studying OCBs with game theory-conceptual rationale

A mathematical economic framework/model is a theoretical construct that represents economic process using a set of variables and a set of quantitative relationships between those variables (Walsh, 1987). It has been widely used to explain the phenomenon and processes in the social and economic world. Using mathematical model has two major advantages. First of all, it can simplify

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