

Chapter 7

An Auction Mechanism Considering Seat Reservations in Movie Theater Services

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ABSTRACT

This paper proposes a new auction mechanism with seat reservations in movie theaters using an interdisciplinary approach. In movie theater services, the movie price is generally fixed, not depending on the quality of contents or the theater seat. It implies that such a service mechanism by fixed pricing might not reflect the value of movie contents. In this study, a new mechanism of theater services is proposed introducing the Vickrey–Clarke–Groves (VCG) mechanism and Gale–Shapley (GS) mechanism, which present effectiveness in the field of mechanism design. First derived is the theoretical predictions of equilibrium and how the mechanism works using experiments with human subjects. In addition, agent-based simulation is conducted using agents that make the decisions observed in the experiments. Consequently, the results present the validity of the proposed mechanism, showing an increase in the social surplus.

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INTRODUCTION¹

Scientific studies of services have attracted attention over the years. According to one study of the relevant literature (Spohrer & Maglio, 2008), service innovations can impact service productivity and service quality. Especially in Japan, the government has initiated national projects for the promotion of service productivity and service innovation (Takenaka et al., 2009).

In addition, service engineering is proposed as a novel engineering method to evaluate and design services: Arai and Shimomura developed a service CAD system (Arai & Shimomura, 2004, 2005) and proposed method for evaluating services using service Quality Function Deployment (QFD) (Shimomura et al., 2009). Aurich et al. (2004) specifically examined the design of services from a product life-cycle perspective. Furthermore, the “Industrial Product–Service Systems (IPS2)” collaborative research project is established and several studies are conducted (Meier, 2010). The concept of “service-dominant logic” is proposed by Vargo and Akaka (2009).

This study addresses services in movie theaters as an actual example of service studies. Movies are a good example of a service and are now known worldwide as a popular leisure activity. In the movie theater service industry, both popular movies and uninteresting movies are usually provided at the same price. Moreover, especially in the case of Japan, that price is high. Therefore, it is doubtful whether the value of movies is reflected appropriately in the movie price. In general, according to market mechanisms, prices should be high if goods or services are in high demand, but prices should be low in the case of unpopular ones.

Another characteristic of movie theater services is that consumers receive services at seats in theaters. In addition to pricing, a problem is how seats in theaters are allocated according to consumer preferences. This study proposes a new movie service mechanism by considering seat allocation. In other words, we apply good findings in the field of mechanism design (Maskin, 2008) to the circumstances related to movie theater services. Then we examine the effectiveness of the proposed service mechanism using the methodology of experimental economics (Smith, 1976) and agent-based simulation.

This paper is organized as follows: the second section explains the approach for service design. The third section presents formulation of a basic framework of movie theaters. In the fourth section, the proposed mechanism is presented; the fifth section derives the Nash equilibrium of the proposed mechanism. Then, the sixth section presents a description of our economic experiment and its result. The seventh section presents agent-based simulation. Finally, the last section concludes the presentation of our analyses with a few remarks.

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