

The economic analysis of queueing systems with strategic customers is a fast-growing field that complements the earlier studies that concerned the performance evaluation, the design and the dynamic control of service systems.

In such studies, a certain reward-cost structure is imposed on a queueing system that quantifies the customers' desire for service and their dislike for waiting. The customers are allowed to make decisions as to whether to join or balk, to stay or renege, to buy priority or not etc. Then, the collective behavior of the customers is analyzed as a game among the potential customers and a fundamental problem is to determine the corresponding symmetric customer strategy equilibrium profiles. Then, the system is further studied under the equilibrium profiles.

One central question in the literature is what level of information should be given to the customers regarding the state of the system. Using an appropriate information structure, the administrator of a system can modify the collective customer behavior and improve the performance of the system, in terms of throughput, social welfare or profit.

In the present talk, we will review various information structures that have been proposed in the literature. At the one end, there are the observable models, where the customers make their decisions after observing perfectly the state of the service system. At the other end, there are the unobservable models where the customers decide, relying only to their knowledge of the system parameters. There are many other intermediate structures, such as partially observable models, models with a mixture of observing and unobserving customers and models with delayed observations. We will present representative models from each family of information structures and comment on their applicability in the management of service systems.