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SHORT COMMUNICATION

Using queue to signal quality in primary care: The need for further empirical investigation

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Summary

In recent times, signalling quality via queues for generic services has received significant attention. However, the literature till date on primary care services has focussed on the optimal speed-quality trade-off to ensure higher service times and lower waiting times for the patients. Borrowing from the queue management literature on generic services, we aim to understand whether the hypothesis that queue is a signal of physician's quality is reasonable. Based on theoretical arguments, we justify the need to investigate this hypothesis on queue acting as a signal of quality in primary care. Although we conjecture that the queue length on arrival may act as a signal of quality, the waiting experienced after joining the queue is still considered expensive.

KEYWORDS

quality, queue, primary care, signal

1 | INTRODUCTION

Health care service providers' traditional focus worldwide has been to reduce waiting times.[1-4] In order to ensure waiting times are minimal, the primary care providers incur costs in the form of increasing the number of physicians. Further, the physicians expend significant effort in serving the patients at a fast pace. However, empirical evidences also suggest that the service time is positively correlated with service quality.[5,6] While the patients prefer higher service times, the extant literature also focusses on the conflicting objective of reducing waiting times. Therefore, the trade-off between speed and quality becomes important for the primary care provider. Queueing game-theoretic frameworks have been used in the past to analyse services of this kind and to find the optimal speed-quality trade-off for a service provider.[7]

On the other hand, generic services such as amusement parks and restaurants have focussed on utilising queue as a signal of service quality to the customers.[8,9] That is, a customer who observes a long queue at a particular ride in the amusement park will infer that the ride is of high quality. On the contrary, the customer will infer that the ride

is of low quality if there are no customers waiting in the queue. Based on such evidences from the literature, we conjecture that the queue could act as a signal of the physician's quality to the incoming patients. The hypothesis holds significance particularly in the wake of primary care services getting caught in the speed-quality trade-off tangle.

2 | QUEUE AS A QUALITY SIGNAL

Initially, the providers of generic services including restaurants and amusement parks focussed on the traditional objective of minimising wait times. However, recent empirical[8] and theoretical[9] evidences suggest that queue acts as a quality signal. Specifically, uninformed customers who are unaware of the service provider's quality rely on queue length information to infer about the quality of service. In certain instances, queue can act as an efficient quality signal while price can be uninformative.[10]

It is interesting to note that the models discussed thus far focus on using queue as a quality signal to the uninformed customers and not to the informed customers. This brings us to an important set of questions: Can queue act as a signal of quality to the patients in primary care? Are the patients in primary care informed? To answer these questions, we need to understand the meaning of credence services. Credence services are services whose quality is not clearly known even after the service is provided.[11] As the customers are not in a position to exactly determine the quality of service provided, they could rely on factors such as price, online service rating, and queue length, among others. Importantly, primary care comes under this umbrella of credence services.[11] The patients, therefore, cannot exactly determine the physician's quality. For instance, a patient in primary care does not exactly know whether the treatment provided by the physician is of high quality. Hence, the patients in primary care can be considered an equivalent of uninformed customers in generic services thereby strengthening our conjecture that queue can be used as a quality signal in primary care.

3 | DISCUSSION

We suggest that empirically understanding the role of queue as a quality signal in primary care can throw up several interesting insights on managing the queues in primary care better. It will provide a different perspective to the existing queue management practices. Similar to the queues in generic services,[9] we do not claim that the patients like waiting longer in the queue. While the patients infer physician's quality from the queue length on arrival, the ensuing wait experienced by the patient after joining the queue is expensive. Our recommendation also comes with another caveat that the focus is only on nonemergency primary care where waiting times are not extremely expensive. To motivate the future researchers to test the hypothesis in primary care settings worldwide, we provide a sequence of events which could potentially occur in a primary care environment.

Suppose that patients infer quality from queue length and the primary care provider ignores that patient behaviour. The physician continues to serve patients at the optimal pace to attain the speed-quality trade-off.[7] However, the patients may observe shorter queues and incorrectly infer that the physician should be of low quality and avoid consulting that physician. The primary care provider, thus, loses revenue from that patient. It does not end here. The patients have to expend resources to search for another good physician in the population (search cost). In addition, there is also a probability that the physician they end up consulting is actually not a high quality physician. All these effects are due to the fact that the primary care provider failed to signal quality of the physician via longer queues to the patients (leading to adverse selection).

In this regard, a recent work on the analysis of no-show behaviour based on time to appointment comes up with a promising insight wherein the increase in waiting times can lead to reduced no-shows in certain instances.[12] Therefore, it is of particular interest to understand the role of queue length as a quality signal in primary care.

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CONFLICT OF INTEREST

All authors hereby declare that there are no relationships, financial, or otherwise that might lead to a conflict of interest. The manuscript has neither been published nor is it submitted for publication elsewhere. All authors have approved the manuscript for publication.

ETHICS STATEMENT

This study is conceptual and does not require ethical approval.

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