

The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar

Performance Incentives and Competition in Healthcare Markets

by

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(joint work with Houyuan Jiang and Zhan Pang)

Date: 10 November 2017 (Friday)
Time: 10:30am - 11:30am
Venue: M802, Li Ka Shing Tower
The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

Performance-based compensation is gaining popularity as a mechanism to incentivize providers of healthcare services to improve standards of patient care delivery. This paper investigates the effects of introducing performance-based incentives in a competitive healthcare market. In particular, we consider a market in which a payer (i.e., a government agency) applies a performance-based compensation contract to competing hospitals. In our model, we use G/G/m queueing dynamics to describe the patient care process and assume that patient demand for care delivered by a particular hospital is increasing in the level of quality as well as the level of access to care that the hospital provides and is decreasing in the levels of quality and access at competing hospitals.

Under a set of standard assumptions on the general structure of patient demand and patient benefit from care, as well as hospital cost and reimbursement functions, we derive sufficient conditions for the existence and uniqueness of the Nash equilibrium in quality and access. In the case of a duopoly, we provide closed-form descriptions for the socially optimal levels of quality and access, as well as the Nash equilibrium quality and access levels both with and without the performance-based incentives. We also derive the optimal reimbursement parameters for two types of reimbursement contracts in the setting where hospitals face “captive” patient populations. For general duopoly settings, we conduct a numerical study to illustrate the joint effect of competition and performance-based incentives on quality and access levels and to compare those with their socially optimal values.

Bio:

Professor Savin's research expertise is centered on operational aspects of health care delivery, improving patient access to care, and optimal management of diagnostic and treatment capacity. His articles have appeared in *Management Science*, *Operations Research*, and *Manufacturing and Service Operations Management*, among others, and he also actively participates in editorial activities for several premier journals including *Management Science*, *Operations Research*, *Manufacturing and Service Operations Management*, and *Production and Operations Management*.

Before joining the Wharton School in July 2009, Professor Savin was on the faculty at the Columbia Business School and the London Business School. He received a Ph.D. in Physics from the University of Pennsylvania in 1997 and a Ph.D. in Operations and Information Management from the Wharton School in 2001.

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All are welcome!