

Labor Welfare in On-Demand Service Platforms

by

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(joint work with Jian-Ya Ding, Guangwen Kong, and Terry Taylor)

Date: 15 March 2018 (Thursday)

Time: 10:30am - 11:30am

Venue: M714, Li Ka Shing Tower

The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

We study labor welfare in on-demand service platforms that rely on independent agents who decide on whether and how much to work. Such platforms benefit from having access to a large supply of agents, as the availability of more agents implies lower labor cost and shorter customer delays. It has been argued by some labor advocates that this comes at the expense of agents who see, as a consequence of the expansion of labor supply, lower wages and less work. In this paper, we examine the extent to which the interest of platforms in increasing labor supply is indeed at odds with those of agents. Using an equilibrium model that accounts for the interaction between labor supply and demand, we show that factors that affect labor supply, such as labor pool size, delay cost, and variability in the agents' opportunity cost, may have a non-monotonic effect on labor welfare. In particular, we identify two regimes, depending on the level of congestion in the system, one in which an expansion of labor supply improves labor welfare and makes agents busier and one in which an expansion of labor supply harms labor welfare and makes agents less busy. We compare these results to those obtained in a setting where customers are not sensitive to delay and to settings where agents must commit to working a specified amount time and are compensated at a fixed wage rate.

Bio:

Saif Benjaafar is Distinguished McKnight University Professor at the University of Minnesota. He is Incoming Head of the Department of Industrial & Systems Engineering at the University of Minnesota, where he also directs the Initiative on the Sharing Economy. He is a founding member of the Singapore University of Technology and Design where he served as Head of Pillar (at the rank of Dean) for Engineering Systems and Design. His research is in the area of operations and supply chain management, with a current focus on sustainable operations and innovation in business models, including sharing economy, on-demand services, and digital marketplaces. His papers have been published in various journals including *Management Science*, *OR*, and *MSOM*. His research has been funded by NSF, DOT, DHS, and DARPA in the US and by NRF and MOE in Singapore. His research work has been recognized by numerous awards, including the Harold Kuhn Award, the MSOM Best Paper Award, and the George Taylor Distinguished Teaching Award. He has consulted widely with leading companies and organizations such as Honeywell, General Mills, 3M, and the World Bank, among many others. He served on the Advisory Board of the Keppel Corporation and is currently a member of the Board of Directors of Hourcar.

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All are welcome!