Do consumers benefit from dynamic pricing?

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Abstract: Dynamic pricing is designed to increase profits by adjusting prices in response to changes in the marginal value of capacity or changes in input costs. While thousands of papers have been written about dynamic pricing, this is to our knowledge the first paper to examine the impact of dynamic pricing on consumer surplus. Intuition suggests that dynamic pricing may be a zero-sum game, where additional profits are made by firms at the expense of reducing consumer surplus. Executives who subscribe to this hypothesis may be reluctant to implement dynamic pricing for fear of consumer backlash. We show that for dynamic pricing in response to random cost, it is almost always win-win with both firms and consumers being better off relative to the alternative of offering an optimal static price. For dynamic pricing in response to changing marginal value of capacity, it may hurt consumers in a few cases. However, for demand functions with low variations in elasticity, dynamic pricing is likely to be win-win.

Bio: Dr. Ningyuan Chen joined the Department of Industrial Engineering and Logistics Management as an Assistant Professor at the Hong Kong University of Science and Technology in August 2016. He received his Ph.D. from the Industrial Engineering and Operations Research (IEOR) department at Columbia University in Oct 2015. He worked as a postdoctoral associate at the Yale School of Management from 2015 to 2016. His research interests include dynamic pricing and revenue management, market microstructure, and random networks.