

2019

“Not So Fast! Let’s Find Your Optimal Delivery Time!”: The Impact of Delivery Time on Retailer Profit in a Heterogeneous Market

Saman Modiri
Syracuse University

Scott Fay
Syracuse University

Follow this and additional works at: https://digitalcommons.georgiasouthern.edu/amp-proceedings_2019

 Part of the [Marketing Commons](#)

Recommended Citation

Modiri, Saman and Fay, Scott, ““Not So Fast! Let’s Find Your Optimal Delivery Time!”: The Impact of Delivery Time on Retailer Profit in a Heterogeneous Market” (2019). *Association of Marketing Theory and Practice Proceedings 2019*. 11.
https://digitalcommons.georgiasouthern.edu/amp-proceedings_2019/11

This conference proceeding is brought to you for free and open access by the Association of Marketing Theory and Practice Proceedings at Digital Commons@Georgia Southern. It has been accepted for inclusion in Association of Marketing Theory and Practice Proceedings 2019 by an authorized administrator of Digital Commons@Georgia Southern. For more information, please contact digitalcommons@georgiasouthern.edu.

“Not So Fast! Let’s Find Your Optimal Delivery Time!”: The Impact of Delivery Time on Retailer Profit in a Heterogeneous Market

Saman Modiri

Whitman School of Management, Syracuse University

Scott Fay

Whitman School of Management, Syracuse University

ABSTRACT

In order to make online shopping more attractive to consumers, many retailers have endeavored to reduce the time between when an order is placed and when it is received. The cost of delivery and logistical challenges are obvious impediments to faster delivery. In this paper, we examine how other factors, including the presence of physical channels and consumer heterogeneity (in shopping preferences and product valuations), impact the optimal delivery time. To isolate the effects of these alternative factors, we ask whether faster delivery is always profitable even if it is costless to the firm and if there is no logistical impediment. (Removing these two assumptions only strengthens our results.) We contribute to the extant literature by being the first (to the best of our knowledge) to demonstrate that shipping time can be used to segment a market more efficiently and to identify how heterogeneity in consumers’ preferences for online vs. offline shopping impact the optimal shipping time (which, in turn, alters the resulting mix of online and offline sales).

More specifically, we use a stylized analytical model to study how delivery time affects the profit of a multi-channel retailer who operates an online store as well as physical stores in two different cities. In accordance with prevailing wisdom, we show that delaying delivery cannot enhance a retailer’s profit if the two cities are homogenous. However, interestingly, we find that it can be profitable for the retailer to delay delivery if the two cities are heterogeneous (even though there are not any cost savings from longer delivery times). In particular, this Delayed Delivery strategy is optimal if (a) consumers’ travel costs to the physical store are small, but not too small, (b) there is large heterogeneity in consumer valuations across the two cities, and (c) high-value customers experience substantially higher disutility from shopping online than do low-value consumers.

We find that consideration of the Delayed Delivery strategy has important implications for retailers. In particular, by delaying delivery, a retailer who previously only operated physical stores may find that opening an online channel would be profitable (whereas an online channel would not have been desirable if there were not any delay in delivery). Conversely, a multi-channel retailer may find that opening additional physical stores becomes advantageous if delivery from the online store is delayed. Furthermore, delaying delivery can alter whether the online store should target low-value consumers, high-value ones, or both types of consumers. Finally, counterintuitively, we show that the Delayed Delivery strategy can lead to higher consumers’ surplus, so that a win-win scenario is created because both the firm and consumers benefit from online orders being delivered less promptly.

ABOUT THE AUTHORS

Saman Modiri is a PhD student in Marketing at Syracuse University. Prior to his PhD, Saman received his MBA from Sharif University of Technology. He has 5 years of professional experience before academia. He was a product manager and marketing manager for various online businesses and helped them scale up at early stages. He also co-founded a social media platform. Finally, his teaching experience includes work as a high school math instructor and as a teaching assistant for undergraduate and graduate level courses. His current research interests are quantitative modeling in digital marketing, e-commerce and e-tailing, and consumer journey and experience.

Scott Fay is a Professor of Marketing in the Whitman School of Management at Syracuse University. Professor Fay received his Ph.D. in Economics from the University of Michigan and previously taught at the University of Florida. In total, he has published 20+ papers, including papers in *Marketing Science*, *Management Science*, the *American Economic Review*, and the *Journal of Retailing*. Most notably, his paper, “Probabilistic Goods: A Creative Way of Selling Products and Services” (with Jinhong Xie, *Marketing Science*, 2008), was a Finalist for the INFORMS Society for Marketing Science 2017 Long Term Impact Award. Professor Fay serves on the editorial board for *Marketing Science*, the *Journal of Retailing* and the *Journal of Interactive Marketing*. He has received *Management Science*'s Distinguished Service Award (twice), *Management Science*'s Meritorious Service Award (four times), and Outstanding Reviewer for the *Journal of Production & Operations Management*.