Heterogeneous Learning and the Targeting of Marketing Communication for New Products

by

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All interested are welcome

Abstract

New product launches are often accompanied by extensive marketing communication campaigns. Firms’ allocation decisions for these marketing communication expenditures have two dimensions – across consumers and over time. What makes this problem hard in the case of new products is that consumers are uncertain about the quality of new products and learn about them through marketing communication. Further, different consumers may have different rates of learning about product quality, i.e. there may be heterogeneous learning. Thus, consumer responsiveness to marketing communication would vary along two dimensions. For each consumer, this responsiveness would vary over time, as she learns about product quality. Across consumers, there would be differences in responsiveness in each time period. For optimal allocation of marketing communication across both consumers and time, firms would need estimates of how responsiveness to marketing communication varies across consumers and over time.

Past studies in this area have typically studied one of these two dimensions in which responsiveness varies. They have either looked at heterogeneity in responsiveness across agents or the variation in responsiveness over time. In the context of new products, past research has looked at how consumer learning about product quality causes responsiveness to vary over time. However, there is no study that we are aware of that allows for heterogeneous learning rates, i.e heterogeneous in how consumers learn over time. In this study, we develop the methodology for estimating individual-level parameters of learning for consumers that differ on their learning processes and use a rich panel dataset that allows us to estimate these parameters of the model.

To obtain individual-level estimates of learning, we add a hierarchical Bayesian structure to the Bayesian learning model. We exploit the natural hierarchy in the Bayesian learning process to incorporate the learning model within the hierarchical Bayesian model. We use data augmentation, coupled with the Metropolis Hastings algorithm to make inferences about individual-level parameters of learning. We conduct this analysis on a unique panel dataset of physicians, where we observe prescription decisions and detailing (salesforce efforts) at the individual physician level for a new prescription drug category.

Our results show that there is significant heterogeneity across physicians in their rates of learning about the quality of new drugs. We also find that there are asymmetries in the temporal evolution of responsiveness of physicians to detailing – physicians who are more responsive to detailing in early periods are less responsive later on and vice versa. These finding have interesting implications for targeting of detailing across physicians and over time. We find that firms could increase their revenues if they took these temporal and cross-sectional differences in responsiveness into account while deciding their allocations of detailing.