Predicting marketplace demand using Volumetric Conjoint Data

by

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Abstract

Demand predictions are important for product and pricing decisions. Marketers in packaged goods categories need to understand drivers of both primary and secondary demand in order to increase sales. Studies of drivers of demand often rely on choice experiments, especially when new product features are introduced or when household panel data is too expensive. These choice experiments often rely on discrete choices and are focused on explaining drivers of market shares. The properties of discrete choice models and market share predictions have been studied extensively in the literature. However, there is relatively little research that helps understand drivers of primary demand. Demand quantities are often treated independently from preferences shares or the impact of variety on primary demand is ignored. While there is a growing literature on models of quantity demand and multiple discrete-continuous models, there is little research on making marketplace predictions. Compared to discrete choice situations, there are additional challenges in making predictions of marketplace behavior based volumetric choice experiments. Our focus is on the most salient contextual difference between experimental and real choices: the number of choice alternatives consumers are faced with. We investigate the properties of a common volumetric demand model of horizontal variety and propose a method for making accurate predictions of primary and secondary demand from volumetric choice experiments. Our empirical application consists of a series of volumetric choice experiments in the chocolate bar category, where the number of choice alternatives is manipulated over time. We find that increasing or decreasing the number of choice alternatives has a symmetric effect on the number of alternatives chosen. Respondents consistently choose larger quantities if more alternatives are presented. We also find that drivers of secondary demand remain consistent, but failing to account for the effect of the number of choice alternatives on the marginal utility of inside goods leads to severe (over 100%) over-prediction of primary demand. Our proposed extension of the volumetric demand models allows realistic predictions of primary and secondary demand. We show

comparisons between our predictions and market-level data.