Consumer Research of Choice Design Model and Extended Warranty Purchase

Mason Chen
Stanford OHS, Academy Hall Floor 2 8853 415 Broadway
Redwood City, CA 94063, USA
mason05@ohs.stanford.edu

Abstract

This paper will study the consumer research regarding the purchasing decision of a laptop and its extended warranty protection plan. JMP Choice Design and Model platforms were conducted to design the choice survey and analyze the survey results through stratified sampling method. Utility profiler and Probability profiler could help consumers decide their preferred product based on statistical modeling. To help consumer decide whether to purchase the extended warranty protection plan, production sale and field return data were analyzed through JMP Reliability Life Distribution platform. Weibull model has the best goodness of fit to estimate the reliability failure rate. By considering the market value at the warranty service request time and the estimated survival probability, the cost of not purchasing the extended warranty protection would be significantly lower was compared against the warranty offers. JMP Reliability Forecast platform was utilized to forecast the future field return based on the estimated sale volume and the reliability Weibull model. The forecasted information could help Service Provider manage the warranty cost, loading ahead of time. This Choice Design, Model and Reliability Life Distribution, Forecast approach can be commonly applied to most consumer research fields.

Keywords
Consumer Research, Survey, Choice Design/Model, Reliability, Bathtub, Warranty, Forecast

Biographies
Mason Chen is currently a student at Stanford OHS and serves as the student ambassador and webmaster for STEAMS. Having started STEAMS since its inception in 2014, he has held various roles such as President of the Student Chapter from 2017 to 2019. Through STEAMS, he has published more than 20 conference proceeding papers as first, second, or third author. As first author, he has won numerous awards including the Best Conference Proceeding Paper Award in the 2018 JMP Discovery Summit as well as finishing 1st Place three times for the STEM presentation competition at IEOM conferences. He has also certified the IBM SPSS Statistics Level I, II, Modeler Level I, and IASSC Yellow Belt, Green Belt, and Black Belt.