How Much Does the Market Value an Improvement in a Product Attribute?

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A firm contemplating improvements to its product attributes would be interested in the dollar value the market attaches to any potential product modification. In this paper, we derive a measure of market value such that the comparison of the measure against the incremental unit cost of the attribute improvement is key in deciding whether or not the attribute improvement is profitable. Competition from other brands, the potential for market expansion, and heterogeneity in customer preference structures are explicitly modeled using the multinomial logit framework. The analysis yields a closed form expression for the market's value for an attribute improvement (MVAI). A key result we obtain is that customers should be differentially weighted based on their probability of purchasing the firm's product. In particular, customers who exhibit a very high or very low probability of choosing the firm's product should receive less weight in determining MVAI. Because the probability of choice varies across products, the answer to the question of how much the market values an improvement depends on which firm is asking the question. It is shown that customers whose utilities have a greater random component should be weighted less. Furthermore, the measure developed is robust to the influence of outliers in the sample. An empirical illustration of the MVAI measure in the context of a new product development study is provided. The study illustrates the advantages of the proposed measure over currently used approaches and explores the possibility of competitive price reactions.

(New Product Development; Product Positioning; Multibrand Competition; Conjoint Analysis)

1. Introduction
In many product markets, firms often desire to modify their product attributes. Evolving consumer preferences, advances in technological capabilities, changes in manufacturing costs, and competition from brands drive firms to consider improving product characteristics. While some companies attempt to develop radically innovative products, new product activity often involves the modification of an existing product. Typically, value adding modifications entail offering more of a desirable attribute or less of an undesirable one. Such product changes have both cost and demand implications, and require reevaluating pricing decisions as well. While, in reality, there may also be cases where firms wish to accomplish the opposite, i.e., offer less of a desirable attribute or more of an undesirable one (perhaps because of a cost increase). The analysis we present is general enough to handle these cases as well. We have framed the problem in terms of product improvement as it is the most common form of product modification (Griffin 1997).