

Comments on "Pricing Research in Marketing: The State of the Art"

Rao's paper provides an account of recent research published in the marketing literature on the subject of pricing. The paper contains an impressive bibliographic survey. However, the formal model proposed by the author as a framework for classifying and assessing the advances and needs in this area of marketing science is rather limited. A major shortcoming of this model, which appears to epitomize the marketing literature on pricing, is the treatment of prices and quantities as unidimensional. In other words, the model implicitly assumes that purchases of the product under consideration can be characterized by a scalar quantity denoting the number of units purchased, while the pricing of any such purchase is determined by a uniform unit price. This restriction severely limits the pricing strategies and product types that can be addressed within such a framework. For example, it excludes two-part tariffs and important classes of products involving metered usage, service contracts, etc.

In spite of these deficiencies, I found the paper very educational. Its primary value is in highlighting the main research directions of pricing in the marketing literature and in conveying the importance of various pricing issues from the perspective of a leading marketing scientist. Taking Rao's survey as a reference point, I will attempt in the remainder of this discussion to examine the marketing perspective on pricing versus the approach prevailing in the economics literature dealing with pricing issues. In particular, I will try to identify some strengths and weaknesses of these approaches and to suggest possibilities for cross fertilization between the two disciplines.

With a few possible exceptions, it is fair to say that the marketing literature on pricing typically focuses on developing pricing strategies for the firm and therefore treats prices as control variables. The economics literature, on the other hand, approaches pricing from the perspective of industrial organization theory. Its primary objectives are to

explain firms' behavior and investigate the rationality and welfare implications of various pricing policies in different competitive and regulatory contexts. Consequently, the marketing literature has emphasized descriptive models of consumer behavior that are based on empirical observations and seminormative theories (e.g., stochastic choice models) and developed measurement methods aimed at validating and calibrating such models. In contrast, the economics literature focuses on normative and equilibrium-type models. Such models are rarely validated, and when they are, it is done at the industry level using aggregate data and econometric techniques. The above dichotomy, which is somewhat analogous to the differences between engineering and physics, explains to a large extent the strengths and weaknesses of each discipline with respect to pricing research.

Marketing science has made considerable headway relative to economics research in modeling market dynamics and diffusion of technology. Pricing-related research in economics focuses on equilibrium conditions and tends to neglect the dynamic aspects of the market that prevail during disequilibrium. This void may be attributed to the difficulty in explaining market-dynamics phenomena by means of normative models based exclusively on choice-theoretic principles. Few models of this type have been introduced in the economics "durable goods" literature (e.g., Stokey 1981). These, however, are quite useless for planning purposes since they tend to be overly simplistic and focus on limited issues.

On the other hand, the empirically oriented economics literature dealing with diffusion of technological innovation often abstracts from pricing issues or at best treats prices as state variables rather than controls. Rogers and Shoemaker (1971) surveyed about 1,500 articles, most of which fit into the latter category. In contrast, marketing science has done an excellent job in developing descriptive market dynamics models that are based on empirical observations on the demand side and normative principles (profit maximization) on the supply side. Such models, which treat pricing as an active means for controlling product penetration, have been extremely fruitful in analyzing the effects of price discounts, promotions, subsidies, and other dynamic pricing strategies. Some recent examples of such work can be found in the articles by Bass (1980), Dolan and Jeuland (1981), Jeuland and Dolan (1982), and Kalish (1983).

There are, however, some important concepts and results that have evolved in the economics literature on pricing over the last decade, which seem to have been overlooked by marketing researchers. The article by Tom Nagle in this issue provides an excellent overview of this literature along with a comprehensive bibliography. Evidently, economists have considered much richer pricing policies than those addressed in the marketing literature. For instance, two-part, multi-

part, and nonlinear tariffs have been extensively analyzed under various market structure assumptions. Pricing policies that involve product differentiation, bundling, and peak-load pricing have been the subject of numerous articles in the economics literature. It is somewhat paradoxical that the marketing literature lags behind its economics counterpart with respect to the richness of the pricing policies under consideration. After all, it is the marketing discipline that treats pricing policies as a means of controlling the market. Thinking of prices and quantities as one dimensional is perhaps adequate when dealing with products distributed through retail stores. However, if we consider copiers, for example, pricing may involve a fixed service charge, usage charge with possible volume discounts, and sometimes an added discount for multiple machines or machines with higher throughput. One would find very little guidance in the marketing literature on how to design such pricing strategies optimally or what data to collect for that purpose. It appears, therefore, that in dealing with such complex pricing problems marketing scientists could benefit from economists' experience in this area.

Some of the concepts in economics most useful in dealing with complex pricing policies relate to the role of pricing as a signaling mechanism that can facilitate product differentiation and market segmentation. While both marketing and economics literatures recognize that markets are heterogeneous, they differ in the ways of modeling and exploiting such heterogeneity. The marketing literature tends to model this heterogeneity as a stochastic phenomenon and targets pricing policies to optimize expected performance. In the model proposed by Vithala Rao, for instance, demand is defined in terms of expected number of units sold given the marketing mix and price. This definition implies some kind of average response over a heterogeneous population, with respect to which prices and product characteristics are optimized. Market-share models based on logit or probit functions in which prices appear as a factor are also based on an average response of a heterogeneous population. Such models are employed, for example, in the approach described by Hauser and Urban (1977). The perceptual map approach described by Hauser and Simmie (1981) again determines the optimal perceptual position of a product so as to optimize expected profits.

Economists, on the other hand, have focused on mechanisms that can exploit market heterogeneity for discrimination purposes. In particular, they developed pricing policies that can achieve optimal indirect discrimination through self-selection by consumers, each of whom maximizes his own net benefit. Under such policies, each consumer pays a different price according to his preferences, which he reveals through his consumption decision. This approach is employed for instance in the articles by Oi (1971), Mirman and Sibley (1980), Harris

and Raviv (1981), Schmalensee (1982), Oren, Smith, and Wilson (in this issue), and many others. Loosely speaking (and perhaps abusing marketing terminology), the latter approach may be interpreted as smearing the "perceptual position" of a product so that it appears in the perceptual map as a line segment along which customers spread themselves optimally, rather than as a single point.

Conceptually, the design of optimal multipart and nonlinear pricing and differential pricing of product lines could be accomplished following what was labeled above as the economist's approach. Unfortunately, little has been done toward operationalizing this methodology and toward developing measurement techniques that will support such methods. These tasks should be a challenge to marketing science, which has the needed expertise to develop this approach into effective tools.

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