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# Introduction

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## **Introduction**

There can be little doubt that pricing decisions are predominant among all the marketing mix decisions for a product (service or business). Pricing decisions interact with other marketing mix decisions and also with the decisions of distribution intermediaries of the firm.

Pricing research occurs in at least two disciplines of microeconomics and marketing. While the pricing research in microeconomics<sup>1</sup> is largely theoretical, research in marketing is primarily oriented toward managerial decisions. Further, pricing research in marketing is interdisciplinary, utilizing economic as well as behavioral (psychological) concepts. Research in marketing emphasizes measurement and estimation issues as well. The environment in which pricing decisions and transactions are implemented has also changed dramatically, mainly due to the advent of the Internet and the practices of advance selling and yield management. Over the years, marketing scholars have incorporated developments in game theory and microeconomics, behavioral decision theory, psychological and social dimensions, and newer market mechanisms of auctions in their contributions to pricing research. Examples include applications of prospect theory, newer conjoint analysis methods for measurement of price effects, newer market mechanisms of auctions, use of game theory in dealing with pricing along the distribution channel, and models that describe practices of advanced selling and yield management.

This *Handbook* consists of 26 chapters and is an attempt to bring together state-of-the-art research by established marketing scholars on various topics in pricing. The chapters are specifically written for this *Handbook*. The chapters cover various developments and concepts as applied to tackling pricing problems. Based on a thorough academic review, the authors have revised their initial drafts of chapters.

## **Overview of chapters in the *Handbook***

The chapters are organized into three major parts, labeled Parts I (8 chapters), II (9 chapters) and III (9 chapters). Part I covers topics that are in some sense fundamental to pricing research. Part II covers topics that deal with selected pricing decisions and marketing mix, while Part III covers some special topics that are emerging in pricing research.

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<sup>1</sup> The two volumes of published articles on pricing tactics, strategies and outcomes edited by Waldman and Johnson (2007) epitomize the significant amount of research in microeconomics. A variety of topics is covered in the articles included in these volumes; examples are: pricing product line, pricing and consumer learning, collusive behavior, empirical studies of pricing strategies leasing and couponing.

## 2 *Handbook of pricing research in marketing*

### *Part I (eight chapters): fundamental topics*

The chapter by Rao and Kartono describes the results and analyses of reported use of some 19 possible pricing strategies based on a survey among pricing decision-makers conducted in three countries. Three most frequently used strategies are the cost-plus, price signaling, and perceived value pricing, with considerable differences among the three countries. Their chapter also shows the relationships between the reported usage of strategies, and several determinants and pricing objectives. These descriptive results may form the basis for developing richer mathematical (possibly game-theoretic) models for optimal choice of pricing strategies.

Chapter 2, by Jedidi and Jagpal, focuses on the methods for measuring willingness to pay (WTP) or reservation price for a product or service, and using those measures in various pricing decisions such as bundling, quantity discounts and product line pricing. This concept is fundamental to both the theory and practice of pricing. In addition to self-stated WTP, the authors discuss methods for estimating WTP from actual purchase data, contingent evaluation data, conjoint methods and experimental auctions. They call for additional research on comparing the methods as well as developing newer methods. One example of a newer method is to measure reservation price as a range (Wang et al., 2007).

Chapter 3 by Liu, Otter and Allenby describes approaches to measure own- and cross-price effects particularly when there is a large number of offerings in a product category. This problem arises particularly in the retail context. They describe methods to reduce the dimensionality of the problem by employing economic theory of choice and demand, and Bayesian methods to augment the information contained in the data. Extension to estimating dynamic price effects is a challenging research issue, as identified by the authors.

Chapter 4 by Krishna focuses on the effects of price that cannot be accounted for by the intrinsic price itself. These effects, called 'behavioral effects', arise due to the way individual consumers are influenced by price presentation in comparison to an externally provided reference price or presentation of a promotional offer as absolute reduction in dollars or as a percentage reduction relative to normal price. The author discusses a variety of these effects using both laboratory experimental data and data of actual purchases. Clearly more work is possible in this fascinating area.

Chapter 5 by Ratchford deals with consumer search behavior and prices. The author reviews empirical studies that support the basic conjecture of Stigler made some 40 years earlier, namely that consumer search is costly and that it will create price dispersion. The review summarizes theoretical models of optimal search, and describes how costly search may affect the behavior of markets. Two of the key results in this literature are that price dispersion should exist in equilibrium, and that differences in search costs provide a motive for price discrimination. Also, there is heterogeneity of search behavior among consumers. The author also reviews the impact of the Internet on price dispersion. As he points out, there is need to develop models of pricing and price dispersion that are more closely related to actual seller behavior.

Chapter 6 by Chan, Kadiyali and Xiao emphasizes the need to specify appropriate assumptions for the behavior of consumers and firms to understand market outcomes. The resulting structural models suitably estimated will be useful for conducting simulations in determining optimal price policies for a varying set of market conditions. While this line of research is distinct from the reduced-form approach often employed in

marketing research, it will undoubtedly enrich our understanding of the drivers of market prices. The structural approach offers possibilities to incorporate alternative behavioral assumptions and alternative ways of interactions among agents. It constitutes a step in the right direction for incorporating the impact of competition into pricing research.

Chapter 7 by Thomas and Morwitz describes implications of the anchoring, representativeness and availability heuristics on the judgments consumers make on the magnitude of prices of products or services and the order of numerical digits in the prices. For example, consumers may judge the differences to be large for pairs with easier computations than for pairs with difficult comparisons. These authors comment that pricing managers should decide not only the magnitude of the optimal price but should also pay attention to how the digits are arranged. This general area offers opportunities for exciting experimental research.

In Chapter 8, Anderson and Simester discuss the literature on the effectiveness of price cues that documents examples of firms exploiting their use. A price cue is any marketing tactic used to persuade customers that prices (posted) offer a good value. The authors review extant literature, document the effectiveness of price cues and present evidence for the economic explanation that customers respond to price cues if they lack sufficient knowledge of prices and if they cannot evaluate whether prices offer good value.

*Part II (nine chapters): pricing decisions and marketing mix*

Chapter 9 by Chatterjee provides a comprehensive review of the normative models developed in the literature on strategic pricing for new products and services that incorporate various factors such as consumer learning, diffusion, cost reduction and competition. This chapter also contains a review of relevant empirical research on the use of penetration pricing or skimming pricing strategies. There are interesting opportunities for building normative models to deal with nontraditional pricing schemes, such as pricing to maximize customer lifetime value and auctions on the Internet.

Chapter 10 by Chen reviews developments in pricing a product line, defined as the set of products or services sold by a firm that provide similar functionalities and serve similar needs and wants of consumers. The products in the line can be vertically or horizontally differentiated, or both. Factors such as customer self-selection and competition are included in the models and results reviewed are intuitively appealing. Various directions for future research are also suggested.

Chapter 11 by Venkatesh and Mahajan provides a comprehensive review of the design and pricing of product bundles, a practice that is growing in the wake of high technology and e-Commerce. The authors have drawn a set of guidelines for bundle pricing based on a large body of traditional models in the literature as well as newer methodologies. Opportunities exist in this area for both behavioral research and analytical modeling.

Chapter 12 by Pauwels and Srinivasan describes the issues involved in pricing of national brands relative to store brands (or private label brands) in light of the increasing quality equivalence between them. The authors suggest that in most cases national brands possess some degree of pricing and market power over store brands. They discuss the sources of such power in terms of price premium, volume premium and margin premium, and suggest directions for future work.

Chapter 13 by Narasimhan describes the tradeoffs involved in using trade promotions versus lowering price or advertising in the B2C markets. The chapter reviews different

types of trade promotions, the rationale behind using them, the potential impact on the channel partners, and managerial implications. The chapter concludes with several suggestions for future research such as the need to examine the role of trade promotions in a firm's overall pricing strategy.

Chapter 14 by Zhang discusses how prices can be customized for specific targets. This problem has become quite significant due to the unprecedented capability of firms to store and process past buying information on customers and the ability of firms to tailor prices to individual customers. The chapter answers such questions as 'Is target pricing beneficial to firms?', 'What is the best way of designing incentives if targeted pricing is followed?', and 'Is target pricing beneficial to society as a whole?' Some surprising results are discussed, as well as future directions for research in this emerging area.

Chapter 15 by Sudhir and Datta provides a critical review of research in pricing within a distribution channel. Specifically, the authors review the literature on three decisions, which vary in terms of planning horizon, on retail pass-through, pricing contracts and channel design. They also review the empirical literature on structural econometric models of channels and suggest directions for future research. For example, opportunities exist to study channel behavior in the presence of nonlinear pricing contracts (the topic of Chapter 16) and developing methodologies that endogenize retailers' decision to carry the product.

Chapter 16 by Iyengar and Gupta covers nonlinear pricing and related multi-part pricing paradigms, and reviews the extant literature. The authors point out that while two-part tariffs may be nearly optimal in many settings, there is a need to examine more complex pricing schemes. They also discuss the challenges involved in analyzing pricing schemes due to the two-way relationship between price and consumption (as in telephone pricing) and show some approaches to tackling such problems. They present some empirical generalizations and identify areas for future research.

Chapter 17 by Seetharaman focuses on how state dependence and reference prices affect consumer choices over time and their pricing implications for firms competing in oligopolistic markets. Based on a review of various econometric models of dynamic pricing, he identifies research opportunities for incorporating reference price effects in descriptive models of what firms actually do in practice.

*Part III (nine chapters): special topics*

Chapter 18 by Amaldoss and Jain focuses on how social needs such as prestige influence purchase decisions. The authors show that snobs can have an upward-sloping demand curve only in the presence of consumers who are conformists. They also investigate how social needs may influence the prices and qualities of the products that consumers choose to buy. There are opportunities to extend their one-period game to deal with multi-period decisions and also to incorporate reference group effects and brand equity.

Chapter 19 by Park and Wang provides a review of recent research on the emerging market mechanism of online auctions. Their survey covers theoretical, empirical and experimental research on the effects of auction design parameters of minimum price, buy price, and duration, bidding strategies and competition. They also discuss the name-your-own-price mechanism. They call for additional empirical research on the effects of auction design parameters, experiments to study the effects of bidder behavior, and studies on bidder learning. Research in this area will undoubtedly proliferate in the future.

Chapter 20 by Liu and Chintagunta deals with the subject matter of pricing under network effects. They review the early literature on static pricing under network effects that focused on the effects of price expectations and the multiple equilibria problem. They state that penetration pricing has been found optimal under various scenarios. Their review of analytical literature of pricing under network effects connects with other literatures. Noting that empirical research is scarce in this area, they identify issues that limit such research.

Chapter 21 by Xie and Shugan covers how prices should be set under the new paradigm of advance selling that has been facilitated by developments in technology. They discuss how the profit advantage of advance selling is quite general and is not severely restricted by industry structures. They also show that simply offering advance selling can improve profits because it separates purchase and consumption, which creates buyer uncertainty about their future product/service evaluation and removes seller information disadvantage. They identify several research opportunities in such areas as the evaluation of consequences and profitability of advance selling in many new situations, and sellers offering multiple advance periods.

Chapter 22 by Kimes discusses the strategic role of price in revenue management. Revenue management has been practiced in the airline, hotel and car rental industries for some time and is receiving attention in other industries such as broadcasting and golf. The chapter reviews the literature on models of revenue management allocation and pricing, and the practices in industry. There are opportunities to incorporate competitive reactions in such models.

Chapter 23 by Kina and Wosinska discusses the various institutional characteristics that affect pricing of prescription drugs. The chapter provides insights on the role of various players in this complex price-setting problem. The authors identify three distinct areas for future research – clarifying the market, ways to optimize the current system, and the influence of changes in the regulatory and institutional environment on pricing pharmaceutical products. Research opportunities in this topic are considerable.

Chapter 24 by Liu and Weinberg describes how pricing decisions particularly challenge not-for-profit organizations, which have a social rather than a profit objective function. The authors show how the pricing models in the nonprofit sector are different from those of for-profit businesses. The chapter surveys findings in the theoretical and empirical research on nonprofit organizations. The authors identify special issues in relating constructs of consumer taste and willingness to pay commonly employed in pricing models for the nonprofit sector. They describe interesting research opportunities in examining the effects of price–quality and product differentiation in the nonprofit sector.

Chapter 25 by Shoemaker and Mattila focuses on the pricing issues in the services sector in general. The authors review how the special characteristics of services such as intangibility and simultaneous production and consumption offer unique challenges to the firm in setting prices. Their framework is an attempt to show how various factors affect consumers' reservation price for a service and how this interacts with the way a firm can formulate service offers to gain maximum revenues. They provide illustrations of practice and suggest research possibilities in this important sector of the economy.

The final chapter, Chapter 26 by Ho and Su, provides a selective review of pricing models that are of interest to operations management researchers. The authors review developments in four specific pricing models, two of which are based on inventory (EOQ

and Newsvendor), dynamic pricing models, and queuing models. They show how firms' pricing decisions serve as an important lever to shape consumer behavior and optimize profits. One common theme of this chapter is that consumers respond strategically and actively engage in operational decision-making. The authors suggest opportunities to extend this line of work to conditions that relax the rationality assumptions.

### **Research directions**

Interestingly, several of the research directions identified in my previous reviews of pricing literature (Rao, 1984 and 1993) have been pursued. In a similar manner, I hope that the research topics mentioned in the chapters of this *Handbook* will inspire future researchers. It is possible that future research on pricing will be tilted toward the newer pricing mechanisms that are aided by technology.

### **References**

- Rao, Vithala R. (1984), 'Pricing research in marketing: the state of the art', *Journal of Business*, **57** (1, Pt 2), S39–S60.
- Rao, Vithala R. (1993), 'Pricing models in marketing', in J. Eliashberg and G.L. Lilien (eds), *Handbooks in Operations Research and Management Science, Volume 5: Marketing*, Amsterdam: North-Holland, pp. 517–52.
- Waldman, Michael and Justin P. Johnson (2007) (eds), *Pricing Tactics, Strategies, and Outcomes*, Volumes I and II, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Wang, Tan, R. Venkatesh and Rabikar Chatterjee (2007), 'Reservation price as a range: an incentive-compatible measurement approach', *Journal of Marketing Research*, **44** (May), 200–213.