Pricing: Improving teaching content and relevancy in undergraduate textbooks

Jitendra Tewari
Northeastern State University of Oklahoma

Siddhaartha Mutt
Northeastern State University of Oklahoma

ABSTRACT

The pricing chapters in marketing textbooks cover a major strategic area that is increasing in importance, and they also include a coverage of the basic arithmetic of revenues and costs in business. The pricing chapters have changed little over the last two decades, and this research seeks to:

a) make recommendations to improve the usability of textbooks in a changing business environment
b) improve links with the theoretical advances in the pricing literature
c) identify those areas in the present teaching of pricing where students often have misconceptions
d) identify some gap areas in the teaching of pricing at the undergraduate level that need to be addressed

The paper reviews the detailed contents of the pricing chapters in eleven popular marketing textbooks, as well as some theoretical developments in the pricing area that could be integrated in undergraduate teaching.

Keywords: Pricing, teaching, undergraduate textbooks, prospect theory, tendering,

INTRODUCTION

The pricing chapters in textbooks in marketing programs are extremely important since not only do they cover a major strategic and tactical area that is increasing in importance (Hamilton and Chernev, 2013; Maxwell, Sara 1998), but they also bring to the student the critical understanding of the basic arithmetic of business. While some of this material is common to other courses as well, such as courses in microeconomics, which also cover price, demand, cost, and revenue concepts, the chapter in marketing textbooks makes the transition from commercial arithmetic to strategy and tactics, and from understanding prices to a focus on price perceptions. Almost all marketing textbooks do this - those by (1) Armstrong and Kotler, or (2) Kerin, Hartley and Rudelius, (3) Perreault and McCarthy etc. would be typical. This article seeks to make recommendations to improve the usability of the textbooks, directly, in a business environment, as well as improve links with the more recent research and theories that integrate well with the pricing literature.

Not all aspects of research and development in the field of pricing are equally important for undergraduate teaching. For analysis and suggestions the article identifies some aspects of pricing:

(1) those that have immediate applicability in real businesses, and aspects of pricing that a bachelor in business degree holder may be expected to understand
(2) theoretical underpinnings and more recent developments that both substantially add to previous explanations and approaches, as well as build up on them
(3) theoretical developments that not only integrate well with the pricing literature but also integrate well with other parts of the business curriculum.
(4) the article also identifies some common misconceptions or areas of confusion in pricing areas that faculty can successfully address through simple teaching interventions

Annex 1 in this article details the number of books that discuss specific topics in the pricing chapter considering eleven popular textbooks. The Annex also indicates whether the topic has been discussed in another chapter. To make this analysis a study of the pricing chapter was undertaken for each textbook in detail, accompanied by a study of the index developed and published in the textbook. While the pricing chapters were studied in depth, the coverage or discussion of the pricing topics in other chapters was identified and studied after being guided by the index published.

REVENUES, COSTS AND PRICES

While making pricing decisions firms examine prices in relation to their costs and demand. Textbooks reflect this consideration, and all the textbooks reviewed (excluding one), have a section on break even analysis, cost, price and revenues, in the pricing chapter itself (refer to Annex-1). An analysis of break-even concepts involves an elaboration of concepts relating to fixed and variable costs. However, a review of the textbooks revealed that only one of the ten books attempted to apply the break even concept, and its associated calculations, to a service environment. All the examples in the textbooks concentrated on a product-manufacturing environment.

THE SERVICE CONTEXT AND REVENUE, COST, PRICE ANALYSIS

The break even formula cannot be directly applied to the service context. When we deal with the service industry we generally do not have a 'unit product' sale as a convenient unit of analysis. Rather than product price, if we are to extend concepts at the most basic level, it becomes more appropriate to use 'revenue per average customer' instead of the price variable and the equivalent of unit variable costs can be computed by deducting the normal or 'average' percentage markup. Dividing the total fixed costs by this contribution margin for an average customer allows us to estimate the number of customers required for a service industry to break even. Car workshops/garages, restaurants, beauty salons, etc. often use this approach. The concept of the average customer could embrace a large number of types of transactions that typify the service industry.

The above is not the only approach to arrive at a solution. Irrespective of the approach used to arrive at solutions, as that may vary by instructor or in different textbooks, the key point is that undergraduate textbooks are not applying the break-even, cost and revenue, concepts to the service environment, and this is required for the sake of relevancy.

A MULTIPLE PRODUCT ENVIRONMENT

All the textbooks reviewed used the break even concept and its application in single product environments. Students tend to be dismissive of these concepts because they perceive most real environments as involving multi-product decisions. While formulae for multi-product calculations are available in some finance, or management accounting books, it is possible to explain 'extending' break even analysis to multi-product scenarios. For example, keeping the solution approach simple, calculations can be made to obtain contribution margins as a weighted average contribution margin, based on forecast sales proportions for the various products. This is in fact done in many management accounting textbooks, but it is suggested that the material be included in marketing textbooks as well, to improve the visible usability and relevancy of what is taught.

INTERVENTIONS OR POINTS OF CLARIFICATION REGARDING COSTS AND REVENUES

The teaching of costs, break even, and pricing comes to students through a number of courses other than a marketing course. Students who are completing a business 'core' are likely to encounter these concepts in a microeconomics course, or/and in finance and accounting courses where the subject may be taught as Cost Volume Profit analysis. Needless to say this knowledge is considered to be important enough to be transmitted through various points in a business program. Below are points of confusion on these topics, where additional explanations from faculty help in undergraduate teaching:

- Particularly, when our focus is cost and price, with the intention of costing and pricing a product based on revenues and costs, total revenues refer to total revenues from sales only, and total costs to total costs of goods sold only (not total outlays or total expenditures in a year). This clarification is an elementary accounting point that takes account of inventory changes, however in a marketing class this point is often missed and expenditure on inventory build-up is often incorrectly treated as a cost by marketing students.

- Capital expenses such as those on plant and machinery are not to be confused to be ‘fixed costs’ – they, in fact, lead to the fixed costs on depreciation and interest.
- Students, particularly in economics, are taught that both average cost curves and average variable cost curves are ‘u’ shaped. Many students do not realize that the break even formula: Q = Total Fixed Costs/(Price-Unit Variable Costs) treats the unit variable costs as given and fixed, and hence we are making the normal accounting assumption that the average variable cost curve is a horizontal straight line. Students need to be explained that this is a simplifying but common assumption for calculations. Students require to be made to think to ‘reconcile’ the formula with 'u' shaped cost diagrams that they generally encounter in economics courses, and recognize the assumptions being made.
- Many textbooks do not distinguish between variable and marginal costs. The distinction, once again, becomes relevant so that students can reconcile information coming from different courses. If the assumption of a horizontal average variable cost curve is being made, this is a point worth clarifying.

PROSPECT THEORY AND PRICING

Most of the textbooks reviewed have discussions of discounts including quantity discounts, seasonal discounts, periodic and random discounting, comparison pricing, comparison discounting etc. Many books have explicit sections on reference prices including elaborations on memory based internal reference prices and external reference prices. In marketing the use of comparisons, particularly price comparisons, is extensive (Mazumdar, Raj and Sinha, 2005), as is the practice of giving discounts (Note: discounts effect a comparison between sticker price and prevailing ‘discounted’ price). Most of the textbooks approach such subjects by listing and explaining the various strategies, such as periodic versus random discounting, single versus multiple discount strategies, comparison discounting etc. None of the textbooks reviewed have presented students with a unifying theory of price perception. Prospect theory (Kahnemann and Tversky,1979; Tversky and Kahneman, 1986) for which Kahnemann received the Nobel Prize in 2004, presents such a unifying explanation of price perception and consumer behavior.

Further, prospect theory makes additions and meaningful modifications to previous theoretical constructs that students are already familiar with, and the inclusion of prospect theory introduces students to the ‘development of thought.’ As applied to pricing, prospect theory makes a number of contributions, based on its postulated value function, and some of these propositions can be introduced in basic marketing textbooks:

- While traditional economic theory relates demand to the price level i.e. D = f (P), prospect theory relates demand to both the price level and the perceived merits of the deal .i.e. the difference between the prevailing price and the expected/appropriate or ‘reference price.’ Here D = f{P, (P-RP)} (Thaler, 1980; Thaler, 1985; Puto, 1987)
- There is an unequal response to dollar equivalent price increases and decreases, the former being greater, since consumers respond more to losses than to equivalent gains (Tversky and Kahneman, 1986; Thaler, 1985).This explanation is consistent with the traditional observation in economics that there is upward price rigidity.

- Multiple discounts have a greater impact than dollar equivalent single discounts. Based on the value function, ‘many is perceived as more.’ Thus two contemporaneous discounts of $ 10 each, (say a $10 store closing discount + a $10 seasonal discount) have a greater mental impact and sales effect than a single discount of $20 (Mazumdar and Jun, 1993; Mazumdar, Raj and Sinha, 2005).
- Prospect theory focuses on ‘framing’ effects that are the focus of discount strategy (Puto, 1987; Rajendran and Tellis, 1994; Larson and Hamilton, 2012)
- The value function explains the perceptual factors that underlie the pricing of ‘bundled’ products and services. Segregated ‘gains’ or ‘buys’ are perceived as ‘more,’ and ‘integrated’ or bundled buys are perceived as ‘less,’ hence consumers tend to pay less for bundled products (Mazumdar and Jun, 1993)
- Consistent with an understanding of bundling, prospect theory explains how price increases and decreases on ‘unbundled products’ have a greater impact than dollar equivalent price changes for ‘bundled’ products.

PROSPECT THEORY AND THE MULTIATTRIBUTE MODEL OF PRODUCT CHOICE

A major merit of introducing prospect theory to students at an early stage is the capability of extending the concepts of prospect theory to diverse environments and contexts. Prospect theory is based on perceptions that are in turn based on a perception of perceived gains and losses. In the pricing context this perception of gains and losses is based on comparisons of prevailing prices with ‘reference prices.’ When we consider product choice, prospect theory has led to the development and elaboration of the multiattribute model of product choice (eg. Kahn and Meyer, 1991) where choice decisions are based on comparisons of products, based on a comparison of their attributes – in fact each relevant attribute of a product offering would be compared to its reference level .i.e. the ‘the attribute characteristics that the buyer or consumer expects and regards as appropriate.’ While the details are not elaborated here, it becomes clear that prospect theory lays the base for a more elaborate and complex understanding of the choice process, and price in this theory becomes ‘one attribute’ of a product offerings many attributes. This theory draws attention to a more detailed analysis of all offering features, and succeeds in integrating price theory with a more complete evaluation of product attributes, in a unified framework.

CHANNELS OF DISTRIBUTION, MARKUP CHAINS, PRICE BUILD UP

Characteristically textbooks tend to focus on final consumers and price strategies as they relate to final consumers. Thus in many books practical concepts, routinely used in business, such as the concept of list prices are not mentioned or explained at all. Similarly while prices are discussed in general, the mark-up chain i.e. the chain of mark-ups for the various channel members are seldom discussed. However, from a practical point of view, considering this price build up is almost the first stage in developing a pricing strategy. The interrelationship of this build up to issues in channel loyalty and stability are also not discussed adequately as a consequence.

From a supply chain perspective channel margin considerations are important. But the supply chain approach which has become increasingly important actually focuses on cost elements that go beyond channel markups. Here the cost elements that lead to an overall 'post manufacturing' cost build up are considered including costs of warehousing, transportation, post manufacturing transportation, inventory carrying costs and so on. An aspect often less understood by students is the relationship of credit policy and channel strategy to liquidity and fund requirements and corresponding 'interest' inventory carrying costs. None of the reviewed textbooks had an explicit discussion of these factors, particularly in the pricing chapter. On the other hand, in an absence of an understanding of this area, pricing errors as well as channel decision errors would almost be inevitable. From this perspective, the pricing chapter requires a more detailed discussions of post manufacturing working capital costs, and post manufacturing markups.

A GAP AREA: PRICING FOR TENDERING, SEALED BIDS ETC.

A practice followed by large institutions and a procedure used in many industrial project situations is the process of inviting sealed bids for a tender. This is a commercial procedure that is used frequently, and is often encountered by students who enter the business world where they may have to deal with large projects or sales contracts where bids for the project or contract are 'sealed' till a date and time for the specified tender opening. This procedure is being adopted by many institutions, and in fact internationally for projects funded by the World Bank, ADB, and it is a buying procedure suggested by the WTO and for government contracts under various treaties such as NAFTA. The procedure has the advantage that it minimizes corruption in the buying organization (accepting payoffs from the selling firms that want favors) and it also minimizes negative negotiations (where the buying organization can sequentially play one supplier organization against others). Basic marketing textbooks should also cover the normal 'commercial' systems used and the corresponding pricing strategies. In this context pricing strategies such as the submission of joint bids or attempts to split the bids can be discussed. It is suggested that this commercially relevant area be included in the teaching of pricing, since it is an integral part of modern business and the modalities and strategies of tendering/bidding should be understood by all business students.

CONCLUSION

To summarize, a more detailed look at cost-revenue and break even concepts, enhancing their elaboration to include a service oriented perspective and a multi-product environment would enhance the relevancy of undergraduate teaching in the pricing area. An integration of the teaching of price perceptions and reference pricing with a teaching of the basics of prospect theory would provide a theoretical base for price analysis as well as provide the basis for understanding both bundling strategies and the multi attribute model of product choice. The inclusion of tendering as a topic in price strategy would cover an important area of business to business or institutional selling that is often overlooked in textbooks. These teaching enhancements would improve the relevancy of the teaching of pricing at the undergraduate level and improve appreciation of our courses by both businesses and students.

ANNEX- 1
COUNT OF TEXTBOOKS THAT DISCUSS SPECIFIED CONCEPTS/TOPICS

CONTENT	Number of Textbooks that Discuss the Concept/Topic	Number of Textbooks that do not discuss the Concept/Topic	Number of Books that Discuss the Topic in a Chapter other than the Pricing Chapter
Cost/Revenue Concepts			
• AC (ATC)	5	6	0
• AVC	6	5	0
• MC	5	6	0
• AR	1	10	0
• MR	4	7	0
• TFC	11	0	0
• AFC	5	6	0
Break Even Formula	10	1	0
Profit Maximization MC=MR	1	10	0
Sales Maximization	1	10	0
Break Even Example	8	3	0

(Product)			
Break Even Example (Service/Retail)	1	10	0
Break Even Example (Multiple Product)	0	11	0
Shut Down Point P=AVC	0	11	0
Mark-ups on Sales Basis	3	5	4
Mark-ups on Cost	5	3	4
Full Cost, Standard Full Cost Pricing, Cost Plus Pricing	8	3	2
Chain Markup Pricing	1	10	0
Price Elasticity	10	1	3
Cross Elasticity	1	9	1
Product line pricing	6	5	0
Cannibalization	0	6	5
Revenue	0	11	0

Optimization			
List Prices	4	7	1
Discussion of Pricing and Distribution Management	0	11	0
Transfer Pricing	1	10	0
Tendering (Competitive Bidding)	2	9	1
INCO Terms (FOB, CIF, Geographic Pricing, etc.)	10	1	0
Trade/ Functional Discounts	9	1	1
Quantity Discounts	9	1	1
Cumulative Discounts	3	8	0
Cash Discounts	9	1	1
Seasonal Discounts	9	2	0
Periodic / Random Discounting	2	9	0

Allowances	8	3	1
Freight Absorption Pricing	7	4	0
Base Point Pricing Differential Pricing	7	4	0
Negotiated Pricing	3	8	0
Secondary Market Pricing	1	10	0
Captive Pricing	5	6	0
Bait Pricing	3	8	0
Price Lining	6	5	0
Reference Price	6	5	0
Comparative Pricing/ Comparison Discounting	1	10	0
Bundle Pricing	10	1	0
Every Day Low Price	6	3	3
Odd Even Pricing	9	2	0

Prestige Pricing	7	4	0
Price leaders	4	7	0
Penetration Pricing	11	0	2
Skimming Pricing	11	0	1

REFERENCES

Armstrong, G., & Kotler, P. (2012). Marketing: An Introduction (11th Edition). Prentice Hall.

Bower, A., & Maxham, J. (2012). Return Shipping Policies of Online Retailers. *Journal of Marketing*, 77, 1-20.

Decision Under Risk. *Econometrica*, 47, 263-291.

Economic Behavior and Organization, 1, 30-60.

Etzel, M.J., Walker, B.J., & Stanton, W.J. (2007). Marketing. 14th Edition, McGraw-Hill/Irwin.

Evans, J.R., & Berman, B. (2009). Marketing in the 21st Century. 11th Edition. Atomic Dog.

Hamilton, R., & Chernev, A. (2013). Low Prices are Just the Beginning. *Journal of Marketing*, 77, 1-20.

Kahn, B., & Meyer, R.J. (1991). Consumer Multiattribute Judgments Under Attribute-Weight Uncertainty. *Journal of Consumer Research.* 17, 508-522.

Kahneman, D., Tversky, A. (1979). Prospect Theory: An Analysis of

Kerin, R., Hartley, S. & Rudelius, W. (2010). Marketing - The Core. 4th Edition. McGraw-Hill/Irwin.

Kotler, P., & Armstrong, G. (2012). Principles of Marketing (14th Edition). Prentice Hall.

Lamb, C.W., Hair, J.F., & McDaniel, C. (2012). Marketing. 12th Edition, South-Western College/West.

Lascu, D.N., & Clow, K.E. (2004). Marketing Frontiers Concepts and Tools. Ist Edition, Atomic Dog Publishing.

Maxwell, S. (1998). Pricing Education in the USA: Responding to the needs of Business. *Journal of Product and Brand Managemen*t, 7, 336-340.

Mazumdar, T., Raj S.P., & Sinha, I. (2005). Reference Price Research: Review and Propositions. Journal of Marketing, 69, 84-102.

Mazundar, T., and Sung, Y. J. (1993). Consumer Evaluations of Multiple versus Single Price Change. *Journal of Consumer Research*, 20, 441-450.

of Reference Price. *Journal of Marketing.* 58, 22-34.

Perreault, W.D., Cannon, J.P., & McCarthy, J. (2009). Essentials of Marketing McGraw-Hill/Irwin.

Pride, W.M., & Ferrell, O.C. (2006). Marketing: Concepts and Strategies. 5th Edition, Boston: Houghton Mifflin Company.

Puto, P. (1987). The Framing of Buying Decisions. *Journal of Consumer Research*, 14, 301-315.

Rajendran, K.N., & Tellis, G.J. (1994). Contextual and Temporal Components

Science, 4, 199-214.

Solomon, M.R., Marshall, G.W., & Stuart, E.W. (2011). Marketing: Real People, Real Choices. 7th Edition, Prentice Hall.

Thaler, R (1985). Mental Accounting and Consumer Choice. *Marketing*

Thaler, R. (1980). Toward a Positive Theory of Consumer Choice. *Journal of*

Tversky, A., & Kahneman, D. (1986). Rational Choice and the Framing of Decisions. *Journal of Business.* 59. 251-278.

Winer, R., & Dhar, R. (2010). Marketing Management (4th Edition) Prentice Hall.