



2004

# Marketing Costs and Prices: An Expanded View

David J. Reibstein  
*University of Pennsylvania*

Yogesh V. Joshi

Paul W. Farris

Follow this and additional works at: [https://repository.upenn.edu/marketing\\_papers](https://repository.upenn.edu/marketing_papers)

 Part of the [Advertising and Promotion Management Commons](#), [Business Administration, Management, and Operations Commons](#), [Business Intelligence Commons](#), [Management Sciences and Quantitative Methods Commons](#), [Marketing Commons](#), [Sales and Merchandising Commons](#), and the [Strategic Management Policy Commons](#)

## Recommended Citation (OVERRIDE)

Reibstein, D.J., Joshi, Y.V., & Farris, P.W. (2004). Marketing Costs and Prices: An Expanded View. In Farris, P.W. & Moore, M.J. (Eds.), *The Profit Impact of Marketing Strategy Project: Retrospect and Prospects*, 124-152. Cambridge University Press.

This paper is posted at ScholarlyCommons. [https://repository.upenn.edu/marketing\\_papers/357](https://repository.upenn.edu/marketing_papers/357)  
For more information, please contact [repository@pobox.upenn.edu](mailto:repository@pobox.upenn.edu).

---

# Marketing Costs and Prices: An Expanded View

## **Abstract**

More than twenty years ago Farris and Reibstein (1979) published research that demonstrated a strong cross-sectional correlation between relative advertising expenditures and relative prices charged by manufacturers of non-durable consumer goods. Data for that research were taken from the PIMS database. The correlation was demonstrated to survive a number of controls for relative quality and market share. The correlation was also shown to be stronger for later stages in the product life-cycle and for products purchased in relatively small dollar amounts. The research made no claims about the direction of causality from advertising to prices or vice versa. Instead, the paper argued that from the management perspective “consistency” between advertising and pricing was important. In other words, businesses with high (or low) relative prices should generally also have high (or low) levels of relative advertising. The claim for the importance of consistency was buttressed by evidence in the paper that businesses with inconsistent pricing and advertising strategies earned lower ROIs.

In this chapter we first review and then extend the earlier Farris and Reibstein (1979) study with new analyses based on the PIMS data. The review is placed in the context of a broader managerial (not necessarily a public policy) concern with the relationship between total marketing costs (not just advertising) and prices. The expanded view of marketing costs includes salesforce and other marketing expenses – budget items with collective dollar values that are typically three to four times advertising budgets.

## **Disciplines**

Advertising and Promotion Management | Business | Business Administration, Management, and Operations  
| Business Intelligence | Management Sciences and Quantitative Methods | Marketing | Sales and  
Merchandising | Strategic Management Policy

## 6 *Marketing costs and prices: an expanded view*

DAVID J. REIBSTEIN, YOGESH  
JOSHI, AND PAUL W. FARRIS

**M**ORE than twenty years ago Farris and Reibstein (1979) published research that demonstrated a strong cross-sectional correlation between relative advertising expenditures and relative prices charged by manufacturers of non-durable consumer goods. Data for that research were taken from the PIMS database. The correlation was demonstrated to survive a number of controls for relative quality and market share. The correlation was also shown to be stronger for later stages in the product life-cycle and for products purchased in relatively small dollar amounts. The research made no claims about the direction of causality from advertising to prices or vice versa. Instead, the paper argued that from the management perspective “consistency” between advertising and pricing was important. In other words, businesses with high (or low) relative prices should generally also have high (or low) levels of relative advertising. The claim for the importance of consistency was buttressed by evidence in the paper that businesses with inconsistent pricing and advertising strategies earned lower ROIs.

In this chapter we first review and then extend the earlier Farris and Reibstein (1979) study with new analyses based on the PIMS data. The review is placed in the context of a broader managerial (not necessarily a public policy) concern with the relationship between total marketing costs (not just advertising) and prices. The expanded view of marketing costs includes salesforce and other marketing expenses – budget items with collective dollar values that are typically three to four times advertising budgets. The consistency index used in earlier research was based solely on relative prices and relative media expenditures. Herein, a similar index is developed that includes relative marketing of all kinds, including salesforce, given the broader inspection across a variety of industries beyond consumer non-durables.

We suggest that the question of marketing spending and prices is relevant to many industries beyond the consumer non-durable category.

These other industries include industrial (business-to-business) products and services as well as higher-ticket consumer durables. Using both a broader sample of businesses and an expanded definition of marketing expenditures, we show that businesses pursuing what we have called “consistent” pricing and marketing strategies are shown to earn higher ROIs than businesses with inconsistent combinations of marketing and pricing.

Our chapter is structured as follows. Section 6.1 provides a brief discussion of the marketing management research literature addressing marketing budgeting and prices. We focus especially on the management question of finding the right combination of marketing spending and relative prices. Sections 6.2 and 6.3 argue that both the public policy and management literature should adopt a broader definition of marketing costs and move beyond consumer non-durables as a focus. Our intent is not to develop a methodology or theory for optimizing marketing spending and pricing decisions; rather we seek to demonstrate that managers should pay more attention to sales force and other marketing spending and their impact on or influence by the relative prices a firm charges. Sections 6.4 and 6.5 present the hypotheses that we wished to test with the PIMS data and briefly describe the data used in this study. Next, the results of our analyses and hypothesis test are presented in Section 6.6. Finally, Section 6.7 summarizes our findings, discusses implications for marketing management, and suggests some directions for further research.

### 6.1 Marketing and pricing

In this section we will review the arguments for expecting marketing to affect price elasticities and price levels as well as the arguments for expecting the pricing decision to affect the advertising budgeting decisions. Many of these arguments are couched in “advertising” terms, but can readily be extended to other marketing efforts. Empirical evidence on prices and advertising is briefly summarized, emphasizing the differences between studies that used consumer (retail) prices and those that used manufacturer prices. Our focus is on the level of manufacturer selling prices. See Appendix to this chapter for a discussion of different pricing metrics.

### 6.1.1 Arguments that advertising affects prices

The belief that advertising causes higher prices is dominant, even among those who we might think are sympathetic toward advertising. Benham (1972) polled "several" of his colleagues in marketing and economics at the University of Chicago and reported:

Approximately 50% of the economists and 100% of those in marketing expected prices to be the same or lower where advertising was prohibited . . . it is, I think, the most common view to emphasize the costs of advertising, the demand inducing and product differentiating aspects, and to put relatively less emphasis on the information provided and the effects of this information on organization and efficiency in the market. (Benham 1972: 350)

We suspect that a more formal poll of marketers and economists might return the same result today. The belief that marketing spending increases prices is partially based on the still widely practiced "cost-plus" method of pricing and the view that "Advertising = Cost." Simply put, this argument states that as costs go higher, firms pass those costs onto their customers. This is obviously true at some extreme. As *variable costs* rise, margins shrink without a price increase. At some point margins will become negative and no amount of volume increase can compensate. While advertising is generally regarded as a *fixed cost* within the marketing community (one that does not change with sales volume), firms that closely monitor their advertising to sales ratios might be treating advertising as a variable cost.<sup>1</sup> For a given price-quantity demand function, the optimal price increases as variable costs increase, but is not affected by fixed costs. So, one neglected perspective on this debate is whether marketing managers consider advertising to be a variable or fixed cost.

When advertising is a fixed cost, it affects prices through increased demand. In economic terms, advertising shifts the demand curve outward, makes it less elastic, thereby allowing a firm to charge a higher price. The notion is that advertising generates greater demand by differentiating the product from its competition, thereby making the product less substitutable. This is generally known as the "Advertising = Market Power" argument. In the language of marketers, this allows the firm to charge a higher price; in the language of economists, it increases

<sup>1</sup> Further, as we discuss in Chapter 11, many price discounts have (improperly) been treated as marketing. Most of these are variable in nature.

the profit-maximizing price. Of course, if advertising merely convinces more people to buy the product, but does not change the distribution of individuals' willingness to pay, there is no demand-based or profit-maximizing reason for prices to increase. (The demand function shifts outward by rotating around the price intercept.)

Numerous studies have investigated the relationship between advertising and price. The managerial question has rested on whether advertising budgets can be justified not only by raising the unit sales volume for products, but by helping the product command higher selling prices at a given unit sales volume. If advertising shifts a demand curve outward, managers might decide to capitalize on this shift by some combination of higher selling prices or increased unit sales (Ailawadi, Lehmann, and Neslin 2003).

The "Advertising = Information" school of thought argues that advertising eases the entry of new products into markets, informs consumers of alternatives, thereby increasing their consideration set, and makes consumers more sensitive to price. For a review of these arguments, see, for example, Farris and Albion (1980) and Mitra and Lynch (1995). Another stream of research considers competitive reactions and whether advertising by one competitor causes a second competitor to lower its price. We believe these arguments should distinguish between the average level of market prices resulting from advertising (over time) and relative prices of competitors at any point in time. See Appendix 1 for a discussion of some of these issues.

### 6.1.2 Arguments that price affects advertising intensity

Advertising "intensity" is most often measured by the advertising to sales ratio. The economics view is that costs, prices, elasticities, and margins are determined simultaneously. For example, the price-costs margins as a percentage of sales for the profit-maximizing price are equal to the unsigned reciprocal of price elasticity. A price elasticity of  $-2.0$  results in what marketers call a contribution margin of 50 percent. All else equal, higher prices will yield higher unit contribution margins. These higher margins will increase the optimal advertising to sales ratio for a given response function that exhibits diminishing returns; in other words, higher prices drive higher advertising, not the other way around (Farris and Albion 1981; Nerlove and Arrow 1962). Therefore, a correlation between advertising levels and price levels may result

Table 6.1. Literature review

Focus of study	Study finding/interpretation
Retail advertising of prices and service is associated with lower average price levels – and higher price elasticity	Yes: Benham (1972), Cady (1976), Moriarty (1983), Bemmaor and Mouchoux (1991) No: Maurizi (1972)
Higher manufacturer advertising associated with higher retail price elasticity and/or promotional price elasticity	Yes: Eskin (1975), Eskin and Baron (1977), Wittink (1977), Sethuraman and Tellis (2002), Bolton (1989) Mixed: Vanhonacker (1989), Mitra and Lynch (1995) No: Prasad and Ring (1976)
Higher manufacturer advertising associated with higher relative manufacturer prices or manufacturer gross margins.	Yes: Farris and Reibstein (1979), Comanor and Wilson (1974), Lambin (1976), Farris and Buzzell (1976) No: No studies found.
Higher manufacturer advertising associated with lower retail margins	Yes: Albion and Farris (1987), Reekie (1979), Steiner (1993) No: No studies found.

from a simple management decision to take higher prices and earn higher margins and to “sell harder” because the added margin justifies it. Also, as product or service quality improves and is more differentiated from the competition it may create both higher advertising elasticities, given there is something to say, and lower price elasticities (higher prices and margins). While the economists’ view will almost always be that price, quality, and advertising should be “jointly optimized” (Dorfman and Steiner 1954), the managerial view may not be so elegant or simple.

### 6.1.3 Conflicting empirical evidence on advertising, prices, elasticities, and margin

As can be seen from the selected studies in Table 6.1, there have been numerous studies on various aspects of the advertising–price relationship. A notable difference is whether advertising and prices, elasticities,

or margins were studied at the retail or manufacturer level. Most have modeled the “causal relationship”<sup>2</sup> between advertising and price, while relatively few have focused on the effect of price on advertising intensity.

Several researchers have attempted to reconcile the conflicting evidence in Table 6.1. Part of the answer must be found in the metric that was used (see Appendix 1 for a discussion of some of these metrics). Farris and Albion (1980) offered one of the first attempts to reconcile the conflicting evidence, using theories of advertising and retail gross margins advanced by Steiner (1973). Succinctly, Farris and Albion state that manufacturers may be able to extract higher prices from retailers by creating consumer demand, while retailers are willing to sell the products at lower margins; this results in lower retail prices because of the rapid turnover of the product. In addition, when advertising creates more demand, levels of distribution rise, leading to higher levels of inter-retailer competition and to prices being driven downward. Hence, the results that one would find about the relationship between advertising and prices would depend on whether the research was conducted at the manufacturer price level or the retail price level.

There have been many other arguments which attempt to reconcile the differences among these studies, including the following: examining the differences between local and national advertising; attracting price-sensitive rather than price-insensitive purchasers (Kaul and Wittink 1995); expanding the consideration set of brands; relying on consumer memory or point of purchase to determine brands in the consideration set (Mitra and Lynch 1995); and whether or not distribution has been considered as an intervening variable (Abela and Farris 2001; Farris and Reibstein 1979).

We have briefly reviewed the extensive and controversial evidence on advertising and price with two purposes. The first was to demonstrate that causality in this relationship is difficult to assess and the most elegant models view advertising, pricing, and quality levels as being simultaneously determined. However, this is not very satisfying from a management perspective. A second purpose of this review was to make

<sup>2</sup> Even when causality is not explicitly addressed, there is a frequent implication that advertising leads to higher prices, even for studies that are correlational in nature.

clear that this particular study should not be interpreted as addressing the complex topic of whether advertising increases the average level of market (absolute) prices that consumers pay for a given quality.

Having established what we are *not* investigating, we turn to what we are addressing, namely how *relative levels of marketing and prices*, measured at the *manufacturer level*, are correlated; and, further, whether this correlation helps explain differences in business profitability.

## 6.2 A broader view of marketing beyond advertising

While advertising has always received the most research attention, it is only one of several marketing instruments that might affect the prices that a firm can/should charge. As demonstrated in the next section, advertising is a relatively small part of most marketing budgets – especially in businesses selling industrial products, consumer durable goods, and services. The biggest single item in most marketing budgets<sup>3</sup> is the salesforce:

the sales force is probably the single largest [marketing] cost to your company. Look at your P&L statement. Isn't sales force compensation the largest single line item? If you're like most distributors, your sales force costs range around 25–35% of gross profit. (Kahle 2003)

Salesforce and other marketing budgets are typically three or four times as large as advertising media expenditures. Further, for many companies, the purpose of advertising and promotional spending is not to substitute for salesforce expenditures, but to enhance their effectiveness. This includes products that are sold direct to consumers as well as those that are sold through salesforces and then resupplied through distributors or other resellers.

We have estimated the total amount spent on salesforces in the United States in three ways. These three estimates demonstrate a fair degree of convergence.

*Method 1:* Use PIMS data to estimate the ratio of salesforce to media spending. Multiply this ratio by public-source estimates of total

<sup>3</sup> Although many firms do not consider salesforce as part of the marketing budget, by the broader definition of marketing, it clearly is part of the communications function of the firm.

advertising spending in the US economy. Using the ratio of expenditures on salesforces to media expenditures in the PIMS data, the sample of consumer and industrial manufacturers, service providers, and retailers in the PIMS data spent approximately 2.0 percent of sales for media. Advertising spending in the United States has long been in the neighborhood of 1–2 percent of GDP, lending credence to the general applicability of this estimate. The same PIMS strategic business units that spent an average of 2 percent for media reported spending 6.5 percent of sales on salesforces. Thus, the ratio of salesforce to media expenditure is roughly 3.2:1. Total advertising expenditure in the United States in 2002 was reported as \$247 billion by Abela and Farris (2002). Depending on what is included in advertising costs, total advertising estimates can range as low as \$137 billion. Based on PIMS ratios of salesforce to advertising expenditures, and using public sources for total advertising expenditure, we conclude that salesforce spending may be slightly more than three times that for advertising, or between \$500 and \$700 billion for all types of businesses, including manufacturers, services, and retailers.

*Method 2:* Use the Labor Bureau (2003) statistics on the number of salespeople employed and their average earnings. That source reports that 13.4 million salespeople earn about \$28,900 each per year. If benefits and non-salary costs of maintaining a salesforce are estimated as 50 percent of the salary (this may be conservative), then the total cost of each salesperson is approximately \$44,000 per year, bringing the total cost of the 13.4 million salespeople in the United States to approximately \$590 billion.

*Method 3:* From COMPUSTAT data, estimate the ratio of the average spending on sales, general, and administrative costs (SG&A) to sales revenue. COMPUSTAT data allow us to calculate the average for SG&A across retail, services, and manufacturing industries as 17.3 percent of sales. Since not all of SG&A can be considered marketing, we need to subtract non-marketing from this estimate. The PIMS data provide an estimate of this “other” category: approximately 6.24 percent of sales across all industries. Subtracting this category from SG&A leaves us with an estimate of 11.05 percent for total marketing spend/revenues. From the COMPUSTAT data, we also estimate the ratio for advertising and promotional spend (media/revenues) to be 2.75 percent. Assuming the rest of the marketing budget to be salesforce

spending, our estimate for salesforce spending as a percentage of revenues from the COMPUSTAT data is 8.3 percent. Again, this indicates that the ratio of salesforce spending to advertising spending is approximately three to one.

Our purpose here was briefly to justify the assertion that salesforce spending exceeds advertising media spending by a factor of 2–3, or possibly more. These are necessarily rough estimates, because there is no general agreement on what constitutes advertising or selling expenses. Our second purpose was to point out how important it is not to focus solely on advertising's relationship on price, but to include salesforce and other marketing expenditures as well. Once we reach beyond consumer non-durables the role of these other variables are a much greater part of the firm's overall marketing budget, as seen in Appendix 2 to this chapter.

### 6.3 Marketing affects pricing strategy in the business-to-business sector too

In earlier sections we briefly reviewed the reasons for expecting higher marketing and advertising expenditures to be associated with higher selling prices. The same reasons increasingly apply to products that are sold for consumption, use, and resale by businesses. It is relatively easy to show that many business-to-business units have used advertising to build their brands. What is not clear, perhaps, is the role that salesforce spending is playing in allowing firms to command premium prices. For pharmaceutical programs, especially ethical drugs, the salesforce is a key leverage point for all communication with MDs and health maintenance organizations. Intel, Dell, Dupont (with Stainmaster, Lycra, Kevlar, and others), Goretex, and many other products are marketed with similar combinations of "push" and "pull" marketing. It is clear that the prevalent types of marketing spending differ by industry as shown in the Table 6.6 at the foot of Appendix 2, describing the PIMS data. While advertising is almost 50 percent greater than salesforce expenditures for consumer non-durables, for consumer durables it is just the reverse. For services and distribution businesses, the salesforce expenditure is nearly three times that invested in advertising, with an extreme difference of almost five times more spending for the salesforce than for advertising in industrial businesses.

### 6.4 Hypotheses

Farris and Reibstein (1979) showed a positive correlation between relative advertising levels and relative prices for consumer non-durables. Consistent with that research, the first question addressed was whether this positive correlation also held for other types of businesses. Our first hypothesis were:

$H_1$ : The correlation between relative advertising levels and relative prices is positive.

Given that advertising is generally a higher percentage of the total marketing budget for consumer non-durables than for other types of businesses (see Table 6.6), we believed that the correlation between relative prices and advertising levels would be highest for consumer non-durables. Therefore,

$H_2$ : The correlation is stronger for consumer non-durables than for other types of business.

As described above, advertising is just one component of the marketing budget that might affect prices charged. As such, our next set of hypotheses all refer to the entire marketing budget.

$H_3$ : The correlation between relative marketing spending and relative price is positive.

$H_4$ : The correlation between relative marketing spending and relative price is positive after controlling for market share and the quality of products and services.

$H_{4a}$ : The correlation between relative marketing spending and relative price is positive for firms with both high and low market shares.

$H_{4ab}$ : The correlation between relative marketing spending and relative price is positive for both high and low levels of product quality.

In line with our earlier findings on the relationship between relative advertising–pricing consistency and ROI for consumer non-durables, we expect that a positive correlation between relative marketing–pricing consistency and ROI will be found in other types of business.

$H_5$ : Businesses that are consistent with their relative levels of marketing spending and relative price are more profitable than businesses with inconsistent relative marketing and pricing strategies.

## 6.5 Data

The data that will be used to test the study's hypotheses are taken from the PIMS database. These allow us to explore in a cross-sectional manner the levels of spending and the corresponding prices. We use the SPIYR dataset that has multiple observations for each firm in the PIMS database. The definition of the variables used in this study is shown in Appendix 2.

## 6.6 Results

The first step in the analysis was to look at the relationship between relative advertising and relative price. This is similar to the analysis that Farris and Reibstein (1979) reported, although here it is performed for all eight types of business reported by PIMS, not just for consumer non-durables.

Table 6.2 provides the average prices relative to competition for businesses reporting each level of relative advertising. A "1" for relative advertising means the business reports spending "much less, as a percentage of sales" than competitors. Values 2-5 are "somewhat less," "about the same," "somewhat more," and "much more," respectively. For relative prices, a value of 103.1 means the businesses averaged prices 3.1 percent greater than their most important competitors'. Based on Table 6.2 we observe that for all levels of advertising, the average price is at least 3 percent above average, meaning that most PIMS firms report prices that are on average higher than competitors'. We do not speculate whether this is a bias in the sample toward higher-priced business strategies or measurement error. While there are some (14.3 percent) observations that do have prices below average (below 100), the majority are clearly above average. Thus, the data must all be viewed with the understanding that we are dealing with a censored dataset. Interestingly, fewer firms report spending "much" or "somewhat" more on advertising as a percentage of sales than report spending "much" or "somewhat" less than their competitors.

Rows 3-5 of Table 6.2 provide corresponding values for advertising/sales, marketing/sales and market share for the five relative advertising levels. While these variables are correlated, the patterns show larger differences between values "4" and "5" than for any of the other

Table 6.2. Averages of relative prices, advertising and promotion/sales, marketing/sales, and market shares for levels of relative advertising (averages for all business types)

	Relative advertising					All firms
	Much less	Somewhat less	About the same	Somewhat more	Much more	
	1	2	3	4	5	
Relative price*	103.1	104.1	103.9	105.4	110.9	104.4
Number of firms	3327	3855	6808	2084	1106	17,180
Advertising and promotion/sales, %	2.3	1.9	1.6	2.7	4.6	2.1
Marketing/sales, %	9.9	9.4	8.5	10.0	13.0	9.5
Market share, %	18.3	20.9	25.8	27.8	34.8	24.1

Note: \* Significant at  $p < 0.001$ ; multiple  $r^2 = 0.023$ .

intervals. The last row indicates the market share for each level of advertising spending. This row most clearly indicates the positive relationship between market share and spending, further complicating the interpretation of a simple causal relationship between advertising, marketing, market share, and prices. Certainly, the overall pattern is consistent with an interpretation that marketing spending shifts the demand curve outward as well as making some customers willing to pay more. This directly addresses  $H_1$  and is consistent (at a significant level) with the direction of the hypothesis.

We see from Figure 6.1 that the pattern of relative prices is fairly flat until encountering SBUs with above-average expenditure levels. The upper levels of advertising spending coincide with higher relative prices. The patterns appear to be the same for most of the types of businesses, although distribution/retail, industrial supplies, and raw or semi-finished materials are "flatter" than the other five types of business represented in the PIMS data. Perhaps most surprising is how robust the general trend is across all eight industry categories. The second hypothesis, that the correlation between relative advertising and



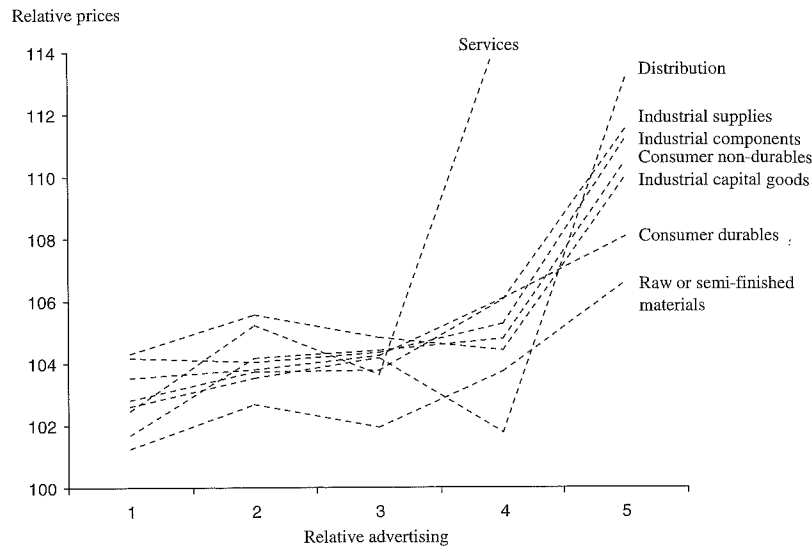


Figure 6.1. Relative prices vs. relative advertising for eight industry categories.

relative prices is strongest for consumer non-durables, is not consistent with the data, as there are several other industry categories where the relationship is just as strong. For services, the average relative price for the highest level of relative advertising spending even falls outside the range of the figure. The relative price for this level is 124.4, or a 24.4 percent price premium. Again, the advertising allows for the differentiation for services, such that a premium price can be charged; and/or, if the services price is at a premium relative to competition, it needs significant advertising to support it, and the margins allow for it.

In a similar manner, we next looked at the relationship between relative salesforce expenditure and relative prices across all eight industry categories, as shown in Figure 6.2 and Table 6.3. As can be seen, the same general relationship holds – relatively flat for the parity or lower levels of relative spending, but more pronounced differences in the higher levels of relative spending – with a six percentage point increase for higher levels of relative salesforce spending. Again, the same

Table 6.3. Averages of relative prices, salesforce/sales, marketing/sales, and market shares for levels of relative salesforce (averages for all business types)

	Relative advertising					
	Much less	Somewhat less	About the same	Somewhat more	Much more	All firms
	1	2	3	4	5	
Relative advertising	1.7	2.3	2.7	2.9	3.5	2.6
Relative price*	103.7	103.9	103.5	105.2	109.7	104.4
Number of firms	1483	3879	6795	3842	1181	17,180
Salesforce/sales, %	4.6	4.8	5.1	5.7	7.5	5.3
Marketing/sales, %	8.1	8.3	9.4	10.1	13.3	9.5
Gross margin/sales, %	23.7	24.6	25.5	27.2	31.6	25.9
Market share, %	20.5	22.2	24.0	24.5	33.2	24.1

Note: \* Significant at  $p < 0.001$ ; multiple  $r^2 = 0.015$ .

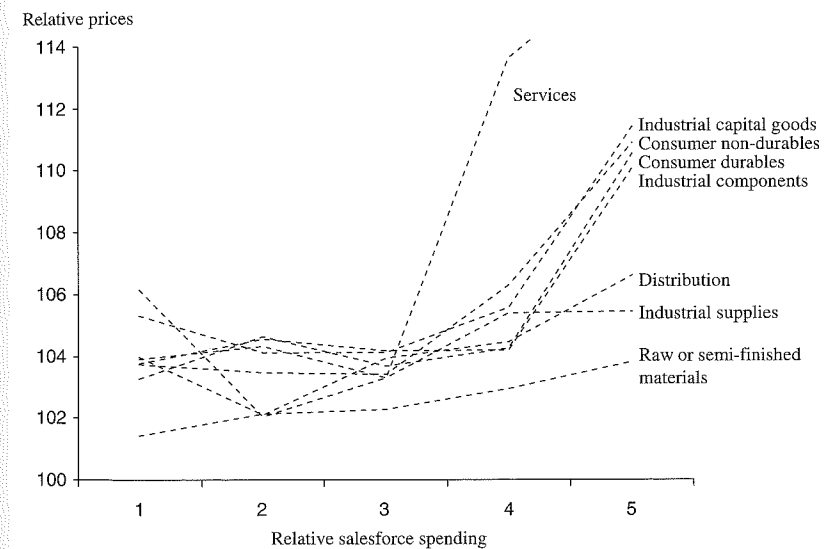


Figure 6.2. Relative prices vs. relative salesforce spending for eight industry categories.

general relationship holds in each of the eight industries.<sup>4</sup> This finding is consistent with our third hypothesis.

It is possible that companies use advertising as a substitute for salesforce expenditure. This would imply a negative correlation between the two forms of expenditure. The relationship shown in Table 6.3 between relative advertising and relative salesforce expenditure would imply that firms with greater levels of advertising also have greater levels of salesforce expenditure. A common antecedent of both advertising and salesforce spending may be relative gross margins. As argued earlier, firms with higher gross margins have greater incentive to spend to increase sales.

The PIMS index of relative advertising asks managers to compare their spending as a percentage of sales with that of competitors. As such, there should be no simple, "ratio" connection to market share. However, since optimal levels of both salesforce spending/sales and advertising spending/sales depend on gross margins (price elasticity), we suspect that businesses with low elasticities/high gross margins might tend to spend at higher relative levels of these ratios. Thus, the next step was to compare the correlation of relative advertising expenditure and relative salesforce expenditure with relative prices, controlling for market share. Table 6.3 shows that both relative advertising and relative salesforce expenditures function almost as effective surrogates for each other, but that each adds some additional explanatory power for prices.

By taking the population of firms in the PIMS database into two groups, those with low and high market shares respectively, we were able to take a simple look at the relationship between marketing spending (advertising and salesforce) and relative prices. The corresponding price premiums may be merely a reflection of the firms' market power. Figure 6.3 reflects the relative advertising and salesforce spending and its relationship to relative price for both low and high market share levels. The higher market share firms do command a higher price. Most interesting is the fact that the relationship between relative market spending and price holds up for both low and high market share firms. This is consistent with our fourth hypothesis. Again, it should

<sup>4</sup> Again, the impact for services was significantly higher than for the other industries with relative prices at 117 for the highest level of relative salesforce spending.

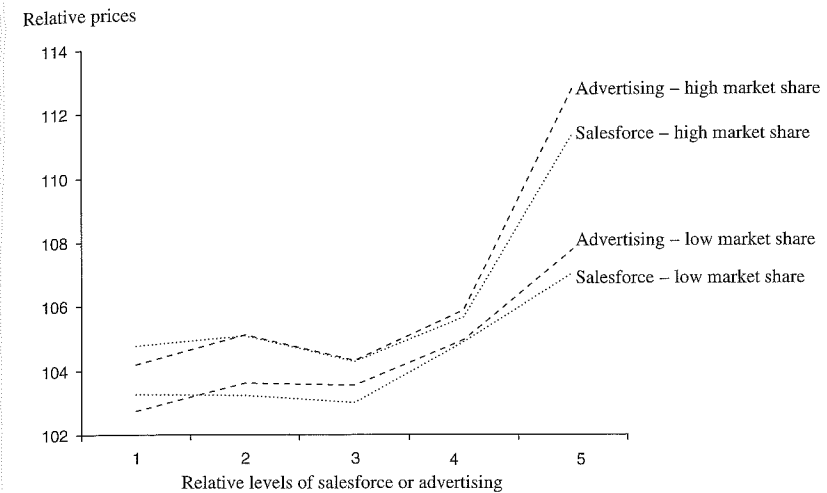


Figure 6.3. Relative prices vs. relative salesforce and advertising, controlling for market share (all eight industry categories).

be noted, that the greatest difference is only at the highest levels of spending.

A similar question should also be posed for the quality of the products being offered. Is it the case that the ability to charge a premium price is a function of the relative quality of the offering more than of the relative marketing spending levels for the firm? Shown in Figure 6.4 are the results by levels of relative product quality. As one might expect, there is a definite impact of relative price based on the relative quality of the product. Firms offering a higher quality to the competition are able to command a premium price. Of interest is that even when accounting for the difference in relative product quality, there is still a relationship between spending levels and price premium. This means that having a product of lesser quality than the competition can be compensated for by heavier levels of marketing spending. It is also the case that just having a superior product is not sufficient. To truly capitalize on this higher perceived quality, there is benefit in spending more on marketing. This also supports our fourth hypothesis.

We also wanted to look at all levels of marketing spending and relative prices. This result is shown in Table 6.4. Once again, we see the same general relationship – with greater spending we see higher relative prices being charged.

Table 6.4. Relative price vs. relative marketing spending

Relative marketing spending = average of relative salesforce, relative advertising, relative promotion, and relative services

	Relative marketing spending					
	<i>Much less</i>	<i>Somewhat less</i>	<i>About the same</i>	<i>Somewhat more</i>	<i>Much more</i>	<i>All firms</i>
	1	2	3	4	5	
Relative price*	101.6	103.1	103.6	106.4	113.5	104.4
Number of firms	195	3294	9429	3717	545	17,180
Market share, %	12.8	17.5	23.3	29.8	40.3	24.1
Marketing/sales, %	10.0	8.8	9.3	10.1	11.2	9.5

Note: \* Significant at  $p < 0.001$ ; multiple  $r^2 = 0.038$ .

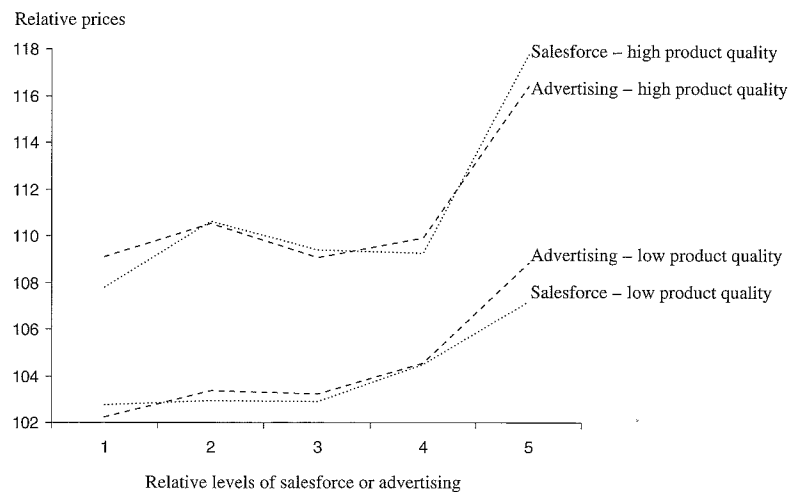


Figure 6.4. Relative prices vs. relative salesforce and advertising, controlling for quality (all eight industry categories).

Thus far our analysis has focused on descriptions of managerial pricing and marketing budgeting behavior. Normative analyses with prescriptive implications are considerably more difficult. Following the approach used by Farris and Reibstein (1979), we formed a consistency index, a measure of the degree to which a firm used marketing spending

Table 6.5. Regression results for ROI vs. consistency index (based on marketing spending and relative price)

ROI =  $f(\text{Marketing index, Relative product quality, Relative market share})$

	Value	Std. error	t-value	Pr(> t )
(Intercept)	24.0884	0.8970	26.8534	0.0000
Consistency index	0.7417	0.2126	3.4894	0.0005
Relative product quality	4.5311	0.3015	15.0301	0.0000
Relative market share	6.7499	0.2078	32.4902	0.0000

Note: Multiple  $r^2 = 0.0806$ .

(advertising, salesforce, and promotion) and prices consistently. Businesses were classified as consistent if relative marketing and relative prices had approximately the same value. In other words, low relative price and low relative marketing spending would be classified as consistent, as would a combination of high prices and high marketing. On the other hand, high prices and low marketing would be inconsistent.<sup>5</sup> We then regressed this index against ROI, controlling for other variables such as market share and relative product quality.

This regression of ROI on the consistency index yields a highly significant positive coefficient (0.7417, with  $p < 0.001$ ). The regression results are summarized in Table 6.5. The relationship is positive and significant, albeit not overly predictive as there are numerous other factors that drive ROI.

## 6.7 Summary and implications for future research

The purpose of this chapter was to expand our view of marketing spending and prices. For marketing spending, we argued that salesforce spending, in particular, in dollar terms and as a percentage of sales is far more important than advertising for most business types. We also noted that the distinction between consumer and business-to-business markets is becoming increasingly blurred and that branding and the role of marketing in increasing price premiums is

<sup>5</sup> The computation of the consistency index is detailed in Appendix 3.

also a matter of concern for business-to-business marketers and high-ticket consumer durables that historically have not spent as much on advertising. We used three separate approaches to estimate the total spending on salesforces relative to advertising in the United States. Each of these approaches yielded results consistent with the assumption that salesforce spending is approximately three times advertising spending.

We pointed out that caution should be exercised in using the accumulated empirical evidence on advertising and prices to draw conclusions about whether advertising is “anti-competitive” or causes customers to pay more for equivalent quality products in the long term. The measurement of prices is complicated both by the need to specify the vertical (channel) level at which the price is captured and by the need to make reliable and valid adjustments for quality differences. Further, we have only a very limited ability to untangle the complicated causal relationships among advertising, demand elasticity, market share, cost, and margins. Therefore, without attempting to identify causal relationships, we examined the PIMS data for relative pricing patterns exhibited by businesses spending at higher and lower relative marketing levels.

The results confirm that relative levels of total marketing are correlated with relative pricing decisions. Further, businesses that show a high degree of consistency between these two decisions also report higher levels of profitability. We believe that our emphasis on total marketing spending is new to our field. Our analyses demonstrated that businesses in the PIMS dataset that spend at higher relative marketing levels also charge higher relative prices. The correlation was positive for each of the eight different types of businesses, but was more pronounced for some business types than others and for higher levels of relative marketing. This was true for high market share firms as well as low market share brands. It was also true across different levels of product quality. We observed that firms that do not follow this pattern have lower levels of profitability.

We hope that future research will develop new methods of explaining what seems to be an important paradox in marketing. The evidence and prevailing opinions among marketers are that higher marketing spending will help a firm command higher prices and shares than lower-spending competitors. At the same time, marketing has been

associated with higher levels of price sensitivity at end user (consumer) levels and the general belief that it is pro-competitive. If we assume that unobserved differences in quality or other variables are not responsible for the covariance of advertising and prices, the question remains of how to explain this pattern. Do businesses with higher relative marketing have higher relative prices because (1) lower-advertising competitors reduce their prices (2) channels reduce their margins, or (3) customers pay more on both an absolute and relative basis?

## Appendix 1: Conceptualizing, operationalizing, and interpreting measures of price differences

### 6.A1.1 Relative prices and “average prices”

To calculate relative prices requires a baseline for comparison. Some researchers use “average prices” as that baseline. However, calculating average prices requires the construction of “standard statistical units” to combine different “unit prices” (e.g. prices per ounce) across various stock-keeping units (SKUs). An average price per unit is typically calculated by weighting SKU unit prices by unit sales or, sometimes, “availability.” Because unit sales or “availability” of different SKUs will also have non-price sources of variation, the weighting scheme will almost always be subject to variances in the average price that are not caused by actual price changes. For example, when a relatively lower-priced item is placed on display in a high-traffic location at regular selling prices, the relative unit sales of this item will increase, lowering the volume-weighted average price.

If researchers succeed in establishing a benchmark against which to measure the “relative” prices of various brands in the market, then they will have also created a good measure for evaluating how prices change over time. We believe that most public policy-makers are concerned (or should be concerned) about the effect of marketing on the increase or decrease in “average” market prices over time. If an acceptable quality-adjusted “market price” were available it could be used to determine how prices are changing over time. Without such quality and innovation adjustments, comparisons of prices over longer periods are problematic. Consider that a 5” portable Motorola television sold

in 1947 for \$189 (the equivalent of \$1,360 in 2001 dollars). In 2003, you could buy a 5" portable television from Amazon.com for \$39.94 (plus shipping).

#### 6.A1.2 Vertical price differences: different levels in the distribution channel

It is only appropriate to compare prices among manufacturers if we capture those prices at the same level of the marketing channel or supply chain. Those concerned with consumer welfare are most likely to be concerned about the effects of marketing on the prices that end customers for industrial products and consumers pay. On the other hand, marketers and business managers will be concerned about their own selling prices as well as the "final" prices that consumers and end users pay.

Between retailer and manufacturer, there may (or may not) exist a variety of middlemen. Depending on the structure of the channel the margins earned by these middlemen may be accounted for in different ways. Wal-Mart is known for refusing to buy except direct from manufacturers. Depending on the channel, the item, and the region, the same brand may be sold directly to retailers for stocking in the chain warehouse and subsequent delivery to the stores in the retailer's trucks, with the assistance of brokers (who often do not take possession), through wholesalers or distributors who do take possession and break bulk, delivered directly to the store shelves by the manufacturer's salesforce, or some combination of the above. Often, where the manufacturer has a high share or strong brand franchise, direct distribution to the chain warehouse is the preferred option. Where the brand is weaker, distribution is indirect through wholesalers and/or with the assistance of brokers. Indirect distribution adds a substantial amount to the channel margins. The percentage of the final retail price captured by the manufacturer varies significantly. The president of P&G's largest global division stated that "most of our products are sold by retailers at a loss." This is clearly not true of most products, but is most likely to be true of those with dominant shares.

Even without the intervening margins of middlemen there are significant problems in establishing comparable selling prices across manufacturers. Rebates, trade promotions, cooperative advertising

allowances, and other payments to the trade vary among manufacturers and across time. List price increases are often accompanied by higher promotion allowances and even relatively sophisticated retailers have difficulty allocating many of these payments to individual SKUs. These payments are not always reflected in the lowering of wholesale prices, but may be simply taken as lump sums and accounted for elsewhere in the income statement. For several years, many marketers were not recording the bulk of such discounts as reductions in price, but rather as increases to marketing budgets. Rulings by the Financial Accounting Standards Board in 2002 have changed this practice and many companies are restating prior income statements for prior years. Finally, retail prices may be calculated gross, or net of discounts such as coupons or rebates provided by the reseller as part of "loyalty" programs.

Researchers should consider how market power and strategic channel choices of different manufacturers may confound the comparison of prices by creating or reflecting vertical price differences. Consider, for example, that a major retailer's private label may often (although not always) involve no middlemen. For such a private label, is the difference between retail selling price and retail purchase price a reflection of retail margin, manufacturer margin, or a combination of the two? Much of the evidence cited on the effect of manufacturer marketing on prices fails to distinguish adequately among the vertical pricing issues discussed above, but simply compares "relative prices." Further, the measurement of prices has been greatly confounded by the various treatments of trade and consumer discounts.

It is possible to interpret the higher relative prices that are associated with higher marketing spending in at least two different ways. One interpretation is that higher marketing and advertising spending enables companies to charge prices that are higher than the market average that would prevail in the absence of marketing. A second, less common interpretation is that the companies spending more for marketing establish a ceiling under which other competitors are forced to price below the branded/advertised product (why pay *more* for an unadvertised product that is merely equal to an advertised product?). The good news for these brands is that they are able to "free ride" on the marketing of the leader through a "just as good as -, but cheaper" positioning.

## Appendix 2: PIMS variables used in this study and their definitions

Name	Description
<i>Total revenues</i>	Reported net of returns, allowances, and bad debts. Lease revenues and progress payments received in a year are included in sales revenue. Temporary price reductions are treated as promotional expenses, but discounts and price concessions that continue for extended time periods are deducted from net sales.
<i>Salesforce expenses</i>	Include compensation and expenses of sales people, commissions paid to agents or brokers, and costs of salesforce administration. When two or more business units share a salesforce, the total cost is allocated amongst them.
<i>Advertising &amp; promotion expenses</i>	Include costs of catalogs, exhibits, displays, premiums, samples, and revenue reductions associated with temporary price reductions.
<i>Media advertising expenses</i>	Covers only the costs of media time and space (including advertising agency commissions).
<i>Other marketing expenses</i>	Covers all marketing outlays not included in sales force, media advertising, and sales promotion. Marketing administration and research fall in this category.
<i>Total marketing expenses</i>	Sum of the four sub-categories listed above.
<i>Other expenses</i>	This residual category includes business unit general and administrative Expenses as well as allocated corporate or divisional overhead charges. It also includes depreciation or goodwill, if any.
<i>Type of business</i>	One of eight types (consumer durables, consumer non-durables, industrial capital goods, raw or semi-finished materials, industrial components, industrial supplies, services or retail & wholesale distribution).

Name	Description
<i>Relative product quality</i>	For each year, estimate the percentage of this business's sales volume accounted for by products and services that from the perspective of the customer are assessed as 'Superior', 'Equivalent' or 'Inferior' to those available from the three leading competitors. In assessing quality, the customer's perception of both the intrinsic characteristics of the product or service and any associated services (delivery time, warranties, application assistance, etc.) should be taken into account where these are important in decisions to purchase.
<i>Salesforce/revenue</i>	Salesforce spend as a percentage of revenue
<i>Advertising &amp; promotion/revenue</i>	Advertising and promotional spend as a percentage of revenue
<i>Media advertising/revenue</i>	Media advertising as a percentage of revenue
<i>Marketing/revenue</i>	Total marketing spend as a percentage of revenue
<i>Gross margin/revenue</i>	Gross margin as a percentage of revenue. Gross margin is defined as value added (actual, not adjusted) minus manufacturing & distribution and depreciation expenses. Gross margin defined this way is the amount available to cover discretionary expenses (R&D, marketing, and general & administrative expenses) and pre-tax profits.
<i>ROI</i>	Profits as a percentage of investment
<i>Market share</i>	Sales of a business as a percentage of the served market.
<i>Relative prices</i>	Average level of selling prices of this business's direct costs per unit of products and services, relative to the average level of the three largest competitors.
<i>Relative salesforce expenditures</i>	Relative to the three largest competitors, did this business spend "about the same" percentage of its sales on salesforce effort? Or "somewhat more" (or less)? Or "much more" (or less)?

(cont.)

Name	Description
<i>Relative media advertising expenditures</i>	Relative to the three largest competitors, did this business spend "about the same" percentage of its sales on media advertising? Or "somewhat more" (or less)? Or "much more" (or less)?
<i>Relative sales promotion expenditures</i>	Relative to the three largest competitors, did this business spend "about the same" percentage of its sales on sales promotion efforts? Or "somewhat more" (or less)? Or "much more" (or less)?
<i>Relative quality of customer services</i>	Customer services are the supporting services which accompany the primary products or services. Was the quality of the customer services this business provided to end users "about the same", "somewhat better (or worse)" or "much better (or worse)"? than that provided by the three largest competitors?

Table 6.6. Selected marketing ratios from PIMS data

	Averages				
	Consumer durables	Consumer non-durables	Industrial	Services & distribution	All firms
Salesforce/sales, %	5.2	6.0	6.9	8.4	6.5
Adv. & prom./sales, %	4.1	12.2	1.4	3.8	4.8
Media/sales, %	1.8	5.4	0.6	1.2	2.0
Marketing/sales, %	11.8	20.2	11.1	14.2	13.7
Salesforce/marketing, %	45.1	35.4	61.8	60.5	52.3
Advertising/marketing, %	33.2	56.4	12.9	22.5	27.7
Media/marketing, %	14.4	25.9	4.9	7.5	12.0
Number of firms	847	1676	3511	170	6204

Note: From eMarketer, annual US media spend for 2002 is ~ \$237 billion. From above, since media/sales ~2%, the annual US sales are estimated at \$11,850 billion. Salesforce/sales ~6.5%, thus estimated annual US salesforce spend is ~ \$770 billion.

Table 6.7. Computing the consistency index fractions

Relative price	Relative salesforce				
	1	2	3	4	5
1	1	0.5	0.33	0.25	0.2
2	0.5	1	0.67	0.5	0.4
3	0.33	0.67	1	0.75	0.6
4	0.25	0.5	0.75	1	0.8
5	0.2	0.4	0.6	0.8	1

Table 6.8. Key to consistency index coding

For fraction  $\leq 0.2$ , index = 1; for fraction  $< 0.4$ , index = 2; for fraction  $< 0.6$ , index = 3; for fraction  $< 0.8$ , index = 4; else index = 5

Fraction	Index
0.20	1
0.25	2
0.33	2
0.40	3
0.50	3
0.60	4
0.67	4
0.75	4
0.80	5
1.00	5

Table 6.9. Coding the consistency index

Relative price	Relative salesforce				
	1	2	3	4	5
1	5	3	2	2	1
2	3	5	4	3	3
3	2	4	5	4	4
4	2	3	4	5	5
5	1	3	4	5	5

### Appendix 3: Development of the consistency index

The consistency index was constructed to create a measure of consistency between a company's actions on marketing spend variables and observed pricing policy. We now illustrate the construction of the index based on relative salesforce spending. Relative prices are classified into the 1–5 range based on observed values. Then, as outlined in Table 6.7, we compute the ratio of relative price to relative salesforce spending.

Next, we code these fractions on a 1–5 scale, indicative of the consistency between marketing action and pricing policy. For example, a fraction equal to or very close to the value one means that a company that spends much more on sales force also charges prices that are much higher. These behaviors are highly consistent with the recommendations in the chapter and are coded as maximum consistency (5). Similarly, the rest of the fractions are coded as in Table 6.8. The final coding is as illustrated in Table 6.9.

### References

- Abela, Andrew, and Paul W. Farris. 2001. "Advertising and Competition." In P. Bloom and G. Gundlach, eds. *Handbook of Marketing and Society*, 184–205. Thousand Oaks, CA: Sage Publications.
2002. "100 Leading National Advertisers." *Ad Age* (June 24): 1.
- Ailawadi, Kusum L., Donald R. Lehmann, and Scott A. Neslin. 2003. "Revenue Premium as an Outcome Measure of Brand Equity," *Journal of Marketing* 77 (October): 1–17.
- Albion, Mark S., and Paul W. Farris. 1987. "Manufacturer Advertising and Retailer Gross Margins." In P. Bloom, ed. *Advances in Marketing and Public Policy*, 107–135. Greenwich, CT: JAI Press.
- Bemmaor, A. C., and D. Mouchoux. 1991. "Measuring the Short-term Effect of In-store Promotion and Retail Advertising on Brand Sales: A Factorial Experiment." *Journal of Marketing Research* 28 (May): 202–214.
- Benham, Lee. 1972. "The Effect of Advertising on the Price of Eyeglasses," *Journal of Law and Economics* 15 (October): 337–352.
- Bolton, Ruth N. 1989. "The Relationship Between Market Characteristics and Promotional Price Elasticities." *Marketing Science* 8 (2): 153–169.
- Cady, John. 1976. "Advertising Restrictions and Retail Prices," *Journal of Advertising Research* 16 (October): 27–30.
- Comanor, William S., and Thomas A. Wilson. 1974. *Advertising and Market Power*. Cambridge, MA: Harvard University Press.

- Dorfman, Robert, and Peter O. Steiner. 1954. "Optimal Advertising and Optimal Quality." *American Economic Review* 44: 826–836.
- Eskin, Gerald J. 1975. "A Case for Test Marketing Experiments," *Journal of Advertising Research* 15 (April): 27–33.
- Eskin, Gerald J., and Penny H. Baron. 1977. "Effect of Price and Advertising in Test-Market Experiments," *Journal of Marketing Research* 14 (November): 499–508.
- Farris, Paul W., and Mark S. Albion. 1980. "The Impact of Advertising on the Price of Consumer Products," *Journal of Marketing* 44 (Summer): 17–35.
1981. "Determinants of the Advertising-to-Sales Ratio." *Journal of Advertising Research* 21 (February): 19–27.
- Farris, Paul W., and Robert D. Buzzell. 1976. "Variations in Advertising Intensity: Some Cross-Sectional Analyses." *Journal of Marketing* 43 (Fall): 112–122.
- Farris, Paul W., and David J. Reibstein. 1979. "How Prices, Ad Expenditures, and Profits are Linked." *Harvard Business Review* 57 (November–December): 173–184.
- Kahle, Dave. 2003. "Is it Time to Revise Your Sales Compensation Plan?" <http://www.saleslobby.com/Mag/0701/SCDK.asp>
- Kaul, A., and D. Wittink. 1995. "Empirical Generalizations About the Impact of Advertising on Price Sensitivity and Price." *Marketing Science* 14(3): 151–161.
- Labor Bureau. 2003. [http://www.bls.gov/oes/2001/oes\\_41Sa.htm](http://www.bls.gov/oes/2001/oes_41Sa.htm)
- Lambin, Jean J. 1976. *Advertising, Competition and Market Conduct in Oligopoly Over Time*, Amsterdam: North-Holland.
- Maurizi, Alex R. 1972. "The Effect of Laws Against Price Advertising: The Case of Retail Gasoline," *Western Economic Journal* 10 (September): 321–329.
- Mitra, A., and J. Lynch, 1995. "Toward a Reconciliation of Market Power and Information Theories of Advertising Effects on Price Elasticity." *Journal of Consumer Research* 21 (4): 644–660.
- Moriarty, M. 1983. "Feature Advertising – Price Interaction Effects in the Retail Environment." *Journal of Retailing* 59 (Summer): 80–98.
- Nerlove, Marc, and Kenneth Arrow. 1962. "Optimal Advertising Policy Under Dynamic Conditions." *Econometrica* (May): 129–142.
- Prasad, V. Kanti, and L. Winston Ring. 1976. "Measuring Sales Effects of Some Marketing Mix Variables and Their Interactions." *Journal of Marketing Research* 13 (November): 391–396.
- Reekie, W. Duncan. 1979. *Advertising and Price*. London: The Advertising Association.



- Sethuraman, Raj, and Gerard Tellis. 2002. "Does Manufacturer Advertising Suppress or Stimulate Retail Price Promotions? Analytical Model and Empirical Analysis." *Journal of Retailing* 78: 253-263.
- Steiner, Robert L. 1973. "Does Advertising Lower Consumer Prices?" *Journal of Marketing* 37 (October): 19-26.
- Steiner, R. 1993. "The Inverse Association between margins of Manufacturers and Retailers." *Review of Industrial Organization* 8: 717-740.
- Vanhonacker, Wilfried R. 1989. "Modeling the Effect of Advertising on Price Response: An Econometric Framework and Some Preliminary Findings." *Journal of Business Research* 19: 127-149.
- Wittink, D. R. 1977. "Exploring Territorial Differences in the Relationship Between Marketing Variables." *Journal of Marketing Research* 14 (May): 145-155.

## 7 | *The model by Phillips, Chang, and Buzzell revisited – the effects of unobservable variables*

LUTZ HILDEBRANDT AND  
DIRK TEMME

THIS chapter reviews some key hypotheses from empirical research on success factors in marketing. These hypotheses on drivers of business profitability, in particular quality and market share, have been a major subject of critique, and these critiques have come primarily from the resource-based view in management research. According to this perspective, general laws of business success based on manageable strategic input factors do not exist. Instead, unobservable, firm-specific variables are regarded as the key drivers of profitability. However, only a few studies have been able to show that strong relations discovered in empirical success factor research disappear if unobservable variables are controlled in econometric models.

In this chapter, we show that some of these results may be methodological artifacts. Based on the hypotheses of Phillips, Chang, and Buzzell (1983) regarding the effects of quality and market share on profitability, we use PIMS data to replicate their study using a modified modeling approach. Whereas Phillips, Chang, and Buzzell use data taken at two points in time to investigate the relationships between some key variables, this chapter uses a six-year cross-section of time series and a panel modeling approach to estimate the parameters. This approach allows us to overcome some major objections to the traditional PIMS approach; key relations between observable success factors and profitability highlighted by the PIMS research can be estimated while simultaneously the effects of different types of unobservable firm-specific factors can be controlled. The empirical results in our study show that quality and market share still have a significant impact on profitability even if unobservables are controlled.