

RESEARCH ARTICLE

# The Economics of Brand and Marketing Activities

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**Abstract:** Understanding the contributions of brand and marketing activities to sales is vital to make smart decisions. This study attempts to investigate this issue empirically. Data were gathered from two brands in frequently purchase packaged goods category. Two double-log regression models were fitted to data. We find that brand and marketing activities contribute to sales significantly. Managers may find our findings useful to allocate fund between short-term and long-term marketing actions. As far as our knowledge is concerned, this constitutes the first empirical work of economics of branding for regional brands in India.

**Keywords:** revenue, brand equity, marketing equity, fund, allocation

**JEL Classification:** M31

In a 1991 paper, Winters made a statement that “there has been a lot of interest in measures of brand equity (henceforth BE). However, if you ask 10 people what is brand equity, you are likely to get 10 (may be 11) different answers” (p. 70). That is why we begin our economic analysis by defining brand equity as the revenue earned by a firm due to its brand after accounting for marketing.

However, we do not claim that ours is not the only definition since brand equity can be defined and measured from a number of different perspectives and purposes (Keller, 1993). This particular definition leads to many insights in general and in following proposition in particular (Baltas & Saridakis 2010; Conchar, Melvin & Zinkhan, 2005; Feldwick, 1996):

A firm can earn revenue through brand name and marketing activities.

We are now ready to understand our proposition. We find that there have been many studies that offer insight into contributions of brand and marketing contribution to revenue (Aaker, 1991; Broniarczyk & Alba, 1994; Farquhar, 1990; Feldwick, 1996; Loken & Roedder-John, 1993; Kerin & Sethuraman, 1998). Some studies measured (brand equity or marketing equity) from financial angle, others measured from non-financial angle, and rest measured from both angles (Doyle, 2000, 2001; Keller & Lehmann, 2006; Lehmann, 2004). At a glance, it appears that there were not many studies that cover the issue of economics of brand and marketing simultaneously in the past. Therefore,

there is need to test the proposition (mentioned above) from both managerial and academics point of views (Baldinger, 1990; Blackston, 2000).

In this paper, we integrate two lines of research that is, brand equity and marketing productivity. Our intent is to provide view of these very diverse areas that shows how they fit together into our purpose rather than to provide a detailed review of the available references. We discuss them in turns.

### **Brand Equity**

Brand equity is a multidimensional construct (Ravi, Dash, & Purwar, 2013; Shankar, Azar, & Fuller, 2008). Essentially, three perspectives have emerged in the literature to measure brand equity: (1) customer-based (Ghosh, Chakraborty, & Ghosh, 1995; Kapferer, 2002; Keller, 1993; Keller & Lehmann, 2003; Lassar, Mittal, & Sharma, 1995; Percy & Rossiter, 1992), (2) financial based (Aaker & Jacobson, 2001; Simon & Sullivan 1993), and (3) product-market based (Ailawadi, Lehmann, & Neslin, 2002 a, 2002b; Kanetkar, Weinberg, & Weiss 1992).

1. *Customer based.* Researchers measure consumer attitude, awareness, knowledge, liking, familiarity, preference, purchase intentions, satisfaction, loyalty, purchase share and repurchase rates to scale in brand equity (Agarwal & Rao, 1996; Ambler & Barwise, 1998; Christodoulides & Chernatony, 2010; Cobb-Walgren, Cynthia, & Naveen, 1995; Dillon, Madden, Kirmani, & Mukherjee, 2001; Hutchinson, Raman, & Mantrala, 1994; Keller & Lehmann 2003; Mackay, 2001a, 2001b; Zaltman & Higgle, 1995).

Erdem and Swait (2004) measured brand equity in terms of credibility of information content in brand signals. In another vein, Green and Srinivasan (1990) used a full-profile conjoint technique to measure brand equity. Similarly, Park and Srinivasan (1994) measured perceptual brand equity and reported that there is a mismatch between stated preference and observed behavior.

Kiley (1998) and Schulz (1997) strongly believed that brand image, association, attitude and so on would not be enough in measuring brand equity. Baldauf, Cravens, and Binder (2003), Chaudhuri (1999), Faircloth, Capella, and Alford (2001), and Keller and Lehmann (2003) established links between customer-based equity and brand market performance measures. In a same vein, Kim and Kim (2004), Krishnan (1996),

Tong and Hawley (2009), and Washburn and Plank (2002) established relationships between customer-based brand equity and firms' performance.

2. *Financial based.* From a financial point of view, brand is an asset (Aaker 1991). Bartov, Givoly, and Hayn (2002), and Mahajan, Rao, and Srivastava (1994) measured price premium of a branded product compared to an unbranded one. Kallapur and Kwan (2004) observed brand equity in terms of present value of license fees and royalties and market value of equity.

Simon and Sullivan (1993), Rangaswamy, Burke, and Oliva (1993), and Shocker and Weitz (1988) measured brand equity in terms of residual market value after other sources of value have been accounted for. In a different line, Crimmins (2000) calculated a ratio of a branded product to an unbranded one when both are equally desirable to consumers. In addition, Kamakura and Russell (1993) measured incremental utility associated with a branded product which is not captured by its functional attributes.

3. *Product-market based.* Product-market based measures summarize marketplace results of brand equity. In their studies, Aaker (1996), and Sethuraman (2003) measured consumer willingness-to-pay more for a branded product compared to an unbranded one. Chaudhari and Holbrook (2001), Sethuraman (2003), and Sethuraman and Cole (1997) measured relative market share and relative prices; Kamakura and Russel (1993) noticed segment-wise brand preferences; Ailawadi et al. (2002a) measured relative revenue premiums; Dubin (1998), and Goldfarb, Qiang, and Moorthy (2009) identified relative profit differentials; and Aaker (1996) calculated relative share of category requirements of a branded product compared to an unbranded one.

### **Marketing Productivity**

Sheth and Sisodia (1999) pointed out that marketing productivity has become a critical issue and can be measured in product-wise, market-wise and activity-wise. Danaher and Rust (1994), and White and Miles (1996) established a relationship between marketing expenditures and sales to measure its productivity. Using longitudinal data, Luo and Donthu (2006) attempted to relate between marketing communication productivity and shareholder value. In another dimension, Ailawadi, Farris, and Parry (1994, 1997), and Balasubramanian and Kumar (1997a, 1997b)

measured productivity of marketing activities in terms of their costs to sales ratio (Martenson, Gronholdt, Bendtsen, & Jensen, 2007). In a broader aspect, Shaw (1990) measured productivity of marketing at aggregate or macro level in the United States using industry-level database.

### ***Brand Equity-Marketing***

Chauvin and Hirschey (1993), and Mathur and Mathur (1995) assessed the effect of marketing on firm market value. In their respective studies, Joshi and Hanssens (2010), Madden, Fehle, and Fournier (2006), and Srivastava, Shervani, and Fahey (1998) measured the effect of marketing on shareholder value. In the same spirit, Ambler (2003), Clark and Ambler (2000), and Iglesias, Singh, and Batista-Foguet (2011) measured marketing's contribution to brand loyalty albeit brand equity

In this work, we wanted to test our proposition for some regional brands. Since the companies of regional brands are not listed in stock exchange financial based approach would not be appropriate. That is why we use product-market based view which focuses on the value provided by a brand to its owners (Aaker & Jacobson, 2001; Ailawadi et al., 2002 b; Moran, 1994) and customer based perspective relies on the relationship between the customers and the brand (Dyson, Andy, & Nigel, 1996; Keller 1993; Park & Srinivasan, 1994).

In our conceptual framework, there are two actors (brand and marketing) and their relationship with revenue is the key (Keller, 2009). Also, understanding the relationship between revenue and brand with marketing would lead to superior learning and therefore better decisions and resource allocations (Baker & Sinkula, 1999; Menon & Varadarajan, 1992; Moorman, 1995; Sinkula, 1994, 2002; Slater & Narver, 1995). Establishing empirical links between revenue, brand, and marketing remains a challenge for managers (Kacen, 2010). Uncovering these links is our main concern in this research.

From a managerial point of view, insight into the proposition helps managers in formulating response to change in revenue (Park, MacInnis, Priester, Eisingerich, & Iacobucci, 2010). It provides them with a better understanding of the effectiveness of their investments in marketing, thereby answering the call for improved performance and accountability of marketing activities. Last but not the least, it navigates managers to allocate fund between brand building

activities and demand generating activities optimally. From an academic point of view, it is important to understand how brand equity and marketing equity vary systematically within and between brands. With a good understanding of the issue, it is likely to add to our understanding of marketing science as well.

The remainder of this article is structured as follows: In the next section, we present our models and related hypotheses. Next, we describe our data and methods of analysis. We then provide the empirical findings and conclude with managerial implications.

## **Research Design**

### ***Model***

When assessing the impact of brand and marketing on revenue, we face model requirements. First, we should be aware about the shape of the response function of revenue to marketing. Second, we allow the parameters to vary across brands. Third, we need to realize the performance of brand in terms of revenue after giving adjustment for marketing. Finally, we need to add the expenditures on various marketing activities in a particular point of time. In the line of previous research (e.g. Belch & Belch, 1998; Hanssens, Parsons, & Schultz, 2003; Mesak, 2002; Naik & Raman, 2003; Neslin, 1990; White, Miles, & Smith, 2001), we start with the following double-log revenue response model:

$$\ln Y_t = \alpha + \beta \ln X_t + u_t \quad (1)$$

where  $\ln Y_t$  is the natural logarithm of the revenue of a particular brand at time  $t$ ;  $\ln X_t + u_t$  is the natural logarithm of the marketing expenditures (net of inflation) of that brand at time  $t$ ;  $u_t$  is the random disturbance term at time  $t$ .

When we want to assess the impact of price on quality, we face more or less similar model requirements (mentioned above). However, two points must be noted: (1) we do not allow parameters to vary across brands, and (2) we need to measure price and quality subjectively through survey. In the line of earlier works (e. g. Hanssens et al. 2003; Leeflang, Wittink, Wedel, & Naert, 2000, Naik & Raman, 2003) we move on with the following double-log regression model:

$$\ln Q_{i,q} = \alpha_{pq} + \beta_{pq} \ln Q_{i,p} + v_i \quad (2)$$

where  $\ln Q_{i,q}$  and  $\ln Q_{i,p}$  are the logarithm of the scores on quality and price of  $i^{\text{th}}$  respondent, respectively;  $v_i$  is the random disturbance term.

The biggest challenge we face is when we want to combine  $\alpha$  (on eq. 1) and  $\beta_{pq}$  (on eq. 2) together. The key of this adjustment to  $\alpha$  for  $\beta_{pq}$  is to combine both financial and non-financial aspects of brand equity. Several authors like Swait and Andrews (2003), and Morikawa, Ben-Akiva, and McFadden (2002) have given direction on how to combine both aspects of brand equity. In this work, we follow their foot-steps. Moreover, in line with previous research (Jain & Singh, 2002; Leeflang et al., 2000; Sheth & Sisodia 1999; Wedel & Pieters, 2000), we put all estimates ( $\alpha, \beta$  &  $\beta_{pq}$ ) on the following equation for predicting revenue:

$$Y_i = e^{\alpha + \beta_{pq}} X_i^\beta \quad (3)$$

where  $e^{\alpha + \beta_{pq}}$  is the brand equity;  $\alpha$  &  $\beta$  are the contributions of particular brand and its marketing to revenue respectively; and  $\beta_{pq}$  is the value equity.

### Hypotheses

We could use eq. (3) only if all the parameters on it are statistically significant (Hanssen et al., 2003; Leeflang et al., 2000). First, we shall see whether our parameters of interest are statistically significant or not. In this context, we frame the four hypotheses with respect to eq. (1) and eq. (2):

$H_1$ : The baseline revenue determined through  $\alpha$  is substantial  
That is, mathematically,  $H_0: \alpha = 0$  against  $H_a: \alpha > 0$

$H_2$ : The strength of the relationship between revenue and marketing determined through  $\beta$  is substantial  
That is, mathematically,  $H_0: \beta = 0$  against  $H_a: \beta > 0$

$H_3$ : The intercept ( $\alpha$ ) and the coefficient of marketing ( $\beta$ ) differ by brand  
That is, mathematically,  $H_0: \alpha_A = \alpha_B$  and  $\beta_A = \beta_B$  against  $H_a$  At least one differs

$H_4$ : The strength of the relationship between quality and price determined through  $\beta_{pq}$  is substantial

That is, mathematically,  $H_0: \beta_{pq} = 0$  against  $H_a: \beta_{pq} > 0$

### Data

We wanted to test our hypotheses using data of regional brands. However, there were not so many regional brands in our research area—West Bengal, India, home of more than 70 million Indians. We selected two brands randomly to keep our work sophisticatedly simple and manageable. Then, we approached both firms to provide data on revenue and expenditures on marketing, which is combined spending on advertising—also takes several forms (Radio ads, TV ads, newspaper ads, posters, pop materials, etc.), sales force, sales promotion, and distribution. We also sought the permission to survey customers to capture their perceptions toward respective brands price and quality issues. However, we are not empowered in revealing their names in this paper.

The names of the two brands have been withheld due to confidentiality issue and we designate them as brand A and brand B throughout this work. Note that these brands are selected from hair-oil product category and that the two brands resembled one another closely in terms of marketing actions, locations, distribution channels, and market coverage/penetration level. Brand A is different from brand B with respect to size, started at different point, is moving at different pace, however, presently both are belonging in the mature stage of their respective life cycles. It is not exaggeration to say that we got a unique microeconomic data set, which is one of the distinctive features of our work.

Sales representatives of both brands helped us in data collection from a sample of customers. We used a questionnaire of two statements—one on each (price and quality) even though we are fully aware that a multi-item scale of each construct would be better fitted to this particular problem. We mapped each item on a five-point Likert scale (5 corresponding to strongly agree and 1 strongly disagree). Pilot test results on 30 respondents indicated each item's ability to measure what is supposed to be measured since the standard deviation is more than 1 in both cases.

Subsequently, 200 (statistically determined) homemakers have been approached personally in their homes by a team of sales representatives in the first

quarter of 2014. Finally, we created two files (one for each brand) of 180\*2 data points each.

On the other hand, we gathered 28\* 2 quarterly data points from the internal documents of both firms over the period 2008—2014. We faced two issues. First, there is seasonal variation in our data, hence we gave adjustments using seasonal indices. Second, there are few outliers (standard deviation is more than 3) in our data that is why we deleted some observations. Subsequently, we prepared three data files (two files of 25\*2 data points each and one of 50\*2 data points).

**Methods of Analysis**

We analyzed our data points into several steps:

- First, we fitted 25\*2 data points on revenue and marketing expenditures to our model (eq. 1) for each brand separately. Using OLS estimation algorithm, we estimated the parameters ( $\alpha$  &  $\beta$ ) (and recorded their respective standard errors along with model’s diagnostic statistics (e.g.  $R^2$  and Darbin-Watson).
- Next, we fitted our model (eq. 1) to 50\*2 data points on revenue and marketing expenditures of both brands. Again, we used OLS estimation algorithm in estimating pooled residual sum of squares (PRSS). Then, we put our brand-wise RSS and PRSS on **Chow test** formula to compute **F**-value.
- Then, we fitted our 180\*2 data points on quality and price to our model (eq. 2) separately. Using

OLS estimation algorithm, we estimated brand-specific parameters ( $\alpha_{pq}$  &  $\beta_{pq}$ ) along with their respective standard errors. We also recorded model’s diagnostic statistic (e.g.  $R^2$ ).

- Finally, we multiplied  $\alpha$  (estimated in step 1) by  $\beta_{pq}$  (estimated in step 3) and put them on eq.3 along with  $\beta$  (estimated in step 1) to predict revenue.

**Results**

We present the estimates of models 1 and 2 in Tables 1 and 2, respectively.

High  $R^2$  indicates that our double-log regression model gives a good fit to data. Furthermore, insignificant DW statistic reveals that there is no autocorrelation in our data. Overall, we retain our models (eq. 1 & eq. 2) on the basis of qualitative and quantitative criteria such as expected sign and  $R^2$  value, respectively.

In terms of our hypothesis, the constant term does appear to be linked with revenue which means  $H_1$  is supported. That is, brand does matter and the effect it shows is positive, significant, and consistent in our two brand cases.

$H_2$ , suggesting the ability of marketing to push revenue, is supported. That is, marketing does matter. While the magnitude of the effect of marketing differs between brands, the effect it does demonstrate is consistently positive and significant in our case.

**Table 1.** OLS Estimates for Brands A and B (eq.1)

Brand	$\alpha$	$\beta$	$R^2$	DW	Chow test (F ratio)
A	4.24**	0.83*	0.89	1.91	38.6*
B	2.26**	1.15*	0.98	1.87	

Note: \* $p < .001$  (one-tailed tests), \*\* $p < .01$  (one-tailed tests), DW= Durbin Watson Statistic

**Table 2.** OLS Estimates for Brands A and B (eq. 2)

Brand	$\alpha_{pq}$	$\beta_{pq}$	$R^2$
A	1.26*	1.12*	0.70
B	1.45*	0.95*	0.61

Note: \* $p < .001$  (one-tailed tests)

Structural form of our model does appear to be different between brands.  $H_3$  is supported which means the response function of revenue to brand and marketing differs between brands. Interestingly, marketing appears to be a stronger predictor than brand in our two brand cases.

$H_4$ , suggesting a positive relationship between quality and price, is supported. That is, price does matter in the perception of customer value proposition in our two brand cases. While the degree of value proposition differs, the effect price does show is consistently positive and significant across the two brands.

## Discussion and Implications

Brand-wise summary statistics of our findings (brand equity, marketing equity, and adjusted brand equity) are shown in Table 3. It is to be noted that our findings are generated from two regional brands in the hair-oil product category in India.

We find significant evidence of contributions of brand and marketing to revenue, which means both are strategic variables to managers. Managerially, brand and marketing appear to be better levers to push revenue but we need to stress that we have not established causality between the two.

On the other hand, managers could realize revenue by summing up the two assets (brand equity and marketing equity) in a particular point of time if they knew the relative weights of these two drivers. For instance, on an average, marketing contributes more than brand to revenue in our two brand cases. This sort of information is invaluable to managers to tackle both capitals (brand and marketing) more wisely.

However, the weight of brand equity in predicting revenue would be misleading to some extent since it represents the outcome of past actions. Hence we recommend adjusted brand equity, which would be a better predictor since it combines both past and future

oriented metrics of brand performance. For instance, the predicted revenue would be more/less than what it supposed to be if managers used brand equity instead of adjusted brand equity in our two brand case. In a nutshell, all these summary statistics provide more diagnostic power so managers would be able to handle brand equity, customer value equity, and marketing equity more precisely.

### Implications

Our findings have a number of implications for managers. First, brand equity will tell managers where their brand stands today vis-à-vis their marketing effort. On the other hand, managers would find marketing equity invaluable in increasing total marketing effort to generate more demand.

Second, our finding of brand equity and marketing equity should assist managers to understand the degree of volatility in cash flow and help them frame proper branding and marketing strategies to minimize the fluctuation in revenue.

Third, the relative shares of brand and marketing in revenue would assist managers in optimal fund allocation between branding strategies and marketing tactics to maximize revenue.

Finally, managers should use our findings when channeling their funds from least effective drivers to most effective one, which would help them in improving their marketing productivity.

However, some implications need further analysis. Researchers could use our findings as inputs to simulation models which helps them to answer the question of “What are the proportions of investment in brand and marketing need to be maintained to maximize revenue?” more accurately.

### Limitations and Further Research

We must acknowledge a number of limitations to this research. First, we do not accommodate lagged independent variables (marketing or lagged sales as the case may be) in the model to see the evolving pattern

**Table 3.** Ratio of BE and ME for Brands A and B

Brand	BE	ME	Ratio	ABE
A	2.71 <sup>4.24</sup>	2.71 <sup>14.60</sup>	1:3.5	2.71 <sup>4.24</sup> @1.12
B	2.71 <sup>2.26</sup>	2.71 <sup>16.64</sup>	1:7.5	2.71 <sup>2.26</sup> @0.97

Note: BE = Brand equity, ME: Marketing equity, ABE: Adjusted brand equity.

in brand equity overtime. Furthermore, we should have, but did not decompose further the contribution of marketing into activity-wise which indeed assists managers to allocate fund more precisely. A deeper investigation into these issues is hence called for.

Managerially, the financial aspect of brand equity would be better pushed for managers in decision making but we need to mention that we have not tried to establish a causal link between brand equity and its drivers. The link between brand equity and marketing activities deserves more attention.

A further limitation lies in the cross-sectional data we use and we are forced to give adjustment to average brand equity by one time estimated value equity. Longitudinal research is needed to see how measurement of both brand equity and value equity evolve overtime.

There are a myriad of techniques currently being available to estimate both equities. Hence, our models' estimates need to be compared to the other techniques. A research is pending to get deep insight into this specific issue.

Finally, we should but have not calibrated our models using industry-level data. Examining both estimate (industry and brand levels) and their association should strengthen our understanding of how industry-level analysis affects brand-level performance.

## Conclusion

We pursue this work for placing an objective value to brand and marketing. We pick up two regional brands and observe their brand names and marketing activities' contributions to sales. We observe that both the brand and the total marketing effort do have substantial shares in revenue. However, marketing drives revenue more vigorously than brand in our two brand cases. Finally, we combine two approaches in brand equity measurement which definitely provide more insight into the role of brand in revenue generation.

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