Identifying Sales Performance Gaps with Internal Benchmarking

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Abstract

This research investigates how retailers can benefit from identifying the sales growth potential of in-store salespeople in every product category. The proposed novel approach helps retailers develop an equitable evaluation of their sales force, using both observable and unobservable factors that affect sales. By extending stochastic frontier regression to a multivariate case, the resulting factor-analytic frontier formulation leverages the correlation pattern of sales across product categories and salespeople over time. A unique data set, from a franchise chain with 481 salespeople, operating in 35 stores and selling 11 related product categories, identifies a gap between observed category profits and an estimated profit frontier for each salesperson and category. This novel model also can benchmark each salesperson against all others across product categories while accounting for observable and unobservable factors. This approach has practical value, in that retailers can identify both top-performing salespeople and underperformers, who then might be matched to establish a positive learning environment that aligns top performers with proven sales expertise in a product category with peers who struggle with that category.

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Retailers have increased the number of in-store salespeople and relied on them to improve performance (Franke and Park 2006). According to 2016 data from the U.S. Bureau of Labor Statistics, about 4.5 million people worked in retail sales, and growth of 7% is expected in the next 5 years. In several retail settings, the sales role has evolved, from simple responsibility for basic tasks such as locating products and checking product availability to performing more complex jobs, creating interpersonal connections, and offering information to help customers with their purchase decisions (Haas and Kenning 2014). As sales tasks become more complex, retailers have embraced learning programs that promise to share sales knowledge across the entire sales force. Mantrala et al. (2010) devised an agenda to identify relevant questions for sales managers, highlighting the need to create conditions in which salespeople share skills and abilities with peers. Furthermore, sales force efficiency is of particular interest to retailers, such that they seek to identify top performers among their sales staff and create opportunities for salespeople to share sales-related best practices (Hyland and Beckett 2002). Yet retailers often fail to identify top performing salespeople who define best practices; they also fall short in creating sales learning programs that can disseminate best practices across the entire sales force (Bettencourt 2004).

At the root of the performance evaluation problem is the difficulty associated with measuring differences across salespeople, markets, and product categories, such that these distinctions often get overlooked in sales rankings (Kumar, Sunder, and Leone 2014). Managers create rankings to determine whether their salespeople are doing the most they can, but they forget to ask whether they are doing the best they can. One resolution might be to benchmark sales efforts against the competition (Horsky and Nelson 1996), but most managers cannot gather accurate information about competitors’ efforts or account for the unique circumstances of their operations. The solution therefore is to implement internal benchmarking, which identifies performance standards and areas for potential growth by comparing the retailer’s own salespeople against one another (Soni and Kodali 2010). There are documented advantages to applying internal benchmarking: It draws from available observable data, sets more realistic goals, allows for the transfer of best practices, and encourages organizational buy-in (Hyland and Beckett 2004).
However, the evaluation problem remains, because of model misspecification as performance-affecting factors are unobservable or unknown to analysts. When assessing sales performance, retailers often have limited information, especially with regard to the market factors that drive sales at each of their stores. For example, retailers may carry wide assortments of products at multiple locations that cater to customers living in diverse neighborhoods, each with different needs and preferences. Although managers keep close track of sales in each store for each category, they find it difficult to estimate how much more they might have sold if their salespeople’s efforts were improved somehow (Arnold et al. 2009).

We propose a way to deal with such model misspecification in internal benchmarking by accounting for sales that are correlated across categories, because the unknown or unobservable environmental factors generally affect multiple product categories. That is, customers’ requirements tend to be related across categories, such that total category spending on cosmetics, for example, in markets with larger populations of employed women should be higher for face, eye, and lip makeup. By leveraging such sales correlations among customer requirements across categories, we can extend multivariate cross-category stochastic frontier regression (SFR) to help retailers implement effective sales learning programs and tap into their potential for growth. To motivate the development of this model and provide empirical evidence, we focus on multi-store franchisees that sell a leading retail brand of cosmetic and health care products. From their sales force database, we gather 12-month sales performance data for 481 salespeople working in 35 retail stores in each of 11 product categories.

With this study, we offer two key contributions to sales force management in a retail context. First, we propose an internal benchmarking approach that relies on a novel, multivariate, factor-analytic, SFR model that retailers can use to develop an equitable evaluation of their sales force by accounting for both observable and unobservable factors that affect sales. Moving beyond existing efforts to model sales productivity, our multivariate factor-analytic stochastic frontier model acknowledges that sales performance depends on unknown, unobservable, and unobservable success factors. We account for the sales, which are correlated across categories, and observable factors, including sales commissions, store potentials for product categories, and in-store promotions. The multivariate approach also extends univariate SFR approaches (Gauri, Pauler, and Trivedi 2009; Horsky and Nelson 1996; Kamakura, Lenartowicz, and Ratchford 1997), to a multi-category context. Moreover, our multivariate model relies on a factor-analytic frontier formulation to leverage all available information across categories and salespeople and thus incorporates the effects of unobservable factors on sales performance. The proposed model performs notably well in three robustness tests, including a test for one omitted key factor.

Second, we propose an internal benchmarking framework to draw on the knowledge embedded within the sales force to help salespeople in need of improvement. Research in sales management highlights the importance of embedded knowledge that resides in relationships among sales people and, in particular, the norms and information flows that shape their interactions with customers (Bettencourt 2004). Previous sales management literature specifies the importance of informal relationships that emerge within the sales force as a way to share valuable information and drive sales performance (Verbeke, Dietz, and Verwaal 2011). Our study acknowledges the value of embedded knowledge and addresses the need for retailers to promote a learning environment for their salespeople (Chan, Li, and Pierce 2014). To leverage this embedded knowledge, we develop a gain index for each salesperson; we account for the maximum gain in monthly sales profits expected from the transfer of best practices of a growth advisor (i.e., top performer) to the learner salesperson (i.e., poor performer). According to the findings of our model and the suggested knowledge transfer program, franchisees could increase monthly sales by up to US$40,000, simply by sharing the best practices of their top five salespeople, whom we refer to as growth advisors. We illustrate how retailers can identify top performers in each category and store network to promote the transfer of embedded knowledge across the retail chain and ultimately gain sales growth (Hyland and Beckett 2002).

In the next section, we discuss recent advances in literature on internal benchmarking and sales management. Thereafter, we present empirical evidence and describe our data and variables. We then detail the development of our multivariate factor-analytic extension of the stochastic frontier and our empirical application context. Finally, we discuss the results, outline some implications of our model for retail knowledge-sharing opportunities, and summarize our study’s contributions and limitations.

**Internal Benchmarking Across Product Categories and Salespeople**

Previous research on benchmarking points to several alternative approaches for estimating productivity function. An alternative to a regression line that characterizes expected middle-of-the-road performance would be to find a frontier line that represents an upper boundary defined by top performers (Ratchford and Stoops 1988). Previous studies use data envelopment analysis (DEA) as an alternative frontier estimation of multiple inputs and outputs (Donthu and Yoo 1998); a hybrid approach to productivity estimation combines DEA and multivariate sliced inverse regression (MSIR) in two sequential stages (Sridhar, Mantrala, and Naik 2014). The major disadvantage of the DEA model is that it does not account for measurement errors (Gauri 2013); SFR is a well-established approach for defining the internal benchmarking frontier (Aigner, Lovell, and Schmidt 1977).

In a retail sales force context, a direct application of SFR can be carried out separately for each category, assuming that, conditional on the environmental factors in the analysis, the sales frontiers for the product categories are independent of one another. The major limitation of this approach is that differential performances observed in one product category across salespeople may be caused by any source of environmental heterogeneity across salespeople. Moreover, it is impossible to identify and measure all the environmental factors that shift the
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