Effect of Branding and Store Size on Homogenous Products Prices at Natural and Traditional Grocery Stores

Tian Xu

Abstract Natural food industry sales increased from $8.6 billion in 2002 to $15.9 billion in 2006, and analysts projected the growth to continue for the rest of the decade. This study examined the effect of store size and store type on product prices at natural and traditional grocery stores. Using 55 homogenous products found in both natural and traditional grocery stores, a survey of 95 stores in both the Greater Los Angeles and San Francisco Bay Area was undertaken. The price index of products indicated that price of products at small stores cost 5.20% more compared to the prices at big stores (p < 0.01); and no statistical difference existed between product prices at natural and traditional stores (p = 0.18). In addition, the stores were further categorized into big natural, small natural, big traditional, and small traditional grocery stores in order to compare store type and store size simultaneously. The result indicated that only price difference of 3.90% existed between the products at small natural food stores and the products at big natural food stores (p < 0.01). No statistically significant price difference existed between the price of products at big traditional and small traditional grocery stores (p = 0.59). Thus, the result showed that in order to maximize utility natural food consumers should shop at big natural food stores and consumers at traditional grocery stores can either shop at big or small traditional grocery stores.

Introduction

Natural food grocery stores have added new growth opportunities to the grocery sector. In a market dominated by slow growth and low returns, many industry analysts perceive the natural food grocery market as a potential stimulant for the overall sector's growth (Datamonitor 2006, Consumer Goods Forecast Americas 2005). In the United States, the natural food sector grew from $8.6 billion in 2002 to $15.9 billion in 2006, or a growth rate of 16.5% per year; and it is projected to continue increasing at least ten percent annually for the rest of the decade (Datamonitor 2006). The rapid growth starkly contrasts with the retail annual growth rates of 3.2% and -0.4% for 2005 and 2006 respectively (Consumer Goods Forecast Americas 2005). This trend has attracted major stores such as Wal*Mart and Safeway to begin offering natural products and organic produce in an attempt to capture the growing consumer base of the natural food market. At a general meeting in 2005, Wal*Mart CEO Lee Scott stated the basis for the company's strategy for the natural foods market: "We know that customers at all ends of the income spectrum want organic and natural foods" (Gogoi 2006). Recognizing the emergence of the natural food market, it becomes important to understand the impact of these stores on the overall grocery sector. More specifically, the report focuses on the effect of store type and store size on the price variation of homogeneous products.

Currently three main venues – natural foods stores, traditional grocery stores, and direct-to-consumer markets – exist for consumers to obtain organic produce (Dimitri and Greene 2002). Natural food stores typically have a strong emphasis on perishable items such as fresh and prepared foods, and these stores have a big selection of organic produce and natural products. In additional the stores have over 75% of the aisles dedicated to organic produce and/or organic products (Porjes 2006). In contrast, traditional stores commonly have a smaller produce section with little or no indication of whether the produce is organic or not. Also, the vast majority, over 75%, of the products are national brands. National known products typically have an extensive network that can distribute the same product with the same quality in many regions.

Two different types of academic literature exist to depict the underlying dynamics of the current natural food grocery market. First, many studies have focused on the reason why consumers shop at natural food markets as opposed to traditional grocery stores (Jolly 1991, Misra 1991, Thompson 1994, Reicks 1996, and Oberholtzer 2005). In contrast, another set of research studied why businesses charge different prices for different products (Stigler 1961,

Akerlof 1970, and Stiglitz 1987). Understanding the effect of consumer and business behavior on the natural food sector would shed light on the intersection of corporate motive and consumer preferences in shaping a new market trend.

First, the literature concerning natural food stores explored the underlying reasons why consumers chose to shop at natural food stores over traditional grocery stores (Jolly 1991, Misra et al 1991). The survey indicated that consumers at natural food stores have a higher level of concern for chemical residues, additives and preservatives, artificial coloring, and radiation byproducts (Jolly 1991). Misra *et al.* (1991) found that Georgian residents strongly prefer fresh produce to be free of pesticide residue. Thompson (1994) surveyed customers in two different natural food stores. He found a strong positive correlation between consumer income and consumer's willingness to buy at natural food stores. Thus, most studies arrived at similar conclusions that consumers at natural food stores are slightly different from the general population in that they tend to be more affluent and more concerned about the side effects of eating conventional produce.

On the business academic research side, ample literature analyzed businesses in order to understand the rationale behind business economics. First, market theory explains how prices differ for homogenous products. These products are things such as the 907-gram box package of C & H Pure Cane Sugar (UPC 015800030485). It has a wide distribution network; and in fact, the vast majority of the supermarkets offer this product. The hard box Cane Sugar in Safeway is the same product as the Cane Sugar in Whole Foods. The consumer will get the same product with the same quantity, quality, and use regardless of the store at which the consumer shops In theory, a perfectly competitive market would occur because consumers would make a rational decision and buy the sugar at the lowest price. A rational decision is the consumer's desire to maximize the utility per monetary unit. This means that two similar stores that offer the same kind of products and services theoretically should have exactly the same prices, because if one store charges more then the consumer will buy the same product at another store.

In reality, different stores set different prices for homogenous products. As product choices increase the price actually becomes less competitive. The probability of finding the lowest-priced product in a store decreases exponentially (Stiglitz 1987). This results in multiple prices for a homogenous product in a supposedly perfectly competitive market. Consequently, stores have less incentive to have the lowest price for a specific product, assuming that consumers will not

have the time to search through all the stores. This presents a paradox for the consumer. They know that the market sells homogenous products and there are multiple sellers of the same product. They also know that the prices differ between stores for a homogenous product. Nonetheless, the consumers often do not find the lowest priced product (Salob 1976).

Search phenomenon explains the reason why the consumers do not pay the lowest price even though lower prices probably exist in another store (Stigler 1961, Akerlof 1970, Stiglitz 2000). Searching for the best deal requires the use of non-monetized resources such as time. Although some consumers could have close to zero search cost, many consumers have significant costs associated with searching for the best deal. As a result, consumers usually buy many products from one store due to the finite amount of time available for the consumers to search for the optimal pricing. In addition to time constraints, consumers also have to factor in the cost of transportation. The search for more information could cost the consumers more money than they would save if they search multiple places (Salop 1976). This theory highlights the fact that unless prices are centralized there will always be cost differences between stores (Stigler 1961). And since consumers have limited time and information, the consumer cannot find the cheapest product. Even today with advances in instantaneous electronic price comparison, prices have not been centralized to a point where consumers can instantaneously compare prices of products against other stores (Moorman 2005).

Even as prices differ for homogenous products, stores also try to differentiate each other by using brand marketing. Branding marketing seeks to develop customer loyalties, to increase consumer awareness of the brand, augment the brand's position in relation to competitors, and develop line of extension of the brand. "Reputation commands a price (or exacts a penalty) because it economizes on search (Stigler 1961)." Wal*Mart Supercenters branding itself as "Everyday Low Pricing" do in fact on average sell products at 14% lower in price than competing supermarkets (Bianco and Zellner 2004). As a result, the mere mention of the Wal-Mart Supercenters brand in the New England area depressed the average price of products three to seven percent before the city even approved the construction of the supercenter (Volpe and Lavoie 2006). For the natural food grocery stores, defining a store as a natural food store allows the store to brand itself as a different type of store. In scientific literatures, they recognize that natural food stores typically have a different strategy in both luring and keeping the customers. Natural food stores focus more on the shopping experience such as a focus on creating a friendly

atmosphere with more attendants and brighter color (Porjes 2006). Furthermore, the typical customer at natural food stores has an annual income of $50,000 compared to the annual income of Wal-Mart's customer at $35,000 (Gogoi 2006).

In addition to the store's brand, the size of the store in meter^2 has a significant impact on the pricing of products. Although the store size is an important aspect of economic theory, contradictory conclusions are drawn from the limited data that does exist. Cotterill suggested that the products at big stores have higher prices because bigger stores have more marketing power as compared to smaller stores (Cotterill 1984, 1986). In contrast, Aalto-Setala (2000) suggested that large stores have a ten percent lower cost than smaller stores, and the products price level is ten percent lower on average than the products at small stores. The contradicting studies generate confusion as to whether the company or the consumer benefits economically as stores increase in size.

Building on top of the natural market and business economics literature, this study investigates whether the price variation between natural and traditional grocery stores is the result of natural food store's attempt to exact a search penalty on consumers through higher prices or is the price variability only due to random, normally distributed variation. As a secondary question, the study investigates what effect store size has on product pricing.

Hypotheses There are two null hypotheses. The first null hypothesis is that the same exact items at traditional and natural grocery stores vary only due to the effect of random variability postulated by search theory. And the alternative hypothesis is that the margin of difference between the product prices is not due to random variability but due to a systematic difference in product pricing between the natural brand and traditional brand food stores. The second null hypothesis is that product price variability between big and small stores is due to random price variability. And the alternative hypothesis is a significant difference between the product pricing between small and big stores exist to indicate that the price variability is not due to random variability.

Methods

Two geographic locations within California were chosen for price comparison: San Francisco Bay Area (Bay Area) and Greater Los Angeles Region. In these regions, natural and traditional grocery stores were visited. The Bay Area region comprised of both San Francisco County and

Alameda County. The stores were found using a combination on searching through Google Earth and the Yellow Pages.

In this study, 43 natural and 52 traditional stores (n = 95) were surveyed to identify for price differences in homogeneous products (Table 1). Homogeneity of the products between the stores was based on products having the same weight, same brand, and same Universal Product Code (UPC) code. For the rest of the paper, any comparison between products implies that they are homogenous products with the same UPC code. All of the natural food stores (23 total) in Los Angeles County were surveyed for homogenous products. Another 26 traditional grocery stores in Los Angeles County were visited. In the Bay Area, of the 46 stores visited 20 of them were natural food stores, and the other 26 stores were traditional stores. The Greater Los Angeles County data was collected from August 2th to August 11th 2007, and this included 26 natural food stores and 23 traditional grocery stores. For the data in San Francisco and Alameda County, the data collection occurred from August 17th to the August 22th, 2007.

Table 1: The number of stores grouped according to location, size, and type.

		Traditional	Natural	Total
San Francisco Bay Area	Small Stores	16	14	30
	Big Stores	10	6	16
Los Angeles Area	Small Stores	7	14	21
	Big Stores	19	9	28
Total		52	43	95

For the purposes of this study, natural food stores were defined as a store with a strong emphasis on perishable items such as fresh and prepared foods and a bigger than typical selection of organic produce and natural products. Over 75% of the aisles had natural products compared to ten to twenty percent of the aisles for traditional grocery stores. Typically, organic produce made up over 75% of the produce section in natural food stores. And around ten percent of the products were local products either made specifically for one store or a few stores in the region (Porjes 2006). Any store that did not fulfill these requirements were considered as traditional food stores.

In all, 55 products comprised the survey (Appendix A). These products were found in both natural and traditional grocery stores most of the time. The only selection criterion for selecting

these products was that the products could be found in both natural and traditional grocery stores and not just in one store type. They did not need to be considered a natural product to be incorporated into the survey. As long as the products could be found in most of the stores and in both store types then the prices could be compared. Silk Soy Milk was considered a natural health food product, but also it had a significant presence in traditional grocery stores. As a result, it was incorporated into the survey to test if the average prices of Silk Milk sold at natural food grocery stores were different from the Silk Milk with the same UPC code that was sold in traditional grocery stores.

All the products would be identical because each product would be matched with the UPC code of the same product in another store. Products were not randomly selected because the object of the study was to compare products found in both store types to see if a price difference existed between store types for homogeneous products. These products represented a special portion of the products in the store because due to various reasons they could be found in both stores.

The analysis involved two parts: testing for the effect on prices of both branding and store size. To test branding effect, the average price of each product was computed for both natural and traditional grocery stores. Each product was scaled so that each product contributed an equal proportion to the price index. After adding all the scaled averages together, the total was scaled again to get the price index baseline equal to 100. By convention, price indices always had an arbitrary baseline of 100. Many studies of natural food markets used price indices to compare price differences when there are multiple products used in comparison (Cotterill 1986). Instead of only giving the price difference between each product, price index showed the whole picture as a single integer. And thus, the price index of the products in natural food stores was compared with the products in traditional stores. Second, the price of the products in all the big stores surveyed were compared to the price of the product in small stores. Big stores were considered to be any store over 1,200 meter^2 (≈13,000 feet^2). The typical store such as Safeway had around 1,800 meter^2 and a small store was usually around 1,000 meter^2 (Porjes 2006). In addition to store type and store size, the analysis was broken down into four sections to be analyzed by ANOVA. The four categories included big natural, small natural, big traditional, and small traditional grocery stores. ANOVA replicated two factor analysis would be used because it

involves a comparison of two factors simultaneously which in this case was both store size and store brand.

Results

   Products 90 percent (50 out of 55) of the products have coefficient of variation within zero to ten percent (Figure 1). And only two product types have prices that vary more than twenty percent between stores.
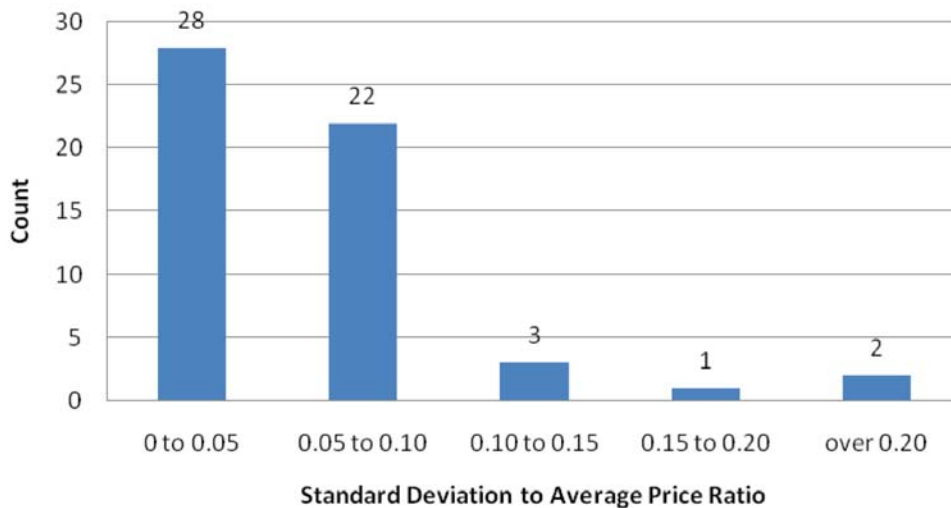

Figure 1: The coefficient of variation for all 55 products grouped in intervals of five percent difference. 28 products (n = 55) had a coefficient variance of less than five percent. Each product's price was averaged over all the stores. Then the standard deviation of each product was taken. Then the standard deviation was divided by the averaged price to get the coefficient of variation.

   Price Index Using the sum of all the mean product prices scaled 100 as price index, natural food stores had a price index of 99.56 ±0.87 compared to the traditional grocery store's price index of 100.44 ±0.78 (Table 2). Difference of 0.88% existed between natural and traditional grocery store (p = 0.18). Big stores had a price index of 95.07 ±0.33 while small stores had a price index of 100.02 ±0.99. Thus, the 5.20% difference in price index between big stores and small stores was statistically significant (p < 0.01).

Table 2: The price index comprised of all fifty-five products. The price difference between natural and traditional grocery stores was smaller than the standard error, but the price difference between big and small stores was bigger than the standard error. Price index 100 equals the average of all fifty-five product prices. The four price indexes in the table incorporated all the product prices within the given category.

price index		Percent Difference
Natural Food Stores	99.56±0.87	0.88
Traditional Grocery Stores	100.44±0.78	
Big Stores	95.07±0.33	5.20
Small Stores	100.27±0.99	

Two Factors ANOVA After testing for the product price difference between big traditional and big natural food stores (Table 3), no significant difference was established ($F = 0.29$ with F crit = 3.93, 1 and 54 df and $p = 0.59$). No product price difference between big traditional and small traditional exist ($F = 0.36$ with F crit = 1.53, 1 and 54 df, and $p = 0.84$). Product price difference did exist between big natural and small natural grocery stores ($F = 1.7$ with F crit = 3.93, 1 and 54 df, and $p = 0.04$). The difference between the sum of the big natural food stores and sum of small natural food stores $9.59 ± 1.03$. This is a $3.90\% ± 0.4$ of the sum.

Table 3: The product prices of big natural, small natural, big traditional and small traditional stores were compared to understand which of the four store types sell products at the lowest price. Only a statistical difference between big natural and small natural stores for prices existed ($F = 1.7$ with F crit = 3.93, 1 and 54 df, and $p = 0.04$).

SUMMARY	Sum	Variance	SE
Nat Big	236.002	14.74799	0.517827
Nat Small	245.5985	15.35944	0.528453
Trad Big	235.7686	12.9823	0.485841
Trad Small	234.7442	14.61665	0.515516

Discussion

The study validates the first hypothesis that different store brands do not statistically affect the product prices ($p = 0.18$). As for the second hypothesis, the data supports the second alternative hypothesis that store size does influence product prices. Small store products cost more than the big store products by 5.20% ($p < 0.01$). Furthermore, when both the store size and the store types are considered at the same time, only the products at small natural food stores

have a significant price difference of 3.90% (p = 0.04) compared to the products big natural grocery stores.

Store Size more important than Store Type   Price index has shown a statistically significant price difference for store size; however, this price difference can be better explained by taking into account of both store size and store type. Only the prices at small natural grocery stores have statistically significantly higher prices than the prices at big natural grocery stores. If there really were a price difference between big and small stores as shown in the price index, there would also be a price difference between small and big traditional grocery stores. The lack of price difference indicates that small natural food stores are the cause for increase in aggregate price of small food stores compared to big stores.

The fact that the vast majority of the natural food stores are small perpetuates the observation that the products at natural food store costs more than the products at traditional grocery stores. In the Los Angeles County where the population of the natural food stores was surveyed, 60 percent of the natural food stores are small natural food stores and the rest of the store are big natural food stores. In the San Francisco region, small stores make up 70 percent of the natural food stores.

Chain versus Independent Stores Over 90% of big traditional grocery stores comprise of chain stores. And 86% of the small traditional grocery stores are independent. And 78% of the big natural food stores are chained stores, while independent stores represent 100% of the small natural food stores. This means that the difference between big and small stores is representative of the difference between independent and chained stores. This is very pertinent because of the possibility that chained stores might contribute to vary the result. In reality, chained stores represent big stores while independent stores represent small stores.

Impact on Search Theory Consumers do not incur a search cost at big natural, small traditional, and big traditional stores. Although any given product might be cheaper at either of these store types, on average the consumer would be spending the same price on products at these store types. This allows consumers to save time by knowing that in the long run the products cost the same. They do not need to buy specific products at natural food stores and another set of products at traditional food stores in order to minimize costs; rather they could buy all their grocery shopping in either of the three grocery store types depending on whether the consumer prefer to shop at natural or traditional grocery stores.

The consumer does incur a search cost at small natural food stores, because as an aggregate, small natural food store products cost more than other stores. Thus, it is in the consumer's best interest to search small natural food store products for items that cost the same as other stores while buying small natural store's pricier products at other stores. This results in higher search costs for the consumers who prefer to shop at small natural food stores.

More and More similar products sold in both stores Another important aspect of the study is the products used for the data set. The fact that both natural and traditional store types shelve these products indicates that the difference between the two brand of stores is not as clear cut as one would assume. In fact 73% of the traditional grocery stores stock some form of organic produce or natural product (Greene 2003). The product overlap between the two store types indicates a broader trend in the marketplace to satisfy both consumer types. Household cleaning products, alcohol, canned foods, flavored water, and foreign foods represent the bulk of the items that can be found in both types of stores. These products depict the attempt by natural and traditional grocery stores to become a one stop shopping experience. Natural food stores increasingly offer products that consumers need for the week without going to another store. At Whole Foods, household cleaning products such as Windex and Palmolive are stocked even though neither of the products could be considered "natural" nor "whole food". Nonetheless, they represent essential products that a typical household every need to buy. Thus, in order to accommodate the customer's preferences for one stop shopping natural food stores stock these household essentials. Traditional grocery stores also want to maximize its customer base. Increasingly they offer a wider selection of natural food in its shelves so that customers who prefer natural food could shop at the traditional grocery stores instead of the competitors who specialize in natural food. As a result of natural and traditional stores' attempt to diversify their products, products could be found in both natural and traditional food stores in order to attract customers with different interests.

Difference between higher profit and higher prices Although the study indicates that the small natural food stores sell products at a higher price than the other store types, this does not imply that small natural food stores have a higher profit than other store types. It is not possible given the scope of the research also to surmise the profit of the companies. The store's cost of acquiring the products from manufacturers is not discernable by the retail price. Thus, it is

entirely possible that smaller stores charge higher prices even though it also makes less profit, because it may pay significantly more for the products that it stocks.

Broader Implications Some of the research results may be applied to the stores in most of the American states. Most of the big stores in this study such as Whole Foods and Wild Oats have store locations throughout America. As for the big traditional stores such as Wal-Mart they also have significant penetration throughout America. Thus, the wide geographic dispersion of these stores allows for comparison between the big grocery stores that are also chain stores. As mentioned previously, chain stores make up over 80% of the big stores. Thus, the result should be the same since the chain stores typically share the same distributing network. Even the chain stores surveyed in San Francisco and Los Angeles regions have the same prices for the same chain stores even though the stores are around 600 kilometers apart. Thus, it is very probable that the prices for the same chain stores have very similar if not exactly the same prices in different states.

In contrast, family owned businesses represent small grocery stores. This means that it would be hard to generalize the prices in the small Californian stores to small stores in the rest of America. Although a significant price difference exists between small natural food stores and big natural food stores in the sample used in this study, the result could not be generalized to the rest of the small stores in America because they typically are family or privately owned stores with different pricing structures.

Also although the study proved that a price difference between big and small traditional grocery store exist, the study could not be expanded to explain if the typical consumer pays more per visit for any store. There is a difference between higher average product prices and higher average consumer spending. A typical consumer buys groceries such as meat, dairy, and vegetable products in addition to other household items. The definition of natural food stores has been that it carries a higher percentage of its products as natural food products while traditional grocery stores have national brands with little or no section dedicated to organic produces, natural products, and locally produced products. These grocery products sold in natural food grocery stores price vary ten to fifty percent in Europe (Lohr 1998), and they vary from ten to over a hundred percent more in America (Oberholtzer 2005). Since these products form the basis as to why natural and traditional stores differ, these products cannot be used in comparing prices. A true price basket would incorporate the extra cost of these produce, diary, and meat products,

but since the goal of this research is to determine the price difference in different store size and store type. This price basket is not relevant for this study, but it would be very interesting to know the difference in amount the average consumer pay at the cash register.

Potential Problem in Data Collection The data could be bigger in order to make a statistically stronger case. In the case of big traditional store prices compared to small traditional store prices, the data indicate that there is no difference while previous studies proved that big traditional products do cost less than small traditional store products (Lal 1997).

Another area is the lack of clear separation between the total square meter of the stores to differentiate between big and small stores. This hinders the analysis for the effect of store size on the product pricing. Some research papers categorize only supercenters as big stores and the rest as small stores (Lal 1997). Some paper considers only single-family owned stores as small (Cotterill 1986). For this study, over 1,200 square meters is used to classify big stores. In addition, the 1,200 square meters threshold also separates stores into a chain and non-chain stores. Over 90% of the stores over 1,200 square meters are chain stores. Shifting the threshold for square meters might slightly change the result. Nonetheless, the existing research seems to agree that 1,200 meter^2 justify the line between big and small stores (Volpe 2006, Porjes 2006).

A myriad of other compounding factors could have affected price differences between big and small traditional stores. First, the neighborhood income could play a significant role in the grocery market's pricing. This current analysis did not survey the store's neighborhood to see if a correlation exists between the surrounding neighborhood's household income and product pricing. It represents an important factor in the product pricing. Higher household income also exhibits less price sensitivity to price changes (Hoch *et al.* 1995). In addition to consumer characteristics, store characteristics could have a significant impact on product prices. The proximity of other stores has an important impact on product prices (Hoch *et al.* 1995).

More stores were visited in Los Angeles because it was significantly more difficult and expensive to obtain a car in San Francisco. More traditional stores data would be beneficial because they were used as the basis to compare the price of products in natural grocery store. Also increasing the sample size would decrease the margin of error. However, due to time constraints the two to one ratio of traditional to natural food grocery store was not achieved.

Future Research The products used in the survey do exemplify the products offered in the different grocery stores. The prices does not account for the typical consumer basket. A typical

consumer basket would include products not included in this research's price index. This includes groceries items such as produce, dairy, and meat products that a consumer typically buys. Incorporating the cost of produce into the price index basket would be important. Future studies could incorporate total consumer spending to determine the cost difference due to store types on the consumer's budget.

Furthermore, the data heavily represents the pricing strategies of the stores in the Los Angeles County. Also for San Francisco, a more intensive survey should be carried out in order to better understand the market in the region, but due to lack of time a more labor intensive survey could not be accomplished to survey both North and South Californian stores in equal distribution.

Conclusion

Natural and traditional grocery stores have many products in common. Household items such as Palmolive dish detergent, Heinz ketchup, and Monster energy drink could be found in both stores, and there is no search cost. Rather than charging the consumer more for these products, big natural stores sell these products at the same price as the big traditional stores. The lack of mean price difference between these store types ultimately saves time for consumers; rather than compare and contrast for the best product pricing in both store types, the consumers on average could go to either of the two store types. Consumers who prefer natural food could go to natural food stores to buy the grocery and common household products without incurring a higher price for products that could be found in both store types. Also, consumers who prefer traditional groceries could shop at the local big traditional store without paying more for products that could be found in both store types. This is the best option because consumers do not have to search for the best prices in stores. Nonetheless, the consumers are being penalized for one stop shopping at small natural food stores. Thus, by choosing to shop at big natural food store with its lower prices, a natural foods lover can have the best of both worlds.

Acknowledgement

Literatures Cited

Aalto-Setala, V. 2000. Economies of Scale in Grocery Retailing in Finland. Journal of Retailing and Consumer Services 7: 207-213.

Akerlof G. 1970. The Market for Lemons: Quality Uncertainty and the Market Mechanism. Quarterly Journal of Economics 84: 488-500.

Bianco, A. and W. Zellner. 2003. Is Wal-Mart too powerful? BusinessWeek. 3852: 100.

California Health and Safety Code. 2003. California Organic Products Act of 2003. 110810-110959.

Cotterill, R. 1984. Modern markets and market power: evidence from the Vermont retail food industry. Unpublished report for Department of Agricultural Economics and Rural Sociology Working Papers No. 84, University of Connecticut.

___. 1986. Market power in the retail food industry: evidence from Vermont. Review of Economics and Statistics 68: 379-386.

Dimitri C, and N. J. Richman. 2000. Organic food markets in transition. Report 14. 1-43 p.

Dimitri, C. and C. Greene. 2002. Organic Food industry taps growing American market. Unpublished report for United States Department of Agriculture: Economic Research Service.

Gogoi, Pallavi. 2006. Wal-Mart's move into organic foods has small farmers and the health-conscious bristling. BusinessWeek. 3979: 39.

Greene, C. and C. Dimitri. 2002. Recent growth patterns in the U.S. organic foods market. Unpublished report for United States Department of Agriculture: Economic Research Service.

___. 2003. Organic agriculture: gaining ground. Unpublished report for United States Department of Agriculture: Economic Research Service.

Hoeh, S. J., B. Kim, A. L. Montgomery, and P. E. Rossi. Determinants of Store-Level Price Elasticity. Journal of Marketing Research 32: 17-29.

Industry Forecast December 2005. Consumer Goods Forecast Americas. The Economist Intelligence Unit Limited; 2005 December 64 p.

Jolly D. A. 1991. Determinants of Organic Horticultural Products Consumption Based on a Sample of California Consumers. Horticultural Economics and Marketing 295:141-148.

La1 R., R. Rao. 1997. Supermarket Competition: The Case of Every Day Low Pricing. Marketing Science 16:60-80.

Mazumdar T., and S. Y. Jun. 1992. Effects of Price Uncertainty on Consumer Purchase Budget and Price Thresholds. Marketing Letters 3:323-329.

McEnally, M. R., and J. M. Hawes. 1983. The market for generic brand grocery products: a review and extension. Journal of Marketing 48: 75-83.

Misra S. K., C. L. Huang, and S. L. Ott. 1991. Consumer willingness to pay for pesticide-free fresh produce. West Journal of Agricultural Economics 11:18-24.

Moorman C., R. Du, and C. F. Mela. 2005. The Effect of Standardized Information on Firm Survival and Marketing Strategies. Marketing Science 24:263-274.

Oberholtzer L, Dimitri C, and Greene C. 2005. Price Premiums Hold on as U.S. Organic Produce Market Expands. Report nr VGS-308-01. 1-22 p.

Porjes, Susan. 2006. The Future of Food Retailing. MarketResearch.Com.

Reicks M., P. Splett, and A. Fishman. 1997. Shelf Labeling of Organic Foods: Customer Response in Minnesota Grocery Stores. Journal of Food Distribution Research 30: 11-23.

Salop S. C. 1976. Information and Monopolistic Competition. A.E.R. Papers and Proc 66:240-45.

Stigler G. J. 1961. The economics of information. The Journal of Political Economy 69:213-225.

Stiglitz J. E. 1987. Competition and the number of firms in a market: are duopolies more competitive than atomistic markets? Journal of Political Economy 95:1041-61.

___. 2000. The contributions of the economics of information to twentieth century economics. Quarterly Journal of Economics 115:1441-1478.

The Packer. Fresh Trends. Overland Park, KS: Vance Publishing; 1998.

Thompson G. D., and J. Kidwell. 1998. Explaining the choice of organic produce: cosmetic defects, prices, and consumer preferences. American Journal of Agricultural Economics 80:277-287.

U. S. Bureau of the Census. 2000. Profile of Selected Economic Characteristics: 2000. <http://censtats.census.gov/data/CA/1600644000.pdf>.

USDA's National Organic Program. 1990. Organic Food Production Act. 101 H.R. 3950: XXI.

Volpe, R. J. 2006. The Effect of Wal-Mart Supercenters on Grocery Prices in New England. Unpublished report for University of California at Davis.

www.datamonitor.com. Organic Food in the United States. New York, NY: www.datamonitor.com; 2006 December 2006. Report nr 0072-0853. 1-17 p.

Appendix A:
Product List

Product Number	Name	UPC number
1	Alvaredo Sprout Multi-Grain	0028833060000
2	Amy - Mac& Cheese	042272000302
3	Amy's Enchilada & Cheese	042272000807
4	Amy's Org Soup - Tuscan Bean & Rice	04227200519
5	Arizona Tea	613008718404
6	Arm and Hammer	033200064015
7	Bounty	03700010595
8	Brawny	042000240000
9	Breyer's - Cookie and Cream	077567254504
10	C + H Pure Cane Suger	015800030485
11	Cascadian Farm Multi Grain Squares	02190813333
12	Chili Garlic Sauce - Lee Kum Kao	078895770018
13	Classico Tom & Basil	04112907712
14	Corona	08066095615
15	Crystal Geyser Sparkling Mineral Water	786102020000
16	DeCecco	024094070404
17	Del Monte - Whole Kernel Corn	024000163032
18	Dole - Pineapple Chunks	038900001438
19	Dreyer - Grand Ice Cream	041548013855
20	Fiji	632565000029
21	Food for Life - Ezekel4:9 Bread	07347200120
22	Glad Cling Wrap 200 ft	01258700020
23	Haagen Daas - Dulce de Leche	074570086139
24	Heineken	038902101438
25	Heinz Ketchup	01313305
26	JES spicy teriyaki	028093001216
27	Kashi - Good Friends - High Fiber Cereal	018627023500
28	Kashi - Heart to Heart - Blueberry	018627510031
29	Kashi 7 Whole Grain Puffs	018627023456
30	Kettle - lightly salted	084114108128
31	Marukan - Rice Vinegar	070641000097
32	Monster	0700837811169
33	Newcastle Brown Ale	088345100531
34	Newman Own Cookies	757645022408

35	Newman's Own - Ranch Dressing	0200662000323
36	Ocean Spray Cranberry Juice	031200200075
37	Odwalla OJ	014654125053
38	Oroweat	073130001322
39	Pine Sol	0412944001746
40	Palmolive	03561401
41	Power Bar - Regular Performance	097421000054
42	Reynolds Aluminum Foil - 37.5 ft sq	0234300001438
43	RW Knudsen - Just Cranberry	074682103502
44	Santa Cruz	003619212283
45	Scotch Brite Sponge	21200000003
46	Silk Soy Milk	02529360090
47	Simply Orange	025000055447
48	Skyy Vodka	786102020145
49	Smucker's - Straw Jam	051500006931
50	Tabasco	011210000155
51	Thai Kitchen - Thai Peanut	737628064502
52	Veri Veri Teriyaki	08817792159
53	Vitamin Water	7861206000
54	Welch's 100% grape	041800207503
55	Windex	019800201333