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The U.S. Potato Chip Market: A Competitive Profile

Y. Datta

1 Professor Emeritus, Northern KY University, Highland Heights, KY 41099, USA
2 Y. Datta, Professor Emeritus, Northern KY University, Highland Heights, KY 41099, USA

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Abstract

This paper follows the footsteps of ten studies that have tried to analyze the competitive profile of U.S. consumer markets: Men’s Shaving Gel, Beer, Shampoo, Shredded/Grated Cheese, Refrigerated Orange Juice, Men’s Razor-Blades, Women’s Razor-Blades, Toothpaste, Canned Soup, and Coffee.

Porter associates high market share with cost leadership strategy which is based on the idea of competing on a price that is lower than that of the competition. However, customer-perceived quality—not low cost—should be the underpinning of competitive strategy, because it is far more vital to long-term competitive position and profitability than any other factor. So, a superior alternative is to offer better quality vs. the competition.

In most consumer markets a business seeking market share leadership should try to serve the middle class by competing in the mid-price segment; and offering quality better than that of the competition: at a price somewhat higher, to signify an image of quality, and to ensure that the strategy is both profitable and sustainable in the long run.

Quality, however, is a complex concept consumers generally find difficult to understand. So, they often use relative price, and a brand’s reputation, as a symbol of quality.

In 2008 the U.S. retail sales for the Potato Chip market were $3.07 Billion. The pack sizes varied from 0.8oz to 50oz, with the 9-13oz packs being the most popular with a 33% share. So, we have focused cluster analysis on this size.

In 2008 the U.S. Potato Chip market was highly competitive—notwithstanding the dominance of Pepsi Co.’s Lay’s brand family—with a total of 254 brands.

Using Hierarchical Cluster Analysis, we tested two hypotheses: (1) That the market leader is likely to compete in the mid-price segment, and that (2) Its unit price is likely to be higher than that of the nearest competition. Employing U.S. retail sales data for 2008 and 2007 we found that the results supported Hypothesis I; both the market leader Lay’s Plain Potato Chip brand--and the runner-up Pringles Original Potato Chip brand--were members of the mid-price segment. However, while the unit
price of the market leader was somewhat higher than that of the runner-up for 2008—as we have hypothesized—this was not the case for 2007, although the price difference between the two brands did not seem statistically significant.

We found that relative price was a strategic variable, as hypothesized.

We also discovered four strategic groups in the industry.

This is the eleventh in the study of U.S. consumer markets we have cited above. In eight of these—that exclude Men’s and Women’s Razor-Blades, and Ground Coffee—a pattern has emerged. In all eight cases the market leader was a member of the mid-price segment, as we have hypothesized.

Finally, in the words of Dirk Burhans, the author of Crunch, it is important to realize that a “potato chip could be such a subtle, delicate experience”.

Keywords

U.S. Potato Chip Industry, cost leadership strategy, price-quality segmentation, market-share leadership, relative price a strategic variable, strategic groups

1. Introduction

This paper follows the footsteps of ten studies that have tried to analyze the competitive profile of U.S. consumer markets: Men’s Shaving Gel, Beer, Shampoo, Shredded/Grated Cheese, Refrigerated Orange Juice, Men’s Razor-Blades, Women’s Razor-Blades, Toothpaste, Canned Soup, and Coffee (Datta, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

This research is based on the notion that the path to market share leadership does not lie in lower price founded in cost leadership strategy, as Porter (1980) suggests. Rather, it is based on the premise—according to the PIMS database research (Note 1)—that it is customer-perceived quality that is crucial to long-term competitive position and profitability. So, the answer to market share leadership for a business is to differentiate itself by offering quality better than that of the nearest competition (Datta, 2010a, 2010b, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

To make this idea operational requires two steps. The first is to determine which price-quality segment to compete in? Most consumer markets can be divided in three basic price-quality segments: premium, mid-price, and economy. These can be extended to five by adding two more: ultra-premium and ultra-economy (Datta, 1996, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

The answer lies in serving the middle class by competing in the mid-price segment. This is the socio-economic segment that represents about 40% of households in America (Datta, 2011). It is also the segment that Procter & Gamble (P&G), a leading global consumer products company, has successfully served in the past (Datta, 2010b, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

1.1 The Strategic Importance of Price Positioning

In a competitive market one would normally expect more than one major brand competing in the mid-price segment. So, the second step for a business seeking market share leadership is to position
itself at a price that is somewhat higher than that of the nearest competition. This is in accord with P&G’s practice based on the idea that although higher quality does deserve a “price premium”, it should not be excessive (Datta, 2010b). A higher price offers two advantages: (1) it promotes an image of quality, and (2) it ensures that the strategy is both profitable and sustainable in the long run (ibid).

A classic example of price positioning is provided by General Motors (GM). In 1921 GM rationalized its product line by offering “a car for every purse and purpose”—from Chevrolet to Pontiac, to Oldsmobile, to Buick, to Cadillac. More importantly, GM positioned each car line at the top of its segment (Datta, 1996, 2010a, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

A more recent and familiar example is the economy chain, Motel 6, which has positioned itself as “offering the lowest price of any national chain”. Another example is the Fairfield Inn. When Marriott introduced this chain, it targeted it at the economy segment. And then it positioned Fairfield at the top of that segment (Datta, 1996, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

1.2 Close Link between Quality and Price

As mentioned above, customer-perceived quality is the most important factor contributing to the long-term success of a business. However, quality cannot really be separated from price (Datta, 1996). Quality, in general, is an intricate multi-dimensional concept that is difficult to comprehend. So, consumers often use relative price—and a brand’s reputation—as a symbol of quality (Datta: 2010b, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

2. A Short History of the U.S. Potato Chip Industry (Note 2)

2.1 Birth of Potato Chip

Saratoga Springs, New York is located on the southeast edge of the Adirondacks Mountains. Before air conditioning, wealthy New Yorkers used to visit it to escape the summer heat and humidity of New York City. The legend has it that Moon Lake House, an upscale hotel in Saratoga Springs, is the birthplace of potato chip. The most plausible version is that in 1853 Katie Speck Wicks accidentally invented potato chip when she was frying crullers and peeling potatoes at the same time. As luck would have it, a thin slice of potato found its way into the frying oil for the crullers, and so Katie fished it out and showed it to Chef George Crum. After tasting it Crum said that that’s a good accident. And that is how potato chip was born (Burhans, 2017, p. 20).

2.2 The Best Potatoes for Potato Chips: Chipping Potatoes

Chipping potatoes are different from potatoes for baking and salads. This is because potatoes are mostly water, and frying them in hot oil does not leave much potato matter after the water evaporates. Potato chip makers, called chippers, have tried several popular varieties of potatoes, e.g., Russets, Katahdins, and Irish Cobblers, and they found that their chip yield was around 22%. However, today chippers use modern varieties of potatoes that have a yield of 30% or higher. These varieties have high specific gravity which means that they have a high dry matter content (ibid, p.4).

One chipper variety is Snowden. Ohio farmers grow this variety especially for winter storage, because
fresh potatoes cannot be found from November to March. Large chip producers like Frito-Lay insist on a product that is *consistent* year round. One problem with storage of potatoes like Snowden is heat. If the temperature is too low, starch in the potatoes turns to sugar, and that results in a brown chip. If the temperature is too high, that can also yield a brown chip (*ibid*, p. 6).

However, Ohio farmers without irrigation facilities found it hard to meet the *consistency* level demanded by Frito-Lay. So, the company switched to growers in Michigan and North Dakota who had access to irrigation facilities. As such, Ohio farmers had to look for other manufacturers to sell their potato crops to.

In the past chip makers washed the potatoes themselves, but now the chippers have shifted the burden of washing to the farmers (*ibid*, pp. 6-7).

Another source of potatoes for chips is the state of Florida. However, Florida has one of the *highest* costs per acre for potato farming. This is because Florida’s soil is *sandy* that requires chemicals; it also has *bug* problems because of its warm climate. Like their Ohio counterparts, Florida farmers, too, have to take on the extra expense of potato washing (*ibid*, p. 8).

Many growers complain that Frito-Lays and other large chip makers have imposed a standard for white unblemished potatoes that is both arbitrary and *unjustified*. Even though customers do not really care if some of the chip have minor blemishes, the large manufacturers use this as an *excuse* to drive the purchasing price of potatoes *down* (*ibid*, p.8).

As is the case with Ohio, the severe demands from large chip makers, unpredictable weather, increasing cost of fuel, insurance and chemicals put together, have made it cost prohibitive for all but the largest Florida farmers (*ibid*, p. 8).

In a typical year Florida potato growers may be getting two to three dollars per hundredweight, compared to a price in the teens in the 1980s and early 1990s. Fifteen years ago there were about three hundred potato farmers in Northern Florida, compared to forty or fifty today: mostly in larger farms (*ibid*, pp. 8-9).

### 2.3 Potato Chips Move from Kitchen to Factory

In 1895 William Tappenden of Cleveland, OH made a move from a “humble kitchen-cooked product to factory production”, by converting a *barn* at the rear of his house into one of the *first* potato chip factories. Most early chip companies followed the path of Tappenden. They first started literally in the kitchen, and as sales increased, moved into an adjoining shed or garage before transferring to a real factory (*ibid*, pp. 23-24).

While Ohio is still a place of chip diversity, Lancaster County, Pennsylvania has the *highest* density of independent potato chip makers in America today (*ibid*, p. 23).

By the 1930s the Great Depression had curtailed economic opportunity generally. However, this helped the potato chip industry. Many chip businesses started during the Depression. This was the time when financial hardship forced many men and women to take risks they would not have taken in normal circumstances (*ibid*, p. 27).
Chip making in the 1920s and 1930s could be a hazardous business for more than economic reasons. At that time most chippers were making chips in *lard*. A major concern every day was *fire*, and if the kettles caught fire everything might blow up, an event that could happen every two or three months. Occasionally, even an entire plant might end up in flames (*ibid*, pp. 27-28).

2.4 The Continuous Potato Chip Cooker

In the 1920s and 1930s *kettles* were rectangular cookers that had the capacity of cooking from 40 to 120 pounds per hour. By 1929 all potato chips were still being made using this *batch* process: one lot at a time (*ibid*, p. 29).

This was the time when J. D. Ferry Co. of Harrisburg, PA became successful in inventing a *continuous* cooker for potato chips. The cooker allowed uncooked potato slices introduced at one end that were carried downstream in hot oil, through a system of paddles to the other end: a process that took three to four minutes. So, it was no longer necessary to cook potato chips by the batch (*ibid*, pp. 29-30).

But the Ferry cookers were *not* for everyone. They were very large and extraordinarily expensive, and most companies could not afford them (*ibid*, p. 30).

2.5 Dixie Wax Paper Co. Invents a Truly Sealed Bag

Mass production was not the only problem the chip makers were facing during the early twentieth century. The other problem confronting them was that they could *not* keep their stock of potato chips fresh, nor could they distribute them to customers that were *not* close to their factory (*ibid*, p. 30).

Laura Scudder, owner of a potato chip business in Monterey Park, California noticed that grocers had to go through a cumbersome procedure for a bag of chips. The grocer had to open a glass case or barrel, reach inside, scoop and weigh chips—which were sold by the ounce or pound--into a paper bag (*ibid*, p. 31).

Scudder decided to *bypass* bulk display entirely. She instructed her female employees to take empty bags at home at night and iron slips of *wax paper* inside near the neck of the bags. Next day after filling the bags with chips the workers ironed the top *airtight* shut (*ibid*).

Now chips could be displayed on a shelf in bags, getting rid of the need to ladle them out behind a counter. Furthermore, the airtight wax seal kept the chips fresher longer (*ibid*).

In 1934 the Dixie Wax Paper Co.--maker of the Dixie Cup—finally came up with a truly sealed bag, the Fresheen bag, using glassine. This innovation *revolutionized* the industry. It took potato chips off the counter, and made it possible to ship them to distances *more* than twenty miles from the factory (*ibid*, p.33).

2.6 Birth of Frito-Lay

Following the Great Depression in the early 1930s *Herman Lay* lost his job as a salesman. He then became a distributor for an Atlanta-based snack producer called Barrett’s who sold Gardner potato chips. When Barrett died his widow was faced with a failing business. So Lay raised enough cash to buy Barrett’s three plants (*ibid*, p. 40).

This was the start of a *strategy* of “Buying up small:” an idea few in the industry had considered before
Next, Lay set out on a buying spree that involved several small potato chip businesses that covered a wide-ranging area that included Virginia, West Virginia, Ohio, Missouri, and Wisconsin. Buying out small chippers was not Lay’s only strategy. He also built new plants in Mississippi, Kentucky, North Carolina, Georgia and Washington, D. C. (*ibid*, p. 44).

*Elmer Doolin* was the owner of an ice cream business in San Antonio, TX. One day he was fascinated by a package of corn chips—that had been fried in oil—he bought at a small restaurant. As it turned out, the owner was a Mexican who wanted to sell his business. So, Doolin “bought the man’s recipe, rights to his retail accounts and his production equipment—an old, hand-held potato ricer”. And that is how *Fritos* were born (*ibid*, pp. 44-45).

Within a year, Doolin moved out to a geographically favorable city of Dallas to start his own manufacturing plant (*ibid*, p. 45).

At that time Herman Lay was buying and building in the *Southeast*, while Doolin was expanding in the *Southwest* and elsewhere. Frito was also adding potato chips to its product line by buying existing potato chip makers (*ibid*).

In 1945, Frito entered into an agreement with H.W. Lay & Co. giving Lay exclusive rights not only to distribute but also to manufacture Fritos in the Southeast (*ibid*, p. 45).

The two companies merged in 1962. This merger resulted in two *nationally* distributed snacks: Cheetos and Frito’s, both corn chips. Surprisingly, there was no nationally distributed brand of potato chip in the United States at that time. So, over the next four years Frito-Lay converted its regional potato chip brands to a *single* national brand: *Lay’s*. By 1965 Lay’s chips were in *every* state in the U.S. (*ibid*, pp. 45-46).

### 2.7 Potato Chips and Television: A Symbiotic Relationship

One factor that contributed to this rapid expansion of Frito-Lay’s national distribution network was the onset of a *new* advertising medium that had become quite prominent at that time. “A friend to potato chips from the start, it was to benefit from potato chips as well—an ecologically *symbiotic* relationship if there ever was one”. And that advertising medium was: *Television* (*ibid*, p. 46, *italics* added).

People often like to eat *snacks* while watching TV. While Television depends upon advertising revenue, snack foods depend upon Television for promotion. In the early days of TV the biggest beneficiary of the trend toward eating while watching TV was the *potato chip*. It was at this time that the industry *shifted* from flat-cut chip towards “rippled”, “wavy”, and “marcelled” chip. This was the time when Frito-Lay introduced *Ruffles*: a *thicker* and sturdier potato chip with *ridges* (*ibid*, p. 47).

### 2.8 P&G Introduces Pringles

In the 1960s technological improvements in food were considered a good thing. Not until the 1970s, there was increasing use of additives to improve shelf life, of dehydration, and reconfiguration of foods to alter texture and to bolster attractiveness (*ibid*, p. 56).

In 1967 P&G introduced Pringles, a *prefabricated* potato chip. P&G devised a tennis ball *canister*
where perfectly formed half-moon Pringles could be stacked together *unbroken* (*ibid*, p. 57).

General Mills was the first to introduce a prefabricated potato chip, *Chipos*. The potato chip industry took General Mills to the court arguing that the term *chip* should not apply to Chipos because they were not natural or real. However, in 1971 the judge ruled that the term “potato chip” *could* be used if the package prominently *displayed* that Chipos were made from “dried or dehydrated potatoes” (*ibid*, p. 57).

Ironically, the end result was that the sales of Pringles appeared to *expand* the overall chip market boosting the sales of *real* potato chips which were still *preferred* by consumers (*ibid*, p. 59).

The Kellogg Co. acquired Pringles from P&G in 2012 (Hsu, 2012).

### 2.9 Frito-Lay Merges with PepsiCo

After the Frito-Lay merger in 1962—and after the company had bought four more chip companies—the Federal Trade Commission (FTC) began to focus on its activities. But in 1965 Frito-Lay merged with PepsiCo, thus making it even more powerful. Taking advantage of this merger PepsiCo wanted to use an advertising that said: “Potato chips make you thirsty; Pepsi satisfies thirst”. The FTC ruled that PepsiCo could not use such advertising “tie-ins” between Pepsi drinks and its snacks. Furthermore, the FTC barred PepsiCo from acquiring any snack or soft drinks maker for a period of ten years. In 1968 the FTC ordered Frito-Lay to sell ten of its twenty eight plants to Nefco, Inc. of Arkansas for $9.6 million (*ibid*, p. 60).

### 2.10 Frito-Lay’s Powerful Distribution System

Frito-Lay set up a unique “store-door” distribution system that *bypasses* warehouses: a system that has become the *envy* of the industry. These route men *enter* each store and check store shelves regularly, making sure the stocks are orderly, fresh, and full. Frito-Lay also replaced smaller step vans with tractor-trailer semis, that resulted in cutting down on the number of drivers: thus making the system more *efficient* (*ibid*, p. 61).

But, *more* importantly, the moving spirit behind Frito-Lay’s highly profitable operations is its “10,000 person sales force and its 99.5% service level” (Peters & Waterman, 1982; MacMillan, 1983).

### 2.11 Borden’s Unsuccessful Foray into the Potato Chip Market

Starting in 1982, Borden, a food products company, began buying small potato chip companies. While Frito-Lay had a nation-wide distribution system, Borden wanted to be a regional company. Borden decided to follow a *hyper-plant* strategy to run *large* volumes of a single or multiple products. This strategy maximized capacity with a “complete product line to eliminate reshipping”. While this strategy made a lot of sense for Frito-Lay, it was *not* appropriate for Borden which wanted to be a *regional* company (*ibid*, p. 64).

In almost every case, Borden’s plants were as big or bigger than those of Frito-Lay. Every chip that Borden made was *tailored* to each market, and so it made no sense to put it under one roof. Producing several regional chip brands at one site would require frequent *changes* of fryer oil, because while one chip might use cottonseed oil, another used corn oil, which also made packing and distribution more...
complicated (ibid, p. 65).

By 1996, Borden’s market share of its salty snack market had slipped from a high of 12% to 5%. So, Borden announced that it was going to get out of this market and sell its salty snack division (ibid, p. 74).

2.12 Anheuser Busch’s Failed Attempt to Succeed in the Potato Chip Market

In 1979, Anheuser Busch, the leading beer company in America, decided to enter the salty snack business with its new Eagle line. The company believed it can use its existing beer distribution system to sell Eagle salty snacks. However, local Anheuser Busch distributors saw chip distribution as “more diversion than delight (ibid, pp. 65, 68, italics added).

Eagle not only gave away chips on airlines, it paid a lot of money—slotting fees—for shelf space in supermarkets that guaranteed prime placement (ibid, p. 66). Customers who are regular customers know their way to the snack aisle. However, impulse buyers—who accounted for much of the snack food sales—were more likely to buy snack foods that had prime positioning: such as “endcap at the head of an aisle, or a freestanding display at the door”. New products like Eagle were doomed to failure if placed among sixty feet of competing brands, but if they were placed near the door they had a fighting chance. One result of this move by Eagle was that it forced everyone else to follow Eagle’s example. Second, it put small regional companies at a big disadvantage because they could not afford the hefty slotting fees (ibid, p.66).

2.12.1 Kettle Chips Stage a Come-Back

Before 1929, when Ferry automatic cookers were introduced, every chip maker used the kettle technology to make potato chips. But, thereafter the kettle technology became outmoded. However, in 1980 when Steve Bernard started Cape Cod in Massachusetts, kettle chips began their resurgence.

Kettle cooking produced a harder, thicker chip: a chip entirely different from the average picnic-style chip that was quite common then throughout the United States (ibid, p. 67).

So, Eagle bought Cape Cod Potato Chip Co. in 1985 (Note 3). By 1985 Eagle chips were available in all fifty states (ibid, p.67). By 1994 Eagle’s sales were up by 7%. Ironically, however, when you have only a 6% market share, a 7% increase in sales didn’t mean very much (ibid, p. 68).

Thanks to Anheuser Busch’s deep pockets Eagle decided that the best way to stay in the business was to engage in price slashing. Eagle priced its snacks as much as 20% below Frito-Lay’s prices. Reluctantly Frito-Lay had to go along with this move on the part of Eagle (ibid, p. 70).

In 1991 while sales of Eagle snacks were growing, those of Frito-Lay were declining. So, Frito-Lay went to work and came up with a low-fat baked potato chip, as we have noted below. The company also embarked upon improving the existing Lay’s and Ruffles lines by changing from soy to cottonseed oil. These moves seemed to work, and Frito-Lay’s profits grew by 15% during the first half of 1992 alone. In 1996 U.S. News and World Report noted that there was a 94% chance that every American household had at least one Frito-Lay product (ibid, p. 71).

After Eagle sustained a loss of $25 million in 1995 alone, Anheuser Busch finally threw in the towel,
and decided to withdraw from the snack business (ibid, p.82).

2.13 Frito-Lay Introduces Low-fat Baked Potato Chip

In 1994 Frito-Lay introduced a baked potato chip. While typical potato chips have total fat levels around 10 grams, today’s Lay’s baked potato chips have a total fat score of 1.6 grams. Customers liked them so much that the chips “flew off the shelves”. The key to a successful baked potato chip is to create a potato chip that tastes and feels like potato chip, yet contains no adverse effects from fats (ibid, p. 123).

2.14 Private Brands

It is important to clarify what private brands are. These are brands made exclusively for individual retailers, e.g., a supermarket, or a drug store. Usually, such brands are targeted at the economy segment, and, as such, are generally sold at prices lower than those of major name brands. One reason retailers like private brands is because private brands tend to be more profitable than name brands (Datta, 2018b, 2018c, 2020b, 2020c).

In 2008 Private Brands had 6.3% share of the overall U.S. Potato Chip market (Table 1).

2.15 Regional Players

2.15.1 Utz

Utz is a family-owned food company, based in Hanover, Pennsylvania, It was founded in 1921. Most of its distribution is limited to the eastern United States. Today Utz is also a leading nation-wide (Notes 4, 5) snack supplier to warehouse clubs and mass merchandisers. In 2008 Utz’s sales were $114 million with a 3.7% market share (Table 1).

2.15.2 Cape Cod

Cape Cod Potato Chips Co. of Hyannis, Massachusetts was founded in 1980 by Steve and Jude Bernard with the idea of offering healthier foods with as little processing as possible. As we have mentioned earlier in this section, Anheuser Busch’s Eagle Division acquired Cape Cod in 1985. However, in 1996 Bernards bought the business back from Anheuser Busch after the latter quit the business. In 2017 Campbell Soup Co. became the owner of Cape Cod Co. (Note 3).

Typically, most commercial chip brands are made using a continuous frying process in which potato slices travel through a tub of oil on a conveyor belt. On the other hand, Cape Cod chips are cooked in batches in kettles, frying them in a shallow vat in oil while stirring with a rake that produces a crunchier chip (Note 6). In summer when tourists visited Hyannis, they bought Cape Cod kettle chips and also took them back home, where they became a hit (Burhans, 2017, p. 144).

In 2008 Cape Cod’s sales were $91 million with a market share of 2.9% (Table 1).

2.15.3 Kettle Foods, Inc.

Potato growers generally make sure that sugars do not build up in stored potatoes because sugars can turn chips brown that gives them an “off” flavor and texture. However, certain varieties of potatoes that are high in sugar can lend chips a unique taste that can appeal to the connoisseur segment (ibid, p. 136).
Kettle brand chips are sold in natural food stores. As Table 1 shows the brand is a member of the premium segment. In 2008 it had sales of $73 million, with a market share of 2.4%.

The company uses only high-sugar Russet Burbank potatoes. Although sugars make the Russets tough to work with, but if properly cooked, they make the best tasting potato chips” (ibid, p. 130, italics added).

2.15.4 Herr’s Snack Co.

Herr’s Snack Co. from Nottingham, Pennsylvania, was started in 1946. In 1958 the company introduced, flavored potato chips, and in 1974 switched to foil packaging from the traditional glassine bags. The company’s stronghold is the Mid-Atlantic region.

In 2008 Herr’s sales were $54 million with a 1.8% market share (Table 1).

2.16 New Mom-and-Pop Chip Makers Reinvent Old Technology of Kettle Chips

Finally, the history of the Potato Chip industry has revealed an uplifting message:

In the wake of the “Great Potato Chip Wars” of the 1990s, corporate snack divisions closed and dozens of family-owned companies went bankrupt. Yet despite (widespread) consolidation, many small chippers persist into the twenty-first century, as mom-and-pop companies and upstart ‘boutique’ businesses serve both new consumers and markets with strong regional loyalties” (ibid, back cover, italics added).

This phenomenon seems to be similar to the birth of craft beer that began in 1965 and revolutionized the beer industry. In 2008 Craft beer had a market share of 9% (Datta, 2017).

For most of the twentieth century state-of-the-art continuous cookers were the industry standard. Small family-run kettle operations like Original Good’s of Pennsylvania were the exception. Now kettle chip making is in vogue again because of the superior taste of kettle chips (ibid, p.143).

A shining example of this new generation of entrepreneurs is Martin’s of York County, Pennsylvania. Today Martin’s has over fifty routes and is the most popular potato chip in Shenandoah Valley. Also, Martin’s has been the potato chip of Air Force One since the Clinton presidency (ibid, p. 143).

Another notable entrepreneur--and a user of kettle cookers--is Shearer’s of Brewster, Ohio. “Shearer’s has harnessed the power of kettle cookers in sequence, like pistons to a crankcase—all part of a superb machine that, perhaps, is the most powerful kettle chip engine in the industry (ibid, p. 142, italics added).

Shearer’s has grown so fast that it is unable to meet its customer demand. Notably, Shearer’s makes “private label” special potato chips for Frito-Lay (ibid).

Another important example of small new kettle chip makers is Sarah Cohen of Route 11, Middletown, Virginia. The company’s mission is to make high quality potato chips. It makes organic chips and its products are sold in gourmet and health food stores (ibid, p. 148).
3. The Potato Chip Industry: An Overview

The most important lesson one can draw from the above discussion is, that the crown jewel of Frito-Lay is its unique distribution system that is the envy of every company selling food products in this country. Thanks to this system, there is a 94% chance that every American household has at least one Frito-Lay product, as we have mentioned earlier. It is a fortress that all the money and might of Anheuser Busch--and Borden--could not penetrate.

In 2008 Frito-Lay had a commanding 57% share of the U.S. potato chip market (section 6), mostly in the mid-price segment. Given that situation—and considering its formidable distribution system—the first thing for a competitor to do is to avoid head-to-head competition with Frito-Lay as much as possible. There are generally four options, which are not necessarily mutually exclusive, to succeed in the potato chip market under these circumstances.

One is to offer a chip of higher quality or taste. This is a strategy Cape Cod and Kettle Foods have followed, and both are in the premium segment (Table 1). Furthermore, Kettle Foods chips are sold in natural food stores.

Second was to market a product that is different from Frito-Lay’s offerings. This is the strategy P&G’s Pringles has adopted: a prefabricated potato chip contained in a tennis ball canister where perfectly formed Pringles were stacked together unbroken. Also Pringles has priced its potato chips at prices that are lower than those of Lay’s brands. Another example is Herr’s which introduced flavored potato chips, and later switched to foil packaging from the traditional glassine bags.

Third, serve those customer segments that are not Frito-Lay’s main focus. Utz followed this strategy. It is a leading supplier to warehouse clubs and mass merchandisers.

Fourth, sell potato chips at a low price. This is the strategy Private Brands have pursued by competing in the economy segment (Table 1).

4. The U.S. Potato Chip Market—Price-Quality Segmentation Profile

This study is based on U.S. retail sales for 2008 and 2007 (Note 7). The data includes total dollar and unit sales, no-promotion dollar and unit sales, and promotion dollar and unit sales (Note 8).

The market leader was Lay’s Plain Potato Chip brand with an overall brand market share of 30.5%, followed by Pringles Original Potato Chip brand with 10.7% brand share (Table 1). For 2008 the total U.S. retail Potato Chip sales were $3.07 Billion. The pack sizes varied from 0.8oz to 50oz, with the 9-13oz packs being the most popular with a 33% share. So, we have focused cluster analysis on this size.

4.1 Hierarchical Clustering as the Primary Instrument of Statistical Analysis

We have used cluster analysis as the primary statistical tool in this study. As suggested by Ketchen and Shook (1996), we have taken several steps to make this effort as objective as possible:

- First, this study is not ad-hoc, but is grounded in a theoretical framework, as laid out below.
Second, we are fortunate that we were able to get national sales data for our study for two years. Thus, this data provided a robust vehicle for subjecting cluster consistency and reliability to an additional test.

Third, we wanted to use two different techniques—KMeans and Hierarchical—to add another layer of cluster consistency and reliability. However, we found Hierarchical cluster analysis to be superior in meeting that test. So, we did not consider it necessary to use the KMeans technique.

4.2 Theoretical Foundation for Determining Number of Clusters—and Their Meaning

As already stated, a major purpose of this paper is to identify the market share leader and determine the price-quality segment—based on unit price—it is competing in.

An important question in performing cluster analysis is to figure out the number of clusters based on an a priori theory. Most consumer markets can be divided in three basic price-quality segments: premium, mid-price, and economy. These three basic segments can be extended to five: with the addition of super-premium and ultra-economy segments (Datta, 1996).

Therefore, three represents the minimum and five the maximum number of clusters (Datta, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c).

An equally crucial issue is to find out what each cluster (e.g., economy, mid-price, and premium) really means.

Perhaps a good way to understand what each price-quality segment stands for in real life is to look at a socio-economic lifestyle profile of America. It reveals six classes (Note 9). Each class is associated with a price-quality segment typified by the retail stores where they generally shop: each a symbol of their lifestyle (Datta, 2011).

4.3 Guidelines for Cluster Consistency and Reliability

In addition to laying a theoretical foundation for the number of clusters, we set up the following guidelines to enhance cluster consistency and reliability (Datta, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c):

- In general, there should be a clean break between contiguous clusters.
- The anchor clusters—the top and the bottom—should be robust. In a cluster-analysis project limited to a range of three to five clusters, a robust cluster is one whose membership remains constant from three- to four-, or four- to five-cluster solutions.
- Finally, we followed a step-by-step procedure to determine the optimal solution. First, we start with three clusters. Thus, the bottom cluster obviously becomes the economy segment and the top cluster the premium segment. Next, we go to four clusters, and tentatively call them: economy, mid-price, premium, and super-premium. Then we go to five clusters. If the membership of the bottom cluster remains unchanged from what it was in the four-cluster result, it clearly implies that the ultra-economy segment does not exist. Next, if the membership of the top cluster also remains the same from a four- to a five-cluster solution, then the top cluster becomes the super-premium segment. This signifies that even in a five-cluster solution we have only four price-quality segments: economy, mid-price, premium, and...
super-premium. It means that either the premium or the mid-price segment consist of two sub-segments (see Table 1).

4.3.1 External Evidence to Validate Results of Cluster Analysis
Whenever possible, we have tried to seek external evidence to validate the results of cluster analysis. For example, many companies identify on their websites a certain brand(s) as a premium or luxury brand. A case in point is that of P&G which says that its plan is to compete in all “price points”: super-premium, premium, and mid-price: except the economy segment (Datta, 2010b).

4.4 Testing Hypotheses
- I—That the market-share leader would be a member of the mid-price segment.
- II—That the market-share leader would carry a price tag that is higher than that of the nearest competition.

4.5 Results of Hierarchical Cluster Analysis
In Table 1 we present the cluster analysis results for 2008 that involved 28 potato chip brands with pack sizes ranging from 9-13 oz, and sales over $10M. The results support both Hypothesis I and II. Both the market leader Lay’s Plain 12oz Potato Chips (hereafter Lay’s in this section) and the runner-up, Pringles Original 12oz Potato Chips (hereafter Pringles in this section) were members of the mid-price segment with an overall brand family market shares of 30.5% and 10.7%, respectively.

While the data supported Hypothesis I for 2007, it did not technically support Hypothesis II. This is because the unit price of the runner-up Pringles was $2.38, just a little higher than $2.33 for the market leader Lay’s: a difference that does not seem to be statistically significant.

To have a better understanding of the above results for 2007, let us look at the unit price data for 2008 and 2007 together. As we have mentioned earlier, a business seeking market share leadership should position itself at a price that is somewhat higher than that of the nearest competition.

At the beginning of 2008 Frito-Lay’s management must have realized that the unit price of Lay’s for 2007 was 5 cents lower than that of Pringles. So, it is reasonable to argue that, based on the theoretical arguments we have espoused in this study, they raised Lay’s unit price by 11% from $2.33 to $2.59 in 2008 (as it actually turned out), clearly ahead of the corresponding $2.43 price for Pringles.

It is also interesting to note that in spite of the price rise Lay’s sales more than doubled from $102 million in 2007 to $236 million in 2008.

To sum up:
We submit that the foregoing discussion further strengthens the premise behind Hypothesis II: that the unit price of the market leader is likely to be higher than that of the runner-up.

4.6 Relative Price a Strategic Variable
Finally, we performed one more test to determine the consistency and reliability of the results of cluster analysis in this study. So, we ranked the unit price of each brand for 2008 and 2007 for Potato Chips. All three measures of bivariate correlation—Pearson, and non-parametric measures Kendall’s tau_b, and Spearman’s rho—were found to be significant at an amazing 0.01 level!

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We believe these surprising results became possible only because management in the U.S. Potato Chip industry must have been treating relative price as a strategic variable, as we have suggested. While the price of a brand, compared to its nearest competition, may change over time, it is unlikely to change much from one year to the next. This is significant not only for the market share leader, but also for every brand no matter which price-quality segment it is competing in.

Another conclusion one can draw from such impressive results is that the U.S. Potato Chip market was quite competitive in 2008—notwithstanding the dominance of PepsiCo’s Lay’s brand family—with a total of 254 brands.

4.7 The Role of Promotion

For 2008 promotional sales of the U.S. Potato Chip market averaged 54% of net retail sales. We performed bivariate correlation between total (net) retail sales vs. promotional (PROMO) sales. The results were significant for all three measures—Pearson, Kendall, and Spearman—at the 0.01 level.

Table 2 presents a measure of the promotional intensity of 18 brands for 2008. Before we discuss the highlights of this table, let us find out the level of promotional intensity in the previous ten studies we have cited at the beginning of this paper.

These ten studies fall into two groups: Non-Food and Food. In the Non-Food group the promotional intensity scores are: 11% (Men’s Blades), 15% (Women’s Blades), 30% (Men’s Shaving Gel), 32% (Shampoo), and 37% (Toothpaste). The numbers in the Food group are: 36% (Canned Soup), 44% (Coffee), 46% (Refrigerated Orange Juice), 46% (Shredded/Grated Cheese), and 48% (Lager Beer).

The question is why discount intensity in the non-food group is much lower than that of the food group. We believe one reason is that the products in the non-food groups serve personal care needs for which most customers do not need a level of discount they get for most products in the food group. Second, while most of the products in the food group have many substitutes that is generally not the case for the non-food group. Third, consumers have to go to the supermarkets frequently to buy food. So, manufacturers offer higher discounts for food products to entice them to spend more money and to shop even more often.

The following are the highlights of results in Table 2:

- Lay’s Wavy brand is in the Ultra Heavy group with a score of 76%.
- Lay’s brand family (hereafter Lay’s in this section) with a market share of 30.5% is a member of the Very Heavy group with a score of 66%.
- Pringles, the runner-up, and Private Brands, are in the Heavy group with scores of 50% and 54%, respectively.
- Ruffles—a potato chip with ridges—a member of the Frito-Lay’s family, is in the Moderate group with a 37% score.
- Finally, Lay’s Light and Ruffles Light fall in the Very Low group with scores of 5.6%, and 4.3%, respectively.
It is interesting to note that the average Potato Chip score of 54% is higher than the 48% for Lager Beer which is highest in the five food brands we have cited above. But, more importantly, Lay’s score of 66% is extraordinarily high! One reason for these high numbers seems to be is that the demand for potato chips is more discretionary in character than the five food products mentioned above. Also it is remarkable to see that the Ruffles Light and Lay’s Light brands are in the Very Low group. Clearly, customers who are weight conscious are willing to pay higher prices for low-calorie potato chips.

5. Pattern Emerging in Price-Quality Segmentation Analysis

This is the eleventh study that encompasses analysis of competitive profiles of U.S. consumer markets. All these studies involved a testing of two hypotheses. The primary hypothesis is: (I) That the market leader would be a member of the mid-price segment, and the secondary hypothesis is: (II) That the unit price of the market leader would be somewhat higher than that of the nearest competitor.

5.1 Results in Eight Markets Support Hypothesis I

In eight of the eleven studies—that exclude Men’s and Women’s Razor-Blades, and Ground Coffee—the market leader was found to be a member of the mid-price segment, as we have hypothesized. Those market leaders were:


In six of these markets—that exclude Shampoo and Canned Soup—the unit price of each market leader was somewhat higher than that of its runner up, and that both were members of the mid-price segment, according to our hypothesis.

In the Shampoo market, the runner-up, Head & Shoulders was a member of the mid-price segment like Pantene, the market leader. However, its unit price was higher than that of Pantene.

A simple explanation of this deviation is that while the market leader Pantene is a regular shampoo, Head & Shoulders is a specialty anti-dandruff shampoo: a kind that is always more expensive (Datta, 2018a).

We could not test Hypothesis II for Chicken Broth, but for Chicken Noodle Soup, the runner-up Progresso was competing in the premium, not the mid-price segment.

This deviation, too, can be explained. As we have noted earlier, that while Progresso did manage to become the runner-up in the Canned Soup market, its market share was just one-third that of Campbell’s, the market leader. Therefore, it could not be considered a direct competitor of Campbell, and as such, this result does not necessarily negate Hypothesis II (Datta, 2020b).

5.2 Results in the Coffee Market Do Not Support Hypothesis I

One study that contradicted Hypothesis I was the Ground Coffee market. Astonishingly, the market leader Folgers was a member of the economy segment! This means that Folgers was following the cost
leadership strategy, instead of pursuing a strategy of higher quality, as we have hypothesized. Yet, while the runner-up Maxwell House was also competing in the economy segment, its unit price was lower than that of the market leader Folgers, as we have hypothesized.

The spectacular success of Starbucks in the Coffee market demonstrated in no uncertain terms that the consumers were no longer content to treat coffee as a run-of-the mill drink—but rather something special—that deserved to be relished, and for which they were willing to pay a premium price (Datta, 2020c).

5.3 Results of Men’s and Women’s Razor-Blade Markets Do not Support Hypothesis I

In Men’s Razor-Blades the market leader Gillette Mach 3 was a member of the premium segment. The following arguments can be advanced to explain this divergence (2019a):

- The technology for making Men’s Razors and Blades has now become quite intricate, based as it is on three fields: metallurgy, chemistry, and electronics, which, in turn, raises the cost of production,
- Gillette has been pursuing a strategy of innovation and constant improvement, offering new features—and benefits—than ever before, which has consequently made it possible for it to charge premium prices.
- Gillette’s virtual monopoly of the industry is another factor contributing to higher prices.
- Many men consider shaving an important part of personal grooming, for which they are willing to pay premium prices: because they regard it as an “affordable luxury” (Datta, 2010b, 2019a).

The market leader in the Women’s Razor-Blade market—Gillette Venus (Original)—was also a part of the premium segment.

We offer the following arguments to explain this departure from what we have postulated in this study (Datta, 2019b):

- The technology for making Razors and Blades has now become quite complex—and expensive—as mentioned above.
- Producers are now offering many more new features—and benefits—than ever before that further raises the cost of production.
- For many American women, having smooth armpits and legs is an important facet of personal care—and a social norm they must adhere to—for which they are willing to pay a premium price (Datta, 2010b, 2019b).


We found four strategic groups in this market. Their market shares are as follows:

1. PepsiCo—Market leader
   Lay’s brand family: 44.1%
   Ruffles brand family: 12.9%

2. The Kellogg Co.—Runner-up
   Pringles: 10.7%
3. Private Brands: 6.3%

4. Regional Players
   Utz: 3.7%
   Cape Cod: 2.9%
   Kettle Chips: 2.4%
   Wise: 1.9%
   Herr’s: 1.8%

6.1 The PepsiCo Inc.

PepsiCo is a leading global company in convenient foods and beverages. The company’s sales for the year 2019 were $67.2 Billion. In North America the Frito-Lay segment produced by far the highest profit at 45% (Note 11).

6.2 The Kellogg Co.

The Kellogg Co. is a diversified food products Company. It had sales of $13.6 Billion in 2019 (Note 10).

Table 1. Hierarchical Cluster Analysis: The U.S. Ground Coffee Market, 2008 (10-13 Oz)

<table>
<thead>
<tr>
<th>Price-Quantity Segment</th>
<th>BRANDS--POTATO CHIPS Sales Over $10M (28)</th>
<th>UnitPrice</th>
<th>ClusCtr.</th>
<th>Brand</th>
<th>Brand $M</th>
<th>Brand $M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super-Premium</td>
<td>LAY’S BAKED ORIGINAL 9 Oz</td>
<td>$3.50</td>
<td>3.3%</td>
<td>$101.03</td>
<td>$32.92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RUFFLES BAKED ORIGINAL 9 Oz</td>
<td>$3.49</td>
<td>1.6%</td>
<td>$49.98</td>
<td>$20.26</td>
<td></td>
</tr>
<tr>
<td>Premium I</td>
<td>RUFFLES ORIGINAL 12 Oz</td>
<td>$3.17</td>
<td>10.3%</td>
<td>$317.93</td>
<td>$68.72</td>
<td></td>
</tr>
<tr>
<td>Premium II</td>
<td>KETTLE CHIPS PLAIN 9 Oz</td>
<td>$2.93</td>
<td>2.4%</td>
<td>$72.85</td>
<td>$8.41</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAPE COD PLAIN 8.5 Oz</td>
<td>$2.92</td>
<td>2.9%</td>
<td>$90.59</td>
<td>$23.56</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TIM’S CASCADE STYLE HOT JALAPENO 10 Oz</td>
<td>$2.90</td>
<td>0.5%</td>
<td>$15.28</td>
<td>$3.69</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LAY’S MESQUITE BARBEQUE 9 Oz</td>
<td>$2.89</td>
<td>##</td>
<td>##</td>
<td>$20.77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LAY’S JALAPENO 9 Oz</td>
<td>$2.89</td>
<td>##</td>
<td>##</td>
<td>$16.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HAWAIIAN SWEET MAUI ONION 9 Oz</td>
<td>$2.88</td>
<td>0.4%</td>
<td>$11.84</td>
<td>$4.34</td>
<td></td>
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<tr>
<td></td>
<td>GOLDEN FLAKE PLAIN 12 Oz</td>
<td>$2.86</td>
<td>0.9%</td>
<td>$27.52</td>
<td>$4.15</td>
<td></td>
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<tr>
<td></td>
<td>SNYDER OF BERLIN ORIGINAL 14 Oz</td>
<td>$2.84</td>
<td>0.5%</td>
<td>$14.26</td>
<td>$3.56</td>
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<tr>
<td></td>
<td>KRUNCHERS! ORIGINAL 9.625 Oz</td>
<td>$2.83</td>
<td>0.4%</td>
<td>$12.00</td>
<td>$3.84</td>
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</tr>
<tr>
<td>Mid-Price</td>
<td>OLD DUTCH PLAIN 12 Oz</td>
<td>$2.72</td>
<td>0.7%</td>
<td>$21.74</td>
<td>$4.87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MIKE-SELL’S ORIGINAL 11.5 Oz</td>
<td>$2.60</td>
<td>0.6%</td>
<td>$17.02</td>
<td>$2.23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LAY’S PLAIN 12 Oz (market leader) ##</td>
<td>$2.59</td>
<td>30.5%</td>
<td>$938.84</td>
<td>$236.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LAY’S WAVY HICKORY BARBECUE 11.5 Oz</td>
<td>$2.56</td>
<td>*</td>
<td>*</td>
<td>$22.57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SHEARER’S PLAIN 11.5 OUNCES</td>
<td>$2.56</td>
<td>0.4%</td>
<td>$12.60</td>
<td>$5.27</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BETTER MADE PLAIN 11.75 Oz</td>
<td>$2.51</td>
<td>0.5%</td>
<td>$15.22</td>
<td>$4.71</td>
<td></td>
</tr>
<tr>
<td>POTATO CHIPS 2008</td>
<td>PrQlySgmt</td>
<td>Promo</td>
<td>Promo$2008</td>
<td>MKSh%</td>
<td>Sales 2008</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Intensity</td>
<td>%</td>
<td>$M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>18 Brands with Sales &gt;$15M</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LAY'S WAHY</td>
<td>Mid-Price</td>
<td>Ultra Heavy</td>
<td>76.2%</td>
<td>8.8%</td>
<td>$269.4</td>
<td></td>
</tr>
<tr>
<td>OLD DUTCH</td>
<td>Mid-Price</td>
<td></td>
<td>70.0%</td>
<td>0.7%</td>
<td>$21.7</td>
<td></td>
</tr>
<tr>
<td>LAY'S</td>
<td>Mid-Price</td>
<td>Very Heavy</td>
<td>65.8%</td>
<td>30.5%</td>
<td>$938.8</td>
<td></td>
</tr>
<tr>
<td>JAYS</td>
<td>Mid-Price</td>
<td></td>
<td>64.1%</td>
<td>0.7%</td>
<td>$22.7</td>
<td></td>
</tr>
<tr>
<td>WISE</td>
<td>Economy</td>
<td></td>
<td>60.1%</td>
<td>1.4%</td>
<td>$43.4</td>
<td></td>
</tr>
<tr>
<td>GOLDEN FLAKE</td>
<td>Premium II</td>
<td>Heavy</td>
<td>56.1%</td>
<td>0.9%</td>
<td>$27.5</td>
<td></td>
</tr>
<tr>
<td>PRIVATE BRANDS</td>
<td>Economy</td>
<td></td>
<td>53.9%</td>
<td>6.3%</td>
<td>$194.0</td>
<td></td>
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<tr>
<td>UTZ</td>
<td>Mid-Price</td>
<td></td>
<td>52.3%</td>
<td>3.7%</td>
<td>$114.3</td>
<td></td>
</tr>
<tr>
<td>HERR'S</td>
<td>Mid-Price</td>
<td></td>
<td>50.0%</td>
<td>1.8%</td>
<td>$54.4</td>
<td></td>
</tr>
<tr>
<td>PRINGLES</td>
<td>Mid-Price</td>
<td></td>
<td>49.6%</td>
<td>10.7%</td>
<td>$329.1</td>
<td></td>
</tr>
<tr>
<td>KETTLE CHIPS</td>
<td>Premium II</td>
<td></td>
<td>49.0%</td>
<td>2.4%</td>
<td>$72.8</td>
<td></td>
</tr>
<tr>
<td>CAPE COD</td>
<td>Premium II</td>
<td></td>
<td>47.7%</td>
<td>2.9%</td>
<td>$90.6</td>
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<tr>
<td>MIKE-SELL'S</td>
<td>Mid-Price</td>
<td>Moderate</td>
<td>39.3%</td>
<td>0.6%</td>
<td>$17.0</td>
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</tr>
<tr>
<td>RUFFLES</td>
<td>Premium I</td>
<td></td>
<td>37.0%</td>
<td>10.3%</td>
<td>$317.9</td>
<td></td>
</tr>
<tr>
<td>LAYS BAKED!</td>
<td>Super-premium</td>
<td></td>
<td>30.0%</td>
<td>3.3%</td>
<td>$101.0</td>
<td></td>
</tr>
<tr>
<td>RUFFLES BAKED!</td>
<td>Super-premium</td>
<td></td>
<td>29.3%</td>
<td>1.6%</td>
<td>$50.0</td>
<td></td>
</tr>
<tr>
<td>LAY'S LIGHT</td>
<td>Mid-Price</td>
<td>Very Low</td>
<td>5.6%</td>
<td>0.7%</td>
<td>$22.9</td>
<td></td>
</tr>
<tr>
<td>RUFFLES LIGHT</td>
<td>Mid-Price</td>
<td></td>
<td>4.3%</td>
<td>1.0%</td>
<td>$31.7</td>
<td></td>
</tr>
</tbody>
</table>

*Note.*  ##Sales data included in Lay’s Plain, 12 oz.

*Sales data included in Lay’s Wavy Original, 12 oz.

#Sales data included in Jays Plain 11.5 oz.

###Table 2. Percentage of Promotional Sales to Total Sales: U.S. Potato Chip Market, 2008

<table>
<thead>
<tr>
<th>POTATO CHIPS 2008</th>
<th>PrQlySgmt</th>
<th>Promo</th>
<th>Promo$2008</th>
<th>MKSh%</th>
<th>Sales 2008</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Intensity</td>
<td>%</td>
<td>$M</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Economy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRINGLES ORIGINAL 12 Oz (runner-up)</td>
<td>$2.43</td>
<td>10.7%</td>
<td>$329.09</td>
<td>$5.63</td>
<td></td>
</tr>
<tr>
<td>HERR'S PLAIN 11.5 Oz</td>
<td>$2.36</td>
<td>1.8%</td>
<td>$54.38</td>
<td>$17.38</td>
<td></td>
</tr>
<tr>
<td>JAYS BARBEQUE 11 Oz</td>
<td>$2.36</td>
<td>#</td>
<td>#</td>
<td>$2.38</td>
<td></td>
</tr>
<tr>
<td>LAY'S WAVY ORIGINAL 13 Oz *</td>
<td>$2.36</td>
<td>8.8%</td>
<td>$269.43</td>
<td>$46.63</td>
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</tr>
<tr>
<td>UTZ PLAIN 10.5 Oz</td>
<td>$2.35</td>
<td>3.7%</td>
<td>$114.26</td>
<td>$35.82</td>
<td></td>
</tr>
<tr>
<td>MARTIN’S PLAIN 10 OUNCES</td>
<td>$2.35</td>
<td>0.4%</td>
<td>$13.28</td>
<td>$2.59</td>
<td></td>
</tr>
<tr>
<td>JAYS PLAIN 11.5 OUNCES #</td>
<td>$2.33</td>
<td>0.7%</td>
<td>$22.72</td>
<td>$10.00</td>
<td></td>
</tr>
<tr>
<td>WISE PLAIN 8 Oz</td>
<td>$1.85</td>
<td>1.4%</td>
<td>$43.44</td>
<td>$15.84</td>
<td></td>
</tr>
<tr>
<td>WISE RIDGIES PLAIN 8 Oz</td>
<td>$1.81</td>
<td>0.5%</td>
<td>$14.50</td>
<td>$5.26</td>
<td></td>
</tr>
<tr>
<td>PRIVATE BRANDS PLAIN 11.5 Oz</td>
<td>$1.73</td>
<td>6.3%</td>
<td>$194.02</td>
<td>$16.22</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>90.3%</strong></td>
<td><strong>$2,773.81</strong></td>
</tr>
<tr>
<td><strong>Total Sales--All Brands</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>100.0%</strong></td>
<td><strong>$3,073.14</strong></td>
</tr>
</tbody>
</table>
7. Conclusion

The path to market share leadership does not lie in lower price grounded in cost leadership strategy. Rather a business in pursuit of market-share leadership should try to serve the middle class by competing in the mid-price segment; and offering quality superior to that of competition: at a somewhat higher price to connote an image of quality, and to ensure that the strategy is both profitable and sustainable in the long run. The middle class is the socio-economic segment that represents about 40% of households in America.

Quality, however, is a complex concept that consumers generally find difficult to understand. So, they often employ relative price and a brand’s reputation as a symbol of quality.

Saratoga Springs, NY is the place where potato chip was accidentally discovered in 1853. At first potato chips were served nightly at local restaurants in Saratoga Springs. The practice then spread to other areas in New York State, Pennsylvania, and New England.

Potatoes for making potato chips are called chipping potatoes. This variety is preferred for making chips because its chip yield is much higher at 30% compared to 22% for other varieties, such as Russet potatoes, that are normally used for baking. One type of a chipping potato is Snowden. Ohio farmers grow this variety especially for winter storage, because fresh potatoes cannot be found from November to March. Another source of potatoes for the chips is the state of Florida. However, Florida has one of the highest costs per acre for potato farming.

Many growers complain that Frito-Lays and other large chip makers have imposed a standard for white unblemished potatoes that is both arbitrary and unjustified. Even though customers do not really care if some chips have minor blemishes, the large manufacturers use this as an excuse to drive the purchasing price of potatoes down.

The severe demands from large chip makers, unpredictable weather, increasing cost of fuel, insurance and chemicals put together have made it cost prohibitive for all but the largest potato farmers.

Those who decide to get in the business of chip making literally start in the kitchen first, and as sales increase they move into an adjoining shed or garage before transferring to a true factory.

The dominant story of the potato chip industry is that of Frito-Lay, a result of 1962 merger of two businesses: the potato chip business of Herman Lay, and the corn chip business of Elmer Doolin. At the end of 2008 Frito-Lay had a total market share of 57% in the U.S. Potato Chip market. In 1965 Frito-Lay merged with PepsiCo.

In 1967 P&G introduced Pringles, a prefabricated potato chip. P&G devised a tennis ball canister where perfectly formed half-moon Pringles could be stacked together unbroken. The Kellogg Co. acquired Pringles in 2012.

The secret of Frito-Lay’s phenomenal success is its unique “store-door” distribution system that bypasses warehouses: a system that has become the envy of the industry. These route men enter each store and check store shelves regularly, making sure the stocks are orderly, fresh, and full. But, more importantly, the moving spirit behind Frito-Lay’s highly profitable operations is its “10,000 person
sales force and its 99.5% service level”.
In 2008 the U.S. retail sales for the Potato Chip market were $3.07 Billion. The pack sizes varied from 0.8oz to 50oz, with the 9-13oz packs being the most popular with a 33% share. So, we have focused on cluster analysis on this size.

In 2008 the U.S. Potato Chip market was highly competitive—notwithstanding the dominance of Pepsi Co.’s Lay’s brand family—with a total of 254 brands.

Using Hierarchical Cluster Analysis, we tested two hypotheses: (1) That the market leader is likely to compete in the mid-price segment, and that (2) Its unit price is likely to be higher than that of the nearest competition. Employing U.S. retail sales data for 2008 and 2007 we found that in essence the results supported both Hypothesis 1 and II for both years.

We also found that relative price was a strategic variable, as we have hypothesized.

We also discovered four strategic groups in the industry.

This is the eleventh study that involves analysis of competitive profiles of U.S. consumer markets. In eight of the eleven studies—that exclude Men’s and Women’s Razor-Blades, and Ground Coffee—the market leader was found to be a member of the mid-price segment, as we have hypothesized.

Finally, as Dirk Burhans (2017)—author of Crunch—puts it, it is important to realize that a “potato chip could be such a subtle, delicate experience”.

Acknowledgements

We are immensely grateful to A.C. Nielson Co. for their extraordinary generosity for the invaluable U.S. national retail sales data of the U.S Potato Chip Market for 2008 and 2007, without which this project would not have been possible.

We also acknowledge our debt to Dirk Burhans for his insightful book on the U.S. Potato Chip industry: Crunch: A History of the American Potato Chip (2017).

References


**Notes**

Note 1. Profit Impact of Market Strategies.

Note 2. Most of the discussion in this section is from Dirk Burhans’ book *Crunch* (2017).

Note 7. This data is from food stores with sales of over $2 million, and drug stores over $1 million; it also includes discount stores, such as Target and K-Mart, but excludes Wal-Mart as well as warehouse clubs, e.g., Sam’s Club, Costco, and BJ’s. It also does not include the “dollar” stores, such as Dollar General, and others.
Note 8. For those stores for which, during a week, there were feature ads, coupon ads, display, or temporary price decrease of at least 5%.