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Original Paper

A Review of Patterns of Competitive Dynamics in Twenty-Four U.S. Consumer Markets.

Part II: The Food Group—Non-Discretionary

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Abstract

This appraisal is an attempt to review the patterns of competitive dynamics in twenty-four U.S. consumer markets. These markets can be divided into five *broad categories:*

(1) Food Group--Discretionary (2) Food Group—Non-Discretionary (3) Personal Grooming (4) Personal Hygiene (5a) Laundry and Dishwashing Detergents, and (5b) Household Cleaning and Alkaline AA Battery.

This is the second of five papers that covers four markets in the Non-Discretionary Food group.

Keywords

The U.S. Coffee Market, The U.S. Canned Soup Market, The U.S. Shredded/Grated Cheese Market, and The U.S. Refrigerated Orange Juice Market

1. Introduction

The genesis of this research goes back to the paper: *"Market Segmentation: An Integrated Framework"* (Datta, 1996).

Every market has *two* sides: demand and supply, customers and suppliers. It is only when the two sides *interact* that a market develops. While this meaning of the term 'market' is widely accepted, marketers and strategists have traditionally adopted a rather *limited* view that is *demand*-oriented. They define market segmentation in terms of *customers*—with a focus on 'people' characteristics, e.g., demographics, social class. An opposite view, which may be called 'product' segmentation, is *supply*-oriented which *starts* with *product* characteristics, e.g., quality, price, benefits (*ibid*).

Barnett (1969) points out that the traditional marketing approach to market segmentation has not been very successful. So, he suggests an alternative that is more promising: one which *shifts* the primary focus *from* "*whom* you reach" to "*what* characteristics you build into the product" (*ibid*, *italics* added).

Thus, we need an *integrated* approach to market segmentation which includes *both* the demand and

supply sides of the competitive equation, and where 'people' [customer] and 'product' characteristics are *not* mutually exclusive paths to market segmentation, but, rather, two sides of the *same* coin (Datta, 1996).

The basic premise of this article is that the *product* characteristics approach is both *easier* and a more *actionable* way of looking at how a market is—or can be—segmented than the traditional marketing approach. It focuses *both* on customer benefits or needs *and* the *resources* necessary to satisfy them (*ibid*).

This analysis is based on the notion that the path to market share leadership does *not* lie in lower price founded in *cost leadership* strategy, as Michael 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).

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).

The answer lies in serving the *middle* class by competing in the *mid-price* segment (Datta 2010a, 2010b).

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), the largest American multinational corporation, has successfully served in the past (Datta, 2010b).

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 (Datta, 1996, 2010a, 2010b).

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).

A more recent and familiar example is the *economy* chain, Motel 6, which has positioned itself as "offering the *lowes*t price of any national chain" (Datta, 2025).

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, 2010b, 2025).

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).

America is a deeply-divided nation, refuting the *myth*, long perpetuated by Conservatives, that America is a classless society (Datta, 2011).

The socio-economic *lifestyle* profile of America reveals *three* broad income groups, giving rise to *six* social classes. More importantly, the six social classes are *not* merely a statistical construct, but rather a picture of *reality* (Datta, 2011).

Income inequality in America has been going up unrelentingly for 45 years from 1974 to 2018, *squeezing* the middle class. It has now widened so much that it *rivals* the highest level recorded in 1928 that led to the Great Depression of 1929 (Datta2011, 2022).

Contrary to popular belief, the *upper class* does *not* consist of the top 1% earners: but rather the top 0.5%, with the *Upper Middle Class* occupying the 80-99.5th percentile (Datta, 2011, 2022).

Finally, thanks to the extraordinary *generosity* of A.C. Nielson Co. for the invaluable U.S. *national* retail sales data for 24 consumer markets for 2008 and 2007, without which this entire research campaign would *not* have been possible.

For each of these 24 markets, we used Hierarchical Cluster Analysis to test two hypotheses: (I) That the market leader is likely to compete in the *mid-price* segment and (II) That its unit price is likely to be *higher* than that of the nearest competition.

These markets can be divided into *five* broad categories:

- (1) Food Group--Discretionary (2) Food Group—Non-Discretionary (3) Personal Grooming (4) Personal Hygiene (5a) Laundry and Dishwashing Detergents, and (5b) Household Cleaning and Alkaline AA Battery.

This paper, *second* in a series of five, covers the following *four* consumer markets:

Part II: Non-Discretionary Food Group:

- The U.S. Coffee Market
- The U.S. Canned Soup Market
- The U.S. Shredded/Grated Cheese Market
- The U.S. Refrigerated Orange Juice Market

Part A. The U.S. Coffee Market

The history of the coffee industry is both *long* and *complex*. So, we have divided it in several parts:

I. Early History of Coffee
II. Sugar, Coffee, and Slavery
III. The Coffee Plantations
IV. Arabica vs. Robusta Coffee
V. Coffee in Europe

VI. Coffee and the American Revolution
VII. Coffee and the Industrial Revolution
VIII. The Early Coffee Industry in America
IX. The American Coffee Industry after World War II
X. America's Changing Food Culture and Demographics
XI. The Starbucks Revolution
XII. Folgers and Maxwell House Miss the Boat on the Specialty Segment
XIII. Coffee Prices on the World Market Lower than the Cost of Production

I. Early History of Coffee

The U.S. retail sales for the Coffee market were $3.78 Billion in 2008.

1. The history of coffee is both *long* and *complex*.

For the history of coffee, we have relied primarily on Mark Pendergrast's authoritative book: *Uncommon grounds: The history of coffee and how it transformed our world* (1999; Datta, 2020c). We have also relied on contributions by Rotondi (2020), Jonathan Morris (2019), and Antony Wild (2004).

According to legend coffee was discovered by the Ethiopians (Pendergrast, p.1).

Throughout the sixteenth century coffee's popularity grew in Islamic countries. Nevertheless, it also acquired a *bad* reputation as a *trouble*-making social drink. So, the governor of Mecca ruled that coffee, like wine, must be outlawed (*ibid*).

Yet, coffee drinking *persisted* in Arabia *despite* government persecution faced by the early Arab societies (Rotondi, 2020; Datta, 2020c). So, what explains this paradox? One reason: the *addictive* nature of caffeine. The other is that coffee provided "an intellectual *stimulant*: a pleasant way to feel increased *energy* without any apparent ill effects (Pendergrast, p. 7, *italics* added; Datta, 2020c).

Sometimes during the 1600s, a pilgrim managed to smuggle coffee *seeds*, and was able to successfully cultivate them in the mountains of Mysore, Southern India (Pendergrast, p. 7, *italics* added; Datta, 2020c).

In 1658 the Dutch transplanted trees from Malabar, India to Java, Indonesia (*ibid*).

In 1714 the Dutch gave a healthy coffee plant to the French government that was taken to the French colony of *Martinique* in the Caribbean. Today much of the world's current supply of coffee probably derives from this pedigree (Pendergrast, pp. 15-16; Datta, 2020c).

In 1727 a Portuguese Brazilian officer was able to smuggle ripe coffee berries from French Guiana and was able to plant them successfully in his home territory of Para in Northern Brazil, from where coffee cultivation gradually *spread* southward to the rest of Brazil (*ibid,* p. 16).

II. Sugar, Coffee, and Slavery

2. For thousands of years *sugarcane* was a *heavy* and unwieldy crop that was very *labor*-intensive. Over the four centuries following the arrival of Columbus in the New World, around 11 million Africans were

enslaved in the Caribbean islands, and innumerable lives were ruined (Muhammad, 2019; *italics* added; Datta, 2020a).

The introduction of coffee to their colonies by the Europeans called for *arduous* labor to grow, harvest, and process it. So, when the French colonists first began to grow coffee plants in San Domingo (Haiti) in 1734, they, too—following the earlier example of sugar plantations—turned to African *slaves* to work on their coffee farms (Pendergrast, p. 17; Datta, 2020c).

By 1788, San Domingo (Haiti) supplied *half* of the world's coffee. Thus, the coffee that "fueled Voltaire and Diderot," as we have pointed out later, was produced by the "most *inhuman* form of *coerced* labor" (*ibid*, p. 18, *italics* added).

III. The Coffee Plantations

3. The Coffee Plantations in Brazil: Slavery and Quantity over Quality

During the seventeenth and eighteenth centuries African *slaves* worked in unbelievably *harsh* conditions on the huge *sugar* plantations, called *fazendos*, owned by the wealthy *elite*. The sugar barons found it cheaper to *import new* slaves than to take care of the health of their existing ones. Consequently, the slaves had a very *short* life span, and, on average, a slave died after just *seven* years! (Pendergrast, p. 22; Datta, 2020c).

So, it was not surprising that the rich owners of the large *coffee* plantations in Brazil, too, followed the same *cruel* and *inhuman* path (*ibid*).

The agricultural methods Brazilians used to grow and harvest coffee required *minimum* effort and emphasized *quantity* over quality. This is the approach that remains mostly unchanged even to this day (Pendergrast, p. 25; Datta, 2020c).

The large coffee growers used cultivation techniques that were *crude*, *counter-productive*, and *harmful* to the environment. That included *cutting* and *burning* hillside forests that created a temporary layer of fertilized *ash* above the virgin soil into which the coffee seeds were planted. Since the protective forest cover had been destroyed, the soil offered *no* shade to the coffee trees which grew in the blazing sun. As a result, nutrition was *sucked out* of the depleting humus layer. Also planting of rows of trees *up* and *down* the hills increased *erosion*. Furthermore, not much fertilizer was added to the soil: all of which then led to widely *fluctuating* harvests (Pendergrast, p. 25, Morris, 2019, pp. 101-102).

Coffee trees take a *rest* following a heavy bearing season, but the conditions in Brazil made the phenomenon even worse. So, when the land got "tired," the Brazilians simply abandoned it, and went on to clear *new* land to replace it. The long-term implication of this practice was that the tropical rain forests of Brazil once destroyed would take "*centuries* to regenerate" (Pendergrast, p. 25, *italics* added; Datta, 2020c).

The traditional method of removing coffee beans is known as the *dry method* which is still popular in Brazil. However, this method has often produced *poor* results. Since ripe *and* unripe cherries were stripped together, this process compromised the coffee's *taste* from the very beginning (*ibid*, p. 27).

So, as coffee cultivation grew in Rio, so did the *slave* imports. By 1828 a *million* slaves—nearly a *third* of the country's population—were toiling in the coffee fields of Brazil. But, by this time, the British had *outlawed* the slave trade. So, in order to appease them, Brazil made slave import illegal in 1831, but never really enforced the law (*ibid*, p. 23).

Finally, it is important to point out that Brazil practiced slavery *longer* than any other country in the Western hemisphere (Pendergrast, p. 24; Datta, 2020c).

4. Brazil: From Slavery to "Debt-Peonage"

Toward the latter part of the nineteenth century, the Rio coffee lands were *dying* due to the environmentally destructive form of coffee cultivation pursued for a long time on the huge *fazendos*. Consequently, the main coffee-planting region moved south and west to the plateaus of *São Paulo*. The *new* coffee owners, the *Paulistas* of São Paulo, thought of themselves progressive modern businessmen: as compared to the "old-fashioned baronial lords of Rio coffee" (Pendergrast, p. 27; Datta, 2020c).

After slave importation was *banned* in 1850, the *Paulistas* decided to import immigrants from *Europe,* called *colonos*. They paid for their transportation, gave them a house to live in, assigned them a specific number of coffee trees to take care of, to harvest, and to process. They were also given a piece of land to raise their own food (*ibid*, p. 28).

But there was a *catch* to this seeming generosity. The catch was that the sharecroppers *had* to pay off their transportation cost, along with other advances, which took *years* to pay back. Because it was *illegal* for immigrants to move away from the plantation, this amounted to *debt peonage:* a different form of *slavery*. So, it was not a surprise that the Swiss and German workers *revolted* in 1856 (Pendergrast, p. 28; Datta, 2020c).

Finally, the Paulista farmers were able to acquire enough political clout in 1884, when they were able to *persuade* the Brazilian government to *pay* for the immigrants' transportation expenses so that they would be *free* from a big debt burden when they arrived in Brazil (*ibid*, p. 28).

While some colonos managed to acquire their own land, many others earned just enough to be able to *return* to their homeland: *embittered* and *disheartened* (Pendergrast, p. 28; Datta, 2020c).

5. Coffee Plantations in Guatemala: Confiscation of the Land of Maya Indians

Guatemala is in Central America and is known as "the Land of the Eternal Spring." However, it is prone to *earthquakes*, not to mention a large number of lava-spewing *volcanoes* (Pendergrast, p. 30; Datta, 2020c).

Coffee farms proved *disastrous* for the *indigenous* Mayan population in Guatemala, while making the new coffee oligarchy *rich*. Whereas coffee is central to the continued *suppression* of Maya Indians in Guatemala, it is associated with a much more benign political system in neighboring Costa Rica: a *democracy* (*ibid*, p. 29, xvii).

The Mayans did *not* have much sense of private property, and preferred to *share* their agricultural land

with one another. The Guatemalan government began to *confiscate* the common land owned by the indigenous villages, thus forcing Indians to become sharecroppers, or "debt peons." Many Indian children were *forcibly* taken from their parents and assigned to "Protectors" who usually treated them as *indentured* servants. As a result of this persecution, the Mayans retreated higher into mountains and the *altiplano*—the high plateau—the land that is *not* quite desirable (Pendergrast, p. 30; Datta, 2020c).

The site of volcanoes especially on the Pacific side, was found to be quite suited for growing coffee: particularly the steeply-sloped hillsides—land previously considered useless. But there was one hitch: this land was occupied by the *Indians*. So, yielding to the political power of the coffee growers, the government did two things. First, it *took over* this land from the Indians. Second, it *forced* the displaced Indians to work on that land to assure the growers a *cheap*, dependable supply of labor (Pendergrast, p. 31; Datta, 2020c).

The amount of coffee exported from Guatemala shot up over 6.7 times between 1895 to 1909. Nevertheless, this was realized on the *back-breaking* labor of the *indigenous* population (*ibid*, p. 32).

6. Germans in Guatemala: "Debt Peonage" Exploitation of Mayans

In 1877 the Guatemalan government passed laws inviting foreigners to invest in its development projects, and to buy land for coffee farms, by offering them significant tax breaks for many years. During the last two decades of the 1800s many enterprising Germans rushed to Guatemala. During this time the Germans provided private capital to build a railroad to the sea. Thus began a trend in which the Germans brought capital and technology to modernize the coffee industry of Guatemala (Pendergrast, p. 34; Datta, 2020c).

But it did *not* bother the Germans that the Mayan Indians were treated virtually as *slaves*. One reason is their *contempt* for the *Mayans*, who, unfortunately, belonged to a race of people that was *short*. According to one German, the "Indians… are small, dumpy figures who occupy the *lowest* rung on the plantation…and eke out an existence on one mark a day" (Note 2).

The Germans employed the cruel "debt peonage" system because they believed that the "only way to make an Indian work is to advance them money, then he can be forced to work" (Pendergrast, p. 35, *italics* added; Datta, 2020c).

In Guatemala *women* and *children* were employed on the coffee farms to do the tedious work of *sorting* beans, because they have traditionally been paid even *less* than men. Moreover, they were also forced to work *long* hours along with men (Pendergrast, p. 37; Datta, 2020c).

7. Superiority of Guatemalan Coffee over Brazilian

In Central America coffee has traditionally been under *shade* trees to protect the coffee plants from the sun. *Unlike* Brazil, coffee beans were harvested by the "wet" method. According to most experts, this method leads to *superior* beans with *fewer* defects, producing a drink with "bright acidity, and full clean flavor." But this system is more *labor*-intensive, requires more *sophisticated* machinery and

infrastructure, and also a lot of *water* (Pendergrast, p. 36; Datta, 2020c).

During the late nineteenth century importers of coffee recognized two types: *Brazils* and *milds*. The Brazilian coffee gained a reputation for *lower* quality—often, but not always, deserved. Countries like Guatemala carefully processed *Arabica* coffees that were known as *milds*. As mentioned earlier, while Brazilian laborers stripped ripe *and* unripe cherries together, Guatemalan harvesters picked only *ripe* berries (*ibid*, p. 36).

8. Colombia Plantations Go for Quality

Colombia is located in northwest South America, adjoining Panama in Central America. Only after World War I Colombian exports of coffee had a significant impact on the market. While its *volcanic* topography was suitable for growing coffee, its *geography* made it extremely difficult to transport beans to the market. The best coffee-growing regions were practically inaccessible *except* through the *shallow*, rapid strewn Magdalena River that was not easy to navigate (Pendergrast, p. 150; Datta, 2020c).

The country went through civil *wars* that lasted from 1854 through 1903. However, once at peace, the Colombians turned to coffee with a "battle cry:" "Colombians, plant coffee or bust," Whereas the larger plantations, called *haciendas*, were dominant in the upper Magdalena River region, the smaller and poor peasants made a *determined* effort to acquire land in the mountainous regions of the west. These *small* landowners eventually became the *majority* of coffee growers, and frequently *helped* one another during the harvest season. Slowly, the larger plantations *declined*, and the small farms *prospered* (Pendergrast, pp. 150-151; Datta, 2020c).

Even during the times of falling coffee prices, the *resolute* Colombian farmers maintained their faith in their traditional business. Coffee became so intertwined in the mountain culture of Colombia, that sprigs with red berries and green leaves were used to decorate family graves (*ibid*, p. 151).

Between 1905 and 1915 Colombian coffee exports more than *doubled*. While Brazil followed a growth strategy that often resulted in overproduction, Colombia pursued a path of *steady* expansion of coffee that was of *high* quality. As a result, Colombia's *flavorful* beans began to find *favor* with American and European customers (Pendergrast, pp. 151-152; Datta, 2020c).

In 1960 Colombia created *Juan Valdez*: a *mythical,* friendly, mustachioed coffee grower, who brought hand-picked coffee beans on his mule from the mountains down to the market. This image of Juan Valdez conveyed in advertisements captured the imagination of the Americans. This is because the American consumers had become accustomed to the *finer* grades of Colombian coffee, and regardless of the price many might *never* go back to the *cheaper* Santos-Brazilian coffee. So, not surprisingly, Colombian coffee exports went up by 33% between 1914 and 1919. In contrast, while Brazil provided *three-quarters* of American coffee imports in 1914, but by 1919 this share had dwindled to *half* (Pendergrast, pp. 150, 152, 285; Datta, 2020c).

9. Coffee Plantations in Indonesia

Java and Sumatra in Indonesia, like many other coffee producing regions, are blessed with amazing natural beauty. Unfortunately, this picture of beauty is in *stark* contrast to the *harsh* reality that reflects the "contempt and want of consideration with which the *natives* are treated." The Dutch, who ruled Indonesia, paid wages to the natives that *barely* exceeded a level of *subsistence* (Pendergrast, pp. 41-42; Datta, 2020c).

IV. Arabica vs. Robusta Coffee

10. Java and Robusta Coffee

By 1920 Java's coffee crop consisted of Robusta coffee beans, so named for its *hardy* growth. Robusta coffee beans were discovered in Belgian Congo in 1898. They have high *caffeine* and are disease *resistant*. Unlike the more delicately flavored Arabica, they are far *more* productive and can be grown anywhere from sea level to 3,000 ft. However, Robusta suffers from a major *flaw*: its *taste*. Even the best Robusta brews "taste harsh, flat, and bitter" (Pendergrast, pp. 152-153; Datta, 2020c).

11. Arabica Coffee

The coffee that was first discovered in Ethiopia was *Arabica*. Today, it is commercially grown throughout the *tropics*. This plant *cannot* survive if the temperature falls below freezing. Arabica was the *first* and the *only* species of coffee that was grown for human consumption *until* the twentieth century. Presently, Arabica accounts for about *two-thirds* of coffee production in the world (Morris, 2019, p. 14; Datta, 2020c).

"Arabica is known for its *complex* and *delicate* flavors, often featuring fruity, floral, or nutty notes" (Note 3, *italics* added).

V. Coffee in Europe

12. Coffee in Italy

In the first half of the seventeenth century coffee was still an *exotic* beverage in Europe, as the rich used it mainly as an expensive medicine. However, over the next fifty years, Europeans discovered the *social* as well as the *medicinal* benefits of coffee (Pendergrast; Datta, 2020c).

The first coffeehouse—named *caffe*' after the drink it served—opened in Venice in 1683. Soon, it became synonymous with relaxed companionship, animated conversation, and tasty food (*ibid*).

13. Paris Coffeehouses and the French Revolution

In 1689 an Italian immigrant opened *Café de Procope* in Paris. Soon, French actors, authors, and musicians began to meet there for coffee and literary discussion (Pendergrast, p. 9; Datta, 2020c).

In the next century the French caffes attracted *celebrities,* such as, Voltaire, Rousseau, Diderot, and a famous American visitor, Benjamin Franklin, Ernest Hemingway, Gertrude Stein, F. Scot Fitzgerald,

and T.S. Eliot (Pendergrast, p. 9; Rotondi; Datta, 2020c).

The French historian Michelet viewed the *introduction* of coffee in France as an auspicious *revolution* of the times, which created new *customs*. An important contribution of coffee was that it led to a *reduction* in alcohol consumption. Second, both *men and women* could, *without* impropriety, consort as they had never done before:" meet in public places and talk (Pendergrast, p. 9; Datta, 2020c).

The cafés of Paris, with their social *egalitarian* culture, were a fertile ground for the *revolutionaries* who opposed monarchy. The call to arms for storming of the *Bastille*—the French state prison—originated from Paris's *Café de Foy*. Thus, it was the stimulating *intellectual* environment Parisian cafés offered that eventually led to the *French Revolution* in 1789 (Rotondi; Pendergrast, p. 9; Datta, 2020c).

The Age of *Enlightenment* was an *intellectual* and *philosophical* movement that dominated the world of ideas in Europe during the 17th to 19th centuries. After the Revolution, Parisian cafés once again became the haunt of writers and thinkers (Rotondi; Datta, 2020c).

14. Britain Switches from Coffee to Tea

The first coffeehouse opened at Oxford University in 1650. It was followed two years later in London. Coffee and coffeehouses took London by storm. This is because the British culture was quite *hierarchical* and structured at that time. So, the idea that an ordinary person could sit next to a person of importance as an *equal* was quite radical. Many regarded them as "penny universities," where for the price of a *penny* one could enjoy a cup of coffee as well as sit for hours listening to extraordinary conversations (Rotondi; Datta, 2020c).

At a time when *beer* was often a safer drink than water, this was no small achievement (*ibid*).

Before the arrival of coffee, the British were *heavy* drinkers of alcohol. However, *fifty* years later coffee drinking had made the British much *more* sober (Pendergrast, p. 13; Datta, 2020c).

But the popularity of coffee houses in England was *short* lived. The strongest opposition against London coffeehouses came from the British *housewives*, who, *unlike* their French counterparts, were *excluded* from this all-*male* society (Pendergrast, p. 13; Datta, 2020c).

Over the course of the eighteenth century the British started to drink *tea* rather than coffee. Around this time, the conquest of India by the East India Company (EIC) was under way where the country concentrated on growing *tea* rather than coffee. So, because of its monopoly, the EIC began to push the export of tea from India to Britain (Pendergrast, p. 14; Datta, 2020c).

VI. Coffee and the American Revolution

15. After the *Boston Tea Party*, Americans in the colonies began to consider coffee as a *patriotic* drink. The Continental Congress passed a resolution *against* tea consumption. At that time American taverns served coffee alongside *liquor*. Daniel Webster nicknamed the *Green Dragon Tavern* in Boston as the "Headquarters of the Revolution" for hosting many meetings that led up to and during the

Revolutionary War (Datta, 2020c).

In New York, *Merchant's Coffee House* was known for its gatherings of *patriots* who were determined to make America independent from the rule of King George III. In the 1780s, it became the place where merchants got together to create both *Bank of New York*, and to reorganize the *New York Chamber of Commerce* (*ibid*).

VII. Coffee and the Industrial Revolution

16. The growing popularity of coffee complemented and sustained the *Industrial Revolution w*hich started in Great Britain during the 1700s, and spread to the rest of Europe and North America in the early 1800s. With the emergence of textile and iron mills, workers migrated to the cities where they lived in *appalling* conditions, and earned very low wages. The European *lace* makers in the early nineteenth century lived almost entirely on *coffee* and *bread*. Since coffee was stimulating and *warm*, it created an *illusion* of nutrition. The drink of the affluent had become the "necessary *drug* of the masses, and morning coffee *replaced* the beer soup for breakfast" (Pendergrast, pp. 16-17; Datta, 2020c).

VIII. The Early Coffee Industry in America

17. Early American Coffee Industry

During colonial times the American demand for coffee was slow to develop. *High* alcohol consumption was quite widespread. Many colonists regarded tea and coffee as *poor* substitutes for strong alcoholic drinks. However, during the first half of the 1800s, per-capita coffee consumption went *up* from three pounds in 1830 to eight pounds in 1859 (Pendergrast, p. 46; Datta, 2020c).

By 1876, the U.S. was importing 340 million pounds of coffee, *three quarters* of which came from *Brazil* (*ibid*, p. 62).

17.1 J.A. Folger & Co.

J. A. Folger & Co. was founded in 1850. In 1963 Folgers's became number *one* coffee brand in America displacing Maxwell House. The same year P&G acquired Folgers's and dropped the apostrophe (p. 281, *italics* added; Datta, 2020c).

By the end of the year Folgers had captured 26.5% of the national market for *regular* coffee*, surpassing* Maxwell House's 22.3% share (Pendergrast, p. 334).

In 2008 Folgers became a member of the J. M. Smucker family (Datta, 2020c).

17.2 Maxwell House

Maxwell House was founded in 1892 (Pendergrast, p. 133; Datta, 2020c).

In 1928 the Postum Co. acquired Maxwell House*,* and in 1929 renamed itself *General Foods* (*ibid*. p. 169).

In 1985 General Foods was absorbed by Philip Morris which changed its name to the Altria Group in 2001.

Now it is a part of the Kraft Heinz Co., which was formed in 2015 with the merger of Kraft Foods Co.,

and H. J. Heinz Foods Co. (Datta, 2018b).

18. America's First Gourmet Coffee: Eight O'Clock

The Great Atlantic and Pacific Tea Co., also known as A&P, was a super-market chain that was founded in 1859. Through a wholly-owned subsidiary, the American Coffee Corp., A&P bought 100% *Arabica* coffee beans through buyers located in Brazil, Colombia, and other places. The coffee beans were then *roasted* in America where each store had *grinders,* so that customers always got *fresh* coffee. A&P's most popular coffee brand was *Eight O'Clock Coffee* (*ibid*, pp. 11-119, Potempa, 2010).

This is the brand that was one of the factors that triggered the growth of the *gourmet* coffee movement in America (Pendergrast, p. 327; Datta, 2020c).

Tata Coffee Co. acquired the brand in 2005 (Potempa; Datta, 2020c).

19. Postwar America Emerges with a Legacy of Low-Quality Coffee

By the end of WW II American coffee had become a *standardized* product. Maxwell House and others offered roasted ground coffee that consisted of a blend based primarily on average *Brazilian* beans, and they all practically tasted the *same*. The all-Arabica coffee wasn't bad, but wasn't very good either. Despite the much-touted benefits of vacuum cans, the *pre-ground* coffee gradually became *stale* while it sat on the shelf. Even though the *drip* method was becoming popular, Americans emerged from the War as a nation that had become accustomed to a taste for "*weak*, *over*-extracted percolator coffee" (Pendergrast, pp. 235-236; Datta, 2020c).

IX. The American Coffee Industry after World War II

20. Nestlé's Instant Coffee Becomes Popular

In 1938 Nestlé introduced powdered *instant* coffee that *transformed* –for better or worse—the way many consumers around the world drink their coffee. The instant coffee market grew *enormously* during the postwar period. The taste of instant coffee was so *bad* that it didn't matter what kind of coffee it was made out of. It allowed the manufacturers to squeeze more solids out of each bean by *overextending* the grounds: a process that produced a *bitter* brew (Pendergrast, pp. 213, 340; Datta, 2020c).

By 1952 instant coffee had captured 17% of total coffee consumption in the U.S (*ibid*, p. 240).

The popularity of instant coffee complemented and provided impetus to the growth of coffee *vending* machines. The vending machines, in turn, were instrumental in institutionalizing America's most revered tradition: the *coffee break***.** Although work time off for coffee was practically unknown before WWII, in 1952 eighty percent of firms polled had introduced a coffee break (Pendergrast, pp. 241-242; Datta, 2020c).

In 1964 General Foods introduced Maxim, the first *freeze-dried* instant coffee (*ibid*, p. 283).

21. Robusta Coffee Invasion Lowers Quality Standards in America

After World War II a much-weakened British government granted independence to India and many other countries in Africa. In 1954 over 80 percent of coffee that came out of Africa was *Robusta*. In 1951 coffee imports in America from Africa represented 4.8% of its total coffee imports, but by 1955 this figure had shot up to 11.4% (Pendergrast, pp. 258-259; Datta, 2020c).

One result of this *embrace* of Robusta by many American coffee makers was that they "*locked* themselves into a *downward* spiral of coupons-off deals, premium offers, and price wars." Robusta had "crept *insidiously* into *regular* 'blends:' with new *bargain* brands selling 20-30 cents *below* the leading brands, but containing 30 percent *more* Robusta. A coffee expert commented that one could hardly call these poor-quality coffees as "blends", because they were "almost like a form of *deception* to pack *low*-quality coffee in expensive vacuum tins. It certainly is the l*owering* of a proud standard, the *crumbling* of a tradition" (Pendergrast, p. 261, *italics* added; Datta, 2020c).

Responding to these cheaper blends General Foods *quietly* began adding a small percentage of Robusta to Maxwell House. Soon other major brands followed suit. By 1956 Robusta accounted for 22 percent of world exports (*ibid*).

By 1958 *instant* coffee contained at least 50% Robusta coffee, and many cheaper brands used 100% Robusta. In addition, the manufacturers were squeezing *more* out of coffee beans that now required *four* pounds of raw beans—to the previous *six*—to make *one* pound of instant coffee (Pendergrast, p. 262).

To *fool* the consumers into ignoring the worsening taste of instant coffee the manufacturers added back some *smell*. So, when a housewife opened a jar of instant coffee, she would experience a short burst of aroma, and then it would be *gone* (Pendergrast, p. 262; Datta, 2020c)!

Manufacturers were also trying to promote large "more economic" jars of instant coffee. However, they were likely to have become *stale* sitting in the pantry (*ibid*, p. 262).

The coffee from the *vending* machines was bad, too, because of a large proportion of Robusta coffee (*ibid*, p. 262).

22. Declining Sales of Regular Coffee

The current popularity of Starbucks and other specialty coffee stores notwithstanding, the U.S. per capita consumption of coffee in 2005 was about *half* of what it was in the mid-1940s—from the *peak* of 46.4 to 24.2 gallons (Buzby and Haley, 2007). In 1946 when demand for coffee was at its *peak*, people would "drink coffee with breakfast, coffee with lunch, and coffee with dinner." "And mostly we'd drink it at home" (Olshan 2013; Datta, 2020c).

So, *what* explains this downturn? We can cite *four* reasons.

One is the *increased* availability of alternative beverages, in particular, *carbonated* soft drinks. According to the U.S. Bureau of the Census, an American consumed 10.8 gallons of carbonated soft drinks in 1947. However, in 2005 this figure had shot up about *five*-fold to 51.5 gallons (Buzby and

Haley; Datta, 2020c).

Second, the coffee industry *ignored* the formidable threat posed by Coke and Pepsi, who were aggressively wooing the young baby boomers. Another factor is the invention of High Fructose Corn Syrup (HFCS) that accelerated the growth of the carbonated soft drinks market. The Nixon administration's policy of *cheap* corn in the 1970s led to a considerable increase in the production of *corn* which, in turn, drove its price down. This policy led to an unintended consequence that was *monumental* in scope. Now a *new* kind of sweetener—HFCS—became much *cheaper* to produce than sugar. More importantly, the consumers *couldn't* tell the difference between the two (Pollan, 2009, p. 80; Datta, 2017, 2020a).

In 1980 Coca Cola and Pepsi switched over from sugar to HFCS. But, instead of reducing cola prices Coke and Pepsi chose a *different* path: *increase* the size of the cola bottle. No wonder soft drink sales went through the roof (*ibid*).

Third, another factor that *negatively* affected coffee sales in comparison with carbonated soft drinks is that, while the soft drinks industry managed—surprisingly—to project an image of *healthy choice*, coffee was increasingly portrayed as "*poison*!" However, in recent years there has been an almost total *reversal* on this issue (Olshan 2013; Datta, 2020c).

Fourth—and the *most* important is *quality*: that is *taste* (*ibid*).

As mentioned above, Americans emerged from the WW War II as a nation that had become accustomed to a taste for "*weak*, *over*-extracted percolator coffee." Within the next two decades after WW II, American coffee became even *worse*: from a state of *mediocrity*, coffee went from 'safely middling' to awful" (Pendergrast, p. 236, Olshan 2013).

X. America's Changing Food Culture and Demographics

23. According to a Gallup survey conducted in 1954, the eating habits of Americans were "dull." The overwhelming choice of most Americans for dinner—if cost were no object—was fruit cup, vegetable soup, steak, French fries, and apple pie a' la mode (Datta, 2011, 2017, 2020c).

For a long time, American consumers had become *tired* of the standardized goods churned out by the nation's vaunted *mass*-production machine. However, by 1970 the *mass* market of yesterday was fragmenting into a *class* market of today (*ibid*).

This was the time when America had reached a stage where the "era of *bland* food was grinding to a halt". Symbolizing this trend was the opening in 1971of the first *Starbucks* which introduced Americans to "some of the world's *finest fresh-roasted whole bean* coffees": at a *premium* price (Ogle, 2006, p. 251, Datta, 2017, *italics* added; Datta, 2020c).

Economic inequality in America has now *widened* so much that it has even *exceeded* the highest level recorded in 1928 that led to the *Great Depression* of 1929.

Between 1974 and 2008 the *median* household income in America was on a *downward* escalator *squeezing* the "*Traditional Middle Class."* However, another class that has seen a major expansion in

its ranks is the "*Upper Middle Class,*" consisting of a large number of *dual*-income professional families that occupy the 80-99.5th percentile of income. This has led to a sharp rise in the *premium*, and to a much lesser extent, the *super-premium* segments in many consumer markets (Datta, 2011, 2017).

XI. The Starbucks Revolution

24. The Specialty Coffee Revolution

Mr. Coffee automatic electric *drip* brewer made a debut in 1972. By 1974 *half* of the ten million coffeemakers were electric drip. Mr. Coffee was a major *advance* over pumping percolators and was *instrumental* in the rise of and appreciation for *good* quality coffee: in particular among *two*-career households looking for *simple* automatic brewing (Pendergrast, p. 313; Datta, 2020c).

In the early 1970s *specialty* coffee roasters and coffeehouses started to appear with growing frequency in America and Canada. Across America many consumers began to realize that for just a *little* more money, they could buy coffee of *fine* quality that tasted *good*. By 1980, *specialty* coffee was *entrenched* in *big* cities on *both* coasts. Moreover, *whole-bean* coffees began to show up in *selected* supermarkets across the country (Pendergrast, pp. 312, 325-326; Datta, 2020c).

The *inspiration* for the Starbucks' vision came from *Peet's* Coffee & Tea Co. that opened in 1966 in Berkeley, CA: with a mission to sell high quality *whole-bean* coffee for *home* consumption. Soon lines of customers began to form *stretching* around the corner, patiently waiting for Peet's coffee (*ibid*, pp. 292-293).

25. The Starbucks Marvel

The "Upper Middle Class" consists mostly of *professionals*. They are more likely to engage in *foreign* travel and have a *cosmopolitan* taste. But, most importantly, their lifestyle and opinions exert considerable *influence* over the entire American society (Datta, 2011, 2017).

The quest for quality in coffee was led by young baby boomers. A large number of them had hitchhiked through Europe, or were stationed there while serving in the military. And it is *there* that they discovered the joys of *espresso,* specialty coffee shops and cafés, and began a search for *community* (Pendergrast, p. 308; Datta, 2020c).

At the same time, a *similar* phenomenon occurred in the U.S. Beer industry. When the baby boomers returned home from Europe, they had developed a taste for European-style beers (e.g., *Heineken*) which were being sold at *premium* prices in America. From a share of just 1% of total U.S. beer sales in the 1960s, imports climbed all the way to 21% in 2008 (Datta, 2017).

So, while in Europe—with their keen cosmopolitan taste for *international* cuisine and *diversity*—the baby boomers discovered "aromatic fresh-roasted whole beans, tumbling from small roasters:" an experience that had earlier inspired many at Peet's Coffee Co. (Pendergrast, p. 308; Datta, 2020c).

Among those visionary baby boomers were three college students from Seattle, and one of them was Howard Schultz. In 1971 they started a small quality *roasting* business made from coffee beans they

bought from Peet's. They named the Seattle store: *Starbucks* (Pendergrast, p. 308, p. 309).

In 1984 Schultz made a trip to Milan, Italy. He found that while Milan had fifteen hundred espresso bars, Italy as a whole had two hundred thousand (*ibid*).

A barista (coffee bar-tender) greeted Schultz one morning as he handed a tiny demitasse (cup) of espresso to one customer, then created a perfect cappuccino. Schultz describes this experience in the following words (*ibid*, pp. 367-368, *italics* added):

"The barista moved so gracefully that it looked as though he were grinding coffee beans, pulling shots of espresso, and steaming milk at the same time, all the while conversing merrily with his customers…It was great *theater*…It was like an *epiphany*. It was so immediate and physical that I was shaking."

After this spiritual experience, he argued that "if we could re-create in America the authentic Italian bar culture…Starbucks could be a great *experience*, not just a great retail store" (Morris, 2019, p. 154; Datta, 2020c).

In 1992 Starbucks became a public company. The company paid "slightly above-minimum wage" that was *better* than most fast-food companies. Starbucks offered an innovative benefits package that covered *part-time* employees who worked twenty hours or more per week. As such employee turnover at Starbucks was *60%* per year compared to 200% for the industry as a whole (Pendergrast, p. 374; Datta, 2020c).

By 1995 the Seattle-based Starbucks had been *transformed* into a national phenomenon—and even without any paid publicity—*Starbucks* became synonymous with "*fine* coffee, *hip* hangouts and *upscale* image" (*ibid*, p. 367, *italics* added).

26. Howard Schultz's Vision

As mentioned above, in his 1984 visit to Italy, Schultz was captivated by an encounter with a barista. After this spiritual experience, he argued that if we could re-create in America *genuine* Italian bar culture Starbucks could be a great *experience*, not just a great retail store. And that is what he set out to do when Starbucks opened its first coffeehouse.

Customers of coffee bars did not like to sip coffee at the counter, but rather *sit* at a table and chat. They also preferred *paper* cups over porcelain ones because they could take their drinks back to work. So, Schultz adopted this format for his coffee stores. This format combined *two* elements: the *coffee* and the *environment*, where the *premium* price of the former paid for the latter (Morris, pp. 154-155; Datta, 2020c).

The Italian-style coffees turned out to be perfect for introducing *specialty* coffee to American customers. They could still recognize the "distinctive bite of the espresso" "through the sweetness of the milk." *Caffe latte* became the *most* popular as *steamed* milk produces more density and sweetness than in a cappuccino (Morris, p. 155; Datta, 2020c).

27. Shift of Focus: From Selling Beans to Serving Beverage

What Starbucks coffeehouses offered is the "*theater* of the barista 'hand-crafting' the beverage—grinding fresh beans, pulling a shot from the machine, foaming and poring milk:" an *experience* that clearly revealed the "*value added* during the process" (Morris, p. 155; *italics* added; Datta, 2020c).

That is why customers were willing to pay *high* prices for a *premium* product—and the *experience*—they could *not* replicate at home. Moreover, high *premium* prices charged by Starbucks enabled it to provide a *comfortable* environment that included sofas, on which customers could *savor* their coffee (*ibid*).

Schultz touted Starbucks as a '*third*' place between work and home. As sociologist Ray Oldenburg describes it, this is the kind of place in which *informal* contacts between *unrelated* people create a sense of *community*. Behavioral studies, however, have found *not* much evidence of conversations that are initiated between strangers. Instead, the "attraction of the coffee shop lies in being surrounded by people *without* having to engage with them" (Morris, p. 156; Datta, 2020c).

The advances in wireless digital technology let customers continue working, or engage in social media conversation, while enjoying the coffee and the restaurant's ambience all at the same time (*ibid*).

28. Starbucks Makes Coffee an "Affordable Luxury"

According to Maslow's hierarchy of *basic* needs, there are two types of *esteem* needs: (1) Esteem from *others*, and (2) *Self*-esteem (Datta, 2010c, 2018a).

One avenue for achieving *self-esteem* is through *personal enrichment*. One way to accomplish this is via *self-indulgence*, for example: driving a high-powered sports car. Another—that most people can relate to—is to indulge in "*affordable luxuries*" (Wild, 2004, p. 3; Datta, 2010c, 2018a).

Pressured by an increasingly hectic schedule, many busy, stressed-out members of the *middle* class are allowing themselves the indulgence of small "*affordable luxuries:*" such as, a $4.50 tall Starbucks latte, a $10 six-pack of Heineken beer, a gourmet take-out dinner, and so on. Another example is L'Oreal's famous ad slogan "Because I am worth it" (*ibid*).

29. Espresso-based Coffee Takes off

This type of coffee is made by espresso machines that pressurize and shoot near-boiling water through *finely ground c*offee beans packed into cakes. This method gives you a complex, aromatic, and caffeine-packed shot of coffee in under thirty seconds (Datta, 2020c).

In 1980 the first coffee *carts* featuring espresso machines appeared in Seattle; by 1990 they were over two hundred. By 1994 *espresso*-based beverages were *outselling* brewed coffee in American specialty stores (Morris, pp. 153, 155; Datta, 2020c).

30. Single-portion Specialty Coffee for Home

The specialty revolution has spawned a demand for similar beverages at home. Machines using 'single portion' coffee pods or capsules have made this a reality. Portions of ground coffee are *sealed* into aluminum capsules to preserve freshness. Nespresso, launched by Nestlé in 1986, pioneered this technology for delivering *espresso*-like beverages and remains the category's *global* leader today (Morris, p. 164; Datta, 2020c).

The Keurig K-Cup system introduced in 1998 by the Green Mountain Coffee Co. is the dominant brand in the U.S. to make American-style drip-brewed coffees at home (*ibid*).

XII. Folgers and Maxwell House Miss the Boat on the Specialty Segment

31. By 1991 Starbucks had over one hundred stores. So, given this success, Schultz says he was afraid of waking up sleeping giants: Folgers, Maxwell House, and Nestlé. He added that "If they had started to sell *specialty* coffee early on, they could have *wiped* us out" (Pendergrast, p. 371, *italics* added; Datta, 2020c).

He was lucky that the sleeping giants kept sleeping (*ibid*).

By the mid-1990s industry observers clearly saw that while gourmet small-scale roasters were flourishing, the major roasters had lost their way. In 1995 *Forbes* summarized the latter's status in one-word headline: "Oversleeping." Addressing their message to Folgers, Maxwell House, and Nestle, *Forbes* said: "Wake up and taste the freshly ground coffee" (*ibid*, p. 366; Datta, 2020c).

Adrian Slywotzky, writing in *Value Migration*, suggested that "the customer was *not* driving decision making at P&G, General Foods, or Nestle, where coffee had become *commoditized*. On the other hand, she added, the "smaller gourmet roasters were providing the *value* that had 'migrated' from the big boys" (Pendergrast, p. 387; *italics* added).

She further noted that P&G—the owner of Folgers—which had introduced new brands "more skillfully than anybody else, …*missed* the boat this time. P&G could afford to invest $50-$100 million over two years to build a *new* national brand." But, unfortunately P&G *didn't* (*ibid*, p. 388; *italics* added; Datta, 2020c).

32. Folgers and Maxwell House Embrace the Low-quality Robusta

One result of the *embrace* of Robusta by American coffee makers, as mentioned earlier, was that they *locked* themselves into a *downward* spiral of coupons-off deals, premium offers, and price wars (Pendergrast, p. 261; Datta, 2020c).

A coffee expert commented that one could hardly call these poor-quality coffees as "blends," because they were "almost like a form of *deception* to pack *low*-quality coffee in the expensive vacuum tins. It certainly is the l*owering* of a proud standard, the *crumbling* of a tradition" (*ibid*, *italics* added; Datta, 2020c).

33. Folgers and Maxwell House Followed Cost Leadership Strategy

In this paper we have argued 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).

We have hypothesized that the top two market leaders are *most* likely to compete in the *mid-price* segment. This is the socio-economic segment that represents about 40% of households in America (Datta, 2011, 2020c).

However, our Hierarchical Cluster analysis produced a *stunning* result. Unbelievably, the market *leader*, Folgers—and the *runner-up* Maxwell House—were *both* following *cost leadership* strategy (Porter 1980) competing on *low* price—and *low* quality--in the *economy* segment!

However, the most remarkable aspect of this revelation is that of all the *twenty-four* consumer markets that are the subject of this study, Folgers and Maxwell House are the *only* market leaders who chose to compete in the *economy* segment.

XIII. Coffee Prices on the World Market Lower than the Cost of Production

34. Coffee is a crop that is *produced* around the globe in developing countries that are generally *poor*. But it is largely *consumed* in developed countries, like the United States and Europe, that are *affluent* (Datta, 2020c).

There is an important aspect of the coffee business that we have *not* explored yet: the *prices* the coffee producers get on the world market for coffee.

The extraordinarily *low* prices that are "currently paid to the producers of coffee is leading to the largest *enforced* global lay-off of workers in history." According to *Wall St. Journal* 125 million people depended on coffee in 2002. The World Bank has estimated that there are 25 million *small* producers in developing countries for whom coffee is the *only* source of income. Also, an astounding 500 million people are globally involved directly or indirectly in the coffee trade (Wild, 2004, p. 1, *italics* added; Datta, 2020c).

As long as the price of coffee continues to be *lower* than the cost of production, *small* coffee producers must *subsidize* coffee consumers. But they cannot do so indefinitely. The result is a *loss* of livelihood on a massive scale. According to a World Bank estimate between 2000 and 2002 about 6000,000 workers in the coffee industry *lost* their jobs in Central America alone (Wild, p. 2; Datta, 2020c).

Part B. The U.S. Canned Soup Market

The U.S. retail sales for the Canned Soup market were $3.44 Billion in 2008.

1. The Birth of the Campbell Soup Co.

The coverage of this section owes a lot to the brilliant book on Campbell Soup Co. by Collins & Dupree (1994).

A history of the U.S. Canned Soup industry is in reality a history of the Campbell Soup Co., the

inventor of the *condensed* soup which has made the company "as the nation's leading purveyor of nutritious, convenient, and inexpensive meals" (*ibid*; Datta, 2020b).

The Campbell Soup Co. was founded in 1869. In 1914 John T. Dorrance became President (*ibid*).

Around the time America was slowly making a transition from an agrarian to an industrial economy. This created an urgent need to ensure that fresh food—meat, poultry, fish, vegetables—remained unspoiled during its trip from rural farms to urban consumers (Collins & Dupree, 1994, pp. 13-14; Datta, 2020b).

Two important inventions proved valuable to the development of the canned soup industry. One was the invention of *canning* in 1809 by the French Nicholas Appert who is called the "father of canning." But, much more important to the growth of the canning industry in Europe and America was Englishman Peter Durand's invention of a *light*, *durable can* that could replace the heavy, breakable, *glass* bottles that were central to Appert's canning process (*ibid*, p. 20).

Although tin cans were initially expensive, yet they were lightweight, unbreakable, and easy to ship, and therefore, perfect for food producers. By the beginning of the American Civil War in 1861 *canning* had become quite popular. However, one problem with the tin can was that its manufacture was *labor* intensive that required highly skilled labor (Collins & Dupree, pp. 20-21; Datta, 2020b).

At that time the soup companies were selling ready-to-serve soups in *bulky* half-pint, pint, and quart cans. But, because of this excessive weight they were *expensive* to ship. However John Dorrance had a *solution* to this problem, which on the face of it was quite simple, yet only a person of his creativity and genius could figure it out. And that solution was to *cut down* the weight of each can by *halving* the quantity of its heaviest ingredient: *water*! (Collins & Dupree, pp. 20-21; Datta, 2020b).

Dorrance realized that to manufacture condensed soup successfully he needed a strong *stock—broth*--that would hold its flavor even after being diluted by water. What he was looking for was a soup "so concentrated in its taste that the correct dilution would turn it into a delicious *table* soup" (*ibid*, p. 34; *italics* added; Datta, 2020cb).

At the turn of the century, America was *not* a soup-eating country, but a meat and vegetables nation. What Dorrance was hoping was to inculcate in Americans the habit of making high quality, nutritious, and tasty soup an *integral* part of their *daily* diet (Collins & Dupree, p. 38; Datta, 2020b).

As it turned out, Campbell soups were an instant *success*. At the Paris Exhibition in 1900, they were awarded a *gold* medal (Collins & Dupree, p. 41).

Within a year Dorrance came up with *five* varieties of condensed soups: *Tomato, Consommé, Vegetable, Chicken, and Oxtail:* an act that turned out be a *masterpiece* (Collins & Dupree, p. 69; Datta, 2020b).

Once Americans were convinced of the high quality of Campbell soups, they realized that the price of 10 cents a can was indeed a bargain (Collins & Dupree, p. 41; Datta, 2020b).

An important benefit of Dorrance's soups was *convenience*. This was the time when American housewives were beginning to make a slow transition from wood-and coal stoves to those burning natural gas. They discovered that *heating up* a can of soup was *quicke*r and *cheaper* than making soup

from scratch (*ibid*, p. 41).

2. How Skillful Advertising Has Contributed to Campbell Co.'s Success

Another factor that also contributed to Campbell's success was: a *smart* advertising strategy. As it turned out, the *red-and-white* design proved to be the *most* important promotional decision the company ever made (Collins & Dupree, p. 46).

In 1904 the Campbell Co. made another momentous decision: the creation of *Campbell Kids* (Datta, 2020b).

By 1962, the Campbell soup *can* had become such an icon of American life, that pop artist, Andy Warhol, memorialized it in several dozen works of art (*ibid*).

3. Campbell Soup Co.: The Run-away Market Leader

In 2008 the Campbell Soup Co. had a dominant 52.8% share of the U.S. canned soup market, followed by Progresso's 17.8%: a *distant* second (Datta, 2020b).

4. Results of Hierarchical Cluster Analysis

We looked at Hierarchical Cluster analysis for two types of soups: *Chicken Broth* and *Chicken Noodle Soup*.

For *Chicken Broth* the results *supported* Hypothesis I because the market leader Campbell was a member of the *mid-price* segment for both 2008 and 2007 (Datta, 2020b).

However, one brand that was *missing* from this analysis is *Progresso* because it offered only *one* huge can size of 32 oz which was way beyond the 16 oz size: the largest in this analysis (*ibid*).

For *Chicken Noodle Soup* the *market leader*, Campbell, was a member of the *mid-price* segment, yet its unit price was *lower* than that of the *runner-up,* Progresso, which was found to be a member of the *premium* segment (*ibid*).

Now while Progresso did manage to become the *runner-up* in the Chicken Noodle Soup *market*, its market share was just *one-third* that of Campbell's. Therefore, it *cannot* be considered a direct competitor of Campbell (*ibid*).

So, we argue that this result does not therefore negate Hypothesis I.

Part C. The U.S. Shredded/Grated Cheese Market

The U.S. Shredded/Grated Cheese retail sales for 2008 were $3 Billion.

1. A Brief History of Milk and Cheese

Cheese is a very important part of the U.S. Dairy industry which produces a host of food products. However, the most important of all is *milk*—cow's milk—that is the very foundation of the whole industry (Datta, 2018b).

One of the problems with fresh milk is that many people cannot drink it because of lactose intolerance.

So, during the early years of dairying, people consumed only *fermented* forms of milk like cheese and yogurt. Then, something happened: a genetic *mutation* occurred that enabled the body to continue producing lactose into adulthood. As a result, 80% of early dairying societies in Middle East and Europe carried this gene. Thus, dairying became a cultural and dietary mainstay (Datta, 2018b).

It was Sir Thomas Dale of England who introduced cows to the New World when he brought a herd of 100 cows to Jamestown, Virginia in 1611 (*ibid*).

2. Family-Farm Origins of the U.S. Dairy Industry

The present-day Dairy industry owes its origin to the American family farm that goes back *many* generations. This is what Selitzer had to say about this industry (1976, p. v; *italics* added; Datta, 2018b):

- "There is a *spirit* of a special kind which permeates the dairy industry in America…In part, that spirit stems from the *farm* origin of dairy business, with its *industriousness* and *stability*…from family *continuity* of many dairy operations, some running through *five* generations. But most of all, it comes from the very kind of products the industry produces."
- "When you sell a product like *milk*, which has been called "nature's most perfect food," you sell it with a sense of *pride*."

3. Nitrogen the Building Block of Life

The material from Ch. 3-10 is from the brilliant work of Michael Pollan's 2006 book: *The Omnivore's Dilemma*.

All life is determined by *nitrogen*. It is the *building block* from which nature puts together amino acids, proteins, and nucleic acids: the "genetic information that orders and perpetuates life." That is why scientists talk of nitrogen providing life's *quality*, while carbon supplies the quantity (Pollan, 2006, p. 42; Datta, 2018b).

3.1 Usable Amount of Nitrogen Limited

The quantity of nitrogen naturally occurring in the *soil* is *limited*, and so it restricted the amount of corn a farmer could grow. To make the nitrogen atoms in the atmosphere useful to plants and animals, they must be *split* and then combined with atoms of hydrogen and converted into molecules. Scientists call this process "fixing" nitrogen (Pollan, 2006, p. 42; Datta, 2018b).

European scientists realized by 1900 that unless someone discovered a way to increase the naturally occurring nitrogen, growth of human population would come to a stop (Pollan, 2006, p. 43; Datta, 2018b).

4. Power to "Fix" Nitrogen 20th Century's Chief Invention--and a Faustian Bargain

In 1909, a German Jewish chemist, Fritz Haber, was able to figure out the secret of how to "fix" nitrogen. Haber's discovery made it possible to produce a *synthetic* chemical fertilizer: *ammonium*

nitrate, a type of *fossil* fuel. But this turned out to be a "Faustian bargain" with nature. Because the same chemical also made it possible to make *bombs* (Pollan, 2006, p. 43; Datta, 2018b).

Haber's insight is the *most* important invention of the 20th century. One estimate is that two out of five humans would not be alive today, but for Haber's invention (Pollan, 2006, p. 43).

The introduction of *ammonium nitrate* to American farms in the 1950s ushered in a quiet *revolution*. In the words of Pollan (2006, pp. 44-45; *italics* added; Datta, 2018b):

- "Now [a farmer] could plant corn *every* year and on *as much* acreage as he *chose*, since he had *no* need for the legumes or the animal manure. He could buy fertility in a bag, fertility that had originally been produced a *billion* years ago halfway around the world."

5. U.S. Govt. Switches Over from Making Bombs to Making Fertilizer

After WW II, the U.S. Govt. found itself with a very large surplus of *ammonium nitrate*: a major ingredient in making bombs. But this chemical is also a great source of nitrogen for plants. So, in 1947, a military plant in Alabama switched over from making bombs to making chemical fertilizer.

This was a great *turning* point not only in the modern history of corn, but also in the *industrialization* of the entire food chain in America (Pollan, 2006, p. 41; Datta, 2018b).

6. Corn Is King

Corn was native to Central America. The Mayans of Mexico are sometime referred to as "the corn people," and corn has been a staple of their diet for almost 9,000 years. But Europeans were not familiar with it until 1492, when Columbus discovered it in the New World in 1492 (Pollan, 2006, pp. 19, 23; Datta, 2018b).

Few plants can make as much organic matter and calories from the same input of sunlight, water, and other elements as *corn* (Pollan, 2006, p. 21).

No wonder corn became so successful. An important reason for this is corn's *versatility*. It was able to do a multitude of things *no* other plant could. It was a ready-to-eat vegetable, a storable grain, a source of fiber and animal feed, a heating fuel, and an ingredient that could be used to brew beer, or distilled into making whiskey (Pollan, 2006, p. 25).

Pollan describes how *pervasive* corn has become a part of America's food chain (2006, pp. 18-19; Datta, 2018b):

- Corn is what feeds the *steer* that becomes the steak. Corn feeds the chicken and the pig, the turkey and the lamb, catfish and the tilapia…. The eggs are made of corn. The milk and cheese and yogurt…now typically come from Holsteins [cows]…tethered [indoors] to machines, eating corn….
- A chicken…nugget's other ingredients include the modified corn *starch* that glues the thing together, the corn flour in the batter that coats it, and the corn oil in which it gets fried.
- Since 1980s virtually all sodas and fruit drinks…have been sweetened with high fructose

corn syrup (HFCS)…Grab a beer and you would still be drinking corn.

Today corn is the "world's most important cereal crop" (Pollan, 2006, p. 24; Datta, 2018b).

7. Hybrid Corn a Technological Marvel

The invention of hybrid corn F-1 was a major breakthrough in agriculture. It was so productive that it could produce 180 bushels of food per acre: compared to just 20 bushels per acre before. However, it has to be produced *every* season, and therefore farmers have to buy it from a corporation *each* spring (Pollan, 2006, p. 31).

Hybrid corn is the *greediest* of plants using more chemical fertilizer than any other crop, and most farmers tended to use it *far more* than the soil needed. This was based on the idea that it is better to err on the safe side, and use too much rather than too little (Pollan, 2006, pp. 41, 46; Datta, 2018b).

8. Environmental Damage of Using Too much Chemical Fertilizer on Farms

What happens to the vast quantities of chemical fertilizer farms are unable to ingest? Some of it *evaporates* into the atmosphere where it acidifies the rain which contributes to global warming. Some percolates down to the *water table* and contaminates it. And the remaining excess is washed off by rains into a *drainage* system, which then flows into a river, which eventually flows into an ocean where their deadly fertility *poisons* the marine ecosystem. This nitrogen assault stimulates the wild growth of *algae* which smothers the fish creating a dead zone (Pollan, 2006, p. 47; Datta, 2018b).

9. CAFOs Push Animals off the Farm

Prior to the fifties, a typical Iowa farmer operated an *integrated* and *diversified* farm that supported a dozen or so plants and animals. Every farm had livestock, so a large part of the farm was *green* where cattle could feed on *grass* (Pollan, 2006, pp. 38, 42; Datta, 2018b).

Starting in the fifties and sixties, the flood of cheap corn made it profitable to fatten cattle on *feedlots* instead of on grass, and to raise chickens in huge factories instead of in farmyards. These places were so unlike farms and ranches that a special *term* had to be coined to define them: CAFO (*Concentrated Animal Feeding Operations*). As a result, Iowa livestock farmers could no longer compete with factory-farmed animals that their own cheap corn had helped create (Pollan, 2006, pp. 39, 67-68; *italics* added; Datta, 2018b):

- "[So] the chickens and cattle *disappeared* from the farm, and with them the *pastures*, and hay fields and fences. In their place farmers planted more of the *one* crop they could grow more of than anything else: c*orn*. By the 1980s the diversified family-farm was *history* in Iowa, and corn was *king*."

10. The Modern Milk Factory

Earlier, we have mentioned the *family-farm* origins of the American Dairy industry. In those days,

farms had *pastures* that allowed cows to feed on *grass*. The "co-evolutionary" relationship between cows and *grass* has not been fully appreciated. Through the process of natural selection, cows have adapted themselves to live on grass. Over time, they have evolved with the "most highly digestive system in nature: the *rumen*." This capability allows cows to convert *grass* into high quality *protein* (Pollan, 2006, p. 70: Datta, 2018b).

As indicated before, by the 1980s, the diversified family-farm had disappeared in Iowa. Its place was taken by the modern milk factory that can have hundreds or even thousands of cows which are raised on *corn* feedlots. Today's cow, on average, produces *six* to *seven* times as much milk compared to a century ago. To extract maximum milk output from the cows, they are kept in a *constant* state of *pregnancy* through artificial insemination. *Hormones* are used to increase milk production.

Corn-fed cows develop two main problems: *bloat* and *acidosis*. So, the diseased cows are treated with *antibiotics*. Many believe this practice contributes to the evolution of antibiotic *superbugs*. After three or four years when their milk output goes down, they are sold off for hamburger meat (Kurlansky, 2014; Pollan, 2006, p. 78; Datta, 2018b).

- That is why farmers *before* the fifties felt a sense of pride in selling *milk* which they considered as "nature's most perfect food." Obviously, one cannot say the same thing about the milk produced in the milk factories of today.

11. A Short History of American Cheese

According to legend, cheese was accidentally discovered long time ago by an Arab after he put milk into his canteen that was made of a dried sheep's stomach which happened to contain *renin* in an active condition. Renin is a digestive enzyme that is present in the stomach of all mammals. Thus, it was renin that converted milk into cheese (Kraft Foods Co., 1950, p. 6; Datta, 2018b).

The credit for birth of the cheese industry in America goes to the immigrants from Europe who brought generations of knowledge and skill of cheese making to the New World (Selitzer, 1976, p. vi; Datta, 2018b).

Jesse Williams established the first American Cheese factory in Rome, N.Y. in 1851. He built the factory large enough to process milk of all his neighbors' herds. This was based on the idea of having one large factory instead of numerous small home dairies. This bold step made it possible to transform "the home dairy art farm into a factory science" (Kraft Foods Co., 1950, p. 4; Selitzer, 1976, pp. 65-66; Datta, 2018b).

The Kraft Food Co. was founded in 1903. No individual has left a deeper footprint on the U.S. Dairy Industry than the Canadian-born James L. Kraft. His genius was to make cheese "long-lasting, consistent in quality and easy to slice" (Wilson, 2012). In 1916, he received a patent for *processed* Cheddar cheese that he sold in four-ounce cans. The cheese had a *long* shelf life and therefore would not spoil on ocean voyages. So, the American military ordered this cheese in large quantities for its fighting forces during World War I. This turned out to be a *turning* point for the company because it

transformed it into an empire (Selitzer, 1976, pp. 305-306; Wilson 2012; Datta, 2018b).

In 1921, Kraft patented a method of packaging processed cheese in tinfoil-lined wooden boxes: a type of package that was better than the can (Selitzer, 1976, pp. 305-306).

12. The Birth of Kraft Singles

In 1950, Kraft came up with another major innovation. He introduced Kraft Singles *processed* cheese that was cut into three-inch-square *slices*. He did it to make cheese *easy* to use by consumers. Eight slices were stacked on top of each other to create a peelable block (Wilson, 2012).

Even though Kraft Singles was a great idea, it had not gone far enough. The problem was that the cheese slices often stuck together, and so consumers had trouble separating the slices without tearing them apart. In 1956, an engineer named Arnold Nawrocki developed a smart method for individually-wrapped slices into a transparent wrapper (Wilson, 2012; Datta, 2018b).

It was not long before Kraft, too, was able to come up with a similar technology, and in 1965, introduced individually-wrapped Kraft Singles (*ibid*).

13. What is American Cheese?

Kraft Singles *symbolize* American cheese. According to Food and Drug Administration (FDA) standards, Kraft is *not* allowed to label Kraft Singles as "cheese" because it does not meet the minimum requirement of 51% *real* cheese. That is why the label on Kraft Singles reads: "pasteurized prepared cheese product" (Bratskeir, 2015).

Kraft Singles is the first food to receive "Kids Eat Right" stamp of approval by the Academy of Nutrition and Dietetics to help families make healthy decisions about the food they buy at the grocery store (Bratskeir, 2015).

Why, one might ask, does Kraft *not* want to use real cheese to make its Singles? The major argument behind this is that when you are selling a product at a national scale, it is very important to maintain *consistency*. However, it is not possible to do so with *real* cheese if you want to be a mass marketer (Datta, 2018b).

But there is still another reason Kraft prefers the use of processed cheese. Their goal is to produce a product that "when heated with toasting supermarket-sandwich bread, melts into the bread like shredded cheese without the inconvenience and without losing its shape" (Bratskeir, 2015).

14. Italian-Style Mozzarella Overtakes American Cheddar Cheese

The American Cheddar processed cheese has been the most popular cheese in America for about hundred years. But in 2010, Mozzarella, an Italian-style cheese, was able to capture the top spot. The rise of Mozzarella started with the popularity of *pizza*, which began around the sixties finally culminating in becoming number one (Adaway, 2018).

15. Shredded vs. Grated Cheese

Shredded cheese looks like *thin strips of cheese*. The styles of shredded cheese that are most popular are Mozzarella and Cheddar. The heaviest use of shredded Mozzarella goes toward making *pizza*. On the other hand, the most common use of shredded Cheddar cheese is in *cooking*, e.g., mac and cheese, or pasta including spaghetti (Difference Guru, 2018; Datta, 2018b).

Grated cheese looks like *powdered cheese*, and grating is done only to *harder* cheeses, like Parmesan or Romano which are used as a *topping* in salads, pasta, and pizza.

Finally, according to the U.S. Dept. of Agriculture, a *half*-pound of American Cheddar cheese has about the same amount of *protein* as *one* pound of average meat. It also provides a lot of milk minerals, milk fat, and vitamin A (Kraft Foods Co., 1950, p. 4; Datta, 2018b).

16. Results of Hierarchical Cluster Analysis

For 2008 and 2007 the results supported Hypothesis I and II because Kraft, the market *leader*, was a member of the *mid-price* segment with a market share of 27.5%, followed by a distant *runner-up*, Sargento, also a member of the *mid-price* segment, with a share of 9.2%. The results also showed that the unit price of Kraft was *highe*r than that of Sorrento (Datta, 2018b).

Part D. The U.S. Refrigerated Orange Juice Market

The U.S. Refrigerated Orange Juice retail sales for 2008 were $2.6 Billion.

1. A Brief History of Florida's Citrus Growers

Our coverage of the Florida Orange Juice industry has relied on the insightful book of Hamilton (2009): *Squeezed: What you don't know about orange juice.*

Florida's oranges are called *Citrus sinesis*: the *sweet* orange that is supposed to be a cross between a pummelo and a mandarin. This *hybrid* is a native of northeast India and the adjoining areas of Myanmar and China. The two most important varieties of oranges in Florida are: Valencia and Hamlin (Hamilton, 2009, p. 4, pp. 9-10; Datta, 2018c).

Valencia was introduced to Florida in 1876. Now it is known as the "Cadillac" of oranges, and every juice processor craves for it because of its "deep orange color, distinctive flavor, and high juice content" (*ibid*, p. 7).

Before the 1880s the common method of growing trees was from planting *seeds*. Because of the *hybrid* nature of *Citrus sinesis*, there was no assurance that planting the seed of one variety will produce an identical progeny. So, H. E. Hamlin made it a daily routine of walking around his orange grove to spot a seedling that stood out. And that is how he was able to discover the highly productive *Hamlin* in 1879: now the best-selling orange variety in Florida (*ibid*, pp. 7-8).

2. The "Budding" System Transforms Orange Tree Planting in Florida

After 1880s the *budding* system became the standard commercial practice of propagating orange trees

that is still being used today. This procedure promised *earlier* fruit bearing, less thorny oranges, and—most importantly—*uniform* fruit. Each tree has its genesis in a nursery, where seed for the tree's rootstock is planted in a tray. In three to four months, when the seedling becomes six inches tall, it is transplanted into a *field*, or in the "container" method, a *pot*. After about two months when the seedling is ready, an incision is made in the seedling's stock where *budwood* from the desired sweet variety of orange is *grafted*. It takes about five to six years before a tree begins to produce commercially (Hamilton, p. 8; Datta, 2018c).

Budding has transformed the way oranges are grown in Florida. Its focus on *uniformity* allows for much larger groves, because the groves do not require much interaction with individual trees: since each tree is expected to be identical (Hamilton, 2009, p. 9; Datta, 2018c).

3. Florida Citrus Growers Limit Production to Four Orange Varieties

In the 2002-2003 season Hamlin topped Valencia in popularity in Florida, gaining 44% market share compared to Valencia's 35%. While, Valencia and Hamlin are ideal for producing juice, they are not as good as fresh fruit. Also, while being seedless was an asset for making juice, they were considered a liability by growers who believe they could grow more trees from oranges that had seeds (Hamilton, 2009, pp. 10-11; Datta, 2018c).

In 1922 a USDA pomologist observed that Florida had too much variety of sweet oranges. He said that it was a handicap against California's just two: Navel and Valencia. A committee of orange growers accepted his advice, and recommended that the growers limit their orange crops to just *four* varieties of sweet oranges (*ibid*, p. 12).

Whereas California had just one orange variety suitable for juice processing—Valencia—all four varieties of Florida oranges were good for making juice.

Thus, "Florida was *primed* to become the world's *leading* orange juice producer" (*ibid*, p. 13, *italics* added).

4. The Birth of Florida Concentrated Orange Juice (FCOJ)

In 1935 a new government agency, the Florida Department of Citrus (FDOC), was created to represent the interests of Florida citrus growers (Hamilton, 2009, pp. 20-21).

In the history of Florida, the year 1948 occupies a *special* status. After almost *ten* years of research, a process was perfected for making *prepared* juice that was far *better* than the canned juice the consumers did not like at all earlier (Hamilton, 2009, p.16, p. 18; Datta, 2018c).

The new process, called the "cutback" process, was such it could retain the *flavor* of orange by adding some *fresh* juice to the concentrate, and then *freezing* it. The process also created a *more* nourishing product by *restoring* some of the *vitamin C* that was lost in heating (Hamilton, 2009, pp. 18-20; Datta, 2018c).

The discovery of this process led to the *expansion* of the Florida citrus industry, and the surrounding industries for transporting and warehousing the juice (Copage, 2000). Another major contribution of the "cut-back" method was that it was able to achieve *consistency* because each can of the frozen orange concentrate was an *exact* copy of the one that came before it. This is important for enterprises that sell food products on a large scale (Hamilton, 2009, p. 20; Datta, 2018c).

The "cut-back" process was *patented* in 1948, and soon the patent was transferred from the government to a private business: Florida Foods. The company then entered into a contract with Vacuum Foods Corp. that transferred the patent to the latter. At the end of the decade, Vacuum Foods was *renamed* Minute Maid (Hamilton, 2009, pp. 20-21).

The long gestation of *seven* years for orange trees to mature made it very difficult for growers to respond quickly to fast *swings* in juice demand. Frequent occurrence of *freezes* in Florida further complicated this problem (*ibid*, p. 23).

5. The Citrus Greening Epidemic

Citrus *greening*, also known as HLB, is a serious *disease* that is radically affecting citrus production all over the world. Greening has destroyed groves, and has raised the cost of crop maintenance (Datta, 2018c).

Now more growers are developing methods to fight greening. When trees *resistant* to HLB are planted, not only will the cost of producing oranges go down, but both the fruit and juice yields will go up as well (*ibid*).

6. Frequent Freezes and Hurricanes: The Curse of Florida Agriculture

A constant feature of Florida's agriculture is the repeated occurrence of freezes that have plagued the citrus industry ever since its inception. An i*mpact* freeze is a freeze so severe that it destroys entire groves across the state, killing both mature and young citrus trees. This causes an intense economic impact on the citrus industry, and growers feel pressured to move farther *south*, where temperatures are *warmer* (Datta, 2018c).

The 1835 freeze is considered an *impact* freeze because it *ended* efforts to commercially grow citrus in South Georgia, southeast South Carolina, and in the *northern* part of Florida (*ibid*).

The 1989 freeze was the fifth *impact* freeze in Florida since 1834 and some call it "the freeze of the century." This freeze resulted in almost total destruction of commercial citrus growing *north* of Interstate 4. As a result, there was a heavy *migration* of citrus groves from Lake County in Central Florida--north of Interstate 4--to Hendry and Collier counties in *deep-south* Florida (Datta, 2018c).

Freezes are not the only natural calamity Florida has to encounter recurrently; *hurricanes* are another menace. For example, Hurricane Charley seriously damaged the citrus industry in 2004. In 2018, because of Hurricane Irma Florida's citrus industry experienced its *worst* growing season since World War II (*ibid*).

7. Severe Freezes Force Florida to Import Orange Juice from Brazil

Until the 1980s Florida was the *global* leader in orange juice production. However, due to back-to-back *freezes* Florida orange production stumbled from 207 million 90-pound boxes in 1979-1980, to 104 million boxes five years later: a drop of almost *50*% (Hamilton, 2009, p. 110; Datta, 2018c).

So as not to lose its increasing customer base, the State of Florida approached Brazil, then the *second* largest orange juice producer, to make up the shortage. The state directed men and money into Brazil for building a strong orange juice processing center in that country (*ibid*, p. 110).

As of 2004, Brazil's larger groves were producing oranges at one dollar per box, while in Florida the cost was fifty percent *higher*. This is because in Brazil there are *fewer* environmental regulations, and both land and labor are *cheaper*. So, the U.S. has imposed a *tariff* on import of orange juice from Brazil to protect Florida growers (Hamilton, 2009, p. 111; Walker, 2009; Datta, 2018c).

According to one estimate, Brazilian companies, like Cutrale and Citrusuco, owned about 40% of Florida's orange juice processing capacity in 2004 (Hamilton, 2009, p. 122; Datta, 2018c).

8. Vanishing Orange Groves Means Florida Citrus is Losing Its Identity

The impact of Brazil over Florida goes beyond the processing of orange juice. Brazil's vast supply of land to grow oranges is *depressing* the value of Florida's citrus groves. Florida was once synonymous with oranges, but *not* anymore. In the words of Hamilton (2009, pp. 3-4, *italics* added; Datta, 2018c):

- Orange trees in Florida are relatively few and far between. They no longer line the highways as they used to, sprouting juice stands along the way. Whole groves are being uprooted to make room for the state's tourists and retirees.
- [The] actual number of juice oranges the state grows is *declining*. Oranges from *Brazil*, *not* Florida, supply North America and the world with *most* of its juice.

9. A Brief History of Florida Orange Juice Processors

In Florida, there are *three* major orange juice producers: Tropicana, the *market leader*, owned by PepsiCo; Minute Maid, and Simply Orange, owned by Coca-Cola Co.; and Florida's Natural, an arm of Florida's Natural Growers cooperative (Datta 2018c).

9.1 Tropicana

Anthony Rossi, an immigrant from Sicily, founded Tropicana in 1947. Beatrice Co. bought Tropicana in 1978. In 1988 Seagram Co. became the next owner of Tropicana, and ten years later Seagram sold it to PepsiCo (Datta 2018c).

Tropicana was the predominant market leader of the U.S. Refrigerated Orange Juice market with a share of 39% in 2008 (*ibid*).

9.2 *Minute Maid*

As mentioned earlier, the *patent* for Florida citrus *concentrate* was eventually transferred to Vacuum Foods, which, a decade later, was renamed Minute Maid (*ibid*).

In 1960 Minute Maid became a part of Coca-Cola Co (*ibid*).

Minute Maid was the *runner-up* in the Refrigerated Orange Juice market with a market share of 15% in 2008 (*ibid*).

9.3 Simply Orange

The Coca-Cola Co. launched Simply Orange *pasteurized* orange juice in 2001. Although the brand was, like Minute Maid, targeted at the *mid-price* segment, yet it was priced *higher* than Minute Maid and even Tropicana. In a short seven years Simply Orange was able to reach a market share not far from that of Minute Maid (Datta 2018c).

9.4 Florida's Natural

Florida's Natural brand is owned by a cooperative, Florida's Natural Growers, that was founded in 1933. It had a market share of 10.8% in 2008 (Datta 2018c).

10. Tropicana Introduces Pasteurized Ready-to-Serve (RTS) Orange Juice

In 1954 Tropicana pioneered a *flash pasteurization* method that *raised* the temperature of freshly-squeezed orange juice *briefly* that extended its shelf-life to *three* months, and yet maintained its flavor. As a result, the company introduced ready-to-serve (RTS) *chilled* orange juice in the market (Datta, 2018c).

11. Tropicana Storing RTS (Ready to Serve) Orange Juice in Above-Ground Tunnels

The pasteurized RTS is the *most* popular variety of orange juice in Florida. As mentioned earlier, Tropicana was the *inventor* of the flash pasteurization process. To be able to supply pasteurized orange juice *year- round* requires *large-scale* storage capacity.

So, Tropicana initially came up with a *simple* solution to address this problem. It stored *frozen* slabs of freshly-squeezed juice in above-ground *tunnels* (Hamilton, 2009, p. 140; Walker, 2009; Datta 2018c).

12. Tropicana Switches to Aseptic Tanks

But to keep up with the rising demand of RTS, the company began exploring *cheaper* modes of storing RTS. So, in the nineties Tropicana *replaced* most of these tunnels with a *cheaper*—but much more *complex*—technology of *aseptic* storage *tanks.* This technology calls for *stripping* the juice of *oxygen*, a process known as "*dearation,*" so that the juice does *not* oxidize in the million-gallon tanks in which it can be stored for over a year (*ibid*).

However, when the juice is stripped of oxygen it is *also* stripped of *flavor*-providing chemicals. So, the juice processors engage the services of fragrance companies, such as, Calvin Klein and Dior, to engineer *flavor* packs to *add back* to the juice to make it taste *fresh* (Hamilton, 2009, Ch. 12-13; Datta 2018c).

13. "Tunnel" vs. Aseptic Tank Storage

With *asceptic* tanks, the juice is heated *before* it gets into the tank, and then again *before* it goes into the package for sale. But, when juice is stored in above-ground tunnels in *frozen* blocks, it is heated *only* when it is ready to go into a package. But more the juice is heated, the more its freshly-squeezed taste is *depleted* (Hamilton, 2009, p. 141; Datta 2018c).

14. RTS (Ready-to-serve) Orange Juice from Reconstituted Frozen Concentrate ("Recon")

After the introduction of *pasteurized* orange juice by Tropicana in 1954, the sales of *chilled* orange juice—later labeled *ready-to-serve* juice (RTS)—began to rise. To meet this growing demand, makers of concentrated orange juice discovered a new process—called "Recon"—of producing RTS by *reconstituting frozen* concentrate." And soon the sales of "Recon" started to rise (Hamilton, 2009, p. 24, p. 130; Datta 2018c).

"Recon" has one main advantage over pasteurized juice, and that is that it is *cheaper* to produce. This is because it is made from *space*-saving *frozen* concentrate which stores *compactly*, and unlike pasteurized juice stored in aseptic tanks, does not require extensive storage infrastructure. Generally, "Recon" processors add water only at the point of distribution, or at retail. As a result, while storage of concentrate costs about *one* penny per pound per year, storing pasteurized juice costs about 20-25 times as much (Hamilton, p. 130; Datta 2018c).

High storage cost of pasteurized juice was not the only factor Tropicana was having a hard time competing in the industry. Another was the heightened competition from "Recon." After several *freezes* that hit Florida, "Recon" processors began to import *Brazilian* concentrate to meet consumer demand. However, Tropicana was unable to do so because technology did not exist then to move large tanks of liquid orange juice from Brazil to Florida (Datta 2018c).

15. "Not from Concentrate" (NFC) and the Power of Product Repositioning

In response to this formidable challenge from "Recon," Tropicana's President, Spencer Vogue, made a *bold* move. He argued that the consumers want something closest to *fresh*-squeezed orange juice (Datta 2018c).

So, Tropicana began *promoting* its *Pure Premium* brand as "*Not from Concentrate*" (NFC) to *differentiate* its pasteurization *process* as being *superior* to the concentrate roots of "Recon" (Hamilton, 2009, pp. 130-132; Datta, 2018c).

In addition, it also started charging *more* for it both to cover its higher storage costs, but also to promote an *image* of quality (*ibid*).

As a result of Vogue's decision, Tropicana's sales *exceeded* all expectations. In the next *five* years—thanks to NFC's powerful promotion—Tropicana *doubled* its sales volume and almost *tripled* its profits. The industry-wide sales of NFC, too, jumped from $653 million in 1990 to $1.03 billion in 1995 (Hamilton, p. 133; Datta, 2018c).

The primary reason for NFC's popularity was that customers "*perceived* it as being *fresh* squeezed (*ibid*).

16. Results of Hierarchical Cluster Analysis

The results showed that both in 2008 and 2007 Tropicana, the dominant market *leader*, with a market share of 38.9% in 2008 was a member of the *mid-price* segment, followed by a distant *runner-up*, Minute Maid, with a 2008 share of 14.6 %--and also a member of the *mid-price* segment. The results also showed that the unit price of Tropicana was *highe*r than that of Minute Maid (Datta, 2018c).

E. An Overview of the Food Group—Non-Discretionary

1. The U. S. Coffee Industry

Folgers was the *market leader* with a market share of 21.8% in 2008. Of all the *twenty-four* consumer markets that are the subject of this study, Folgers—and the *runner-up*--Maxwell House--are the *only* market leaders who chose to focus on the *economy* segment, competing not only on *low price* but *low quality* as well.

It is also important to point out that both Folgers and Maxwell House *missed* the boat on the Specialty coffee segment.

Finally, the *spectacular* success of Starbucks has 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 *savored*, and for which they were willing to pay a *premium* price.

2. The U.S. Canned Soup Market

In 2008 the Campbell Soup Co. was a run-away market leader with a 52.8% share of the canned soup market.

President Dorrance followed the "The First-to-Market" innovation strategy (Ansoff & Stewart, 1967; Datta, 2010b). At the turn of the century, America was *not* a soup-eating country, but a meat and vegetables nation. So Dorrance was successful in *inducing* Americans to eat *more* soup.

Campbell soups were an instant *success*. Once Americans were convinced of their high quality, they realized that the price of 10 cents a can was indeed a bargain.

Within a year Dorrance came up with *five* varieties of condensed soups: *Tomato, Consommé, Vegetable, Chicken, and Oxtail:* an act that turned out be a *masterpiece*.

3. The U.S. Shredded/Grated Cheese Market

In 2008 Kraft, the market *leader,* had a market share of 27.5%.

No individual has left a deeper footprint on the U.S. Dairy Industry than James L. Kraft.

Kraft followed "The First-to-Market" innovation strategy (Ansoff & Stewart, 1967; Datta, 2010b).

One of his important innovations was the introduction of *processed* Cheddar cheese that had a *long* shelf life. But even more consequential was his introduction of *Kraft Singles*.

4. The U.S. Refrigerated Orange Juice Market

In 2008 Tropicana was the predominant market *leader,* with a market share of 38.9%.

Tropicana, now owned by PepsiCo, pursued "The First-to-Market" innovation strategy, that offered one innovation after another (Ansoff & Stewart, 1967; Datta, 2010b):

- Tropicana introduces pasteurized Ready-to-Serve (RTS) Orange Juice
- Tropicana stores RTS Orange Juice in above-ground tunnels
- Tropicana switches to aseptic tanks for a *cheaper* alternative
- Tropicana faces a challenge from reconstituted frozen concentrate ("Recon)
- Tropicana r*epositions* RTS (ready-to-serve) orange juice as "Not from Concentrate" (NFC)
- The campaign *succeeded* beyond expectations as the customers perceived NFC as being *fresh* squeezed

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Notes

Note 1. Profit Impact of Market Strategies.

Note 2. It is important to point out that while the Mayans were short in height, yet they were *tall* in stature. What they have contributed to our civilization is nothing less than monumental. Between 250-900 AD, they developed an advanced *writing* system. They were also gifted mathematicians who independently developed the concept of *zero*. Also, Mayan astronomers deduced that a *solar* year was slightly *more* than 365 days (Datta 2020c).

Note 3.

https://www.google.com/search?q=google%3A+arabica+vs.+robusta+coffee&rlz=1C1RXQR_enUS1087US1087&oq=Goo&gs_lcrp=EgZjaHJvbWUqBggAECMYJzIGCAAQIxgnMhgIARAuGEMYgwEYxwEYsQMY0QMYgAQYigUyBggCEEUYOTIGCAMQRRg7MgYIBBAjGCcyDwgFEAAYQxixAxiABBiKBTIPCAYQABhDGLEDGIAEGIoFMg0IBxAAGJECGIAEGIoFMgcICBAAGI8CMgcICRAAGI8C0gEKMTI1MjlqMGoxNagCCLACAfEFLCFsPje8hIrxBSwhbD43vISK&sourceid=chrome&ie=UTF-8