

Original Paper

The U.S. Automatic-Dishwasher and Hand-Dishwashing Detergent Markets: A Competitive Profile

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Abstract

This is a study of two markets: the U.S. Automatic-Dishwasher Detergent market (the “Automatic” market), and the Hand-Dishwashing Detergent market (the “Hand” market). It follows the footsteps of seventeen studies that have tried to analyze the competitive profiles of U.S. consumer markets: Men’s Shaving Cream, Beer, Shampoo, Shredded/Grated Cheese, Refrigerated Orange Juice, Men’s Razor-Blades, Women’s Razor-Blades, Toothpaste, Canned Soup, Coffee, Potato Chips, Alkaline AA Battery, Facial Tissue, Toilet Paper, Paper Towel, Disposable Diapers, and Sanitary Pads.

Michael Porter associates high market share with cost leadership strategy, which is based on the idea of competing on a price that is lower than that of the competition.

However, customer-perceived quality—not low cost—should be the underpinning of competitive strategy, because it is far more vital to long-term competitive position and profitability than any other factor. So, a superior alternative is to offer better quality vs. the competition.

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

The middle class is the socio-economic segment that represents about 40% of households in America.

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

Soaps are made from natural ingredients, such as plant oils or acids derived from animal fat. Detergents, on the other hand, are synthetic, man-made derivatives.

A detergent for hand-washing dishes is meant to produce suds. So, one should not use it in a dishwasher as it is intended specifically to clean dishes without the use of suds or bubbles.

Pods, the single-dose detergents for automatic dishwashers are variously called pacs, packets, pods, tabs, and tablets.

Consumer Reports found that the best-performing detergent pods cleaned dishes better than the best

gels. That's because they contain a broader mixture of ingredients that can bolster cleaning. Pods are also quite convenient. All you have to do is to put them in the dishwasher without worrying about the correct amount of detergent.

Certified dishwashers use less than four gallons per cycle. In contrast, the sink uses four gallons of water every two minutes.

The "Automatic" market had 2008 retail sales of \$491 million. It had two segments: (a) Liquids and Powders, and (b) Pods--with sales, respectively, of \$329 million and \$162 million. However, we have conducted our analysis on the Liquid/Powder segment, which had 67% of the total sales of that market. We have concentrated our analysis on the 65-85 Oz size because it was the most popular, and accounted for 63% of total sales of that segment.

The "Hand" market had 2008 retail sales of \$599 million. We have focused our attention on the 22-34 Oz size because it was the most popular constituting 55% sales of that market.

Using Hierarchical Cluster Analysis, we tested two hypotheses: (I) That the market leader is likely to compete in the mid-price segment, and that (II) Its unit price is likely to be higher than that of the nearest competition.

For the "Automatic" market, the data supported Hypothesis I for both 2008 and 2007 because the market leader, Cascade (75 ounces), was a member of the mid-price segment.

Cascade is a megabrand, and its three brands had a 2008-share of 63.3% of this market.

For 2008, the data also supported Hypothesis II, because, the unit price of the runner-up, Finish (75 ounces), was lower than that of the market leader Cascade, although Finish was a member of the economy rather than the mid-price segment.

However, the data did not support Hypothesis II for 2007, because the runner-up, Cascade Complete (75 ounces), was a member of the super-premium segment.

For the "Hand" market, the results supported Hypothesis I for 2008 because the market leader Palmolive (25 ounces) was a member of the mid-price segment.

We have also determined that, for all practical purposes, the data has supported Hypothesis I for 2007, too.

For 2008, the data did not support Hypothesis II, because the runner-up, Dawn (28 ounces), had a price tag higher than that of the market leader, Palmolive (25 ounces).

However, for 2007, the data did support Hypothesis II because the runner-up, Ajax (34 ounces), had a unit price lower than that of the market leader, Palmolive (25 ounces).

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

A pattern is emerging in price-quality segmentation analysis. In twelve studies—that exclude Men's and Women's Razor-Blades, Coffee, Toilet Paper, Paper Towels, Disposable Diapers, and Sanitary Pads—the market leader was found to be a member of the mid-price segment, as we have hypothesized.

Also, results in eight markets supported Hypothesis II.

We also discovered three strategic groups both in the "Automatic" and the "Hand" market.

Keywords

U.S. Automatic-Dishwasher Detergent market, U.S. Hand-Dishwashing Detergent market, market segmentation, cost leadership strategy, price-quality segmentation, market-share leadership, relative price a strategic variable, strategic groups.

1. Introduction

This is a study of *two* markets that follows the footsteps of *seventeen* studies that have tried to analyze the competitive profiles of U.S. consumer markets: Men's Shaving Cream, Beer, Shampoo, Shredded/Grated Cheese, Refrigerated Orange Juice, Men's Razor-Blades, Women's Razor-Blades, Toothpaste, Canned Soup, Coffee, Potato Chips, Alkaline AA Battery, Facial Tissue, Toilet Paper, Paper Towel, Disposable Diapers, and Sanitary Pads (Datta, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c, 2020d, 2021, 2023a, 2023b, 2023c, 2023d, and 2024).

This research relies on a broader, *integrated* framework of market segmentation which includes *both* the demand *and* supply sides of the competitive equation. This approach is based on the idea that, *starting* with '*product*' characteristics is both an *easier* and more *actionable* way of segmenting markets, than the traditional marketing approach that typically begins with the customer or '*people*' characteristics (Datta, 1996).

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 (Note 1) database research—that it is *customer*-perceived quality that is crucial to long-term competitive position and profitability. So, the answer to market share leadership for a business is to *differentiate* itself by offering quality *better* than that of the nearest competition (Datta, 2010a, 2010b).

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. 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).

2. The Strategic Importance of Price Positioning

The *second* step for a business seeking market share leadership is to *position* itself at a price that is *somewhat* higher than that of the nearest competition. This is in accord with P&G's practice based on the idea that although higher quality does deserve a "price premium," it should *not* be excessive (Datta, 2010b). A higher price offers *two* advantages: (1) It promotes an *image* of quality, and (2) It ensures

that the strategy is both profitable and sustainable in the long run (*ibid*).

As mentioned above, the *middle* class constitutes about 40% of households in America. So, in a *competitive* market one would normally expect more than one major brand competing in the *mid-price* segment.

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 *lowest* price of any national chain”. Another example is the Fairfield Inn. When Marriott introduced this chain, it targeted it at the *economy* segment. And then it positioned Fairfield at the *top* of that segment (Datta, 1996).

2.1 Close Link between Quality and Price

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

3. A Brief History of Hand-Dishwashing and Automatic-Dishwasher Detergents

If you look at the Ajax Ultra 28 Oz. bottle, it says that it is Dish (washing) Liquid/Hand Soap. But then this raises an *important* question: Is Ajax Ultra a soap or a detergent?

The answer is that dish “soap is actually dish *detergent*” (Note 2, *italics* added).

4. Soap vs. Detergent

“Today, *detergents* are used for laundering, dishwashing and many other types of cleaning. *Soaps* are made from *natural* ingredients, such as *plant oils* (coconut, vegetable, palm, pine) or acids derived from *animal fat*. *Detergents*, on the other hand, are *synthetic*, man-made derivatives” (Note 3).

5. Hand-Dishwashing Detergent vs. Automatic-Dishwasher Detergent

A liquid (or gel) detergent for *hand*-dishwashing—also called a *light-duty* detergent—contains an “alkyl ethoxy carboxylate *surfactant* and little or no alcohol ethoxylate and soap by-product contaminants” (*italics* added) The compositions result in good *grease removal*. At the same time, they are *mild* to the skin. A better type of dishwashing detergent is in a *liquid* form. High pH and magnesium ion *increase* grease removal properties, while *preserving* mildness (Note 4).

In contrast, a detergent for a *dishwasher* is much *harsher*, intended to work only at much *higher* temperatures, and therefore, *not* safe for handwashing (Note 5).

A detergent for *hand* dishwashing is meant to produce *suds*. So, one should *not* use it in a dishwasher as it is intended specifically to clean dishes *without* the use of suds or bubbles (Note 6).

6. Automatic-Dishwasher Detergents: Pods, Liquids, or Powder?

Pods, the *single-dose* detergents for automatic dishwashers, are variously called pacs, packets, pods, tabs, and tablets (McCabe, 2022).

In an Instagram poll, *Consumer Reports* (Ho, 2022) says that 71% of participants voted for *pods*, 21% for liquids, and 9% favored powders. As a result, *Consumer Reports* has *stopped* testing powder detergents.

In *Consumer Reports* tests the “best-performing *pods* clean dishes *better* than the best-liquids” (*ibid*).

Pods are also quite *convenient*. All you have to do is to put them in the dishwasher *without* worrying about the correct amount of detergent (*ibid*; McCabe, 2022).

Another benefit of pods, which come in single-use *premeasured* units, are *less* likely to cause *filming* on dishes (Ho, 2022).

7. Palmolive and the History of the Hand-Dishwashing Liquid Detergent Market

Palmolive is a well-known brand that has been in the dish soap market since 1898. It is part of the Colgate-Palmolive Co.

In 1898, B. J. Johnson developed a *bar soap* based on palm oil and olive oil. The soap became so successful that the company named itself based on properties of the product. By 1900, Palmolive was the world's best-selling *bar soap*. In 1928, Palmolive acquired Colgate. In 1953 the company was renamed Colgate-Palmolive (Note 7).

“Palmolive has traditionally been positioned as a reputable and reliable brand for dishwashing detergents” (Note 8).

In 2008 Palmolive was the *market leader* in this market with a market share of 24.4% (Table 2).

8. Dawn Hand-Dishwashing Liquid Detergent

Dawn is an American brand of hand-dishwashing liquid detergent that P&G introduced in 1973 (Note 9). It was the *runner-up* to Palmolive, and in 2008, had a market share of 19.1% (Table 2).

9. Joy Hand-Dishwashing Liquid Detergent

Joy is an American dishwashing liquid detergent *now* owned by JoySuds, LLC. The brand was introduced in America in 1949 by P&G. In 2019, P&G sold the rights to the Joy brand for the Americas to JoySuds, LLC (Note 10).

In 2008 Joy had a market share of 7.1%, and was a member of the *economy* segment (Table 2).

One reason P&G may have sold Joy off is because, as mentioned later, one segment that P&G did *not* want to compete in is the *economy* segment.

Another example is the Folgers coffee brand. In a study of the U.S. Coffee market, Folgers, the *market leader*—then owned by P&G—was found to be a member of the *economy* segment. This is truly an *astonishing* result! In all our remaining eighteen markets, *not* a single market leader has competed in the *economy* segment (Datta, 2024)!

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

10. Cascade Automatic-Dishwasher Detergent

While working for Procter & Gamble in the 1980s, Dennis Weatherby *patented* lemon-scented Cascade, a *detergent* with a new chemical formula that would *not* stain dishes, *unlike* the detergents of the previous decade (Note 11).

“Cascade Complete dishwasher detergents *clean away baked-on*, and 24-hour *stuck on* foods, *without pre-washing*” (Note 12; *italics added*).

Cascade was this market’s 2008 *market leader* with a share of 49.4% (Table 1).

10.1 Automatic-Dishwashers Use a Lot Less Water than Hand-Washing Dishes

In 2020, P&G launched a “Do It Every Night,” *campaign* for its *best-selling* detergent brand Cascade to encourage water *conservation* in an unusual way: by considering “*running the dishwasher every night*, instead of washing dishes by hand” (Note 13; *italics added*).

Contrary to common belief, the *dishwasher* is designed to be *more* efficient than the way most of us wash dishes by *hand*. “According to Energy Star, certified dishwashers use *less* than four gallons per *cycle*.” On the other hand, the “*sink* uses four gallons of water every *two minutes*” (Note 13; *italics added*).

11. Finish Automatic-Dishwashing Detergent

J. A. Benckiser (later Reckitt Benckiser) acquired the Consumer Products division of Ecolab Inc. in 1987. Finish is the brand name of a range of dishwasher detergent and cleaning products sold by Reckitt. Prior to 2009, the product was known as Electrasol in North America (Note 14).

In 2008, Finish was the *runner-up* to Cascade, and had a market share of 10.1% (Table 1).

12. Private Brands

Another *major* player in the U.S. “Automatic” and “Hand” detergent markets in 2008 and 2007 was the Private-Brands group. It is important to clarify what *private* brands are. These are brands made exclusively for individual *retailers*, e.g., a supermarket, or a drug store. Usually, such brands are targeted at the *economy* segment, and, as such, are generally sold at prices *lower* than those of major *mid-price* brands. One reason retailers *like* private brands, is because private brands tend to be more *profitable* than leading *name-brands* that are usually members of the *mid-price* segment (Datta, 2018b, 2018c, 2020b, 2020c, 2021, 2023a, 2023b, 2023c, 2023d, 2024).

In 2008, the Private-Brands group was a member of the *Ultra-Economy* segment (Table 1) in both the “Automatic” market (Table 1), and the “Hand” market (Table 2), with brand market share, respectively,

of 11.3% and 5.9%.

13. Consumer Reports on Hand-Dishwashing Detergents

In its January 2008 (p. 6) issue, *Consumer Reports* rated P&G's Dawn Direct Foam (31 Oz) as the *top* hand dishwashing detergent, and Palmolive Ultra (30 Oz) as number *three*. In 2008, while the former was a member of the *super-premium* segment, the latter was part of the *mid-price* segment (Table 2).

14. Consumer Reports on Automatic-Dishwasher Detergents

Consumer Reports (2009, p. 9) rated "Cascade Complete All-in-one packet" (*pod*) dishwasher detergent as number one, followed by Finish Quantum Powerball tablet (*pod*) as number *two*.

Both in its 2010 issue (p. 9), and the 2011 issue (p. 9), Finish Quantum (*pod*) earned the *top* spot, with "Cascade Complete All-in-one" (*pod*) claiming the *third* spot.

In the Oct. 2013 (p. 41) issue of *Consumer Reports*, "Cascade Complete ActionPacs" (*Pods*) was rated number *one*, while Finish Powerball (*Pods*) earned *second* place.

15. Automatic-Dishwasher Detergent Pods Superior to Gels (or Liquids)

According to Liam McCabe of *Consumer Reports* (2022), one *doesn't* need an expensive dishwasher detergent to get clean dishes. The *best* formulations from popular brands like Cascade and Finish do a great job of "removing food and resisting residue." But so do many *store-brand* detergents, which cost much *less* per dose.

Consumer Reports tested 23 dishwasher detergents from eight brands that included premeasured *packs* (*Pods*) as well as *gels*. Overall, the *best*-performing detergent *Pods* cleaned dishes *better* than the best gels. That's because they contain a *broader* mixture of ingredients that can *bolster* cleaning: e.g., enzymes, degreasers, bleach, and rinse aids. Although *enzymes* generally do help, but it is "too complicated to pin it on one ingredient (*ibid*).

For example, Cascade Free & Clear ActionPacs (*Pods*) *combine powder* detergent with a *top layer* of *liquid* detergent boosters that are released when their coating dissolves. This gives them an *advantage* in cleaning power over powder- or liquid-*only* formulas (Note 15).

In 2022, *Consumer Reports* found that the two *best* performing dishwasher detergents were Cascade and Finish (McCabe, 2022).

16. The NYTimes Best Dishwasher Detergents of 2023

A *great* dishwasher detergent can produce the cleaning power of "even the most *mediocre* dishwasher, pulverizing peanut butter, eliminating eggs, and tackling tomato sauce." *The NYTimes* tested 24 detergents on the grimmest loads and found that "Cascade Free & Clear ActionPacs" *Pods* came closest to cleaning nearly every dish" (Barnes, 2023).

"Cascade Free & Clear ActionPacs *combine powder* detergent with a *top layer* of *liquid* detergent

boosters that release as their coating dissolves. This gives them an *edge* in cleaning power over powder- or liquid-only formulas. They're also *convenient* because you *don't* need to measure or pour out detergent" (*italics added*).

"The extra detergent boosters in Cascade Free & Clear ActionPacs help cut grease and *enhance* shine better than the other detergents we tried. They *forgo* dyes and chlorine bleach, which some people prefer to *avoid*" (*ibid; italics added*).

17. The U.S. Automatic-Dishwasher and Hand-Dishwashing Detergent Markets—Price-Quality Segmentation Profile

This study is based on U.S. retail sales of *two* markets--the "Automatic" and "Hand" Detergent markets--for 2008 and 2007 (Note 16). The data includes total dollar and unit sales, no-promotion dollar and unit sales, and promotion dollar and unit sales (Note 17).

The "Automatic" market had retail sales of \$491 million in 2008. It had *two* segments: (a) Liquids and Powders, and (b) Pods--with sales, respectively, of \$329 million and \$162 million. However, we have conducted our analysis on the Liquid/Powder segment, which had 67% of the total sales of that market. We have concentrated our analysis on the 65-85 Oz size because it was the most popular, and accounted for 63% of total sales of that segment (Table 1).

The Hand-Dishwashing Liquid Detergent market (the "Hand" market), had 2008 retail sales of \$599 million. We have focused our attention on the 22-34 Oz size because it was the most popular constituting 55% sales of that market (Table 2).

17.1 Hierarchical Clustering as the Primary Instrument of Statistical Analysis

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

- First, this study is *not* ad-hoc, but is grounded in a *theoretical* framework, as laid out below.
- Second, we are fortunate that we were able to get *national* U.S. sales data for our study for *two* years.
- Thus, this data provided a *robust* vehicle for subjecting cluster consistency and reliability to an *additional* test.
- Third, we wanted to use two different techniques—KMeans and Hierarchical—to add another layer of cluster consistency and reliability. However, we found Hierarchical cluster analysis to be *superior* in meeting that test. So, we did *not* consider it necessary to use the KMeans technique.

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

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

An important question in performing cluster analysis is to figure out the *number* of clusters based on an *a priori* theory. Most consumer markets can be divided in three *basic* price-quality segments: *premium*,

mid-price, and *economy*. These three basic segments can be extended to *five*: with the addition of *super-premium* and *ultra-economy* segments (Datta, 1996).

Therefore, *three* represents the *minimum* and *five* the *maximum* number of clusters (Datta, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c, 2020d, 2021, 2023a, 2023b, 2023c, 2023d, 2024).

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

Perhaps a good way to understand what each price-quality segment stands for in *real* life is to look at a socio-economic *lifestyle* profile of America. It reveals *six* classes (Note 18). Each class is associated with a price-quality segment typified by the retail stores where they generally shop: each a symbol of their *lifestyle* (Datta, 2011).

17.3 Guidelines for Cluster Consistency and Reliability

In addition to laying a theoretical foundation for the *number* of clusters, we set up the following guidelines to *enhance* cluster consistency and reliability (Datta, 2012, 2017, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b, 2020c, 2020d, 2021, 2023a, 2023b, 2023c, 2023d, 2024):

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

17.4 External Evidence to Validate Results of Cluster Analysis

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

18. Testing Hypotheses

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

19. Results of Hierarchical Cluster Analysis: The Automatic-Dishwasher Detergent Market

In Table 1 we present the 2008 cluster analysis results for the “Automatic” market which had 2008 sales of \$491 million.

It had *two* segments: (a) Liquids and Powders, and (b) Pods--with sales, respectively, of \$329 million and \$162 million. However, we have conducted our analysis on the Liquid/Powder segment, which had 67% of the total sales of that market. We have concentrated our analysis on the 65-85 Oz size because it was the most popular, and accounted for 63.3% of total sales of that segment.

The data *supported* Hypothesis I for *both* 2008 and 2007 because the market leader, Cascade (75 ounces), was a member of the *mid-price* segment.

Cascade is a *megabrand* which had a 2008 *combined brand* share of 63.3% of the “Automatic” segment (Table 1).

For 2008, the data also *supported* Hypothesis II, because, the unit price of the *runner-up*, Finish (75 ounces) (Note 19) was *lower* than that of the *market leader* Cascade, although Finish was a member of the *economy* rather than the *mid-price* segment.

However, the data did *not* support Hypothesis II for 2007, because the *runner-up*, Cascade Complete (75 ounces), was a member of the *super-premium* segment.

20. Results of Hierarchical Cluster Analysis: The Hand-Dishwashing Liquid Detergent Market

In Table 2 we present the 2008 cluster analysis results for the “Hand” market. This market had 2008 retail sales of \$599 million. We have focused our attention on the 22-34 Oz size because it was the most popular, constituting 55% sales of that market.

The results *supported* Hypothesis I for 2008, because the *market leader* Palmolive (25 ounces) was a member of the *mid-price* segment.

But for 2007, the market leader Palmolive (25 ounces) was a member of the *economy* segment occupying the top spot in that segment with unit price *rank* of 15, compared to that of 14 in 2008.

Although, *technically* the data did not support Hypothesis I, for all practical purposes, we have *determined* that for 2007, too, the data has *supported* Hypothesis I.

For 2008, the data did *not* support Hypothesis II, because the *runner-up*, Dawn (28 ounces), had a price tag *higher* than that of the *market leader*, Palmolive (25 ounces), even when we compared cost per oz.

However, for 2007, the data *did* support Hypothesis II because the runner-up, Ajax (34 ounces), had a unit price *lower* than that of the *market leader*, Palmolive (25 ounces).

21. Relative Price a Strategic Variable

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

We believe these surprising results became possible only, because managements in the “Automatic” and “Hand” Detergent markets must have been treating *relative* price as a strategic variable, as we have hypothesized.

22. The Role of Promotion

For 2008 the promotional sales of the “Automatic” market averaged 27.7% of total retail sales (Table 3). We performed *bivariate* correlation between total retail sales vs. promotional (PROMO) sales. The results were significant for *all* three measures—Pearson, Kendall, and Spearman—at an amazing 0.01 level!

For 2008 the promotional sales of the “Hand” market averaged 35.7% of total retail sales (Table 4). Similarly, we performed *bivariate* correlation between total retail sales vs. promotional (PROMO) sales. The results were significant for *all* three measures—Pearson, Kendall, and Spearman—at an amazing 0.01 level!

Table 3 presents a measure of the promotional *intensity* of the “Automatic” market for 2008.

The following are the highlights:

- Although Finish had a market share of 10.1% in 2008, and it was competing in the *Economy* segment (Table 1), yet its promotional intensity can be characterized as “Heavy.”
- In general, one would expect that a market leader’s promotional intensity would be significantly higher than the average promotional score of all brands. However, the *market leader* Cascade has a score of just 30%, that is *not* much higher than the average 28% score. It seems that the Cascade brand with a three-brand market share of 63.3% in 2008 (Table 3) is so *dominant* in this market, it does *not* have to rely on higher discounting to protect its huge market share.
- For Private Brands competing in the *Ultra-Economy* segment, with a very *low* price to begin with, “Low” promo intensity makes a lot of sense.

Table 4 presents a measure of the promotional *intensity* of the “Hand” market for 2008.

The following are the highlights:

- The “Hand” market is clearly far *more* competitive than the “Automatic” market with a lot more players than the latter. One indicator of this is that the *average* promo score for 2008 for the “Hand” market stands at 36% vs. 28% for the “Automatic” market.
- It seems that because of the highly competitive nature of this market, Palmolive, the *market leader*, has relied on “Heavy” discounting to protect its market share.

23. A Pattern Emerging in Price-Quality Segmentation Analysis

This is the eighteenth study that encompasses analysis of competitive profiles of *nineteen* U.S. consumer markets. In each study we have tested two hypotheses:

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

24. Men’s and Women’s Razor-Blade Markets Did Not Support Hypothesis I

In the Men’s Razor-Blade market for 2008, the *market leader* was Gillett Mach 3 in the *premium* segment, and Gillette Fusion, the *runner-up*, was in the *super-premium* segment (Datta, 2019a)

In the Women’s Razor-Blade market for 2008, the market leader Gillett Venus, the *market leader*, and Schick Intuition Plus, the *runner-up*, were *both* members of the *premium* segment (Datta, 2019b).

So, what are the factors that these two markets have deviated so much from our theory? (Datta, 2019a, 2019b):

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

25. Ground Coffee, Toilet Paper, Paper Towel, Disposable Diapers, and Sanitary Pads Markets Also Did Not Support Hypothesis I

In the *Ground Coffee* market, the *market leader*, Folgers, and the *runner-up* Maxwell House, were *both* members of the *economy* segment, although Folgers’ unit price was *higher* than that of Maxwell House, as we have hypothesized (Datta, 2020c).

This is truly an *astounding* result! In all the remaining *eighteen* markets, *not* a single market leader competed in the *economy* segment.

This implies that both Folgers and Maxwell House were following the *cost leadership* strategy based on *lower* price, rather than better quality, and treated coffee as a *commodity* to gain market share. So, it is not unreasonable to conjecture that such a strategy is not likely to have been very profitable (*ibid*).

The results in the Toilet Paper study also did not support Hypothesis I, because *both* Charmin, the *market leader*, and Cottonelle, the *runner-up*, were members of the *premium* segment (Datta, 2023b).

Toilet activity is quite complex, in which personal *hygiene* plays a vital role. Although a *bidet* is quite popular in Europe, very few people in America use it (*ibid*).

So, in the absence of a substitute, Americans are willing to pay *premium* prices for toilet paper, because it serves an *important* need: an *antidote* to germs and disease (*ibid*).

In the Paper Towel market, the *market leader*, Bounty was a member of the *super-premium* segment (Datta, 2023c)!

So, *what* made this extraordinary result possible?

P&G *revolutionized* the industry with a *2-ply* paper towel, Bounty, that was not only *soft* and *strong*, but was *unmatched* in being *quick* and *absorbent* on spills (*ibid*).

Whereas most paper towel makers were marketing *strength* or *softness*, P&G discovered that consumers generally *preferred* something else: *absorbency*: for which 39% of American customers paid *super-premium* prices for Bounty paper towel in 2008 (*ibid*).

And that is why P&G uses the slogan “*The Quicker Picker Upper*” in its advertisements for Bounty (*ibid*).

Similarly, Americans do *not* mind paying *super-premium* prices for Disposable Diapers as well (Datta, 2023d). In the words of Peter Drucker, Pampers disposable baby diapers “*created* customers” and served them *better* than the competition (*ibid*).

Another reason, according to P&G, is the rising cost of *pulp*--a raw material used to make Disposable Diapers--and higher transportation and freight costs (*ibid*).

Another example is the Sanitary Pads market. *Menstruation* is an activity that is so complex that it is synonymous with *femininity* itself. So, it is not surprising that many women are willing to pay *premium* prices for such a fundamental need (Datta, 2024).

26. Results in Twelve Markets Supported Hypothesis I

In *twelve* of the nineteen markets—that *exclude* Men’s and Women’s Razor-Blades, Coffee, Toilet Paper, Paper Towel, Disposable Diapers, and Sanitary Pads—the market leader was found to be a member of the *mid-price* segment for *both* 2008 and 2007 (see Note 20), as we have hypothesized.

Those market leaders are:

- (1) Edge Men’s Shaving Gel, (2) Bud Light Lager Beer, (3) Pantene Shampoo, (4) Kraft Shredded/Grated Cheese, (5) Tropicana Refrigerated Orange Juice, (6) Crest Toothpaste, (7) Campbell Chicken Broth, and Campbell Chicken Noodle Soup, (8) Lay’s Potato Chips, (9) Energizer Alkaline AA Battery (Note 20), (10) Kleenex Facial Tissue, (11) Cascade Automatic-Dishwasher Detergent, and (12) Palmolive Hand-Dishwashing Detergent.

27. Results in Ten Markets Supported Hypothesis II

Although technically, in three of the twelve markets mentioned above, the results did *not* support Hypothesis II, in reality, only *two*—Chicken Noodle Soup, and Facial Tissue--did not.

In the Chicken Noodle Soup market, the *runner-up* Progresso, was a member of the *premium* segment. The results in the Facial Tissue market also did *not* support Hypothesis II, because the *runner-up* Puffs, was a member of the *premium* segment with a clearly *superior* quality, and a price tag *higher* than that of the market leader Kleenex: a member of the *mid-price* segment (Datta, 2023a).

In the Shampoo market, the *runner-up*, Head & Shoulders was a member of the *mid-price* segment. Yet, its price was *higher* than that of the *market leader*, Pantene. However, this result did *not* negate Hypothesis II, because it was due to the fact that the former was a *specialty* shampoo, which always sells at a *higher* price (2018a).

That leaves us with the following remaining *ten* markets that supported Hypothesis II:

- (1) Men's Shaving Gel, (2) Lager Beer, (3) Shampoo, (4) Shredded-Grated Cheese, (5) Refrigerated Orange Juice, (6) Toothpaste, (7) Potato Chips, (8) AA Alkaline Battery, (9) Automatic-Dishwasher Detergent (Note 21), and (10) Hand-Dishwashing Detergent (Note 22).

In the above *ten* markets the *runner-up* had a price tag that was *lower* than that of the market leader (see Notes 21 and 22).

28. Strategic Groups in the U.S.-Automatic Dishwasher Detergent Market, 2008

We found *three* strategic groups in this market segment. Their 2008 *brand* market shares are as follows (Table 1):

1. Procter & Gamble—*Market Leader*
 - Cascade group (3 brands)—63.3%
2. Reckitt Benckiser—*Runner-up*
 - Finish—10.1%
3. Private Brands—11.3%

28.1 Procter & Gamble (P&G) Corporation

P&G is the largest American multinational corporation, which was created back in 1837.

For 2022 P&G has reported net sales of \$80.2 Billion (Note 23).

28.2 Reckitt Benckiser

Reckitt Benckiser is a multinational consumer products company that was formed in 1999, by the merger of the British company, Reckitt & Coleman, and the Dutch company, Benckiser (Note 24). For the year 2022 it had sales of \$17.9 Billion (Note 25).

29. Strategic Groups in the U.S. Hand-Dishwashing Detergent Market, 2008

We found *three* strategic groups in this market segment, too. Their 2008 *brand* market shares are as follows (Table 2):

1. Colgate-- Palmolive—*Market Leader*
 - Palmolive (25 oz)—24.4%
 - Ajax—13%

2. Procter & Gamble—*Runner-up*
 - Dawn (28 oz)—19.1%
 - Dawn (other brands)—14.4%
 - Ivory—3.8%
3. Private Brands—5.9%

29.1 Colgate—Palmolive is an American multinational consumer products company known for its personal care and household products. Its revenue for the year ended Sept. 30, 2023 was \$19.1 Billion (Note 26).

30. Conclusion

The path to market share leadership does *not* lie in *cost leadership* strategy: a path that is grounded in a *price that is lower* than that of the competition, as Michael Porter has suggested. Rather, a business in pursuit of market-share leadership should try to serve the *middle* class by competing in the *mid-price* segment; and offering quality *superior* to that of the competition: at a somewhat *higher* price to connote an image of quality, and to ensure that the strategy is both profitable and sustainable in the long run.

The *middle* class is the socio-economic segment that represents about 40% of households in America. Quality, however, is a complex concept that consumers generally find difficult to understand. So, they often employ *relative* price and a brand's *reputation* as a symbol of quality.

Soaps are made from *natural* ingredients, such as *plant oils* or acids derived from *animal fat*. *Detergents*, on the other hand, are *synthetic*, man-made derivatives.

A detergent for *hand* washing dishes is meant to produce *suds*. So, one should *not* use it in a dishwasher, as it is intended specifically to clean dishes *without* the use of suds or bubbles.

Pods, the *single-dose* detergents for automatic dishwashers are variously called pacs, packets, pods, tabs, and tablets.

Consumer Reports found that the *best*-performing detergent *pods* cleaned dishes *better* than the best gels. That's because they contain a *broader* mixture of ingredients that can *bolster* cleaning. Pods are also quite *convenient*. All you have to do is to put them in the dishwasher without worrying about the correct amount of detergent.

For 2008 the total U.S. retail sales of the *Automatic Dishwasher Liquid/Powder Detergent* market (the "Automatic" market) were \$329 million (Table 1). By far the *most* popular size was the 65-85 oz. pack, which constituted 63.3% of the total sales. So, we have focused cluster analysis on this size.

For 2008 the total U.S. retail sales of the *Hand Dishwashing Liquid Detergent* market (the "Hand" market) were 599 million. We targeted the 22-34 oz size because it was the most popular constituting 55.3% sales of that market.

We tested two hypotheses. (I) That the market leader, would be a member of the *mid-price* segment, and (II) That the market leader would carry a price tag that is *higher* than that of the nearest competition.

For the “Automatic” market, the data *supported* Hypothesis I for *both* 2008 and 2007 because the market leader, Cascade (75 ounces), was a member of the *mid-price* segment.

Cascade is a *megabrand* which had a 2008 *brand* share of 63% of this market segment.

For 2008, the data also *supported* Hypothesis II, because, the unit price of the *runner-up*, Finish 75 oz., was *lower* than that of the market leader Cascade, although Finish was a member of the *economy* rather than the *mid-price* segment.

However, the data did *not* support Hypothesis II for 2007, because the runner-up, Cascade Complete (75 ounces), was a member of the *super-premium* segment.

For the “Hand” market, the results *supported* Hypothesis I for 2008, because the *market leader* Palmolive (25 ounces) was a member of the *mid-price* segment. Although, *technically* the data did not support Hypothesis I for 2007, for all practical purposes, we have determined that for 2007, too, the results *supported* Hypothesis I.

For 2008, the data did *not* support Hypothesis II, because the *runner-up*, Dawn (28 ounces), had a price tag *higher* than that of the *market leader*, Palmolive (25 ounces).

However, for 2007, the data *did* support Hypothesis II because the runner-up, Ajax (34 ounces), had a unit price *lower* than that of the *market leader*, Palmolive (25 ounces).

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

A *pattern* is emerging in price-quality segmentation analysis. In *twelve* of the nineteen markets—that exclude Men’s and Women’s Razor-Blades, Ground Coffee, Toilet Paper, Paper Towel, Disposable Diapers, and Sanitary Pads—the results *supported* Hypothesis I: that the *market leader* was going to be to be a member of the *mid-price* segment.

Also, results in *ten* markets supported Hypothesis II: that the *runner-up* would be a member of the *mid-price* segment, and that its unit price would be *lower* than that of the market leader.

Finally, we discovered *three* strategic groups both in the Automatic-Dishwasher Detergent market, and the Hand-Dishwashing Detergent market.

Table 1. Hierarchical Cluster Analysis: The U.S. Automatic-Dishwasher Liquid/Powder Detergent Market, 2008

PQ Segment	Brands	Upr.	ClusCtr.	MktSh%	MktSh%	Sales\$M	Sales\$M
				65-85 Oz	Brand	65-85 Oz	Brand
<i>Super-Premium</i>	CASCADE COMPLETE 75 OZ	\$6.24	\$6.24	12.9%	10.3%	\$27.0	\$33.9
<i>Premium</i>	SEVENTH GENERATION 75 Oz	\$5.63	\$5.54	0.3%	1.6%	\$0.6	\$5.3
	PLANET 75 Oz	\$5.44		0.3%	0.2%	\$0.6	\$0.6
<i>Mid-Price</i>	CASCADE SCENT 75 Oz	\$4.32	\$4.28	5.4%	3.6%	\$11.2	\$11.9
	CASCADE 75 Oz (market leader)	\$4.24		45.5%	49.4%	\$94.7	\$162.6
<i>Economy</i>	SUNLIGHT 85 Oz	\$3.69	\$3.49	3.6%	4.0%	\$7.5	\$13.3
	PALMOLIVE ECO 75 Oz	\$3.48		6.0%	5.3%	\$12.5	\$17.6
	FINISH 75 Oz (runner-up)	\$3.42		13.4%	10.1%	\$28.0	\$33.2
	PALMOLIVE 75 Oz	\$3.40		0.2%	0.1%	\$0.4	\$0.4
<i>Ultra-Economy</i>	PRIVATE BRANDS 75 Oz	\$3.08	\$2.93	12.2%	11.3%	\$25.4	\$37.1
	SUN SATIONS 65 Oz	\$2.78		0.2%	0.3%	\$0.5	\$0.9
				100.0%	96.2%	\$208.3	\$316.8
Total Brand						63.3%	\$329.4M

Table 2. Hierarchical Cluster Analysis: The U.S. Hand-Dishwashing Liquid Detergent Market, 2008

PQ Segment	BRANDS	Upr. 2008	ClusCtr	MktSh%	MktSh%	Sales\$M	Sales\$M
				22-34 Oz	Brand	22-34 Oz	Brand
<i>Super-Premium</i>	DAWN DIRECT FOAM 31 Oz	\$5.54	\$5.54	0.7%	0.4%	\$2.4	\$2.6
<i>Premium</i>	BI-O-KLEEN 32 Oz	\$4.89	\$4.58	0.1%	0.1%	\$0.3	\$0.3
	ECOVER 32 Oz	\$4.27		0.2%	0.1%	\$0.6	\$0.8
<i>Mid-Price</i>	EARTH FRIENDLY 25 Oz	\$3.53	\$2.97	0.5%	0.3%	\$1.5	\$1.5
	METHOD 25 Oz	\$3.22		1.0%	0.6%	\$3.3	\$3.3
	PLANET 25 Oz	\$3.12		0.6%	0.3%	\$1.9	\$1.9
	SUN & EARTH 25 Oz	\$3.09		0.2%	0.1%	\$0.6	\$0.7
	IVORY 30 Oz	\$3.06		5.8%	3.8%	\$19.3	\$22.5
	SEVENTH GENERATION 25 Oz	\$3.02		2.6%	1.4%	\$8.5	\$8.5
	DAWN 28 Oz (runner-up)	\$3.01		15.5%	19.1%	\$51.5	\$114.6
	DAWN BOTANICALS 28 Oz	\$2.93		0.9%	1.6%	\$2.9	\$9.6
	DAWN PLUS 22 Oz	\$2.89		14.7%	3.0%	\$48.8	\$17.9
	DAWN PLUS HAND CARE 22 Oz	\$2.73		0.8%	9.4%	\$2.5	\$56.4
	PALMOLIVE 25 Oz (market leader)	\$2.55		25.5%	24.4%	\$84.6	\$146.3
	PALMOLIVE ULTRA 30 Oz	\$2.48		0.1%	0.0%	\$0.2	\$0.2
	<i>Economy</i>	SUNLIGHT 28 Oz	\$2.29	\$2.13	0.6%	2.5%	\$2.1
JOY 30 Oz		\$2.18		7.3%	7.1%	\$24.0	\$42.6
AJAX 34 Oz		\$1.93		11.8%	13.0%	\$39.2	\$77.6
<i>Ultra-Economy</i>	PRIVATE BRANDS 25 Oz	\$1.48	\$1.11	7.9%	5.9%	\$26.1	\$35.4
	BRILLO 25 Oz	\$1.21		0.1%	0.1%	\$0.3	\$0.4
	TOP JOB 25 Oz	\$1.13		0.1%	0.1%	\$0.4	\$0.4
	SUN BURST 25 Oz	\$1.03		0.1%	0.0%	\$0.2	\$0.2
	SUN SATIONS 25 Oz	\$1.02		1.6%	0.9%	\$5.3	\$5.3
	POWER HOUSE 25 Oz	\$1.00		1.0%	0.6%	\$3.4	\$3.4
	POWER X 25 Oz	\$1.00		0.3%	0.2%	\$0.9	\$0.9
	HOME BASICS 25 Oz	\$0.99		0.1%	0.0%	\$0.2	\$0.2
				100.0%	94.9%	\$331.4	\$568.4
Total Brand						55.3%	\$599M

**Table 3. Percentage of Promotional Sales to Total Sales: The U.S. Automatic-Dishwasher
Liquid/Powder Detergent Market, 2008**

Brands with Sales over \$1 Million (65-85 Oz)

Brands	PQ Segment	Promo%	Promo Intensity	Brand MktSh%
Palmolive	<i>Economy</i>	50.1%	Heavy	0.1%
Finish	<i>Economy</i>	42.5%		10.1%
Cascade Scent	<i>Mid-Price</i>	36.3%	Moderate	3.6%
Palmolive Eco	<i>Economy</i>	31.8%		5.3%
Cascade (market leader)	<i>Mid-Price</i>	29.9%		49.4%
Sunlight	<i>Economy</i>	26.6%		4.0%
Private Brands	<i>Ultra-Economy</i>	20.5%	Low	11.3%
Seventh Generation	<i>Premium</i>	18.8%		1.6%
Sun Stations	<i>Ultra-Economy</i>	15.8%		0.3%
Cascade Complete	<i>Super-Premium</i>	12.8%		10.3%
Planet	<i>Premium</i>	10.6%		0.2%
Overall Promo Intensity		27.7%		96.2%
Total Brand Sales				\$329M

Table 4. Percentage of Promotional Sales to Total Sales: The U.S. Hand-Dishwashing Liquid Detergent Market, 2008

Brands with Sales over \$5 Million (25-34 Oz)

Brands	Promo%	PQ Segment	Promo Intensity	Brand MktSh%
DAWN BOTANICALS DETERGENT	66.8%	<i>Mid-Price</i>	Very Heavy	1.6%
SUNLIGHT DETERGENT	55.1%	<i>Economy</i>	Heavy	2.5%
PALMOLIVE DETERGENT (market leader)	46.8%	<i>Mid-Price</i>		24.4%
SUN SATIONS DETERGENT	38.4%	<i>Ultra-Economy</i>	Moderate	0.9%
DAWN DETERGENT	35.2%	<i>Mid-Price</i>		19.1%
AJAX DETERGENT	33.9%	<i>Economy</i>		13.0%
DAWN PLUS DETERGENT	32.2%	<i>Mid-Price</i>		9.4%
DAWN DIRECT FOAM DETERGENT	27.0%	<i>Super-Premium</i>	Low-Moderate	3.0%
PRIVATE BRANDS DETERGENT	26.8%	<i>Ultra-Economy</i>		5.9%
JOY DETERGENT	25.3%	<i>Economy</i>		7.1%
SEVENTH GENERATION DETERGENT	20.6%	<i>Mid-Price</i>		1.4%
IVORY DETERGENT	12.1%	<i>Mid-Price</i>	Low	3.8%
Overall Promotional Intensity	35.7%			Total Brand Sales \$599M

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Notes

Note 1. Profit Impact of Market Strategies.

Note 2.

https://www.google.com/search?q=is+ajax+ultra+dishwashing+liquid+a+soap+or+a+detergent&sca_esv=0241leaf15a5ed518&sca_upv=1&source=hp&ei=oce3ZafXMv2Swt0PxpKhwA8&iflisig=ANes7DEAAAAAZbfVsbOfBuJo8fYPTKPYxzuyRtii2LKc&oq=Is+Ajax+Ultra+dishwashing+liquid+a+soap+or+a+detergent&gs_lp=Egdnd3Mtd2l6lJvJcyBBamF4IFVsdHJhIGRpc2h3YXNoaW5nIGxpcXVpZCBhIHNVYXAgb3IyYSBkZXRlcmVudCoCCAeyBxAhGAoYoAEyBxAhGAoYoAFI1KEDUABYuYYDcAB4AJABAjgB7QGgAbUsqgEHMjYuMjYuMbgBAcgbAPgBAcICCxAAGIAEGLEDGIMBwgIREC4YgAQYsQMYgwEYxwEY0QPCAg4QLhiABBikBRixAxiDAcICBRAAGIAEwgILEC4YgAQYsQMYgwHCAG4QLhiABBjHARivARiOBcICCBaUGIAEGLEDwgIOEAAYgAQYigUYsQMYgwHCAGgQABiABBixA8ICBhAAGBYHsICCxAAGIAEGIoFGIYDwgIFECEYoAHCAGUQIRifBcICBR AhGKsC&scient=gws-wiz

Note 3.

https://www.google.com/search?q=ingredient+difference+between+bar+soap+amd+dishwashing+detergent&sca_esv=594634983&source=hp&ei=rX-QZYfRNef2kPIPveag4AQ&iflisig=AO6bgOgAAAAAZZCNvVqnxDdK9J1uRA5w_2C3cU2DUNB7&ved=0ahUKEwjH2-uBgriDAxVnO0QIHT0zCEwQ4dUDCAw&uact=5&oq=ingredient+difference+between+bar+soap+amd+dishwashing+detergent&gs_lp=Egdnd3Mtd2l6lKbpbmdyZWRpZW50IGRpZmZlcmVuY2UgYmV0d2VlbiBiYXIgc29hcCBhbWQgZGlzaHdhc2hpbmcgZGV0ZXJnZW50MgcQIRigARgKMgcQIRigARgKMgcQIRigARgKMgcQIRigARgKSMjNBFAAWOm5BHAAeACQAQCYAYsBoAHRH6oBBDQzLje4AQPIAQD4AQHCAGsQABiABBixAxiDAcICERAUgIAEGLEDGIMBGMcBGNEDwgIOEC4YgAQYigUYsQMYgwHCAGUQABiABMICCBaUGIAEGLEDwgIIEAAYgAQYsQPCAgUQLhiABMICFBAUGIAEGIoFGLEDGIMBGMcBGNEDwgILEC4YgAQYsQMYgwHCAG4QABiABBikBRixAxiDAcICFBAUGIAEGIoFGLEDGIMBGMcBGK8BwgIIEC4YgAQY1ALCAGsQLhiABBixAxjUAsICCxAAGIAEGIoFGLEDwgILEC4YgAQYxwEYrwHCAGYQABgWGB7CAGgQABgWGB4YD8ICChAAGBYHHgPGArCAGgQABgWGB4YCsICBRAhGKABwgIFECEYqwLCAGgQIRgWGB4YHcICChAhGBYHHgdGAo&scient=gws-wiz

Note 4. US5230823A - Light-duty liquid or gel dishwashing detergent composition containing an alkyl ethoxy carboxylate surfactant - Google Patents

Note 5.

<https://www.quora.com/Why-are-dish-soap-and-dishwashing-detergent-two-different-things-Why-not-just-make-one-single-product-that-works-for-both-uses>

Note 6.

https://www.google.com/search?q=do+dishwashing+detergents+for+handwashing+produce+suds&sca_esv=596953782&sxsrf=ACQVn0-DMv30mTlvtcxnvV5vNuWp0TrQUA%3A1704826927713&source=hp&ei=L5idZYW9Ke6hur8PosulgAo&iflisig=ANes7DEAAAAAZZ2mP0cCOBT-2wwXg5Ic255NI1

vQPw9K2-AU&oq=history+of+cascade+dishwashing&gs_lp=Egxnd3Mtd2l6LXNlcnAiHmhpc3Rven
kgb2YgY2FzY2FkZSBkaXNod2FzaGluZyoCCAAYBhAAGBYHjILEAAyGAYigUYhgMyCxAAGIAEGIoFGIYDMgsQABiABBiKBRiGAzILEAAyGAYigUYhgMyCxAAGIAEGIoFGIYD5zU
LYPWNBQcAF4AZABAjgB9AGgAYoPqgEGNC4xMC4yuAEBYAEA-AEBwgIKEAAYRxiWBBiw
A8ICChAjGIAEGIoFGCfCAggQABgWGB4YD8ICBRAAGIAEwgIFECEYoAHCAGUQIRirAsICCh
AhGBYYHhgPGB3CAggQIRgWGB4YHeIDBBgAIEGIBgQBg&scient=gws-wiz-serp

Note 12. Cascade Complete Gel - Fresh Scent | Cascade Detergent (cascadeclean.com)

Note 13.

<https://news.pg.com/news-releases/news-details/2020/Cascade-Comes-Clean-About-Dishwashing-Habit/default.aspx>

Note 14. Finish (detergent) - Wikipedia

Note 15.

https://www.google.com/search?q=Does+Cascade+Free+%26+Clear+ActionPacs+include+a+layer+of+liquid+detergents+inside&sca_esv=594941850&source=hp&ei=GAeTZfTwM4nOkPIPxrKN-AQ&ifl sig=AO6bgOgAAAAAZZMVKHQDe2_Vgw9b_cd0r52Q21nyrDXL&ved=0ahUKEwj03Ku467yDAXUJJ0QIHUZZA08Q4dUDCA0&uact=5&oq=Does+Cascade+Free+%26+Clear+ActionPacs+include+a+layer+of+liquid+detergents+inside&gs_lp=Egdnd3Mtd2l6IIBeb2VzIENhc2NhZGUGRnJlZSAmIENsZWFyIEFjdGlvb1BhY3MgaW5jbHVkZSBhIGxheWVYIG9mIGxpcXVpZCBkZXRlcmlbnRzIGluc2lkZTIFECEYoAEyBRAhGKABMgUQIRirAjIFECEYqWJI7cUHUMNMWia4B3AGeACQAQCYAYwBoAG6D6oBBDE1Lje4AQPIAQD4AQH4AQK0AgrCAhAQABgDGI8BGOUCGOoCGIwDwgIQEC4YAXiPARjIAhjqAhiMA8ICBRAAGIAEwgIOEC4YgAQYsQMYxwEY0QPCAhEQLhiABBixAxiDARjHARjRA8ICERAUgIMBGMcBGLEDGNEDGIAEwgIFEC4YgATCAG4QLhiABBixAxiDARjUAsICCBAAAGIAEGLEDwgILEC4YgAQYxwEYrwHCAGsQABiABBixAxiDAcICCxAuGIAEGMcBGLEDwgIOEAAyGAYigUYsQMYgWHCAGgQLhiABBixA8ICDhAuGIAEGLEDGMcBGK8BwgIEEAAyA8ICDhAuGIAEGMcBGK8BGI4FwgILEC4YgAQYsQMYgWHCAG4QLhiABBikBRixAxiDAcICDhAuGMcBGLEDGNEDGIAEwgIIECEYFhgeGB0&scient=gws-wiz

Note 16. This data is from food stores with sales of over \$2 million, and drug stores over \$ 1 million; it also includes discount stores, such as Target and K-Mart, but *excludes* Wal-Mart as well as warehouse clubs, e.g., Sam’s Club, Costco, and BJ’s. It also does not include the “dollar” stores, such as Dollar General, and others.

Note 17. For those stores for which, during a week, there were feature ads, coupon ads, display, or temporary price decrease of at least 5%.

Note 18. The six classes are: “The Poor”, “The Near Poor”, “Traditional Middle Class”, “The Upper-Middle Class”, “The Very Rich/The Rich”, and “The Mega Rich—Masters of the Universe”.

Note 19. Renamed Finish from Electrasol in 2009.

Note 20. For 2007 the results did not support Hypothesis I, because the market leader, Energizer was found to be a member of the *premium* segment (Datta, 2021).

Note 21. In the Automatic Dishwasher Detergent market, the results for 2008 supported Hypothesis II, but *not* for 2007.

Note 22. In the Hand Dishwashing segment, the results for 2007 did support Hypothesis II, but *not* for 2008.

Note 23. <https://us.pg.com/annualreport2022/>

Note 24. History of reckitt benckiser - Search (bing.com)

Note 25.

https://www.google.com/search?q=reckitt+benckiser+2022+revenue&sca_esv=85976d96cfd45192&sca_upv=1&ei=P9muZam4LsaVwbkP25q4sAE&oq=reckitt+benckiser+2022+revenue&gs_lp=Egxn3Mtd2l6LXNlcnAiHnJIY2tpdHQgYmVuY2tpc2VyIDIwMjIgcV2ZW51ZSoCCAAyBhAAGBYHjIGEAAAYFhgeMgsQABiABBiKBRiGAzILEAAyGAYigUYhgMyCxAAGIAEGIoFGIYDSLxXUIUJWOpEcAF4AZABAJgB1QKgAbcLqgEHOS4zLjAuMbgBACgBAPgBACICChAAGEcY1gQYsAPCAg0QABiABBiKBRhDGLADwgITEC4YgAQYigUYQxjIAxiwA9gBACICGRAuGIAEGIoFGEMYxwEYrwEYyAMYsAPYAQHCAg0QABiABBiKBRhDGLDwgIKEAAyGAYigUYQ8ICEBAuGIAEGIoFGEMYxwEY0QPCAhAQLhiABBiKBRhDGMcBGK8BwgILEC4YgAQYxwEYrwHCAGUQABiABMICCxAAGIAEGIoFGJECwgIaEC4YgAQYxwEYrwEYlwUY3AQY3gQY4ATYAQLiAwQYACBBiAYBkAYMugYECAEYCLoGBggCEAEYFA&scient=gws-wiz-serp

Note 26.

https://www.google.com/search?q=annual+revenue+of+colgate+palmolive&sca_esv=f43f5888bb8ac77b&sca_upv=1&source=hp&ei=aT2vZaucINSykvQP29C-6AQ&iflsig=ANes7DEAAAAAZa9LeWTF43ERFUO1AakyD5WuHZfra7cq&oq=annual+report+of+Colgate+Palmolive+2022&gs_lp=Egdnd3Mtd2l6Iidhbm51YWwgcmVwb3J0IG9mIENvbGdhGUgUGFsbW9saXZlIDlwMjIqAggAMggQABiABBiBDIIEAAyGAYogQyCBAAGIkFGKIESL2IAIAAWIDmAXAAeACQAQCYAW-gAdQVqgEEMzguMbgBACgBAPgBACICERAUgIAEGLEDGIMBGMcBGNEDwgILEAAyGAYsQMYgwHCAG4QLhiABBiKBRixAxiDAcICDhAAGIAEGIoFGLEDGIMBwgILEC4YgAQYxwEY0QPCAg4QLhiABBiHARivARiOBcICCAuGIAEGLEDGIMBwgILEC4YgAQYxwEYrwHCAG4QLhiABBiHARjRA8ICCAuGIAEGLEDwgIFEC4YgATCAGsQLhivARjHARiABMICBRAAGIAEwgIIEAAyGAYsQPCAgYQABgWGB7CAGsQABiABBiKBRiGA8ICBRAhGKAB&scient=gws-wiz