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Differentiated Consumer Product Markets

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CHAPTER III

DIFFERENTIATED CONSUMER PRODUCT MARKETS

A. Introduction

Consumer products are products sold for use directly by individual final consumers. Examples include items found in supermarkets, department stores, mass merchants, electronics stores, and other retail outlets, as well as items sold directly to consumers (or through sales agents), such as cars, cruises, hotels, and financial services. Some consumer products can only be used once (e.g., food products), while others are durable and allow for multiple uses (e.g., appliances, cars, or electronics).

Many consumer products that have very similar functions are highly differentiated from one another in the attributes they offer to consumers and in how consumers perceive them. In some cases, different types of products might offer similar basic functionality but achieve that function in different ways. For example, there are many different ways of taking a vacation. One can take a cruise, go to an all-inclusive resort, rent a condominium or house, or pick a resort or other hotel and choose food and other services on one’s own. In addition, within a particular type of product, there can be substantial variation in the types of products offered by different suppliers. For example, Caribbean resorts could vary substantially in price, amenities offered, quality of the accommodations, and location.

This chapter discusses the market definition issues in the evaluation of mergers and acquisitions involving firms making similar consumer products. It also describes the different types of evidence that can be developed in these circumstances, including qualitative evidence, non-econometric empirical analyses, and econometric analyses, such as demand estimation with scanner data. In addition, the chapter discusses a number of cases that illustrate the role of market definition and the different types of evidence that have been used.

Defining relevant markets requires first estimating the extent to which consumers will switch from the product or products in the proposed market to other products and then determining whether that
extent of switching would be enough to make a price increase unprofitable. This chapter focuses primarily on the first of these tasks, estimating the extent of switching. Determining whether the degree of switching is sufficient to make a price increase unprofitable may be accomplished using techniques such as critical loss analysis or merger simulation that are discussed at length in Chapter I.

B. Specific Issues in Market Definition

Products are said to be differentiated when each product sold is somewhat different from the other products available to consumers. Using the approach outlined in the Horizontal Merger Guidelines, the question is whether there is a group of products that consumers view as close substitutes, with products outside the group being considered significantly more distant substitutes. The typical approach is to assess whether there are substantial “breaks” in the chain of substitution across different products such that few consumers would likely switch to products outside the hypothetical market if prices of products within the proposed market were raised by a small but significant amount. Determining what constitutes a large enough break in the chain of substitution to define a relevant product market can be challenging.

Consumer preferences and consumer willingness to substitute are generally the key elements of market definition analysis in consumer products industries. Often, these products are sold through retailers or other intermediaries (such as travel agents), rather than directly to consumers by the manufacturers. Thus, one must consider whether these intermediaries affect market definition analysis. For example, while consumers might not view two types of products as close substitutes, retailers may view them as good alternatives to carry on their shelves or to put on promotion, and this retailer-perceived closeness of competition might affect manufacturer pricing.

As in other industries, it is also important to analyze whether an identifiable group of consumers could be subject to price discrimination


2. 2010 MERGER GUIDELINES, supra note 1, § 4.

even if a price increase to all consumers would not be profitable (or not as profitable). In most retail settings, identifying different types of customers is difficult since all consumers at an outlet generally pay the same price, although some discrimination might be possible through differential pricing to different channels or geographies based on the intensity of retail competition. If consumer products are sold directly or through sales agents, however, discrimination may be more plausible.

There are two primary questions to consider. First, do different types of products that serve a similar function compete closely enough to be considered part of the same relevant market? Examples of products that might be analyzed in this context include (1) oceanic cruises versus all-inclusive resorts or other types of vacations; (2) potato chips versus tortilla chips; (3) scotch versus gin; and (4) wet dog food versus dry dog food. Second, is there enough differentiation among segments within a particular type of product for those segments to constitute different relevant markets? Examples include (1) child-oriented versus adult-oriented ready-to-eat cereal; (2) superpremium versus regular ice cream; (3) fountain pens versus other types of pens; and (4) superpremium versus premium and standard alcoholic beverages. In answering these questions, one should consider (1) the differences and similarities in the options available; (2) how consumers and suppliers view the different options; and (3) evidence of consumers' reaction to changes in relative prices.

Product market definition is an important element of many consumer products cases. In many cases, the overlap between the parties is substantial in a narrower market, but not in a broader market. In other cases, competition between the parties may be limited (if any) in a narrower market, but much more significant in a broader market because each firm is a large supplier in a separate segment of the broader market. Market definition for differentiated consumer products is frequently somewhat uncertain because it may be difficult to determine where the breaks occur in the chain of substitution. As a result, when assessing competitive effects, it is important to consider not only the impact of products outside the relevant market, but also whether there is some differentiation of competition within the relevant market.

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5. Id.
1. Types of Evidence and How Evidence Is Evaluated

As for most types of products, many different types of evidence are used to evaluate market definition for differentiated consumer products. Because scanner data (described in more detail below) are available for many consumer products, market definition in consumer products cases has involved more quantitative analyses, particularly econometric estimation of demand, than in other industries. Even where scanner data are available, however, other types of evidence are also important. In most cases, the starting point for defining markets will be non-econometric analyses (both qualitative and quantitative). These analyses may be sufficient to provide an answer or can be used in conjunction with econometric analyses and will generally help frame the econometrics. This chapter will briefly outline the types of evidence typically analyzed in consumer products cases. It will then describe several consumer products cases in which market definition was important and discuss the types of analyses that were conducted to define the relevant markets.

a. Qualitative Information

As in all merger cases, market definition in consumer products cases generally begins with reviewing qualitative information. The analysis often starts with documents from the parties or third-party studies that discuss the industry, own and competing products (including product attributes), pricing, and other factors that affect how products compete in the industry. These documents are frequently very useful in understanding how the companies and other industry participants view competition and what the important dimensions of competition among products are. Analysis often focuses on (1) how the parties and the industry segment the general product category; (2) what types of products the companies consider in their own competitive analyses, especially with regard to pricing decisions; and (3) the key competitive tools that manufacturers use (everyday prices, promotions, product innovation, etc.). Interviews with retailers or other entities selling directly to consumers also may be useful to get their view of consumer substitution patterns and information on how consumers purchase products.
b. Non-Econometric Empirical Analyses

Non-econometric empirical analyses are conducted both to provide independent insight into market definition and to help inform any econometric analyses that are conducted. Some of these analyses are discussed below.

Agency staff and the parties generally gather information on attributes of products within the potential candidate product markets. This information may include qualitative descriptions of the attributes as well as quantitative information where feasible. The typical output from such an analysis is a matrix where the rows are various attribute categories and the columns are different products (or product segments). Each cell would then have a number or a description relevant to the attribute in the row and the product/segment in the column. This type of matrix can help identify whether there are significant differences across different types of products within or across segments or whether there is more of a continuum of attributes.

In many consumer products industries, third-party vendors gather information on sales and other competitive activity (promotions, advertising, etc.) and sell this information to retailers and manufacturers in the form of industry reports or other publications. These vendors collect this information either through household surveys or through information they get from retailers on what products are actually scanned through the registers at their stores. The vendors then usually extrapolate from this information to get market level sales (as the surveys or the scanner data usually do not cover all sales within a channel or a market). AC Nielsen and Information Resources Incorporated (IRI), the best known third-party vendors in the consumer products industry, gather information on products sold in the grocery, mass merchant, drugstore, and convenience store channels, but there are also other vendors who gather information for other industries and channels. These data are often the source of empirical analyses conducted by the parties and agency staff.

Third-party vendors also frequently conduct analyses for the consumer product manufacturers that are relevant to market definition. For example, Nielsen and IRI often use their household panel survey data to analyze household penetration and cross-shopping behavior for the households in their survey. In addition, they also conduct “source of volume” analyses, where they look at sales gained or lost by a product (or a product category) over the course of a year and determine the products or segments from which the sales were gained or to which the
sales were lost. These analyses often compare the share of lost sales to overall segment shares to see if products interact more heavily than would be expected simply by considering market share. While these analyses are not analyses of substitution based on relative price differences, they can provide insight into consumers' purchasing habits and the types of products across which there appears to be at least some substitution.

The underlying data from vendors such as Nielsen and IRI can also be used to conduct many other types of analyses. For example, regular and sale prices for different brands and product segments can be calculated to assess whether there are significant differences in prices for different types of products. The data can also be used to calculate brand and segment shares over time to see if there appears to be shifting across products and segments or if shares are relatively stable.

Nielsen and IRI data can be used to analyze the frequency of new product introductions and their importance to sales. This analysis can implicate market definition in two ways: (1) new product introductions might constitute "natural experiments" that shed light on consumer substitution patterns; and (2) if innovation is important, different product categories might compete on nonprice attributes even if they do not compete on price.

In addition, as a proxy for consumer interviews, many consumer product manufacturers conduct consumer surveys that can provide insight into consumer preferences and substitution patterns. These surveys often provide information on a variety of factors, including (1) what attributes are important to consumers and why, (2) brand loyalty, (3) brand awareness, (4) brand preferences, and (5) past purchasing behavior. Underlying data from the consumer surveys also may be useful for conducting further empirical analyses beyond what is described in the documents discussing such surveys.

Analyses of wholesale prices are often useful as well. While such information is not generally available from all suppliers in the industry (except potentially to the agencies if they subpoena such prices), some analyses can be done with wholesale pricing data available from the parties, particularly if natural experiments can be used to assess consumer reactions to changes in wholesale prices. In addition, if retail prices are used in the analysis, but the market being considered involves

6. Analysis of price differences alone does not answer the market definition question; it is also important to assess the extent of demand or supply responses when relative prices change.
manufacturers that sell through wholesalers, it is important to understand the relationship between wholesale and retail prices.

2. Econometric Analyses

Market definition assessment in consumer products cases often involves econometric analyses, particularly where data are available on consumer purchases at the retail level. Econometric analyses can be useful as they allow one to consider the interaction of prices and volumes across different products or segments while controlling for other factors. Two types of econometric analyses are most often used in consumer products cases to help define markets: (1) analyses that attempt to directly or indirectly estimate demand for a product or group of products; and (2) analyses that take advantage of important market events or natural experiments.7

a. Demand Analysis

Market definition requires determining whether enough consumers would shift to products outside the proposed market following a small but significant and nontransitory increase in price (SSNIP) of products in the proposed market to make the price increase unprofitable. Thus, defining markets requires assessing how much volume is likely to be lost following a SSNIP (i.e., own elasticity of demand) and to what products the lost sales are diverted (i.e., cross elasticities of demand). Econometric estimation of demand using historical data on prices, volumes, and other market factors provides information on these two key elements of market definition.

Demand estimation requires information on prices and quantities for the products or segments that might be in the same relevant market as well as other factors that might impact prices and quantities at a given time. It also requires assumptions about what products should be included in the analysis and about the structure of demand, and a determination of what econometric techniques are most appropriate for the given analysis.

The choice of model will rest in part on information about the products at issue and consumer decision making, and in part on data

7. For a discussion of the use of natural experiments, see Mary Coleman & James Langenfeld, Natural Experiments, 1 ABA SECTION OF ANTITRUST LAW, ISSUES IN COMPETITION LAW AND POLICY 743 (2008).
availability and time constraints. Possible models include a "log-log" model, an Almost Ideal Demand System (AIDS), or a discrete choice model. In practice, economists often estimate more than one demand model and compare the results across models to test for the robustness of the results.

Economists often use the log-log model of demand to estimate demand relationships. In the log-log model, the estimated coefficients on the price variables are the own and cross-price elasticities themselves. A potential shortcoming of this model is that it assumes that elasticities are constant—that is, that they do not vary with the level of prices for the range of prices within the data.

Another popular model is the AIDS demand model. Rather than having volume as the dependent variable (as in a standard log-log model), this model typically has revenue share as the dependent variable. Economists can choose to estimate a single-level AIDS model or a multi-level model. The multi-level model assumes that the consumer makes a series of sequential choices when deciding to purchase a good (e.g., first deciding to purchase juice; then deciding to purchase orange juice; and lastly deciding to purchase a specific brand of orange juice). Each level in the model has a set of demand equations, which do not necessarily need to be modeled as AIDS equations.

A number of discrete choice models can be used to estimate demand. Logit models are among the most common types of discrete choice models. One advantage of relatively simple formulations of the logit model is that the data requirements are modest compared to many other models. The logit model is based on the assumption that consumers make a choice from a set of alternatives. It has the highly restrictive property of the "independence of irrelevant alternatives," which implies that if the price of one good increases, consumers will switch to other goods in proportion to the market shares of the other goods. This property greatly restricts the pattern of cross-price elasticities.


Economists have also developed models that have more flexible substitution patterns and address the heterogeneity of consumer preferences. Models pioneered by economists Steven Berry, James Levinsohn, and Ariel Pakes (BLP models), referred to as random coefficients logit models, assume that products can be treated as bundles of attributes. Thus, BLP models are specified in terms of the demand for these attributes, which are often substantially fewer in number than the number of products or brands available in the marketplace. The data required to estimate BLP models can be very extensive, and the estimation process is rather complicated and time-consuming.\(^{11}\)

Economists typically start by using simpler structures and techniques and then supplement with more sophisticated techniques if needed. It is also common to use a number of different approaches to assess whether the results are robust.\(^{12}\)

At times, analyses that are similar to demand estimation but that do not directly estimate elasticities can be useful, particularly to guide how the ultimate demand estimation is conducted or if good pricing data are not available. For example, if information on when promotions occur is readily available, one can estimate the promotion's impact on own volume and volume of potential substitutes. Similarly, one can analyze

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how volume for one product or segment changes with changes in volume for other products or segments.

b. Natural Experiments

Analysis of important market events also can be a useful input into market definition assessment. Review of documents, discussions with industry participants, and analysis of sales data can be used to identify such events. Frequently, econometric analysis is useful for such studies as it allows one to control for factors other than the event that might impact market outcomes.

New product introductions are examples of such events. In many consumer product categories, new brands or brand extensions are frequently introduced. Considerations relevant to market definition include (1) whether incumbents changed their prices in response to the new entry and, if so, which incumbents in which segments reacted; and (2) the products or product categories that lost volume to the new product. Other potentially important events include the exit of a competitor, a large increase in capacity by a competitor, a widely publicized credible research report indicating significant health benefits or risks from consuming a particular product, and a natural disaster that forces a competitor’s plant to close temporarily or permanently.

A similar type of analysis might be used if the proposed product market is associated with several different geographic markets, and if the different geographic markets have different numbers of competitors within the proposed product market. If prices are lower where there are significantly more competitors, this might suggest competition within the product segment is important and thus the segment is a relevant market. Econometric analysis can be used to help control for other factors that might cause differences across areas (assuming data are available concerning these other factors).

3. The Use of Scanner Data

As discussed, scanner data are often used in cases involving products sold through grocery outlets as well as other retail channels. Scanner data are collected by third-party vendors such as AC Nielsen and IRI. According to its website, Nielsen provides marketing and sales

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information "gathered weekly from a sample of more than 4,800 stores representing more than 800 retailers in 52 major markets."

Scanner data provide information on unit and dollar sales, average retail price, promotion, and other competitively significant variables, and can be quite useful for conducting analyses relevant to market definition.

As mentioned above, demand analyses and events analyses are the primary types of econometric analyses that provide input regarding market definition assessment in consumer products matters. Scanner data often provide a means to carry out such analyses, but, as with all data analyses, it is important to make sure that the available data and methodology are appropriate for addressing the questions at issue. As a starting point, analysis of scanner data should not occur in a vacuum. Other types of information, which may be very important in and of themselves, also help to shape how scanner data are analyzed.

Scanner data have several advantages. First, they provide very detailed information that is not commonly available for most industries. Second, they are objective. Although scanner data are subject to varying types of analyses and interpretations, there is little doubt about the integrity of the raw data itself. Third, scanner data have been used for a number of years, and economists have published a number of papers about best practices for analyzing these data. Finally, scanner data provide industry-level information, which can be invaluable for antitrust practitioners. Scanner data is often the only source of sales data for all competitors in an industry, not just the parties to a proposed transaction.

Notwithstanding the many advantages of scanner data, some potential drawbacks and issues that should be kept in mind, including (1) the fact that scanner data are often very costly and time-consuming to analyze; (2) the extent of channel coverage; (3) the use of retail data to make inferences about transactions involving manufacturers; (4) the level of product aggregation; (5) the level of geographic aggregation; and (6) the lack of certain promotion variables.

16. See generally, e.g., Demand System Estimation, supra note 12; Weiskopf, supra note 15; Competitive Analysis with Differentiated Products, supra note 9, at 159-72; Mergers with Differentiated Products, supra note 11, at 399-409.
Scanner data generally do not cover certain channels of distribution. For example, Nielsen and IRI scanner data do not cover food service and vending machines. If a product category within the industry at issue happens to have significant sales in distribution channels with little or no coverage by the scanner data, the analyst should consider whether the results from the available data sufficiently represent the industry as a whole. A related issue is the extent to which data for channels that are covered, such as grocery stores, drugstores, and mass merchandisers, are truly representative of the respective channel. The scanner data vendors extrapolate from a sample to the population, so the data are not literally pulled for every outlet in the channel. Further, for the mass merchant channel, data for Walmart are typically excluded. Because Walmart is a very significant retailer, the lack of these data can be a significant shortcoming.

When using scanner data in the context of an acquisition involving manufacturers, it is important to consider that the market definition (and competitive effects) assessment relates primarily to the ability and incentives of manufacturers to raise price and/or reduce quality. Scanner data provide only an indirect way to assess these factors because they provide information about consumer behavior at the retail level, which is one or more steps removed from the manufacturer in the distribution chain. Thus, a challenge when analyzing scanner data is being able to make appropriate inferences about manufacturer behavior based on information about consumer behavior.

The level of product and geographic aggregation will also have to be addressed. The data are usually at the universal product code (UPC) level, and each combination of package size, flavor, color, and other attributes of a product has a different UPC. Out of practical necessity, UPCs are often combined into product categories. The economist will typically have to figure out whether and how to combine different UPCs for the purpose of demand estimation.17

While the data may be too disaggregated in terms of products, they may also be too aggregated in terms of geography. A common way to receive scanner data is by market area, which is sometimes roughly equivalent to a city or metropolitan area. Market area data have been aggregated over different retailers operating in different parts of a metropolitan area. Such data, however, can be misleading. It may be the

17. For a detailed discussion of aggregation issues and other concerns involving scanner data, see Demand System Estimation, supra note 12, at 3-10.
case, for instance, that Retailer A sells brands X, Y, and Z of some grocery product in a particular metropolitan area, and Retailer B sells brands Q, X, and Y of the same grocery product in the same metropolitan area. Thus, aggregated data for that metropolitan area will include brands Q, X, Y, and Z, even if brands Q and Z are never sold in the same stores and would not be expected to provide as much competitive constraint on each other as the other products unless consumers shop across different stores for the product.\footnote{Id.}

Another potential shortcoming with scanner data is the lack of some important promotion variables. Certain coupons, such as manufacturer coupons, are generally not included in scanner datasets. Because these coupons reduce the price paid by consumers at checkout, not accounting for them can make the own-price elasticity of demand appear less elastic (i.e., less price sensitive) than it really is.\footnote{Consumer inventory behavior is another issue arising in the analysis of scanner data. If consumers stock up when an item is on sale, this will bias the estimation of elasticities. \textit{See, e.g.,} Igal Hendel & Aviv Nevo, \textit{Measuring the Implications of Sales and Consumer Inventory Behavior}, \textit{74 ECONOMETRICA} 1637-39 (2006).} There is often some ambiguity regarding whether the data take into account certain discounts and promotions; thus, it is always advisable to clarify these issues with the data supplier.

After estimating demand using scanner data, economists can use the estimates in a wide variety of ways to address market definition. One approach is to perform a critical loss analysis. Critical loss analysis, which is discussed in Chapter I, involves three basic steps: (1) determining the “critical loss” — the volume of sales a hypothetical monopolist would have to lose to make a theoretical SSNIP unprofitable; (2) estimating the “actual loss” — the sales volume lost as a result of the hypothesized price increase; and (3) comparing the critical loss with the actual loss, and if the actual loss is greater than the critical loss, expanding the candidate market.\footnote{\textit{See, e.g.,} David Schoeffman & Joseph Simons, \textit{The State of Critical Loss Analysis: Let’s Make Sure We Understand the Whole Story}, \textit{ANTITRUST SOURCE}, Nov. 2003, at 1, 2-3; Michael Katz & Carl Shapiro, \textit{Critical Loss: Let’s Tell the Whole Story}, \textit{ANTITRUST}, Spring 2003, at 49, 49-50.} Demand estimates can be very useful for estimating the actual loss. An estimate of the own-price elasticity of demand provides a way to measure the actual loss directly. A similar
approach involves using demand estimates to compare the critical elasticity of demand to the estimated elasticity of demand.\(^{21}\)

C. Cases and Agency Decisions

The following subsections present several case studies involving grocery products. These case studies illustrate the types of evidence the agencies rely on to define relevant markets.

1. Superpremium Ice Cream

a. Case Description

In 2002, Nestlé Holdings, Inc., which owned the Häagen Dazs ice cream brand, proposed to purchase Dreyers Grand Ice Cream Inc. (Dreyers).\(^{22}\) Dreyers owned several ice cream brands, including Dreyers, Edys, Dreamery and, under long-term license, Godiva and Starbucks.\(^{23}\) Dreyers and Edys were known as “premium” ice cream brands in the industry, while Häagen Dazs, Dreamery, Starbucks, and Godiva, along with Ben & Jerry’s, were known as “superpremium” ice cream brands.\(^{24}\) A key issue in the case was whether the superpremium ice cream segment was a relevant product market. In a superpremium market, there would only be three competitors postmerger and the combined share of the merged firm would be high, while in an all ice cream market there would be many more competitors and the merged firm would have a much lower share.\(^{25}\) The Federal Trade Commission (FTC) concluded that superpremium ice cream was a relevant market and that competitive harm was likely in that market. It required divestiture of the Dreamery

\(^{21}\) See Chapter I.

\(^{22}\) See Analysis of Proposed Consent Order to Aid Public Comment, Nestle Holdings, Inc., No. 21-0174 (June 25, 2003), available at http://www.ftc.gov/os/2003/06/dreyeranalysis.htm [hereinafter Nestlé Analysis]. Mary Coleman was Deputy Director for Antitrust in the Bureau of Economics at the Federal Trade Commission when this matter was investigated.

\(^{23}\) Id. § II.

\(^{24}\) Id.

and Godiva brands, as well as of some other products and distribution assets.26

b. Types of Evidence Relied on by the FTC

FTC staff relied upon a variety of evidence in concluding that superpremium ice cream—rather than all ice cream—was a relevant product market. Staff considered documentary and testimonial evidence, as well as other quantitative evidence.27 The FTC found significant differences between the attributes of superpremium ice cream and those of other types of ice cream. Superpremium ice cream has much higher butterfat content, has a lower percentage of air in the ice cream (i.e., it is more dense), and uses higher quality ingredients.28 In addition, superpremium ice cream is much more expensive than other types of ice cream.29

FTC staff also used scanner data to conduct demand analyses. It found that the evidence on own and cross-price elasticities between the superpremium segment and other ice cream segments was consistent with the existence of a separate product market for superpremium ice cream. Staff found that the estimates indicated that a hypothetical monopolist of superpremium ice cream could raise prices significantly.30 In addition, Dreamery was a relatively recent entrant into the superpremium segment. The FTC analyzed the impact of that entry on competitors within and outside the superpremium segment and found that superpremium competitors had reduced price in response to the entry.31

2. Ready to Eat Cereal

a. Case Description

General Mills Inc. (General Mills), the second largest producer of ready to eat (RTE) cereal in the United States, announced its plans to buy the Nabisco Inc.'s (Nabisco) RTE cereal line on September 1, 1992.32

26. See Nestlé Analysis, supra note 22, § IV.
27. GUIDELINES COMMENTARY, supra note 25, at 6.
28. Id.
29. Id.
30. Id.
31. See Nestlé Analysis, supra note 22, § III.
32. Mergers with Differentiated Products, supra note 11, at 396.
On November 4, 1992, General Mills called off the proposed acquisition, citing antitrust concerns.³³ Kraft Foods, Inc. (Kraft), the owner of Post cereals, then entered into an agreement to purchase the RTE cereal assets of Nabisco on November 12, 1992.³⁴ The acquisition was consummated on January 4, 1993 without a second request by the FTC.³⁵

On February 10, 1993, the New York Attorney General filed a lawsuit seeking to have the Nabisco assets divested or the acquisition rescinded.³⁶ There was a three-week trial, and the district court for the Southern District of New York ruled in favor of the defendants.³⁷ The state of New York later decided not to appeal the decision.³⁸

While the parties agreed that the relevant geographic market was the United States, there was substantial disagreement regarding the relevant product market. The state of New York argued that the product market included only adult RTE cereals, while Kraft maintained that the product market included at least all RTE cereals.³⁹ The adult RTE product market advocated by the state of New York included Post’s most successful product line at the time, Grape Nuts, and Nabisco’s largest product line, Shredded Wheat.⁴⁰ The court took the unusual step of appointing its own independent economic expert with the consent of Kraft and over the state’s objection.⁴¹ The judge concurred with the independent expert’s conclusion that the relevant product market in which to assess the transaction was all RTE cereal.⁴²

³³ Id.
³⁴ Id.
³⁸ Market Definition with Differentiated Products, supra note 35, at 165.
⁴⁰ Market Definition with Differentiated Products, supra note 35, at 166.
b. Types of Evidence Relied on by the State of New York and Kraft

The state of New York and Kraft relied on three broad types of evidence: (1) consumer surveys and other studies related to buying and switching patterns; (2) Kraft and Nabisco documents; and (3) econometric estimates of own and cross-price elasticities of demand.\footnote{Market Definition with Differentiated Products, supra note 35, at 167.}

The court's opinion made extensive references to consumer surveys and related information.\footnote{Kraft Gen. Foods, 926 F. Supp. at 326-32.} In a section of the opinion concerning the relevant product market, the judge included a subsection on consumer dynamics.\footnote{Id. at 326-30.} This subsection provided a great deal of evidence about consumer behavior with respect to RTE cereal.\footnote{Id.} It noted that consumers frequently switch between cereals and devote a relatively small proportion of their cereal consumption to any single product.\footnote{Kraft Gen. Foods, 926 F. Supp. at 326-27.}

In addition, the consumer dynamics subsection referenced a Post consumer survey that concluded that consumers ranked price as the seventh most important factor in choosing cereal, behind factors such as taste and type of grain.\footnote{Id. at 328.} The judge also noted that in the parties' documents, Nabisco classified many cereals as "all family" that Post classified as "family acceptable kid" or "traditional kid." The state excluded these cereals from its "adult" market because it relied solely on Post's classifications.\footnote{Id.} The judge also referenced a 1993 study conducted for Post by National Eating Trends (NET) that looked at individual eating patterns over a nine year period.\footnote{Id. at 329.} The NET study found that about 70 percent of children eat "all family cereals," a category defined by NET that also included most of the cereals the state had categorized as adult. The same study also showed that approximately 20 percent of adults eat "pre sweet" cereals, which the state generally categorized as being a part of the "kid" RTE cereal market.\footnote{Id.}

Before discussing the econometric analyses, the judge elaborated on retail customer perspectives, competition from other product categories (e.g., from hot cereal in colder weather), and supply-side considerations.
(e.g., manufacturing processes, such as flaking, puffing, and granulation are not dedicated to producing cereals in only one segment). Evidence bearing on those issues generally supported an all-RTE cereal product market.

Estimates of own- and cross-price elasticities of demand played an important role as well. The state used the estimates from its economic expert in support of an "adult only" product market, whereas Kraft argued for an all RTE cereal market in part because of relatively high cross-price elasticities of demand between certain adult cereals and kid cereals found by its economic expert.

The state and Kraft's economic experts estimated demand elasticities by using a scanner data set that contained three years' worth of weekly data for ten metropolitan areas. They estimated elasticities as part of a demand system in which the amount sold of numerous RTE cereals were specified as a function of own price, prices of other RTE cereals, measures of product-specific advertising and promotion, and variables that accounted for product and geographic differences. The economic experts tended to rely on elasticities obtained from log-linear demand, which is a very common type of demand equation used by economists in this type of setting.

The modeling of multi-level decision making played a critical role in the econometric analysis. As previously noted, multi-level decision making refers to the hypothesized set of decisions that a consumer makes in deciding to purchase a product. Estimated elasticities of demand can be highly sensitive to assumptions about the multi-level structure of demand. The state's economic expert used a three-stage model in which consumers were assumed first to choose between RTE cereal and other (generally breakfast food) items; then to choose between adult and kid RTE cereal; and finally to choose among individual adult RTE cereals. If the assumptions used in this type of model are not chosen with great care, they can lead to underestimates of the cross-price elasticities between products in the different groups, such as adult and kid RTE.

52. Id. at 330-34.
53. Id. at 327-30.
55. Id.
56. Id.
57. Id. at 173.
58. Id. at 174.
59. Id. at 176.
cereals. The state’s economic expert focused on the estimated own-price elasticity of demand for adult RTE cereal (using a three-level system) and testified that the elasticity was sufficiently low for a hypothetical monopolist profitably to increase prices.

Kraft’s economic expert and the judge focused on cross-price elasticities of demand for individual products estimated from a system of individual product demand equations. While sometimes it is appropriate to define relevant markets using either own-price or cross-price elasticities of demand, there can be reasons to prefer cross-price elasticities in industries with highly differentiated products. Building up market definition by sequentially adding in products can be complex and difficult, and cross-price elasticities can assist in the determination of the appropriate chain of substitutes. Further, cross-price elasticities helped show that the adult RTE cereal market definition was invalid. Kraft’s economic expert showed that there was substantial cross-price elasticity (i.e., substitutability) between adult and kid RTE cereals.

3. White Pan Bread

a. Case Description

In 1995, Interstate Bakeries Corporation (Interstate), which owned Sunbeam, Butternut, and other brands of bread, proposed to acquire Continental Baking Company (Continental), the owner of the Wonder brand and other brands. Continental and Interstate were, respectively, the largest and third-largest bakers of bread and sweet baked goods (e.g., donuts and cakes) in the United States. On July 20, 1995, the U.S. Department of Justice (DOJ) filed a complaint challenging the transaction.

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60. Id. at 173-75.
61. Id. at 177.
62. Id. at 178.
63. Id.
64. Id. at 178-79.
65. Id.
67. Id. ¶¶ 7-8.
68. Complaint, supra note 66.
White pan bread, which is baked in walled pans that form the shape of the loaf, is a very popular sandwich and toasting bread.\textsuperscript{69} An important issue in this case was whether the relevant product market is limited to white pan bread or whether the product market also includes other types of bread, such as wheat, sourdough, and rye. The DOJ concluded that the relevant product market was limited to white pan bread.\textsuperscript{70} A proposed consent decree was filed with the DOJ's complaint, and on January 9, 1996, a final judgment was entered requiring Interstate to divest certain white pan bread brands in four "Relevant Territories"—"the Chicago Territory, the Eastern Wisconsin Territory, the Central Illinois Territory and the Southern California Territory: Los Angeles, San Diego, Chicago, Milwaukee, and central Illinois."\textsuperscript{71}

b. Types of Evidence Relied on by the DOJ

The DOJ considered both qualitative and quantitative evidence when assessing whether white pan bread is a relevant product market. Although the amount of publicly available information is somewhat limited, in reaching its conclusion the DOJ appears to have relied on three main types of evidence: (1) product attributes and consumer preferences; (2) industry studies and the parties' marketing documents; and (3) estimates of own price elasticities (compared to the critical elasticity) from scanner data.\textsuperscript{72} Each type of evidence will be discussed in turn.

In its competitive impact statement, DOJ stated that white pan bread is significantly different from other types of bread, such as wheat, rye, French, and freshly baked breads.\textsuperscript{73} These significant differences include "taste, texture, uses, perceived nutritional value, keeping qualities, and

\textsuperscript{70} Complaint, supra note 66, at ¶ 9
\textsuperscript{73} Competitive Impact Statement, supra note 72, at 4.
appeal to various groups of consumers." 74 These differences "give rise to distinct consumer preferences for each bread type." 75 For example, many children have a strong preference for white pan bread, and thus a primary use of this type of bread is "for sandwiches in school lunches." 76

One issue that arose in this matter is whether the relevant product market could be defined more narrowly than white pan bread. As discussed below, econometric evidence was somewhat mixed regarding whether premium white pan bread was a relevant product market. However, other evidence was consistent with the narrower market. For example, an industry study stated that "Brand Reputation is Key," and an analysis apparently performed for Continental found that, within white pan bread, "Super Premium Brands (including Wonder and Home Pride) form a competitive set separate from All Other Branded White Breads." 77 Further, the marketing documents of Interstate and Continental indicated the importance of premium brands. 78

The DOJ relied on econometric evidence in concluding that the relevant product market was all white pan bread. DOJ economists performed econometric analyses with scanner data to estimate own price elasticities of demand for white pan bread. 79 While the details of the analyses are not available to the public, the basic approach was to compare estimated own price elasticities of demand to the critical elasticity of demand to accept or reject a given definition of the relevant market. 80

The critical elasticity of demand is a formulation of the Horizontal Merger Guidelines' hypothetical monopolist test. The critical elasticity of demand is the level above which a hypothetical monopolist would not want to impose a SSNIP of five percent. 81 If the own price elasticity is fairly high (i.e., fairly elastic), a five percent price increase by a hypothetical monopolist would cause enough consumers to switch to make the price increase unprofitable. Thus, the hypothetical monopolist would not want to impose the price increase if facing relatively price-sensitive customers. After assuming the functional form (or shape) of

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74. Id.
75. Id.
76. Id. at 4-5.
77. Werden, Expert Report, supra note 69, at 143.
78. Id.
79. Id. at 141-43.
80. Id.
81. Id. at 141. The concept of critical elasticity is also discussed in Chapter I.
the demand curve, the critical elasticity of demand is computed from the premerger price-cost margin and the size of the price increase.

The estimated own-price elasticity of demand was compared to the critical elasticity of demand for white pan bread and for premium white pan bread. This comparison was performed for two geographic areas: Chicago and Los Angeles. For white pan bread, the estimated own-price elasticity was lower than the critical elasticity in both cities. This result implied that white pan bread sold in either Chicago or Los Angeles is a relevant market. The results for premium white pan bread were mixed. While the analysis suggested a "premium white pan bread" market in Chicago, the analysis for Los Angeles suggested that premium white pan bread is likely too narrow to be a relevant market.

4. Intense Mints

a. Case Description

This section considers two acquisitions that involved "intense mints." In the first acquisition, mints represented a small portion of the transaction. In the second acquisition, mints were the primary focus of the transaction. The first transaction was an acquisition by Philip Morris Companies, Inc. (Philip Morris), which owned Kraft Foods at the time, of Nabisco Holdings Corp. (Nabisco) in 2000 for approximately $19.4 billion. The FTC analyzed overlaps between the merging parties in several product areas, including intense mints, and concluded that intense

82. The price-cost margin is also called the Lerner index of market power. The Lerner index is discussed in more detail in Chapter I.
83. Werden, Expert Report, supra note 69, at 143.
84. Id.
85. Id.
86. See GUIDELINES COMMENTARY, supra note 25, at 14 (explaining that the estimation "indicated that the relevant market was no broader than all white pan bread, despite some limited competition from other bread products and other sources of carbohydrates.").
mints constituted a relevant market. The parties reached a consent agreement with the FTC requiring divestitures of Nabisco's intense mints products (Ice Breakers and Cool Blasts brands) as well as other related products (Ice Breakers gum and Breath Savers mints).

The second transaction, announced in November 2004, was an acquisition by Wm. Wrigley Jr. Co. (Wrigley) of certain Kraft brands from Altria Group, Inc. (Altria), including Altoids, Life Savers, and Creme Savers. The FTC cleared the proposed transaction on May 5, 2005 based in part on evidence of relatively low entry barriers. The FTC might have contemplated relevant markets for breath mints and


93. See GUIDELINES COMMENTARY, supra note 25, at 41. "Commission staff assessed whether sunk costs that would have to be incurred in acquiring the capacity to produce or market breath mints or chewing gum would pose significant impediments to post-merger competitive entry." Id. FTC staff found that "new entrants would have relatively easy access to third-party 'co-manufacturers' for the production of the relevant products," avoiding "costly expenditures in developing manufacturing expertise or in building a new facility." Id. The FTC also concluded that new entrants "could competitively distribute their products by outsourcing" distribution functions to third parties. Id. (finding evidence of "significant recent branded entry").
chewing gum," but it is not clear whether it defined a relevant market for intense mints.

b. Types of Evidence Relied on by the FTC

In the Philip Morris-Nabisco transaction, very little evidence in support of an intense mints market was made public, and it is unclear what evidence the FTC relied on in reaching its conclusion that intense mints is a relevant product market. The complaint stated that intense mints are "strong mint-flavored candies such as Altoids . . . but not including traditional mint candies such as Life Savers." The FTC’s analysis to aid public comment did not explain the basis for the government’s contention that intense mints are a relevant product market, focusing instead on intense mint sales and supplier shares and HHIs in the intense mints market. The FTC’s press release announcing the proposed consent agreement and divestitures provided some basis for an intense mints product market, indicating differences in product attributes were important: "Sales of intense mints . . . differ from traditional mints because of their powerful flavor and distinctive packaging, pricing, and marketing . . . ."

In the Wrigley-Altria transaction, the FTC and the parties performed several types of econometric analyses. The two main types of analyses that the outside economists presented to the FTC were demand and entry analyses. These analyses, coupled with a review of qualitative evidence, tended to refute the existence of an intense mints market.

The demand analysis was performed using supermarket scanner data. The set of brands evaluated included both intense mints and traditional mints, as well as a new form of breath-freshening product. Econometric models were estimated, yielding matrices of own and cross-price elasticities of demand, as well as estimated revenue diversion. (Revenue diversion is a measure of how much of the estimated lost revenue from a price increase for Product "X" is diverted to Product "Y" and is a useful way to put estimated elasticities of demand into context.)

94. See id.
95. Complaint, Philip Morris, supra note 89, ¶ 30.
96. Aid to Public Comment, Philip Morris, supra note 88, at 2.
97. FTC Nabisco Press Release, supra note 90.
98. James Langenfeld, Mary Coleman, and David Weiskopf, economists at LECG and Compass Lexecon, were retained by Wrigley and participated in presentations to the FTC. The analysis presented is drawn from their personal knowledge.
The results of the demand analysis indicated that there was no unique or special interaction among different intense mint products relative to traditional mints. In fact, there was substantial interaction between "traditional" (non intense) mints and intense mints. If intense mints were a separate product market, there would have been more interaction among various brands of intense mints than between intense mints and traditional mints.

The second statistical analysis involved a natural experiment, and it considered the effects of past entry events. This analysis was designed to determine from which existing products the new products took sales. The entry of a new product form was associated with a decrease in volume for both traditional mints and intense mints. This result was consistent with a product market broader than intense mints.

The entry of new intense mints did not seem to reduce the volume of any incumbent intense mint brand. However, the entry was associated with a decrease in the volume of a traditional mint brand. This evidence also suggested that there was not a special or unique interaction among intense mint products and was consistent with a product market broader than intense mints.

While this evidence was presented to the FTC, the agency’s determination of the relevant market is not publicly known. The FTC did not need to determine whether intense mints were a relevant market because it concluded that entry into the breath mints segment (presumably including intense mints) would be timely, likely, and sufficient to discipline any attempted anticompetitive price increase by Wrigley post-acquisition. Thus, the FTC would not have challenged the acquisition even if intense mints were a relevant product market.

5. Cruise Line Services

a. Description of the Case

In 2001, Royal Caribbean Cruises (Royal Caribbean) proposed to purchase P&O Princess Cruises (Princess); shortly thereafter, Carnival Cruise Lines (Carnival) made a competing offer. The FTC assessed

99. See GUIDELINES COMMENTARY, supra note 25, at 41.
100. See Mary T. Coleman, David W. Meyer & David T. Scheffman, Economic Analyses of Mergers at the FTC: The Cruise Ships Merger Investigation, 23 REV. INDUS. ORG. 121 (2003) [hereinafter Economic Analyses of Mergers at the FTC]. Mary Coleman was Deputy Director
competitive implications of both transactions at the same time. An important issue was whether oceanic cruising was a market separate from other types of vacations. Each merger would cause a large increase in concentration in a hypothetical oceanic cruising market but a minimal increase in a broader vacation market.

The FTC found that the demand for cruising was sufficiently elastic so that an across-the-board SSNIP was not likely to be profitable. However, because of the use of yield management (explained below) and the potential for price discrimination, the FTC defined a relevant market for oceanic cruising. The reasoning behind the agency’s market definition conclusion was important to its competitive effects analysis because it indicated that any competitive harm from either transaction would require some form of price discrimination. While the FTC found that a hypothetical monopolist might be able to use price discrimination to raise average prices, it also found that neither Royal Caribbean and Princess nor Carnival and Princess combined could unilaterally raise prices postmerger, nor was there likely to be coordination. As a result, the FTC cleared both transactions, and ultimately Carnival succeeded in acquiring Princess. This case provides a good example of how issues that arise during market definition can inform the assessment of competitive effects.

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for Antitrust in the Bureau of Economics at the FTC when this matter was investigated.

101. See id. at 132-36. The FTC also investigated whether different segments within the cruise market and different destinations also might constitute separate relevant markets. Because the market structure of these narrower subsegments was substantially similar to that of the broader cruising segment, the FTC’s main focus was on whether oceanic cruising was a separate relevant product market for antitrust analysis purposes.

102. See id. at 131.


104. Id.

105. See Economic Analyses of Mergers at the FTC, supra note 100, at 135 n.40.

b. Types of Evidence Relied on by the FTC

In defining the relevant market, the FTC relied on several different types of evidence. First, the FTC considered whether an across-the-board SSNIP would be profitable for a hypothetical monopolist. When analyzing this question, the FTC took into account the following industry-specific facts: (1) ships generally sail full; and (2) the variable costs associated with additional passengers are quite low and may be negative when onboard spending is taken into account. This suggests a relatively low critical loss—that is, it would take only a relatively small number of customers to switch away from oceanic cruises in response to a price increase to make the price increase unprofitable.107

The FTC also took into account several qualitative factors. The agency considered the attributes of cruising and found that cruises were differentiated from other types of vacations although there were some similarities.108 The FTC also considered the attributes of cruisers. Of key importance were the facts that a large fraction of cruise passengers were first time cruisers and that most repeat cruisers cruised only once every several years.109 Thus, cruise passengers were clearly choosing among different vacation alternatives.110 The question then became whether or not a SSNIP would likely cause a sufficient number of customers to shift to other vacation alternatives to make the price increase unprofitable.111

The FTC reviewed company documents to assess how the cruise lines viewed the industry.112 It found that the documents focused primarily on other cruise lines, but also discussed other types of vacations and how cruises compared to other vacations on quality and price.113

Because of the complexity of pricing in the cruise industry, estimation of demand would have been at best problematic.114 Thus, the FTC relied on other empirical analyses. First, it considered evidence put forward by one of the parties that analyzed whether prices for the various

107. See Economic Analyses of Mergers at the FTC, supra note 100, at 132.
108. Id. at 131.
109. Id. at 130.
110. Id.
111. Royal Caribbean Statement, supra note 103.
112. Economic Analyses of Mergers at the FTC, supra note 100, at 131 n.4.
113. Id.
114. Id. at 132.
destinations differed depending on the number of cruise competitors that served those destinations. While there were significant issues with regard to conducting meaningful comparisons, the FTC concluded that the data did not show any robust variation in pricing by destination based on the number of competitors.

In addition, the FTC relied on a study of an industry-wide substantial increase in capacity in 2000 and 2001. The FTC analyzed this capacity increase to determine whether occupancy rates significantly changed and whether prices were substantially reduced. As to occupancy rates, the FTC found that the ships continued to sail full. To analyze the pricing before and after the increase in capacity, the FTC used econometric analysis to control for other factors that might affect pricing, such as holiday cruising, and the types of cabins. The FTC found that, even with a substantial increase in output, prices fell only modestly when there was no evidence of a significant increase in demand for vacations more generally. The FTC then used this information to estimate an arc elasticity of demand of approximately -2. Given the critical loss, this finding indicated that an across the board SSNIP would not be profitable (and helped explain the industry’s continuing substantial investment in new capacity).

The FTC also analyzed pricing for directly competing cruises, those with the same or similar embarkation points and destinations, to see if pricing for such cruises were related. While this analysis was most relevant to the assessment of competitive effects, it also had implications

115. Id. at 135-36.
116. Id.
117. Id. at 132.
118. Id.
119. Id. at 132 n.28.
120. An arc elasticity of demand is calculated based on observations regarding price and quantity at two different points in time or in two geographic areas. The arc elasticity is calculated as the percentage difference in quantity between the two periods or geographies divided by the percentage difference in price. The arc elasticity may differ from the traditional elasticity of demand because arc elasticities can involve sizeable price changes while the traditional elasticity of demand is based on a small price change. See, e.g., John E. Morrill, A Mathematician’s Brief Excursion into Economic History—The Concept of Arc Elasticity of Demand, 27 AM. ECON. 47, 47-53 (1983).
121. See Economic Analyses of Mergers at the FTC, supra note 100, at 132-33.
for market definition. The FTC found no relationship in the pricing for directly competing cruises. Thus, cruise lines likely competed with other travel options as much as with one another in trying to attract passengers. The FTC also considered the fact that the cruise lines used yield management to adjust prices for a given cruise over time in response to demand. Unlike in the airline industry, there was no group of passengers like “business travelers,” as all cruise passengers were vacationers. However, the FTC inquired whether there was a target group of passengers (e.g., early bookers, upper cabins, etc.) that might be a target for systematic price discrimination. The FTC did not find such a group and thus concluded that unilateral or coordinated effects based on price discrimination were not likely. However, its finding that a hypothetical monopolist profitably might be able to raise average prices through price discrimination supported a relevant market for oceanic cruising.

122. Yield management is one of several tools used by firms in the vacation and hospitality industries to adjust pricing over time to increase capacity utilization. These changes in pricing may be aimed at identifying customers who have different preferences for the product/services sold or at adjusting to unexpectedly strong or weak demand. For example, airlines charge different prices based on length of time between flights and restrictions on changes: in higher prices to customers with less elastic demand (e.g., business travelers) and lower prices to customers with more elastic demand (e.g., vacationers). Hotels or cruise lines might raise or lower prices for new bookings if demand is stronger or weaker than expected, while continuing to charge the original price to early bookers. See, e.g., Sergey Netessine & Robert Shumsky, Yield Management (rev. Feb. 2002) (unpublished manuscript, available at http://mba.tuck.dartmouth.edu/pages/faculty/robert.shumsky/Yield_management_note.pdf).

23. See Economic Analyses of Mergers at the FTC, supra note 100, at 134-35.
24. Id.
25. Id. at 136-50.
D. Conclusion

As with other types of products, market definition in consumer products industries is a starting point for the competitive analysis of a proposed merger or other behavior. The role of market definition is to help define a set of products that are most relevant to that competitive assessment. Market definition in consumer products industries can be challenging because there is often a broad range of products offering similar basic functions but differentiated from one another across a number of dimensions. Thus, determining the correct break in the chain of substitution can be difficult. As a result, when analyzing competitive effects it is important to consider not only the impact of products outside the relevant market but also the extent of product differentiation within the relevant market.

While qualitative analyses are still important for consumer products (as well as for other industries), the availability of fairly rich data on prices and quantities for many consumer products enables the reviewing agencies and the parties to use many quantitative analyses in defining relevant markets. These analyses include both calculations of key summary statistics and trends in the data that provide insight into market definition issues (such as comparisons of price points, product characteristics or consumer attributes), as well as more sophisticated statistical analyses (such as demand estimation).