

# ON THE USE OF ECONOMIC MODELS IN ANTITRUST: THE *REALEMON* CASE

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## I. INTRODUCTION

This Article is concerned with the appropriate use of economic models in antitrust law. It does not attempt a comprehensive treatment; nor does it offer definite proposals for change. Rather, after a few general remarks on the current use of economic theory in antitrust, the discussion focuses on various aspects of a general failure to exploit the power of economic analysis in antitrust litigation. This failure is illustrated through consideration of the handling of some economic issues in the Federal Trade Commission's recent Initial Decision of *Borden, Inc.* ("*ReaLemon*"),<sup>1</sup> a proceeding involving Borden's ReaLemon Foods subdivision.

If antitrust law is to be at least partially concerned with efficient resource use,<sup>2</sup> any judgment, whether by court or commentator, that some action should be found unlawful or some relief imposed in any particular case must be based, at least partially, on some explicit

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<sup>1</sup> (Initial Decision) No. 8978 (Aug. 19, 1976) ("*ReaLemon*"), reported in [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, modified, *Borden, Inc.* (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978). ReaLemon is operated as part of Borden's Borden Foods Division.

The Initial Decision of Administrative Law Judge Hanscom was appealed to the Federal Trade Commission; the briefs were filed in January 1977. After a preliminary version of this Article had been completed, the Federal Trade Commission issued its opinion and order in this matter, along with two concurring opinions and a separate opinion. *Borden, Inc.* (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978). Because work on this paper had to be completed shortly thereafter, the central discussion of this Article is limited to the Initial Decision.

Brief synopses of both the Initial Decision and the opinion of the Commission, which have been summarized and reprinted in part, appear in the Trade Regulation Reporter as indicated above. Complete copies are on file both at the FTC and with the author.

<sup>2</sup> The author finds persuasive the arguments of Bork and Posner that economic efficiency should be the only objective of antitrust law. For a more extensive exploration of that viewpoint, see R. BORK, *THE ANTITRUST PARADOX* 7-8 (1978); R. POSNER, *ANTITRUST LAW* 4, 8-22 (1976).

or implicit model that predicts the effects of the action or relief considered. Unless economic efficiency is held to be of no importance, one can no more avoid the use of economic models in this context than one can avoid speaking prose. One can, of course, use an unsound or inappropriate model; the likelihood of doing this must logically depend on the set of alternative models explicitly or implicitly considered and on the methods used for choosing among them.

Over the years, economic theorists have produced many models of market behavior; generally, these have been designed to serve as tools for the analysis of reality. The principles and methods employed in these theorists' studies can be used to produce new models, either designed for general application to some class of situations or tailored to fit the facts of a particular case. The industrial organization literature contains another set of models. These often have their roots in rigorous microeconomic theory, but many are equally dependent on empirical generalizations of various sorts. The classical models of competition and monopoly are now only two of a large number of more or less respectable economic models that provide potential sources of information for antitrust policy-makers.

If a model is to be used to make predictions about economic effects, it ought to be both internally coherent, in the sense that its predictions can be correctly deduced from its assumptions, and consistent with the basic principles of economic analysis. Moreover, the model's predictions should not conflict in important ways with the facts at hand. If enough data of the right sort are available, or if controlled experimentation is possible, at least in principle one can select the best among a set of competing models entirely on the basis of the accuracy of their predictions. In the analysis of individual markets or business practices, this may not always be possible, however, because several models may have predictions consistent with the evidence available. In such cases one has little choice but to look at the assumptions upon which competing models rest. A model with assumptions that are in dramatic conflict with the relevant facts should be rejected as a basis for decisionmaking if its predictions cannot be shown to be superior to those of a competing model of comparable complexity with more palatable assumptions.

Students of economics generally learn that economic theory provides a powerful, continually expanding set of tools for the analysis of reality. They also learn that it is not easy to use these

tools well. Because the literature contains a host of internally coherent models with different assumptions and implications, and because the methods of economic analysis can be used to construct new models, analysis of any particular industry or behavior pattern may pose difficult problems of model selection. Often such problems can only be dealt with satisfactorily by creative theoretical analysis, along with careful organization and evaluation of available evidence. Students learn that unless one employs a coherent model consistent with the principal facts at hand, it is very hard to defend either predictions about the consequences of change or explanations of observed behavior.

Economic theory does not seem to be employed by courts in deciding antitrust cases in the way that students of economics are taught to employ it. (On the other hand, economic theory is becoming better understood by enforcement agency personnel, who are applying it with increasing frequency, at least when they decide which cases to bring.) In antitrust decisions, the terminology of economic theory is more often used to classify than to analyze. The problem of selecting an internally coherent model consistent with the facts is rarely addressed either directly or systematically. The range of models or classifications discussed is often rather limited, and the choice among them seems commonly to be based on a mixture of intuition and the very careful application of simple rules of doubtful generality. In short, economic theory as applied by the courts is a rather different beast from economic theory as applied by economists.

This fact is not always a cause for concern, of course. Areeda may well be right when he asserts that "the economic background necessary for understanding antitrust issues seldom requires detailed mastery of technical refinements."<sup>3</sup> But his use of "seldom" instead of "never" indicates, correctly in my view, that there *are* cases in which "detailed mastery of economic refinements" *is* necessary for understanding. Put another way, cases do arise in which the economic issues are not straightforward, and in which neither intuition nor elementary textbook models can be relied upon with confidence. In such cases, economic theory as used by economists has its greater potential for contributing to the development of antitrust law and to the economic effects of antitrust litigation.

An intuitive feeling that standard approaches are omitting or misrepresenting important aspects of the relevant reality should serve to establish a presumption that explicit consideration of the

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<sup>3</sup> P. AREEDA, *ANTITRUST ANALYSIS* 5 (2d ed. 1974).

model selection problem is warranted. Furthermore, the more sharply the facts in any particular case depart from the assumptions of textbook microeconomics, the less likely it becomes that attention limited to textbook models is sufficient. Among other things, textbook price theory assumes that markets are well-defined, that buyers and sellers are well-informed, and, generally, that the offerings of competing sellers are viewed by buyers as perfect substitutes. When substitution relations are such that there is no object that corresponds well to the classical concept of a market, when buyers or sellers lack important information, or when product differentiation of one form or another is important, however, there is at least a presumption that market behavior may not be well explained by standard models.

Unless economics has somehow been on the wrong track for the last two centuries, the economist's version of the scientific method provides the best available approach to the analysis of those economic issues that are not obvious—whether such issues arise in the course of academic research or in an antitrust case. In order to use the economist's approach, one must be prepared thoughtfully to apply the tests of internal coherence and consistency with evidence to competing economic models and to rely on the implications of the model that emerges from that selection process, even if that model cannot be found in a textbook.

The following discussion illustrates the above points through an analysis of the handling of economic questions in the Initial Decision of *ReaLemon*,<sup>4</sup> in which Federal Trade Commission Administrative Law Judge Daniel H. Hanscom concluded that Borden's ReaLemon Foods subdivision had monopolized the processed lemon juice market. The next section of this Article outlines the facts of that case.<sup>5</sup> Sections III through V consider three issues important to that case and others like it: market definition and its role in the analysis of market power, tests for predatory pricing, and the design of appropriate remedies. Section VI provides a few summary remarks.

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<sup>4</sup> Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>5</sup> Unless otherwise specified, the facts related in this Article are taken from Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978). Submissions of complaint counsel or respondent are relied upon only for elaboration of points either not at issue or left unresolved by the Initial Decision.

II. THE *ReaLemon* CASE

In 1935 Irvin Swartzberg began bottling lemon juice in his basement and selling it in Chicago.<sup>6</sup> He began using the "ReaLemon" trademark in the mid-1940's. The business grew rapidly, and in 1962 Swartzberg's company, ReaLemon-Puritan, was acquired by Borden, which paid \$12.4 million for net assets with a book value of \$2.8 million.<sup>7</sup> Borden's books thus showed a \$9.6 million "goodwill" asset for this operation.

If one defines nationwide sales of either processed lemon juice<sup>8</sup> or reconstituted lemon juice<sup>9</sup> as the relevant market, ReaLemon brand reconstituted lemon juice maintained about a ninety percent share through the 1960's. On the other hand, if the market definition is expanded to include fresh lemons, ReaLemon's historic share would drop to about thirty percent on a gallon basis and about ten percent on a dollar basis.<sup>10</sup>

After 1952, Sunkist brand reconstituted lemon juice apparently achieved a fairly wide distribution.<sup>11</sup> During this period, ReaLemon charged a lower list price in the eastern United States than elsewhere; the stated purpose of this policy was "to more closely meet the Sunkist price" there.<sup>12</sup> In 1958, Sunkist cut back its reconstituted lemon juice operation because of the "highly competitive" situation it faced; it now sells only in the Southwest.<sup>13</sup> ReaLemon was the only brand of processed lemon juice in national distribution

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<sup>6</sup> Proposed Findings of Fact and Conclusions of Law of Respondent 22-23, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>7</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 59 (Aug. 19, 1976), modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>8</sup> Processed lemon juice includes all lemon juice except that which is sold in the form of fresh lemons. *Id.* 6.

<sup>9</sup> For a description of the technology involved in manufacturing reconstituted lemon juice, see text accompanying notes 18-19 *infra*.

<sup>10</sup> In 1973, for example, the total sales of reconstituted lemon juice in the United States were about \$25 million, while sales of fresh lemons totaled about \$200 million. *Id.* 2, 6. If these two markets were combined, ReaLemon's approximate 80% dollar share (in 1973), *id.* 56, would fall to about nine percent of the total dollar sales of the combined lemon market. On a per ounce basis, ReaLemon sold for about one-quarter of the price of juice from fresh lemons in the early 1970's, although this figure varied considerably over time. *Id.* 17. Thus, an 80% share of reconstituted lemon juice sales in ounces would translate to about a 27% share of the larger market.

<sup>11</sup> *Id.* 78.

<sup>12</sup> *Id.* 99.

<sup>13</sup> *Id.*

during the 1960's, and it was the only brand to which advertising in more than trivial amounts was devoted. ReaLemon's advertising/sales ratio was apparently not unusually high, however.<sup>14</sup>

If one ignores the "goodwill" asset mentioned above, the rate of return on assets for Borden's ReaLemon Foods subdivision (the principal product of which was ReaLemon brand reconstituted lemon juice, which accounted for seventy-five percent of its revenue)<sup>15</sup> averaged about 3.3 times that of the Food and Kindred Products aggregate for 1963-1973, and about 4.4 times that benchmark return for 1968-1973. If ReaLemon's assets are augmented by the "goodwill" it carried on its books, these multiples fall to about 1.5 and 1.7, respectively.<sup>16</sup>

In 1969 Golden Crown Citrus Corporation was a Chicago-based firm engaged primarily in the home delivery of fruit juices in the Chicago area.<sup>17</sup> Golden Crown was in some financial distress. New top management, with no experience in retail distribution, decided, without doing any detailed market studies, to begin selling reconstituted lemon juice to supermarkets.<sup>18</sup> It encountered no technical problems. Indeed, all parties apparently agreed with Judge Hanscom's description of the technology involved:

Reconstituted lemon juice is manufactured by adding water, a preservative or preservatives, and lemon oil to pure lemon juice concentrate which is purchased in bulk, often in tank cars, by large producers such as Borden. The ingredients are mixed according to a simple, well-known formula, using uncomplicated, relatively inexpen-

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<sup>14</sup> Proposed Findings of Fact and Conclusions of Law of Respondent 111, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>15</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 4 (Aug. 19, 1976), modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>16</sup> Complaint Counsel's Proposed Findings of Fact, Conclusions of Law and Order 33-34, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>17</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 78 (Aug. 19, 1976), modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>18</sup> Proposed Findings of Fact and Conclusions of Law of Respondent 107-09, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

sive equipment of the sort employed by any juice bottling operation.<sup>19</sup>

Golden Crown did find, as had all other regional producers, that in order to induce grocers to stock its product and consumers to buy it, its price had to be well below ReaLemon's. It priced accordingly, apparently making some sales at prices below any reasonable definition of cost. Golden Crown grew rapidly after 1969. Because most grocers seemed willing to carry no more than two brands of reconstituted lemon juice, ReaLemon and a low-priced brand, Golden Crown's initial gains came at the expense of other small producers.

By 1971, however, ReaLemon's management had begun to consider Golden Crown a force to be reckoned with. This perception was apparently correct. Golden Crown entered the East in 1970, the Northeast in 1971, the Southeast in 1972, and the West and Southwest in 1973. In 1973 Golden Crown also acquired a second production facility, this one in New Jersey.<sup>20</sup> (ReaLemon had plants in Chicago, New York, and California.) Golden Crown's gallon share of processed lemon juice sales rose from virtually zero in 1969 to about fifteen percent in 1974;<sup>21</sup> most of these sales were made in the northeastern portion of the country.<sup>22</sup> Over this same period, ReaLemon's national share fell from around ninety percent to about seventy-five percent.

After 1969, ReaLemon's list prices were lower in areas in which it faced the most intense competition from Golden Crown and others. (List prices had been the same in all regions of the United States in 1967 and 1968.) ReaLemon's 1971-1974 marketing plans reveal a concern with this "low-priced" competition and an intention to use selective discounts off list price (generally in the form of promotional allowances) to deal with it. The 1973 plan announced the objective of regaining half of ReaLemon's 1971-1972 share loss, which amounted to about four percentage points on a gallon basis.<sup>23</sup> The company intended to achieve this goal pri-

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<sup>19</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 7 (Aug. 19, 1978), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>20</sup> *Id.* 79.

<sup>21</sup> *Id.* 134-35.

<sup>22</sup> In early 1973, about 55% of Golden Crown's sales were made in the New York, Philadelphia, Chicago, and Detroit areas; by contrast, about 38% of ReaLemon's sales were made in these areas. *Id.* 91.

<sup>23</sup> *Id.* 85, 87.

marily by offering selective discounts in key areas. In fact, ReaLemon's share fell by another three points in 1973. The 1974 marketing plan called for an increase in list price, but only in areas not much affected by Golden Crown, as well as an increase in advertising, and discounting in areas in which Golden Crown was a factor.<sup>24</sup>

The lowest net prices evidently were paid by the leading grocery chains in Philadelphia and Buffalo, both of which purchased substantial numbers of twelve-quart cases of ReaLemon for \$4.05 in December, 1973.<sup>25</sup> (Other stores in these areas paid \$4.20 or more.)<sup>26</sup> On the basis of documents from ReaLemon's files for this period, complaint counsel charged that these prices were below ReaLemon's average variable cost. The judge, however, accepted average variable cost estimates, prepared subsequently, of \$3.83 per case for Philadelphia and \$3.75 for Buffalo.<sup>27</sup> He thus found that these sales, and all of ReaLemon's other sales, had been made at prices above average variable cost. He did point out, however, that

[t]he \$4.05 per case price is close to ReaLemon's national average per case cost on a direct shipment basis. This cost appears to have been the only data available to Borden management at the time the subject sales were made. . . . Thus, at the time of the sales in question, Borden either failed to consider its cost before agreeing to the low sale prices, or knew that it was selling very close to the cost figures reflected in the data that [were] then available to it.<sup>28</sup>

ReaLemon estimated Golden Crown's average total costs as of the end of 1972 for these markets at \$3.74 per case; Golden Crown's estimate as of the end of 1973 was \$4.00. After receiving the discounts mentioned in the preceding paragraph, both chains sold ReaLemon at \$.39 per quart.<sup>29</sup> With twelve quarts per case, this

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<sup>24</sup> The 1974 marketing plan's stated objective was the reduction of Golden Crown's share of the market in the four areas mentioned in note 22 *supra*, from 18% to 14%, and an increase of ReaLemon's share from 71% to 75%. *Id.* 91-92. Several other documents also introduced into evidence indicate that ReaLemon intended to reduce Golden Crown's market share (and to increase its own) in various areas, and thereby to impair Golden Crown's ability to expand into new areas. ReaLemon sought to accomplish this objective mainly by offering selective discounts.

<sup>25</sup> *Id.* 128-29.

<sup>26</sup> *Id.* 130.

<sup>27</sup> *Id.* 128, 130.

<sup>28</sup> *Id.* 130.

<sup>29</sup> *Id.* 109, 113. By comparison, ReaLemon retailed nationwide at an average of just over \$.60 per quart in early 1973. *Id.* 89.



gave the Philadelphia chain a markup of almost fifteen percent. In this price range, grocers testified that Golden Crown would have had to be between ten and fifteen cents cheaper at retail in order to avoid drastic sales losses.<sup>30</sup> Assuming the same grocer markup, this would require Golden Crown to wholesale at between \$2.50 and \$3.00 per case, well below ReaLemon's average variable cost<sup>31</sup> and Golden Crown's average total cost. If, as seems to have been the case, grocers demanded larger margins on Golden Crown, it would have had to sell for even lower prices in order effectively to meet ReaLemon's price. The central reason for this situation, of course, was the "premium brand" status of ReaLemon; Golden Crown simply could not sell its product unless it offered grocers a substantial discount below the ReaLemon price, even though the two products were virtually identical.<sup>32</sup>

Golden Crown complained about ReaLemon's pricing to the Chicago regional office of the Federal Trade Commission. After conducting an investigation, the Commission filed a complaint against Borden, Inc., in July 1974.<sup>33</sup> Late in 1974, the assets, name, and business of Golden Crown were acquired by a subsidiary of the Seven-Up Corporation. A successor to Golden Crown, G.C. Citrus, retained some of Golden Crown's liabilities and received a cash payment from Seven-Up. At the time of this purchase Golden Crown's liabilities exceeded its assets by about \$1 million. Subtracting Seven-Up's cash payment from the Golden Crown liabilities assumed by G.C. Citrus yields a net liability of around \$600,000. Thus, Seven-Up paid about \$400,000 for Golden Crown's "goodwill."<sup>34</sup> By comparison, Golden Crown had lost about \$500,000 on its operations in the preceding fiscal year.

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<sup>30</sup> *Id.* 133.

<sup>31</sup> *See id.* 128, 130.

<sup>32</sup> Complaint Counsel's Proposed Findings of Fact, Conclusions of Law and Order 103-04, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), *reported in* [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>33</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 1-2 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>34</sup> This amount does not include contingent payments of up to \$1.75 million that Seven-Up was to make to G.C. Citrus if returns on Golden Crown exceeded certain thresholds. As of September 1978, Seven-Up was still marketing Golden Crown reconstituted lemon juice. Complaint Counsel's Answering Brief in Response to Appeal Brief of Borden, Inc., and in Support of the Initial Decision of the Administrative Law Judge 25-26, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

Trial of this matter began in May 1975 and was completed in February 1976. The Initial Decision was made in August 1976. In it the administrative law judge found that Borden had violated the law:

Respondent Borden, Inc., possesses, and has possessed, a monopoly position and monopoly power in the processed lemon juice market, and has unlawfully engaged in acts and practices with the purpose and intent, and with the effect, of preserving and maintaining that monopoly position and power, and has unlawfully hindered, restrained and prevented competition in the production, marketing and sale of processed lemon juice in violation of Section 5 of the Federal Trade Commission Act.<sup>35</sup>

The proscribed acts and practices included ReaLemon's policies of maintaining different list prices and promotional allowances (discounts) in different regions of charging different net prices to different individual customers, and of making sales at "unreasonably low prices."<sup>36</sup> Borden was ordered to license the ReaLemon trademark, at royalty rates designed to cover only the cost of quality control, to all comers for a period of ten years.<sup>37</sup> Judge Hanscom also ordered Borden to cease and desist from charging different prices to competing buyers, selling at unreasonably low prices, and granting promotional allowances, "the effect of which is to hinder, restrain or eliminate competition between respondent Borden and its competitors in the production, marketing, and sale of processed lemon juice."<sup>38</sup>

Of the 204 findings of fact in the Initial Decision, sixty-four were concerned with the question whether processed lemon juice was a valid market; the alternative was to include fresh lemons in the market. A similar allocation of effort to this issue is re-

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<sup>35</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 162 (Aug. 19, 1976) (citing Federal Trade Commission Act of 1914, ch. 311, § 5, 38 Stat. 719 (1914) (current version at 15 U.S.C. § 45 (1976)), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>36</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 98, 100, 105, 117, 134.

<sup>37</sup> *Id.* 167-68.

<sup>38</sup> *Id.* 169-70. The opinion of the Commission basically followed the Initial Decision except with respect to the question of relief. Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978). The Commission declined to order trademark licensing, *id.* 40, but it did enjoin "any price discrimination, not justified by cost differentials, that adversely affects competition," *id.* 38. The Commission thus prohibited price discrimination regardless of whether customers compete in the same geographic area.

flected in the various documents filed by complaint counsel and Borden after the close of the trial. The question of market definition, along with the basic reason for its perceived importance in this case—the light it presumably shed on the question of ReaLemon's market power—is discussed in the next section of this Article.

A second key issue in this case was whether ReaLemon's pricing established monopolization. In section IV this topic is considered in light of recent suggestions regarding predatory pricing, and in light of demand conditions in this market.

Finally, the relief ordered in the Initial Decision was somewhat novel and has been the subject of considerable discussion. Some of the economic aspects involved in trademark licensing are considered in section V, which emphasizes the importance of understanding the special features of the situation considered.

### III. MARKET DEFINITION AND MARKET POWER

All parties involved in the *ReaLemon* litigation seem to have attached substantial importance to the definition of "the relevant market." Nothing in the antitrust statutes compelled this concern; those laws do not even mention markets. Nevertheless, the reason for the perceived importance of market definition in this case is clear: if "the relevant market" had been held to include fresh lemons along with processed lemon juice, ReaLemon's market share would have been below the minimum levels associated in the case law with the possession of monopoly power.<sup>39</sup> Only if ReaLemon had been held to have monopoly power would the court have reached the question whether that power had been unlawfully exercised or maintained.

This section will demonstrate that the standard market share approach to the measurement of monopoly power is inherently incapable of providing definite answers to the relevant economic questions in the *ReaLemon* case, even though both sides apparently assumed that it could do so. It is useful to begin with a general discussion of monopoly power and its measurement. After an analysis of the properties of the market share approach in this context, this section concludes with a discussion of the measurement of monopoly power in *ReaLemon*.

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<sup>39</sup> The standard citation for this proposition is Learned Hand's famous dictum. *United States v. Aluminum Co. of America (The Alcoa Case)*, 148 F.2d 416, 424 (2d Cir. 1945), cited in *Borden, Inc. (Initial Decision)*, No. 8978, slip op. at 151 (Aug. 19, 1976), modified, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978 (Nov. 7, 1978), reported in *TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978)*.

There are two rather different forms of monopoly power: short-run and long-run power. Although this distinction is important to economists, it often seems to be overlooked by judges deciding antitrust case law.<sup>40</sup> As the Initial Decision notes, "Monopoly power has long been defined [by the courts] as the power to control prices or unreasonably restrict competition."<sup>41</sup> This usage suggests that monopoly power is a force that, like electricity, can be employed to perform a variety of unrelated tasks. In fact, a firm may have the short-run power to control prices without *any* long-run ability to restrict competition. Wilkinson Sword, for example, was the only seller of coated, stainless steel, double-edged razor blades in the United States for a relatively short time. During that period, it presumably had some control over the price of its output; but the subsequent, effective entry of other firms into the market shows that Wilkinson Sword actually had little ability to restrict competition.<sup>42</sup> Similarly, a patent that lowers the cost of making paper will not by itself give its holder any ability to control the price of paper; but it will provide the power to protect profits from new competition.<sup>43</sup> The power to control prices derives from the ability to make output changes large enough to have a noticeable impact on buyers, whereas the power "unreasonably [to] restrict competition" in the long run must derive from some advantage over actual or potential competitors that inherently serves this purpose, or can be exploited to do so.

In all economic models of which I am aware, the statement that a firm has short-run monopoly power is equivalent to the statement that the firm's optimal price is above its marginal cost. On the basis of this test, most firms have some short-run monopoly power, and most groups of competing firms have potential monopoly power,

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<sup>40</sup> The difference between the long-run and short-run forms of monopoly power is at the core of Mason's famous distinction between the legal and economic meanings of monopoly. The former, which stresses the power to exclude rivals, corresponds to what is called here long-run monopoly power; the latter, which focuses on market structure at any instant, corresponds to short-run power over price. See Mason, *Monopoly in Law and Economics*, 47 *YALE L.J.* 34, 37-38, 44 (1937).

<sup>41</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 151 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in *TRADE REG. REP.* (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>42</sup> According to A.M. Paxton, Wilkinson Sword's Product Manager of Shaving, Wilkinson Sword was the only producer of coated, stainless steel, double-edged razor blades in the United States "briefly" from 1961 to 1962, and in the United Kingdom from 1961 to 1963.

<sup>43</sup> Bain regards the control of superior production techniques through patents as a principal source of absolute cost advantage. It is one of his major categories of barriers to entry. J. BAIN, *BARRIERS TO NEW COMPETITION* 144, 148 (1956). See note 57 *infra*.

in the sense that their optimal collusive or cartel policy would involve setting price above marginal cost.<sup>44</sup> As a practical matter, however, antitrust law cannot be concerned with all deviations from perfection but only with important deviations.

The obvious test for the existence and significance of short-run monopoly power involves comparing prices and marginal costs: if price exceeds marginal cost by an appreciable margin, non-trivial, short-run monopoly power is present. But it is notoriously difficult to define and quantify marginal cost with any precision.

A second approach is suggested by standard microeconomic theory. Suppose, for purposes of discussion, that ReaLemon were the only seller of processed lemon juice in the country. Because the evidence clearly indicates that neither fresh lemons nor any other product is a perfect substitute for processed lemon juice,<sup>45</sup> it would be sensible to think of ReaLemon as facing a downward sloping demand curve at any instant. Given these considerations, an economist would be likely to invoke the standard formula for monopoly equilibrium in analyzing ReaLemon's short-run monopoly power:

$$(1) \quad (P - MC)/P = 1/E$$

where  $P$  is price,  $MC$  is marginal cost, and  $E$  is the absolute value of the price elasticity of demand.

The quantity on the left of equation (1) is Lerner's measure of the degree of monopoly.<sup>46</sup> As was mentioned above, it may be difficult to estimate marginal cost directly.<sup>47</sup> Equation (1) indicates that this problem can be avoided, under the above assumptions, by estimating the elasticity of demand for processed lemon juice.<sup>48</sup> Various items of evidence cited in the Initial Decision indicate that  $E$  is finite,<sup>49</sup> because there are apparently no perfect substitutes for

<sup>44</sup> For a discussion of the operation of collusive pricing arrangements, see F. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 158-64 (1970).

<sup>45</sup> See *Borden, Inc. (Initial Decision)*, No. 8978, slip op. at 8-10 (Aug. 19, 1976), *modified*, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978 (Nov. 7, 1978), reported in *TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8* (Nov. 27, 1978).

<sup>46</sup> See Lerner, *The Concept of Monopoly and the Measurement of Monopoly Power*, 1 *REV. ECON. STUD.* 157 (1934).

<sup>47</sup> See text following note 44 *supra*.

<sup>48</sup> For a discussion of demand elasticity estimation as an alternative to market definition, see R. POSNER, *supra* note 2, at 125.

<sup>49</sup> See *Borden, Inc. (Initial Decision)*, No. 8978, slip op. at 8-16 (Aug. 19, 1976), *modified*, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978 (Nov. 7, 1978), reported in *TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8* (Nov. 27, 1978).

$E$  will only be infinite when perfect competition prevails and each producer can sell as much or as little as it wants without affecting market price. J. ROBINSON, *ECONOMICS OF IMPERFECT COMPETITION* 18 (2d ed. 1969).

processed lemon juice in the short run; however, it is not clear that this estimate can be refined to any great extent. If prices have not varied enough, historical data may not contain information from which reliable estimates of  $E$  can be derived; and in most situations this elasticity may vary with both the level of price charged and the length of time over which buyer response to price changes is measured. The actual situation in *ReaLemon* involved a further complication. The quantity " $E$ ," as defined in the textbooks, measures the sensitivity of demand for a firm's product to changes in the firm's own price, assuming that all other prices in the economy remain constant. Changes in *ReaLemon*'s price, however, might have induced changes in the prices of other brands of processed lemon juice, and perhaps even in the price of fresh lemons. If these prices affected the demand for *ReaLemon*'s output, the price elasticity of demand relevant to *ReaLemon*'s decisionmaking must have reflected its expectations about the changes in competitors' prices that *ReaLemon*'s actions would provoke and its assumptions about the effects of those changes on the demand for *ReaLemon*'s product. Expectations of this sort may be a major determinant of the markup over marginal cost actually selected, but they cannot be readily measured by an outside observer.

There is a third quantity that can shed light on the existence and importance of short-run monopoly power: the level of excess profits.<sup>50</sup> If, for example, unit costs are constant, so that marginal cost equals average cost (including a normal return on capital), multiplication and division of the left side of equation (1) by the number of units sold shows that the ratio of excess profit (or monopoly rent) to sales revenue equals  $1/E$  in monopoly equilibrium. In general, the presence of substantial excess profits may reflect important short-run monopoly power; but such profits do not necessarily imply power, because purely competitive firms can receive excess profits in short-run disequilibrium.<sup>51</sup> Moreover, it is not always a trivial matter to penetrate the fog of accounting convention

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<sup>50</sup> These excess profits may also be termed "monopoly rent." Rent in the economic sense is "a surplus earned by a particular part of a factor of production over and above the minimum earnings necessary to induce it to do its work." J. ROBINSON, *supra* note 49, at 102.

<sup>51</sup> Similarly, short-run monopoly power need not imply excess profits, because one can have an ironclad monopoly over something that nobody will buy unless its price is below production cost. Although a profits test will not detect such situations, this fact creates no great problem: to reduce the short-run monopoly power of a firm earning no excess profit is to drive it from the market. This result can create a net efficiency loss because it deprives buyers of a product not available elsewhere. See Schmalensee, *Entry Deterrence in the Ready-to-Eat Breakfast Cereal Industry*, 9 BELL J. ECON. 305, 319-21 (1978), and references cited therein.

and estimate accurately the magnitude of excess profit.<sup>52</sup> Still, information on the level of profits being earned, coupled with an analysis of alternative explanations for excess profits, if detected, can shed considerable light on the importance of short-run monopoly power. Although there are serious measurement problems, they generally are less severe than those encountered in estimating marginal cost or demand elasticities.<sup>53</sup> The main weakness of this approach is that even if excess profits are found to exist, further analysis is required before one can conclude that they reflect short-run monopoly power.

*Long-run* monopoly power that is worth having and that is likely to be an issue in antitrust proceedings must permit a firm or group of firms to protect excess profits from competitive erosion.<sup>54</sup> Thus, one consequence of significant long-run monopoly power is the *persistence* of short-run monopoly power, which in turn should be reflected in *persistent* excess profits.<sup>55</sup> The persistence of substantial excess profits generally indicates the presence of some obstacle to effective competition; but not all such obstacles stem from the exercise of the power to exclude or restrain rivals.<sup>56</sup> The developer of a highly profitable new liquor that requires long aging, for example, may enjoy a substantial period of high profits before rivals' products are ready to be marketed. Similarly, a firm with extraordinary cost advantages over all actual or potential rivals may continue to earn excess profits over a long period of time.

Following Bain,<sup>57</sup> it has become standard practice to refer to obstacles to effective competition that serve to preserve excess profits

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<sup>52</sup> "One would expect highly profitable firms to be more prone to select accounting rules that understate their profits for both tax and public relations purposes" and relatively unprofitable firms to exaggerate profits in order to "stave off angry stockholders and raiders." Weiss, *The Concentration-Profits Relationship and Antitrust*, in *INDUSTRIAL CONCENTRATION: THE NEW LEARNING* 184, 197 (1974).

<sup>53</sup> For a discussion of some of the measurement problems with the excess profits analysis, see *id.* 196-201. Weiss notes that a great deal of empirical work simply takes accounting profitability as a measure of exercised monopoly power.

<sup>54</sup> It is also possible for an unprofitable firm to have the power to exclude new competition. This power will never become visible, however, because low profits by themselves would serve to discourage potential entrants.

<sup>55</sup> "[P]rofit figures can therefore distinguish monopolistic from competitive situations at best only when they pertain to periods in which long-run equilibrium is approximated." F. SCHERER, *supra* note 44, at 50.

<sup>56</sup> Excess profits might "be attributable to rapidly growing demand for the industry's product or, for a particular firm, superior production resources or managerial skill"; but "such competitive explanations become less likely as the period of high profits is more prolonged." P. AREEDA, *supra* note 3, at 38.

<sup>57</sup> Bain maintains that barriers to entry arise from three main sources: (1) absolute cost advantages of established firms; (2) product differentiation advantages of established firms; and (3) significant economies of large-scale firms. J. BAIN, *supra* note 43, at 14.

as "barriers to entry,"<sup>58</sup> although as Caves and Porter have recently emphasized,<sup>59</sup> such obstacles can affect established sellers as well as actual or potential new entrants. Almost as a matter of definition, such obstacles must rest on some long-lived advantage over rivals.<sup>60</sup> Sometimes a firm may obtain such an advantage merely by being the first to engage in a particular activity, as is the case when cost and demand conditions permit only one seller to operate profitably, although this is by no means a universal occurrence. Similarly, some obstacles may serve by themselves to prevent profit erosion, thereby making it unnecessary for the firm to modify its policies in the interests of restricting competition.<sup>61</sup> But this is not universally the case either: in some instances explicit acts or practices aimed at actual or potential rivals may be necessary to preserve profits. When such actions are taken, it becomes meaningful to speak of the exercise of long-run monopoly power. On the other hand, if competition can be sufficiently restricted (so that excess profits are not threatened) without the need to focus attention on other firms, it is still sensible to speak of the possession of long-run monopoly power, but it is not clear what one might mean by its exercise. In any case, although persistent excess profits strongly suggest the existence of long-run monopoly power, further analysis is required to determine the source of that power and the manner in which it has been exercised, if at all.<sup>62</sup>

It is now appropriate to ask what, if anything, market share can indicate about monopoly power. As the foregoing discussion should make clear, both short-run and long-run monopoly power are logically continuous variables, in the sense that they can take on a whole range of values.<sup>63</sup> The questions about monopoly power that usually interest economists involve its sources and importance, rather than its existence. Courts, on the other hand, often seem to treat the existence and importance of monopoly power as though they

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<sup>58</sup> *Id.*

<sup>59</sup> Caves & Porter, *From Entry Barriers to Mobility Barriers*, 91 Q.J. ECON. 241 (1977).

<sup>60</sup> Bain states that "conditions of entry" may be roughly evaluated "by the advantages of established sellers in an industry over potential entrant sellers, these advantages being reflected in the extent to which established sellers can *persistently* raise their prices above a competitive level without attracting new firms to enter the industry." J. BAIN, *supra* note 43, at 3 (emphasis added). Bain deliberately inserted the term "persistently" in his definition of the condition of entry in order to emphasize the long-term aspect of this concept. *Id.* 7.

<sup>61</sup> *See id.* 20-25.

<sup>62</sup> For an example of this type of analysis, see Schmalensee, *supra* note 51, at 305.

<sup>63</sup> *See* P. AREEDA, *supra* note 3, at 203.



were equivalent. Similarly, the term "market" is used somewhat differently in economics than in antitrust law. In their activities in areas other than antitrust, economists make frequent theoretical and empirical use of the concept of a market, but they devote relatively little effort to attempting precise market definitions.

Students of economics learn that a perfect market requires perfectly informed buyers and sellers, with all buyers correctly regarding all sellers' wares as perfect substitutes. A single price prevails in such a market, and it usefully summarizes a vast amount of information. Students also learn that perfect markets are rare, though for many purposes it is useful to aggregate imperfect substitutes and treat them as contained in a single market. As long as the goods or services thus aggregated are close enough substitutes, their prices will move together, and an appropriate price index can thus serve as a useful summary statistic. The critical point here is that the appropriate degree of aggregation depends almost entirely on the question to be analyzed. Thus, the leading basic textbook can deal with the market for new electrical engineers in one context and the market for labor in another, with no inconsistency at all.<sup>64</sup> The first definition permits one to examine the relative wage of engineers, while the second can be used to analyze the general level of wages. If the question to be answered calls for markets to be defined narrowly, of course, close substitutes (or complements) may be excluded. As long as markets are separated by a noticeable "gap in the chain of substitutes,"<sup>65</sup> this exclusion poses no real problem: the appropriate model may involve several markets linked together by supply or demand behavior.<sup>66</sup> Yet, models involving several linked markets have never been explicitly considered in antitrust decisions.

Suppose, for the moment, there exists a perfect market in which several firms produce identical products. Suppose further that this market can be analyzed in isolation. That is, assume that disturbances in this market do not cause changes elsewhere in the economy that feed back and shift demand and cost schedules in the original market.<sup>67</sup> Under these classical assumptions, market share

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<sup>64</sup> Compare P. SAMUELSON, *ECONOMICS* 70 (10th ed. 1976) with *id.* 573.

<sup>65</sup> The phrase is Joan Robinson's. See J. ROBINSON, *supra* note 49, at 5. As a practical matter, economists usually look for such gaps in framing market definitions, but they rarely pay explicit attention to the size of the gaps in any particular situation.

<sup>66</sup> For a discussion of some of these issues, see K. LANCASTER, *INTRODUCTION TO MODERN MICROECONOMICS* 43-56 (2d ed. 1970).

<sup>67</sup> This assumption requires that the market be small relative to the whole economy and that no important close substitutes or complements exist.

may serve as a partial indicator of the extent of short-run monopoly power.

The analysis goes as follows. Because all sellers' outputs are perfect substitutes, any seller that reduced price a penny below the prevailing market price would receive the entire market demand, and any seller that priced a penny above the market price would sell nothing. This suggests that no firm could have any short-run monopoly power, even if there were only two or three sellers. A more sensible approach in such situations is to consider output, not price, to be the decision variable. Then, if rivalry is as intense as one can imagine, so that each firm makes the output decision that maximizes its own profits given its rivals' decisions, it is easy to show that the equilibrium condition for the  $i^{\text{th}}$  (typical) firm in the market is the following:<sup>68</sup>

$$(2) \quad (P - MC_1)/P = s_1/E$$

where  $MC_1$  is the  $i^{\text{th}}$  firm's marginal cost, and  $s_1$  is its share of the market.<sup>69</sup> Again, the quantity on the left is a direct measure of the firm's short-run monopoly power. If this is difficult to estimate directly, one can instead employ the quantity on the right—the ratio of the firm's market share to the elasticity of demand for the market as a whole. Even in this hyper-classical case, market share is not the whole story; a firm with a large share of a market with highly elastic demand will set a price indistinguishable from marginal cost. Furthermore, it should be obvious that knowing a firm's market share in this model, or even the ratio of its share to the market demand elasticity, reveals nothing about its long-run monopoly power. Finally, in this sort of model, there is no critical or threshold value of market share above which the firm has monopoly power and below which it has none.

The assumption of perfect substitutability is critical to the validity of equation (2). If a market is defined to include products that are not perfect substitutes, the markups of individual firms can greatly exceed the ratios of their market shares to the market demand elasticity. This is clearest in the extreme case in which a

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<sup>68</sup> Dropping subscripts for the moment, let  $q$  be the output of some firm, and let  $\bar{q}$  be the aggregate output of its rivals. If  $Q = q + \bar{q}$ , the assumption of homogeneous outputs means that market price,  $P$ , must be a (decreasing) function of  $Q$ . In order to maximize its profit for any given  $\bar{q}$ , the firm considered must choose  $q$  so that marginal cost,  $MC$ , equals the partial derivative of the firm's total revenue,  $qP(q + \bar{q})$ , with respect to  $q$ . The latter quantity can be written as  $P[1 - (q/QE)]$ , where  $E$ , the market demand elasticity, is given by  $-P/(QP')$ . Equation (2), with  $s_1 = q/Q$ , then follows directly.

<sup>69</sup> See text accompanying notes 45-46 *supra*.

"market" has been defined to include products that are totally unaffected by one another's pricing. In this case a firm can be small relative to the "market" and yet face a demand curve that gives it substantial short-run monopoly power. The problem is not confined to this extreme case; whenever a market includes imperfect substitutes, the market share and market demand elasticity do not suffice to determine the extent of short-run monopoly power, even if the other assumptions underlying equation (2) hold. The conclusion that market share alone does not establish short-run monopoly power follows a fortiori.<sup>70</sup>

Although market definition by aggregation over space has firm foundations in classical economics, aggregation over non-identical products—the sort of aggregation that was a key issue in the *ReaLemon* litigation—seems to have as its intellectual basis the procedures followed in some empirical work in industrial organization.<sup>71</sup> In order to use statistical techniques to test hypotheses about the determinants and results of inter-firm rivalry, many investigators have mass-produced data on sizeable numbers of markets. The usual rule is that these markets should include all products among which buyers and sellers can easily switch, so that each market used in the analysis corresponds to a set of sellers that are in more or less direct competition.<sup>72</sup> Rarely is there any claim that this can be done with great accuracy<sup>73</sup> or any attempt to be especially precise; econometric techniques, for example, are seldom if ever employed to define markets in this context. Again, the purpose of market definition guides the approach: if the sample of markets is large enough, it is reasonable to hope that minor and non-systematic errors of aggregation will not have much effect on the results obtained. Many studies of this sort take profitability as an indicator of the magnitude of monopoly power and seek to explain variations in profitability across markets as functions of other observable quantities.<sup>74</sup>

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<sup>70</sup> See generally P. AREEDA, *supra* note 3, at 197, 201-03.

<sup>71</sup> Marshall provides a lucid and still useful discussion of the principles involved in aggregation over space. A. MARSHALL, *PRINCIPLES OF ECONOMICS* 323-30 (8th ed. 1948). It is worth noting that Marshall does not mention the aggregation of physically distinct goods into a single market. For a discussion of this type of aggregation in industrial organization studies, see F. SCHERER, *supra* note 44, at 52-57, and the references cited therein; and Weiss, *supra* note 52.

<sup>72</sup> See F. SCHERER, *supra* note 44, at 53. For a discussion of the application of these principles in a legal context, see *United States v. E.I. duPont de Nemours & Co. (The Cellophane Case)*, 351 U.S. 377, 404 (1956).

<sup>73</sup> See generally P. AREEDA, *supra* note 3, at 197, 203. Areeda cautions that "[m]arket definition is customary and it may provide a helpful first approximation, but have no illusions about its meaning." *Id.* 203.

<sup>74</sup> See Weiss, *supra* note 52.

In light of the above background, it is useful to consider the market definition exercise in *ReaLemon*, along with its legal and economic implications for market power. The administrative law judge concluded that fresh lemons and processed lemon juice were not closely linked on the supply side, because their preparation involved different production and distribution processes.<sup>75</sup> This is a sensible short-run finding. To make such an assertion for the long run, however, is equivalent to asserting that entry into the processed lemon juice industry is difficult; a finding of distinct technology by itself cannot justify such an assertion. The judge then considered a great deal of evidence on the demand side.<sup>76</sup> After weighing the evidence, he concluded that the two products were not sufficiently close substitutes in demand to require placing them in the same market for antitrust purposes. He then drew an inference about monopoly power: "Having determined that processed lemon juice constitutes, at the least, a valid submarket for the purposes of this proceeding, there is no question that respondent Borden's ReaLemon brand over the years has had, and now has, a monopoly share of that market."<sup>77</sup> Moreover, in later discussion he noted the well-established legal principle that "[t]he existence of monopoly power may be inferred from a predominant share of the market."<sup>78</sup>

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<sup>75</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 47-50 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>76</sup> ReaLemon produced usage data indicating that fresh lemons and processed lemon juice are often used by households for the same purposes. (Both are used in tea and lemonade, for example.) Econometric work that seemed to show a negative relation between the ratio of the prices of the two commodities and the ratio of their sales was introduced and criticized. *Id.* 16-20. It also pointed out that ReaLemon's advertising had historically stressed its product's advantages over fresh lemons. *Id.* 8. Complaint counsel stressed the different attributes (such as taste and shelf life) of the two products, the substantial and variable per-ounce price differences between them, and the apparent lack of attention paid to the price of fresh lemons by producers and wholesale buyers of processed lemon juice. Complaint Counsel's Proposed Findings of Fact, Conclusions of Law and Order 15-28, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), *reported in* [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>77</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 50 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n) No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978). The quoted passage is the first sentence of the first finding of fact under the general heading "Monopoly Power." It is worth noting that the term "submarket" either is shorthand for "narrowly defined market," or it has no economic meaning at all. "Submarket" is a term of art in antitrust law, not in economics.

<sup>78</sup> *Id.* 151.

The economic model underlying this analysis was not made explicit, but its key implications and assumptions are clear. The administrative law judge employed a model that assumes that a large market share always signals both power over price and power to exclude rivals. In addition, that model has threshold share values, above which monopoly power is present and important, and below which it is either absent or unimportant. The above discussion shows, however, that standard economic models without these implications do exist. One can only wonder what economic model was used in *ReaLemon* and how it was selected.

Whatever model was employed must have assumed that markets could always be precisely defined and analyzed in isolation; without that assumption the amount of attention devoted to market definition and the importance attached to market share are hard to rationalize. Buyers clearly did not regard other brands of processed lemon juice as perfect substitutes for *ReaLemon*. Indeed, the Initial Decision cites this fact as further evidence of *ReaLemon*'s monopoly power.<sup>79</sup> It is also clear that processed lemon juice and fresh lemons are substitutes, albeit imperfect ones. Starting with *ReaLemon*, there are thus two gaps in the chain of substitutes, with the qualitative evidence suggesting that the second (the gap between lemons and lemon juice) is larger than the first (the gap between *ReaLemon* and other lemon juice). For some purposes this situation can be analyzed in terms of three linked markets;<sup>80</sup> for other purposes, it might be appropriate to work with a single lemon products market. Administrative Law Judge Hanscom apparently assumed that there must exist a single market, which can be analyzed in isolation, and that *ReaLemon*'s share of this market sheds some light on its monopoly power. This assumption, however, is inconsistent with the facts.

Suppose one considers *ReaLemon* brand reconstituted lemon juice to be a market. *ReaLemon*'s market share is 100%; but in terms of equation (2), it can be argued that the demand elasticity is likely to be unusually large because of the existence of other brands of lemon juice that are close substitutes. An economist would find this narrow definition of market hard to defend. Suppose next that the market is defined as fresh lemons and processed lemon juice. Analysis of this market in isolation may be defensible, but it is surely difficult to attach much significance to

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<sup>79</sup> *Id.* 59-67.

<sup>80</sup> The link between the lemon market and the price of lemon juice concentrate might also be considered in such an analysis.

shares within it. Very little meaning attaches to market share when the market includes commodities that are plainly imperfect substitutes. Finally, if one follows the judge and defines the market as processed lemon juice, both lines of attack are valid: a close but imperfect substitute is excluded, while the commodities included are clearly imperfect substitutes for one another in the eyes of buyers.<sup>81</sup>

Thus, there appears to be no market definition in this case that cannot be attacked—either because it excludes close substitutes, or because it aggregates clearly imperfect substitutes, or for both reasons. More precise econometric estimates of cross-elasticities of demand cannot eliminate this problem, unless they show that the qualitative judgments expressed above are seriously in error.<sup>82</sup> The kind of market so laboriously sought does not seem to exist here, and it may not exist in other cases either. This poses no problem for economic analysis, but it does seem to undercut the presumption that market share rules can be systematically applied to make reliable inferences about monopoly power.<sup>83</sup>

This is not to say that the basic principles and techniques employed in *ReaLemon* and elsewhere to define markets are without economic content. As indicated above, they generally have a respectable ancestry in the industrial organization literature and can be found elsewhere in economics as well. The point is that the market definition-market share exercise does not deserve to be taken so seriously. The analysis in *ReaLemon* seems more than sufficient to establish a presumption that *ReaLemon* had some short-run power over price; but it does not and could not do more than this. In the absence of demand elasticity information (and perhaps information on *ReaLemon's* expectations about the behavior of other sellers), there is no way to go from any sort of market share figure

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<sup>81</sup> According to Scherer,

[c]oncentration ratios [the percentage of total industry sales made by the largest firms, ranked in order of market shares] understate the true quantum of market power when markets are defined to include non-substitutes, . . . when producers enjoy strong brand loyalties or other differentiation advantages within relevant product lines, and when special institutional features . . . intrude. The degree of market power is overstated when substitutes are excluded from the industry definition . . . .

F. SCHERER, *supra* note 44, at 56.

<sup>82</sup> For a discussion of the difficulty of inferring market relations from market elasticity data, see Bishop, *Elasticities, Cross-elasticities, and Market Relationships*, 42 AM. ECON. REV. 779 (1952). For a critical discussion of market definition in antitrust law, see R. POSNER, *supra* note 2, at 125-33.

<sup>83</sup> Areeda notes that "[i]t cannot be emphasized too strongly that market definition and the assessment of defendant's share of that market give, at best, only a suggestion of defendant's market power." P. AREEDA, *supra* note 3, at 203.

to any estimate of the magnitude of short-run monopoly power. Moreover, there is no logical connection between market share at any instant and a firm's long-run power to protect itself from new competition.

The Initial Decision does cite ReaLemon's apparently extraordinary profitability as confirmation of the monopoly power implied by its dominant share of "the relevant market."<sup>84</sup> Excluding the "goodwill" asset on ReaLemon's books,<sup>85</sup> and assuming no unusually severe accounting problems, ReaLemon's return on invested capital indicates that it enjoyed persistent excess profits. Together with the evidence concerning market relations presented in connection with the market definition exercise,<sup>86</sup> the evidence on profitability strongly supports the inference that ReaLemon had short-run monopoly power.<sup>87</sup> Without *both* sorts of evidence, however, the basis for that inference is much weaker than the Initial Decision's discussion of market share indicates.<sup>88</sup> Moreover, the magnitude of its excess profits suggests that ReaLemon's short-run monopoly power was substantial, and the persistence of high rates of return suggests that some obstacle to effective competition may have existed. Perhaps more importantly in the context of this case, ReaLemon's profitability indicates that Borden would have had a strong interest in restraining competition. But all of these observations provide only a starting point from which the analysis of ReaLemon's possible long-run monopoly power can begin.

#### IV. TESTS FOR PREDATORY PRICING

During the relevant time period it seems clear that ReaLemon's pricing policy was influenced by the pricing and output decisions

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<sup>84</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 67-68 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>85</sup> This asset was created in 1962 when Borden purchased the business for a price reflecting the high future profits the business was expected to produce. *Id.* See text accompanying note 7 *supra*.

<sup>86</sup> The evidence on market relations indicates at least that it makes little sense to think of ReaLemon as small relative to all other sellers of nearly perfect substitutes.

<sup>87</sup> In horizontal merger cases, especially those in which the merger has not been consummated, profit data on the merged firm are likely to be lacking. This means that more stress must be placed on other evidence, not that confident reliance on market share computation alone has any more economic justification than in monopolization cases.

<sup>88</sup> In its subsequent opinion the FTC essentially followed the Initial Decision in finding that ReaLemon's large share of the relevant market established its monopoly power. It also pointed out that this conclusion was supported by ReaLemon's premium brand status and profitability. See Borden, Inc. (Opinion of the Comm'n), No. 8978, slip op. at 13-18 (Nov. 7, 1978).

of other producers of processed lemon juice, and by Golden Crown in particular. ReaLemon reacted to Golden Crown's rapid expansion and the erosion of its own market share (which it generally computed in terms of processed lemon juice) by lowering prices in geographic areas where Golden Crown's share was largest. Because ReaLemon was found to possess monopoly power, the crucial legal question in the Initial Decision was whether or not its pricing policy constituted unlawful maintenance of that power. Alternatively, the question was whether ReaLemon's pricing was predatory. In answering this latter question, it is useful to adopt Bork's provisional definition of predation as

a firm's deliberate aggression against one or more rivals through the employment of business practices that would not be considered profit-maximizing except for the expectation either that (1) rivals will be driven from the market . . . or (2) rivals will be chastened sufficiently to abandon competitive behavior the predator finds inconvenient or threatening.<sup>89</sup>

Borden was not generally known as a badly run firm. Therefore, if predatory pricing could have been shown to be irrational in general or irrational in this case, it might have been possible to establish a presumption that the ReaLemon division's pricing was not predatory. Such a showing would not conclusively have proved the point, though, because even well-run firms sometimes make mistakes. As Posner has noted in this context, if certain kinds of mistakes have significant adverse consequences, it may be good policy to prescribe penalties for those who make them.<sup>90</sup> Moreover, as Yamey<sup>91</sup> and Posner<sup>92</sup> have argued convincingly, economic theory does not presently provide the theoretical or practical tools to prove that predatory pricing is never in the predator's interest. The predator firm sacrifices some current profit in the expectation of future gain; the rationality of this sacrifice can be directly evaluated only by comparing current losses with *expected* future gains. The latter is hard to assess in principle and impossible to observe in practice. If the predator has sufficient advantages over the prey (for example, much easier access to liquid capital), and if an episode of predation has desirable long-lived effects on the employment

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<sup>89</sup> R. BORK, *supra* note 2, at 144.

<sup>90</sup> R. POSNER, *supra* note 2, at 187.

<sup>91</sup> Yamey, *Predatory Price Cutting: Notes and Comments*, 15 J.L. & ECON. 129 (1972).

<sup>92</sup> R. POSNER, *supra* note 2, at 184-86.



of relevant assets or on the expectations of actual or potential rivals, predatory pricing may ultimately prove profitable; thus, it may appear profitable at its inception. Actions that appear mad in the short run may be quite sane in the long run; a predator's reputation for irrationality may instill timidity in actual or potential rivals.<sup>93</sup> Similarly, current models cannot yield solid judgments about the rationality or irrationality of predatory pricing under any particular set of observable conditions.

Most economists would probably agree with Areeda and Turner that "proven cases of predatory pricing have been extremely rare."<sup>94</sup> Consequently, Areeda and Turner, as well as Bork, draw the reasonable inference that predatory pricing in fact occurs very rarely—whether it is rational or not.<sup>95</sup> Accordingly, Areeda and Turner note that caution must be exercised in formulating rules to deal with alleged predatory pricing, "lest the threat of litigation, particularly by private parties, materially deter legitimate, competitive pricing."<sup>96</sup> Bork goes further and argues that it is unwise "to construct rules about a phenomenon that probably does not exist or which, should it exist in very rare cases, the courts would have grave difficulty distinguishing from competitive price behavior."<sup>97</sup> He would thus exclude predatory pricing from the list of possible antitrust violations.<sup>98</sup> Most economists would probably agree with

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<sup>93</sup> As noted in text accompanying notes 17-18 *supra*, Golden Crown entered the processed lemon juice industry without engaging in extensive market analysis. Golden Crown's management may not have known of the difficulties encountered by Sunkist in the 1950's. Or, if it knew of them, it might have thought that Borden would not act as aggressively toward it as ReaLemon-Puritan apparently had acted toward Sunkist. As is true in other areas of economics as well, the impossibility of observing expectations directly causes serious problems.

<sup>94</sup> Areeda & Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 699 (1975).

<sup>95</sup> *Id.* See R. BORK, *supra* note 2, at 144-55.

<sup>96</sup> Areeda & Turner, *supra* note 94, at 699. Although the complaint in *ReaLemon* was initiated by the Federal Trade Commission, it is worth noting that Golden Crown's successor, G.C. Citrus Corporation, filed a related damage suit against Borden. Proposed Findings of Fact and Conclusions of Law of Respondent 11, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>97</sup> R. BORK, *supra* note 2, at 154.

<sup>98</sup> *Id.* This argument can be given a cost/benefit gloss. Suppose that in the sample of cases that can be brought under some predatory pricing rule, predation is actually present with probability  $p$ . Let there be zero loss if any case is decided correctly. (This assumption neglects litigation costs.) Suppose that the average loss from undetected predation is  $M$ ; thus, if all allegations of predatory pricing were simply dismissed, the expected total loss would be  $Mp$ . Suppose that the probability of an incorrect decision is  $e$ . Let the loss if relief is imposed when no predation is actually present be  $C$ . (This loss stems from inhibition of competitive

Areeda and Turner; Bork's proposal is less likely to win wide acceptance.

Before returning to Bork's proposal below, it is instructive to consider, in the context of the facts in *ReaLemon*, some recent attempts to use economic theory to devise clear standards for predatory pricing. Specifically, do these analyses permit a clear-cut judgment on *ReaLemon's* pricing behavior?

In an influential and widely-cited essay, Areeda and Turner propose definite tests for predation, to be applied to a monopolist "in the market in which he has monopoly power."<sup>99</sup> They argue that because marginal-cost pricing has well-known efficiency properties,<sup>100</sup> and because only prices equal to or above marginal cost can maximize short-run profits under any plausible assumptions, only prices *below* short-run marginal cost should be considered predatory.<sup>101</sup> Recognizing that reliable estimates of marginal cost are difficult to obtain, they propose the use of "reasonably anticipated average variable cost"<sup>102</sup> as the standard; prices above this quantity are to be lawful, prices below it predatory and unlawful. This shift is not without its substantive consequences, as Scherer has pointed out,<sup>103</sup> but the technical issues he raises seem secondary in the present context.

In the Initial Decision in *ReaLemon*, Judge Hanscom considered the Areeda-Turner average variable cost test.<sup>104</sup> As has already been noted,<sup>105</sup> *ReaLemon's* prices were apparently above accurate estimates, prepared after the fact, of its average variable

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conduct.) Then it is easy to show that the expected loss occurring when all cases are litigated exceeds that occurring when all cases are dismissed if and only if  $e$  exceeds  $1/[1 + [(1 - p)/p](C/M)]$ . If  $p$  is low, say .01, and  $(C/M)$  is non-trivial, say 0.5, then the critical value of  $e$  can be quite low—.02 in this example. If error is more likely, it is better simply to bring no cases.

<sup>99</sup> Areeda & Turner, *supra* note 94, at 732. See also Areeda & Turner, *Scherer on Predatory Pricing: A Reply*, 89 HARV. L. REV. 891 (1976); Areeda & Turner, *Williamson on Predatory Pricing*, 87 YALE L.J. 1337 (1978).

<sup>100</sup> Areeda & Turner, *supra* note 94, at 709-12. See generally F. SCHERER, *supra* note 44, at 12-13; E. MANSFIELD, *ECONOMICS* 452-57 (1974).

<sup>101</sup> *Id.* 733. The rule that monopoly pricing below marginal cost should be presumed predatory is subject to exception when "price, though below marginal cost, is at or above average cost." *Id.* 712.

<sup>102</sup> *Id.* 733.

<sup>103</sup> See text accompanying notes 120-24 *infra*. See also Areeda & Turner, *Scherer on Predatory Pricing: A Reply*, 89 HARV. L. REV. 891 (1976); R. POSNER, *supra* note 2, at 191-93; Scherer, *Predatory Pricing and the Sherman Act: A Comment*, 89 HARV. L. REV. 869 (1976); Scherer, *Some Last Words on Predatory Pricing*, 89 HARV. L. REV. 901 (1976).

<sup>104</sup> *Borden, Inc. (Initial Decision)*, No. 8978, slip op. at 117-30 (Aug. 19, 1976), *modified*, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>105</sup> See text accompanying notes 26-28 *supra*.

cost. If ReaLemon could have "reasonably anticipated" those figures, its pricing would have been declared lawful under the Areeda-Turner test. On the other hand, it is not clear from the record what the firm's management thought costs were at the time the prices in question were set. Depending on how the figures are treated, some of its prices were close to or below the unit cost figures that were available to decisionmakers. In any case, the price-cost gaps were not unusually large under any of the definitions discussed in the Initial Decision.<sup>106</sup> The question then arises whether any set of cost estimates deserves to be treated as exact values of "reasonably anticipated average variable cost," so that prices only slightly lower than such estimates would serve to establish a violation.<sup>107</sup> If the likelihood of cost estimation error is considered, how can it be practically incorporated into the rule? Although the Areeda-Turner test does not yield a completely clear result in *ReaLemon*, it does seem to indicate that the company's pricing policy should be deemed non-predatory and therefore lawful.

A different test is suggested by Posner, who defines predatory pricing as "*pricing at a level calculated to exclude from the market an equally or more efficient competitor.*"<sup>108</sup> After analyzing the implications of this definition, he concludes that "[p]roof of sales below average balance-sheet cost with intent to exclude might be enough to establish a prima facie case of predatory pricing."<sup>109</sup> Average balance-sheet cost would be obtained by dividing total accounting cost by output; if the accounting system has no major biases, this quantity is approximately average total economic cost, minus the per-unit cost of equity capital. A prima facie case could be rebutted by a defendant's showing that its pricing could be justified in terms of the relevant marginal cost.<sup>110</sup>

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<sup>106</sup> See *Borden, Inc. (Initial Decision)*, No. 8978, slip op. at 117-30 (Aug. 19, 1976), *modified*, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>107</sup> Bork stresses the complexities and allocation problems involved in preparing cost estimates that can effectively be utilized in litigation. He argues further that "the costs the law uses are only coincidentally related to real economic costs." R. BORK, *supra* note 2, at 154.

On appeal, the FTC also considered the Areeda-Turner test, and on this issue the majority agreed with the conclusion of the Initial Decision. *Borden, Inc. (Opinion of the Comm'n)*, No. 8978, slip op. at 28-29 (Nov. 7, 1978). But in a concurring opinion, Commissioner Clanton disagreed and found that ReaLemon had made sales at prices below average variable cost. *Id.* (Opinion of Clanton, Comm'r, concurring, at 4).

<sup>108</sup> R. POSNER, *supra* note 2, at 188 (emphasis in original).

<sup>109</sup> *Id.* 190.

<sup>110</sup> Either short-run marginal cost or long-run marginal cost would be used to rebut this presumption where each is the "correct guide to efficient pricing in its circumstances." *Id.* 191.

A number of problems arise when this analysis is applied to *ReaLemon*. First, in terms of the underlying definition, was Golden Crown "an equally or more efficient competitor"? Golden Crown's production costs per ounce of lemon juice appear to have been comparable to *ReaLemon*'s; but, all else being equal, buyers were willing to pay more for an ounce of *ReaLemon* than for an ounce of Golden Crown. Thus, in terms of the dollar value of outputs per dollar of inputs employed, *ReaLemon* was distinctly more efficient.

A case can be made, however, that the premium price commanded by *ReaLemon* was at least in part a reflection of consumers' greater experience with *ReaLemon* than with rival brands.<sup>111</sup> Arguably, there was learning on the demand side. Because the two products were apparently physically indistinguishable, it is at least plausible that if buyers had had the same experience with Golden Crown that they had with *ReaLemon*, the two products would have sold for the same price. If one adopts a static notion of efficiency, buyers' preferences for *ReaLemon* would imply that the product was produced and marketed more efficiently than Golden Crown; but if one takes a more dynamic view of efficiency, there is no obvious reason to suppose that Golden Crown was not "an equally or more efficient competitor." Identical problems arise under classical "learning-by-doing" in production, when a firm's unit cost is a decreasing function of its total cumulative output to date.<sup>112</sup> If such learning is important, a new entrant may have higher costs today than an established firm, even though with the same production experience it would have the same costs.

On the basis of the data in the Initial Decision,<sup>113</sup> it seems likely, though by no means certain, that *ReaLemon* made at least some sales below its "average balance sheet cost."<sup>114</sup> Under Posner's suggested test, if the firm never sold below "average balance sheet cost," charges should be dismissed; on the other hand, if it

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<sup>111</sup> See text accompanying notes 167-211 *infra*.

<sup>112</sup> For an interesting analysis of entry deterrence in the presence of "learning by doing" in production, see R. Smilery & S. Ravid, *The Importance of Being First: Oligopoly Pricing with Learning* (June 1978) (unpublished paper at Cornell University) (copy on file with the author).

<sup>113</sup> *Borden, Inc. (Initial Decision)*, No. 8978, slip op. at 117-30 (Aug. 19, 1976), *modified*, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978 (Nov. 7, 1978), reported in *TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8* (Nov. 27, 1978).

<sup>114</sup> In both the Opinion of the Commission, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978, slip. op. at 29 (Nov. 7, 1978), and the concurring opinion of Commissioner Pitofsky, *id.* (Opinion of Pitofsky, Comm'r, concurring, at 20), it is stated that *ReaLemon* did make substantial sales at prices below "average total cost," which in context is clearly Posner's "average balance sheet cost."

did, further inquiry would be necessary. But when the analysis is expanded to consider the definition of predation from which Posner's test is derived, things seem less clear. As was already indicated,<sup>115</sup> ReaLemon was so situated that in order effectively to meet its prices, Golden Crown would have had to sell below its own "average balance sheet costs." If a static view of efficiency is adopted, Golden Crown was a less efficient competitor, and only ReaLemon's costs matter. Conversely, if one accepts that in a dynamic sense Golden Crown was arguably as efficient as ReaLemon, it could be argued that prices above ReaLemon's "average balance sheet costs" could serve to exclude an equally efficient competitor if they forced losses upon Golden Crown.<sup>116</sup> Acceptance of this argument could, of course, place ReaLemon in the awkward position of having to justify its prices in terms of reasonably derived estimates of a rival's costs.

In order to establish a prima facie case against alleged predators such as ReaLemon, Posner would also require some evidence of exclusionary intent, although he clearly recognizes the difficulty of establishing intent in litigation.<sup>117</sup> In *ReaLemon*, complaint counsel were able to find a number of documents that strongly suggest that ReaLemon's top management intended to regain sales lost to Golden Crown and to reduce the latter's market share, or at least hinder its expansion. Some documents (none of which, however, had been written by top management) suggest an intent to exclude Golden Crown from some regional markets. If one follows Posner, who attaches little weight to such documents because they merely reflect "the inveterate tendency of sales executives to brag to their superiors about their competitive prowess, often using metaphors of coercion that are compelling evidence of predatory intent to the naive,"<sup>118</sup> one is left with little evidence pointing to *exclusionary* intent. It would appear, then, that Posner's requirements for a prima facie case were not met in *ReaLemon*. However, if Posner, like Bork, had considered the chastening of rivals to be a possible goal of predation and had phrased his rule to

<sup>115</sup> See text accompanying notes 28-32 *supra*.

<sup>116</sup> After mentioning Posner's rule, the Opinion of the Commission pays particular attention to the apparent fact that prices above ReaLemon's cost could force Golden Crown to price below its own costs, thus tending to exclude a rival of apparently equal production efficiency. *Borden, Inc. (Opinion of the Comm'n)*, No. 8978, slip op. at 29-31 (Nov. 7, 1978). See text accompanying notes 12-38 *supra*.

<sup>117</sup> R. POSNER, *supra* note 2, at 189-90.

<sup>118</sup> *Id.* 190.

forbid intent to chasten, a prima facie case could have been established against ReaLemon under this test.<sup>119</sup>

If such an expanded rule were employed, ReaLemon probably could have rebutted this case. ReaLemon could have argued that in an intensely competitive situation, in which rivals are selling below average total cost, the quantity relevant for pricing decisions is short-run marginal cost. It then could have invoked the Areeda-Turner analysis, used average variable cost as a proxy for short-run marginal cost, and pointed to the evidence that its price had never been set below average variable cost. Thus, a slightly expanded version of Posner's rule would be likely, though not certain, to suggest that ReaLemon had engaged in predatory pricing. ReaLemon, however, might have succeeded in rebutting the presumption thus established by effectively invoking the Areeda-Turner test. Because the rebuttal argument just outlined must be usable in many cases, it might be simpler to begin with the average variable cost test.

Scherer<sup>120</sup> and Williamson<sup>121</sup> effectively criticize the economic models underlying these cost-based rules.<sup>122</sup> Both argue that by its very nature, predatory pricing is transient and generally localized in space. Thus, the relation between price and marginal cost during an episode of such pricing in some locality is likely to be of negligible importance relative to pricing policies at other times and in other places. Had ReaLemon made sales to the Philadelphia and Buffalo chains, as mentioned above,<sup>123</sup> at prices below marginal cost in December 1973, it is true that an efficiency loss, relative to sales at marginal cost, would have resulted. But to focus solely on this loss, while ignoring the substantial general excess of price over marginal cost suggested by ReaLemon's overall profitability, is to use one small, atypical tree to evaluate a large forest. Both Scherer

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<sup>119</sup> Bork phrases his alternate definition of predatory conduct as including situations in which the expectation of the predator is that "rivals will be chastened sufficiently to abandon competitive behavior the predator finds inconvenient or threatening." R. BORK, *supra* note 2, at 144.

<sup>120</sup> Scherer, *Predatory Pricing and the Sherman Act: A Comment*, 89 HARV. L. REV. 869 (1976); Scherer, *Some Last Words on Predatory Pricing*, 89 HARV. L. REV. 901 (1976).

<sup>121</sup> Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284 (1977).

<sup>122</sup> See Areeda & Turner, *Scherer on Predatory Pricing: A Reply*, 89 HARV. L. REV. 891 (1976); Areeda & Turner, *Williamson on Predatory Pricing*, 87 YALE L.J. 1337 (1978); Williamson, *A Preliminary Response*, 87 YALE L.J. 1353 (1978); O. Williamson, *Williamson on Predatory Pricing, II* (August 1978) (Discussion Paper No. 26, Center for the Study of Organizational Innovation, University of Pennsylvania) (copy on file with the author).

<sup>123</sup> See text accompanying notes 25-28 *supra*.

and Williamson argue that a proper application of economic principles in this context requires consideration of the overall, long-run effects of predation, or of any standards adopted by the courts to define it. At this point, the two part company: Scherer suggests that a detailed "rule of reason" examination of the relevant facts is necessary, while Williamson proposes a set of "per se" rules.

Most of Williamson's analysis is devoted to an examination of how a dominant firm responds to the appearance of a new entrant. The rules for this case are different from those Williamson would apply to deal with alleged predation or exclusionary practices among established firms. Williamson defines a "dominant-firm industry" as one in which "the largest firm has a market share of at least sixty percent, and entry into the market is not easy."<sup>124</sup> Without going through the sort of market definition-market share exercise discussed in section III, however, it is not clear how one would establish that a firm is either dominant in this sense or—what seems to come to the same thing—a monopolist in the sense that that term is used by Areeda and Turner.<sup>125</sup> Such market definition-market share exercises are an unreliable approach to the measurement of short-run monopoly power. In the present case, and in others, one can focus on the economically relevant considerations without attempting to define markets precisely or using structural definitions of "monopoly" or "dominance." Clearly ReaLemon and Golden Crown were affected by one another's pricing. Moreover, ReaLemon's management believed, with good reason, that its profits were threatened by Golden Crown; at the very least, ReaLemon would have been better off if Golden Crown had either vanished or become much less aggressive. This suggests that ReaLemon had substantial motivation to chasten or exclude Golden Crown. ReaLemon's much larger initial sales, wider geographic distribution, and greater financial resources, coupled with its "premium brand" status, suggest that it might have had or plausibly thought it had the ability to chasten or exclude Golden Crown. Surely no showing of dominance or monopoly can do more than indicate motive and ability; such indications are more appropriately sought in a direct comparison of the alleged predator and the prey than through attempts to define "the relevant market" and to compute their respective shares of it.

In applying Williamson's rules to the *ReaLemon* case, one must initially determine whether Golden Crown should be considered

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<sup>124</sup> Williamson, *supra* note 121, at 292.

<sup>125</sup> See Areeda & Turner, *supra* note 94.

a new entrant or an established firm. Golden Crown sold processed lemon juice, apparently quite aggressively, for more than a year before its name appeared in available ReaLemon documents; this fact suggests that it should be viewed as an established firm. On the other hand, Golden Crown had not entered all of ReaLemon's regional markets, and it appears that ReaLemon was worried that it would later do so effectively. This fact, along with the small scale of Golden Crown's operations relative to those of ReaLemon at the time of the events that prompted the complaint, suggests that Golden Crown should be treated as a new entrant. Had the administrative law judge been forced to make a choice between these alternatives, he would not have found it an easy one. On the basis of Williamson's rules, it would have been a most important decision, however.

Suppose first that Golden Crown is considered to have been an established firm in an industry with stable demand. Williamson would ignore "episodic price wars"<sup>126</sup> and would consider predatory pricing issues only "if price cutting persists and there is an indication that one or more firms is relying on a deep pocket in an effort to force exit of some firms from the industry."<sup>127</sup> Was ReaLemon's pricing more than episodic? How would one decide? Must one wait until price is increased before filing a complaint? Let us go further and suppose that it is held that ReaLemon's price cuts were sufficiently long-lived to be potentially illegal. Williamson would then apply an average total cost test, which ReaLemon probably would have failed.

Suppose, on the other hand, that Golden Crown is considered to have been a new entrant. Williamson's analysis of this situation is based on a standard model, derived from Bain,<sup>128</sup> of a homogeneous product market with substantial economies of scale and a single established seller. He assumes that entry will be deterred if the expected post-entry price is below the entrant's average total cost. He then shows that a rule of law prohibiting the established seller from increasing its output after entry induces that firm to charge a lower pre-entry price in order to deter entry than would a number of cost-based rules, including that of Areeda and Turner.<sup>129</sup> His

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<sup>126</sup> Williamson, *supra* note 121, at 336.

<sup>127</sup> *Id.* 321.

<sup>128</sup> See generally J. BAIN, *supra* note 43.

<sup>129</sup> The theory is that the established firm will position itself before entry so that it will be able (both physically and legally) to cut price below any entrant's average total cost if entry occurs. See also Spence, *Entry, Capacity, Investment and Oligopolistic Pricing*, 8 BELL J. ECON. 534 (1977).



proposed rule for new entry would make it illegal for a dominant firm to increase its output, adjusted for changes in the level of demand, for twelve to eighteen months after the appearance of a new entrant.<sup>130</sup> After that period, an average total cost test would apply. Although there probably would have been considerable debate on this point, let us suppose for the sake of argument that all of ReaLemon's discounting had been held subject to this output test. Then, did ReaLemon engage in predation?

Initially, one must define a base period against which increases in unit sales are to be measured. If 1972 is selected as the base year, then the evidence shows that ReaLemon *intended* to violate Williamson's rule;<sup>131</sup> it intended, through the use of price cuts, to increase its share of processed lemon juice sales in some regions at the expense of Golden Crown. Had this policy succeeded, ReaLemon surely would have increased its demand-adjusted output, because an increase in market share plus a lower average price must imply higher unit sales.

Golden Crown was not a passive competitor, however; it may have reacted by making some sales below its average total cost, a possibility not recognized in Williamson's formal economic model. In any case, ReaLemon did not achieve its share objectives; its nationwide market share in 1973 was lower than its 1972 share. ReaLemon may or may not have managed to increase demand-adjusted unit sales in its target areas;<sup>132</sup> it certainly could not have ascertained this result until after the fact. Assuming, as seems likely, that demand-adjusted output did not rise, should one then find ReaLemon guilty of *attempted* predation, or dismiss the charges because it failed in a serious attempt to break the law? Suppose all the facts were the same, but no evidence at all on intent were available? ReaLemon's pricing below average total cost would then have to be found lawful under the Williamson test. Conversely, ReaLemon's conduct would have to be found unlawful if it continued to set its price below average total cost beyond eighteen

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<sup>130</sup> See Williamson, *supra* note 121, at 334-35.

<sup>131</sup> Of course, ReaLemon would argue for an earlier benchmark, probably 1968, the year before Golden Crown began to challenge it, in order to show its lack of output response during the initial twelve-to-eighteen-month period.

<sup>132</sup> Data available do not permit a definite conclusion on this point, but it may be worth noting that Golden Crown's shares of processed lemon juice sales in Buffalo and in Philadelphia in 1974, after the ReaLemon sales at very low prices, were both around 29%. Brief of Respondent Borden, Inc., in Support of its Appeal from the Initial Decision of the Administrative Law Judge 35, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978). See text accompanying note 28 *supra*.

months after Golden Crown had become visible. If the Williamson rule had been law during this period and ReaLemon had pursued the same course of action, Golden Crown could have insured itself treble damages either by failing to react to ReaLemon's discounting or by failing to make deliveries in key areas.<sup>133</sup>

Some of the ambiguities and difficult choices that arise when one attempts to apply the Williamson standards to *ReaLemon* would be likely to arise in other cases as well. But the deeper problem revealed by the foregoing discussion is that the economic model underlying Williamson's output test is inappropriate; for it fails in important respects to fit the facts of the case. Williamson's potential entrants are deterred if they expect that to compete successfully it will be necessary to set a post-entry price below their average total cost; in this case, however, Golden Crown was apparently willing to expand its sales at such prices for some time. In Williamson's model, because output is a decision variable, it can sensibly be used to evaluate behavior; whereas in the processed lemon juice market, demand for any one brand was critically dependent on the prices of all others. Price, not output, was the decision variable. In Williamson's model there is a single market price, whereas the facts of this case indicate that rival brands of processed lemon juice were sold at different prices. The barrier to entry that drives Williamson's model is the high cost of producing on a small scale; but scale economies do not seem to be important in the reconstituted lemon juice industry. Finally, the main obstacle to effective competition discussed by Administrative Law Judge Hanscom in the Initial Decision is the "premium brand" status of ReaLemon, which enabled it to command a higher price than other brands. This sort of obstacle, is not easily built into the Williamson model; <sup>134</sup> this is especially true if the premium brand status is subject to erosion over time.

If the economic model from which Williamson's test is derived is not suitable for use in the analysis of *ReaLemon*, it is hard to believe that its implications should be accepted in all other cases. Thus, Williamson's rule must be inapplicable to at least some

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<sup>133</sup> An essential point of Williamson's analysis is that any rule of law on predation will affect an intelligent firm's actions, both before and after entry. Thus, ReaLemon's actions would likely have been different had the Williamson rule been law.

<sup>134</sup> This is not to say that there exist other predatory pricing rules derived from models of more general applicability, or from models that would be more appropriate in this case. The point is simply that one must be skeptical of a rule formally derived from an economic model that does not seem to fit the facts of the particular situation considered.

cases. It has been argued above that the Scherer<sup>135</sup>-Williamson<sup>136</sup> critique of the economic analysis underlying the apparently simple cost-based rules of Areeda and Turner,<sup>137</sup> and Posner,<sup>138</sup> establishes that these rules cannot be defensibly applied to all, or even most, cases. It follows that we do not possess any simple yet universally applicable rules for predatory pricing.<sup>139</sup>

If the conclusions stated in the preceding paragraph are accepted, only two supportable general policies toward predatory pricing exist. One could follow Bork<sup>140</sup> and simply drop such conduct from the list of proscribed practices. If predatory pricing is in fact very rare, and if courts always have considerable difficulty distinguishing it from vigorous but innocent competition, Bork's solution may be the safest route. The economic case for this policy is strengthened if one fears that courts, confronted with difficult decisions, are likely to err in the direction of protecting competitors rather than competition.<sup>141</sup>

But there are problems with such a drastic prescription. The apparent infrequency with which predatory pricing is attempted cannot be totally unrelated to the courts' hostility toward the concept and to the propensity of small firms to allege predation. Furthermore, not all cases of alleged predatory pricing are identical; judicial error is much more likely in some than in others. It is at least plausible that the removal of predatory pricing from the list of proscribed antitrust practices would produce some cases that any reasonable person could distinguish from innocent competition.

If, for these or other reasons, it is decided that predatory pricing cannot simply be declared lawful, only one economically defensible general policy choice would remain: Scherer's proposal that courts follow a "rule of reason" approach and perform "a thorough

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<sup>135</sup> Scherer, *Predatory Pricing and the Sherman Act: A Comment*, 89 HARV. L. REV. 869 (1976); Scherer, *Some Last Words on Predatory Pricing*, 89 HARV. L. REV. 901 (1976).

<sup>136</sup> Williamson, *supra* note 121.

<sup>137</sup> Areeda & Turner, *supra* note 94.

<sup>138</sup> R. POSNER, *supra* note 2, at 190-91.

<sup>139</sup> In his concurring opinion in this case, Commissioner Pitofsky proposed another rule that deserves mention. He would disregard intent and find predation if either (a) price was below average variable cost, or (b) price was below average balance sheet cost and barriers to entry were high. The difficulty of measuring barriers to entry is well known; thus, this test must involve application of the "rule of reason," a fact that Pitofsky acknowledges. See *Borden, Inc.* (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978) (Opinion of Pitofsky, Comm'r, concurring, at 18).

<sup>140</sup> R. BORK, *supra* note 2, at 154-55.

<sup>141</sup> One might acquire such a fear by reading Posner. See R. POSNER, *supra* note 2, at 193-96.

examination of the factual circumstances accompanying the monopolist's alleged predatory behavior, how the monopolist's officials perceived the probable effects of its behavior (i.e., intent), and the structural consequences actually flowing from the behavior."<sup>142</sup> Scherer's suggestion<sup>143</sup> that sound policy here must involve, in effect, long-run cost/benefit analysis has been attacked as unwieldy and unworkable.<sup>144</sup> But Scherer's answer to such criticism cannot be dismissed out of hand:

[J]ust about any important Sherman Act, section 2 or Federal Trade Commission Act, section 5 monopolization case entails discovery and trial costs running into the millions of dollars. If, despite such vast outlays, the existing adjudicative system cannot cope with complex scale economy and behavioral questions, the solution, I contend, is not to adopt oversimplified rules of thumb that it *can* handle. Rather, a new and better system should be devised.<sup>145</sup>

Although detailed economic analysis will probably be necessary in some cases, both fairness and economic efficiency would be enhanced by the adoption of understandable rules that permit courts to dismiss patently groundless charges of predation. An average total cost test may be appropriate here, but further study of alternative rules designed to exclude obviously bad cases is surely justified.

In any event, in *ReaLemon* Administrative Law Judge Hanscom did perform a "rule of reason" analysis. As was noted above,<sup>146</sup> he determined that ReaLemon had monopoly power, largely on the basis of its share of "the relevant market." He deduced from documentary evidence that ReaLemon had exhibited intent to maintain and preserve its monopoly. He found that it had used discriminatory price differentials in different regions and "unreasonably low prices" to achieve this end. Because its share of the processed lemon juice "market" was still a healthy seventy-five

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<sup>142</sup> Scherer, *Predatory Pricing and the Sherman Act: A Comment*, 89 HARV. L. REV. 869, 890 (1976).

<sup>143</sup> Scherer believes that the application of cost-based rules "would be incompatible in any event with vigorous competition." Scherer, *Some Last Words on Predatory Pricing*, 89 HARV. L. REV. 901, 903 (1976).

<sup>144</sup> See Areeda & Turner, *Scherer on Predatory Pricing: A Reply*, 89 HARV. L. REV. 891, 897 (1976); Williamson, *supra* note 121, at 288 n.16. These commentators feel that application of the Scherer framework would involve long-run analysis that must be speculative and indeterminate. See also R. BORK, *supra* note 2, at 154-55.

<sup>145</sup> Scherer, *supra* note 143, at 903 (emphasis in original).

<sup>146</sup> See text accompanying notes 39-88 *supra*.

percent in 1974, he concluded that ReaLemon had in fact achieved the goal of maintaining its monopoly position. Taken together, intent, actions, and effects were sufficient to establish a violation of the law.

The issues involved here are not simple, but the analytical approach employed in the Initial Decision is not the best way to resolve them. ReaLemon clearly was a lucrative operation, and its management felt that its long-run profitability could be enhanced by price moves directed against Golden Crown; one need not define markets or compute market shares to reach this conclusion. Because of ReaLemon's superior status in the minds of consumers, its management might plausibly have felt that reducing price to a level equal to or below average total cost would cause serious injury to Golden Crown. It is difficult to determine whether ReaLemon's management did expect or might plausibly have expected that Golden Crown would either substantially retrench its operations or drop out of the industry. In any event, it did neither; Golden Crown's share continued to grow, and the terms of its sale to Seven-Up in late 1974<sup>147</sup> indicate that at least one firm estimated that it had accumulated positive "goodwill" by that time, in spite of ReaLemon's actions. The growth of Golden Crown, when considered in light of the circumstances surrounding its sale, suggests that whatever its intent or expectations, ReaLemon did not manage to reduce the effective rivalry it faced.<sup>148</sup>

The Initial Decision focuses on ReaLemon's substantial market share in 1974 as evidence of its continuing dominance.<sup>149</sup> This reflects capture by models in which market share is given excessive weight as a measure of monopoly power. More stress should perhaps be placed on ReaLemon's rapid loss of share in the 1970-1974 period. In any case, if ReaLemon's initial expectations of success were influenced by superior access to liquid capital, the sale of Golden Crown to Seven-Up would surely have altered those expectations.

Golden Crown certainly would have been better off if ReaLemon had not engaged in the price and discount policies listed in the complaint. In deciding that ReaLemon's prices were "un-

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<sup>147</sup> See text accompanying notes 33-34 *supra*.

<sup>148</sup> One should not rely too heavily upon the sale of Golden Crown to Seven-Up because the sale occurred after the FTC had issued a complaint against Borden. The issuance of the complaint may have affected Seven-Up's expectations about future market conditions.

<sup>149</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 134-36 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

reasonably low," the administrative law judge relied on Golden Crown's costs as a benchmark.<sup>150</sup> This approach resembles what Williamson terms "a naked theory of umbrella pricing—in order to ensure the viability of a new entrant, the dominant firm is expected to maintain price."<sup>151</sup> Such a standard is generally unacceptable because it is biased against innocent, competitive price reductions that benefit buyers. One cannot infer from his comparison of ReaLemon's prices with Golden Crown's costs that the administrative law judge was employing "a naked theory of umbrella pricing," because such comparisons are also made when the dynamic efficiency issues considered above are addressed.<sup>152</sup>

This review of intent and effect does not establish beyond reasonable doubt that ReaLemon's pricing was predatory or constituted monopolization. In cases like this, in which the economic analysis apparently yields no definite conclusion, it is sensible to heed the warnings of Areeda and Turner,<sup>153</sup> and Bork,<sup>154</sup> about the dangers of inhibiting competition and find for the respondent company. Some of the strong language in the ReaLemon documents introduced by complaint counsel to establish intent might make this difficult to do. But without conclusive evidence of intent to do much more than recoup losses and check a rival's expansion, and with no evidence that these goals had been achieved, dismissal of charges seems warranted. One can sensibly couple Scherer's rule of reason with Bork's strong presumption of innocence.

## V. THE DESIGN OF RELIEF: TRADEMARK LICENSING

Administrative Law Judge Hanscom did not dismiss the charges against ReaLemon in the Initial Decision in *Borden Inc.*<sup>155</sup> After finding that the company had monopolized, he turned to the question of relief. He began with the observation that "[i]n a 'monopolization' case, adequate relief must put an end to the monopoly position, and break up or render impotent the monopoly power found to have been preserved and maintained in violation of

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<sup>150</sup> *Id.* 133-34.

<sup>151</sup> Williamson, *supra* note 121, at 328.

<sup>152</sup> See text accompanying notes 110-17 *supra*.

<sup>153</sup> Areeda & Turner, *supra* note 94, at 699.

<sup>154</sup> R. BORK, *supra* note 2, at 154-55.

<sup>155</sup> *Borden, Inc.* (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, modified, *Borden, Inc.* (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

law.”<sup>156</sup> Immediately after stating that a cease and desist order would not accomplish this end, he declared:

The heart of the monopoly power preserved and maintained by respondent Borden lies in the ReaLemon trademark and its dominant market position. For competition to enter the processed lemon juice industry, the barrier to entry which inheres in the ReaLemon trademark must be eliminated. As a consequence, in the judgment of the undersigned, the only effective relief under the facts shown by the record in this case requires the licensing of the ReaLemon brand name to others wishing to enter the production, marketing and sale of processed reconstituted lemon juice.<sup>157</sup>

As has already been noted, the order attached to the Initial Decision called for compulsory licensing of the ReaLemon mark for a period of ten years, at rates intended only to cover Borden's costs of licensing and of insuring adequate quality control. In addition, Borden was ordered to cease and desist from pricing practices injurious to competition.<sup>158</sup>

Whatever the proper role of economic analysis in the determination of the legal status of particular acts or practices, surely some economic theory must be relied upon when relief of this sort is imposed. If the objective of such structural relief is to improve economic performance rather than to punish offenders, the design of that relief must be based on an economic model which predicts that more efficient resource use will flow from the announced order.<sup>159</sup> This section will show that no satisfactory model of this sort was employed to analyze the relief ordered in ReaLemon. Thereafter, I will present an economic analysis of the role of the ReaLemon trademark and will indicate some of the consequences of the judge's decision to mandate licensing. Although the analysis may be of some general interest, its main purpose is to illustrate the importance of integrating the central facts of any individual case into a coherent model before prescribing structural change.

It is apparent that in markets in which both ReaLemon and Golden Crown competed, ReaLemon's trademark provided its

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<sup>156</sup> *Id.* 162-63 (citations omitted).

<sup>157</sup> *Id.* 164.

<sup>158</sup> *Id.* 167-70.

<sup>159</sup> See R. BORK, *supra* note 2; Bork & Bowman, *The Crisis in Antitrust*, 65 COLUM. L. REV. 363 (1965). But see Blake & Jones, *In Defense of Antitrust*, 65 COLUM. L. REV. 377 (1965) (suggesting that political purposes, as well as resource allocation, are relevant to antitrust policy).

main (and probably its only significant) advantage over Golden Crown.<sup>160</sup> The Initial Decision describes at length the widespread acceptance of the ReaLemon name, terming it "virtually the generic name for bottled lemon juice."<sup>161</sup> The price differentials that ReaLemon could charge—apparently entirely because of the strength of its "consumer franchise"—are also noted. This premium brand status is described in the opinion simply as having been "created by a number of factors including advertising and promotion over the years."<sup>162</sup> This is hardly an adequate model of the source of the ReaLemon trademark's status or value.<sup>163</sup> Similarly, the conclusion that ReaLemon's trademark was an important source of its power to exclude competition<sup>164</sup> is apparently based on its historic price premium and on expert testimony characterizing it as "a successfully differentiated product."<sup>165</sup> However, that term amounts to little more than a statement that consumers perceived ReaLemon to be different from other brands (thus "differentiated")<sup>166</sup> and in fact superior to them (thus "successfully differentiated"). Surely the basic character of the differentiation involved is not the same in all situations in which consumers perceive differences.<sup>167</sup>

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<sup>160</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 59-61 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>161</sup> *Id.* 59.

<sup>162</sup> *Id.* 60.

<sup>163</sup> It suggests, if anything, that ReaLemon's apparently high profits may have reflected mainly inappropriate accounting treatment of its advertising. If the goodwill Borden acquired in 1962 when it purchased the ReaLemon company was equal to the depreciated cost of prior advertising, ReaLemon's apparent excess profits would largely vanish. See text accompanying note 16 *supra*.

Moreover, unless there was some obstacle preventing Golden Crown and others from advertising with equal effectiveness, a finding of substantial barriers to entry would probably be unwarranted. Advertising does appear to have effects on demand, sometimes creating both brand loyalty and buyer inertia. See J. BAIN, *INDUSTRIAL ORGANIZATION* 260 (2d ed. 1968). But entry barriers are *not necessarily* high or even extant simply because prior advertising has had such dynamic effects. See Schmalensee, *Brand Loyalty and Barriers to Entry*, 40 S. ECON. J. 579, 587 (1974).

<sup>164</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 77 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>165</sup> *Id.* 72.

<sup>166</sup> Expert testimony defined product differentiation as "a market characteristic in which buyers do not look at the alternative offerings of various sellers as identical." *Id.* 75.

<sup>167</sup> Ready-to-eat breakfast cereals, for example, form a class of differentiated products. But different brands of cereal do appear to differ in ways perceptible by and important to consumers. See Schmalensee, *supra* note 51, at 307. Competing brands of lemon juice, however, are apparently identical. Substantial perceived differences in the face of actual product homogeneity might imply low quality of consumer information that Holton suggests leads to gross market imperfections. Holton, *Consumer Behavior, Market Imperfections, and Public Policy*, in *INDUS-*



Reliance on the historic price premium that ReaLemon's trademark provided as a basis for the conclusion that ReaLemon had power to exclude competition is also misguided. Any model that predicts that ReaLemon's trademark would provide substantial long-run monopoly power must show how possession of that mark gives the firm a relatively long-lived advantage over its actual and potential rivals; that is, it must demonstrate an advantage more expensive for competitors to overcome than for ReaLemon to have acquired.<sup>168</sup> A showing that ReaLemon commanded a premium price over some period does not accomplish this end. Suppose, for example, that the premium resulted simply from the fact that only ReaLemon had engaged in non-trivial amounts of advertising. Suppose further that this premium could be erased totally and permanently by an advertising outlay of one million dollars spread over two years. Given these assumptions, it would be difficult to argue that ReaLemon had a significant, long-run advantage. Similarly, a showing that ReaLemon had lower production costs than Golden Crown, because of a much more efficient bottling line, would not suffice to establish the existence of a serious obstacle to effective competition. In order to prove that such an obstacle existed, one would also have to show that it somehow would have been unusually difficult for Golden Crown to have acquired an equally efficient line.

The ReaLemon mark probably did give its holder a short-run advantage over Golden Crown and others. The point, however, is that the existence of this advantage does *not* establish the presence of any important long-run advantage that would serve significantly

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TRIAL ORGANIZATION & ECONOMIC DEVELOPMENT 102 (1970). On the other hand, imperfect information does not seem to be a significant problem in the breakfast cereal market. Although different brands of breakfast cereals appeal to different segments of the population, there is no segmentation in the lemon juice market. The leading firms produce many brands of cereal; yet only a very few brands of processed lemon juice are sold in any one region. Advertising and product development are much more important in the breakfast cereal industry than in the processed lemon juice industry.

To lump these product categories, along with others that differ from both in major ways, under the single heading "differentiated products" is to mistake a call for analysis for the results thereof. As the comparison of these two industries indicates, "product differentiation" takes many forms; there is no reason at all to suppose that they can all be adequately comprehended by any single model. See Schmalensee, *supra* note 51, at 307-09.

<sup>168</sup> For a similar argument in a related context, see Schmalensee, *supra* note 163, in which the author argues that brand loyalty to established firms created by advertising (as opposed to that created by a trademark) does not necessarily yield a relatively long-lived advantage (such as a significant barrier to entry). The crucial issues are the ease with which loyalty patterns can be changed and the degree of expense caused by the change.

to inhibit effective competition. One needs a model that indicates how ReaLemon's advantage was obtained and that sheds some light on the difficulties, if any, that rivals would face in attempting to overcome that advantage. Without such a model, it is difficult to provide an adequate economic argument for mandatory trademark licensing.<sup>169</sup>

There are a number of ways in which one might approach the task of constructing such a model. One might, for example, assert that "ReaLemon" simply happened to be a name endowed with certain magical properties in this area, making it impossible for consumers to resist buying lemon-based products to which that name was affixed. But Borden's apparent lack of success with products other than reconstituted lemon juice that bore the ReaLemon name renders this assertion somewhat implausible.<sup>170</sup>

Similarly, one could argue, as Chamberlin has done,<sup>171</sup> that the long-run advantage created by a trademark is identical to that created by a patent. Trademarks and patents are analytically indistinguishable, he contends, because they both provide monopoly power. Thus, in order to permit rivals to overcome the trademark advantage, Chamberlin would allow considerable trademark infringement because it erodes monopoly.<sup>172</sup> This line of argument suggests that one should end the trademark protection ReaLemon

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<sup>169</sup> Because the Initial Decision did not contain an economic model from which the desirability of trademark licensing was obvious, it is not surprising that the Opinion of the Commission found this part of the proposed relief unnecessary to promote competition. Borden, Inc. (Opinion of the Comm'n), No. 8978, slip op. at 39 (Nov. 7, 1978). The concurring opinions of Commissioners Clanton, *id.* (Opinion of Clanton, Comm'r, concurring, at 5), and Pitofsky, *id.* (Opinion of Pitofsky, Comm'r, concurring, at 20), express this same view, although Chairman Pertschuk argued for "some form of trademark relief," *id.* (Separate Opinion of Pertschuk, Comm'r, on the Issue of Relief, at 7). The Commission's result may reflect appropriate placement of the burden of proof, even though it may not in fact be the right conclusion here. The Commission adopted, with only slight modifications, the pricing portion of the relief ordered in the Initial Decision; but because on this issue the Initial Decision simply says "go and sin no more" without defining sin very clearly, it is not clear what effect the Commission's order will have on Borden's behavior, beyond making it more reluctant to lower prices in response to competition.

<sup>170</sup> See Proposed Findings of Fact and Conclusions of Law of Respondent 113-15, Borden, Inc. (Initial Decision), No. 8978 (Aug. 19, 1976), reported in [1976] 3 TRADE REG. REP. (CCH) ¶ 21,194, modified, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>171</sup> E. CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION 57-62 (8th ed., 1962).

<sup>172</sup> Chamberlin would favor more extensive use of legislated quality standards to perform the consumer protection function of trademarks in certain industries. At most, he would extend trademark protection only for limited periods, of about five years. *Id.* 270-74.

enjoyed here. This reasoning, however, is not entirely persuasive. Although patents and trademarks share some analogous characteristics, there are differences between them as well; trademarks perform important functions that patents do not. One function of the trademark is to identify the origin or source of the goods to which it is affixed. A second and more important function today is to indicate the quality of the item.<sup>173</sup> But if one accepts the argument that *all* trademarks should not be attacked, one must still construct a model that either singles out ReaLemon for special treatment or shows why it should not be singled out.

It seems apparent that the "action" in the reconstituted lemon juice industry is on the demand side; in order to understand the value of the "ReaLemon" trademark, one must have an appropriate model of consumer behavior. Some hints about the nature of such a model are given by documents and testimony cited in the Initial Decision. A survey of consumer attitudes concluded that consumers "see ReaLemon as the brand that is proven and reliable and has captured their brand loyalty."<sup>174</sup> A former ReaLemon regional sales manager stated, "ReaLemon was first in the business and over a long period of years they had established a very dominant consumer and trade-wise acceptance."<sup>175</sup> The grocery buyer for the leading chain in Buffalo noted that ReaLemon was "the product that customers have used for years, and they are very familiar with it."<sup>176</sup> Finally, the grocery buyer for a Wisconsin-based chain generalized, "The first in, that constantly promotes [*sic*] their own name themselves, seems to almost create a brand identity in the consumer's mind that she just can't get out of it."<sup>177</sup> A common thread running through these and similar statements is that consumers' long experience with ReaLemon had a good deal to do with that brand's premium status.

There are a number of mechanisms that one might invoke to link experience to preferences. Studies by Allison and Uhl,<sup>178</sup> and

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<sup>173</sup> Hanak, *The Quality Assurance Function of Trademarks*, 43 *FORDHAM L. REV.* 363, 363-64 (1974).

<sup>174</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 62 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>175</sup> *Id.*

<sup>176</sup> *Id.* 64.

<sup>177</sup> *Id.* 64-65.

<sup>178</sup> Allison & Uhl, *Influence of Beer Brand Identification on Taste Perception*, J. *MARKETING RESEARCH*, August 1964, at 36 (product quality ratings for unlabelled beer quite similar; substantial differences in quality ratings when beer was labelled).

by White,<sup>179</sup> have found that product labelling can affect consumers' perceptions of product performance. It is somewhat difficult to reconcile this effect with either broad or narrow definitions of buyer rationality,<sup>180</sup> but in any case, it is not obvious that consumers' perceptions of the qualities of competing brands of processed lemon juice were distorted in major ways. The study of consumer attitudes cited above<sup>181</sup> noted that "no differences were mentioned between ReaLemon and the other products."<sup>182</sup>

A more appealing mechanism for linking experience to preference for a product, that is perfectly consistent with consumer rationality, is suggested by Bauer's interesting discussion of the risk-taking involved in consumer behavior.<sup>183</sup> Bauer notes that any purchase act has an enormous number of possible consequences, the relative likelihoods of which cannot be calculated by rational humans.<sup>184</sup> He points out that "brand loyalty,"<sup>185</sup>—a term that connotes the strong attachment one has to a brand that has proven to be satisfactory, and for which one might be willing to pay a premium price—can be a sensible way of reducing perceived risk. He provides illustrative anecdotal evidence of stronger loyalty to particular brands of sugar among housewives who are frequent bakers and who view the consequences of using an unsatisfactory sugar as potentially severe, than among housewives in general.

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<sup>179</sup> I. WHITE, *The Perception of Value in Products*, in ON KNOWING THE CONSUMER 102-03 (J. Newman ed. 1966) (product A perceived as somewhat superior when products A and B were not labelled; A, somewhat inferior when products properly labelled).

<sup>180</sup> For a discussion of broad definitions of buyer rationality, see Simon, *Rationality as Process and as Product of Thought*, AM. ECON. REV., May 1976, at 1. Simon argues that economics should be concerned with rationality in a broader sense. Besides being concerned with results, rationality in a broader sense would also consider the effectiveness, in light of human cognitive powers, of the procedures used to choose the appropriate course of action in the face of complexity and uncertainty.

<sup>181</sup> See note 174 *supra* & accompanying text.

<sup>182</sup> Borden, Inc. (Initial Decision), No. 8978, slip op. at 62 (Aug. 19, 1976), *modified*, Borden, Inc. (Opinion of the Comm'n), No. 8978 (Nov. 7, 1978), *reported in* TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>183</sup> Bauer, *Consumer Behavior as Risk Taking*, in PROCEEDINGS OF THE 43RD NATIONAL CONFERENCE OF THE AMERICAN MARKETING ASSOCIATION 389 (R. Hancock ed. June 1960), *reprinted in* RISK TAKING AND INFORMATION HANDLING IN CONSUMER BEHAVIOR 23 (D. Cox ed. 1967).

<sup>184</sup> For example, can a "bad" bottle of lemon juice kill you? Can it cause cancer? Can it produce bad breath? How might one attach value or subjective probabilities to these events?

<sup>185</sup> On the many definitions of "brand loyalty" in various contexts, see J. ENGEL, R. BLACKWELL & D. KOLLAT, CONSUMER BEHAVIOR 440-46 (3d ed. 1978) and references cited therein. In the text of this Article the term "brand loyalty" is employed in a fashion consistent with the facts in ReaLemon: a loyal consumer is willing to pay a premium price for the favored brand.

Subsequently, Cunningham found a strong positive association between the risk that individuals associated with particular product classes and the strength of their expressed preference for their favorite brand in each class.<sup>186</sup> Roselius found that consumers generally ranked brand loyalty (that is, buying a favorite brand) well above a number of other methods of risk-reduction (such as buying the most expensive brand).<sup>187</sup> Sheth and Venkatesan found that as experience with a product class grew (in an experimental setting), brand loyalty became the dominant risk-reduction device employed, while information-seeking and prepurchase deliberation decreased over time.<sup>188</sup>

Not only has the Bauer hypothesis, that perceived risk fosters loyalty toward a brand with which one has had favorable experience, withstood direct testing, but it is also consistent with a good deal of apparently unrelated theory and evidence. It is, in particular, consistent with hyper-rational consumer behavior of the sort usually assumed by economists.<sup>189</sup> The Appendix to this Article sketches a very simple model, in which buyers know the laws of probability and properly compute the relevant expectations, that predicts brand loyalty as a consequence of uncertain product performance. In that model, rational consumers who have had experience with the first brand of a particular type may decide not even to try a second brand introduced at the same (or even a somewhat lower) price and of equal ex ante attractiveness. Once the first brand has been used, continuing to buy it involves less risk than trying a new brand; thus, trial will occur only if the expected gains are sufficiently large. In the model in the Appendix, the first brand on the market obtains a lasting advantage, whose magnitude increases the more averse consumers are to the risks involved.

On the empirical side, one can point to the recent study by Bond and Lean for the Federal Trade Commission of two drug markets.<sup>190</sup> It concluded that "strong preferences are revealed for

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<sup>186</sup> Cunningham, *Perceived Risk and Brand Loyalty*, in RISK TAKING AND INFORMATION HANDLING IN CONSUMER BEHAVIOR 507 (D. Cox ed. 1967).

<sup>187</sup> Roselius, *Consumer Rankings of Risk Reduction Methods*, 35 J. MARKETING 56 (1971).

<sup>188</sup> Sheth & Venkatesan, *Risk-Reduction Processes in Repetitive Consumer Behavior*, 5 J. MARKETING RESEARCH 307 (1968). Taylor provides an overview of the marketing literature concerned with the risk-taking dimension of consumer behavior. Taylor, *The Role of Risk in Consumer Behavior*, 38 J. MARKETING 54 (1974).

<sup>189</sup> See J. HIRSHLEIFER, PRICE THEORY AND APPLICATIONS 77 (1976); E. MANSFIELD, ECONOMICS 394 (1974).

<sup>190</sup> FEDERAL TRADE COMMISSION, STAFF REPORT ON SALES, PROMOTION, AND PRODUCT DIFFERENTIATION IN TWO PRESCRIPTION DRUG MARKETS 76 (1977) (study by Bond & Lean).

brands that are the first of their kind to appear on the market. These preferences wane only slowly over time. . . . [P]hysicians can be persuaded to prescribe late-entering brands if those brands offer some therapeutic gain useful to a subset of patients."<sup>191</sup> The authors noted that these first-brand preferences could not be explained by differences in advertising or promotional spending. In light of the risk that physicians associate, at least subjectively, with prescribing a new drug, and their insensitivity to drug prices, this form of brand loyalty is easily explained as risk-reducing behavior.<sup>192</sup> Buzzell and Farris found somewhat weaker evidence of early-brand advantages (and late-brand disadvantages) in marketing costs across a wide range of consumer goods.<sup>193</sup> Peckham expressed the conventional wisdom, consistent with the quotation above, that it is much more difficult to market an imitative ("me-too") brand than one that differs from others already being sold.<sup>194</sup> In experiments with neutrally-labeled (for example, "Brand H") but physically identical brands of bread, Tucker<sup>195</sup> found that subjects were willing to pay a premium to continue consuming brands with which they had acquired experience. McConnell made the same findings with respect to beer.<sup>196</sup> The parallel with the processed lemon juice market is apparent, as is the broad consistency of such behavior with a risk-avoidance model.

The above discussion at least suggests that the main reason that consumers were willing to pay a premium for the ReaLemon name was that they had had greater experience with ReaLemon than with other brands. Those other brands were rationally (at least in the broad sense in which this term is used outside economics) viewed as riskier alternatives. This is almost certainly an incom-

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<sup>191</sup> *Id.*

<sup>192</sup> This effect may be exceptionally important in prescription drug markets because price in those markets is largely removed from the selection decision. The selecting physician is not concerned with price because he does not pay for the product; therefore, reducing risk becomes relatively more important to him.

<sup>193</sup> Buzzell & Farris, *Marketing Costs in Consumer Goods Industries*, MARKETING SCI. INST. REPORT NO. 76-111, 1976, at 20.

<sup>194</sup> Peckham, *Can We Relate Advertising Dollars to Market Share Objectives?*, IN ADVERTISING RESEARCH FOUNDATION PROCEEDINGS OF THE 12TH ANNUAL CONFERENCE (1966).

<sup>195</sup> Tucker, *The Development of Brand Loyalty*, J. MARKETING RESEARCH, August 1964, at 32. Four identical loaves of bread with neutral labels were used, but as a consumer consistently selected one brand, a penny was attached to the non-favored brands. Most consumers remained with that brand for a time despite the difference in price; switching occurred only after the difference had become significant.

<sup>196</sup> McConnell, *The Development of Brand Loyalty: An Experimental Study*, 5 J. MARKETING RESEARCH 13 (1968).

plete model of consumer behavior in this market;<sup>197</sup> but all models of reality, by definition, are incomplete. The real issue is whether the assumptions or predictions of the risk-avoidance model are inconsistent with the facts of the case. That issue cannot be definitively settled here. Had the judge in *ReaLemon* explicitly considered alternative models of the source of the value of the "ReaLemon" trademark, more relevant information, might now be available.

In any event, assume that this framework is correct; it is appropriate, then, to consider some of its implications. As argued above,<sup>198</sup> what matters is not the price premium that buyers are willing to pay for ReaLemon at any instant, but rather the difficulty that an entrant would have in eroding it. The risk-avoidance model suggests that the first brand's advantage over later "me-too" entrants would last for a relatively long time; but it does not establish the *magnitude* of that advantage.<sup>199</sup>

One might conjecture, for example, that processed lemon juice purchases are not viewed as particularly risky by consumers, so the advantage should be small. But this conclusion is not obvious: because lemon juice is often used as an ingredient in various dishes, a bad bottle of lemon juice could ruin an expensive meal prepared for important guests. Robertson reports that in at least one small sample, food purchases were rated only slightly (and insignificantly) less risky than purchases of clothing or appliances.<sup>200</sup>

Even if one accepts the view that the average perceived risk at any instant is measured by the ReaLemon price premium, which historically has been substantial compared to the cost of a bottle of lemon juice, there still remains the question of how easily that premium could be eroded. Demsetz' study of frozen orange juice, for example, indicated that buyer experience with low-priced brands

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<sup>197</sup> This model ignores the likelihood that habitual purchase of ReaLemon will be questioned only if the consumer receives a sufficiently convincing indication that another brand might be better. That is, it is probably unrealistic to portray consumers, as the foregoing discussion has implicitly done, as constantly comparing available alternatives on the margin. Habit serves to shorten decisionmaking time and effort; once established, it may persist in the absence of strong stimuli. See Bauer, *supra* note 183, at 391, *reprinted in* RISK TAKING AND INFORMATION HANDLING IN CONSUMER BEHAVIOR 23, 25 (D. Cox ed. 1967). The risk reduction model also ignores the role that ReaLemon's advertising might have played and the possibility that ReaLemon's premium price served as an indicator of quality, reinforcing its premium status. See J. ENGEL, R. BLACKWELL & D. KOLLAT, *supra* note 185, at 251-52, and references cited therein.

<sup>198</sup> See text accompanying notes 160-69 *supra*.

<sup>199</sup> See generally R. HOLTON, *supra* note 167.

<sup>200</sup> T. ROBERTSON, *The Effect of the Informal Group upon Member Innovative Behavior*, in PERSPECTIVES IN CONSUMER BEHAVIOR 342 (rev. ed. 1973).

rather rapidly eroded loyalty to premium-priced national brands of that product.<sup>201</sup> Although one might infer a similar ease of erosion in this case, the long period of ReaLemon's dominance makes that inference suspect. On the other hand, the rapid rise in Golden Crown's share, coupled with its purchase by Seven-Up, points toward erosion, especially because it appears that Golden Crown managed to make substantial inroads with a reasonably modest investment. But this does not really settle the matter. It would be useful to know how the premium that ReaLemon commanded varied with consumer experience with Golden Crown. If it were totally erased by one purchase of Golden Crown, and if Golden Crown could obtain trial of its product at relatively little cost, then ReaLemon's long-run advantage would be minimal. On the other hand, if ReaLemon's premium was not materially lessened in regions in which Golden Crown attained a large share, or if detailed studies showed that years of using Golden Crown were required to erase preference for ReaLemon at identical prices, ReaLemon's advantage would be substantial. In any event, empirical work relating the strength of loyalty to ReaLemon to the penetration of Golden Crown could have calibrated the risk-avoidance model by indicating the real, long-run importance of ReaLemon's advantage; but apparently no such work was prepared for the Federal Trade Commission proceeding.

Thus, we are left with only the main qualitative implication of the risk-avoidance model: consumers' experience with ReaLemon gives that brand some long-lived advantage. This implication supports the Initial Decision's conclusion that the "ReaLemon" trademark was at the heart of the firm's long-run monopoly power,<sup>202</sup> but it fails to clarify the source of that power and the trademark's value. Furthermore, because the risk attached by buyers to Golden Crown and to other "low-priced" brands reflects ignorance of the homogeneity of all brands of bottled reconstituted lemon juice,<sup>203</sup> there is a clear market failure of the sort economists are used to dealing with.<sup>204</sup>

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<sup>201</sup> Demsetz, *The Effect of Consumer Experience on Brand Loyalty and the Structure of Market Demand*, 30 *ECONOMETRICA* 22 (1962).

<sup>202</sup> See text accompanying note 157 *supra*.

<sup>203</sup> If the source of ReaLemon's premium brand status lay in consumer perceptions that it tasted better than other brands, it could be argued that the problem was irrationality, not ignorance. If consumers are irrational in any deep sense, the welfare-economic case for competition breaks down.

<sup>204</sup> Holton would describe the problem as low quality of consumer demand. He suggests that such problems might be alleviated through the use of more efficient information (information that allows more ready comparison among brands),



The usual prescription for ignorance is to provide information.<sup>205</sup> In seeking to persuade customers to try its product, Golden Crown was, among other things, attempting to provide information. If one accepts the finding that ReaLemon acted unreasonably and illegally in ways that were harmful to Golden Crown, it follows that ReaLemon was hindering the provision of information in an unacceptable fashion. If one concludes, as the judge did, that a cease and desist order probably would not have prevented ReaLemon from continuing to hinder the flow of information,<sup>206</sup> it is logical to consider requiring the provision of information, if this can be done at moderate cost. One might, for example, require Borden to finance advertising to the effect that all brands of reconstituted lemon juice are chemically identical. But, unless quality standards<sup>207</sup> are imposed on all producers of reconstituted lemon juice by the Federal Trade Commission or some other entity, this "information" might in fact be misleading. Moreover, consumers do not have infinite capacity for information processing. The more easily information can be understood and employed, the more likely it is to affect decisions.<sup>208</sup>

Because a trademark provides a good deal of information quickly to one who has experience with it, one can argue that the

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of quality standards, and of advertising with certain minimum disclosures. See R. HOLTON, *supra* note 167.

Holton cites four conditions under which information about a specific product can be expected to be quite complete. They are: (1) the item is bought frequently by the specific buyer; (2) the quality and performance characteristics of the product are known to the buyer prior to purchase or are quickly ascertained after the item has been used; (3) the rate of technological change in the product is slow relative to the frequency of purchase; and (4) the terms of competing sellers' offers are known and are stable over time. *Id.* 104-05. Bottled lemon juice satisfies each of these conditions.

<sup>205</sup> See *id.*; Nelson, *Information and Consumer Behavior*, 78 J. POLITICAL ECON. 311 (1970).

<sup>206</sup> The Commission subsequently rejected this conclusion. See note 169 *supra*.

<sup>207</sup> Holton suggests that the imposition of quality standards leads to better consumer information, because such standards are a readily usable substitute for the detailed information-gathering and comparison in which consumers might otherwise engage. For example, a product might be required to contain a certain minimum percentage of lemon oil in order to be labelled "reconstituted lemon juice." Such a label can readily convey to consumers information about the identity of various brands (such as information about their contents) and at the same time assure them that the products are comparable. R. HOLTON, *supra* note 167, at 115.

<sup>208</sup> *Id.* 113; Simon, *supra* note 180, at 13-14. Holton remarks that consumers continue to search for information as long as the marginal cost of the search does not exceed the expected marginal return from further searching effort. He suggests the need not so much for more information, but rather, for more efficient information. Information provided in a form that permits easy, efficient comparison of price and quality would reduce the incremental cost of search; consequently, more search would be undertaken.

trademark licensing relief ordered in the Initial Decision,<sup>209</sup> with the associated quality control provisions, was an efficient way to transmit information to consumers. The lack of this information is at the root of the apparent market failure in that case. Thus, if the obstacles to effective competition in *ReaLemon* were such that a cease and desist order was inadequate, the trademark licensing relief actually ordered in the Initial Decision (which had sensible quality control provisions) probably would have improved market performance as well as deterred other potential predators. However, one cannot make an adequate economic argument, either for the inadequacy of a cease and desist order or for the desirability of trademark licensing, simply by asserting that, "[t]he heart of the monopoly power preserved and maintained by respondent Borden lies in the *ReaLemon* trademark and its dominant market position."<sup>210</sup> A careful selection and examination of an economic model appropriate to the situation involved is required.<sup>211</sup>

## VI. SUMMARY AND CONCLUSIONS

Through an examination of the major issues in a recent case, this Article has attempted to shed some light on the appropriate use of economic analysis in antitrust. By now it should be clear that it is logically impossible to avoid selecting an appropriate economic model, or appropriate models. If model selection is not done explicitly, the model employed in any particular decision or analysis emerges as that model or class of models that supports the conclusions reached. In situations in which the appropriate economic model is not obvious—and these can hardly be uncommon—failure explicitly to face the selection problem makes error more likely.

Section III showed that the importance attached to the market definition/market share exercise in *ReaLemon* reflected the im-

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<sup>209</sup> *Borden, Inc. (Initial Decision)*, No. 8978, slip op. at 167-70 (Aug. 19, 1976), *modified*, *Borden, Inc. (Opinion of the Comm'n)*, No. 8978 (Nov. 7, 1978), reported in TRADE REG. REP. (CCH) Adv. Sh. No. 361 at 8 (Nov. 27, 1978).

<sup>210</sup> *Id.* 164.

<sup>211</sup> Although trademarks are also important in the ready-to-eat breakfast cereal industry, a comparison of the analysis here with that in *Schmalensee*, *supra* note 51, should serve to indicate that they play very different roles in the two industries. In the cereal industry, brand introduction is a major form of competition and an integral part of an effective mechanism for deterring potential entrants. Licensing trademarks would facilitate entry by enhancing the ability of small producers to compete on the basis of price. Thus, defensible economic arguments for trademark licensing in these industries differ in basic ways.

explicit selection of a restrictive class of models. The debate surrounding the definition of "the relevant market" served to illustrate the difficulty of bending those models to fit the facts in this case. At best, such exercises can give some information on short-run monopoly power, but better and more reliable information may be obtained through analysis of profitability. Moreover, market definition-market share exercises can shed no light at all on long-run monopoly power—the power to prevent the erosion of profits through more intense rivalry—unless one adopts a particularly limited form of the "size is power" model,<sup>212</sup> which is difficult to defend.

Section IV considered appropriate tests for predatory pricing, both in general and in the context of *ReaLemon*. The apparently simple rules proposed in recent years by several authors are not in fact simple to apply to cases such as *ReaLemon*. Moreover, they are either derived from welfare-economic arguments with internal problems, or from economic models that cannot claim universal applicability. Because selection of a per se test for predatory pricing amounts to a judgment that the economic model from which it was derived is applicable to the case at hand, and because no models that yield simple, universally applicable tests are available, the current choice of a general policy in this area must be between a "hands off" approach and a "rule of reason" analysis. Moreover, as the discussion of *ReaLemon* indicated these two choices could be sensibly joined by establishing a rule that observed pricing practices are strongly presumed innocent until an examination of the facts involved proves otherwise.

Section V considered the relief ordered in the Initial Decision in *ReaLemon*. That relief was intended to change the industry's performance by altering an important element of industry structure. Such relief must logically derive from an economic model of the situation considered because a prediction of improved performance clearly cannot be based on facts alone. An illustrative analysis of the role of the "ReaLemon" trademark was offered that tended to provide support for the trademark licensing relief ordered. But it is important to note that no such analysis was articulated in the Initial Decision; the decision to attack *ReaLemon*'s trademark was apparently based on little more than observation of its widespread acceptance and apparent, short-run competitive importance.

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<sup>212</sup> See P. AREEDA, *supra* note 3, at 205-17 (relevant market and market share), 669-73 (predatory pricing), 190-94 (relief in monopolization cases). It is not clear why market share would be an appropriate measure of size even under models of this sort; surely total assets or total liquid assets would be more relevant when predation is an issue.

The point of focusing on *ReaLemon* was not to show that the Initial Decision was wrong or incompetent by prevailing standards. On the contrary, the administrative law judge dealt with the issues before him competently, though in relatively standard ways. This fact, along with the inherent interest of the main issues in the case, permitted the sort of critical analysis attempted here. The goal was neither to attack nor to defend the Initial Decision, but rather to focus attention on the ways in which antitrust cases have traditionally been decided.<sup>213</sup> The *ReaLemon* case may involve more complex economic issues than do many other cases, but it seems unlikely that it is truly exceptional in this regard. If reliance on the implications of a set of economic models that were never explicitly evaluated in light of the facts at hand led to problems in *ReaLemon*, this same standard approach would probably produce inadequate analysis in other cases as well. If antitrust law is to become a more consistent force for economic efficiency, the selection and analysis of appropriate economic models must be more frequently incorporated into antitrust proceedings. This objective requires more use of the tools of economic theory as these tools are used by modern economists. The result may well be to alter the tasks and roles of both lawyers and economists in antitrust litigation.

#### APPENDIX: RATIONAL BRAND LOYALTY

Suppose that a new product,  $R$ , which is apparently different from anything else on the market, is developed and introduced at price  $P$ . Buyers do not know how much a unit of  $R$  will be worth to them until they have tried it. For simplicity, it is assumed that  $R$  is an "experience" good:<sup>214</sup> no information about its quality can be ascertained prior to purchase, but complete information is provided by a single trial. Let us assume that  $R$ 's "value" can be measured in dollar terms. Before each individual has tried the product, his subjective distribution of its value to him is assumed for simplicity to be uniform between zero and  $X$ . It is also assumed that this is the correct distribution on average. That is, the objective distribution of actual values of  $R$  across members of

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<sup>213</sup> Of course, these remarks apply as well to the subsequent opinions in *ReaLemon* of the Federal Trade Commission and of individual commissioners, which are also discussed in this Article.

<sup>214</sup> There are two ways in which a consumer can obtain information about a product's quality: by searching before purchase or by experience with a product after purchase. Experience is often relied upon heavily when the purchase price is low enough so that any moderately expensive search procedure is not practical. See Nelson, *supra* note 205, at 311.

the population is also uniform between zero and  $X$ . Another way of looking at this is to suppose that each individual knows the distribution of values for the population as a whole but is completely ignorant as to where his own experience will place him in that distribution. A consumer might know, for example, that  $R$  is worth at least ten dollars to ten percent of the population but have no idea before trying it whether he will fall in that ten percent. (A very large population is assumed throughout, so that the distributions can be treated as continuous.) Let  $x$  be the actual value of  $R$  experienced by a typical buyer.

Let us initially assume risk-neutrality.<sup>215</sup> Then as long as the random variable  $(x' - P)$ <sup>216</sup> has a non-negative expectation—that is, the expected value of  $R$  is at least equal to the price of  $R$ , all consumers will try  $R$  once. If we define  $\alpha$  by  $P/X = 1 - \alpha$ , then trial by all will occur as long as  $\alpha \geq 1/2$ , and a fraction  $\alpha$  of the population will continue purchasing  $R$  after having tried it.

Now let a second product,  $G$ , be introduced. It is clear to all that  $G$  and  $R$  are members of the same product class, such as bottled reconstituted lemon juice, or freeze-dried instant coffee. There is no visible claim that  $G$  has attributes that  $R$  lacks, or that it lacks any of  $R$ 's characteristics. In marketing terminology,  $G$  is a "me-too" product. Buyers thus view their choices as  $G$ ,  $R$ , or neither; there is no point in buying both  $G$  and  $R$ . Suppose the price of  $G$  is also set at  $P$  and that, unknown to consumers in advance,  $G$  and  $R$  are in fact identical.

In one extreme case, consumers might simply assume that, in the absence of any apparent differences,  $G$  and  $R$  are identical. They would thus assume that their experience with  $R$  applies perfectly to  $G$ . Because the products, by assumption, sell for the same price, each can expect to capture half of total sales. But this is surely a very extreme case; one must doubt that consumers always assume in the absence of any information to the contrary that all products in the same narrow product class are identical. Some generalization of this sort probably occurs, of course. That is, consumers who have tried  $R$  are likely to act as if they knew more about  $G$  than if they had never seen any product in the relevant class before. But as long as there exists some residual uncertainty about

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<sup>215</sup> Risk neutrality means that one has neither a liking for nor an aversion to taking risk. Thus, the decision of a risk-neutral person to purchase a new product is not affected by the fact that there is risk in trying it. Such a consumer is only concerned with the average or expected level of product quality.

<sup>216</sup> Throughout this appendix, random variables are indicated with the symbol ( $'$ ).

the worth of  $G$  even among those who have tried  $R$ , some light may be shed on consumer behavior by considering the polar case of *no* generalization.

Let us examine that case, still assuming risk-neutrality. Assume that each consumer takes the worth of  $G$  to him, call it  $y'$ , as a random variable uniformly distributed between zero and  $X$ , regardless of his experience with  $R$ . Thus  $G$  is felt to be exactly as risky, *ex ante*, as  $R$  was. (This is an extreme case, of course; one might expect high experienced  $x$  to imply high expected  $y$ , since individuals' tastes are the stochastic element here.) On these assumptions, the fraction  $(1 - \alpha)$  of consumers who tried  $R$  and then decided not to buy it will also try  $G$  and, since the products are identical, reject it. The remaining  $100\alpha\%$  of the population is already buying  $R$ . These individuals face a choice between continuing to purchase  $R$ , thereby receiving each time for sure a net benefit of  $(x - P)$ , or trying  $G$ . *Ex ante*, each consumer assigns some probability to the event that  $G$  is better for him than  $R$ ; trial of  $G$  essentially buys him the option of switching to the better product if this event occurs.

We can ignore the cost stream associated with the individual's purchase sequence, because it will be identical whether or not  $G$  is tried or selected. Let  $(1 + r)^{-1}$  be the discount factor applied to benefits generated by successive purchases. Let  $f(y)$  and  $F(y)$  be, respectively, the density and distribution functions of the random variable  $y'$ , which is the value of  $G$  to a typical consumer. Then a consumer purchasing  $R$  and receiving "value"  $x$  will elect not to try  $G$  if and only if the following inequality is satisfied:

$$(A1) \quad x[(1 + r)/r] \geq \int_0^X f(y)dy + F(x)x(1/r) + \\ (1/r)[1 - F(x)] \int_x^X \frac{f(y)}{1 - F(x)} dy.$$

The term on the left is the capitalized value of benefits from remaining with  $R$  indefinitely. The first term on the right is the expected gain from the initial trial of  $G$ . The second term is the probability that  $y'$  is revealed to be no greater than  $x$ , times the capitalized benefit from returning to  $R$  after trying  $G$  once. The third term is the probability that  $y'$  exceeds  $x$ , times the capitalized expected value of  $y'$ , conditional on its exceeding  $x$ .

Under the assumption of a uniform distribution,  $f(y) = 1/X$ , and  $F(X) = x/X$ , for  $0 \leq y \leq X$ . Substituting into (A1), integrating, and collecting and simplifying terms, one finds that the condition for not trying  $G$  at all becomes

$$(A2) \quad (x/X)^2 - 2r(x/X)(1+r) + (1+r) \leq 0.$$

It is easy to show that as long as  $r$  is positive, this inequality will be satisfied for  $x$  sufficiently close to  $X$ . Customers who are very satisfied with  $R$ , in the sense that they attach sufficiently low probability to the existence of a better brand, rationally decide not to try  $G$ , even though they attach no disutility to the risk involved in such a trial. In other words, a consumer will not even try  $G$  if he is very satisfied with  $R$ . Solving (A2), and focusing on the relevant root, one obtains the fraction,  $\gamma$ , of the population that does not try  $G$  as

$$(A3) \quad \gamma = \sqrt{r(1+r)} - r.$$

If  $r = .01$ , about nine percent of the total population does not try  $G$ , while for  $r = .10$ ,  $\gamma = .23$ . If the two products are identical, and if consumers who have tried both divide their purchases evenly,  $R$  sells to a fraction  $(\alpha + \gamma)/2$  of the population, while  $G$  sells to  $(\alpha - \gamma)/2$ .<sup>217</sup> Thus, the fraction of the population buying  $R$  exceeds that buying  $G$  by  $\gamma$ .

In this model,  $G$  and  $R$  are identical and are recognized as such by all who try both. They sell at the same price, and before trial they are viewed as equally risky. Yet the first brand on the market obtains a lasting advantage. In this setup,  $G$  could induce more trial by lowering its price. If the price decrease were perceived as temporary, however, it might have to be quite large in order to have a significant impact, because it would, in effect, only increase the first term on the right of (A1), which represents the expected value of the initial trial of  $G$ . On the other hand, because  $G$  and  $R$  are by assumption identical, one might expect  $R$ 's advantage to erode over time, if only through word-of-mouth communication between those who initially tried  $G$  and those who decided not to do so.

It is of some interest to see what happens if the two products are not identical. Again, a simple polar case is of some illustrative value. Suppose now that for the population as a whole, the true values of  $x$  and  $y$  are independently, identically, and uniformly distributed over the range  $[0, X]$ . That is, information about one

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<sup>217</sup> This will hold true as long as it is assumed that each member of the population will purchase exactly once during the period.

reveals nothing about the other. It is now possible for an individual to value  $R$  highly and not care at all for  $G$ , or vice versa. This means that consumers' expectation that the distribution of  $y'$  is independent of their experienced  $x$  is now correct. Then it is relatively straightforward to show that the first brand's advantage is still present, though it is smaller.

Of the fraction  $(1 - \alpha)$  of the population that tried  $R$  and decided not to buy it, a fraction  $\alpha$  will decide to buy  $G$  when they try it, since that is the probability that the  $y$  experienced exceeds  $P$ . A fraction  $\gamma$  will remain with  $R$  and not try  $G$ , as before. If a consumer is buying  $R$  and receiving value  $x$ , the probability that trying  $G$  will induce a shift to that brand because  $y > x$  is  $(1 - x/X)$ . Then the fraction of the population that switches to  $G$  is given by

$$(A4) \quad \begin{aligned} & (1 - \gamma)X \\ & \int_P (1 - x/X)(1/X)dx = (\alpha^2 - \gamma^2)/2. \end{aligned}$$

(The fraction of the population that could switch is  $(\alpha - \gamma)$ , so that  $G$  captures a fraction  $(\alpha + \gamma)/2$  of them.) Adding things up, one finds that the fractions of the population to which each brand sells are as follows:

$$G: \alpha - (\alpha^2 + \gamma^2)/2, \quad R: \alpha - (\alpha^2 - \gamma^2)/2.$$

The fraction of the population buying  $R$  exceeds that buying  $G$  by  $\gamma^2$ ; the difference was  $\gamma$  in the case in which the brands were identical. Note that when expectations are correct,  $G$ 's entry causes the total fraction buying to rise from  $\alpha$  to  $\alpha(2 - \alpha)$ . In spite of this,  $G$ 's sales can be less than half  $R$ 's pre-entry sales if  $\gamma^2$  exceeds  $\alpha(1 - \alpha)$ .

Thus, in this example of "true" differentiation, the first brand in the market again has an advantage over the second. The advantage is smaller ( $\gamma^2$  compared to  $\gamma$ ), but there is now less reason to expect its erosion. Though  $G$  and  $R$  are of equal value on average, consumers initially electing not to try  $G$  will receive conflicting reports of its relative quality from those who have tried both.

A second interesting extension of the basic model is to allow consumers to be averse to risk.<sup>218</sup> Risk-aversion increases the strength of the effect found above; a risk-avertter purchasing  $R$  will be less likely than a risk-neutral individual to try  $G$ , if all else remains equal. To capture the effects of risk-aversion, suppose that

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<sup>218</sup> If a person is risk averse, he must expect an extra benefit from  $G$  before he will try it, because of the risk associated with trying a new product.



the dollar value of the net gain from consuming  $R$  or  $G$  at price  $P$  is given by  $U(z)$ , where  $z = x$  if  $R$  is purchased, and  $z = y$  if  $G$  is bought instead, with  $U$  a strictly concave, increasing function.

If an individual finds  $R$  to be worth  $x$  and is purchasing  $R$ , a slight generalization of equation (A1) indicates that this individual will try  $G$  if and only if the following inequality holds:

$$(A5) \quad T_v(x) = r \int_0^X U(y)f(y)dy + [1-F(x)] \int_x^X U(y)f_x(y)dy \\ - [1+r-F(x)]U(x) \geq 0,$$

where  $f_x(y) = f(y)/[1-F(x)]$ ,  $x \leq y \leq X$ .

If the consumer were risk-neutral, the test inequality would be simply:

$$(A6) \quad T(x) = r\bar{y} + [1-F(x)]\bar{y}_x - [1+r-F(x)]x \geq 0,$$

where  $\bar{y} = \int_0^X yf(y)dy$ , and  $\bar{y}_x = \int_x^X yf_x(y)dy$ .

Recalling that  $x$  is some particular constant for each consumer, one can re-scale  $U$  without loss of generality for any particular consumer so that  $U(x) = x$ . Exploiting the concavity of  $U$ , we have

$$T_v(x) < rU(\bar{y}) + [1-F(x)]U(\bar{y}_x) - [1+r-F(x)]x \\ < r[x + U'(x)(\bar{y} - x)] + [1-F(x)][x + U'(x)(\bar{y}_x - x)] \\ - [1+r-F(x)]x = U'(x)T(x).$$

Thus, if  $T(x)$  is negative, so that a risk-neutral individual experiencing value  $x$  from brand  $R$  would not try  $G$ , a risk-averse individual with the same experience and the same expectations about  $G$ 's value will not try it either, because if  $T(x)$  is negative,  $T_v(x)$  will also be negative. Moreover, if  $T(x)$  is positive but sufficiently small,  $T_v(x)$  will be negative; risk-aversion will cause some individuals who would have tried  $G$  rationally to decide not to do so. It should be clear from this latter proof, which did not require any assumptions about the shape of  $f(y)$ , that the earlier use of uniform and identical distributions merely served to simplify exposition; the qualitative results did not depend on the shapes of the distributions involved.