



## Exclusive Dealing and Business Efficiency: Evidence from Industry Practice

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*Journal of Law and Economics*, Vol. 41, No. 2. (Oct., 1998), pp. 387-407.

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*Journal of Law and Economics* is currently published by The University of Chicago Press.

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# EXCLUSIVE DEALING AND BUSINESS EFFICIENCY: EVIDENCE FROM INDUSTRY PRACTICE\*

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## ABSTRACT

Exclusive dealing has been the subject of intense public policy debate. A central issue in this debate has been the relationship between exclusive dealing and business efficiency. Despite its importance, there has been a general lack of empirical evidence on business efficiency arguments. The existing evidence on exclusive dealing is limited almost entirely to legal case studies involving firms whose distribution practices have been challenged under antitrust law. In this article we use a new source of microlevel data to study the use of exclusive dealing in industrial markets, gathered through a survey of managers who were responsible for making the distribution decisions in their firms. Our central finding is that business efficiency factors play a significant role in firms' decisions regarding exclusive dealing. Specifically, we find evidence that firms are more likely to use exclusive dealing when there is a potential that other manufacturers can free ride on the services they provide. We also find that difficulties with evaluating distributors' adherence to assigned restrictions decrease the likelihood of using exclusive dealing in the first place. Finally, we also find that when manufacturers are concerned about the costs that exclusive dealing imposes on end customers, such arrangements are less likely.

## I. INTRODUCTION

**E**XCLUSIVE dealing, a vertical restraint that restricts resellers from carrying products of competing manufacturers, is a common practice in many

\* We would like to thank the Carlson School of Management, University of Minnesota; Marshall School of Business, University of Southern California; Graduate School of Business, University of Chicago; and School of Business, University of Wisconsin—Madison for financial assistance with this project. We would also like to thank Dennis Carlton, B. Peter Pashigian, Sam Peltzman, participants at the Marketing Workshop at the University of Chicago, and participants at the Business Economics Workshop at the University of Southern California for their comments. Finally, we acknowledge insightful comments from the anonymous referee. The authors are listed in random order; all contributed equally to the article.

[*Journal of Law and Economics*, vol. XLI (October 1998)]

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markets. For instance, manufacturers like Häagen-Dazs require their distributors not to carry competing products.<sup>1</sup> Marvel<sup>2</sup> has described similar practices in the hearing aid industry.<sup>3</sup>

Exclusive dealing has been the subject of theoretical debate in economics for a long time. A central issue in this debate has been the relationship between exclusive dealing and business efficiency.<sup>4</sup> Unfortunately, this debate possesses an important limitation, namely a general lack of empirical evidence.<sup>5</sup> The existing evidence on exclusive dealing is limited almost entirely to legal case studies involving firms whose distribution practices have been challenged under antitrust law.<sup>6</sup> While this literature has provided important evidence in support of business efficiency, in particular with respect to the ability of exclusive dealing to limit free riding,<sup>7</sup> our understanding of this practice could be enhanced by drawing on alternative sources of evidence. Authors like Williamson<sup>8</sup> and Blinder<sup>9</sup> have suggested that micro-level data collected at the level where the relevant decisions are made can contribute to increasing our knowledge of economic organization.

In this article we use a new source of microlevel data to study the use of exclusive dealing in industrial markets, gathered through a survey of managers who were responsible for making the distribution decisions in their firms. Our central finding is that business efficiency considerations are significant factors in firms' choices whether to use or not use exclusive dealing. Our data are appropriate for examining this choice for a number of reasons. First, it allows us to document firms' actual choices regarding exclusive dealing. Notice that the earlier case studies only describe firms that have used exclusive dealing and were subsequently taken to court for their practices. As such, court data do not permit a comparison of users and nonusers. Second, our data are collected specifically to test the economic

<sup>1</sup> B. Peter Pashigian, *Price Theory and Applications* (1995).

<sup>2</sup> Howard P. Marvel, *Hearing Aids*, in *Impact Evaluations of Federal Trade Commission Vertical Restraints Cases* (Ronald L. Lafferty, Robert H. Lande, & John B. Kirkwood eds. 1984).

<sup>3</sup> In the sample of industrial manufacturers analyzed in this study, over 40 percent had exclusive dealing arrangements with their distributors.

<sup>4</sup> Robert H. Bork, *The Antitrust Paradox: A Policy at War with Itself* (1978); Marvel, *supra* note 2; Paul Rubin, *Managing Business Transactions* (1990); F. M. Scherer & David Ross, *Industrial Market Structure and Economic Performance* (1990).

<sup>5</sup> Tim R. Sass & David S. Saurman, *Mandated Exclusive Territories and Economic Efficiency: An Empirical Analysis of the Malt-Beverage Industry*, 36 *J. Law & Econ.* 153 (1993).

<sup>6</sup> For example, Lafferty, Lande, & Kirkwood, eds., *supra* note 2; Phillip Areeda, *Antitrust Analysis: Problems, Texts, Cases* (1986).

<sup>7</sup> Marvel, *supra* note 2.

<sup>8</sup> Oliver E. Williamson, *The Economic Institutions of Capitalism* (1985).

<sup>9</sup> Alan S. Blinder, *Why Are Prices Sticky? Preliminary Results from an Interview Study*, 81 *Am. Econ. Rev.* 89 (1994).

variables that are purported to influence the use of exclusive dealing. In contrast, court documents are collected for a different purpose than theory testing and are often incomplete. In fact, Blinder<sup>10</sup> suggests that economic theories are often based on variables that are not available from existing records or documents.

We provide evidence in support of existing theoretical arguments that exclusive dealing is used to minimize free riding on manufacturer services.<sup>11</sup> We also find evidence that deployment of exclusive dealing is influenced by a firm's ex ante assessment of the potential transaction costs associated with detecting opportunistic violations of the agreement.<sup>12</sup> Further, our results suggest that the use of exclusive dealing is also influenced by the manufacturer's ex ante assessment of the costs that exclusive dealing imposes on end customers.<sup>13</sup> Interestingly, our data do not show a significant relationship between the use of exclusive dealing and the non-efficiency-related considerations. Specifically, we find no evidence that manufacturers use exclusive dealerships when they are differentiated<sup>14</sup> or in anticipation of competitive entry.<sup>15</sup>

The remainder of the article is organized as follows: in Section II, we describe the theories of exclusive dealing and our predictions; Section III includes a description of the data and the measures used; the data analysis is described in Section IV; and Section V provides a discussion of the results and the limitations of the study.

## II. THEORIES OF EXCLUSIVE DEALING

In this section we briefly describe the existing theoretical arguments pertaining to exclusive dealing. We begin with theories that emphasize busi-

<sup>10</sup> *Id.*

<sup>11</sup> Bork, *supra* note 4; Howard P. Marvel, Exclusive Dealing, 25 J. Law & Econ. 1 (1982).

<sup>12</sup> Williamson, *supra* note 8. For example, when Häagen-Dazs required their distributors to not carry competing products, some of them decided to carry Ben and Jerry's line. Pashigian, *supra* note 1. Ultimately such actions impose costs on Häagen-Dazs. See Williamson, *supra*, and Rubin, *supra* note 4, for further discussion. Distributor violations are quite common in other forms of vertical arrangements as well, such as customer and territorial restrictions. See, for example, James Cross, James Stephans, & Robert E. Benjamin, Gray Markets: A Legal Review and Public Policy Perspective, 9 J. Pub. Pol'y & Marketing 183 (1990).

<sup>13</sup> Michael L. Katz, Vertical Contractual Relations, in 1 Handbook of Industrial Organization (R. Schmalensee & R. D. Willig eds. 1989); Oliver E. Williamson, Assessing Vertical Market Restrictions: Antitrust Ramifications of the Transaction Cost Approach, 127 U. Pa. L. Rev. 953 (1979).

<sup>14</sup> William S. Comanor, Jr., & H. E. Frech III, The Competitive Effects of Vertical Agreements, 75 Am. Econ. Rev. 539 (1985); William S. Comanor, Jr., & H. E. Frech III, The Competitive Effects of Vertical Agreements: Reply, 77 Am. Econ. Rev. 1069 (1987).

<sup>15</sup> Katz, *supra* note 13.

ness efficiency arguments. Then we present arguments that are nonefficiency related.

A. *Business Efficiency Motivations for Deploying Exclusive Dealing*

The theories included under business efficiency are (1) the classic free-riding explanation, (2) ex ante transaction costs of detecting violations, and (3) costs imposed on the manufacturer due to costs incurred by end customers. We will consider each in turn.

Free Riding on Manufacturer Services

A frequently suggested explanation of exclusive dealing is that manufacturers need to capture the full benefit of the services they provide. As noted by Marvel,<sup>16</sup> services like customer promotions and distributor training are subject to free riding to the extent that distributors are permitted to sell other manufacturers' products. For instance, a distributor can start selling "clones" or competing products, frequently at higher margins, to the extent that the competing manufacturer is not providing costly market development services. Such risks can be reduced by imposing exclusive dealing arrangements on distributors.<sup>17</sup> By virtue of restricting distributors from carrying competing product lines, the manufacturer is able to capture the full value of services provided and is motivated to provide such services in the first place. Thus, the greater the potential for free riding on manufacturer services, the greater the likelihood that exclusive dealing will be used.

Transaction Costs

Deployment of exclusive dealing is also influenced by a manufacturer's ex ante assessment of the potential costs associated with detecting opportunistic violations of the agreement. Industry evidence suggests that distributors sometimes violate existing restrictions by adding competing product lines. However, detecting such violations may impose considerable transaction costs on a manufacturer. As noted by Zusman and Etgar,<sup>18</sup> many aspects of distributors' activities are not costlessly observed by a manufacturer. For instance, manufacturers may need to undertake on-site visits at

<sup>16</sup> Marvel, *supra* note 11; Marvel, *supra* note 2.

<sup>17</sup> Marvel, *supra* note 11.

<sup>18</sup> Pinhas Zusman & Michael Etgar, *The Marketing Channel as an Equilibrium Set of Contracts*, 27 *Mgmt. Sci.* 284 (1981).

customer and distributor sites to verify whether product restrictions are honored.

The greater the performance ambiguity<sup>19</sup> associated with detecting violations of assigned restrictions, the greater the disincentive for the manufacturer to deploy such restrictions in the first place.<sup>20</sup> According to transaction cost theory,<sup>21</sup> the ex ante choice among organizational arrangements turns in part on their respective transaction costs. Thus, the higher the ex ante costs involved in collecting information, monitoring, or generally documenting whether exclusive dealing restrictions are adhered to, the lower the likelihood that exclusive dealing will be used.<sup>22</sup>

### End Customer Costs

From a customer's viewpoint, exclusive dealing makes it impossible to make direct comparisons of different manufacturers' products at a particular distributor location.<sup>23</sup> As such, exclusive dealing increases customers' search costs.<sup>24</sup> To the extent that customers wish to make interbrand comparisons, they can economize on their search costs by visiting distributors who carry products from different manufacturers. Under such conditions, distributors who agree to exclusive dealing risk losing customers to multiproduct distributors. In turn, this enhances the cost to the manufacturer of using exclusive dealing and reduces the attractiveness of exclusive dealing in the first place. This argument is consistent with suggestions by Caves<sup>25</sup> that "the ability of some vertical restraints to raise buyers' costs of making interbrand comparisons" should affect the use of these restraints. Thus, the greater the likelihood that customers will visit multibrand distributors, the lower the likelihood that exclusive dealing will be used.

<sup>19</sup> For example, Armen A. Alchian & Harold Demsetz, Production, Information Costs, and Economic Organization, 62 *Am. Econ. Rev.* 777 (1972); Williamson, *supra* note 8.

<sup>20</sup> For example, Shantanu Dutta, Mark Bergen, & George John, The Governance of Exclusive Territories When Dealers Can Bootleg, 13 *Marketing Sci.* 83 (1994).

<sup>21</sup> For example, Scott E. Masten, James W. Meehan, Jr., & Edward E. Snyder, The Costs of Organization, 7 *J. L. Econ. & Org.* 1 (1991); Rubin, *supra* note 4; Williamson, *supra* note 8.

<sup>22</sup> It is also possible that when a manufacturer faces a higher cost of monitoring dealers, it could prevent free riding on its brand capital by assigning exclusive dealing. However, the results seem to be consistent with the arguments offered by Alchian & Demsetz, *supra* note 19; and Williamson, *supra* note 8.

<sup>23</sup> Louis W. Stern, Adel I. El-Ansary, & Anne Coughlan, *Marketing Channels* (3d ed. 1996).

<sup>24</sup> Katz, *supra* note 13; Williamson, *supra* note 13.

<sup>25</sup> Richard Caves, Vertical Restraints as Integration by Contract: Evidence and Policy Implications, in Lafferty, Lande, & Kirkwood eds., *supra* note 2, at 457.

### B. *Other Determinants of Exclusive Dealing*

The most common nonefficiency argument regarding exclusive dealing pertains to the firm's competitive position at the time of deployment<sup>26</sup> and its effect on competitors' entry costs.<sup>27</sup> In addition, it has been suggested that the use of exclusive dealing is influenced by firm size.<sup>28</sup> Each argument is discussed below.

#### Market Differentiation

Comanor and Frech<sup>29</sup> suggest that exclusive dealing is more likely when differentiation across manufacturers is relatively strong or the focal firms are less competitive. The theoretical rationale is that strong differentiation allows the manufacturer to attract loyal customers, making it profitable for distributors to become exclusive. In sum, the greater the level of differentiation between the firm using exclusive dealing and its competitors, the higher the likelihood that exclusive dealing will be used.

#### Entry Deterrence

As noted by Katz<sup>30</sup> and Scherer and Ross,<sup>31</sup> manufacturers often deploy exclusive dealing in response to likely market entry by competitors. By using exclusive dealing when faced with the risk of competitive entry, a manufacturer can tie up distributors and raise the entry costs of their competitors. Thus, the higher the likelihood of competitive entry, the higher the likelihood that exclusive dealing will be used.

#### Firm Size

Past research suggests that firm size may influence the use of exclusive dealing. Both Katz and Rosen<sup>32</sup> and Sass and Gisser<sup>33</sup> have argued that larger firms are more inclined to use exclusive dealing, owing to the availability of scale and scope economies. They argue that in markets where

<sup>26</sup> Areeda, *supra* note 6, at 184.

<sup>27</sup> Katz, *supra* note 13; Scherer & Ross, *supra* note 4.

<sup>28</sup> Michael L. Katz & H. S. Rosen, Tax Analysis in an Oligopoly Model, 13 Pub. Fin. Q. 3 (1985); Tim R. Sass & Micha Gisser, Agency Costs, Firm Size, and Exclusive Dealing, 32 J. Law & Econ. 381 (1989).

<sup>29</sup> Comanor & Frech, Competitive Effects, *supra* note 14; Comanor & Frech, Competitive Effects: Reply, *supra* note 14.

<sup>30</sup> Katz, *supra* note 13.

<sup>31</sup> Scherer & Ross, *supra* note 4.

<sup>32</sup> Katz & Rosen, *supra* note 28.

<sup>33</sup> Sass & Gisser, *supra* note 28.

there are significant economies of scale and scope in distribution, a system of exclusive dealers raises the costs of distribution of smaller firms more than it raises the costs borne by larger firms. Another explanation for the relationship between size and exclusive dealing is that large firms have promotional economies that enable them to develop a strong reputation for their products. This attracts more customers relative to competing firms and allows the larger firm to use exclusive dealing. Both these explanations suggest that larger firms are more likely to use exclusive dealing.

### III. DATA

The data that were used for testing the hypotheses about exclusive dealing were collected through a survey of managers who were involved in the distribution decisions in their firms. Collecting primary survey data from managers has been previously used to provide evidence on other distribution decisions like vertical integration<sup>34</sup> and dual distribution.<sup>35</sup>

A number of steps were taken to ensure the quality of the data. These included (1) selecting an appropriate research context and survey participants, (2) using an appropriate unit of analysis, and (3) carefully developing the survey instrument. Each of these steps is described below, as are our sampling, data collection, and measurement procedures.

#### A. *Research Context*

Data were collected from manufacturers in two industry categories, industrial machinery/equipment (SIC code 35) and electronic and electric equipment (SIC code 36). Past industry observation<sup>36</sup> has shown exclusive dealing to be an important decision in these settings. Another reason for restricting the sample to these two industries was to reduce extraneous (that is, interindustry) sources of variance. Finally, restricting the research setting to these two industries also helped in developing terminology in the survey

<sup>34</sup> Erin Anderson & David C. Schmittlein, *Integration of the Sales Force: An Empirical Examination*, 15 *Rand J. Econ.* 385 (1984).

<sup>35</sup> Shantanu Dutta *et al.*, *Understanding Dual Distribution: The Case of Reps and House Accounts*, 11 *J. L. Econ. & Org.* 189 (1995). Further, microlevel data from individual companies build upon an emerging literature in economics, which has looked at issues like exclusive dealing (Sass & Gisser, *supra* note 28), ownership (Andrea Shepard, *Contractual Form, Retail Price, and Asset Characteristics in Gasoline Retailing*, 24 *Rand J. Econ.* 58 (1993)), franchising (Patrick J. Kaufmann & Francine Lafontaine, *Costs of Control: The Source of Economic Rents for McDonald's Franchisees*, 27 *J. Law & Econ.* 417 (1994)), and price rigidity (Anil K. Kashyap, *Sticky Prices: New Evidence from Retail Catalogues*, 110 *Q. J. Econ.* 245 (1995)).

<sup>36</sup> For example, Marvel, *supra* note 2; Robert R. Reeder, Edward G. Brierty, & Betty H. Reeder, *Industrial Marketing* (1991).



instrument, which was meaningful to all of the study participants. We note, however, that restricting the sample in this fashion limits our ability to generalize.

### *B. Selection of Survey Participants*

In order to get high-quality measures of our key variables it was necessary to identify the individuals who were involved in the decision regarding exclusive dealing. Prior research in this area suggested that marketing or sales managers would be appropriate key informants, since they are responsible for making strategic decisions of this nature. Each company was contacted by phone in order to identify individuals who were knowledgeable about (1) the distribution decision for a particular product line and (2) the firm's relationship with a particular distributor for that line.<sup>37</sup> In many instances, multiple phone calls were required to locate informants who met our criteria and who were willing to participate in the study. As noted above, these individuals were typically marketing or sales managers.

While a deliberate effort was made to identify appropriate key informants through the presurvey contacts, a post hoc check on informant quality was also administered as part of the questionnaire. Specifically, two questions were included at the end of the questionnaire, which asked, "How involved are you personally in your company's dealings with this distributor?" and "How knowledgeable are you in general about your company's dealings with this distributor?" On 7-point scales, with one and seven representing low and high involvement and knowledge, respectively, the mean responses were 5.7 (SD = 1.3) and 6.3 (SD = .9), providing evidence of the quality of our key informants. There was no reason to overreport or underreport these numbers, since the questions regarding the exclusive dealing decision did not involve issues that would cast the managers in either a positive or negative light.

In order to elicit cooperation from the managers we offered each of them a customized report that compared their firm's results with those of the other firms in the sample. Such reports have been successfully used in past studies that collected customized data.<sup>38</sup> Our discussion with managers during the pretest stage of the questionnaire development also confirmed that such a customized report would be an important incentive for managers to participate in this study.

<sup>37</sup> See the discussion below on the unit of analysis.

<sup>38</sup> Anderson & Schmittlein, *supra* note 34; George John & Barton A. Weitz, Forward Integration into Distribution: An Empirical Test of Transaction Cost Analysis, 4 J. L. Econ. & Org. 337 (1988).

### *C. Unit of Analysis*

The unit of analysis for this study is a particular product and a particular distributor relationship. Our survey participants were requested to identify a product that the firm sold through independent distributors. All of the questions pertaining to the dependent and independent variables were asked with reference to this particular product and distributor.

Further, all of the survey questions and instructions were explicitly designed to capture the relevant conditions as they existed at the time when the distribution decision was being made. Specifically, the general instructions for the questionnaire stated that "the main focus of this study is on how your company initially organized the distributor relationship for this product." Moreover, the instructions accompanying each set of questions reminded the informants to "consider the situation as it existed when this distribution decision was being made." In order to minimize the risk of retrospective biases, the informants were asked to identify a distributor relationship that had been established within the past 2 years.

### *D. Development of the Survey Instrument*

First, a preliminary questionnaire was developed based on existing theories of exclusive dealing and available trade literature. Subsequently, 10 personal interviews were conducted with marketing and sales managers representing firms in the two chosen SIC categories in order to evaluate the clarity and interpretability of the questions. The questionnaire was modified based on the feedback received during these interviews. Next, two more rounds of pretesting were conducted. First, the revised draft of the questionnaire was administered to a new set of marketing and sales managers, and remaining ambiguities were corrected. Finally, a mail pretest was conducted with a new set of managers. No problems with the questions or response formats were revealed at this time. These pretests took 2 months and involved 30 managers.

### *E. Sample and Response Rates*

Two commercial mailing lists were purchased from the American List Council, containing names of marketing managers or vice presidents of marketing for companies in SIC 35 and 36. Initially, a systematic random sample of 500 names was drawn from each list and subsequently contacted by phone in order to locate an appropriate key informant (that is, the individual responsible for making distribution decisions) within each firm.

In total, 460 individuals were identified using the above procedure. In the remainder of the 1,000 companies contacted, the relevant individual refused

to participate in the study, or the company did not use independent distributors and was inappropriate given the scope of the study.

### Response Rates and Final Sample

After callbacks and second mailings, the final sample consisted of 147 firms (32 percent of 460 mailed). While the response rate is low, it is consistent with other surveys in this area.<sup>39</sup> Of the 147 firms in the final sample, 46 used exclusive dealing.

### Nonresponse Bias

In the presence of a low response rate, the concern is obviously whether the individuals who did respond differ in some way from those who did not. We undertook two tests to formally evaluate the extent to which a problem existed. First, we explored the distribution of the nonrespondents across the two industries that comprised our sampling frame. Forty-five percent of the nonrespondents were from SIC 35, and 55 percent from SIC 36, suggesting an even spread. Second, we conducted a formal comparison between respondents and nonrespondents on company demographics that were available from the sampling frame (annual \$ sales and number of employees). The comparisons between the respondents and nonrespondents were not significant ( $p > .20$ ). In sum, while our achieved sample is small relative to the number of surveys mailed, no obvious biases seemed to exist.

### F. Data Sources

The measures used to test the predictions were derived from two different sources. First, the dependent variable (exclusive dealing) and some of the independent variables like firm size were readily available from company records. Other variables were not available from existing records and were developed for the purpose of this study. In those instances measures were developed using the established psychometric procedures of Nunnally<sup>40</sup> and Lord and Novick.<sup>41</sup> This procedure involves first developing a series of items based on previous research, which serve as indicators of the relevant variable (for example, free riding). Next, the items are evaluated

<sup>39</sup> For example, Robert F. Lusch & James R. Brown, Interdependency, Contracts and Relational Behavior in Marketing Channels, 60 *J. Marketing* 19 (1996).

<sup>40</sup> Jim C. Nunnally, *Psychometric Theory* (2d ed. 1978).

<sup>41</sup> Frederic M. Lord & Melvin R. Novick, *Statistical Theory of Mental Test Scores* (1968). See Dutta *et al.*, *supra* note 35, and John & Weitz, *supra* note 38, for recent applications of this procedure in economics.

with the objective of minimizing measurement error (see Section IV for more details).

Our discussions with managers revealed that measures of detection costs, free riding, manufacturer differentiation, and entry barriers were not available from company records. As a consequence, specific measures were developed based on existing theories and several rounds of pretests. Below, we describe all the variables used, both those derived from company records and those specifically developed for this study. In Section IVA we describe how the measures were evaluated.

### G. *Dependent Variable: The Use of Exclusive Dealing*

Our dependent variable indicates whether an agreement exists that imposes exclusive dealing restrictions on the distributor. The specific question asked was, "Does your agreement with this distributor restrict him from carrying competing products from other manufactures?" Yes (restrictions apply) No (this distributor may carry any product). The measure is coded as 1 if exclusive dealing is used and 0 if the distributor is permitted to carry competing products.<sup>42</sup>

### H. *Independent Variables*

The specific procedure used to develop measures of the theoretical variables is described below. As mentioned earlier, in order to capture the ex ante decision to use exclusive dealing, all of the measures were administered with the following instructions: "Consider the situation as it existed when this distribution decision was being made."

#### Free Riding on Manufacturer Services

This measure captures managerial concerns about free riding and was developed in the following manner. First, a set of items was developed that corresponded to the theoretical domains of free riding described in the prior literature. On the basis of the prior literature in the hearing aid industry,<sup>43</sup> we asked managers to what extent their promotional efforts might benefit their competitors. In addition, on the basis of prior suggestions by Caves<sup>44</sup>

<sup>42</sup> Our pretests revealed that manufacturers who use exclusive dealing will sometimes allow their distributors to carry products from competing manufacturers in order to fill holes in their product line. However, the distributor would still be restricted from carrying a directly competing item from another manufacturer. Our pretests revealed that the respondents had no difficulty responding properly to the exclusive dealing question in such cases.

<sup>43</sup> Marvel, *supra* note 2.

<sup>44</sup> Caves, *supra* note 25.

and our discussions with managers, we asked to what extent manufacturer training of distributors caused similar problems. Our discussions with managers also suggested that manufacturer support to a distributor's customers enables them to buy competing products. Finally, on the basis of Bork's<sup>45</sup> suggestions and our discussions with managers, we asked to what extent general management consulting also causes free-riding concerns.

The items were worded so that they were easily understood by the managers. For example, rather than use "free riding" (which is not a common industry term), we used phrases like "might benefit our competitors" or "might have a positive effect on the sales of our competitors' products." During pretests with managers, they indicated that our wording was unambiguous and captured the concept of free riding as it has been used in the literature. Finally, the reliability of the measure is 0.91.

Managers responded to four items on a 7-point scale ranging from "not a consideration at the time" (1) to "important consideration at the time" (7). The items were:

1. Our company's promotional efforts for this product might benefit our competitors.
2. Our company's efforts to train this distributor might have a positive effect on the sales of our competitors' products.
3. Competing products might benefit from our efforts to build up this distributor's business.
4. Our company's support to this distributor's customers might benefit our competitors.

### Transaction Costs

This measure captures managerial concerns about their ability to costlessly observe the actions of a distributor. First, a set of items was developed that captured the theoretical domain of the construct. In the prior economics literature, the inability to costlessly observe an agent's activities is defined as performance ambiguity.<sup>46</sup> The dimensions of performance ambiguity suggested in the literature include the intrinsic difficulty of assessing violations of the agreement<sup>47</sup> and the resulting cost of monitoring.<sup>48</sup> The managers understood the wording of the questions and indicated that our

<sup>45</sup> Bork, *supra* note 4.

<sup>46</sup> For example, Alchian & Demsetz, *supra* note 19; Williamson, *supra* note 8.

<sup>47</sup> Williamson, *supra* note 8.

<sup>48</sup> *Id.*

questions captured the dimensions of detection difficulty. Finally, the reliability of this measure was 0.78.

Managers responded to three items on a 7-point scale ranging from “did not believe” (1) to “strongly believed” (7). The specific items were:

1. It would be difficult for us to know at a given time whether this distributor carries products that compete with ours.
2. Determining the specific products sold by this distributor would require us to make frequent on-site inspections.
3. Evaluating whether this distributor is selling products that compete with ours would require extensive monitoring.

#### End Customer Costs

This measure describes the manager’s *ex ante* assessment of the costs of using exclusive dealing due to search costs imposed on end customers. Exclusive dealing increases customers’ costs of making interbrand comparisons,<sup>49</sup> which influences a manufacturer’s decision to deploy exclusive dealing because multiproduct distributors will be inherently more attractive to end customers. Our discussions with managers during pretests revealed that they had difficulty with giving cost estimates because it entailed computing the opportunity cost of lost customers due to their propensity to visit multiproduct distributors. Further, the term “search cost” was not a common industry term.

However, discussion with managers revealed that they had a clearer idea of whether customers in their markets had a preference for multiproduct distributors. Furthermore, managers indicated that they were aware of these customer considerations when making decisions regarding exclusive dealing. Thus we relied on a measure of customer preference for multiproduct distributors as an indirect indicator, or reduced form representation, of the cost to the manufacturer of using exclusive dealing. The final measure wording was easily understood by managers, since the term “customer preference” was more standard industry language. Managers were asked to indicate on a 7-point scale ranging from “strongly disagree” (1) to “strongly agree” (7) whether customers prefer distributors who carry products from several different manufacturers.

#### Manufacturer Differentiation

This measure captures managers’ assessments of the extent of their firms’ differentiation vis-à-vis their competitors at the time when the distribution

<sup>49</sup> Katz, *supra* note 13.

decision was being made. The specific items were developed based on the prior theoretical literature,<sup>50</sup> trade reports from these industries,<sup>51</sup> and discussions with managers. The two most common bases of differentiation were product quality and design. The items were thus developed to measure differentiation along these dimensions. Our discussions with managers revealed that the wording of the questions was unambiguous.<sup>52</sup> Finally, the interitem correlation between the two items was 0.64.

The managers responded to two items on a 7-point scale ranging from "no difference between our company and major competitors" (1) to "significant difference between our company and major competitors" (7).<sup>53</sup> The specific items were (1) product quality and (2) product design.<sup>54</sup>

### Entry Deterrence

This measure captures managerial concerns about the likelihood of competitive entry. The item was developed based on prior theory.<sup>55</sup> Our discussion with managers suggested that they could readily answer questions pertaining to likely competitive entry if the question was asked with respect to the particular product for which they were making the distribution decision.<sup>56</sup> Our pretests suggested that the wording of the question was unam-

<sup>50</sup> Comanor & Frech, Competitive Effects, *supra* note 14; Comanor & Frech, Competitive Effects: Reply, *supra* note 14.

<sup>51</sup> Reeder, Brierty, & Reeder, *supra* note 36.

<sup>52</sup> An alternate measure of differentiation that we collected is the number of competitors faced by the firm. Specifically, we asked managers, "At the time when your relationship with this distributor was being established, how many major competing manufacturers were you faced with for this product?" While we do not report the specific results using this measure, we note that it is not significantly related to the use of exclusive dealing. Moreover, its inclusion in the model does not affect the other results. Another measure suggested in the literature (Scherer & Ross, *supra* note 4) is the market share of the firm using exclusive dealing. The managers in this industry did not have reliable information on their competitors' sales of the focal products. Thus, we were unable to obtain any reliable information on market share.

<sup>53</sup> The scores on these two items ranged from 1 to 7 with a mean of 5.13 and SD of 1.43.

<sup>54</sup> It is possible that the responses to our items may be biased to the extent that well-known brand manufacturers mention that they are above average while clones mention that they are average. We attempt to control for this bias by including the variable firm size. It is possible, of course, that some clones are larger than the well-known brands. However, our sample consists only of U.S. firms in these industries, and hence this may not be a problem.

<sup>55</sup> Katz, *supra* note 13.

<sup>56</sup> Related to the entry deterrence argument, it has also been suggested that a manufacturer who chooses exclusive dealing can raise rivals' entry costs by selecting distributors who are particularly capable of providing services (Thomas G. Krattenmaker & Steven G. Salop, Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price, 96 Yale L. J. 209 (1986); Scherer & Ross, *supra* note 4). Market entry is discouraged by virtue of either (1) forcing entrants to settle for inferior distributors, or (2) engaging in forward integration (Katz, *supra* note 13; Jean Tirole, *The Theory of Industrial Organization* (1988)). The man-

biguous. The managers were asked to indicate on a 7-point scale ranging from “considered unlikely” (1) to “considered likely” (7) whether “entry into this product category by new competitors was likely.”

### Firm Size

This measure captures the size of the firm, as reflected by the dollar value of the manufacturer’s annual sales. This measure has been used to operationalize firm size in many other studies.<sup>57</sup> Managers were quite comfortable with the use of firm sales as a proxy for size.

## IV. DATA ANALYSIS

In this section we first describe the steps taken to evaluate the quality of our measures. Next, we describe the model used to test the theoretical predictions.

### A. Measure Evaluation

Following standard psychometric practice, the quality of the multi-item scales was assessed using the criteria of unidimensionality and reliability. Unidimensionality of a scale was assessed via factor analysis.<sup>58</sup> The factor analysis verified that the items in each scale loaded on one factor.<sup>59</sup> These scales were then tested for reliability, which indicates the extent to which the item set has low measurement error.<sup>60</sup> The reliability of the scales, as given by Cronbach’s coefficient alpha, range from 0.64 to 0.91, which is higher than the acceptable cutoff of 0.6 suggested in the literature.<sup>61</sup> In sum, the multi-item scales exhibit good psychometric properties.

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agers were given the following instructions: “For each item below, please indicate your perceptions of this particular distributor compared to other available distributors, as they existed at the time when your relationship with this distributor was being established.” The managers then responded to three items on a 7-point scale ranging from “below average” (1) to “above average” (7). The specific items evaluated were (a) management strength; (b) plant, equipment, and facilities; and (c) advertising and sales promotion programs. In our statistical model, this alternate measure was not significantly related to the exclusive dealing decision. To conserve space we do not report these results separately.

<sup>57</sup> For example, Anderson & Schmittlein, *supra* note 34.

<sup>58</sup> Nunnally, *supra* note 40.

<sup>59</sup> Details on the factor analysis are available from the authors on request.

<sup>60</sup> Lord & Novick, *supra* note 41; Nunnally, *supra* note 40.

<sup>61</sup> Nunnally, *supra* note 40.



TABLE 1  
BINOMIAL LOGIT MODEL: EXDEAL

Independent Variable	Coefficient	t-Value
Constant	.30	.33
Free-ridable services	.42	3.00**
Transaction costs	-.32	-1.74*
End customer costs	-.36	-2.80**
Manufacturer differentiation	-.01	-.06
Entry deterrence	-.10	-.73
Firm size	-.07	-.06

NOTE.— $\chi^2(6) = 20.07$ . Correct classification rate: 68%.

\*  $P < .05$  (1-tailed test).

\*\*  $P < .01$  (1-tailed test).

### B. Model Estimation

We estimated a binomial logit model of the following form:

$$P(\text{EXDEAL}_i = 1) = \exp\left(\beta_0 + \sum_{j=1}^6 \beta_j X_{ij}\right) / \left[1 + \exp\left(\beta_0 + \sum_{j=1}^6 \beta_j X_{ij}\right)\right],$$

where

EXDEAL<sub>*i*</sub> = 1 if firm *i* restricts distributors from carrying competing products, and 0 if distributors are allowed to carry competing products;

X<sub>*i1*</sub> = free-ridable services;

X<sub>*i2*</sub> = transaction costs;

X<sub>*i3*</sub> = end customer costs;

X<sub>*i4*</sub> = manufacturer differentiation;

X<sub>*i5*</sub> = entry deterrence; and

X<sub>*i6*</sub> = firm size.

The maximum likelihood estimation results for the model are shown in Table 1. The coefficients can be interpreted as the effect of increases in the independent variables on the likelihood that a firm will deploy exclusive dealing, relative to the baseline of permitting competing products. The chi-square statistic for the model ( $\chi^2(6) = 20.07$ ) suggests that the null hypothesis of all the coefficients being zero can be rejected. Furthermore, the model correctly classifies 68 percent of the observations, which compares favorably with the proportional chance criterion of 55 percent.<sup>62</sup> This evidence

<sup>62</sup> Donald G. Morrison, On the Interpretation of Discriminant Analysis, 6 J. Marketing Res. 156 (1969).

suggests that the model is a good basis on which to examine the individual parameters. The results are reported in Section V.

## V. DISCUSSION OF RESULTS

Our central result is that business efficiency factors play a significant role in firms' decisions regarding exclusive dealing. Specifically, we find evidence that firms are more likely to use exclusive dealing when there is a potential that other manufacturers can free ride on the services they provide ( $t = 3.00$ ,  $P < .01$ ). This is perhaps the first evidence to directly link a manufacturer's concerns about free riding with the choice to use exclusive dealing.<sup>63</sup> This result builds on the work by Marvel<sup>64</sup> and also supports the existing theoretical literature.<sup>65</sup> It also supports the Justice Department's guidelines, which argue that exclusive dealing can promote business efficiency when it "protects manufacturers against dealer use of manufacturer-provided services to sell rival products."<sup>66</sup>

We also find that the greater the difficulty manufacturers face in evaluating distributors' adherence to assigned restrictions, the lower the likelihood that they will use exclusive dealing in the first place ( $t = -1.74$ ,  $P < .05$ ). This provides support for the emerging theoretical perspective that transaction cost considerations play an important role in the use of vertical restraints<sup>67</sup> and their subsequent management.<sup>68</sup> Further, this finding also supports the Justice Department's guidelines that "reducing transaction costs"<sup>69</sup> is an important exclusive dealing consideration.<sup>70</sup> Finally, it provides support for Caves's business efficiency argument that "transaction-cost considerations are simply part of the market failure (business efficiency) approach to vertical restraints."<sup>71</sup>

<sup>63</sup> Note that our test is a conservative one. If managers were thinking about current free riding rather than at the time when the decision was being made, it would work against our hypothesis that their original concerns with free riding would lead to exclusive dealing. This is because using exclusive dealing should attenuate free-riding problems (Marvel, *supra* note 2) and hence tend to make this relationship insignificant.

<sup>64</sup> Marvel, *supra* note 2.

<sup>65</sup> Bork, *supra* note 4; Marvel, *supra* note 11; Caves, *supra* note 25.

<sup>66</sup> Areeda, *supra* note 6, at 183.

<sup>67</sup> Williamson, *supra* note 13; Caves, *supra* note 25; Dutta, Bergen, & John, *supra* note 20.

<sup>68</sup> Mark Bergen, Jan Heide, & Shantanu Dutta, *Managing Gray Markets through Tolerance of Violations: A Transaction Cost Analysis*, *Managerial & Decision Econ.* (in press, 1998).

<sup>69</sup> Areeda, *supra* note 6, at 183.

<sup>70</sup> The link between costs and business efficiency considerations has also been highlighted by Sass & Gisser, *supra* note 28; and Kaufmann & Lafontaine, *supra* note 35.

<sup>71</sup> Caves, *supra* note 25, at 455.

We also find that when manufacturers are concerned about the costs that exclusive dealing imposes on end customers, such arrangements are less likely ( $t = -2.80, p < .01$ ). This finding supports arguments by Katz<sup>72</sup> and Williamson<sup>73</sup> that exclusive dealing increases consumer search costs and thereby creates a disincentive both for distributors and for manufacturers. This finding also supports Caves's suggestions that the use of vertical restraints is influenced by buyers' costs of making interbrand comparisons.<sup>74</sup> However, since this variable is only an indirect measure of manufacturer costs, we consider this as preliminary evidence regarding the role of search costs. We suggest that future research attempt to develop more direct measures of search cost in order to make a more compelling case.

We do not find any significant relationships between the use of exclusive dealing and manufacturer differentiation ( $t = -0.06, p > .10$ ), the likelihood of competitive entry ( $t = -0.73, p > .10$ ), and firm size ( $t = -0.06, p > .10$ ). Thus, in our sample the nonbusiness efficiency considerations do not seem to influence the exclusive dealing decision. However, the general lack of relationships between exclusive dealing and nonbusiness efficiency factors do not rule out their influence per se. It might be more appropriate to collect specific information on the nature of the exclusive dealing contract in order to assess nonbusiness efficiency intentions. For instance, exclusive dealing arrangements with duration of less than 1 year are still consistent with business efficiency intent.<sup>75</sup> Thus, gathering specific information on these agreements like the duration of exclusive dealing agreements will provide more compelling evidence regarding the nonbusiness efficiency dimensions of exclusive dealing than what the current study offers.

There are at least two natural directions for future research. First, while restricting our sample to two industries provides a degree of homogeneity that was desirable for theory-testing purposes, it limits our ability to generalize the results to other industries. Thus, future research should be directed toward other industries. Second, future research should be directed toward examining other forms of vertical restraints like territorial and customer restrictions. Given that many of the theoretical arguments made in this article have also been suggested for other vertical restraints, future microlevel surveys should explore the antecedents of other forms of arrangements.

<sup>72</sup> Katz, *supra* note 13.

<sup>73</sup> Williamson, *supra* note 13.

<sup>74</sup> Caves, *supra* note 25.

<sup>75</sup> *Roland Machinery Co. v. Dresser Industries, Inc.*, 749 F.2d 380 (7th Cir. 1984).

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