UNILATERAL EFFECTS AND THE CLOSENESS OF SUBSTITUTION

Antitrust analysis that focuses on potential unilateral effects of a merger has recently received increased attention. The Merger Guidelines define unilateral effects as the ability of the merged firm to profit by unilaterally raising the price of one of the products in a merger, noting that "some of the sales loss due to the price rise merely will be diverted to the product of the merger partner...." While the extent to which sales are diverted to the merger partner is a key element of the unilateral effects theory, whether the theory holds in a particular instance ultimately depends on a comparison between the amount of sales actually made at the higher price and the amount of sales that switch to alternative producers.

The application of unilateral effects principally applies to industries that feature differentiated products. In the healthcare industry, for example, a differentiated product like a hospital may be acquired by another hospital that is considered by many patients to be its next-best alternative. Absent the merger, prices of each hospital may be constrained by the other and possibly by other alternatives as well. In other instances, however, one of the merging hospitals may compete with several alternatives while the other is constrained primarily by its merger partner. An attempted post-merger price increase for the entire hospital system would fail, yet it may be possible to price one hospital above the competitive level while keeping the price of the other competitive.

As a stylized example, suppose that a single hospital exists in a suburban area and that its prices are constrained by several competing hospitals in the nearby city and one hospital in an outlying area. Suppose further that the suburban hospital is the primary competitor of the outlying hospital. Given these constraints, the prices at both the suburban and outlying hospitals would be competitive. If the suburban hospital were to merge with the outlying hospital, the merged hospital system could not raise its prices because the total amount of revenue lost to hospitals in the city would be too great.

Under certain circumstances, however, the merged entity may be able to raise prices profitably at the outlying hospital. The success of this strategy depends on the extent to which patients of the outlying hospital would switch to the system's competitively priced suburban hospital as opposed to competing hospitals in the city. Patients of the outlying hospital who switch to the suburban location would remain in the merged entity's system with no net loss of profits to the merged entity, assuming equal margins at the two hospitals. Those patients who choose to remain at the higher-priced outlying hospital would produce higher profits for the merged entity.

Actual attempts to price in this manner, however, are often complicated by more complex substitution relationships between the merging parties and other suppliers. If two hospitals are perfect substitutes, an attempt to increase the prices at one will induce all patients to switch to the other. No patients would actually purchase the services of the higher-priced hospital and, consequently, profits would not increase. At the other extreme, if two hospitals are sufficiently distant from each other that few patients would switch in response to a price increase at one, they may not be constraints on each other at all. In that case, analysis of unilateral effects is not appropriate.

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The profitability of a price increase at a selected hospital is not assured even if many patients substitute away from the higher-priced hospital to other hospitals in the system and other patients remain at the higher-priced hospital. The extent of substitution to hospitals outside the merged system will determine whether the selective price increase is profitable. Suppose some of the patients who switch from the outlying hospital by-pass the suburban hospital and use a city hospital. Patients switching to non-merging hospitals represent a complete loss of profits to the merging parties. The more patients who switch to non-merging hospitals, the higher the above-competitive price at the outlying hospital must be for the price increase to be profitable to the merged entity.

The question of the profitability of a unilateral price increase of this nature is ultimately answered by determining the Critical Loss, which measures the loss of sales sufficient to render a price increase unprofitable. The Critical Loss balances the increased profits of the sales at the outlying hospital's above-competitive price with the lost profits of those patients who switch to a non-merging hospital in the city. This calculation does not directly depend on the number of patients who switch to the merging system's competitively priced suburban hospital. If the Critical Loss is sufficiently small, the loss of even a small number of patients to a non-merging hospital will make the price increase unprofitable and thus not likely to be attempted. For providers like hospitals, which typically have high fixed costs and thus a small Critical Loss threshold, the loss of relatively few patients to providers outside of the system may be sufficient to render a price increase unprofitable and make the exercise of market power through unilateral effects unlikely.

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A PROBABILITY MODEL OF THE EFFECTS OF DIGITAL MUST-CARRY RULES

In its effort to promote adoption of broadcast digital television, the Federal Communications Commission (FCC) is considering broadening the scope of the current must-carry rules to include the newer digital signals. Many cable operators face the prospect of having to drop some cable networks to all subscribers in order to deliver digital broadcast signals that can be viewed, at the outset, by only a handful of subscribers with digital television sets. The FCC explicitly recognized that "cable operators could be required to carry double the amount of television stations that will eventually carry identical content, while having to drop various and varied cable programming services where channel capacity is limited." The impact of expanding the must-carry rules can be estimated and is shown, for the C-SPAN family of networks, to be considerable.

The networks offered by each cable system reflect the implicit constraint on the ability to carry a particular network due to limited channel capacity. Under current FCC plans, each broadcast station would eventually be required to transmit a digital signal. Almost 70 percent of cable systems with more than 200 subscribers carry six or more broadcast signals, and almost 14 percent of these systems carry greater than ten broadcast signals. Thus, the potential harm to the many cable networks is substantial.

A probability model can isolate the incremental effect of channel capacity on cable a operator's decision to carry specific cable networks. In this model, the decision of each individual cable operator to carry a network such as C-SPAN (or any other network) is assumed to be related to a set of explanatory factors. These factors essentially measure viewer interest in that network, as perceived by the cable system. The model estimates the strength of each of these factors in the decision of the cable operator. The estimation process separates the effect of channel capacity from the other factors that influence a cable operator's decision. A numerical estimate of this marginal effect allows concrete predictions to be made regarding the effect of the

FCC's proposed rules.

The benefit to the cable system from carrying any particular cable network is derived primarily from subscription fees and advertising revenues, which are in turn related to the desire of that system's actual and potential subscribers to view that network. Thus, the determinants of the likelihood of a system carrying a network such as C-SPAN are expected to arise from two principal sources: factors specific to the cable system (e.g., channel capacity and number of subscribers) and factors specific to the locale in which the cable system operates (e.g., median income and demographic factors).

The determination of which variables most strongly influence a cable operator's choice to carry C-SPAN, in particular, are based on surveys of C-SPAN viewers and previous econometric work regarding the demand for cable services. For example, surveys consistently indicate that, relative to non-viewers, C-SPAN (and C-SPAN2) viewers are younger, have higher household income, have more education, are more likely to use computers, are more likely to vote, and are more likely to be employed outside the home. This study also indicates that systems owned by one of the top 50 multi-system operators are more likely to carry C-SPAN, as are systems with more subscribers. Systems that cover a broader area and communities with higher median home values are also more likely to carry C-SPAN. Also, the number of broadcast channels in each locale has a positive effect on the probability of carrying C-SPAN. This result could reflect the size and sophistication of markets with a large number of broadcast outlets. Systems in areas with a higher rural population are less likely to carry C-SPAN.

Of particular note, cable systems with higher channel capacity are more likely to carry C-SPAN. Specifically, the model predicts that each channel lost to a digital must-carry requirement reduces the probability of C-SPAN carriage by 1.03 percent. This translates into a reduction in the number of systems that carry C-SPAN by 60, representing 240,161 subscribers. Thus, even if digital must-carry rules were initially implemented only for six broadcast networks, C-SPAN would experience a reduction of 1,440,966 viewers, or 2.4 percent of its current audience. Like the results for C-SPAN, cable systems with higher effective channel capacity are also more likely to carry C-SPAN2. The model predicts that each channel changed to digital transmission would reduce the probability of C-SPAN2 carriage by 1.17 percent, or 53 systems with 664,300 subscribers. Again, the application of digital must-carry rules to six broadcast networks would reduce C-SPAN2 viewership by 3,985,800, or 10.1 percent of its current audience.

It is evident that the proposed changes in the FCC's must-carry rules during the so-called "transition period" to a comprehensive digital broadcast standard could entail substantial reductions in carriage of certain cable networks, such as the C-SPAN family of networks. Econometric modeling with readily available data can estimate the magnitude of the effect, and, for C-SPAN at least, it is shown to be considerable.

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EXPORTERS TO THE U.S. APPAREL INDUSTRY: THE SIGNIFICANCE OF GEOGRAPHIC PROXIMITY

In antitrust analysis, courts and enforcement agencies are often asked to delineate the relevant geographic market for a particular product. This market may be determined to be as small as a single location or as large as worldwide. Although numerous tests may be employed to identify the extent of the market, implicit in most is the notion that for a distant area to be included, its firms must be cost-competitive with local producers. Thus, distant firms that can produce and transport the product to local buyers at a competitive cost are likely to be included in the geographic market delineation. Until recently, the importance of distance from the final point of sale has, for the most part, been limited to the effect it has on the cost of transportation. The Federal Trade Commission noted in a 1996 report that some "trends in manufacturing techniques and retailing strategies may be increasing the

importance of timely and reliable deliveries or of frequent personal interaction with customers at the production facility, thereby increasing the value of geographic proximity." If this is true, firms in some industries that would otherwise be considered cost-competitive may nevertheless be eliminated from the final geographic market delineation because of their distance from the final point of sale. U.S. apparel manufacturing may be one such industry.

Apparel manufacturing is inherently a highly labor-intensive procedure. A vast amount of the work involves cutting and sewing, making it difficult to employ many labor- or time-saving devices. Traditionally this fact has facilitated U.S. imports from manufacturing firms located in low-wage countries such as Hong Kong, Korea, Taiwan and China. Despite the manual nature of the industry, however, a vast amount of U.S. sales are still derived from manufacturers in high wage countries, including the United States. This implies that more than wage rates are involved in the ability of manufacturing firms to successfully sell apparel products in the United States.

One factor that may benefit firms that produce in or close to the United States is the ability to execute timely deliveries. Higher standards of living and an increase in demand for fashionable apparel have placed a premium on short delivery times. In addition, improvements in mass communications, which allow for quick diffusion of stylistic change, have contributed to increases in the speed of fashion changes. The "Quick Response" (QR) system, an adaptation of the bar code scheme so successfully implemented in the supermarket industry, encompasses such technological advances. Since the mid-1980s, much apparel production and distribution has been electronically linked through the use of bar code scanners and telecommunications equipment such that changing inventories are immediately communicated to producers. Excess carrying costs from early shipments, loss of sales from stock-outs, and costs of overstocks from inventory buildup are all mitigated by the QR system.

The changing marketplace and technological innovation have combined to create an apparel industry that carries greater numbers of product lines and has more selling seasons. These changes, in turn, have provided an advantage to firms located closer to the final point of sale. Such firms can better react to demand changes through quicker re-orders and cancellations and through the ability to withhold commitments of resources until very close to the selling season. Distant manufacturers, on the other hand, face numerous time-related obstacles. For an American retailer to contract with an Asian manufacturer, for example, irrevocable letters of credit must be given at least six months prior to shipment. Moreover, the time involved in shipping from Asian countries is usually one month, with another week to clear customs. Overall, the time required from placing an order to delivery from an Asian country is six to twelve months. The corresponding order-delivery time from domestic manufacturers is two to six months.

Although proximity to markets appears to be important to all apparel manufacturers, it may have more importance for manufacturers in high fashion sub-industries because of these segments' propensity to change style lines quickly and often. The extra time required for distant manufacturers' shipments of such apparel means that by the time of their arrival, the products are often behind the fashion and must be sold at a discount. Alternatively, if a retailer sells out of a popular item, there may be no time to re-order it from distant manufacturers. Distant firms, therefore, may be less of a competitive threat to domestic firms in high-fashion apparel than in low-fashion apparel.

An antitrust analysis of today's apparel industry, particularly in the high-fashion segment, may lead to the conclusion that the geographic market is no larger than national in scope. More generally, the industry provides some insights into the potential treatment of distant firms in antitrust analysis. For industries with significant time requirements, the fact that distant firms can produce and transport the product to the local market at a competitive cost may not be enough evidence to include them in a geographic market. Industry players who would otherwise be considered cost competitive may nevertheless be eliminated from the final geographic market because of their distance from the final point of sale. Of course, geographic market is ultimately determined on a case-by-case basis with attention being given to the nature of the industry and the importance it places on proximity to points of sale.

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