

VERTICAL INTEGRATION, REGULATION & THE SHIFTING OF ECONOMIC PROFITS

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Abstract

A model which shows how a vertically integrated, multiproduct regulated monopolist can shift its monopoly profits to its upstream nonregulated affiliate is developed. The model is expanded to include a self-imposed constraint on the percentage mark-up of the transfer price which makes the regulatory constraint binding. The telecommunications industry is examined to determine what empirical evidence exists to support the shifting of profits' hypothesis. Competitors are foreclosed from the market based on the desire to shift profits not on an economic efficiency criterion. How a multiproduct regulated monopolist reacts to competition in one of its product lines is analyzed.

INTRODUCTION

The recent divestiture of AT&T has had considerable impact on the telecommunications industry. However, an issue which has not been analyzed is the effects of the separation of the regulated Bell operating companies (BOCs) from the unregulated Western Electric[1]. Before divestiture the BOCs purchased nearly all of their telecommunications equipment from Western Electric. The main issues addressed are what incentive does the regulated multiproduct monopolist have to practice in-house buying and what effect will divestiture have on this practice.

Also, we examine the telecommunication industry to determine what empirical evidence exists to support the shifting of profits' hypothesis. Another issue which we examine is how a regulated multiproduct monopolist reacts to competition in one of its product lines.

VERTICAL INTEGRATION

The most obvious and pervasive motive for vertical integration is to cut cost in order to increase economic profits. The production process may be such that vertical integration will cut

cost dramatically. A classic example is found in the steel industry: Integration of blast furnaces, converters and primary reduction mills reduces handling and the need for reheating. Costs are decreased significantly by performing both steps at the same time[2]. Coase [3] and Williamson[4] have argued that vertical integration decrease transaction costs. Arrow[5], Blair and Kasserman[6] contend that vertical integration can decrease uncertainty concerning availability of product and price. One of the major advantages duPont gained from its merger with Conoco was some control over the availability and the price of oil. Also, as Spengler[7] notes, if there is an imperfection in the firm's input market then the firm may be able to cut cost and increase profit by vertically integrating. If one is buying an input in a non-competitive market, the price of the input may be above the competitive price. Vertical integration may reduce the cost of the input as well as the price of the output of the now vertically integrated firm.

Economic theory contends that in general the only reason a non-regulated firm will vertically integrate is to cut costs. However, a rate of return regulated firm (which we shall hereafter simply call regulated firm) may verti-

cally integrate to circumvent the regulatory constraint and earn monopoly profits.

The objective of most firms is to maximize profits subject to various constraints. Dayan[8] showed that under certain conditions a single product regulated firm can successfully circumvent the regulatory constraint by vertically integrating. Fuhr[9] expands on this model by showing that the multiproduct regulated monopolist through vertical integration can circumvent the regulatory constraint and shift profits to its non-regulated affiliate. This model shows that there is a different set of incentives for in-house buying under a regulated framework than under a non-regulated framework. A regulated firm may favor its affiliate even if it is not charging the lowest price. The firm can only shift profits if it buys from its affiliate. Competitors are foreclosed from the market based on the desire to shift profits not on an economic efficiency criterion.

EVIDENCE OF THE SHIFTING OF ECONOMIC PROFITS

The shifting of profits leads to the very important public policy issue of how to treat the transactions between a nonregulated affiliated supplier and a regulated monopoly. A regulated monopolist can shift all or some of its monopoly profit, which it cannot earn due to regulation, to its non-regulated affiliate. Since the regulatory constraint is not binding without a self-imposed constraint, the firm is in effect regulating itself. What evidence exists to support the hypothesis that the telephone companies have been able to shift profits to their unregulated affiliates?

In 1977, the Kansas Commission adjusted Southwest Bell's rate base downward "because of excess returns on sales to telephone company of Western Electric. The net reduction in the rate base was \$362,000." [10] In New York

and California as well as other states Bell's rate base has been adjusted due to economic profits on sales by Western. "From 1969-72, the New York Public Service Commission contends that Western Electric's rate of return on sales to New York Telephone Company was excess. These excessive charges added \$7.61 million to the New York Telephone Company rate base" [11]. The California Commission contends that during the period from 1916-1961, Western Electric earned economic profits of over \$340 million on sales to Bell's California operation. "During the 46-year period Western realized earnings of 340,746,000 more than the return found fair by this commission for respondent" [12].

The Colorado Public Utilities Commission in a case concerning Mountain States Telephone and Telegraph company stated the problem very clearly: "American Telephone and Telegraph Company owns 88 percent (rounded) of common stock of and controls absolutely, Mountain Bell, the purchaser, and totally controls its wholly owned non-regulated subsidiary Western Electric (Western) the seller. As Western is not subject to regulation and Mountain Bell is a captive customer its charges may be whatever the traffic will bear. The more money Western makes the more AT&T makes, and higher the charges to the customers of Mountain Bell. No more favorable and feasible set of circumstances can be imagined to siphon money from the customers of Mountain Bell. to AT&T. What incentive could AT&T have, or Mountain Bell its alter ego, to deal 'at arm's length', and to seek for the most favorable competitive prices, when both the seller and the purchaser are in reality one and those who pay are captive? Under these circumstances the commission is bound to exercise not ordinary caution but strict scrutiny, and require hard and convincing evidence that Mountain Bell's purchases are efficient and economical: and the burden of proof is the company's to provide such evidence.

This notwithstanding the fact that such evidence is definitely, and peculiarly within the resources of Mountain Bell and not of the commission staff, or the protestants. Having such evidence and failing to adduce it, it fails to carry its burden of proof.

Because of circumstances of relationship requiring the strictest type of accountability of practices, and failure to measure up to its responsibility so to account the purchasing practices of Mountain Bell under the evidence cannot reasonably be found to be efficient and economical, and the commission cannot legally establish any rates as 'just and reasonable'[13].

The practices of Bell and Western are not the only ones questioned. The transactions between independent telephone companies and their affiliates have been under the watchful eye of many state commissions.

The Michigan Public Service Commission adjusted downward by \$234,500 the rate base of General Telephone Company of Michigan[14]. The administrative law judge in this case recommended: "The adoption of a proposed staff adjustment to applicants net plant rate base to reduce excess profits earned by GTE's Automatic Electric (Automatic) an affiliate of applicants' parent company (GTE) to the rate of return on equity authorized by the commission for applicant" [15]. "The commission listened to many arguments of GTE but, those arguments even if acceptable did not alter the fact that Automatic has made excess profits in excess of the rate of return authorized for applicant from sales of equipment that applicant seeks to include in the rate base" [16]. Looking at the commission's conclusion in the framework of GTE's pricing of terminal equipment it can be concluded that the transfer price charged by GTE for the terminal equipment was above that which would have been charged in a competitive market. Therefore, the telephone com-

panies were able to some degree to circumvent the regulatory constraint placed on their economic profits.

The New York State Public Service Commission in a case concerning both Iroquois and Chenango and Unadilla (C&U) Telephone Corporations found their manufacturing affiliate earning economic profits. Iroquois and Chenango and Unadilla (C&U) are affiliates of Continental Telephone Company, the fourth largest telephone company in the United States.

Both Iroquois and C&U purchased material and equipment from Superior Continental Corporation, a manufacturing and supply affiliate wholly owned by Continental. The New York Public Service Commission staff recommended an adjustment designed to eliminate from the rate base any economic profits on these purchases. Their method of evaluation was as follows: "The profits were evaluated by reference to the equity returns earned by roughly comparable companies operating in competitive markets during the period of time that Iroquois and C&U were purchasing equipment from Superior. After reviewing the standard published profit summaries of the Federal Trade Commission for all manufacturing corporations and for electrical and electronic equipment manufacturing corporations, as well as Standard and Poor's 425 Industrial and Moody's 125 Industrials, the staff witness concluded that a reasonable equity return was 12 percent for the 1968 to 1972 period and 13 percent for 1973 to 1975" [17]. The administrative law judge in this case accepted the staff's findings and eliminated the economic profits from the telephone companies rate base.

We have examined the question of the total economic profits earned by Western Electric on sales to its Bell affiliates. Another important aspect of our analysis is that of Western's markup above marginal cost to achieve these profits. The West Virginia Public Util-

ity Commission provides some information concerning this markup. "The staff presented evidence in this case indicating that, when measured against C&P's historic allowed West Virginia intrastate rate of return, Western earned, between 1956 and 1972, \$1,870,951 in excess profits on the \$200 million of plant still surviving in C&P's rate base at the end of the test year in this case. Staff urged us to disallow a portion of the rate base measured by such amount of excess profits" [18]. Given this information and assuming constant returns to scale in the manufacture of Western's products one can estimate Western's markup. The rate base is \$200 million and the economic profits are approximately \$1.87 million. The telephone company's rate base is the total sales and therefore the total revenue of Western Electric. The total cost of Western can be obtained by subtracting profits from total revenue. Total cost is equal to \$198.13 million. The markup can be computed by dividing total revenue by total cost $200/198.3 = 1.0094$. The markup above marginal cost in this case would be less than 1 percent. Thus, even a very small mark-up by Western Electric can lead to substantial profits due to the large volume of sales to its regulated affiliates and the rate of return on equity can be increased substantially by such a procedure.

Since the divestiture of AT&T the regulatory commissions have turned their attention to the relationship between the Bell operating companies and their affiliates. Prior to divestiture the Bell operating companies contracted with AT&T for certain services and use of patents. To replace the AT&T parent services lost by divestiture, the regional holding companies and the Bell operating companies, formed Bell Communications Research (initially known as the Central Service Organization)[19] as well as other non-regulated affiliates. An estimated 40 state rate cases during 1984 involved in part the justification of expenses for operating

the Central Service Organization[20].

In various states the regulatory commissions claimed that the utility has the burden of proof to show the prices charged and profit earned by an affiliate are reasonable. In a case concerning New England Telephone (NET), the Vermont Public Service Board disallowed all centralized service costs (\$2.5 million). The Commission stated: "We are making this disallowance because of failure to prove that the projects are needed or are of value, that the allocations are reasonable, that the costs are segregated properly between those that are allowable and those that are not, and because there is no showing that NET has any direct control over these costs. We also conclude that the contracts themselves are not in the best interests of NET or its ratepayers" [21].

Also, the Board concluded that: "Having reviewed the primary and most detailed document to support Bell Core projects the board is convinced that many of these endeavors are either duplicative, are intended to or will benefit existing or new ventures, New York-New England unregulated subsidiaries or of no value to Vermont" [22].

Similarly, the District of Columbia Public Service Commission disallowed 1/3 of Central Services expenses (\$1,086,000) because of the company's failure to present detailed cost and budget analyses and alternative means of service as well as the commission's desire to establish incentives for preventing improper affiliate transactions at the expense of ratepayers[23].

Even with divestiture the Bell operating companies diversification into unregulated markets makes the shifting of profits to an unregulated affiliate still an important issue in telecommunications.

PUBLIC POLICY ISSUES

Should the government allow a regulated firm to have a nonregulated

affiliate supply one of its basic inputs? This was an important issue in the government's antitrust suit concerning the divestiture of WE from AT&T.

Until recently, AT&T had purchased almost exclusively from Western Electric. There have been many antitrust suits against AT&T concerning this in housing buying. For example, in 1977 IT&T accused AT&T of violating antitrust laws by refusing to buy from outside suppliers. This case was settled out of court with AT&T agreeing to buy up to two billion dollars in product and services from IT&T over a ten year period[24]. Also, IT&T successfully sued GTE concerning this same issue [25].

The issue of vertical integration is being investigated in the electric utility market[26] where electric companies in some cases are paying 30% more than the market price for coal purchased from the unregulated affiliate[27].

Another issue is how would a multiproduct regulated monopolist react to competition in one of its product lines, where the regulated firm previously had monopsony power? Again, this issue is relevant to the telecommunications industry. Before the 1968 Carterfone decision, the telephone companies had monopsony power in the purchase of terminal equipment. The Carterfone decision allowed consumers to purchase their own terminal equipment.

There are two basic strategies which this firm can follow: lower the price of the upstream product to meet the competition or construct non-economic barriers to entry. If the firm reacts by lowering the price of the upstream product and given that there are no substantial economic barriers to entry in the upstream product market, then the upstream product market would become competitive. Under competition the transfer price would equal the marginal cost of the upstream product. The regulated firm would no longer be able to manipulate the trans-

fer price to earn economic profits in the upstream product market. If the regulated firm faces competition in one of its downstream product markets, then it will have to purchase its inputs at the lowest price. It will no longer be able to favor its affiliate in the purchase of the upstream product. If the regulated firm lowers the price of the upstream product to meet competition, the firm loses much of its ability to earn economic profit through vertical integration. It will earn less economic profit than before competition.

The firm could earn the same level of economic profit as it did before competition, if it could successfully eliminate all its competition. If there are no real economic barriers to entry in the upstream product market then the profit-maximizing strategy of the regulated firm would be to construct non-economic barriers to entry in the upstream product market. This strategy of erecting barriers to entry is basically the policy followed by the telephone companies to combat competition in the terminal equipment market[28] as well as the long distance market[29]. AT&T used the lag in the regulatory process to foreclose both markets.

CONCLUSION

This paper analyzes the impact of allowing a regulated multi-product monopolist to vertically integrate with a non-regulated affiliate. It shows that there is a different set of incentives for in-house buying under a regulated framework than under a non-regulated framework. A regulated firm may favor its affiliate even if it is not charging the lowest price. The firm can only shift profits if it buys from its affiliate. Thus, competitors are foreclosed from the market based on the desire to shift profits not on an economic efficiency criterion. Finally, we showed that the multiproduct regulated monopolist might respond to competition in one of its product lines by creating artificial barriers to entry.

FOOTNOTES

1. Even with divestiture AT&T long lines is still regulated and affiliated with Western Electric.
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11. Re York Telephone Company, New York Public Service Commission, Opinion No. 73-39, November 16, 1973, 2 PUR 4th, 14.
12. Re Pacific Telephone and Telegraph Company, California Public Utility Commission, Decision No. 67369, June 11, 1974, 53 PUR 3d, 548.
13. Re Mountain States Telephone and Telegraph Company, Colorado Public Utility Commission, Decision No. 87701, October 30, 1975, 13 PUR 4th 141-42.
14. Re General Telephone Company of Michigan, Michigan Public Service Commission, Case No. U-4996, January 24, 1977, 18 PUR 4th, 141-42.
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16. Ibid., p. 514.
17. Re Chenago and Unadilla Telephone Corporation, New York Public Service Commission, Opinion No. 76-21, November 9, 1976, 16 PUR 4th, 479.
18. Re Chesapeake and Potomac Telephone Company of West Virginia, West Virginia Public Service Com., Case Nos. 8890, 8969, June 30, 1978, 26 PUR 4th, 43.

19. Re: Mountain States Telephone and Telegraph Company, Wyoming Public Service Commission, Docket No. 9343 Sub 40, January 31, 1985 64 PUR 4th, 681.
20. Re: New England Telephone and Telegraph Company, Vermont Public Service Board, Docket Nos. 4874/4875, October 5, 1984, 62 PUR 4th, 539.
21. Ibid, p. 540.
22. Ibid, p. 539.
23. Re: Chesapeake and Potomac Telephone Company, District of Columbia Public Service Commission, Case No. 798, October 3, 1983, 56 PUR 4th, 87.
24. "AT&T Will Buy Gear from ITT to Settle A Suit," Wall Street Journal, February 28, 1980, p. 3.
25. International Telephone & Telegraph Corporation v. General Telephone & Electronics Corporation, 351 F Supp. 1185 (1972).
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