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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

February 8, 1993

Office of the Secretary
Federal Communications Commission
Washington, D.C. 20554

Re: **MM Docket No. 92-264**: In the matter of Horizontal and Vertical Ownership Limits, Cross-ownership Limitations and Anti-trafficking Provisions.

Dear Commissioners,

I offer comments on one of the issues addressed in the *Notice of Proposed Rulemaking:*

MSO Subscriber Limits

My comments are based on two attached studies. The first, *MSOs and Monopony Power* (1990), was presented at the Telecommunications Policy Research Conference (TPRC) in 1990. The second, *Local Monopsony and "Free Riders" in Information Industries* (1992), is a more technical elaboration of the basic model in the TPRC paper.

I emphasize that neither these comments, nor any of the research on which they are based, has been supported by any party having a vested interest in the outcome of these proceedings. These comments are offered on my own volition in the public interest.

A number of commenters in previous FCC proceedings have appealed to the benchmark standards in the U.S. Justice Department's *Merger Guidelines* (1992) as a relevant standard for evaluating concentration of ownership by Multiple Cable System Operators (MSOs). These commenters point out that the Herfindahl Index (HHI) for MSOs (as measured by national shares of basic subscribers) falls below the 1000 benchmark which the Justice Department has determined to be the minimum level ordinarily warranting further investigation. They have thus concluded, as did the Commission in its 1990 *Report* on Docket 89-600, that current levels of MSO national concentration do not warrant legal constraint.

I respectfully argue here that the Justice Department standards are inapplicable to the MSO case, due to peculiarities of the cable industry and its products. Although further empirical data are still needed, it is reasonable to believe that levels well below the Justice Department's "1000" standard could result in anticompetitive behavior by MSOs.

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As the *Merger Guidelines* make clear, the HHI standards are concerned with the accretion of market power through unilateral or coordinated behavior that would result from a merger within a particular market in which other firms compete for the *same* customers (or inputs). The associated behavioral standard is the resulting ability of the newly merged firm to raise its final prices (or comparably, to lower its input prices) within that particular market. The basis of the HHI benchmark standards is that if horizontal concentration is low, such a price change is unlikely to be profitable since business will rapidly flow to other firms too numerous to coordinate a similar price change. If concentration is high, however, price coordination among other firms, and thus higher profits for all, is more likely to result.

The MSO case differs from this typical scenario in two fundamental ways:

(1) The MSO-network bargaining process involves geographically separated firms.

MSOs negotiate with cable networks for the rights to exhibit programs within local market areas in which the MSO's cable systems are often the only viable means for that network's programming to reach consumers. In the attached papers, I argue that an MSO can increase its bargaining power under these circumstances by increasing its national market share of cable subscribers. In brief summary, the reason for this increase in the MSO's bargaining power follows from a basic principle of bilateral bargaining. As the MSO accumulates national market share, it comes to control a greater share of the potential revenues which a cable network *stands to lose* if the MSO does not grant it access. The share of its potential revenues that the MSO stands to lose if no deal is struck, however, remains independent of its national market share. As a result, bargaining power, and thus the negotiated division of revenues, shifts in the MSO's favor as its national share of subscribers increases.

The rate at which an MSO can accumulate bargaining power (ie, monopsony power) in this way is an empirical question. It is clear, however, that this rate has nothing to do with the standard interpretation of the Herfindahl Index, because virtually none of the cable system buyers are competing with each other for programs. Indeed, the *Merger Guidelines* make the inapplicability of the HHI standard explicit in their discussion of Geographic Market Definition. The *Guidelines* note that if geographic price discrimination is possible, then it is appropriate to consider those different geographic areas as separate markets. Obviously, cable television networks have the power to price discriminate in different geographic markets. There is, that is, no national market for cable television subscriptions.

The second factor making the MSO case different from the ordinary is a major determinant of the rate at which MSOs can accumulate monopsony power.

(2) The presence of economies of scale in cable networking

Cable television networks have inherent economies of scale in distribution because of the "public good" nature of their programming. In many cases, program distribution rights are granted to the network for a relatively constant "per subscriber" rate, which may be fairly insensitive to the number of subscribers reached. Most networks, however, offer substantial original or other exclusive programming, for which the incremental cost of carriage by additional cable systems is essentially zero. The network's average costs per subscriber thus decline rapidly as it's potential market expands.

It follows that the greater are economies of scale in cable networking, the greater the importance that a network reach its maximum potential audience, and thus the greater the network's vulnerability to MSO monopsony power (ie, power to exclude the network from the local markets it controls). This would not be a serious problem except that there are often few opportunities for a cable network's programming to be exhibited on other media in those markets. Program distributors are especially handicapped by the odd geographic patterns of cable franchise areas. If one or a few of the 20 or 30 cable systems often contained in a local TV market do not carry a program, for example, its distributor's alternatives for broadcast exhibition in that franchise area remain very limited.

Of course, there are many examples of cable networks which are profitable with well below full access to cable subscribers. But even a cursory investigation will reveal that such networks tend to spend substantially less on programming, and tend to have relatively small audiences. Indeed, the economic incentive of a network to invest in programming is proportional to the total size of its potential market.

Consider an analogy in television broadcasting. From its founding in the late 1940's until the mid-1970's, ABC was the "junior" network, spending substantially less on programming, and attracting consistently smaller audiences, than either CBS or NBC. Most analysts at the time attributed ABC's status to a handicap in national audience reach that was relatively small. In 1974, for example, ABC had 181 affiliates, vs. 212 for CBS and 218 for NBC. Although a higher proportion of ABC affiliates were weaker UHF stations, these affiliate counts very likely overstate the imbalance since ABC's affiliates permitted that network to reach over 90% of U.S. TV households, compared to somewhat under 100% for CBS and NBC. It was not until a remarkable string of innovative programming decisions from 1975 to 1979 that ABC managed to equalize the audience

reach balance by inducing a number of stations to switch to ABC affiliation. Comparably, many analysts emphasize the importance of the Fox Network's longer term competitive disadvantage to the three full-time networks because Fox reaches only about 91% of U.S. TV households.

In conclusion, I emphasize that the extent of the competitive advantage of audience reach in cable television--and thus the significance of MSO monopsony power in the cable industry--is an empirical issue for which relevant data are very incomplete. Such power is likely to vary as well, depending on alternative distribution routes which the particular programming in question has. Moreover, some networks are likely to have "countervailing" market power with cable operators. Hopefully, more relevant data on this question will emerge from these proceedings. I also note that I have not considered here other important aspects of the question, such as whether antitrust enforcement or FCC limits would be a more appropriate mechanism.

My economic analysis of the cable market and the broadcasting analogy, however, strongly suggest that an MSO having less than the Commission's suggested 25%-35% national share limit may exert excessive market power over networks--particularly new entrants--in the current market environment. If so, such an MSO could force per-subscriber wholesale rates paid to networks to artificially low levels, consequently reducing program diversity. At the very least, I hope the Commission is persuaded that it should not rely on the inapplicable standard interpretation of the Herfindahl index in establishing any subscribership limits.

Sincerely,

David Waterman
Adjunct Professor

Multiple Cable Television System Operators and Monopsony Power

by David Waterman

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Presented at the Airlie House on Telecommunications Policy Research Conference

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Running Head: MSOS AND MONOPSONY POWER

Acknowledgments: I am indebted to Paul Bricault, Veronique Dobozy, Clara Park, and Dan Wright for research assistance.

ABSTRACT

The main subject of this paper is the economic effects of national market share accumulation by multiple cable television system operators (MSOs). We first present background descriptive data showing that MSO concentration has substantially increased from 1977 to 1989, but remains below levels which by usual standards warrant concern as potentially anticompetitive. In the next section, we offer a theoretical model showing how MSOs may be able to increase their monopsony, or buying, power with program suppliers by increasing their national share of cable subscribers. We first show with comparative statics that network distributors face a "free rider" problem with respect to individual local markets due to extreme economies of scale in wholesale network distribution. We then use a simple bargaining model to show how MSOs may improve their ability to exploit the free rider problem through national market share accumulation because this action increases the distributor's relative risk in the bargaining process. The implication of the model is that levels of MSO concentration below usual standards may pose a competitive threat. In conclusion, we discuss empirical evidence and policy implications, then briefly draw parallels with broadcast television station groups, newspaper chains, and movie theater chains.

I. INTRODUCTION

The main concern of this paper is the economic effects of national market share accumulation by multiple cable television system operators (MSOs). Policy relevance of this topic is made clear by proposals to limit the size of MSOs, or to require them to give non-discriminatory access to program suppliers, which have recently been on the Congressional agenda (see U.S. Congress, 1989). We hope to contribute to these debates, and also to longstanding related debates about chains or groups in other media industries.

In the first section, we provide background by documenting trends in MSO concentration over the 1977-1989 period, along with comparative data for newspaper chains, broadcast television station groups, and movie theater chains. In the next section, we consider the motives and effects of multiple cable system ownership, with emphasis on its potentially anticompetitive effects. In particular, we offer a theoretical model which shows conditions under which MSOs may be able to increase their monopsony, or buying, power with respect to program suppliers by increasing their national share of cable subscribers. In conclusion, we discuss potential welfare effects of MSO concentration, empirical relevance of the model to the cable industry, and policy implications. Finally, we draw parallels with chains in other media industries.

A. Previous research and the issues at hand

Several studies or government reports have presented data and considered the possible motives and effects of multiple cable system ownership. Baer, Geller, Grundfest, and Possner (1974) analyzed MSOs within a larger scale study that synthesized the state of knowledge about media chains in print and electronic media more generally. Compaine, Sterling, Guback and Noble (1982) considered MSOs in a book covering ownership issues in a still wider range of media industries, including motion pictures and magazine publising. More up-to-date data and economic

commentary on MSO concentration appears in reports by the National Telecommunications Information Agency (1988) and by the Federal Communications Commission (July, 1990), both of which focus solely on regulatory and legislative issues involving the cable industry.

In most media, notably newspapers, broadcasting, and theatrical exhibition, attention has focussed on concentration within local market areas. National concentration of chains in these media industries has generally been a secondary issue. In the cable industry, however, national concentration is essentially the only issue because competition between systems within local markets has rarely proved viable.

The main concern about MSOs is the possibility that they could gain excessive influence over program suppliers by accumulating large shares of the national market, a problem which has both First Amendment and economic efficiency implications. In particular, it has been claimed that large MSOs exert excessive "gatekeeper" influence over the entry of new cable networks, especially if those MSOs are vertically integrated with existing networks. More generally, it is evident that excessive buying power of MSOs could adversely affect the supply or quality of cable networks available to subscribers. In the balance are potential efficiencies of large size which MSOs might realize, presumably leading to lower final prices and more product diversity.

Several empirical studies have explored the economic motives and effects of national chain ownership in other media industries, especially broadcast television. (See Besen and Johnson, 1984, 1985, for a survey of empirical research on broadcast television station groups and Dertouzos and Thorpe, 1982, for an econometric study of newspaper chains.) With respect to the cable industry, the FCC report released this July cites docket submissions by Paul MacAvoy and Robert Crandall and others which attempt to determine overall market power which MSOs may have by means

TABLE 1

MEDIA CHAIN/GROUP OWNERSHIP CONCENTRATION

NATIONAL MARKET SHARES: 1977-1989

A. CABLE TELEVISION SYSTEMS[a]	1977	1982	1987	1989
Largest Firm	8.5	8.5	12.4	16.0
4 Firm Ratio	24.5	39.0	28.5	37.3
8 Firm Ratio	36.4	44.0	41.1	51.5
HH Index *	217	316	351	528
Base: Total # of Basic Subscribers	12,600	26,518	41,491	48,613

Source: Television and Cable Factbook. (See Appendix A)

B. NEWSPAPERS				
Largest Firm	6.0	6.8	9.6	9.6
4 Firm Ratio	20.9	22.4	24.8	24.7
8 Firm Ratio	32.4	34.8	35.8	36.4
HH Index *	155	185	258	227
Base: Total Average Daily Circulation	61,350	62,438	62,826	62,695

Source: Rosse, *et al.* (1978); American Newspaper Publishers Association.

C. MOTION PICTURE THEATERS				
Largest Firm	4.5	5.5	9.0	11.7
4 Firm Ratio	13.8	17.8	29.1	30.1
8 Firm Ratio	20.6	27.6	40.5	42.6
HH Index *	63	100	257	301
Base: Total Daily Circulation	16,554	18,295	22,850	25,650

Source: Compaine, *et al.* (1982); Paul Kagan Associates.

D. BROADCAST TELEVISION STATIONS[b]				
Largest Firm	5.6	6.8	5.4	5.9
4 Firm Ratio	20.8	23.9	19.0	19.9
8 Firm Ratio	31.5	34.3	29.2	31.1
HH Index *	154	164	141	155
Base: Total Average Weekly Circulation	274.5	313.5	401.1	391.8

Source: Television and Cable Factbook.

a Includes consolidated holdings only. (See Appendix A)

b Average weekly circulation includes full nationwide circulation of superstations.

* Herfindahl-Hirschman index, based on all firms with 1% or greater national market share.

of "q-ratio" tests, but we have not considered those documents, or most of the other docket submissions, in preparing this paper.

C. The present paper

Apart from presentation and discussion of descriptive data documenting MSO and other chain concentration, our focus is on modelling the motives and effects of MSO growth. Our results question the view of some analysts that current levels of MSO concentration are below those which should be regarded as a threat to effective competition. For example, the FCC (1990, #71-76), and Klein (1988, pp. 30-31) in his paper about vertical integration in cable television, take this position. We argue that because of inherently extreme upstream economies of scale in cable network distribution, levels of MSO concentration below those suggested by standard interpretations of concentration indices may constitute a competitive threat. While empirical support remains limited at this point in our research, our model offers a rationale for some horizontal, as well as vertical, ownership patterns that have emerged in the cable industry and for available anecdotal data. The same conceptual arguments apply to chains or groups in other media industries, although their empirical relevance in those cases appears more questionable.

II. NATIONAL CONCENTRATION TRENDS, 1977-89

A. MSOs

Table 1A presents national market share calculations for 1977, 1982, 1987 and 1989 for MSOs in terms of the number of basic subscribers served by the MSO.

As indicated by the single, four, and eight firm ratios, and the Herfindahl-Hirschman (HH) index, MSO concentration has substantially increased since 1977. These data may understate both the current level and the upward trend in market control by the largest firms, however, because only subscriber counts for consolidated holdings are included. Including unconsolidated interests, the four and eight firm

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ratios and the HH index for MSOs in 1989 would be 46.2, 57.8 and 856, respectively.[1] These differences are almost entirely due to other holdings of two firms. The largest MSO, Telecommunication, Inc. (TCI), had unconsolidated 50% or minority interests in at least eight other MSOs and several other individual systems in 1989. If these are included, TCI's share would increase from 16.0% to 23.2%. Time-Warner, Inc., majority owner of the second and fourth largest MSOs, American Television and Communications, Inc. and Warner Cable, also had 50% interests in two other MSOs which would bring its share of subscribers from 11.1% to 12.8%. By contrast, including unconsolidated ownership relationships of MSOs in 1977 would increase the single, four, and eight firm ratios only to 9.1, 25.1, and 37.1, respectively, thus indicating a higher trend in concentration as well. It is also likely that the subscribership measure somewhat understates concentration in terms of revenues throughout the period, since MSOs tend to own more lucrative systems.

Another point of interest is the approximately four fold increase in the cable subscribership base over this period. Given the increase in concentration which has also occurred, the largest MSOs thus serve very much larger total subscribership bases than in the past.

B. Other Media Chains

Tables 1B-D describe national concentration data for newspaper chains, motion picture theater chains, and broadcast television station groups. In each case, shares are measured in terms of the output dimension for which comparable data over time could be assembled from trade and other sources. Concentration measures for these three industries over the ten year interval 1977-1987 were reported along with MSO

1. The FCC (July, 1990) evidently includes unconsolidated MSO holdings in its annual 1972-1990 series on MSO concentration, which shows single, four, eight firm ratios and an HH index of 22.2, 46.9, 57.9, and 975, respectively, for 1990 (Appendix G, p. 3). Remaining differences appear to be due to the time of year they were reported (See Appendix A).

data in an earlier paper in which we discussed media chain ownership trends more generally (Waterman, 1988).

While the comparative value of these data is limited by the heterogeneous measures used, especially perhaps in the case of theatrical exhibition, they offer a perspective on MSO trends.

In terms of these measures, growth in national concentration of theatrical exhibition has been, like that of MSOs, fairly rapid since 1977; concentration has increased somewhat for newspaper chains, but at least since 1982, broadcast television station groups have become less concentrated. Even if unconsolidated holdings are included in the MSO data, however, national chain concentration in these three industries remains below that of MSOs. We did not conduct a detailed analysis of unconsolidated interests among larger firms in these other industries, but they appear to have been of minor importance throughout the period.

Note also that unlike the MSO case, the extent to which these data indicate concentration within individual local markets *vs.* accumulation of firms in different local markets is ambiguous. As noted, national market shares of cable systems are essentially summations of 100% local market shares. Chain owned daily newspapers typically have high, often dominant local market shares, but overlaps of primary circulation areas by jointly owned newspapers have rarely been tolerated by antitrust authorities (except in the case of Joint Operating Agreements). Movie theater chains have virtual local market monopolies in a few cases, but are presumably deterred by periodic government challenges to local market concentration that have been made under the Sherman Act.[2] Local shares of broadcast station groups rarely exceed 20 or 25% in the 50 largest markets because the FCC's duopoly rule prevents joint ownership of stations in the same market. The

2. Several examples are cited in Waterman, 1979. The most recent case, U.S. *v* Syufy Enterprise 903 F2nd 659, Ninth District, (May 9, 1990), was lost by the government both in the lower court and on appeal.

combination of this constraint with that of the 12-12-12 rule limiting multi-market ownership of broadcast stations has undoubtedly figured in the reported reduction of TV station group concentration over the period. By contrast, the Justice Department has never challenged a merger or acquisition in newspapers, cable, or theatrical exhibition on the basis of the higher national market share which would result.

In summary, MSO concentration has grown substantially since 1977, though its current level, even including unconsolidated holdings, remains below the 1000 HH standards which ordinarily warrants concern according to Justice Department standards. In comparison, movie theater chains, newspaper chains, and broadcast television station groups appear to remain even less concentrated at the national as well as local market levels.

III. MOTIVES AND EFFECTS OF MSO CONCENTRATION

We briefly consider potential efficiency effects of MSOs, then possible incentives of MSOs to achieve power over input price.

A. Efficiency effects

Efficiency benefits of retail chains have been researched in the general economic literature, and in particular for media chains by the above-cited authors. (See also Dertouzos, 1978, and other papers in a Federal Trade Commission Symposium on Media Concentration (FTC, 1978).) Like other retail chain and media chain operations, MSOs can benefit from transactions cost savings and from scale economies such as centralization of management functions.

Changing technology has undoubtedly increased the efficiency benefits of multiple cable system ownership. In the mid-1970's, cable systems were mostly 12 to 20 channel operations whose primary function was the relatively simple one of

retransmitting local or nearby distant broadcast signals. The great majority of cable systems now have 36 to 100 or more channels, most of them filled with network programs nationally distributed by satellite. The management process has been transformed into a far more complex set of tasks, including choices among rapidly changing hardware alternatives, negotiating with program suppliers, selecting a correct mix of channels, and marketing a Chinese menu of these services to potential subscribers.

It is thus unsurprising to find that the larger MSOs now serve much larger subscriber bases than in the past. It remains unclear, of course, what the limits of these economies are. In any case, the possibility that MSOs can also gain monopsony power by increasing their national market share of subscribers is formalized below.

B. Achieving Power Over Input Price

Using a simplified model of the cable industry, we demonstrate the particular advantages to MSOs of buying power in two stages: first with respect to their control of individual local markets, and then with respect to increasing their national shares. The first part of the model is a graphical version of related mathematical models involving monopsony and vertical integration of motion picture distributors and exhibitors reported in Waterman (1979, 1982).

I. The Advantages of Monopsony power within separate local markets

We make the following general assumptions:

(1) Industry organization and structure

There are M geographically separate local cable markets, $i = 1...M$. Each market is the same size and has symmetrical demand and cost characteristics. There are n cable networks, $j = 1...n$, each produced and distributed to local systems by a single

firm. Networking is a monopolistically competitive industry with free entry and the value of n is to be determined as an equilibrium condition of the model. Cable systems, however, are local monopolies. We assume there are no alternative outlets for cable networks, so they are local monopsonies as well.

We further assume that all n networks are differentiated but equally attractive to subscribers. They carry only original programming, which is produced at a fixed cost, K. Networks are distributed to cable systems by satellite at a marginal cost, however, of zero. Cable systems then offer the networks to subscribers *a la carte* for monthly subscription fees. The transaction is completed when cable systems remit some negotiated fraction of their final subscriber receipts back to the networks.

For expositional convenience, we assume there is no basic service or advertiser revenues, though this assumption does not affect the substance of our results.

These assumptions permit us to define network and cable system profit functions as follows:

For networks:

$$\Pi^j = \sum_{i=1}^{M} r_{ij} p_{ij} q_{ij} - K$$

for all j, where $r, 0 < r < 1$, is the negotiated division of total revenues, p is retail price, q is subscribership, and the subscripts i and j represent markets and networks, respectively.

For local systems:

$$\Pi^i = \sum_{j=1}^{n} \left[\left(1 - r_{ij}\right) p_{ij} q_{ij} - c \cdot q_{ij} \right] - Z$$

for all i, where Z is a fixed setup cost for the system and c is a constant marginal cost of serving each subscriber.

(2) Subscriber demand functions

Let $q_{ij} = q_{ij}(\overset{-}{n}, \overset{-}{p_{ij}}, \overset{+}{p_{i,-j}})$, where q_{ij} is subscribership in market i to network j, p_{ij} is retail price in market i of network j, and $p_{i,-j}$ is the vector of prices of other networks in market i. As indicated, we assume that subscribership to network i decreases as the number of alternative networks increases and as its own retail price increases, but that it increases with prices of alternative networks.

We further assume that aggregate subscribership to cable networks in each market increases with the number of differentiated networks offered. (That is, q_{ij} not only decreases as n increases, but at a decreasing rate.)

Finally, for exposition convenience, we assume that in each market, optimal retail prices are independent of the number of networks offered.

The focus of the model is on input pricing behavior, which in reality is conducted by means of negotiation on a market by market basis. As a first step, however, we compare the market equilibrium under two alternative extreme assumptions about input price setting behavior: first, where cable systems are input price makers, and second, where they are input price takers.

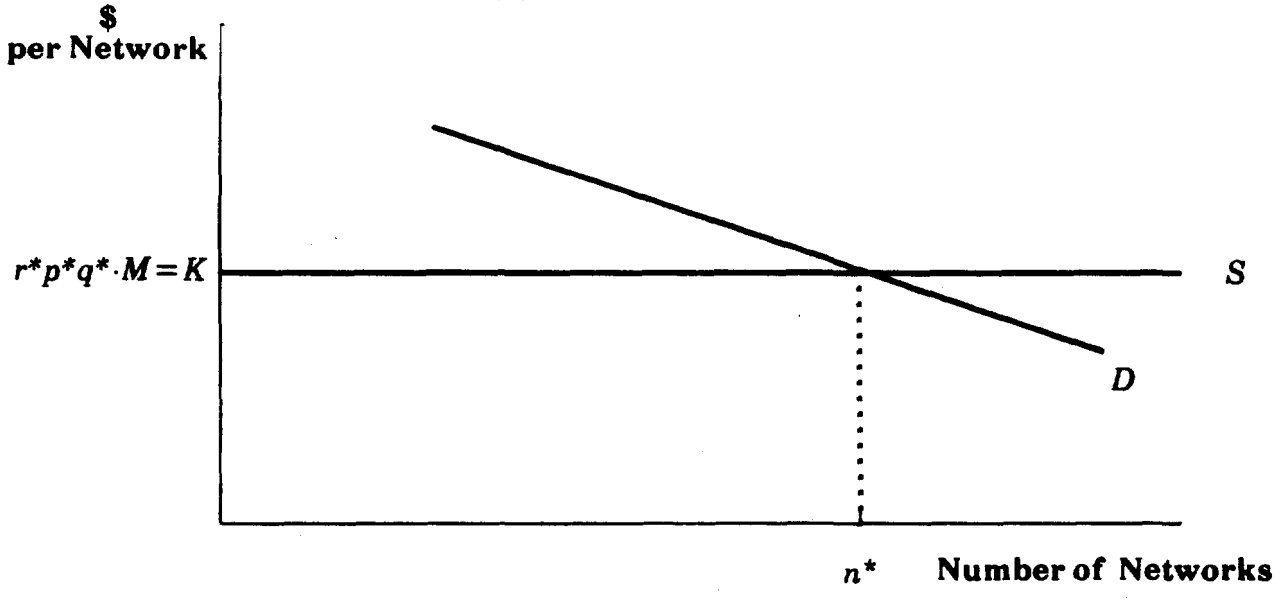
(a) Initial equilibrium: Input price taking behavior of cable systems

Figure 1(a) describes the industry equilibrium aggregated over all M markets. On the vertical axis is the sum of input payments paid to each network by all M cable systems together. The curve D is the aggregate derived demand for differentiated networks by all M cable systems, given their costs and the assumed consumer demand conditions. The better substitutes that networks are for each other, *i.e.*, the greater the extent to which aggregate subscribership is fixed, the steeper is D. The supply curve, $S = K$, is flat by assumption since new networks can be produced and distributed at constant cost. (This supply curve could slope upward as usually assumed, with only a sacrifice to simplicity of the exposition).

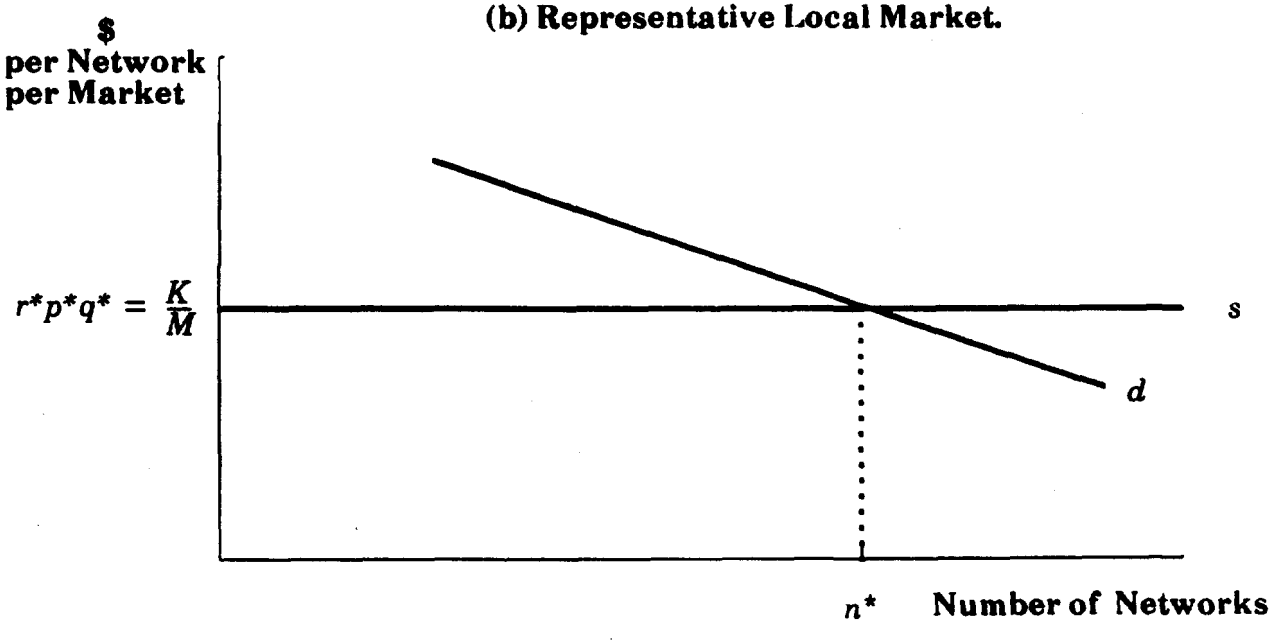
Figure 1

Initial Equilibrium: Price Input Taking Behavior by All Local Systems

(a) All Local Markets Combined.



(b) Representative Local Market.



At the aggregate supply-demand equilibrium, some number of networks, n^*, is produced by the free entry upstream industry, where the * indicates the equilibrium value. Due to the assumption of free entry in networking, we have for each network:

$$\Pi^j = r^* p^* q^* M - K = 0$$

By symmetry, all p^*s, r^*s and q^*s are the same in all M markets, so there are no subscripts needed.

Figure 1(b) shows the same equilibrium in a representative single market. The figure is identical to 1(a) except that the scale of the vertical axis is reduced by the factor M. By symmetry, each local system contributes K/M toward covering the fixed production costs of each network. Also due to symmetry, the per-market derived demand, d, is identical to D except for the vertical scale. The equilibrium number of networks available in each market is necessarily the same since a price clearing market insures that all available network inputs are purchased by each local cable system.

In this industry equilibrium, cable systems make excess profits because they are able to restrict output in terms of subscribership at the retail level by controlling retail prices. That is:

$$\Pi^i = \left|\left(1 - r^*\right) p^* - c\right| q^* n^* - Z > 0$$

for all i.

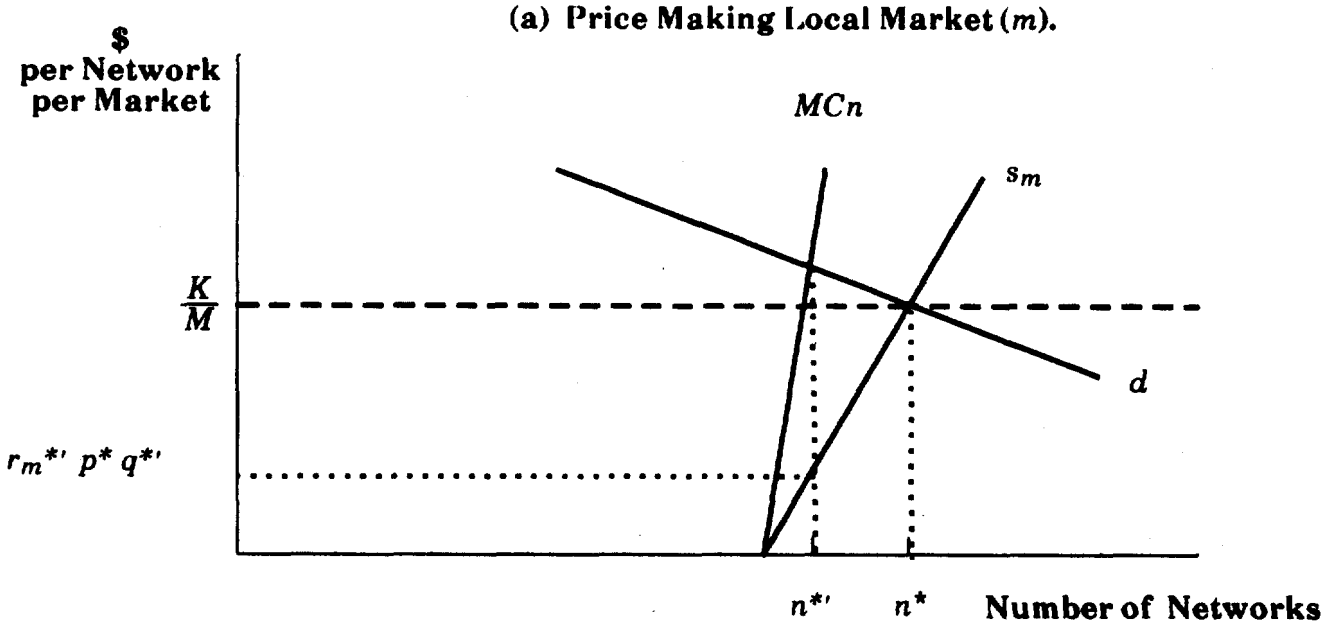
(b) Input price making behavior of cable systems

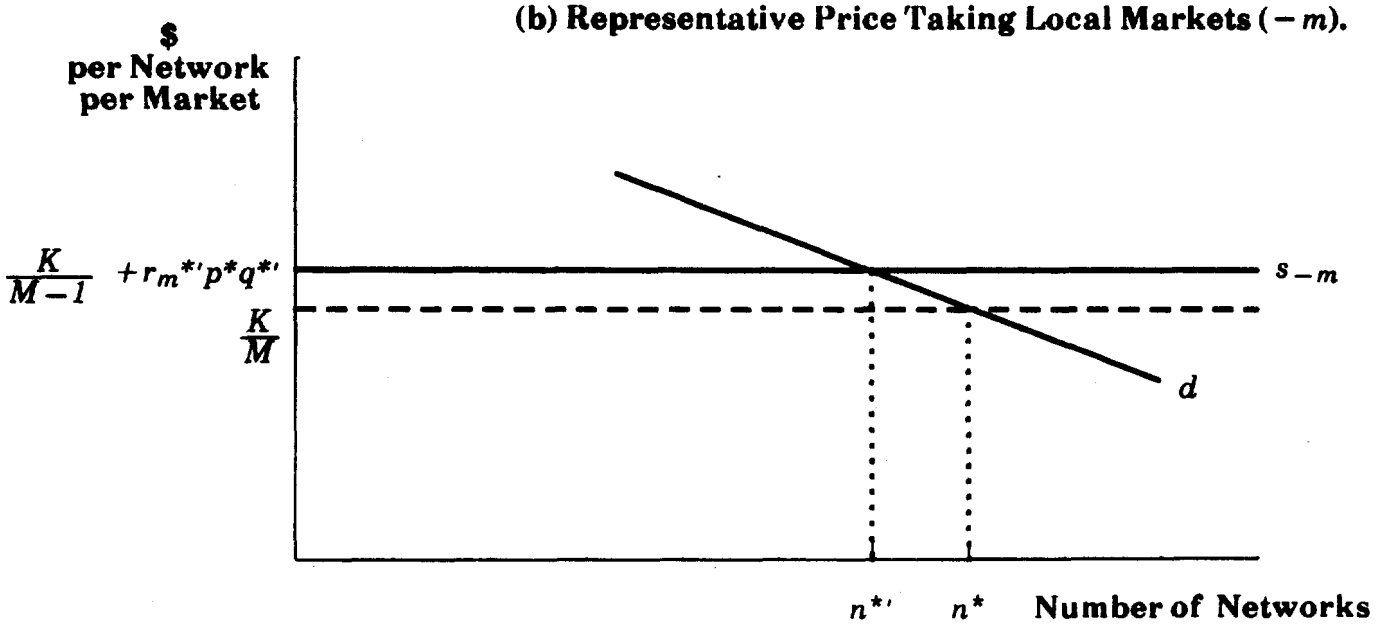
As a thought experiment, imagine that the cable system in one market, say market m, successfully challenges the price making behavior of upstream networks. The theoretical possibilities of this action are illustrated in Figures 2(a) and (b).

As an input price maker, the local system perceives a different, nearly vertical supply curve for networks, s_m. If this system behaved as a true price setting local monopsonist, that is, it could theoretically force wholesale price per network to the

Figure 2

Revised Equilibrium: Input Price Making Behavior by One System





competitive network's zero marginal distribution cost. The actual slope of s_m is $M\text{-}1$, reflecting the condition that as input prices paid by this one system are reduced, a slight negative effect on the supply of networks produced by the competitive upstream industry results. The derived demand curve, d, however, remains unchanged since we have assumed that optimal p^*s are unaffected by changes in n. Subscribership to each network, $q^{*\prime}$, slightly increases, however, as n^* falls to $n^{*\prime}$.

The new equilibrium input price per network, $r_m{}^*{}'p^*q^{*\prime}$, is determined by the intersection of d with MCn, the curve marginal to s_m which shows the incremental impact on total system outlays for networks as the number purchased increases. If the monopsony system's share of the national market is small, price theory thus predicts an input price in this local market that is very nearly zero.

This price making behavior by system m has a negative externality on all the $M\text{-}1$ other price taking cable systems because the number of networks available to them slightly falls. Figure 2(b) illustrates. While $r^*{}_{-m}$ remains constant for these $M\text{-}1$ systems, the effective input price paid per network by each system rises slightly as n^* falls to $n^{*\prime}$. The effective supply curve for these systems thus shifts up to s_{-m}.

If we now applied this thought experiment of price making behavior to all cable systems, no industry could function. Each system would myopically consider only the slight effect on n of its own price making behavior, but the cumulative negative externalities of those actions would essentially put all networks out of business.

Obviously, then, such extreme myopic price making behavior by all local cable systems is unrealistic. One assumption that must be relaxed in order to arrive at a theoretically consistent equilibrium is that of free entry in cable networking. If networks also exercise market power in the input price setting process, equilibrium price will clearly be above $r_m{}^*{}'p^*q^{*\prime}$. In fact, if distributors manage to make excess profits, average input price per network will be above K.[3]

The general question of whether local retail monopsonies have effective bargaining power with input suppliers is interesting and controversial. Bork (1978), for example, assumes that bargaining power will tend to be in the hands of the local firms, while Mathewson and Winter (1986), referring to Bork's claim, describe such a conclusion as "intuitive, popular, and wrong," but also state that a theoretical justification for their view remains an open issue. There seems to be very limited empirical evidence on this point. Extremely low prices which some countries have historically paid to U.S. distributors for rights to exhibit television programs and movies suggest that under at least some conditions, local media monopsonies can successfully exploit bargaining power (Waterman, 1982).

In any case, the point of the model thus far is that the contract curve which a local monopsonist could potentially exploit extends below the distributor's average cost per market to nearly zero. In effect, the distributor faces a "free rider" problem with respect to local market behavior. This result depends on two necessary features of the industry modelled. One is that monopsony power is localized, and the other is that economies of scale obtain in upstream distribution. If there were a single nationwide cable system, then the perceived supply curve would again be flat, at $S = K$, and we would reach exactly the same equilibrium as would the price taking, locally independent cable system industry, even if pure economies of scale still obtain. On the other hand, if there were no economies of scale upstream, and downstream firms set input price equal to marginal cost of the competitive upstream suppliers, there could be no input pricing advantage to the downstream firm other than what already

3. Since cable systems make excess profits due to control over retail prices even as input price takers, an upstream network distribution cartel could extract these profits, conceivably all of them, by increasing r above r^*. This action would not alter the number of networks produced if this network cartel used lump sum transfers to extract those excess profits. It can be shown that an industry of independently acting, price taking local cable monopolies leads to an industry profit maximizing supply of networks, and that the addition of an upstream distributor cartel would result in the same number of networks being produced.

derives from its monopoly position downstream with respect to consumers, whether local cable systems were owned independently or by one national firm.

b) Competitive Advantages of national market share accumulation.

Under what circumstances might we expect firms with market power at the local level to successfully exploit monopsony power? A very simple bilateral bargaining model shows how national market share accumulation by an MSO might accomplish this end.

We first posit that the point along the contract curve where equlibrium input price lies depends on relative "bargaining power" of the upstream and downstream firm. In turn, we assume that the bargaining power of each party is inversely related to the proportion of profits (net revenues) which are lost if a sale is not made at some given initial division of revenues, $\bar{r}$.[4] We further assume that $\bar{r}$ is at some intermediate point where both cable systems are making excess profits, and finally, that both the cable system and the MSO have full information about the other's cost and demand functions.

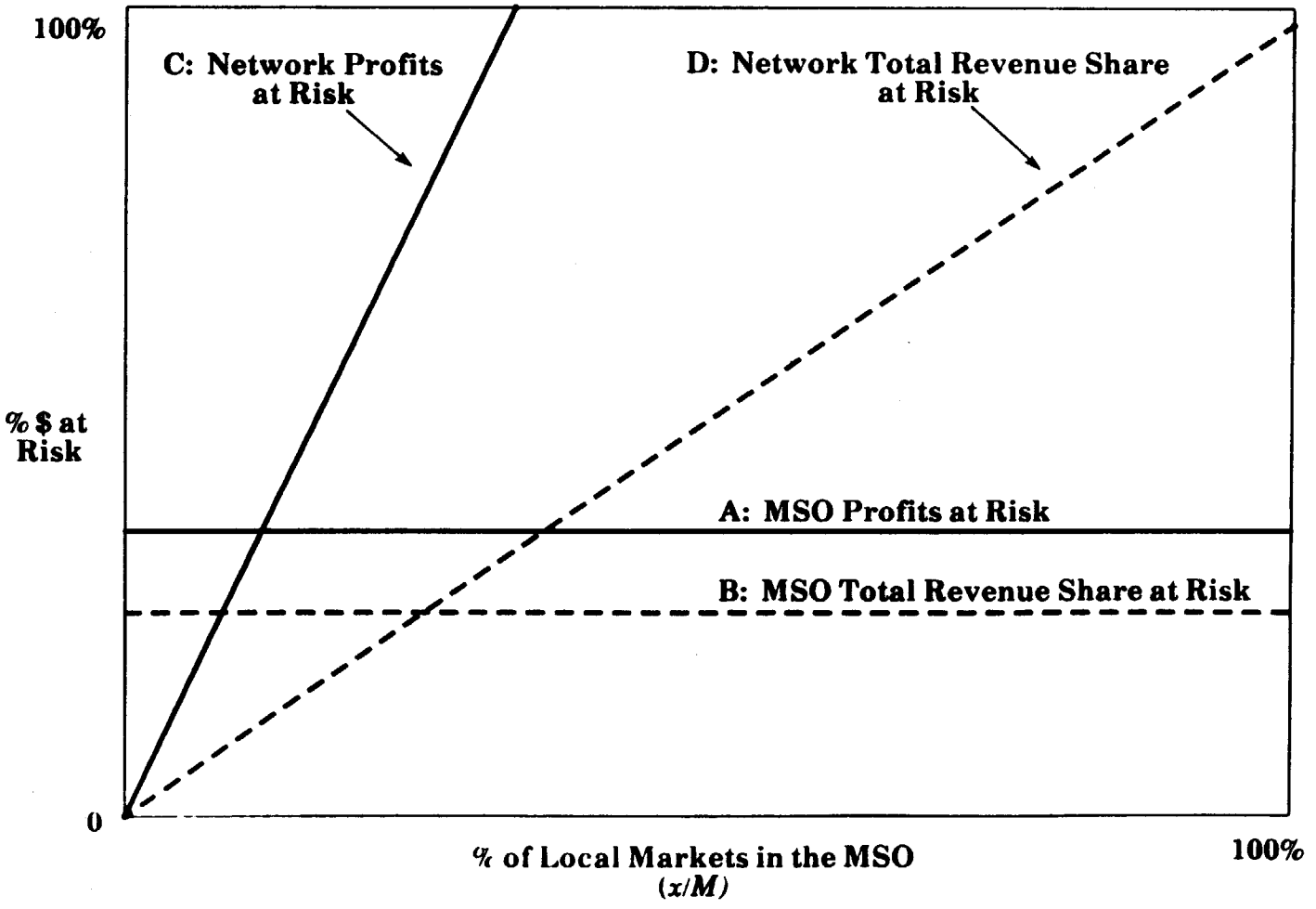
Figure 3 illustrates. The horizontal axis measures the fraction of the national market controlled by the MSO, which we indicate by x/M. The vertical axis measures the fraction of $ at risk. The straight lines show how the fraction of each party's profits at risk (and also for illustration, the fraction of each party's total revenue share at risk) changes as the MSO accumulates national market share. These fractions are defined explicitly in the notes to Figure 3.

For the MSO, profits at risk are equal to the difference in profits with and without the last network as a fraction of profits with it, given $\bar{r}$. As the solid straight line, A, indicates, MSO profits at risk do not change as its size increases since each

4. This basic assumption is derived from that of bilateral bargaining models originally developed to explain wage determination in unionised industries: that the bargaining power of one party increases with the amount the other party has to lose if no agreement is reached at a given wage level. See, for example, Marshal and Perlman, 1972.

Figure 3

Network- System Input Price Bargaining Model



Notes to Figure 3

A: MSO Profits at Risk =

$$\frac{\left[\left(1-\bar{r}\right)p^{*}-c\right]\left[q_{n}^{*}\cdot\ n-q_{n-1}^{*}\cdot\ \left(n-1\right)\right]}{\left[\left(1-\bar{r}\right)p^{*}-c\right]q_{n}^{*}\cdot\ n-Z}$$

B: MSO Total Revenue Share at Risk =

$$1-\frac{q_{n-1}^{*}\cdot\ \left(n-1\right)}{q_{n}^{*}\cdot\ n}$$

C: Network Profits at Risk =

$$\frac{\bar{r}\ p^{*}q_{n}^{*}\cdot\ n\cdot\ x}{\bar{r}\ p^{*}q_{n}^{*}\cdot\ n\cdot\ M-K}$$

D: Network Total Revenue Share at Risk =

$$\frac{x}{M}$$

where q^{*}_{n}, q^{*}_{n-1} indicate equilibrium subscribers per network when there are n^{*} and $n^{*}-1$ networks, respectively.