

Chapter 9

LOCAL DISTRIBUTION MONOPOLIES IN CABLE TELEVISION AND TELEPHONE SERVICE: THE SCOPE FOR COMPETITION

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Two important local monopoly issues exist today in telecommunications. The first is the local distribution power of telephone companies in general and of the Bell System in particular, a well-recognized object of recent vigorous if controversial government action¹ and of numerous legal and economic analyses.² The second, less widely perceived at present though potentially more serious in its consequences, is the largely unrestricted control of a cable company over dozens of television channels in the communities where it holds a franchise. The public policy analysis and the subsequent government actions to these twin problems have been active, but significantly flawed in one respect: they fail to recognize that the two monopoly issues, seemingly dealing with different industries,

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are in fact related. Once one ceases to treat the industries separately, each can be used to eliminate the other's monopoly.

This article will discuss these interrelations. Since the problem of local cable monopoly is, in the author's view, by far the more important, its analysis is undertaken in detail, together with an investigation of alternative remedial policy approaches. This discussion is then followed by an analysis of competition between what are today different communications networks, telephone and cable television.

THE PROBLEM OF LOCAL MONOPOLIES IN CABLE COMMUNICATIONS

While the rapid development of cable television has led to a wide public recognition of the communications potential of the new medium,³ a proper understanding of its impact is less widespread. Thus it is generally but mistakenly believed that the large number of viewing channels of cable television will necessarily lead to a great diversity of program sources.

This view, however, overlooks the inherent structural problems of the cable television industry and of the dual function which it affords to a cable franchise holder. Like a telephone company, a franchisee holds a natural monopoly in the local transmission of communication signals; but unlike a telephone company, it is not required to act as a common carrier⁴ and thus is not obligated to transmit the programs of other producers and syndicators. Instead, a cable operator has to a great extent control and discretion over the content of the video channels,⁵ an ability normally described as programming power. To use an analogy, it is as if one company owned the entire television spectrum in a geographic area, and could alone determine its use. In the terms of monopoly analysis, a cable operator is permitted to extend his monopoly over distribution, where it is "natural," vertically into the stage of local program supply, which is not monopolistic by nature.⁶

Such programming ability is a remarkable source of power over visual information, especially when the number of channels is large, exceeding one hundred in a number of metropolitan areas.⁷ Only a few years ago, 12 channels was the standard. Even more channels should become available in the future as cable trunk lines are added.⁸ True, a number of these channels are removed from the

cable operator's control by their "dedication" to a variety of specific purposes. For example, each television station "significantly viewed" within the franchise area of the cable system must presently be given a channel.⁹ Similarly, franchise agreements may require one or several channels for nonprofit and free "community access" and commercial "leased access," and may set aside channels for the uses of local government. But even after subtracting all of these, a cable operator of a future 150-channel system may still be left with perhaps 100 cable channels at his disposal.

The control over channel access has, by the logic of profit maximization, consequences for the sources of the programs, and is at the root of the present vertical extension of cable operations into the syndication and production of programs, where the profits of program production and syndication can be appropriated in addition to those of mere transmission. For example, the American Television and Communications Corporation (ATC), the nation's largest cable operator in 1981, is linked, through its parent company Time Inc., with both the largest program supplier, HBO, and the program service Cinemax.¹⁰ Moreover, ATC has acquired the USA Network, a sports program supplier.¹¹ Group W Cable (formerly Teleprompter), the third largest cable system, was a part owner of the movie service "Showtime,"¹² and through its parent Westinghouse¹³ produces Satellite News Channels.¹⁴ Warner Amex, another industry leader,¹⁵ owns the "Movie Channel," "Nickelodeon," and "Music TV," three widely distributed networks. Each cable system can restrict the access of program services which it does not own in favor of its own program services.¹⁶ It can also restrict the access of independent movie producers to local pay-cable distribution.¹⁷

A demonstration of the potential for preference and exclusion inherent in vertical integration between program distributors and producers was the access policy of Teleprompter toward the innovative Cable News Network (CNN). The company advised all of its cable systems not to enter into access agreements with CNN, since Westinghouse—Teleprompter's then-prospective merger partner—was planning a news network of its own.¹⁸ In the future, no CNN news may be available in Teleprompter's franchise areas.

A recent FCC Special Report,¹⁹ excellent otherwise, denies the harmful possibilities of such vertical integration, concluding instead that a cable operator would buy the programs of the cheapest sup-

plier, regardless of who it is. This analysis, however, does not take into account the economies of scale and scope for a program supplier with a large and assured market, which reduces his cost of production relative to that of his nonintegrated competitors. More importantly, the analysis is based on an implicit assumption of a perfectly elastic, i.e., horizontal, supply curve. As soon as one allows for the more realistic upwardly sloping supply curve,²⁰ in which a higher market price increases the supplied quantity, a “producer’s surplus” exists and equilibrium is reached at a price where many program producers are able to sell their product at a price higher than the minimum which they would accept. By purchasing from his own program subsidiaries, a cable operator can therefore appropriate part or all of this rent or surplus to himself.²¹ Additionally, the FCC special staff analysis implicitly equates an optimal policy with one that causes programs to be produced efficiently, even if the result may be that they are all produced by one company. Yet cost efficiency of program production cannot rank equal with the assurance of diversity of program sources as a goal for public policy. Such diversity is an important value in itself, unlike the diversity of origin of, say, the components of a GM car, for which the FCC analysis would better apply.²²

The economic logic of monopoly operation also causes the number of channels that are offered to be smaller than optimal. Because many of the viewers of one program are diverted from others, a cable operator may, beyond a point, not gain from increasing the number of available channels, while a more competitive system would still provide additional viewing options. Hence, diversity in a strictly numerical sense may also be reduced.

The consequences of such control over what may well become the primary medium of entertainment and information are serious in a society where the unimpeded flow of diverse information is held to be a fundamental requirement.²³ As the Supreme Court has observed, “[T]he widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public.”²⁴ The FCC holds it “beyond dispute that one party should not control the content of communications in the home.”²⁵

The issues raised by a local cable monopoly have been discussed before by a number of commentators.²⁶ At present, most cable companies still have a limited channel capacity,²⁷ which tends to

obscure the reach of their programming power. Even where the number of channels is large, cable companies tend to concentrate their present resources on the winning of new franchises and on the construction of cable lines, with a lesser, though growing involvement in active programming and program production, especially in pay-TV. They must also maintain a responsible image, lest their chances for additional franchises be injured elsewhere. None of these factors, however, will be long lived. In the future, when all franchises have been awarded, all wiring strung out, and all systems upgraded to a large channel capacity, the impact of this monopoly structure will become apparent through its economically inevitable consequences. Already, we are witnessing the transformation of cable television from a transmission medium into a marketing channel of services to viewers, with a major function of the hardware being to provide exclusivity of access.

IS CABLE TELEVISION MONOPOLISTIC?

The existence of monopoly conditions in cable television, important to the vertical programming power that has been described in the previous section, is often denied with the argument that competition is possible and that it can act as a check on operators. Such competition, it is argued, takes essentially two distinct forms, either that of *intramedium* rivalry among cable systems, or that of competition with related broadcast media such as commercial television and satellite broadcasting. These arguments are important and merit a closer discussion. The following section deals first with *intramedium* competition by analyzing in detail the local monopoly properties of cable television. Following that, *intermedia* competition is discussed.

The Sustainability of Intramedium Competition

A major policy approach toward cable television is to rely on *intramedium* rivalry. In New York State, for example, a recent governor's bill, based on recommendations by Kahn and Stelzer,²⁸ seeks to open each cable franchise area to additional cable companies, thereby reducing their local monopoly power. The possibil-

ity of such entry is based on the assumption that more than one cable company could successfully operate in a territory.²⁹ Such competition would not be sustainable if cable television distribution exhibits local monopoly characteristics. The question whether cable television is a natural monopoly is thus important for an evaluation of the potential for intramedium competition. If significant economies of scale exist, it is unlikely that other cable companies would enter. This statement does not negate intramedium competition completely. As Baumol³⁰ as well as Panzar and Willig³¹ have pointed out, it is still possible that multiproduct firms would be able to enter successfully.³²

Information about scale economies in cable television transmission is also important in assessing several other issues: the likelihood of future consolidation into regional or national cable systems; the economically most efficient subdivision of large cities into multiple franchise zones awarded to different companies;³³ and the price structure of cable television services.³⁴

Natural monopoly and economies of scale are closely related but not identical concepts. Baumol³⁵ defines natural monopoly as "An industry in which multifirm production is more costly than production by a monopoly (subadditivity of the cost function)," (p. 810), and establishes that for the single product firm "evidence of scale economies is always *sufficient* but not *necessary* to prove [such] subadditivity." (p. 809). Furthermore, these economies need be shown over a wide range of actual or potential outputs to reach valid conclusions. It is intuitively plausible that there are some economies of scale over some range; what is more important, however, is whether these efficiencies persist.

The nature of an empirical investigation of economies of scale will be very briefly indicated. Such analysis calls for a functional form that permits scale variations over the range of output, i.e., a so-called non-homogeneous production function, such as the a trans-log function of the form.

$$1. \ln Y = a_0 + a_1(\ln X_1) + a_2(\ln X_2) + a_3[(\ln X_1)(\ln X_2)] + a_4(\ln X_1)^2 + a_5(\ln X_2)^2.$$

where Y is output, X_1 is labor and capital inputs.³⁶

Marginal elasticities of production with respect to the inputs are then the partial derivatives. The scale elasticity E is the sum of

these elasticities with respect to each input.³⁷ E shows the percentage change in output associated with a percentage change *equal* in all inputs.

Such a measure is sufficient to establish the extent of economies or diseconomies of scale, but is inconvenient operationally. Since the inputs depend, after all, on the output, the interesting question is what E is at a given *output*, assuming cost-minimizing production, rather than what it is for a given combination of *inputs*. The change in E with output is generally different from that for E with inputs, since expansion paths do not coincide with rays from the origin in input space, unless the production function is homothetic, i.e., a monotone transform of a positive homogeneous function. Since the translog function is non-homogeneous, this identity does not occur. To find $E(Y)$ is useful since it also describes the elasticity of the average cost function, E_{AC} , with respect to output.³⁸ By Shephard's Duality Theorem, the minimum cost function $C(Y, P_i)$ is derived from a regular production function $U(X_i)$. The average cost curve AC is U-shaped (i.e., has a unique minimum) with respect to Y if $d(AC)/dY = 0$ for a $Y > 0$, and with the second order conditions fulfilled; this implies that the cost elasticity with respect to output

$$2. E_{AC} = \frac{d(AC)}{dY} \cdot \frac{Y}{C} = 0.$$

It can be shown³⁹ that the bottom of the U-shaped average cost curve lies where $E = 1$.⁴⁰ It can also be shown that, holding prices constant, for n inputs the general solution for the "elasticity of economies of scale" with respect to output Y is

$$3. \frac{dE}{dY} = \frac{(1 - E)}{Y} - \frac{E|H_n|}{|B_n|} - 1$$

where $|B_n|$ is the Hessian matrix $|H_n|$ of order n bordered by the marginal products. The cost-minimizing input combinations for a given Y , i.e., the expansion path, are found by minimizing cost subject to the production function constraint. $E(Y)$ is cumbersome, but its computational calculation is readily possible.

For an empirical estimation of the equations established above we can rely on an unusually good body of data.⁴¹ Operational information exists for several thousands of cable operations, all producing

essentially the same service,⁴² operating and accounting in a single-plant mode, supplying their local market only, and reporting financial data according to the fairly detailed categories of a mandatory federal form.^{43,44}

The data cover virtually all 4,200 U.S. cable systems, and are composed of four disparate and extensive files: for technical and programming,⁴⁵ financial,⁴⁶ local community,⁴⁷ and employment⁴⁸ information. The financial data include both balance-sheet and profit-and-loss type information.⁴⁹ Data refer to the year 1980.

Capital is defined as the flow of annual capital services. Its derivation is given in Appendix B. Three alternative measures for output are employed: "Subscribers Served,"⁵⁰ "Homes Passed," and "Total Operating Revenue." Input prices P_i are assumed constant over the range of production, and are calculated by dividing expenditures on each factor by its quantity.

The production function was estimated by using ordinary least squares over the translog function of equation (1). The results are given in detail in Appendix A, Table 1. Table 2 lists summary results for the scale elasticity E over the range of outputs. These elasticities are, as can be seen, nearly always greater than one, and rising in size.

For large-sized operations (more than 100,000 subscribers), they are in the range of 1.2, a result that is similar to most of those found for telephone services.⁵¹

A similar result is found for "Homes Passed," showing a decreasing rate of change in inputs with the growth of the distribution network.

These results show that the average cost curve is not U-shaped but, beyond a small scale, decreasing with output. Average costs are continuously falling and marginal costs are consistently below average costs in the observed range. These are the economic symptoms of a natural monopoly situation.

The implications of these results are that large cable operations have cost advantages over smaller ones, and that these advantages increase with the disparity in size.

The existence of economies of scale throughout the relevant range of output meets Baumol's sufficiency criterion for a natural monopoly for the single-product firm. It is still possible that a multiproduct firm (in this case, telephone companies) could enter successfully,

and thus this situation will be discussed in detail below. But as against other "pure" cable companies the economies of scale characteristics are operative.⁵²

Intermedia Competition

The second potential form of competition with cable television is a rivalry with other video media. Because cable television is only one of several forms of telecommunications, its programming power may be limited by the need to cater to viewers' preferences to avoid losing them to another video medium. If indeed such competition exists, a cable company would have to supply the most attractive programs, from whatever sources, in order to secure viewers as subscribers, pay-channel watchers, and advertising audience.

Cable's competitors include conventional over-the-air broadcasters, as well as newer forms of communications such as Direct Broadcasting Satellite (DBS), Satellite Master Antenna Television (SMATV), and Multipoint Distribution System (MDS).⁵³ MDS is a microwave technology presently used largely to provide television programs to hotel guests and closed circuit audiences, but it is also available for direct-to-home service.⁵⁴ Other potential competitors, somewhat more removed, are recordings such as video cassettes and video discs; still further removed are movie theaters and other forms of entertainment.

On its face, the intermedia competitive argument seems powerful. However, a closer look at each of these ostensible competitors reveals that cable's significant technological and economic advantages will probably make it the dominant medium of the future, barring unforeseen technological or regulatory developments.

Direct Broadcast Satellite (DBS), presently in the planning stage but close to realization,⁵⁵ has in particular been touted as the major form of the future because it offers new viewing opportunities without requiring the expense of laying cable.⁵⁶ Moreover, DBS has a science fiction-like allure, particularly in comparison to the down-to-earth technology of cable television. However, the development of DBS will be hampered by inherent economic and technical constraints.

In its pure form, DBS permits subscribers to tune into programs that are beamed from stationary satellites.⁵⁷ To do so, DBS requires an antenna which is not inexpensive and which may not permit convenient reception of more than a few satellites. There are also limitations on the number of satellite broadcast channels because of the scarcity of allocated broadcast spectrum,⁵⁸ aggravated by the wide reach of the signals and by the sky's overcrowding with satellites.⁵⁹ The presently anticipated number of DBS channels (or "transponders"), according to a recent FCC staff study, is on the order of four to ten,⁶⁰ depending on which of certain assumptions are made. Even if that estimate is conservative, the potential number of DBS channels is relatively small in comparison to that of cable channels.

Another relatively new medium that has been heralded as a potential competitor to cable is multipoint distribution system (MDS).⁶¹ MDS is similar to traditional television broadcasting, except that it uses microwave frequencies. Its main use has been for pay television, and it is in this area that it is believed to create a viable alternative to cable. Yet, given MDS's limitations, this is highly unlikely. It requires special microwave receiving equipment and also, for pay television, an unscrambler. It is currently restricted by the limitation of spectrum to a maximum of two channels,⁶² and it is questionable whether even two channels could coexist without mutual interference.⁶³ No non-experimental television market has more than one MDS channel.⁶⁴ As with DBS, it seems unlikely that a large number of customers would go to the trouble and expense of installing microwave reception equipment to obtain a relatively small number of additional broadcast channels when cable at a comparable price, or better, can do much more.

Traditional television broadcasting is probably a more formidable competitor of cable than either DBS or MDS is, because it is well established organizationally, economically, and politically, has access to almost every American home, and is free of charge.⁶⁵ But it, too, suffers from the limitations of spectrum that, in connection with the FCC's policy favoring localism in broadcasting, holds most cities to a mere handful of VHF and UHF stations.⁶⁶ Also, in many areas of the country the reception of broadcast signals is generally poor in quality. After all, it was precisely in order to alleviate these limitations of traditional broadcasting that cable television and distant signal importation were developed.⁶⁷

Even more important, however, are other aspects of cable technology which should establish its dominance over other video forms. In addition to cable's large number of channels, other inherent advantages include its two-way capability, its ability to impose a per-view fee structure, and its potential to "narrowcast."

Two-way capability means that a viewer has the ability to return signals "upstream" to the cable system, either automatically or from some form of terminal attachment. Much of the use of this technology, of which Warner Amex's Qube application is the best known,⁶⁸ is at present experimental or introductory. Within a fairly short time, however, two-way cable should become a mainstay of home communications. On the program distribution level, a two-way system makes per-program billing for television viewing feasible, in the same way that telephone companies charge for toll calls. In its commercial potential, two-way communications is a marketer's delight, since consumers can respond to advertising messages instantaneously by pushing buttons to make an order and to transfer funds in payment. Additionally, consumers will be able to request visual information on merchandise, order, and pay, all while sitting at home in front of their television sets. Cable's two-way capability also makes possible services that should be as useful to consumers as they are potentially profitable to suppliers: alarm systems, meter reading, electronic banking, videotex and data information, classified ads, and more.⁶⁹ Consumers would therefore benefit from two-way cable as a communications medium quite apart from its entertainment content, and commercial users would in effect subsidize such access to consumers by their access payments to the cable operator. Hence, it is to the latter's economic advantage to connect to a large number of households, and this provides an incentive to charge fairly low basic rates, or even a zero charge,⁷⁰ just as over-the-air broadcasting is free in order to induce its consumption as a vehicle of advertising services.

The price advantages of "free" broadcasting over cable may therefore largely disappear, and nearly every household is likely to have a cable television connection. With cable reaching most households, conventional broadcasting would be reduced to a supplementary role, simply providing a handful of channels independent of the cable operator, carried on cable or off it, and reaching rural areas where the laying of cable is uneconomical. Once connected to ca-

ble, a viewer would not have a great incentive to invest in a special DBS or MDS antenna in order to receive a few additional programs.

A second advantage that cable affords over traditional television is that it permits the operator to impose a charge for the viewing of specific programs. The possibility of such per-program pay-cable revolutionizes the program offering on cable because it permits programs and services with much higher production budgets. In regular broadcasting, the program's cost does not usually exceed its value as a vehicle to advertisers. This value, even when increased by the revenues from subsequent reruns and syndications, is usually far below its value to viewers.⁷¹ In economic terminology, viewers benefit from a significant consumer's surplus, i.e., they get a program for free (or, more accurately, for the value of their time in which they subject themselves to advertising messages) where they would have been willing to pay something. The sums that people are willing to pay for programs is astonishing. In Columbus, Ohio, where the two-way cable system makes sophisticated billing possible, pay-cable "junkies" are reported to pay more than \$150 a month for their viewing.⁷²

The other side of the coin of free television is that certain types of programs are unavailable because advertising does not generate sufficient revenue to have them produced or aired. This is the reason why big-budget movies are not shown on television until some time after their release. Similarly, important boxing matches have to be shown on free television after a delay of several days or weeks since the technology of live closed-circuit television has made special screening to paying audiences available.⁷³ With cable, however, such programs could become available on pay-television to a nationwide audience. Indeed, one can expect the most desirable programs, i.e., those whose consumer surplus is highest, to be largely siphoned from free television and moved to pay-television.⁷⁴ The jewels of broadcasting, such as the Olympic Games, the World Series, and the Academy Awards Ceremonies, could cease to be shown for free; this development would widen the gap between the quality of broadcast programs and that of cable programs.⁷⁵

Although pay-television is not strictly confined to cable, as a result of cable's technical advantages, other medias' versions of pay-television are unlikely to be viable competitors. Over-the-air broadcasting has developed "Subscription Television" (STV), permitting

the transmission of scrambled signals, which subscribers unscramble with a rented device. Because STV requires a regular broadcast channel, it is faced with the usual problem of VHF spectrum limitations, or relegation to the less desirable UHF band. Since a new STV station would mean a reduction in the number of "free" stations, STV encountered vociferous opposition when it was first proposed, resulting in a successful California constitutional referendum⁷⁶ (subsequently set aside by the courts)⁷⁷ and in FCC rules restricting STV.⁷⁸ However, this early fear of STV envisioned a more vigorous medium.⁷⁹ Today, 20 years after the commencement of a large-scale STV experiment in Hartford, there are only 26 STV stations on the air, all of them on the UHF band,⁸⁰ and their long-run survival is uncertain. At the same time, pay-cable is booming, with millions of subscribers⁸¹ and by now dozens of national pay-television services.⁸² In all likelihood, STV's significance is transitional rather than permanent, even if its viewers stay with STV for a while after the cabling of an area. It can serve as an outlet for pay-TV programs where cable has not been franchised or laid.

Alternative forms of pay-television involve the use of the DBS satellite technology or the MDS microwave transmission, and require subscribers to rent a special receiver and/or unscrambler. But should basic cable service be available free of charge, cable would enter nearly every home, and the viewing of its pay channels would flow naturally from their immediate availability, thus giving cable a great competitive edge over these alternatives. STV, DBS, and MDS would have to persuade consumers that the many cable channels ought to be supplemented, for a fee, by the few additional programs it could supply. The alternative forms of pay-television are further handicapped in competing with cable because they lack the two-way technology that enables cable operators to impose a practical per-program billing. This type of pricing, which is much more sophisticated than the monthly per-channel flat charge for STV, DBS, and MDS, permits cable operators to offer a more varied program.⁸³

Another advantage of cable is its ability to segment the viewer market by "narrowcasting." A conventional commercial broadcaster, controlling only one channel, tries to maximize his audience and therefore aims at the mass of viewership by "common denominator" programming. Even when several television stations ex-

ist, they are likely to compete for this broad center of viewers. In contrast, where one operator controls several program channels, he is likely to prefer a differentiated program mix as more profitable. For instance, instead of showing several simultaneous football games, a common occurrence in competitive broadcasting today, a cable operator could show, at a given hour, one football game, one documentary, and one adventure movie, thereby usually increasing total viewing audience, pay-cable revenue, and probably viewer satisfaction. He is also able—with per-view charging—to command different prices for different programs according to the price sensitivity of alternative viewer groups. A cable operator would be motivated to satisfy the tastes of groups with special viewing interests even if those groups were small in size, as long as their willingness to pay were sufficiently large.⁸⁴ Pay-cable thus permits an escape—within a profit-maximizing incentive system—from the body-count orientation of conventional broadcasting, whose product is not programs but consumer audiences for advertisers.

In summary, cable's unique technical features—its facilitation of narrowcasting, per-program charging, and price differentiation among different audiences, coupled with the fairly large number of channels and their close association and economies of scope with supplementary communications services—provide it with a solid economic foundation unmatched by any of the broadcast media.⁸⁵ Cable television is thus superior to broadcasting—in its conventional, satellite, and microwave varieties—in terms of technology, commercial potential, and viewer satisfaction, without being unreasonably expensive to install and provide.⁸⁶ Broadcasting may still be left with a major role in areas with a low population density; it can also provide supplementary programming elsewhere, thereby restraining cable's pricing power.⁸⁷ But it is hard to see how commercial television broadcasting could remain the dominant medium that it is today.

Similarly, the potential competition with cable television that is afforded by recording technologies such as video discs and cassettes is also not very significant. The ready availability of movie cassettes, which have existed for many years, has not noticeably reduced television viewing. Even if video discs, the new technology, become significantly cheaper, they are not likely to match the daily variety, per consumer dollar spent, of pay-cable. Video cassettes,

recorded off a viewer's television set, may actually increase cable viewing, since the latter's high quality picture and its special pay-cable programs would be more attractive than broadcast programs to those assembling personal video libraries. At some point, of course, such a well-stocked personal collection may reduce live cable television viewing, though an analogy to the book-buying habits of those with large book collections suggests that this is unlikely to happen.⁸⁸

THE REGULATION OF LOCAL CABLE DISTRIBUTION

If, as has been argued, neither intra- nor intermedium competition is likely to affect significantly the local distribution monopoly of cable television with its associated program control, what should be the proper direction of public policy? The following sections will deal with alternative proposals of cable regulation, ranging from the imposition of a common carrier status to public ownership and program regulation.

Common Carrier Status

The conceptually most clear-cut way to respond to a local monopoly in cable programming is to separate a cable company's distribution role from its programming function. Under such a "separations policy," cable system operators would act solely as conduits for the programs of others without control over the nature or content of programs. For a fee they would have to offer non-discriminatory "access" to all comers. The function of cable operators would then become similar to that of telegraph or telephone systems, i.e., that of a common carrier.

Such separations policy⁸⁹ has been advocated by groups as diverse as the American Civil Liberties Union⁹⁰ and the Nixon White House. The latter led, after the 1974 Report of the White House Office of Telecommunications⁹¹ (the Whitehead Report), to a 1974 draft bill requiring one for-lease channel for each channel controlled by a cable operator. One year later, this proposed requirement was reduced to one channel of leased access for every three that were operator-controlled. Neither of the bills passed.

At present, cable television is not treated as a common carrier.⁹² In 1970, the FCC briefly toyed with, but again rejected, the common carrier concept when it requested comment on a proposal that the larger cable systems provide at least 50 percent of their channels for a variety of uses "at reasonable and nondiscriminating rates."⁹³ In its 1972 rules,⁹⁴ the FCC rejected a separations policy, and this decision was upheld as a "rational choice" by the 9th Circuit, against a challenge by the ACLU.⁹⁵ In 1976, the FCC instituted rules for a mandatory leased-channel access on at least one channel,⁹⁶ but they were struck down. The 8th Circuit noted that "the attempt to bludgeon cable systems into becoming common carriers is an exercise specifically forbidden the Commission within its delegated powers."⁹⁷

A common carrier status for cable, advocated by many access-oriented public interest groups as well as by independent program suppliers,⁹⁸ as a conceptually neat solution, would create new problems. Foremost among them would be the necessity for a regulation of the rates charged to program suppliers for access to a channel.⁹⁹ This regulation of *access* rates should be distinguished from that of subscriber charges, although the two rates are somewhat related, because the higher the charges to consumers, the lower access rates may become. As an unregulated common carrier facing a large demand for channel time, an unconstrained cable operator could act as a classic monopolist, i.e., able and willing to restrict the supply of channels between customers. Many advocates of a common carrier status overlook the need for rate regulation. Yet one must realize that the abolition of a vertical extension of monopoly deals only with a *symptom* of power, and does not eliminate the power itself; the latter will, if otherwise unconstrained, find expression in other monopolistic behavior,¹⁰⁰ such as higher prices, smaller offerings of channels, or price discrimination.¹⁰¹ The situation is that of a classic monopoly, like those which led to the regulation of the rates of utilities and of rail transportation.

The emergence of rate regulation would create major new problems.¹⁰² Historically, rate regulation is easiest to administer where the product can be clearly defined and quantified and where the industry is relatively stable; the provision of water or electricity is a good example. Rate regulation is much more difficult when it deals

with complex and variable mixtures of services¹⁰³ or where the regulated industry is extremely dynamic in its development, as is the case with cable television.¹⁰⁴ Institutionally, rate regulation encourages predictability, and its reconciliation with risk taking in technological development and innovation may not be easy to achieve. Administratively, rate regulation is patterned on considerations of rate base, rate of return, and allowable expenses, a highly complex accounting scheme not to be lightly extended into another sector of the economy.¹⁰⁵ Where advanced technology is involved, it is difficult for a regulating agency to evaluate the reasonableness of many expenses. As a consequence, the regulation of profits is emphasized, leaving a company relatively free from constraints on capital and operating costs, which it can largely pass on to users when demand is inelastic.

If a cable operator had common carrier status, its vertical transactions with an affiliated program producer or syndicator would also have to be regulated. The regulation of the Bell System, for example, has in the past included governmental controls of the regulation of its operating companies with Western Electric.¹⁰⁶ Underlying these rules is the concern that the common carrier's preferential treatment of the high priced but related company enables the latter to compete unfairly, and permits the shifting of profits from the regulated to the unregulated part of its business. Such preferences could also be granted, directly or indirectly, in the allocation of cable access. Hence, cable operators would have to remain independent from the large number of firms and individuals with an interest in the production and distribution of programs.¹⁰⁷ Alternatively, the terms of the vertical transactions must be carefully regulated. Again, the results would be an extensive set of rules, involving thousands of cable systems.

At the same time, rate regulation gives governments the potential to influence programming content. With a century of regulation as a guide, one can confidently expect that rate setting will inevitably be used by regulators in an attempt to promote some types of programs over others. For example, in order to encourage the showing of programs that are socially desirable from the regulator's perspective, lower rates for their access may be instituted. Cross-subsidies are common in other areas of regulation, and it would be surprising if

they did not also evolve quickly in the rate regulation of cable. The special concern with their existence in cable television is that they involve the subsidization of certain contents of speech, in preference to others, by governmental action; it is a public policy of questionable wisdom and practicality, given the multitude of worthy causes that will emerge with some legitimate claim.

Common carrier status for cable would engender other problems as well. For example, it is possible that under a first-come, non-discriminatory system of access, one or several national cable networks could gain substantial market power, at least where the number of channels is small, simply by presenting themselves early.¹⁰⁸ This, by itself, would not necessarily be a negative development, but it is conceivable that powerful cable networks would prevent the subsequent expansion of cable's channel capacity in order to create barriers to the entry of rival cable networks.¹⁰⁹ An example of the potential for pre-emption was the 1976 attempt by the Optical Systems Corporation, a pay-TV operator, to forcibly open cable to its business. The company sent letters to over 500 cable systems in which it cited the then-effective FCC rules concerning leased access and in effect demanded access to all of these systems.¹¹⁰

Another argument against a separations policy, voiced primarily by cable companies, is that it takes a great deal of capital investment to construct a cable system, and that the extra profits generated by the programming activity of the operator help to defray the cost of construction and improvement. Therefore, without these profits, marginal areas would not be wired for cable reception and some entrepreneurial risks would not be undertaken.¹¹¹ In addition, venture capital may not be attracted when the investment is not coupled with control over the programming. Presumably, some programs may have negative effects on the attractiveness of the distribution system itself, and control over their access should therefore be among the economic prerogatives of investors.

Cable companies are extremely concerned about the prospect of common carrier classification, which may deny them the desired status of "video publishers."¹¹² Thus they have consciously refrained from offering some services that might invite the dreaded common carrier status.¹¹³ In one instance, a New York City cable company successfully offered banks cable transmission of data, but modified

its service when the New York State Public Service Commission started to consider whether this was a common carrier service subject to tariff.¹¹⁴

Even if all of these problems are disregarded, there remains the question of how effectively the goal of diversity would be promoted under a common carrier system.¹¹⁵ This question has no obvious answer. In all probability, a greater diversity of programming *sources* could be expected. However, this does not necessarily mean that a common carrier form of cable would lead to a larger diversity of program *types* than under a vertically integrated monopolistic arrangement. Where there is only one monopolistic programmer, program selections would be made to maximize total audience (or, in the case of pay-TV programs, to maximize revenue received from audiences).¹¹⁶ Under such a system, as some economists have argued in the different context of broadcasting,¹¹⁷ relatively narrow segments of the potential viewing population may receive programs designed to interest them, in contrast with competitive television. For example, if there are already three situation comedy channels operating, it may be rational to provide a channel for, say, stamp collectors instead of offering a fourth comedy. The latter would not add many new viewers to the total television audience, and instead would only divert viewers from the existing comedies. But with competition for that audience among rival program suppliers, the fourth comedy would in all likelihood be shown, by the same economic logic that leads to the present common-denominator programming of the television networks.¹¹⁸ For this reason, these economists feel that a monopolistic structure in programming enhances program diversity; by implication, a cable programming monopoly may actually be desirable.¹¹⁹ Other analysts disagree,¹²⁰ arguing that the opposite result is just as likely, primarily because a monopolist need not satisfy a viewer's first choice in program types if that viewer would also watch lower choice program types. With competing programmers, however, minority preferences would be addressed more often, since no competitor would consider diversion of viewers from other programs a cost to him.

In summary, a common carrier policy would be effective in separating program distribution from program selection. It would also increase the diversity of program sources and probably that of program types. However, it would also necessitate fairly complex rate

regulation, and could lead to governmental involvement in program selection.¹²¹

Public Ownership

A second way to deal with the local monopoly of cable operators would be to substitute public for private ownership. Under such a policy, the physical cable system would be owned by a local or state authority.¹²² The necessary investment capital could be raised by revenue bonds backed by the credit of a local government. Actual technical operation might be subcontracted to private operators, including cable companies. Public ownership, it should be noted, does not by itself assure common carrier access to program suppliers, since the local authority may still act as a selector of programs. While this selection could be subcontracted to a private company under some policy guidelines imposed by the municipality, a more likely course would be to vest programming decisions in an independent board of public representatives. However, because of the reluctance to give a governmental body—however independent it may be—powers over program selection, proposals for public ownership are often coupled with a common carrier proposal. Public ownership exists at present for 36 cable systems, but only two of these—in San Bruno, California, and Frankfort, Kentucky—have more than 5,000 subscribers.¹²³ Recently, St. Paul, Minnesota attempted to adopt a publicly owned system¹²⁴ but the proposal was defeated in a subsequent referendum. Several other cities, including Chicago, Washington, Cambridge, and Philadelphia, are considering the public ownership option with varying degrees of seriousness.¹²⁵

Among the attractions of public ownership, aside from local control and the potential diversity of programming sources, is its potential as a revenue source. There is a widespread perception, fueled by private companies' efforts to obtain franchises, that a cable operation can be extremely profitable.¹²⁶ But under current law, local governments are precluded from imposing franchise fees at a rate above 5 percent of revenues.¹²⁷ Hence, public ownership can be a way to increase revenues from the riches of cable TV,¹²⁸ either by a direct city operation or by its lease to a private operator.

The most obvious problem with public ownership is government's frequent inefficiency in operating a business. Cable television is a

complex and rapidly changing technology. It is not easy to develop, run, or adapt. New developments occur practically daily. As an industry, it seems to be far better suited for the special skills of private managers and risk-taking investors rather than those of local civil servants. When the technology has matured, operation by a public entity may become practical, but that day is far off.

A second problem with public ownership is the potential politicization of programming and access allocation.¹²⁹ Political struggles may accompany every controversial program and the programming decisions by a city authority and may create First Amendment problems.¹³⁰

There are also some technical obstacles to public ownership of cable. Among them is the requirement in a number of states for municipally owned public utilities to charge a rate only as high as is necessary to cover operating expenses.¹³¹ Other states prohibit cities from granting exclusive leases of their property to private persons, as would be the case if a city leased cable facilities to a private operator.¹³² There are also legal restrictions on some towns' ability to issue bonds for the construction of a cable system.¹³³

The main argument in favor of a publicly owned cable system is that it could assure a diversity of access. But this goal may also be achieved by different policies, without the problems associated with governmental responsibility for programming and operational control over a complex technological system.

Programming Regulation

In contrast with a separations policy and public ownership, which are both *structural* approaches to the cable monopoly problem,¹³⁴ an alternative policy would be the regulation of *programming conduct*.¹³⁵ Under such an approach, the diversity of programming sources would be maintained by government regulations, in the form of general rules and/or specific conditions in franchise agreements.¹³⁶ To the extent that a governmental policy on diversity can be detected at all today, this is the direction taken.

For an evaluation of programming regulations, the practical problems of governmental interference in program choice must be considered. It is relatively easy to mandate the carrying of already existing broadcast stations. But when it comes to the allocation of

the remaining channels among the multitude of potential program suppliers, governmental guidelines may be either oppressive in their interference or meaningless in their generality.¹³⁷ Perhaps the most logical way to proceed would be to institute rules restricting the percentage or the number of channels that may be filled with the programs of companies affiliated with the cable operator. While such a system would open the remaining channels to outside suppliers, their selection would raise the same questions previously considered.¹³⁸ Either the cable operator could exercise monopoly power in the granting of and charging for access, or rate regulation would become necessary. An alternative form of regulation would be to mandate a certain program mix, for example by requiring foreign language channels for minorities. Yet this would place a governmental body squarely in a programming role and, furthermore, would leave unsolved the problem of diversification of program sources.

One existing diversity regulation is the FCC requirement, often also incorporated into franchise agreements, that cable operators carry all existing over-the-air television stations in the area of cable operation.¹³⁹ The purpose of this provision has been to protect broadcasters who were fearful of being excluded from distribution by cable, by providing them with assured and free access to every cable subscriber in their broadcast area.¹⁴⁰ However, the future of this access should not be taken for granted. In the early days of cable, providing any program to subscribers was a boon to cable operators, and the easiest way to do so was to carry the regular television stations. However, with the growing availability of programs for which subscribers will pay, the free ride of broadcasters will become a burden to cable companies. Particularly in the case of many UHF stations which have been elevated from obscurity to an equal spot on the cable dial, the free access is at the expense of cable companies. The latter's profits are reduced because they cannot fill the channels with profit-making programs and because their potential viewers are diverted. Hence, cable operators challenge this "must-carry" rule and other program provisions as violations of cable companies' First Amendment rights.¹⁴¹

The FCC, as part of its recent deregulatory attitude, is also taking a hard look at the "must-carry" rule. Thus, one commissioner has already predicted the elimination of the requirement.¹⁴²

Another present diversity regulation is the frequent local or state requirement to provide channels for the public access of any not-for-profit user and for commercial "leased access."¹⁴³ Such access rules were also required under the FCC rules until they were struck down in *Midwest Video II*¹⁴⁴ as beyond the agency's mandate. The idea behind public access is to exploit the local distribution characteristics of cable by making it an outlet for local creativity and opinion, a form of "electronic soap box." But while some innovative alternative programming is generated by these public access channels, their present not-for-profit format, coupled with a lack of governmental financial support, does not permit sustained high quality programs that draw significant audiences.¹⁴⁵ Thus, when the profitability of channel use by the cable operator increases, the number of public access channels may be curtailed.

Neither has leased access been successful. The use of such access has not been granted liberally by cable operators, since the programs may be in direct competition with the operators'. In addition, operators are concerned with liability for pornographic or libelous content over which they have no control,¹⁴⁶ as well as with the negative effect on their reputation of inferior programs. As reported in the trade press, they are also concerned with antitrust problems if they cannot grant access to all comers:

[If] a cable operator denies a potential leasee [sic] access to its system, the operator could be sued on antitrust grounds, leading to the possibility that cable could be labelled as a common carrier. As a result, many attorneys caution their cable clients to proceed carefully when leasing channels.¹⁴⁷

Discouragement of leased access may take place, for example, by lack of promotion, unavailability of posted rates, and the setting of large minimum blocks of time that must be leased.

The cable industry is also challenging the legality of local franchise requirements for leased and public access both as an impermissible restriction of cable operators' rights of free speech in order to enhance those of another,¹⁴⁸ and as a requirement that they waive constitutional rights in order to obtain a public benefit.¹⁴⁹

Another form of diversity regulation is negative in nature, i.e., it prohibits certain uses of channels. Foremost among those have been

the restrictions on the importation of distant signals and on pay-cable.¹⁵⁰ These, instituted to protect local broadcasters and movie theaters who opposed sharing their audience with “imported” stations and pay programs, were recently abolished by a deregulation-minded FCC.¹⁵¹

A potential technique of diversity regulation is the general threat of nonrenewal or loss of franchise unless certain expectations as to programming conduct are met. This resembles the FCC’s implicit threats not to renew broadcasting licenses, thereby inducing broadcasters to include or exclude certain types of programs. Given the realities of local politics, however, such a weapon is a two-edged sword. It is in the public interest to have communications media that need not quake before government officials. If frequent non-renewals of franchises were to occur, the result might be self-censorship and extreme caution in programming, thus perpetuating the present climate of franchise battles in which cable companies have to cater to local politicians, and where political and financial deals are often alleged to take place.¹⁵²

One issue that must be considered in the regulation of cable television is which level of government ought to have the regulatory authority.¹⁵³ The federal authority, exercised by the FCC, is derived from its regulatory function over broadcasting and has been upheld in a number of judicial decisions.¹⁵⁴ However, the last few years have seen an increasing federal disengagement from cable regulation, as evidenced by the FCC’s abolition of regulations on distant signal importation, program exclusivity, and pay-cable.¹⁵⁵ The major remaining federal program regulation is the requirement that local sports events be blacked out whenever a local broadcaster is obliged to do so,¹⁵⁶ typically if the event itself has not been sold out. Federal disengagement from program regulation is consistent with the general present attitude of the FCC. Clearly, detailed controls over thousands of cable systems would also be a major administrative burden for which a centralized federal agency might not be well equipped. While a federal policy agency usually means a nationwide uniformity, the need or desirability for such uniformity is not obvious.

Because cable is franchised largely on a local basis, local governments have become a logical locus of regulation, both by setting conditions in their franchise contracts and by the continued supervi-

sion of the contract's fulfillment. Yet local governments are usually woefully equipped for the task.¹⁵⁷ Even a city the size of New York affords a regulatory body, its Office of Telecommunications, with a professional staff of only one person.¹⁵⁸ Quite clearly, effective regulatory supervision in the complex area of cable television exhibits efficiency of scale, and the small size of most localities makes an informed and rational local regulatory process frequently unattainable.

Overall, while some regulatory role may remain with both federal and local levels of government, the state level of government may be the best locus of cable regulation as a compromise between the proximity of local government and the expertise of a federal agency.¹⁵⁹ However, while some states have instituted cable commissions, mostly to provide local government with expertise, at present the role of states is quite limited.¹⁶⁰ In some instances, state utility commissions have been vested with regulatory authority over cable in addition to their other duties. Given the traditional emphasis on utility-type regulation by such commissions, that approach may then also be used for cable television, though there are serious drawbacks to this method of dealing with a dynamic and complex industry, as has been discussed.¹⁶¹

Even if an effective regulatory policy to ensure diversity could be established, and the level of government that could best enforce it could be determined, one would still be left with the question of its constitutionality under the First Amendment. The FCC's authority over cable has always been only grudgingly acknowledged,¹⁶² since the 1934 Communications Act is silent on cable and since cable involves no use of the public airwaves.¹⁶³ But even if a clear mandate were given to the agency, First Amendment protections may bar content and access¹⁶⁴ regulations.¹⁶⁵ In *FCC v. Midwest Video Corp. (Midwest Video II)*,¹⁶⁶ which struck down the FCC's mandatory access rules as overstepping the agency's statutory mandate, the court did not have to reach First Amendment issues since it held invalid the "ancillary to broadcast" basis to cable access regulation. But the opinion referred to the merit of First Amendment arguments in a footnote, as "not frivolous."¹⁶⁷ The lower court had concluded that "nothing in this case . . . indicate[s] a constitutional distinction between cable systems and newspapers in the context of the government's power to compel public access."¹⁶⁸

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State or local laws that affect program content are also challenged. In Utah, a state law making it a crime to distribute by cable "indecent material" was attacked by Home Box Office, the pay-cable industry leader. The challenge, part of an attempt to establish full First Amendment protection for cable operators as "electronic editors" or "video publishers,"¹⁶⁹ resulted in the law being struck down by the Utah Supreme Court.¹⁷⁰

In conclusion, regulatory actions to ensure diversity in programming have not been particularly successful in their outcome and have raised the problem of governmental interference with mass communications. As Judge Bazelon, who has been reviewing the FCC's policies for more than three decades on the D.C. Circuit Court of Appeals, recently observed for television in general, "[government efforts to] improve the quality of diversity through content controls have failed miserably. In short, forced to choose between an unfettered right to speak and a meaningful right to know, we have achieved neither."¹⁷¹

OPENING CABLE TO COMPETITION

The preceding sections have demonstrated the limitations of various approaches to counteracting the local monopoly in cable television sources. They have also shown the restrictions of a policy based upon expectations of intra- or inter-media competition.

What public policy alternatives then remain to check this emerging monopoly power? This article advocates the introduction of a different form of competition into the cable transmission medium itself, by ending its sheltered existence apart from the other wire system that also reaches into almost every home: the telephone. The proposal, in brief, is to permit each telephone company to provide cable service as a common carrier in the area of its telephone service, *provided* that a well-established cable company is already operating in that area. In return, all cable companies would be free and encouraged to provide communication services that have been heretofore in the domain of telephone companies, and to interconnect with the new long distance carriers, thus creating additional nationwide "by-pass" telephone networks.

At the outset, this proposal must be distinguished from three other related but fundamentally different concepts.¹⁷² The first is the concept of allowing other cable companies to construct one or more additional cable systems on the territory of an existing franchise holder. As we have seen through the statistical investigation earlier in this article, the likelihood for such competition to be viable is not great. (However, this conclusion is limited to single-product firms. Where cable operations are provided as an integrated part of more general broadband communications services, such entry may be possible.)

A second related but distinguishable policy would permit telephone companies to construct cable systems, provided they had no role in operating such systems but rather leased them to someone else for operation. This approach is presently allowed by FCC rules.¹⁷³ However, it not only perpetuates the negative aspect of a cable programming monopoly (by the lessee), but also augments the powers of telephone companies, without clearly identifiable benefits. Furthermore, that approach is based on a separate set of cable lines, apart from the telephone wires, rather than on an integrated broadband communication service such as that proposed by this article.

The third related approach is that of permitting a telephone company to enter the cable business as an initial competitor for a cable franchise, rather than permitting such entry only after an independent cable company is already established. Currently, local telephone companies are precluded from providing cable television service in the area of their telephone service,¹⁷⁴ with the possible exceptions for those rural areas which no cable company serves.¹⁷⁵ The reason for this prohibition is that in a contest to win a cable franchise, a telephone company would have strong economic advantages. It already runs a wire into most homes, has utility poles and underground ducts in place, and possesses competent and experienced technical and customer service personnel. For a transformation of telephone (or "narrow-band") transmission into "broadband" cable transmission including video channels, one would have to replace the regular telephone wiring by a coaxial cable or optical fiber, a move that would also increase the potential of telephone communications considerably.¹⁷⁶ Such upgrading by the use of optical fiber must be part of telephone companies' long-range planning¹⁷⁷ if they do not wish to repeat Western Union's fate when it ignored the then

emerging new technology of voice transmission, i.e., the telephone. The cable industry's fierce opposition to the possibility of telephone companies' entry into cable distribution¹⁷⁸ is thus not surprising. Given the telephone companies' technical competence, financial and political connections, local facilities, and ability to cross-subsidize their cable service from other activities, they could be expected to be formidable candidates to win cable franchises.¹⁷⁹

Cable companies also have a very practical reason for opposing the entry of telephone companies into cable television. Because of the latter's ownership of utility poles and underground ducts, cable companies are dependent on them for reaching subscribers without having to duplicate these facilities. The FCC, in its *Final Report*¹⁸⁰ prohibiting the so-called cross-ownership by telephone companies of cable operators, found that a telephone company ". . . has effective control of the pole lines (or conduit space) required for the construction and operation of CATV systems. Hence, the telephone company is in an effective position to preempt the market for this service. . . ." ¹⁸¹ To deal with this problem, the Pole Attachment Law was enacted in 1978,¹⁸² though some cable operators are still complaining about harassment by the telephone companies.¹⁸³

From the government's point of view, a major reason for the past exclusion of telephone companies from cable television service had been the dominance of one company, the American Telephone and Telegraph Company, over national wire communications. Thus, even before the advent of cable television, government regulators had long felt that the Bell System was too powerful and difficult to control, and that its ability to cross-subsidize an unregulated non-telephone operation by shifting part of its cost into the expenses of the regulated telephone service permitted it to compete unfairly in the former. Given this apprehension, it is not surprising to find strong sentiments against letting the Bell System expand beyond its traditional telephone business into the carrying and control of video signals. Starting with the 1913 "Kingsbury commitment,"¹⁸⁴ in which AT&T agreed to sell its controlling interest in Western Union and thus in telegraphy,¹⁸⁵ governmental policy has consistently favored a containment of the Bell System. The FCC's position, in issuing its 1970 order prohibiting cross-ownership,¹⁸⁶ was that "telephone company preemption of CATV service in a community not only tends to exclude others from entry into that service, but also

tends to extend, without need or justification, the telephone company's monopoly position to broadband cable facilities."¹⁸⁷ The Justice Department's view, as summarized by the Commission, was "that there is a serious danger that the existing local monopoly position of the telephone companies as communications common carriers may prevent the development of an independent CATV industry."¹⁸⁸

Thus, the combination of economic opposition by cable companies and broadcasters and governmental opposition to a potential AT&T control over several communications media has led to telephone companies' general exclusion from the cable market.¹⁸⁹ Before the 1982 Modified Consent Decree, AT&T's entry had also been restricted by the previous (1956) decree, which barred it from engaging in "any business other than the franchising of common carrier communications services."¹⁹⁰

Some commentators on cable communications challenge the wisdom of excluding telephone companies from cable service. Even the FCC and Congress are reviewing the rules against cross-ownership at present.¹⁹¹ However, recent reports suggest that the Commission will not substantially alter its policy.¹⁹²

The prohibition of cross-ownership has permitted, and indeed nurtured, the establishment of cable companies as a second type of communications monopolist, carefully kept apart from the existing telephone monopolies. However, the logical pro-competitive policy would be the exact opposite; it would permit telephone companies to provide cable service in competition with existing cable companies, and at the same time would permit the latter to use part of their broadband spectrum for switched voice transmission, i.e., telephone service. Under such a system, cable and telephone services would cease to be monopolists in their respective communications submarkets and would instead have to compete with each other in an integrated and larger market.¹⁹³ Such competition, to be effective, need not reach every residential customer.

Because the establishment of competition is at the heart of the proposal, it is important not to let the telephone companies simply enter cable operations as they please or to acquire local monopoly franchises. Instead, they must be permitted to enter only where a cable company is already fairly well established. Although by having a single carrier (such as a telephone company) provide all com-

munications services one reaps the economies of scope and avoids some duplication of facilities, such advantages are static in nature, i.e., production may be efficient within a given technology, but the latter does not necessarily advance as rapidly as it would in a competitive system. By pitting large carrier systems against each other one encourages a dynamic development of technology and applications,¹⁹⁴ and at the same time reduces the need for regulation.

Granting a cable company an "infancy" period until it is well established and ready for competition with the powerful telephone companies, particularly of the Bell System, gives a cable operation a chance to lay its hardware, develop a customer base, and achieve local acceptance. To assure this readiness, a precondition for entry by a telephone company could be that a certain percentage of households have become subscribers of cable television.¹⁹⁵ At the same time, no cable company should be able to ward off competitive entry by a telephone company simply by hovering below the threshold percentage, or by choosing not to supply telephone services. A time limitation on the protected period would see to that. In any event, since the introduction of coaxial or optical fibers into homes is still several years away, the entry of telephone companies is not likely to be immediate, giving cable companies time to gain strength.

Subjecting cable franchises to competition by telephone companies does not preclude other cable companies from entering as well. However, as has been argued above, this is not likely to occur beyond some instances of cream skimming,¹⁹⁶ or outside contested border regions between cable systems.

Since the goal of the proposal is to create intra-medium competition, it would not be benefitted by the demise of the existing cable company in a locality because of telephone competition. Neither telephone nor cable companies would necessarily overwhelm the other simply by being larger. Even if a cable system would shrink substantially, it would still remain a competitor in the market and a restraint to the telephone company.¹⁹⁷ One of the theoretical claims of recent studies of competitive behavior is that the number of actual or potential rivals need not make a difference to competitive behavior.¹⁹⁸

There may be instances, however, in which the entry of a telephone company will lead to the demise of a cable operation. In

these instances, as long as no unfair competitive practices were employed, it stands to reason that an integrated broadband service provided by the telephone company is the more efficient way of video transmission.¹⁹⁹ Such efficiencies, where they exist, ought not to be artificially restricted. As Commissioner Fogarty observed,

the Commission must . . . confront the possibility that the prospect of merging fiber optic technology with the local loop of the telephone exchange may offer “natural monopoly” economies in the provision of broadband facilities and services which a sound and rational policy analysis cannot ignore. If these economies emerge in significant magnitude, then telephone company competition in the cable television marketplace may be unfair only in the sense that it may be inherently unbeatable. If this should prove to be the case, the hard but necessary answer may have to be that the public interest is better served by such unfairness.²⁰⁰

The potential for unfair competition lies in the already mentioned discrimination in pole attachment—a matter that legislation can largely alleviate—and in telephone companies’ ability of cross-subsidizing their unregulated operations by shifting costs attributable to them into their regulated telephone services, thus gaining a competitive advantage over cable operators.²⁰¹ This potential concern is not shared by many regulators. In New York State, the Public Service Commission staff, in its submission to the FCC,²⁰² stated that

Cross-subsidization between cable television and telephone subscribers, if both services are provided by the same company, is also unlikely to occur in this state. . . . Revisions to our Uniform System of Accounts are currently underway which will extend [cost aggregation] accounting to other non-monopoly enterprises in which the telephone industry may become involved. . . . As a result, if telephone companies in this state begin providing cable television service, all capital costs and operating expenses directly attributable to those enterprises will be properly identified, thereby precluding them from being supported by monopoly service telephone rate payers.

Clearly, this attitude is not shared by the FCC’s staff,²⁰³ which gives much weight to the potential for cross-subsidization. Of course, this argument would also apply equally to the ownership of

cable facilities by telephone companies when they are *leased* to independent cable operators, which is permissible under present FCC rules. But even ignoring this inconsistency in policy and the state regulators' confidence that the problem can be contained, the question remains what price one is willing to pay in order to eliminate every conceivable source of cross-subsidy. Within the FCC, the staff report's recommendation to continue the cross-ownership ban has led to vigorous disagreement:

Indeed, continuation of the prohibition on telephone company-cable cross-ownership will seriously retard, if not completely preclude, the introduction and deployment of broadband, fiber-optic technology in the local telephone exchange. It will be the American consumer who will suffer the loss of telecommunications benefits directly attributable to this myopic policy recommendation.²⁰⁴

One should not be pessimistic about the future of the cable industry under competition. Many of the leading cable companies have an excellent record of innovation, and they should be able to hold their own against the slower moving telephone companies. And if some operators fail, they could be acquired by the more successful companies, which would then realize economies of a large scale. (A necessary restriction, however, would be to preclude the successful telephone company from acquiring the assets of a failing cable competitor, and vice versa.) At present, cable companies are eagerly sought-after targets for acquisition by major corporations.²⁰⁵ As this process continues, existing cable systems become parts of some of the largest business firms of the country, drawing on the latter's resources and management, and becoming less in need of shelter from telephone competition.

The advocated system will tend to reduce future profits relative to those expected under a monopoly, and hence make investment by venture capital less attractive.²⁰⁶ However, the expected growth of the entire video market should leave cable companies with a formidable slice even if their share is smaller than today's. The present surge of investors into cable television and the scramble for franchises suggests an expectation of above-normal profits in the intermediate and long run. A reduction in the expected rate of return will not dry up, but only reduce, investment funds. If necessary, the

FCC could grant longer infancy periods in special circumstances to assure the entry of viable cable companies, and to permit them to develop a foothold into communications services that are presently the preserve of telephone companies.

The other side of the coin, if barriers between telephone and cable are removed, is the opening of telephone service to cable operators. There is enough room on a standard coaxial cable to carry thousands of simultaneous voice or data channels in addition to the video offerings.²⁰⁷ There is nothing in the cable technology that restricts it to video transmission as opposed to a mixed telephone and video service,²⁰⁸ although switching equipment would have to be installed.²⁰⁹ Broadband cable systems that can provide a mix of communications services have already been developed; an example is the 3M Company's CS² carrier system. One such system is operated in Wisconsin by the Chequamegon Telephone Co-op; another is at China Lake, California. Recently, a cable company proposed a telephone-cable system for Prince George's County, Maryland, which would include switching capabilities and voice, video, and computer circuits.²¹⁰ In New York and San Francisco, banks are already using cable to move data between their different facilities, a function previously filled by the telephone company.²¹¹

Cable's two-way capability, as well as the application of digital technology, permits its augmentation by dialing and switching.²¹² Putting these capabilities together, and altering network architecture, results in a local telephone network. This local distribution network could interconnect for long distance service with cable networks in other localities, or with telephone companies' local distribution networks, and they could be interconnected either via the Bell System's long distance lines—their right under the *MCI* decision²¹³—or via the new long distance carriers such as MCI or Southern Pacific. The latter companies are at present involved in long distance transmission only, without a local distribution network. Their combination with cable systems would therefore complete one or more nationwide non-Bell networks. As an example of this possibility, the above-mentioned cable systems in New York and San Francisco have been experimenting with a connection of those cities via satellite,²¹⁴ entirely bypassing the Bell System.

That experiment, authorized by the FCC, involved local distribution by the cable systems of Manhattan Cable in New York and

Viacom Cable in California, linked by a satellite of Satellite Business Systems (SBS) and using cellular digital radio and cable TV packet switching by the Local Digital Distribution company (LDD) and by Tymnet.²¹⁵ The type of applications in the demonstration were coast-to-coast transmission, in a realistic business operating environment, of teleconferencing, high-speed facsimile, computer-to-computer transmissions, and terminal-to-host transmissions.²¹⁶

Competing local telephone services existed in the telephone's early stages, after the expiration of the original Bell patents. They were eventually replaced by a system of non-overlapping local or regional monopolies. At the time, public policy did not favor the duplication of facilities and the fragmentation of telephone subscribers into groups that were unable to talk to each other. Such duplication of identical services is not at issue here, because two types of different communication wires already enter a large and increasing number of households. The second set of wires—that of cable communications—exists partly because of federal policy not to grant too much power to telephone companies, in particular to AT&T, which has prevented the consolidation of telecommunication services onto one cable. But once that second form of access exists, it is logical to use it for competitive purposes.

The proposed opening of the telephone industry to competition by cable operators would introduce rivalry and contestability into local telephone distribution beyond that of over-the-air bypass technologies such as cellular radio and Digital Termination Service (DTS). This is the last area of telephony where competition has been conspicuously missing,²¹⁷ whereas the terminal equipment market, long distance service, and in-house lines have become open to new entrants, and will be even more competitive in the future. Interexchange calls comprise only a relatively small part of total phone bills and an even smaller share of the number of calls. Local service has also experienced bottleneck conditions—i.e., periodically recurring capacity shortages—which may be alleviated by the emergence of alternative services.²¹⁸

The FCC staff's cable cross-ownership report argues in favor of an independent and viable cable medium as a competitor to the local distribution of telephone companies. Yet from that competitive premise the report reaches a protectionist conclusion. Cable television is indeed a potential competitor, and it has been fostered during

its infancy period toward an ability to assume such a role. But there is no reason why such competition ought to be a one-way street, with cable television protected from the incursions of telephone companies.

The advantages of such a rivalry may be gleaned from one of the rare instances of head-on competition, that of bank data transmission in New York City. The Chase Manhattan Bank analyzed in 1977 the cost differences between telephone and cable transmission and concluded in an intraoffice memo:

Even with the higher installation cost which is due to them [Manhattan Cable] having to run cable into both sites and cable the buildings, the cost saving over New York Telephone for the first year is \$10,000.00 and \$15,000.00 every year after.

There are several other advantages in using Manhattan Cable:

1. Fast response to service calls
2. Use of modems with up-to-date technology
3. Very low cost for installation for any additional circuits required at these sites since buildings will be cabled.²¹⁹

Permitting the telephone companies to provide an alternative video transmission service would also solve several problems. Most importantly, the presence of an alternative source of viewing fare would remove the problem of a local cable monopoly over programming. The alternative telephone cable system would operate as a common carrier, permitting access to anyone who could afford the access fee. Telephone companies are comfortable with this status since it is their traditional mode of operation. Conventional cable operators would continue in their present dual roles of distributor and programmer, although they could provide unregulated common carrier channels as well.

A competitive setting would also eliminate the need for regulating the access rates that are charged by cable operators to suppliers of programs.²²⁰ Provided only that no collusion takes place, the easy availability of an alternative cable service should keep access rates moderate. In a competitive setting, no regulation would be necessary other than a protection against cross-subsidization from monopolistic parts of the telephone system. This restriction already exists and has been recently strengthened by the FCC's concepts of fully

separated subsidiaries of its *Computer II Inquiry*²²¹ and by the current legislative efforts to rewrite the Communications Act and restructure the Bell System.²²² The realization of these efforts may provide an answer to the question of how difficult it is to maintain a true separation both between subsidiaries and parent company and between subsidiaries themselves.

Regulating the rate to be charged to subscribers for cable service would be somewhat more complicated.²²³ The basic charges for cable service would presumably fall close to zero since the marginal cost of supplying another subscriber with such programs is very low after installation, and since prices under competition tend to be equal to marginal cost.²²⁴ For the pay services, however, marginal costs are not zero. For example, pay cable movie suppliers are currently compensated by cable operators on the basis of subscribers to the programs. The operators would hence normally charge subscribers at least that amount. Therefore, the viewing charge will not fall to zero. Still, there may be services where the low cost of supplying additional subscribers generates "cut-throat competition." To prevent this, one may have to resort to rules preventing the discrimination in prices between different types of viewers, since the ability to discriminate is a driving force behind such competition.

Some regulation would still be necessary to deal with the new circumstances of the communications industry under this proposal. For example, the assurance of cable wire attachment to telephone poles at reasonable rates and free of harassment would become even more important if their competition with telephone companies were intensified. This problem, however, seems relatively easy to solve by legislation. Conceptually more difficult is the relation of the telephone companies' competitive operations with the remaining regulated one. It would require some allocation of revenues and expenses among services. Again, such allocation is already extensively practiced among services, companies, and states. The procedure of preventing cross-subsidization is tied to the outcome of telecommunications legislation that is currently pending before Congress, as well as to the details of the divestiture of AT&T. There is also a role for governmental vigilance to prevent collusion between the two rivals. A duopoly could be avoided if additional competitors would enter as well, but, as has been argued above, the likelihood of entrants other than telephone companies is not great.

THE AT&T CONSENT DECREE

The settlement agreement between the Justice Department and AT&T on a Consent Decree²²⁵ is silent on cable television. Under its provisions, AT&T would be divested of its Bell Operating Companies (BOCs) and left free to enter unregulated fields such as computer communications, information services, and, by implication, cable television ownership. Under present legislation and regulations, the divested company would not be subject to the FCC's cross-ownership rules, which would prevent the company from owning cable systems in the area of its local exchanges.

As a potential cable operator, AT&T would not be different from other multiple system operators, except that its size and resources are considerably larger, and that it would have a manufacturing arm in Western Electric. However, AT&T is far behind in programming experience and franchise acquisition. As an FCC official is quoted, “. . . until somebody comes up with a reason why [AT&T's entry into cable] would be bad, we have no reason to stop it.”²²⁶ One such argument could be that by using its cable operations as a local distribution network, AT&T could become again a vertically integrated communications carrier involved in local exchange activities.

On the other hand, the Consent Decree is stricter with the BOCs, who may not provide “any other product or service, except exchange telecommunications and exchange access service, that is not a natural monopoly service actually regulated by tariff” (Section II(D)(3)). Does this exclude BOCs from cable television? The FCC rules against cross-ownership still apply with full force to the BOCs' ownership of cable systems within their own exchange area. But, they can own cable systems outside that area, a provision of greater practical significance than under the integrated Bell System where few attractive areas were outside that system's exchange control.

Yet to own these cable operations, the requirement of “natural monopoly service actually regulated by service” would still have to be met. This is a vague requirement,²²⁷ but one which could include cable television system ownership, provided that it is regulated by a tariff and that it is restricted to naturally monopolistic operations, which would in all likelihood include transmission services but preclude programming.

Neither would cross-ownership rules prevent the offering of

broadband cable services as part of integrated communication services within a BOC's area of exchange. Under II(D)(e), BOCs should be able to provide tariffed broadband services, as long as the vague "natural monopoly" requirement is met. The latter, again, will hold for the transmission of cable television, but not for its programming aspects.

CONCLUSION

A system of two initially distinct media—cable television and telephone—contesting each other is the by-product of new technological developments and initial regulatory responses. The entry of cable television into the American household was not planned as part of an alternative telecommunications system beyond that of video transmission. But now that it is becoming a fact, one should make the most of it. Cable companies will be capable of providing some form of telephone services, and it will be difficult to preclude them for long from offering such bypass. Similarly, with the introduction of optical fiber connections to households, telephone companies will have the technical capability to provide video service. Again, it will not be feasible to contain the possibilities of the technology and to deny their services to consumers. The trend of technology spells out a future of integrated telecommunications. Where once television and telephone were very different, they have become increasingly related as alternative uses of available communication channels. It is therefore senseless to cling to market definitions of yesterday and to restrict companies to one or the other of these markets. As markets integrate, competition should not be contained. In this case, such integration provides the key to a structural solution to thorny monopoly issues in telecommunications, and, in particular to the gatekeeper power of cable television operators over television programming.

APPENDIX A

Estimations of the Coefficients for
Production Functions (See Eq. 1 at page 358.)

Table 1. Production Function Coefficients.

	<u>Subscribers</u>	<u>Homes Passed</u>	<u>Channels x Subscribers</u>	<u>Total Operating Revenue</u>
ln L	5.1074 (6.2738)	3.9663 (4.5512)	6.1848 (6.1279)	2.3075 (3.5323)
ln K	-2.7553 (6.4597)	-2.5064 (5.4892)	-3.3662 (6.3655)	-.9698 (2.8334)
ln L ln K	.2278 (3.1706)	.2719 (3.3872)	.2778 (2.9876)	-.0295 (.4914)
(ln L) ²	-.3107 (4.8559)	-.2801 (4.0892)	-.3750 (4.7276)	-.0480 (.9359)
(ln K) ²	.0153 (.5449)	-.0116 (.3859)	.0241 (.6913)	.0664 (2.9446)
R ²	.9225	.9139	.9028	.9554

Table 2. Economies of Scale and their Elasticity with Output.

Subscribers		Homes Passed		Channels x Subscribers		Total Operating Revenue	
Y	ν	Y	ν	Y	ν	Y	ν
2,000	1.0046	2,000	.9686	10,000	.9327	500,000	.8432
5,000	1.0593	5,000	1.0353	50,000	1.0578	1,000,000	.9688
10,000	1.1246	10,000	1.1096	100,000	1.1373	2,000,000	1.0139
50,000	1.1721	50,000	1.1595	200,000	1.2192	5,000,000	1.0376
100,000	1.2197	100,000	1.2067	500,000	1.2758	10,000,000	1.0587

APPENDIX B

Capital Inputs Derivation

Accounting data for net assets is reported to the FCC and is available. However, this information represents historical book values rather than current values. Although the great bulk of assets in the cable television industry has been acquired within the past decade, thus limiting the extent of inflationary distortion, it was on balance considered prudent to revalue assets. To do so, the study took advantage of a detailed engineering study, commissioned by the federal government, on the cost and pattern of investment that is required to build a cable system. In that report, the required investment flow in a medium-sized cable system over a period of 10 years was calculated in great detail.²²⁸ We make the following assumptions:

1. This distribution of investment over the first 10 years is proportionally the same for all systems.
2. Investment in the eleventh year and further years is identical to that of the tenth year (and is small relative to total investment).
3. The cost of acquiring capital assets required in a cable television system increases at the rate of the price index of capital goods.

For each observation, we know the first year of operation and the aggregate historical value of capital assets. It is then possible to allocate investments to the different years, and to inflate their value to 1980 prices. The formulae employed are

1. Current Value = Book Value $\times T_A$
where T_A is the adjustment factors

$$2. T_A = \frac{\sum_{i=0}^A E_i}{\sum_{i=0}^A E_i / R_{S+i}}$$

- with A = age (in years) of system
 E = annual capital investment for a cable operator in year i
 R = inflation adjustment factor for years $S + i$ of cable operation
 S = starting year

The inflation adjustment is defined such that $R_{1980} = 1.00$. R inflates the investment of earlier years, i.e., reflects on how much a one-dollar investment in year X would cost in today's prices.

Capital inputs are defined alternatively as either a stock or a flow. The stock is simply the current asset purchase price A , while the flow K is determined by the opportunity cost of the funds used for capital expenditure in a competitive environment, with this required return consisting of returns on equity and debt.

$$3. K = rE + i(1 - t)D$$

where r = required return to equity before taxes

E = equity

i = cost of debt before taxes

D = long-term debt

t = tax rate²²⁹

Equity is defined as owner's net equity, i.e., net assets minus debt.

The required return r is determined according to the risk premium ρ required above risk-free investments R_F ; $r = R_F + \rho$. Ibbotson and Sinquefeld,²³⁰ in their study of these premiums, found ρ for the Standard and Poor 500 portfolio during the period from 1926 to 1977 to be 8.8 percent. Hence, according to the Capital Asset Pricing Model,²³¹ an estimate of ρ for a specific firm is 8.8 times β , where β is the measure of non-diversifiable (systematic) risk of the stock. The average β for cable companies listed by Moody's is, for 1980, $\beta = 1.42$, resulting in a risk premium of 12.49 percent over the treasury bill rate of 11.50 percent.²³² Hence, the required rate of return on equity is $r = 23.99$ percent.

For i , the return on long-term debt, the following method was employed: for each observation it was determined, using several financial measures, what its hypothetical bond rating would have been. These "shadow" bond ratings for each observation were then applied to the actual average interest rates existing in 1980 for bonds

of various ratings.²³³ This procedure is novel, but is based on a series of previous studies on bond ratings and on their relation to financial ratios. Such models exist since 1966,²³⁴ and were further refined by Pogue and Saldofsky,²³⁵ Pinchas and Mingo,²³⁶ and Altman and Katz.²³⁷ The model used here is taken from the Kaplan and Urwitz survey article²³⁸ (Table 6, Model 5) which determines bond rating with a fairly high explanatory power ($R^2 = .79$). The financial variables used in this model are: (a) "cashflow before tax/interest charges; (b) long term debt/net worth; (c) net income/total assets; (d) total assets; (e) subordination of debt. Bond ratings ranging from AAA (Model values ≥ 9) to C (≤ 1) can then be obtained for each financial observation by substitution of the appropriate values. Bond rates are those reported by Moody's.²³⁹

Tax rate t is defined as the corporate income tax rate for 1980. Debt is defined as long-term liabilities.

FOOTNOTES

1. In particular, the Consent Decree between the Department of Justice and AT&T (*U.S. v. Western Electric et al.*, Modification of Final Judgment, U.S.D.C. (N.J.) Civil Action No. 17-49), also U.S.D.C. (D.C.) Civil Action No. 74-1798.

2. See, e.g., the references in Brock, G. W., *The Telecommunications Industry: The Dynamics of Market Structure*, Cambridge: Harvard University Press, 1981. For an overview of industry trends, see Majority Staff of the Subcommittee on Telecommunications, Consumer Protection, and Finance of the Committee on Energy and Commerce of the U.S. House of Representatives, *Telecommunications in Transition: The Status of Competition in the Telecommunications Industry*, November 3, 1981 (henceforth, *House Report*).

3. See, e.g., Chazen, L. and Ross, L., "Federal Regulation of Cable Television: The Visible Hand," *Harvard Law Review* 83, 1970, p. 1820; MacAvoy, P., ed., *Deregulation of Cable Television*, Washington, D.C.: American Enterprise Institute for Public Policy Research, 1977; Comanor, W. and Mitchell, B., "The Costs of Planning: The FCC and Cable Television," *Journal of Law and*

Economics 15, 1972, p. 177; and Hamburg, M., *All About Cable: Legal and Business Aspects of Cable and Pay Television*, New York: Law Journal Seminars-Press, 1979. See, e.g., Sloan Commission on Cable Communications, *On the Cable: The Television of Abundance*, New York: McGraw-Hill, 1971.

4. See notes 92-97.

5. See, e.g., Sucherman, S., "Cable TV: The Endangered Revolution," *Columbia Journalism Review*, May-June 1971, p. 13.

6. On diversity in the media, see Baxter, W., "Regulation and Diversity in Communications Media," *American Economics Review* 64, 1974, p. 392. Also Ross, L., "Economic and Legal Foundations of Cable Television," Sage Research Papers in the Social Sciences, #90-012, 1974.

7. Boston; Dallas; Denver; Montgomery County, Maryland; and Sacramento, California, are among the localities that have been promised 100-plus channel systems. See *Broadcasting*, November 15, 1982, p. 35. In Denver, the Daniels/ATC candidate even proposed a 220-channel system. See *Multichannel News*, March 1, 1982, p. 1.

8. See Taylor, J., "Not Enough Channel Capacity? 'Supercable' to the Rescue," *Cable Age*, May 18, 1981, p. 21.

9. 47 C.F.R. subpart D. sec. 76.51-67. See *Rules re Microwave Served CATV*, 38 FCC 683, (1965); *Second Report and Order*, 2 FCC 2d 726 (1977).

10. See Liebowitz, D., *Industry Viewpoint: Cable Television 1981*, research report, New York: Donaldson, Lufkin, & Jenrette, February 1981, p. 34.

11. See Baker, "Nail by Nail," *Cablevision*, March 1, 1982, p. 21.

12. The second-largest pay-TV supplier. *Cablevision*, December 11, 1981, p. 151.

13. The owner of Group W, which produces and syndicates programs.

14. *Cablevision*, July 5, 1982, p. 24.

15. Liebowitz, D., *op. cit.*, note 10, p. 18.

16. For Hollywood producers, accommodations with pay cable have become essential. " 'By 1985,' says [a Warner-Amex official], 'pay revenues will surpass theatrical. We project that the box office

take will be \$1.4 billion and pay TV's \$1.7 billion.' " Baker, *op. cit.*, note 11, p. 35. Recent months have seen the aggressive entry of cable program suppliers into program production. The industry leader HBO, for example, acquired exclusive rights to Columbia Picture Film products in exchange for sharing up-front costs. *Cablevision*, January 25, 1982, p. 18. Similarly, HBO has contracted for the production of the first-ever made-for-cable films. Levy, "Home Box Office Opens Made-For-Pay Film Era," *Multi-channel News*, September 21, 1981, p. 1. Similarly, Showtime has contracted for the production of the first-ever serial program that is exclusive to cable. *Multichannel News*, March 8, 1982, p. 41.

17. The first movie for pay-cable was recently announced. *Ibid.* (Levy).

18. See Objection filed by CNN in FCC File No. CAR-15534-09, etc. See also Teleprompter's efforts to remove HBO from its systems after acquiring 50 percent ownership of Showtime. *House Report, op. cit.*, note 2, p. 297. When Viacom repurchased the remaining 50 percent in the fall of 1982, it was conditional to Group W's not removing Showtime from its systems for at least five years. See *New York Times*, August 24, 1982, p. D4.

19. FCC, Network Inquiry Special Staff, *New Television Networks: Entry, Jurisdiction, Ownership, and Regulation* [henceforth *Network Inquiry Final Report*], 1980, p. III-95.

20. Given the scarcity of superior talent and outstanding programs, an increase of programs ought to lead to an increase in their price. A monopsonist thus faces an upwardly sloping supply curve.

21. The FCC's staff analysis would hold only if the cable operator could discriminate perfectly, or at least in a way that makes the buyer better off than vertical integration would, or if increasing marginal costs are *entirely* due to scarce factor rents, i.e., if no producer surplus exists.

22. This is not to deny, however, that there may be efficiency reasons for some vertical integration. In another in-depth FCC staff report, dealing specifically with cross-ownership and vertical integration of cable television, the potential motives for vertical integration are acknowledged, such as the impossibility to implement a perfect price "squeeze," and the facilitation of price discrimination. *FCC Staff Report of Cable TV Cross Ownership Policy*, November

17, 1981, pp. 111-112.

23. See Owen, B., *Economics and Freedom of Expression*, Cambridge: Ballinger, 1975.

24. *Associated Press v. United States*, 326 U.S. 1, 20 (1945).

25. *First Report and Order*, in Docket No. 18397, 20 FCC 2d 201, 205 (1969).

26. See Jones, W.K., *Regulation of Cable TV by the State of New York*, Report to the New York Public Service Commission, 1970; Johnson, L., *The Future of Cable Television: Some Problems of Federal Regulation*, Rand Corporation, RM 6199-F, January 1970; LeDuc, D., *Cable Television and the FCC*, Philadelphia: Temple University Press, 1973; Posner, R., *Cable Television: The Problem of Local Monopoly*, Rand Report, RM-6309-FF, May 1970; Seiden, M., *Cable Television U.S.A.: An Analysis of Government Policy*, New York: Praeger, 1972; and Besen, S., "The Economics of Cable Television 'Consensus'," *Journal of Law and Economics* 17, 1974.

27. Almost 3000 of the approximately 4,300 systems had capacities of 12 channels or less in 1979. *Television Digest*, *Television Factbook* 1980, Vol. 49(2), p. 86-a.

28. Kahn, A.E., and Stelzer, I.M., "Communications Regulation in New York State," Appendix B of *Telecommunications in New York State: Redefining the Role of Government*, N.Y.S. Executive Chamber, Office of Development Planning, April 1981.

29. Competitive cable television services (known in the industry as "overbuild") exist in approximately eight franchises out of more than 4,000. Of these operations, only those in Allentown, Pennsylvania, and Phoenix, Arizona, are of appreciable size. See Dawson, F., "How Safe is Cable's 'Natural Monopoly'?" *Cablevision*, June 1, 1981, pp. 333-359.

30. Baumol, W.J., "On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry," *American Economic Review* 67, 1977, pp. 809-822; Baumol, W.J., Bailey, E.E., and Willig, R.D., "Weak Invisible Hand Theorems on the Sustainability of Prices in a Multiproduct Natural Monopoly," *American Economic Review* 67, 1977, pp. 360-368.

31. Panzar, J.C., and Willig, R.D., "Free Entry and the Sustainability of Natural Monopoly," *Bell Journal of Economics* 8, 1977, pp. 1-22.

32. For example, existing telephone companies through the extension of their service into "broadband" communications. See Noam, E.M., "Towards an Integrated Communications Market: Overcoming the Local Monopoly of Cable Television," *Federal Communications Law Journal* 34, 1982, p. 209.

33. An example for the present ad hoc approach to this question is the cable plan for New York City. In that costly two-volume report, which recommends several franchise areas, the entire analysis of economies of scale consists of the following: ". . .there were only twelve—of more than 4,000 operating cable systems in the United States—which served more than 50,000 subscribers. Unquestionably, this is an acceptable minimum for the size of a franchise area. Moreover, economies of scale would also exist for smaller franchise areas." Arnold & Porter, *New York City Cable Action Plan*, Vol. I., p. 135.

34. If average costs fall continuously, as the presence of natural monopoly conditions suggests, marginal costs are below average cost. At a non-discriminatory price $P = MC$, a cable company will operate at a loss. (Scherer, F.M., *Industrial Market Structure and Economic Performance*, Chicago: Rand McNally, 1980, 2nd ed.). If prices are regulated at a uniform level $P = AC$, there are no losses, but allocative inefficiency exists, since some consumers are left without service who would have been willing to pay above marginal cost. A set of discriminatory prices is therefore most likely.

35. Baumol, W.J., *op. cit.*, note 30; Baumol, W.J., Bailey, E.E., and Willig, R.D., *op. cit.*, note 30.

36. A production function approach, as opposed to the use of cost function, is chosen for two reasons: first, the application of a cost function requires the restrictive assumption of cost minimization. Second, the data is available for the inputs, whereas the factor prices necessary for a cost function require conjecture.

37. Frisch, R., *Theory of Production*, Dordrecht, Holland: D. Reidel, 1965.

38. Basset, L., and Borcharding, T.E., "The Relationship Between Firm Size and Factor Price," *Quarterly Journal of Economics* 84, 1970, pp. 518-522.

39. Frisch, R., *op. cit.*, note 37; Vinod, H.D., "Non-Homogeneous Production Functions and Applications to Telecommunications," *Bell Journal of Economics and Management Science* 3, 1972, pp. 531-543; Sudit, E.F., "Additive Non-Homogeneous Pro-

duction Functions and Applications to Telecommunications,” *Bell Journal of Economics and Management Science* 4, 1973, pp. 495-514.

40. See Hanoch, G., “The Elasticity of Scale and the Shape of Average Costs,” *American Economic Review* 65, 1975, pp. 492-497. The elasticity of scale economy is therefore

$$\eta = \frac{dE}{dy} \cdot \frac{Y}{E} = \frac{(1 - Y)}{E} - \frac{Y | H_n |}{| B_n |} - 1.$$

41. Most cross-section studies of other industries suffer from a variety of problems, including a small number of observations, non-homogeneous products, the difficulty of properly allocating costs in a multiproduct, multiplant firm, lack of information on the age of capital assets, different firm locations in a national market, and the frequent unavailability of financial data.

42. Reporting is according to local operations; national cable companies (Multiple Systems Operators, or MSOs) must therefore keep their different operations separate in their reporting. Furthermore, national program services of some of the large cable companies are operations of separate entities, and do not disturb the data.

43. These reports are likely to be fairly accurate because of cable companies' vulnerability to FCC charges of misreporting in a period in which they are aggressively seeking new franchises.

44. It is interesting to note that two of the most accomplished industry studies of the economies of scale, Nerlove's classic analysis of electricity generation (see “Returns to Scale in Electricity Supply,” in Zellner, A., ed., *Readings in Economic Statistics and Econometrics*, Boston: Little, Brown, 1968) and Christensen, L.R., Jorgenson, D.W., and Lau, L.J., “Conjugate Duality and the Transcendental Logarithmic Production Function,” *Econometrica* 39, 1971, pp. 225-256, a more recent approach, are also based on transmission systems with reporting requirements. See also Belinfante, A., “The Identification of Technical Change in the Electricity Generating Industry,” in Fuss, M., and McFadden, D., eds., *Production Economics: A Dual Approach to Theory and Applications*, Vol. 2, Amsterdam: North-Holland, 1978; and Dhrymes, P.J., and Kurz,

M., "Technology and Scale in Electricity Generation," *Econometrica* 32, 1964, pp. 287-315.

45. FCC, Cable Bureau, Physical System File.

46. FCC, Cable Bureau, by communication and by annual news release.

47. FCC, Cable Bureau, Community File.

48. FCC, Cable Bureau, Equal Employment Opportunity File.

49. To assure confidentiality, financial data has been aggregated. However, particularly detailed subaggregations—for each state according to seven size categories, and with many such categories of financial information—have been made available to the author by the FCC.

50. Cable television is a stand-by service that sells a consumption *potential* to households. The marginal cost to the operator for the *actual* use by a household is trivial. This is likely to change under a billing system where charges are imposed for actual viewing, and the revenue for each viewing is shared with program suppliers; but in 1980 less than five systems out of more than 4,200 had such billing capacity.

51. Vinod, H.D., *op. cit.*, note 39; Sudit, E.F., *op. cit.*, note 39; Eldor, D., Shami, C.H., and Sudit, E.F., "Production-Cost Elasticities in Product and Factor Markets: The Case of Telecommunications," *Journal of Economics and Business* 31, 1979, pp. 84-89; Denny, M., Fuss, M., and Waverman, L., "The Measurement and Interpretation of Total Factor Productivity in Regulated Industries, with an Application to Canadian Telecommunications," in Cowing, T., and Stevenson, R., eds., *Productivity Measurement in Regulated Industries*, New York: Academic Press, 1981; Nadiri, M.I., and Schankerman, M.A., "The Structure of Production, Technological Change, and the Rate of Growth of Total Factor Productivity in the U.S. Bell System," in Cowing and Stevenson, above.

52. It is necessary however, to view these results with caution, since the analysis does not use a multi-product specification. This has been the focus of further research by the author. Preliminary results suggest that pure multi-product cable firms exhibit growing returns to scale, though not for "homes passed." Noam, E., "Economies of Scale in Cable Television: A Multi-Product Analysis," unpublished paper, Columbia University, December 1982.

53. For a discussion of the alternatives, see *Network Inquiry Final Report*, *op. cit.*, note 19.

54. See Glen, K., "Multipoint Distribution Service," Report to the Network Inquiry Special Staff, 1980.

55. See Billings, G., "Direct Broadcasting Satellites and Impact on Other Technologies," paper delivered at the Ninth Annual Telecommunications Policy Research Conference, Annapolis, Maryland, April 1981.

56. For a thorough discussion of DBS, see Rice, D., "Regulation of Direct Broadcast Satellites: International Constraints and Domestic Options," *New York Law School Law Review* 25, 1980, pp. 813-862; FCC, Office of Plans and Policy, *Policies for Regulation of Direct Broadcast Satellites*, October 1980; and FCC (OST) *Technical Aspects Related to Direct Broadcast Satellite Systems*, September 1980.

57. It is also possible for these signals to be received by a cable operator and distributed over his lines. In such a case, DBS does not differ in principle from other means of program delivery to a cable company.

58. See generally, Levin, H., *The Invisible Resource*, Baltimore: Johns Hopkins University Press, 1971.

59. Communications Satellites can be "parked" in space only at specific heights (22,300 miles) and locations (above the equator); to avoid interference, they cannot be too close to each other. Comment, "The Development of Video Technology," *New York Law School Law Review* 25, 1980, pp. 789, 809-810.

60. See FCC, Office of Plans and Policy, *Policies for Regulation of Direct Broadcast Satellites*, 1980, pp. 97-105.

61. See Comment, *op. cit.*, note 59, pp. 789-812. Also, Glen, *op. cit.*, note 54.

62. *House Report*, *op. cit.*, note 2, p. 3044.

63. Comment, *op. cit.*, note 59, p. 802.

64. *Id.*

65. See Park, R., "The Growth of Cable TV and Its Probable Impact on Over-the-Air Broadcasting," *American Economic Review* 61, 1971, p. 69.

66. See Levin, H., *op. cit.*, note 58, and also Schuessler, T., "Structural Barriers to the Entry of Additional Television Networks: The Federal Communications Commission's Spectrum Management Policies," *University of Southern California Law Review* 54, 1981, p. 875.

67. On the original justification for CATV mixture of ownership, see Barnett, S., "Cable Television and Media Concentration, Part I: Control of Cable Systems by Local Broadcasters," *Stanford Law Review* 22, January 1970, p. 221.

68. See *New York Times*, July 14, 1978, p. A10; November 21, 1978, p. A18; *Broadcasting*, November 21, 1977, pp. 42-43.

69. Theoretically, two-way operations could also be set up through a combination of conventional broadcasting and telephone. However, this seems impractical for most applications. A recently proposed "hybrid" of broadcasting and telephone is conceived by its proponents as primarily for non-cable areas. *Communication News*, September 1981, p. 9.

70. Several of the recently submitted plans by applicants for New York City's franchises include a free basic service. Similarly, Boston's recently awarded franchise went to a company that set a monthly subscription price of \$2 for 52 basic channels. See *Multi-channel News*, August 24, 1981, p. 1.

71. Owen, B., Beebe, J., and Manning, W., *Television Economics*, Lexington: Lexington, 1974.

72. Levy, S., "Gimme Access," *Rolling Stone*, June 25, 1981, pp. 61, 64. According to a major advertising agency, the share of pay-cable in total national audience for late-night programs increased 83 percent in one year. *Multichannel News*, August 24, 1981, p. 62.

73. See *Cable Age*, February 8, 1982, pp. 27-32.

74. The 1981 world championship fight between "Sugar Ray" Leonard and Thomas Hearns was a cable success at \$15 to \$20 per household viewing, grossing \$6 million in California alone. *Id.*

75. While political pressures may be used to slow this trend, it is doubtful, given the property and copyrights of the producers of particularly attractive events, that the latter could be forced to remain serving "free" television. Antisiphoning rules in cable have been struck down in *HBO v. FCC*, 567 F.2d 9 (D.C. Cir.) *cert. denied*, 434 U.S. 829 (1977).

76. See *Broadcasting*, August 16, 1982, pp. 33-45.

77. See, e.g., *Nat'l Ass'n of Theater Owners v. FCC*, 420 F.2d 194 (D.C. Cir. 1969), *cert. denied* 397 U.S. 922 (1970).

78. *Fourth Report and Order* in Docket 11279, 15 FCC2d 466 (1968); also 47 C.F.R. Sec. 73.643 (1972); 52 FCC2d 1 (1975).

79. See Samuelson, P., "Public Goods and Subscription TV: Correction of the Record," *Journal of Law and Economics* 7, 1964, p. 1; following Minasian, J., "Television Pricing and the Theory of Public Goods," *Journal of Law and Economics* 7, 1964, p. 71.

80. See *House Report*, *op. cit.*, note 2, pp. 302-304.

81. See *Cablevision*, December 21, 1981, p. 151.

82. *Id.*

83. For the above-mentioned Leonard-Hearns fight (note 74), noninteractive cable systems had to provide throw-away unscramblers for once-only viewing in order to make a per-event charge possible. Most operators found this too costly. *Multichannel News*, September 21, 1981, p. 1.

84. In the noted Hartford experiment on pay-TV and audience preferences, the least watched program, viewed by exactly one household, was "You and the Economy," featuring a panel of Yale economists. Noll, R., Peck, M., and McGowan, J., *Economic Aspects of Television Regulation*, Washington: Brookings Institution, 1973, p. 133, n. 5.

85. The cost of initial installation of cable is higher than that of pay-broadcasting, but not significantly so, considering its range of services. It has been estimated by an industry panel at \$400 per household, up to a 50 percent cable penetration, vs. \$165 for STV, \$200 to \$300 for DBS, and \$75 to \$115 for MDS. *Multichannel News*, September 7, 1981, p. 7.

86. For an example of an earlier article on cable's potential, see Park, R., "Prospects for Cable in the 100 Largest Television Markets," Santa Monica: Rand Corporation, Report No. R-875-MF, 1971.

87. For example, if the access to cable were foreclosed to a program syndicator, he could instead try to sell his show to a broadcast station or network. But it is unlikely that he could command anything approaching the potential revenue for a pay-cable showing.

88. For a comprehensive discussion of intermedia competition, see J. Levy and F. Setzer, *Measurement of Concentration in Home Video Markets*, FCC, Office of Plans and Policy, December 23, 1982.

89. The term "separations policy," frequently used interchangeably with that of "common carrier status" (though the two are not identical; see, e.g., Nadel, M.S., "COMCAR: A Market-

place Cable Television Franchise Structure, *Harvard Journal on Legislation* 20, forthcoming 1983, proposing a common carrier structure that would not impose separations requirements), is an imprecise term because it does not specify where, in the totality of functions that a cable operator fulfills, the cut-off between distribution and programming lies. Furthermore, a separation may actually exist under a cable company's total control over programming, as long as some other entity owns or manages the technical facilities, e.g., a telephone company.

90. Powledge, F., *An ACLU Guide to Cable TV*, New York: ACLU, 1972, p. 32. See *ACLU v. FCC*, 523 F.2d 1344, (9th Cir. 1975).

91. Cabinet Committee on Cable Communications, *Cable: Report to the President*, Washington, D.C.: Office of Telecommunications Policy, 1974; President's Task Force on Communications Policy, *Final Report*, Washington, D.C.: Government Printing Office, 1968.

The private power of the cable system operator is potentially great, because of the local monopoly characteristics of cable. Unless restrained in some manner, the system operator could control all of the channels of his cable system, which could constitute the bulk of the channels of electronic communications in a particular locale. . . . Cable's multi-channel technology, together with the economic imperatives of a medium that is a natural monopoly, could lead to an even greater concentration of power than exists in broadcast television. When a single cable operator has the power to control the programming and information content of all the channels on his system, his monopoly power over the cable medium of expression is nearly absolute. Therefore, detailed and prescriptive regulation by Government is well on its way. . . . The only way to avoid the broadcast regulatory model and allow cable to develop as a medium of communications open and available in a manner similar to the print or film media is to preclude the vertical integration of the programming and distribution function in cable. In this way, the cable operator's distribution monopoly would not produce any concentration of power over free expression in the use of cable channels and would offer no pretext for Government control of programming or other information distributed by cable.

92. *FCC v. Midwest Video Corp.*, 440 U.S. 689 (1979).

93. *Second Further Notice of Proposed Rule Making*, 24 FCC 3d 580, 587 (1970). On the state level, the New York Public Service Commission considered the possibility, subsequent to Commissioner Jones' proposal, for cable systems to evolve into common carriers. See Jones, W.K., *Regulation of Cable TV by the State of New York*, report to the New York Public Service Commission, 1970.

94. *Cable Television Report and Order*, 36 FCC 2d 143 (1972).

95. *ACLU v. FCC*, *op. cit.*, note 90.

96. 47 C.F.R. sec. 76.254(a)(1)-(3) (repealed 45 Fed. Reg. 76179). See *Report and Order* in Docket No. 20508, 59 FCC 2d 294 (1976).

97. *Midwest Video Corp. v. FCC*, 571 F.2d 1025, 1051 (8th Cir. 1979). The U.S. Supreme Court affirmed, noting: ". . . access requirements amounting to common carrier obligations . . . a non-discriminatory system for controlling access . . . is precisely what Congress intended to avoid . . ." 400 U.S. 689, at 705. See also *National Ass'n of Regulatory Util. Comm'rs v. FCC*, 533 F.2d 601 (D.C. Cir. 1976). (The FCC's power to regulate activities ancillary to broadcasting did not extend to common carrier, intrastate, point to point transmission of nonvideo communications.)

98. For a description of these forces, see Huffman, L., "Pressure Grows for Law Requiring Leased Access," *Multichannel News*, March 8, 1982, p. 1.

99. One alternative separations policy that would not require rate regulation would be to let market forces determine the price of a channel by auctioning off its use, with part or most of the revenue going to the municipality. This proposal, advanced earlier by the author, could reduce the private monopoly profit of the cable operators (and its incentives) by transferring it to the public (Noam, E.M., "Opening Up Cable TV," *New York Times*, March 19, 1981. See also Nadel, M.S., *op. cit.*, note 89, proposing a common carrier structure that would not require rate regulation.)

100. Simply moving a channel from one service tier to another can make a major difference in its success. See "The Buffalo Shuffle: TMC Gains, HBO Loses 27,000 in Channel Shift," *Multichannel News*, September 14, 1981, p. 40.

101. A double bidding structure, as suggested by Nadel (note 99), would allow the operator to express its monopoly power

through price discrimination. Monopoly profits could then be taxed away under that scheme.

102. See Liberman, H., "Common Carrier, CATV: Problems and Proposals," *Brooklyn Law Review* 37, 1971, p. 533.

103. For a general discussion, see Kahn, A.E., *The Economics of Regulation*, Santa Barbara: John Wiley & Sons, 1971. On the application of regulation to broadcasting, see Kahn, F., "Economic Regulation of Broadcasting as a Utility," *Journal of Broadcasting* 7, Spring 1963, p. 97.

104. Kahn, A.E., *Id.*, Vol. 2, p. 13.

105. Ross, L., "Economic and Legal Foundations of Cable Television," Sage Research Papers in the Social Sciences, #90-012, 1974.

106. See, e.g., *United States v. Western Electric Co., Inc.*, 1956 Trade Cas. (CCH) par. 68,246 (D.N.J. 1956) (Consent Decree).

107. The relationship of regulated and unregulated sectors of the communications are discussed in *Network Inquiry Final Report, op. cit.*, note 19, p. III-103f.

108. Barton, J.H., Dunn, D.A., Parker, E.B., and Rosse, J.N., *Nondiscriminatory Access to Cable Television Channels*, Stanford University Program in Information Technology and Communications, 1973. See Kalba, K., *Separating Content from Conduit?*, Cambridge: Kalba Bowen Asso., November 8, 1977. Pemberton, J., *Foreseeable Problems in a System of Maximum Access*, report paper for Sloan Commission, May 1971.

109. Similarly, in the microwave transmission medium MDS, which operates its two channels under a common carrier status, the first-come, first-serve rules have led to a pre-emption of many systems by large pay-TV suppliers such as HBO. See Comment, "The Development of Video Technology," *New York Law School Law Review* 25, 1980, pp. 789, 806.

110. The company overextended itself, however, in this attempt, and subsequently failed.

111. See *FCC Staff Report on Cable TV Cross Ownership Policy*, November 17, 1981 (henceforth *FCC Report*), pp. 134-138; Kalba, K., *op. cit.*, note 108, p. 31; Kestenbaum, L., *Common Carrier Access to Cable Communications: Regulatory and Economic Issues*, report to Sloan Commission, 1971.

112. See Goldberg, H., Ross, R., and Spector, P., "Cable Tele-

vision, Government Regulation, and the First Amendment,” *Communications/Entertainment Law Journal* 3, 1981, p. 577.

113. See Hartfield, D., “Local Distribution—The Next Frontier,” paper delivered at the Ninth Annual Telecommunications Policy Research Conference, Annapolis, Maryland, April 1981.

114. See Kalba, K., *op. cit.*, note 108, pp. 79-83.

According to the Commission’s staff:

Manhattan Cable verbally agreed, after the Show Cause Order in Case 27091 was issued in October 1976, to not further expand its data services if this agency would allow it to continue, without certification, operating its data “experiment” or “field trial” until completion. We agreed to give the company further time to evaluate the technical and economic feasibility of a permanent data offering. However, after about a three year grace period we began to suspect that the company was simply using stall tactics to avoid our jurisdiction.

About a year ago I visited the company, talked with its management, viewed its data facilities, and became aware that it had vastly expanded its data operations. Despite our repeated requests, Manhattan Cable has still not responded to the Show Cause Order, and I expect some additional formal Commission action to occur in the relatively near future. We have no desire to closely or oppressively regulate these services, but we continue to believe that we have an obligation to at least certify their operation as some form of “non-dominant” or “other” common carrier service (Douglas E. Sieg, communication to the author, March 5, 1982).

115. For a discussion of the effects of a separations policy in the film industry, see Conant, M., “The Impact of the ‘Paramount Decrees,’” in Balio, T., ed., *The American Film Industry*, Madison: University of Wisconsin Press, 1976, pp. 346-370.

116. See Coase, R., “The Economics of Broadcasting,” *American Economic Review* 56, May 1966, p. 440.

117. For an excellent summary of these arguments, see Wieland, B., “Programmvielfalt und Kommerzielles Fernsehen—Ergebnisse der Amerikanischen Television Economics,” *Rundfunk und Fernsehen* 29 (1), January 1981, p. 5.

118. Welles, C., “We Have Seen the Future of Video and It Sure Looks a Lot Like the Same Old Wasteland. Is That Their Fault or Ours?” *Esquire*, June 1980, p. 89.

119. Steiner, P., "Monopoly and Competition in Television: Some Policy Issues," *The Manchester School* 29, May 1961, p. 107; "Program Patterns and Preferences and the Workability of Competition in Radio Broadcasting," *Quarterly Journal of Economics*, May 1952, p. 194.

120. Owen, Beebe, and Manning, in particular, make this point. They also use simulations to predict the program mix under a variety of assumptions. The results show frequently a greater program variety under a competitive regime. See Owen, B., Beebe, J., and Manning, W., *Television Economics*, *op. cit.*, note 52. Also, Greenberg, E., and Barnett, H.J., "TV Program Diversity—New Evidence and Old Theories," *American Economic Review* 61, 1971, p. 89; Spence, M., and Owen, B., "Television Programming Competition and Welfare," *Quarterly Journal of Economics* 91, 1977, p. 103; and Levin, H., "Program Duplication, Diversity, and Effective Viewer Choices: Some Empirical Findings," *American Economic Review* 61, 1971, p. 81.

121. These problems would not be eliminated by a change in distribution technology. Under the existing system, all programs are carried on cable to each subscriber, who then selects which one to tune in. A different approach would permit the subscriber to call up his preferred program from some central facility. Such a technology has been used in several locations in both the United States and Europe. Under such a method, the cable operator could be a common carrier, although he need not be one. This system, too, would create a distribution monopolist able to control access of suppliers and impose discriminatory access rates.

122. A variant of this approach is the cooperative, in which viewers form an organization to supply themselves with cable programs at a reasonable rate.

123. *Cable TV Regulation*, No. 137, Paul Kagan Asso., April 2, 1981, p. 2.

124. See *Broadcasting*, May 3, 1982, p. 34.

125. See *Cable TV Regulation*, *op. cit.*, note 123, p. 1.

126. Bryan, M., "The New Pot of Gold: Cities Look at Cable TV Communications," *TV Communications*, May 1972, p. 2.

127. 47 C.F.R. 2 sec. 76.34. (Smith, D., "Local Taxation of

Cable Television Systems: The Constitutional Problems," *Catholic University Law Review* 24, 1975, p. 755.

128. E.g., note 126.

129. For a discussion of private vs. public broadcasting, see Hoffmann-Riem, W., *Kommerzielles Fernsehen*, Baden-Baden, Germany: Nomos Verlagsgesellschaft, 1981.

130. E.g., *Barnstone v. University of Houston*, 660 F.2d 137 (5th Cir. 1981) rev'g 514 F.Supp. 670 (S.D. Tex., 1980) (state university-owned public television station did not violate the First Amendment by refusing to broadcast film *Death of a Princess*). See *Cable TV Regulation*, *op. cit.*, note 123, p. 1.

131. *Id.*

132. *Id.*

133. *Id.*

134. For broadcasting, see Owen, B., "Structural Approaches to the Problem of Television Network Economic Dominance," *Duke Law Journal*, 1979, p. 191.; and Fisher, F., "Public Regulation: The Impact of Changing Technology. Community Antenna Television Systems and the Regulation of Television Broadcasting," *American Economic Review* 56, May 1966, p. 320.

135. The problems of broadcast regulation in general are discussed particularly in Noll, R., Peck, M., and McGowan, J., *op. cit.*, note 84, and in Levin, H., *Fact and Fancy in Television Regulation—An Economic Study of Policy Alternatives*, New York: Russell Sage Foundation, 1980.

136. See Johnson, L., and Botein, M., *Cable Television: The Process of Franchising*, Santa Monica: Rand Corporation, Report No. R-1135-NSF, March 1973.

137. See Collins, T., "The Future of Cable Communications and the Fairness Doctrine," *Catholic University Law Review* 24, 1975, p. 833.

138. See text accompanying notes 6 through 19.

139. 47 C.F.R. sec. 76.51-76.65 (1980).

140. Besen, S., and Crandall, R., "The Deregulation of Cable Television," *Law and Contemporary Problems* 44, 1981, pp. 77, 88.

141. See *Broadcasting*, October 20, 1980, pp. 30-31, and January 5, 1981, p. 37.

142. *Multichannel News*, August 17, 1981.

143. See, e.g., Friedlander, R., and Botein, M., *The Process of Cable Television Franchising: A New York City Case Study*, Communications Media Center, New York Law School, 1980.

144. *FCC v. Midwest Video Corp.*, 440 U.S. 689 (1979).

145. The economics of public access television are as far removed from Hollywood production as one can imagine. "The only cost to the producer is the price of studio time—in the range of fifty dollars an hour . . . Coca Crystal [the self-styled New York 'Queen of Cable'] subsists partly on food stamps . . . 'To me, it's amazing that on the same box you can see Bob Hope and Johnny Carson, you can see me on another channel' . . ." (in Levy, *op. cit.*, note 72, pp. 61-66).

146. But see *Home Box Office v. Wilkinson*, 531 F. Supp. 987 (D.C. Utah 1982) (striking down state statute imposing criminal penalty on anyone who "shall knowingly distribute by wire or cable any pornographic or indecent material to its subscribers").

147. *Multichannel News*, August 24, 1981, p. 17.

148. *Buckley v. Valeo*, 424 U.S. 1 (1976) (per curiam) (limiting the speech of one party in order to enhance others was held unconstitutional).

149. *Perry v. Sinderman*, 408 U.S. 493, 597-98 (1972); *Thomas v. Review Bd. of the Indiana Employment Security Div.*, 450 U.S. 707, 716 (1981) ("a person may not be compelled to choose between the exercise of a First Amendment right and participating in an otherwise available public program."); *Frost v. Railroad Com'n*, 271 U.S. 583, 594 (1926).

150. 47 C.F.R. sec. 76.59(b)-(c), 76.61(b)-(f), 76.63, 76.161 (1980).

151. *CATV Syndicated Exclusivity Rules*, 79 FCC2d 663, 48 R.R.2d 171 (1980), *aff'd*; *Malrite T.V. of New York v. FCC*, 652 F.2d 1140 (2d Cir. 1981), *cert. denied sub. nom. National Association of Broadcasters, et al., v. FCC*, 454 U.S. 1143 (1982).

152. Cities have already inserted themselves indirectly into program selection by frequently expecting franchise applicants to declare how they plan to fill the channels and what pay services they would use. These plans are then one factor in the award to franchises. On city negotiations for service packages, see Posner, R., "The Appropriate Scope of Regulation in the Cable Television In-

dustry," *Bell Journal of Economics and Management Science* 3, 1972, p. 98.

153. Botein, M., "CATV Regulation: A Jumble of Jurisdictions," *New York Law School Law Review* 45, 1970, p. 816.

154. In *United States v. Southwestern Cable Co.*, 392 U.S. 157 (1968), the Supreme Court upheld the FCC's cable regulations, finding them "reasonably ancillary to the effective performance of the commission's various responsibilities for the regulation of television broadcasting." *Id.*, p. 178.

155. See *Malrite T.V. of New York v. FCC*, *op. cit.*, note 151, and *Home Box Office v. FCC*, 567 F.2d 9 (D.C. Cir.), *cert. denied* 434 U.S. 829 (1977).

156. 47 C.F.R. sec. 76.67 (1980).

157. Whitley, J., "Cable Television: The Practical Implications of Local Regulation and Control," *Drake Law Review* 27, 1977-78, p. 391.

158. Schwartz, A., "Is Cable Doing Enough In Manhattan?," *New York Times*, November 8, 1981, sec. 2, p. 1.

159. Braunstein, Y., Kalba, K., and Levine, L., "The Economic Impact of State Cable TV Regulation," Cambridge: Harvard University Program on Information Resources Policy, paper no. P-78-7, 1978.

160. See LeDuc, D., "Control of Cable Television: The Senseless Assault on States' Rights," *Catholic University Law Review* 24, 1975, p. 795; and Jones, W.K., *op. cit.*, note 26.

161. See text accompanying notes 99 through 103.

162. See *Home Box Office v. FCC*, *op. cit.*, note 155, 567 F.2d 9, at 26-28.

163. But see note 154.

164. *Miami Herald Publishing Co. v. Tornillo*, 418 U.S. 241 (1974); *Home Box Office v. FCC*, 457 F.2d 9 (D.C. Cir. 1977) (*per curiam*), *cert. denied* 434 U.S. 828 (1977); cf. *Community Communications Co., Inc. v. City of Boulder, (Boulder II)*, 630 F.2d 704 (10th Cir. 1980) (holding *Tornillo* inapposite to cable questions). Bazelon, D., "FCC Regulation of the Telecommunications Press," *Duke Law Journal* 1975, 1975, p. 213.

165. Note, "Cable Television and the First Amendment," *Columbia Law Review* 71, 1971, p. 1008; Robinson, G., "The FCC and the First Amendment: Observations on 40 Years of Radio and Tele-

vision Regulation," *Minnesota Law Review* 52, 1967, p. 67.

166. 440 U.S. 689 (1979).

167. *Id.*, p. 709, n. 19.

168. *Midwest Video Corp. v. FCC*, 471 F.2d 1025, 1055 (8th Cir. 1978), *aff'd on other grounds*, 440 U.S. 689 (1979). See also, *Community Communications Co. v. City of Boulder*, 630 F.2d 704, 713-14 (10th Cir. 1980) (Markey, C.J., dissenting); but cf. *Boulder II*, *op. cit.*, note 164.

169. *Channels*, October/November 1981, p. 9.

170. *Home Box Office v. Wilkinson*, *op. cit.*, note 146.

171. David Bazelon, address delivered at the Ninth Annual Telecommunications Policy Research Conference, Annapolis, Maryland, April 1981.

172. See, e.g., Kahn, F., "Cable Competition and the Commission," *Catholic University Law Review* 24, 1975, p. 854.

173. *Final Report and Order*, 21 FCC2d 307 (1970); see also *FCC Report*, p. 143.

174. 47 C.F.R. sec. 64.601(a) (1980). An exception to the prohibition of cross-ownership is available through a waiver procedure for areas where cable franchises would not exist otherwise. *Op. cit.*, note 173, but see 81 FCC2d 233 (1980). So far, waivers have been granted in 96 cases (FCC Master Waiver Log, reported in National Cable Television Association, Comments to the FCC, FCC Docket No. 80-767, April 1981). AT&T's future ability to enter cable television, under the terms of the consent decree presently pending before the U.S. District Court for the District of Columbia, *op. cit.*, note 1, is discussed below.

175. 47 C.F.R. sec. 64.602 (1978): FCC (CC Docket 79-755), November 29, 1979, at 23. Recently, the FCC (CC Docket 80-767) exempted rural areas from cross-ownership rules (84 FCC2d 335 (1981)). To qualify, a telephone company's entire cable television area must be rural. *Telephony*, November 16, 1981, p. 11. The Commission also released a staff report which, while recommending the abolition of cross-ownership restrictions on television broadcasters and networks, argues against telephone companies' ownership of cable. *FCC Report*, *op. cit.*, note 173.

176. See generally, Martin, J., *Future Developments in Telecommunications*, Englewood Cliffs: Prentice-Hall, 1977, 2nd. ed.

177. *Id.*

178. Hill, "The Bell Settlement: The Threat Becomes Clear," *TVC*, February 15, 1982, p. 52.

179. Smith, D., "Local Taxation of Cable Television Systems: The Constitutional Problems," *Catholic University Law Review* 24, 1975, p. 755.

180. See *Final Report and Order*, *op. cit.*, note 173.

181. 21 FCC2d 307, 324 (1970).

182. P.L. No. 95-324.

183. *FCC Report*, *op. cit.*, note 173, at 162-3.

184. See Brock, *op. cit.*, note 2.

185. Similarly, in 1925 AT&T divested itself, under government pressure, of its international telephone operations, and in 1926 from its domestic broadcast interests. In 1935, it exited from the talking motion picture business. *Id.*

186. *Final Report and Order*, 21 FCC2d 307 (1970).

187. *Id.* at 324.

188. *Id.* at 314.

189. 47 C.F.R. sec. 64.601(a) (1980).

190. See note 106.

191. *FCC Report*, *op. cit.*, note 173.

192. "FCC Study Said to Back Telco Ownership Ban," *Multi-channel News*, September 21, 1981, p. 4.

193. The separation between cable and telephone communications, regulation-induced as it may be, has nevertheless created certain psychological barriers: "The telephone companies and the cable television (CATV) industry know very little about each other." Barbera, A., "The Cable-Phone Relationship: A New Partnership Being Born?" *Telephony*, August 17, 1981, p. 20.

194. Schumpeter, J.A., *Capitalism, Socialism, and Democracy*, New York: Harper, 1942; Mansfield, E., *Industrial Research and Technological Innovation*, New York: Norton, 1968.

195. This infancy period is analogous to William K. Jones' transition period leading to a common carrier status. See Jones, W.K., *op. cit.*, note 26.

196. See text accompanying note 74.

197. Baumol, W.J., "Contestable Markets: An Uprising in the Theory of Industry Structure," *American Economic Review* 72, 1982, p. 1. These views are presented in more detail in Baumol, Panzar, and Willig, *Contestable Markets and the Theory of Industry*

Structure, New York: Harcourt Brace Jovanovich, 1982.

198. Even if cable television transmission is a natural monopoly (i.e., in that it exhibits continuously falling average costs; Kahn, *op. cit.*, note 103, in Vol. II, pp. 119-122), such findings are conclusive only for the single-product firm, that is, a pure cable operator, but not necessarily for a "multiproduct" firm such as a telephone company for which cable transmission is part of joint product (integrated communications services). Panzar and Willig, "Free Entry and the Sustainability of Natural Monopoly," *Bell Journal of Economics* 8, 1977, p. 1. Baumol, Bailey, and Willig, *op. cit.*, note 30, p. 350). This work stresses the importance of "contestability" markets, where monopolists are required to behave as a competitive firm would if entry by a rival were possible.

199. See, e.g., Rural Electrification Administration, *The Economies of Rural Telephone and CATV Integration*, August 22, 1977.

200. *Waiver of Cross Ownership Rules*, 82 F.C.C. 2d 266, 273 (1980) (separate statement of Comm'r Fogarty).

201. Kahn, A.E., *op. cit.*, note 103, in Vol. I, pp. 102-103, 143, 190-191.

202. F.C.C. Docket CC 80-767, April 1, 1981.

203. *FCC Report*, *op. cit.*, note 173, pp. 154-158.

204. *Final Report and Order*, 21 F.C.C. 2d 307 (1970) (Fogarty, Comm'r, concurring).

205. For example, American Express, Westinghouse, General Electric, Time Inc., and the New York Times have acquired major cable systems. Liebowitz, D., *op. cit.*, note 10, p. 63.

206. Dent, G., "Booby Traps of Cable TV Appraisal," *Banking*, March 1977, p. 100. See also Goldberg, V., "Marginal Cost Pricing, Investment Theory and CATV: Comment," *Journal of Law and Economics* 14, 1971, p. 513.

207. See note 176.

208. See Nicholson, V., "Will Cable Operators Provide Subscribers with Video Telephones?," *TVC*, May 15, 1979, p. 158.

209. See Martin, J., *op. cit.*, note 176.

210. Barbera, *op. cit.*, note 193.

211. See *Multichannel News*, December 7, 1981, p. 1 and *infra*.

212. See Goldberg, Ross, and Spector, *op. cit.*, note 112.

213. *MCI Telecommunications Corp. v. FCC*, 580 F.2d 590 (D.C. Cir.) *cert. denied* 439 U.S. 980 (1980) (requiring AT&T to

grant access to competitors under common carrier service obligations).

214. Pollack, A., "Bell Facing New Challenge," *New York Times*, August 28, 1981, p. D1.

215. For details of the operation, see "Multichannel Industries Aim at Growing Business Data Markets," *Multichannel Technology Report*, Supplement to *Multichannel News*, March 1, 1982, p. II-18.

216. Among the user-participants in these experimental services were American International Group Realty; American International Companies; Control Data Corporation; Depository Trust Company; Wells Fargo Bank; ITT World Communications; Merrill, Lynch, Pierce, Fenner and Smith; and RCA Americom. See note 215.

217. *House Report*, *op. cit.*, note 2, p. 206.

218. Charter, J., Hatfield, D., and Salamon, R., *Local Distribution—The Next Frontier*, U.S. Dept. of Commerce, April 1981.

219. Cited in Kalba, K., *Separating Content from Conduit?*, *op. cit.*, note 108.

220. For broadcast time pricing see Ohls, J.C., "Marginal Cost Pricing, Investment Theory and CATV: A Reply," *Journal of Law and Economics* 14, 1970, p. 517. For telecommunications, see Squire, L., "Some Aspects of Optimal Pricing for Telecommunications," *Bell Journal of Economics and Management Science* 2, 1971, p. 515.

221. *Computer Inquiry II*, 77 FCC2d 384 (1980), on reconsideration 84 FCC2d 512 (1981), review pending sub. nom. *Computer & Communications Industry Ass'n v. FCC*, (D.C. Cir.), Nos. 80-1471 et al.

222. See S. 898, 97th Congress, 1st Session.

223. On television pricing, see Minasian, J., "Television Pricing and the Theory of Public Goods," *Journal of Law and Economics* 7, 1964, p. 71; Samuelson, P., "Public Goods and Subscription TV: Correction of the Record," *Journal of Law and Economics* 7, 1964, p. 81; and Peterman, J., "Concentration of Control and the Price of Television Time," *American Economic Review* 61, 1971, p. 71.

224. This decrease in the price for basic service is occurring already, even without competition, since it lures subscribers to the lucrative pay services and provides an audience for advertising messages. The presence of competition, however, would assure the continuance of this trend.

225. *U.S. v. American Telephone and Telegraph Company*, Civil

Action No. 74-1698, modifying *U.S. v. Western Electric Co., Inc.*, Civil Action No. 17-49 (D.C.N.J. Jan. 14, 1982) (Modification of Final Judgment) U.S.D.C. (J.J.).

226. *Cablevision*, January 25, 1982, p. 27.

227. No definition for "natural monopoly" is supplied, nor is it specified what to do if the naturally monopolistic services would become competitive in the future.

228. For details, see Noam, E.M., "Economies of Scale and Competitive Entry in Cable Television," Columbia University unpublished manuscript, December 1982.

229. Cable companies are not subject to a rate-of-return regulation that permits the flow-through of taxes to customers.

230. See Ibbotson, R.G., and Sinquefeld, R.A., *Stocks, Bonds, Bills, and Inflation: The Past (1926-1976) and the Future (1977-2000)*, Charlottesville, VA.: Financial Analysis Research Foundation, 1979.

231. Sharpe, W.F., "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk," *Journal of Finance* 19 (1964), pp. 425-442; Lintner, J., "Security Prices, Risk, and Maximal Gains from Diversification," *Journal of Finance* 20 (1965), pp. 587-616.

232. Moody's Investor Services, *Moody's Bond Survey*, 1981.

233. Moody's Investor Services, *op. cit.*, note 233.

234. Horrigan, J.O., "The Determination of Long-Term Credit Standing with Financial Ratios," *Journal of Accounting Research* 4 (Suppl.) (1966), pp. 44-62.

235. Pogue, T.F. and Saldofsky, R.M., "What's in a Bond Rating?" *Journal of Financial and Quantitative Analysis* 4 (1969), pp. 201-228.

236. Pinchas, G.E. and Mingo, K.A., "A Note on the Role of Subordination in Determining Bond Ratings," *Journal of Finance* 30 (1975), pp.201-206; Pinchas, G.E. and Mingo, K.A., "A Multivariate Analysis of Industrial Bond Ratings," *Journal of Finance* 28 (1973), pp. 1-18.

237. Altman, E. and Katz, S., "Statistical Bond Rating Classification Using Financial and Accounting Data," in Schiff, M. and Sorter, G., eds., *Proceedings of the Conference on Topical Research in Accounting*, New York: New York University School of Business, 1976.

238. See Kaplan, R.S., and Urwitz, G., "Statistical Models of

Bond Ratings: A Methodological Inquiry," *Journal of Business* 52, 1979, p. 231.

239. For low ratings, no interest rates are reported by the services. For the lowest rating (C), the values estimated by an investment banker specializing in cable television were used (4 percent above prime); for the next higher ratings, interest rates were reduced proportionally until the reported ratings were reached.