# The Merits of Reserving the Cost-Savings from Domestic Communications Satellites for Support of Educational Television

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On August 1, 1966, the Ford Foundation proposed the creation of a federally-chartered non-profit corporation to establish and operate a domestic communications satellite system for the transmission of radio and television programs and to use the cost-savings thereby realized for the support of educational television (ETV).[1]

This article discusses the economic merits of the particular method of financing envisaged in the Ford proposal. Accordingly, we are not directly concerned with the case for additional public support for ETV. We take that case as proved, and consider the benefits of such support only to the extent necessary to reach a verdict on the method proposed for raising the funds. Nor are we concerned with the particular administrative arrangements proposed.[2] The question we pose is simply whether it would be appropriate to finance ETV by withholding from the television networks the cost-savings made possible by the use of domestic communications satellite to provide their interconnections, charging them not the lower cost of satellite transmission but something closer to what they now pay.[3]

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1. *Comments of the Ford Foundation in Response to the Commission's Notice of Inquiry of March 2, 1966. In re* The Establishment of Domestic Non-common Carrier Communications-satellite Facilities by Non-governmental Entities, Dkt. 16495 (FCC, Aug. 1, 1966). *See also* later submissions by the Foundation in the same proceedings, Dec. 12, 1966, and April 3, 1967; *Hearings on the Ford Foundation Proposal for a Broadcasters Non-Profit Satellite Service Before the Subcomm. on Communications of the Senate Comm. on Commerce*, 89th Cong., 2d Sess., ser. 89-78 (1966) [hereinafter cited as *1966 Hearings*].

2. Thus, we do not consider the question of whether it might be more efficient to combine all domestic satellite communications in a single carrier, as proposed by the Communications Satellite Corporation, rather than have the broadcast transmission services handled separately by Ford's Broadcasters' Nonprofit Satellite Service. *See 1966 Hearings* 119-23 (remarks of Mr. McCormack).

3. There are any number of ways in which the Federal Communications Commission might choose to organize the domestic satellite system and to distribute the benefits among various users of communications services. We address ourselves only to the alternative of providing broadcasters with interconnection services at the lower costs of satellite transmission.

Our analysis must start with the proposition that any proposal to hold prices above cost (including in the latter a return on investment equivalent at least to the cost of capital) is prima facie objectionable on economic grounds. The economic rational of a competitive market economy is principally that effective competition holds prices down to cost—that, moreover, it spurs constant savings in costs which it then forces producers to pass on to consumers in the form of lower prices. And the logic of regulation in the public utility arena, where technological considerations preclude complete reliance on competition, is that it strives for the same result.

There are, however, two principal limitations of the competitive model as a guide to public policy, and both are directly relevant here. First, many markets are not effectively competitive. Television broadcasting is one such market: distortions and imperfections are already present. Public intervention in the form of taxation and subsidy may therefore produce an improved rather than a poorer performance.

Second, the competitive model does not permit the financing of desirable public services—that is, of economically justifiable uses of resources which are not sufficiently provided by the operation of the market mechanism; and we here assume that ETV is such a service. Except for levies on pure economic rents—the single tax advocated by Henry George—there are practically no neutral taxes; no taxes, that is, that do not in one way or another distort the functioning of a price system. Individual excise taxes alter the relationship between price and production cost, hence artificially discourage the consumption of some of the taxed commodities compared with others; and general excise taxes affect the decisions of households to expend on consumption or to save. Income taxes are taxes on work, saving, and investment; so they too introduce an extraneous consideration into these decisions.[4]

The economic question that must be asked about any tax, then, is whether the distortions it introduces are serious (both absolutely and as compared with available alternatives) and how these negative effects compare with the positive benefits conferred by the service thus provided. On balance, that is, do the tax and subsidy together result in a better or a worse allocation of resources? There is also a political question to be considered. Every tax and subsidy changes the distribution

4. *See* R. MUSGRAVE, THE THEORY OF PUBLIC FINANCE 140-59 (1959); for a survey of some of the literature, see Ruggles, *Recent Developments in the Theory of Marginal Cost Pricing*, 17 REV. ECON. STUDIES 107, 110-11, 119 (1949). As Musgrave points out, a head tax would be neutral and so would taxes imposed on goods or activities (including leisure) which have zero rates of substitution—*i.e.*, the demand or supply of which is unresponsive to the tax-caused change in relative price.

of income: the incidence of taxes and benefits will not be identical. Accordingly, in appraising the tax one must also ask whether the particular methods of financing comport with the community's standards of fairness in the distribution of burdens and benefits.

The Ford Foundation's proposal shows up unusually favorably in the light of these considerations. The distortions it introduces, its effect in discouraging the supply and consumption of the taxed services, will in our judgment be slight; the tax selected is a particularly fair and apt method of providing for the benefits envisaged; and the combined effect of the levy on the one hand and the ETV services it will be used to finance, on the other, will be to produce not a poorer but a markedly better allocation of resources to and within television. These conclusions rest on a series of interrelated economic propositions which this paper will develop and analyze:

1. The major economic objection to holding some prices above cost is that any such policy unduly discourages utilization of the services in question; the weight of the objection therefore depends on the elasticity of demand. In the present instance, the elasticity of demand is low.

2. The television industry as now constituted is economically defective. Its structure fails to conform to the competitive model, and it fails to make optimal use of the limited radio spectrum. Reducing the rates for network interconnections would do comparatively little to improve its economic performance.

3. Use of the cost-savings to support ETV instead would make a much greater contribution to remedying some of these very defects. The combined effect of the levy on the one hand and its use to subsidize ETV on the other would therefore be to improve the economic performance of this industry.

The relevant political propositions, to which we devote relatively little attention, are these: (a) it is particularly appropriate to finance ETV in this fashion because the cost-savings to be diverted to this public purpose are themselves largely the product of taxpayer-financed research and development;[5] (b) the question is not one of levying additional burdens on the television networks, but only of refraining from

5. This consideration does not answer the specific and more challenging question of why these particular cost-savings from this particular taxpayer-financed research should be recouped and, if so, used for this particular public purpose: why, for example, recover the cost-savings only from broadcast networks rather than from all users of communications services? And why use the proceeds for ETV rather than, say, to help pay the cost of national defense, the poverty programs or public schools? These were, essentially, the queries posed by the Presidents of CBS and NBC. *See 1966 Hearings* 187, 191-94, 198.

passing on to them this particular bonus;[6] (c) the kinds of income that would be increased if the bonus were passed on are mainly monopoly profits and economic rents, themselves resulting from the free gift of valuable franchises for use of the spectrum.

## I. The Consequences of Passing the Savings on in Lower Rates to TV Networks

The proper way to assess the economic costs of the Ford Foundation's "tax" proposal is to consider the various possible consequences of taking the opposite course of decreasing the charges the networks pay for transmitting programs to affiliated stations by the amount of the savings enjoyed as a result of transmission by satellite. The following five subsections would seem to exhaust those possibilities.

### A. *Increase in Network Profits*

The first consequence of passing the new economies along to the networks would undoubtedly be an increase in network profits. The costs of networking would be diminished, and at least initially network rates and revenues would be unchanged. To the extent that the networks merely retained these additional profits, the reduction in rates to them would confer no social or economic benefits at all on the economy at large.

By all indications, network profits are already far above the level which would be necessary to attract capital if entry were otherwise free. Unfortunately, since the financial data reported by the Federal Communications Commission lump together the operations of the networks as such and those of their owned and operated television stations, we have no regularly published figures on the profitability of the former alone. We can, however, make some fairly sound surmises about their profitability on the basis of what we do know. As Table 1 shows, the before-tax profits earned by the three networks and their 15 owned and operated stations in 1966 amounted to no less than 148.2 per cent of their net investment in tangible broadcast properties. However this figure exaggerates the rate of return on their total capital investment because it does not include working capital. If, for example,

6. This too is a political consideration: a "tax" is generally more palatable if it represents merely a withholding of future benefits rather than a taking of something people already have. In economic terms the distinction is unimportant: the evil consists in introducing a gap between price and cost, whether by imposing a tax that forces price up relative to cost or by holding up price as costs fall.

TABLE 1
RATES OF RETURN, BEFORE TAX, ON INVESTMENT IN TANGIBLE BROADCAST PROPERTY, 1958-66 (in %)

| | Three Networks and Their Owned And Operated TV Stations | | Other Commercial Television Stations | |
|---|---|---|---|---|
| | Rate of Return on Original Cost (1) | Rate of Return on Depreciated Cost (2) | Rate of Return on Original Cost (3) | Rate of Return on Depreciated Cost (4) |
| 1958 | 56.6 | 93.2 | 24.5 | 45.0 |
| 1959 | 62.7 | 109.6 | 31.8 | 60.0 |
| 1960 | 67.8 | 124.0 | 32.9 | 65.7 |
| 1961 | 63.9 | 119.3 | 30.3 | 61.4 |
| 1962 | 78.4 | 148.3 | 37.7 | 76.2 |
| 1963 | 87.4 | 162.7 | 36.5 | 75.2 |
| 1964 | 95.1 | 172.8 | 42.0 | 85.7 |
| 1965 | 96.8 | 166.0 | 41.3 | 81.5 |
| 1966 | 91.3 | 148.2 | 37.8 | 72.2 |

*Source:* Federal Communications Commission, *Annual Reports*, 1959-66, and *TV Broadcast Financial Data—1966* (mimeo., Aug. 25, 1967).

their investment in working capital was as great as the net book value of their investment in tangible broadcast properties, their rate of profit ought to be reckoned at 74.1 per cent rather than 148.2 per cent.[7] Further, the independent networking operations are probably less profitable than station ownership and operation; accordingly, we may perhaps go as far as to halve again the foregoing figure to get a roughly accurate picture of the return on stockholders' equity in networking.[8] These adjustments make the contrast between network profits and the the profit rate in industry generally a good deal less dramatic,[9] but the

7. One limited piece of evidence suggests that this correction may be of the appropriate order of magnitude to reflect their rate of return on equity. The FCC's network study found that in 1955 the network operations alone of CBS and NBC earned 87.7 per cent (as always, before federal income tax) on depreciated investment in tangible property and 40.2 per cent on equity. HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, NETWORK BROADCASTING, H.R. REP. No. 1297, 85th Cong., 2d Sess. 204 (1958) [hereinafter cited as NETWORK BROADCASTING]. The data it presented do not permit us to determine whether the ratio of net investment in tangible property to stockholders' equity for the network operation alone, reflected in the difference between the 87.7 and 40.2 per cent rates, would be appropriate for owned and operated stations as well, profits for which are included in our 148.2 per cent figure for 1966.

8. This second adjustment would bring the 1965 figure close to the 40.2 per cent earned in 1955. *See* note 7 *supra*. In that year, CBS and NBC earned 278.7 per cent on depreciated tangible investment in their stations, compared with the above cited 87.7 per cent in networking. NETWORK BROADCASTING 204. Since the 1966 data were received after this paper was completed, the textual references to them are few.

9. After-tax profits of the 3,862 corporations surveyed by the First National City Bank amounted to 11.1 per cent on owners' equity in 1965, suggesting a return of something like 22 per cent before tax. *Monthly Economic Letter*, April 1966, at 41.

The fact that the ABC network is apparently far less profitable than CBS and NBC

adjustments are probably excessive and in any case the return is still comparatively very high.[10] Thus, the conclusion that network profits are considerably greater than would be necessary to attract capital but for the enormous barriers to entry still seems valid.[11] Rates of return of this order of magnitude strongly suggest that no social purpose is served by any reduction in rates that would merely serve to increase profits.

But of course even monopolies earning unusually high profits may well respond to a reduction in the price of their inputs by expanding their output and reducing prices. In what ways might the networks make such a response to a reduction in the price of interconnections?

B. *Increased Expenditures on Programs*

One dimension of the "output" of networks is the quality of their programs. Setting aside for the moment the question of whether and in what sense increased expenditures on programming do in fact lead to improvements in quality, we must concede that in some sense higher outlays are a way of attempting to achieve this result. And it is conceivable that a reduction of transmission costs could either permit or induce the networks to spend more money in this fashion on programs, thus passing on the benefits to their "consumers"—advertisers on the one hand, viewers on the other.

There is, however, no economic reason whatever to expect such a direct response, at least in the area of regular programming.[12] A reduc-

(reportedly suffering a $9 million loss on total revenues of $320 million in 1966, Albrook, *TV's Autumn of Appraisal*, FORTUNE, Oct. 1967, at 136-37) raises the additional question of whether the high profits in question are properly attributable to the monopolistic character of "the industry" or to special advantages of the two dominant firms. *See* note 10 *infra*.

10. It is not clear to what extent one is justified in completely separating the network and station profits, to what extent, that is, the networks' ownership of the by-far most lucrative stations (*see* Table 1 *supra*; *see also* ANTITRUST SUBCOMM. OF THE HOUSE COMM. ON THE JUDICIARY, REPORT ON THE TELEVISION BROADCASTING INDUSTRY, H.R. REP. NO. 607, 85th Cong., 1st Sess. 31-33 (1957) [hereinafter cited as the CELLER COMMITTEE REPORT]; in 1966 the before-tax profits of the 15 network-owned stations amounted to no less than 41 per cent of revenues; the corresponding figure for the 593 other stations reporting to the FCC was not quite 30 per cent; *TV Broadcast Financial Data—1966*) is independent of their dominant position as networks. *See* NETWORK BROADCASTING 571-72, 579-84; United States v. Radio Corp. of America, 358 U.S. 334 (1959); consent decree, 1959 Trade Cas. 75752 (E.D. Pa. 1959). Or, to put it another way, it is not clear to what extent the lower profits nominally earned on the networking operations (a loss in the case of ABC) are not appropriately regarded as merely nominal, a price these companies must pay to provide adequate programming for their extremely profitable stations.

So it is impossible from the available statistics to assert to what extent the networks' very high rate of return on their combined operations reflects an absence of effective competition among them in their role as networks—that is, as suppliers of television programming to affiliated stations—and to what extent instead strictly economic rents earned by their owned and operated stations.

11. This is the conclusion also of NETWORK BROADCASTING 203-06.

12. For the significance of this qualification, see p. 502 *infra*.

tion in transmission costs has no effect whatever on the cost of producing programs. Before any such reduction, the networks presumably have been determining their optimum expenditures on program quality by comparing the costs of production with the anticipated revenues from advertising, for programs of various qualities and degrees of expensiveness. More specifically, if they are operating rationally, they have been maximizing their profits by increasing outlays on program quality only insofar as the incremental costs thereof were exceeded by the incremental revenues. There is no reason why a mere reduction in regular interconnection charges[13] should in any way alter that calculus, since it would have no direct impact on either the cost or the revenue functions. It might conceivably have an indirect effect on the latter: by enabling the network to induce a larger number of stations to carry its programs, a reduction in interconnection charges might increase the price advertisers would be willing to pay for programs of a given quality. We shall consider this possibility in more detail below; but since we shall conclude that the tendency of a reduction in charges to increase the total audience for network programs (and thus the value of the programs to advertisers) will be slight, its potential indirect effect on the revenue function can be ignored in the present discussion.

The crucial economic consideration is that the rates the networks pay for continuous interconnections represent a fixed, not a variable cost of regular programming; and it is reductions in variable costs only (defined in the short or long run) that may lead to increases in output. If, then, before the rate reduction went into effect, a network would have rejected the next possible improvement in programming, because the cost would be, say $1,000, whereas advertisers would be willing to pay for it only an additional $990, the same incremental outlay would still be unprofitable after the reduction in transmission rates went into effect. The relevant program improvement would still cost $1,000 and (absent the indirect effect alluded to above) advertisers could still be expected to pay no more than $990 for it.

This reasoning applies only if the networks are profit-maximizers, but we see no reason to doubt the essential validity of that premise. Their profit rates clearly suggest a policy of charging what the traffic will bear. It is true that the networks do put on public service programs on which, nominally at least, they lose money. But two considerations suggest that this practice does not basically qualify our assumption about their true

13. These are the monthly contractual rates the networks pay for eight- or sixteen-hours-daily connection with their affiliated stations.

nature. First, networks do not ordinarily show such programs during prime viewing hours, when the loss in revenues would be most severe. Second, to some extent they feel obliged to engage in public service programming for profit-maximizing reasons: recognizing that as beneficiaries of extremely valuable public franchises their performance is under public scrutiny, they regard some programming of this kind as a necessary price to pay for the continued enjoyment of their privileges with a minimum of regulation.

It must be conceded that the motivation for public-service programming is in part non-pecuniary. Television executives are certainly not immune to the instinct of workmanship. But to the extent that this is their motivation, the quality of their programs is not responsive to ordinary economic incentives. In either case, then, there is no economically reliable basis for predicting that any reductions in transmission costs would be translated into a more public-service-oriented performance on the part of the networks.[14] Moreover, it should be kept in mind that the alternative envisaged by the Ford Foundation proposal would devote the totality of the cost-savings directly and explicitly to the support of ETV.[15]

14. Our reasoning here is in partial conflict with that of Harvey J. Levin, when he declines to endorse the introduction of competitive bidding for renewal rights of existing station licenses for fear that this change would, by shortening the time horizons of existing broadcasters, lead to a debasement of program quality—a prediction based explicitly on the premise that broadcasters are not pure profit-maximizers. Levin, *Federal Control of Entry in the Broadcast Industry*, 5 J. LAW & ECON. 58-61 (1962). We do not here appraise his conclusion, but it is not necessarily inconsistent with ours: he is referring to the possible effects of reducing broadcasters' profits to the purely competitive level and exposing them periodically to the possibility of losing their franchises to higher bidders; we refer to the likely effect on program quality of increasing the already supernormal profits of established, dominant networks.

It would seem that the increasingly intense competition among the networks in program outlays, which is apparently responsible for the recent decline in their rates of return reflected in Table 1 (To give only two examples, NBC spent $1.5 million on the 1964 Olympic Games in Tokyo; ABC recently offered $4.5 million for the broadcast rights on the 1968 summer games. The prices paid for old movies have increased in a few years from $100,000 to an average of $650,000. Albrook, *TV's Autumn*, FORTUNE, Oct. 1967, at 139, 226 & *passim.*) similarly reflects a failure to profit-maximize. The explanatory model would seem to be that of an imperfectly-collusive oligopoly, competing in an intensifying process of what J.M. Clark has termed "product inflation." J. CLARK, COMPETITION AS A DYNAMIC PROCESS 252-57 (1961). In this event, lower costs of transmission might well give the networks additional dollars, some of which they might spend in bidding up even higher the prices of programs and talent. *But see* note 15 *infra.*

The unlikelihood of their being used to put on more public service or network-sponsored programs is suggested by the fact that, as the demand for prime time and its price have risen, the networks have apparently reduced programming of this kind. *See* Vidal, *Classy TV*, NEW YORK REVIEW OF BOOKS, Dec. 7, 1967, at 27.

15. Our argument has, we think, shown that it would be illogical for the networks to increase their expenditures on commercial programming because of a reduction in transmission costs. What if we are mistaken: what if they were to apply the cost-savings for this kind of purpose? In large measure, the increased expenditures would not benefit the viewing public at all, but would go—as they have gone in recent years—to bid up the

However, one important category of charges for interstate transmission is a variable cost of programming; namely the costs of occasional, as opposed to regular, interconnections. Reductions in such costs could therefore result in a significant improvement in program offerings. The costs of set-ups for special news or sports events—the earthquake in Alaska, the Olympic games in Mexico City—in places which (in contrast with, say, the White House) have no regular hook-ups with the networks, can be extremely high and do play an important role in determining whether the programs in question will be produced.[16] By obviating the necessity of laying costly special lines, the satellite could produce cost-savings which—if passed on—would induce the networks to offer a fuller and richer variety of special-events programming of this kind.

It would therefore be very important, if the Ford Foundation proposal were adopted, for the satellite corporation to set up two categories of charges (as does A.T.&T. at present): one for regular, normal, fixed interconnections and another for occasional hook-ups. Demand for the former, we have concluded, is inelastic, so far as programming effort is concerned; and there can be no economic objection based on considerations of program quality to holding charges for them far above incremental costs. Demand for the latter could well be highly elastic, justifying a reduction of charges down to incremental costs. Our support for the Ford proposal is therefore conditioned on its recognition of this distinction between the two sets of charges.

C. *Reduced Rates to Advertisers*

The possibility that lower interconnection charges might lead to reductions in the rates charged for advertising can be dismissed summarily. In their relations with advertisers, the networks are not charitable organizations. There seems no reason to doubt that they charge whatever the traffic will bear. What they have to offer to advertisers is

prices networks pay for old movies, for the right to televise sporting contests, for salaries of established entertainers: that is, they would merely inflate economic rents. It must be conceded that these expenditures would also to some extent go to develop new entertainers, to sponsor new programs, and the higher prices would encourage additions to the supply. But the nature of the competition, as we will point out below, would mainly be such as to develop performers and performances essentially duplicative and imitative of those currently broadcast. The contrast with the way in which these funds would be used if the Ford Foundation proposal were adopted requires no further elaboration.

16. [T]he Network Study Staff was informed that the occasional use rates discouraged all but the largest stations from televising live events outside their local community. A number of stations contended that current program transmission rates made such broadcasting of special events uneconomic.
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a certain amount of time associated with programs of various possible qualities and various corresponding probable audiences. Reduction in the fixed costs of transmission to network affiliates will not directly alter the amount of time they have available to sell, or induce them to alter the quality of the programs. Nor will it, therefore, alter the amounts that advertisers are willing to pay for various units of time at various hours associated with programs of various qualities. In short, it will directly change neither the demand nor the relevant supply or cost functions.[17] Accordingly, networks have no reason whatever to respond to reduced interconnection rates by cutting their prices to advertisers. (The effect of the possible *indirect* chain of circumstances already suggested—reduced interconnection charges permitting more stations to be added to the package offered to advertisers—could only *increase* the time charges, by making given programs and units of time more valuable than before—*i.e.*, by moving the advertisers' demand curves to the right.)[18]

17. Though the amount of program time actually available is fixed, it is still true that some network programs go unsponsored; lower rates might, therefore, increase sales. But if the networks felt that the demand was sufficiently elastic so that they could obtain more total revenues from time sales by reducing their rates, either generally or selectively, they would have done so in any case, without uniting for a reduction in the fixed transmission charges.

18. This conclusion would seem to conflict with Joseph A. Pechman's contention that the imposition of a gross receipts tax on the broadcasting industry "would doubtless be shifted fairly promptly in higher charges to advertisers . . . ." Submission of the Ford Foundation, vol. I, at 37, in FCC Dkt. 16245 (Dec. 12, 1966). *Reduced* interconnection charges would either have no effect on charges to advertisers or would *increase* them. A tax on gross broadcasting receipts would either have no effect on these charges or would *decrease* them. To set forth our reasoning in detail would unduly burden this article; we therefore confine ourselves here to brief statements of the two reasons for our prediction.

First, to the extent that the broadcasting industry as a whole sells a fixed amount of available time for whatever the traffic will bear, the imposition of a tax will not alter the optimum price from its point of view; and the tax will therefore come out of its economic rents. If the industry could have recovered larger net revenues from advertisers by raising rates, there is no reason why it would not have done so before the tax was imposed.

But, second, a gross receipts tax (in contrast with higher interconnection charges) is a tax on the variable costs of programming, which would therefore be expected to make any given incremental expenditures on program quality less attractive than before. For example, the networks might, before imposition of the tax, have found it profitable to make an incremental expenditure of $1,000 on programs, because advertisers were willing to pay $1,010 in additional fees in order to have their messages associated with that superior product. The imposition of a 5 per cent gross receipts tax would make that incremental expenditure unprofitable, since of the $1,000 additional revenue only $959.59 would remain with the networks. Therefore, the tax could induce a reduction in the expenditures for output, along the "quality" dimension. The effect of such a reduction in the industry's marginal revenue (or increase in its marginal cost) curve would probably therefore increase the average cost to advertisers of reaching any given number of viewers—*i.e.*, the tax would probably be passed on, in the familiar manner, in an increase in customers' costs *per viewer*.

It is difficult to see, however, that this change could make advertisers willing to pay higher charges than before *per hour* of program time. The hours now offered them are of poorer quality, will attract fewer potential customers; they will presumably therefore bring a lower, not a higher price.

D. *Increased Distribution of Revenues to Affiliated Stations*

The costs of interconnection are an important determinant of how large a share of network advertising revenues is distributed to the affiliated stations. They affect both the standard compensation arrangements and the differences in the way individual stations are treated. For example, since the costs of connecting small stations are large relative to the revenues they promise to generate, such stations tend to receive less favorable compensation, and are in some cases required to assume the costs of interconnection themselves.[19] There are two forces tending to perpetuate this relationship between interconnection costs and the revenues of affiliated stations. One is the competition among networks for desirable affiliates.[20] The other is the desire of each network to influence its affiliated stations to take network programs instead of selling their own time directly to advertisers.[21]

There seems little reason to doubt that competitive pressures would force the networks to pass on to their affiliates and to other stations on the margin of affiliation a large portion of any savings in transmission costs. But whether this windfall to the affiliates would improve the allocation of resources and not merely transfer income to the station-owners, depends on the elasticity of response by stations, existing and potential, to those higher proffered revenues.

Assume at one extreme (1) that all existing stations are already hooked up with networks—or that interconnection costs are no obstacle to their becoming affiliated, (2) that the spectrum is full, so that there is no room for entry of new stations, and (3) that such additional inducements to carry network programs as reduced interconnection charges would enable the networks to offer their affiliates, would be too small to influence the latters' programming decisions. In these circumstances, the interconnection costs may be taken as fixed charges, with no effect on output. Thus, with the relevant dimension of "out-

19. NETWORK BROADCASTING 448-50, 455-61, 541, 546.

20. *Id.*, 462-66.

21. *See* Peterman, *The Structure of National Time Rates in the Television Broadcasting Industry*, 8 J. LAW & ECON. 86-91 (1965), for a discussion of the delicate balance of economic considerations determining the equilibrium reached by each individual station between network and national spot time sales. A poignant illustration of the pressure this exerts on the networks is provided by the difficulties of ABC, which suffers not only from having fewer affiliates than its two older competitors but also from the fact that its stations "tend to unplug the network shows more frequently in favor of profitable local programming, part of a vicious circle in which smaller national audiences mean lower network advertising rates, lower payments by the network to the stations, less use of network programming by the stations, and so on down the spiral." Albrook, *supra* note 14, at 137. Clearly the money-losing ABC network might well use savings in interconnection costs to improve its compensation arrangements with affiliates.

put" defined as the number of viewers to whom network programs[22] are made available, supply proves to be inelastic, unresponsive to the reduction in costs; the benefits are not passed on to the viewing public.

Suppose instead that the possible network connections with various existing stations are incomplete, or that existing affiliates carry fewer network programs than they would if offered greater compensation, or that additional stations might be set up were it economically feasible for them to receive network programs. And suppose, finally, that the costs of interconnection are a factor determining the feasibility of extending network audiences in any of these ways. In these circumstances, the costs of interconnection are a variable cost and determine the level of output along this particular dimension. Assume, for instance, that advertisers are willing to pay a fixed amount per minute of time per potential viewer. In the circumstances just described, there will be some stations (existing or potential) which are presently just beyond the margin of taking network programs, because the size of the additional audiences they can offer network advertisers is simply too small relative to the cost of serving them to permit networks to offer them sufficient compensation, but which may be brought into network service if the interconnection rates are reduced.

Almost certainly the facts are as described by the second rather than the first extreme alternative. The number even of VHF stations continues to increase annually; as advertising demand for television time gradually increases, it becomes possible to establish new stations. There is also room in the spectrum for many new UHF stations,[23] if only their entry were economically feasible. The networks are not completely hooked up with all potential affiliates 24 hours a day and do not have access to all homes in the country, so that their transmission costs are in some measure variable in determining output as defined. Affiliates are constantly making decisions to take or not to take the programs offered them. And transmission costs are large enough to exert some influence on these output decisions. Supply is not completely inelastic.

The critical questions, however, relate to the dimensions of these potential benefits: *how* expandable is supply likely to prove in response to reduced rates? Significantly, as Table 2 reveals, while the number of commercial TV stations increased dramatically in the first decade after

22. Since the possible expansion of output includes the induced entry of new stations, the broadcasting of non-network as well as of network programs could be expanded.
23. *See* note 32 *infra.*

TABLE 2
NUMBER OF COMMERCIAL TELEVISION STATIONS, 1955-65, VHF AND UHF, WITH YEAR-TO-YEAR PERCENTAGE CHANGE

| End of Year | VHF | | UHF | | Total | |
|---|---|---|---|---|---|---|
| | Number | % Change | Number | % Change | Number | % Change |
| 1950 | 107 | | 0 | | 107 | |
| 1955[a] | 334 | 25.6 | 103 | | 437 | 32.5 |
| 1956 | 379 | 13.5 | 96 | —6.8 | 475 | 8.7 |
| 1957 | 410 | 8.2 | 91 | —5.2 | 501 | 5.5 |
| 1958 | 432 | 5.4 | 82 | —9.9 | 514 | 2.6 |
| 1959 | 442 | 2.3 | 78 | —4.9 | 520 | 1.2 |
| 1960 | 454 | 2.7 | 76 | —2.6 | 530 | 1.9 |
| 1961 | 459 | 1.1 | 81 | 6.6 | 540 | 1.9 |
| 1962 | 471 | 2.6 | 83 | 2.5 | 554 | 2.6 |
| 1963 | 479 | 1.7 | 86 | 3.6 | 565 | 2.0 |
| 1964 | 483 | 0.8 | 92 | 7.0 | 575 | 1.8 |
| 1965 | 488 | 1.0 | 100 | 8.7 | 588 | 2.3 |
| 1966 | 494 | 1.2 | 113 | 13.0 | 607 | 3.2 |

[a] The percentage change for 1955 is the average annual increase, 1950-55, compounded.
*Source:* FCC *Annual Reports*, 1956-66, and *TV Broadcast Financial Data—1966*.

World War II, the annual rate of increase has tapered off very sharply since 1957.[24]

The tapering off is particularly striking in the case of VHF stations: as the table indicates, their growth rate has fallen almost to zero.[25] This drastic decline occurred, moreover, in the face of a sustained rapid growth in broadcast revenues (see Table 3) at a generally constant rate during the same decade, and a consequent dramatic increase in profitability (reflected in Table 1).[26] Manifestly, the responsiveness of VHF entry to increased profits has sharply diminished in this period.

24. Only nine stations were authorized as of Jan. 1, 1945. U.S. DEP'T OF COMMERCE, BUREAU OF THE CENSUS, 1966 STATISTICAL ABSTRACT OF THE U.S. 519.

25. Arguments for considering VHF and UHF separately, as substantially non-competing groups, are presented *infra*.

26. Since 1958 was a recession year, it may be that the increase in profitability is exaggerated by beginning our table with that year. Unfortunately, comparable ratios for the years immediately preceding are not available. We do have the following percentage returns on depreciated cost for the three networks and their owned and operated stations for 1953-55, to compare with column (2) in Table 1: 41.9 per cent, 81.9 per cent and 124.7 per cent, respectively. Computed from CELLER COMMITTEE REPORT 28-30. The trend in these figures is heavily influenced by the very sharp increase in the profitability of network operations alone during these years. Another indication that the 1958 ratios may be on the low side for purposes of characterizing the long-run trend in profitability is the following data for broadcast net income before taxes of the "other commercial stations"—the numerator of the ratios in columns (3) and (4) of Table 1 (in millions of dollars):

| | |
|---|---|
| 1955 | 82.1 |
| 1956 | 104.2 |
| 1957 | 89.3 |
| 1958 | 94.9 |
| 1959 | 134.4 |

The reason is in part physical: the number of available but unutilized VHF channels is approaching exhaustion,[27] particularly in the dense, lucrative markets.[28] As the "lucrative" qualification suggests, the reason is also in part economic; the available channels remaining are located in thinly populated areas. Since, as we have seen, interconnection charges are large in comparison to prospective revenues in those areas, some few additional VHF stations would probably be set up if the rates were reduced. But the percentage increase in the number of families served by existing networks would be even smaller than the rise in the number of stations. In 1967, CBS and NBC were already able through their current affiliates to reach 99 per cent of all homes with TV, and the rate for ABC was 95 per cent.[29]

Other indirect evidence indicates that those stations which might be induced to enter are marginal in the sense that they would increase household coverage only slightly: the newer existing stations, as might be expected, are apparently far less profitable and take in much smaller revenues on the average than their older counterparts.[30] Similarly, network affiliates in small markets are markedly less profitable than those in dense markets.[31]

The UHF spectrum is of course much more nearly empty, with only about one-sixth of the available commercial channels filled as of early 1966.[32] Since the passage of the all-channel television receiver law in 1962[33] required all new television sets to be equipped to receive UHF signals, the principal historical obstacle to new entry—the fact that

| | |
|---|---|
| 1960 | 148.9 |
| 1965 | 286.3 |

21-31 F.C.C. ANN. REP. (1955-65). On the other hand, as Table 3 indicates, the growth of revenues in 1958 was not out of line with the post-1956 trend.

27. As of June 1, 1967, there were 552 available commercial VHF channels in the contiguous 48 states; 488 were occupied by authorized stations and four more were the subject of pending applications. Information supplied by the FCC.

28. *Hearings on Television Allocations Before the Senate Comm. on Interstate and Foreign Commerce*, 86th Cong., 2d Sess., pt. 8, at 4587 (1960). Most of the unoccupied commercial VHF channels are in the West, ten in Montana alone. Information from the FCC.

29. Estimates supplied by private communications from the companies. Their programs have even fuller potential coverage since they may be ordered also by non-affiliates.

30. *See* Levin, *Regulatory Efficiency, Reform and the FCC*, 50 GEO. L.J. 1, 16 n.50 (1961). The FCC supplied separate financial data only through 1960 for VHF stations certificated before and after (the resumption of licensing in) 1952. In 1960, the 93 older stations reported before-tax profits of $98.5 million on total broadcast revenues of $303.2 million; the 346 post-freeze stations reported profits of $50.1 million on revenues of $293.9 million. TELEVISION FACT BOOK 45-a (1966).

31. NETWORK BROADCASTING 197-98.

32. In February of 1966, the Commission assigned 1098 channels to UHF, 516 of which were for ETV, and pointed out that others could be added "as the need arises." 32 F.C.C. ANN. REP. 100, 103 (1966). *Cf.* Table 2 *supra*.

33. 47 U.S.C. § 303(s), 76 Stat. 150 (1962).

TABLE 3
TELEVISION INDUSTRY BROADCAST REVENUES, 1950-65

| Year | Total, Networks & All Stations | | Non-network-owned stations | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | All | | VHF | | UHF | |
| | $000,000 | % Change | $000,000 | % Change | $000,000 | % Change | $000,000 | % Change |
| 1950 | 105.9 | | 50.4 | | 50.4 | | | |
| 1955[a] | 744.7 | 47.7 | 370.0 | 49.0 | 342.2 | 46.7 | 28.5 | |
| 1956 | 896.9 | 20.4 | 454.6 | 22.9 | 422.1 | 23.3 | 32.5 | 14.0 |
| 1957 | 943.2 | 5.2 | 475.3 | 4.6 | 448.6 | 6.3 | 26.7 | —17.8 |
| 1958 | 1030.0 | 9.2 | 513.3 | 8.0 | 487.2 | 8.1 | 26.1 | — 0.2 |
| 1959 | 1163.9 | 13.0 | 587.8 | 14.5 | 559.8 | 15.1 | 28.0 | 7.1 |
| 1960 | 1268.6 | 9.0 | 627.9 | 6.8 | 597.1 | 6.6 | 30.8 | 10.0 |
| 1961 | 1318.3 | 3.9 | 643.0 | 2.4 | 611.6 | 2.4 | 31.4 | 1.9 |
| 1962 | 1486.2 | 12.7 | 732.0 | 13.8 | 697.6 | 14.1 | 34.4 | 9.6 |
| 1963 | 1597.2 | 7.5 | 776.9 | 6.1 | 737.8 | 5.8 | 39.1 | 13.7 |
| 1964 | 1793.3 | 12.3 | 864.6 | 11.3 | 820.3 | 11.2 | 44.3 | 11.3 |
| 1965 | 1964.8 | 9.6 | 941.0 | 8.8 | 891.3 | 8.7 | 49.7 | 12.2 |
| 1966 | 2203.0 | 12.1 | 1036.7 | 10.2 | 976.9 | 9.6 | 59.8 | 20.3 |

[a] The % change for 1955 is the average annual increase, 1950-55, compounded.
*Source:* TELEVISION FACTBOOK 45a (1966); FCC, *Broadcast Income and Revenue Statement*, 1966, and *TV Broadcast and Financial Data—1966.*

most sets were not so equipped—will gradually disappear.[34] UHF is certainly the principal source of supply elasticity in the long run.

But the potential contribution of UHF to responsiveness of aggregate supply in the commercial field *to reduced interconnection rates* is problematical, at least for the foreseeable future. UHF does not today offer an important competitive alternative to VHF. As Table 3 demonstrates, the 100 commercial UHF stations in 1965, amounting to 17 per cent of the number of non-network-owned commercial stations, accounted for only slightly more than 5 per cent of the aggregate revenues: average revenue per station in the UHF group was approximately $500,000; in the VHF group, the comparable figure was almost $1,900,000.[35] These facts surely reflect to a considerable extent the temporary circumstance that in 1965 most households were still not set up to receive UHF signals, which were in any case of poorer quality and lesser strength than VHF. The commercial weakness of UHF might also be due to such longer-run handicaps as the slowly changing pattern of viewer habits, the inadequacy of programming available to new entrants[36]—itself the consequence of the virtually complete coverage already afforded the present networks by existing affiliates—and the growing competition of the rapidly spreading community antenna systems (CATV).[37] To what extent and at what rate these handicaps may be expected to disappear, and what marginal contribution to their

34. A survey in August 1965 showed that 22.8 per cent of TV homes had receivers equipped for UHF. 32 FCC ANN. REP. 103 (1966). The Commission has estimated that the figure would rise to 70 per cent by 1970. Seiden, An Economic Analysis of Community Antenna Television Systems and the Television Broadcasting Industry, appendix A to 1965 FCC PROGRESS REPORT, in *Hearings before the Subcomm. on Communications of the Senate Comm. on Commerce*, 89th Cong., 1st Sess., ser. 89-18, at 114 (1965).

35. This disparity would be even greater if the very lucrative and large network-owned VHF stations were included in the latter group. Another indication of the marginal character of the UHF operations in the past is that in every year but one during the period of 1952-61 the UHF stations as a group reported net losses. Their aggregate profits before taxes in 1962 through 1964 were $0.9, $0.2 and $2.7 millions respectively; the corresponding totals for the non-network-owned VHF stations were $199.3, $206.8 and $256.4 million. TELEVISION FACTBOOK 45-a (1966). These comparisons may exaggerate the disparity, for our purposes, because profits of small companies may be understated by the distribution of profits in the form of salaries to owner-managers. In any event these older figures, in considerable measure, are irrelevant as a clue to the future of UHF, as the effects of the all channel receiver law take hold. The UHF stations as a group slipped back into the red in 1965 and 1966; but, as the FCC reported, this was a reflection largely of initial losses sustained by some of the newly installed stations. FCC, FINANCIAL AND EMPLOYEE DATA RESPECTING MAJOR NETWORKS (1966).

36. NETWORK BROADCASTING 220-25.

37. CATV has been spreading precisely in those markets not otherwise receiving programs from all three networks, thus possibly forestalling entry of a local network affiliate; on the other hand, it has helped UHF stations by making their programs available to the majority of sets not equipped to receive their signals directly. *See, e.g.*, Seiden, *supra* note 34, at 82-90; Fisher, *Community Antenna Television Stations and the Regulation of Television Broadcasting*, 56 AM. ECON. REV. PAPERS & PROCEEDINGS 328-29 (1966).

demise reduced interconnection rates might make, we cannot state with confidence. It remains true, for the reasons already advanced in our discussion of VHF, that such UHF stations as are likely to be induced to enter the commercial field by lower interconnection rates will be located only in those remaining, thinly populated areas that are not now served by affiliates of the three networks[38] or by the burgeoning CATV systems, since these are the only stations for which transmission costs bulk large relative to revenues. Accordingly, the quantitative contribution of reduced rates to expansion of supply is likely to be slight.

The central economic point is that the more inelastic the supply—that is to say, the less the distribution of additional advertising revenues to local affiliates brings more network and other programming to more homes—the more the cost-savings from satellite transmission will go simply to swell the economic rents and already excessive profits of the existing local stations.[39] These companies hold franchises to use the limited number of available public airways. They have something like a fixed "output" to sell—the total time in which they may be broadcasting.[40] They also, it seems impossible to doubt, are profit-maximizers.[41] Their rate of return is even further above the average than the networks.[42] There is no reason to expect them to do anything but pocket whatever larger share they may receive of network advertising revenues. There is no reason why they should be expected to use such windfalls to increase

38. We consider in the succeeding section the possibility that enhanced entry of UHF stations and of a new network or networks may go hand in hand, each dependent on the other. This would open up opportunities for new stations in denser markets as well.

39. To the extent that their profits are further insulated by FCC limitations on commercial competition—on new stations and on CATV—they partake of the nature of monopoly profit as well as pure economic rent. This inverse relationship between supply elasticity and economic rents is more fully described and illustrated in Kahn, *The Depletion Allowance in the Context of Cartelization*, 54 AM. ECON. REV. 289, 289-91 (1964).

40. The output can be expanded to the extent they do not broadcast 24 hours a day. But they cannot expand their broadcasting at prime times of the day.

41. It is our impression that this characterization is even more true of the local stations than of the networks. In our experience, the affiliates exercise their rights of program selection far more often to refuse the public service than the commercial programs proffered by the networks. In his justly famous "vast wasteland" speech, Newton H. Minow, then chairman of the FCC referred to this practice and expressed the view that local stations should be required to explain all such refusals. N.Y. Times, May 10, 1961, at 91, col. 3.

42. *See* Table 1 and the discussion of it *supra*. The present owners of TV stations almost certainly do not earn quite such high rates of return as are indicated by Table 1 on the dollars they have actually invested in these enterprises. This is because many of them have bought the stations from others, at prices capitalizing the immense profits on original investment, *see* note 50 *infra*; whereas, as we understand it, the FCC continues to list the book value of the tangible assets thus acquired at original cost, at time of construction. This transfer of economic rents or monopoly profits from purchasers to original owners in no way modifies the economic significance of the supernormal returns or the merits of increasing them by reducing interconnection charges.

the variety of their own programming, or to originate more programs locally: on the contrary, they would receive the enhanced revenues only to the extent that they took advantage of the lower transmission costs and hooked up with networks to carry more of their programs.

Of equal weight is a qualitative consideration not heretofore mentioned. It is highly questionable whether a few more commercial stations of essentially the same kind as we now have or a somewhat greater availability to and acceptance of network programming by local stations would represent as significant an expansion of "output," even in the strict economic sense of providing more choices for viewers, as the alternative of directly subsidizing ETV. Since support for this judgment depends on an assessment of the performance of the industry under its present structure, we defer further consideration of it to Part II, below.

E. *Entry of a New Network*

The preceding analysis has shown that passing on the lower interconnection costs made possible by a satellite system to existing networks would do little to increase the supply of their services to the ultimate viewing public. The possibility must also be examined, however, that such lower interconnection rates would facilitate the entry of a new network.

The principal barrier to entry into the national networking business, now completely in the hands of CBS, NBC, and ABC, has been the absence of a sufficient number of unaffiliated stations in the major markets of the country to put together into a fourth network.[43] The now rapidly increasing audience for UHF outlets as more and more sets become equipped to receive their signals has brightened the prospects for proliferation of new stations in this arena. Moreover, the promise of a new network would itself further encourage the entrance of new UHF stations, since prospective broadcasters have been deterred from tackling markets already blanketed by affiliates of existing networks by the unavailability to them of regular network programming.

But the question is to what extent passing on the cost-savings from a communications satellite would hasten the emergence of a new network. At first blush it might appear that the contribution could be considerable. We have already noted that interconnection costs are an important determinant of the economic feasibility of marginal stations. They have also been an important deterrent to the formation of new networks and the survival of an old one—DuMont, which went out of business in

43. *See* NETWORK BROADCASTING 195-206 for an excellent discussion.

1955. However, the supposed relationship between interconnection rates and network entry dissolves under further analysis.

We can fairly easily dismiss the first possible connection between the two—the surmise that any retention of the cost savings by the networks themselves in the form of higher profits would make entry more attractive. Network profits have been extremely high for a decade or more—at least for NBC and CBS. If competitors have failed to appear and one has disappeared, the reason could not have been an insufficiently attractive level of earnings in the successful firms already in the business; it could only have been that new entrants could not have hoped to duplicate the success of the incumbent giants.

But what of the possibility that lower interconnection rates would eliminate the cost obstacle to launching new stations? As we have already observed, this limitation is important only in inverse proportion to the size of the station's potential viewing audience; it is an important factor, in brief, only in the relatively sparsely settled areas of the country, the thin markets, where interconnection costs bulk large relative to prospective revenues. What a new network needs if it is to succeed is rather access to stations in the dense, profitable market areas. In these areas the deterrent has been the shortage of available VHF channels, not the costs of connection.

What, then, of the fact that program transmission charges have been cited by national networks like DuMont and specialized, occasional users like Sports Network, Inc., as a serious handicap? The answer is that the difficulties of these companies have been caused far less by the absolute *level* of interconnection rates than by their *structure*. A new (or struggling, smaller) network must necessarily begin (or carry on) its programming on a modest basis—perhaps for an hour or two a day. Yet the structure of A.T.&T. tariffs has been such that the costs of interconnection for anything less than eight hours a day of continuous service have been on the order of six to seven times as high, on an hourly basis, as the costs of continuous, eight-hour-a-day interconnection, of which the regular networks alone have been able to take advantage.[44] The or-

44. ABC has found this structure a handicap as well, at least in the past. NETWORK BROADCASTING 201-03, 541-42, 546, 552. In 1966 the FCC designated for hearing a complaint by Sports Network against A.T.&T., which "alleged that the minimum usage periods and corresponding rates for interexchange channels to TV program transmission were unreasonable and discriminatory as applied to users of less than the minimum period of service provided in the tariffs." 1966 FCC ANN. REP. 56; Sports Network, Inc. v. A.T.&T., Dkt. 16043 (FCC, May 4, 1966). In 1967, the new United Network began programming with a two-hour variety show and two complaints. One was of having to pay the full-time rate when it required (for the time being) only two hours, five days a week. The other was of the provision in the tariffs prohibiting it from subleasing the unwanted

der of magnitude of the handicap inherent in the rate differentials is, thus, six to seven times as important as any possible saving issuing from a reduction in average costs—*i.e.*, in rate levels.

We know of no reason why such a rate differential would be any more readily eliminated under satellite than under underground transmission. The principle is widely known and accepted that a public utility company which provides service under conditions of long-run decreasing cost may find it economically desirable and beneficial to all customers to charge differential prices down to long-run marginal cost to classes of users with higher elasticities of demand.[45] So it might well be appropriate here for rates to be reduced very sharply below average total costs for occasional or less-than-eight-hours-daily contractual network users who could not otherwise survive, provided such rates did cover the incremental costs of that service. The Ford proposal should be qualified to incorporate such price discrimination, where the foregoing conditions are encountered. It should be noted, however, that representatives of A.T.&T. have made just as convincing arguments for this principle by demonstrating that their long-lines business has precisely the requisite long-run-decreasing-cost characteristics, as have analysts of communications satellites.[46]

In short, while the prospects look the brightest in decades for the entry of a new network, it appears that reduction in transmission costs would make but a slight contribution to that development. And with regard to even that slight prospective contribution we must apply the same kind of qualitative reservation as we have expressed about the opening up of a few additional commercial stations: the entry of a new network would not significantly change the character of the alternative programs made available to the viewers, any more than did the introduction of the American Broadcasting Company network many years ago.[47] The reason

time to other users and prohibiting groups of part-time users from pooling their requirements. Gould, *TV: Dana Starts on United Network*, N.Y. Times, May 3, 1967, at 91, col. 2. The United Network has since dissolved.

45. *See, e.g.*, Clemens, *Price Discrimination in Decreasing Cost Industries*, 31 AM. ECON. REV. 794 (1941).

46. *See* the testimony of Albert M. Froggatt, James C. Bonbright and William J. Baumol, Bell Exhibits 24, 25 and 26, in Dkt. 16258 (FCC, May 31, 1966); Johnson, *Joint Cost and Price Discrimination: The Case of Communication Satellites*, in W. SHEPHERD & T. GIES, UTILITY REGULATION 112 (1966). It is entirely possible that the costs of, say, two hours a day interconnection are substantially the same as of eight hours, if the two hours are scheduled during the hours of peak utilization, and so require installation of just as much additional capacity as the eight. But if long-run marginal costs are less than average, it could still be justifiable to charge lower rates to potential users excluded from the market by the uniform eight-hour charge.

47. The organizer of United Network is the former president of ABC's television network. The first show (and last, to our knowledge) was a "two-hour variety from Las Vegas." *See* the Jack Gould review, *supra* note 44.

for this must be sought in the defects inherent in the basic economics of the television industry, which even a 33 1/3 per cent increase in stations and network programming would not significantly remedy. We analyze these defects in part II.

## II. The Costs of the Tax Related to the Benefits of the Expenditure

At the outset we disavowed any intention of directly appraising the positive case for public subsidization of ETV. Our principal purpose has been to analyze the impact of the Ford Foundation's proposed method of financing that subsidy, mainly in terms of its allocational effects but with an eye to its distributional consequences as well. Our conclusion is that the tax is an extremely attractive one as taxes go, and we summarize our reasoning on this score below. But this conclusion does not answer the questions of whether the tax is worth levying at all or whether there is any logical connection between this particular tax and the particular proposed use of the proceeds. To answer these questions we must look at least briefly at the positive case for subsidizing ETV.

### A. *The Case for Subsidizing ETV*

The present structure of the television industry makes optimal economic performance impossible if competitive behavior is unregulated. Inasmuch as the number of stations that are and can be licensed to serve any particular area is limited, the two prime structural requirements for effective competition—a large number of competing suppliers and freedom of entry—are precluded in both networking and broadcasting. Thus, since television franchises are in essence selling a non-reproducible good whose total supply is fixed by the circumstances of nature—a fixed amount of time on a fixed number of channels[48]—the principal effect of increases in national income and population, which make advertisers willing to pay more for access to television audiences,[49] will be to bid up the rents earned by this scarce resource rather than to increase its supply.[50]

48. We have also qualified this observation to recognize that the supply of actual broadcasts is not entirely fixed, but can to some extent be increased as it becomes economical for stations to operate more or fewer hours of the day and for stations to be set up in thin markets. And supply and quality of programs can similarly be varied.

49. There has occurred, in addition, a shift toward television relative to other advertising media. The proportion of total national advertising expenditures going to television increased from 11.0 to 16.5 per cent between 1955 and 1965. TELEVISION FACTBOOK, 1966; PRINTERS' INK, 1955-56.

50. The dollar expenditures for TV advertising include payment for programs as well, the "supply" of which is expansible. And, as we have observed, even the nominal time

Mere inelasticity of supply is not in itself incompatible with effective competition, and large economic rents may be earned even in highly competitive industries.[51] But the small number of sellers of television services—of networks and of broadcasters in each local market—and the high barriers to competitive entry also make effective competition unlikely. We are not concerned here with tracing the extent to which these apparent structural defects produce defective performance in all its various aspects—profits, quality of service, innovation, and so on. But we must examine one aspect of economic performance that is directly relevant to the Ford proposal—namely the failure of the structure of the industry to permit economically optimal use of the limited radio spectrum.

We define "economic optimality" on the assumption of consumer sovereignty. Thus, our question is whether the limited spectrum is employed to generate the maximum of viewer satisfaction over costs, taking consumer or viewer preferences not as they ought to be or as we would have them be, but as they are in fact—*i.e.*, as they would be expressed in theory by the price consumers would be willing to pay for watching television and as they are expressed in practice by consumer decisions to watch or not to watch television.

Each commercial television station is understandably under considerable pressure to sell or lease its limited available time to the highest bidder. Since the bidders are advertisers, the amounts they are willing to bid, again understandably, depend on the size of the prospective audience for the programs with which their messages will be associated. Therefore, each station is under pressure to devise programs that will appeal to the largest possible number of viewers.[52] Other considerations

charges vary with the quality of the programs presented. And there are of course capital and operating costs involved in broadcasting. It is impossible to separate out from these outlays the true payment for the time alone, for the right to use the airwaves, which is the pure economic rent. An indirect reflection of it would be found in the notoriously large amounts paid in excess of physical reproduction costs for existing stations when they are sold. The difference clearly represents the value of the license itself and that in turn represents a capitalization of the economic rent which the license entitles the station to collect for the sale of access to this scarce resource.

51. There have been analogous controversies concerning (a) the effectiveness of competition and (b) the inelasticity of supply and allegedly high economic rents in the production of natural gas. *See, e.g.*, Dirlam, *Natural Gas: Cost, Conservation, and Pricing*, 48 AM. ECON. REV. PAPERS & PROCEEDINGS 491-95 (1958); Kahn, *Economic Issues in Regulating the Field Price of Natural Gas*, 50 AM. ECON. REV. PAPERS & PROCEEDINGS 506 (1960); P. MACAVOY, PRICE FORMATION IN NATURAL GAS FIELDS, chs. 1, 8 (1962). All that is necessary for a large portion of an industry's revenues to consist in or be distributed in the form of economic rents is that there be a marked difference in the productivity of the best, the average and the marginal resources engaged in its production—that is, that its marginal cost curve be steep.

52. For eloquent and convincing arguments—one highly critical, the second matter-of-

aside, this result would seem to be economically desirable under the standard of economic optimality we are applying.

But when the number of available stations in any area is limited, the commercial motivation will tend to have the effect of forcing competing stations to put on programs that are highly similar, even identical. If they do this, it can be demonstrated by simple arithmetic that they will thereby fall short of the economic optimum. Suppose, for example, that four stations serving a particular area have the alternative of putting on a popular football game, whose anticipated total audience is, say, 100,000 viewers, or a public-service program offered to them by a network, with a potential audience of, say, 20,000 viewers. All four will be strongly tempted to put on the football game, with the probability that each will in this way have an audience of 25,000 viewers; it would pay none of them to run the public-service program. Thus, if the criterion of the most efficient use of the limited channels available is taken to be given the maximum number of viewers what they want and (they or advertisers) are willing to pay for,[53] the competition between the four stations, each striving intensely to do precisely that, fails to produce the desired result. The four could have satisfied 120,000 viewers; instead, they have satisfied only 100,000.[54]

Thus, even if reducing interconnection rates to networks would increase somewhat the number of television stations, it would probably not significantly increase program variety. So long as the average expected audience per station for a popular entertainment program exceeds the total expected audience for some other kind of program, the latter will not be shown.[55] By the same reasoning there seems to be an

fact, the third defensive—that this is pretty much how the industry behaves, *see* M. WEINBERG, TV IN AMERICA, THE MORALITY OF HARD CASH (1962); Eck, *The Real Masters of Television*, HARPER'S MAGAZINE, Mar. 1967, at 45-52; Blank, *The Quest for Quality and Diversity in Television Programming*, 56 AM. ECON. REV. PAPERS & PROCEEDINGS 448-56 (1966).

53. This last condition is necessary if the market test is to be met. The (variable) costs of program production and transmission must be covered by the value advertisers place on the attention of the audiences each program will attract. The point is that with a limited number of stations their self-interest in programming for the mass audience results in the exclusion of other programs that could meet the market test, and a consequent failure to reach the maximum audience that could economically be reached.

54. Optimum results could be achieved by the stations in this situation if they could agree to divide markets and share revenues and goodwill. At present, such behavior would probably violate Section 1 of the Sherman Act, 15 U.S.C. § 1 (1964). In any case, the cost of bargaining over the allocation of programs, audiences and profits might be prohibitive.

55. In the simple example we have just presented, a fifth station would find it just as profitable to adopt the public-service program as to share with the existing four stations the viewers of the football game: it could expect to have an audience of about 20,000 in either case. But suppose, instead, that there were two football games available, one with a potential audience of 50,000, the other of 66,000. In that event, if there were four

inherent tendency for each of a small number of stations to show programs—and sequences of programs during prime viewing hours—of similar types, with a consequent failure to maximize net benefits to viewers and potential viewers.[56] The tendency applies, of course, to the programming decisions of the networks as well. The strength of the tendency is suggested by the fact that advertisers who were willing to pay the direct costs (including the returns normally earned in the industry for the time in question) of a relatively unique program catering to a smaller but distinctive audience have at times been refused access to prime viewing time on the ground that they would be cutting down the network's audience at adjoining times: obviously, if the networks are correct, their programs must be so similar that to many people the differences in their values is smaller than the cost of changing stations.

Moreover, the consequence of having the choice of television programs dictated by the needs of advertisers is to establish appeal to the maximum number of potential *buyers*, rather than the maximum satisfaction of television viewers, as the principal criterion of program selection. And while these two standards will tend toward the same result, they need not always coincide, particularly if differences in the intensity of satisfaction from particular program variations are taken into account.[57] To take a simple-minded example, suppose that the more intelligent the viewer the more impervious he is to advertising messages. Then, to the extent advertisers are rational, the interests and tastes of the more intelligent potential viewers will carry less weight in program

stations, two would be inclined to show the first football game (each then hoping to have an audience of 25,000) and the other two the second (with an audience of 33,000 each). Entry of a fifth station, in these circumstances, would simply mean that three rather than two stations would show the second football game. Even though for the viewing public 136,000 viewers are better than 116,000, for the individual station, 22,000 football fans look better than 20,000 eggheads.

56. *See* the systematic presentation by Steiner, *Program Patterns and Preferences, and the Workability of Competition in Radio Broadcasting*, 66 Q.J. Econ. 194 (1962). The demonstration can readily be extended, as by Steiner, to take account of differences among the viewers in the intensity of the satisfaction they derive from different kinds of programs. For a similar demonstration that the effect will be to produce not the first-choice programs for the maximum number of viewers but the "lowest common denominator" see Rothenberg, *Consumer Sovereignty and the Economics of TV Programming*, Studies in Public Communications, No. 4, at 45-49 (1962). In short, commercial television provides an excellent illustration of the uneconomic tendency of competing sellers to cluster, noted many years ago by Harold Hotelling, with the result that "buyers are confronted everywhere with an excessive sameness." Hotelling, *Stability in Competition*, 39 Econ. J. 54 (1929).

57. *See, e.g.*, Minasian, *Television Pricing and the Theory of Public Goods*, 7 J. Law & Econ. 71, 74-76 (1964).

> In the 'Golden Age' of television drama, the advertisers believed that the ideal play for television must not be too boring or the viewer would switch to another channel, nor too interesting or the viewer would resent the commercial break. Happily for all concerned, this truly golden mean was achieved more often than not.

Vidal, *supra* note 14, at 25.

selection than those of the more gullible purchasers of the advertised product.

In brief, the television industry as presently constituted does an excellent job of showing the kinds of programs that are marketable to advertisers. It does a much less creditable job of making available to viewers programs that, while not as attractive to advertisers, are none the less economically feasible: there are additional viewers whose desires can economically be satisfied without sacrificing the interests of those who are at present well served.

Here is a gap that ETV could well fill. It could, at little cost to the mass audiences, supply for the benefit of the more highly differentiated audiences the relatively distinctive programs that are economically feasible but in large measure passed up by commercial broadcasters. This case for ETV is of course immeasurably stronger if we may assume that present consumer tastes either need not be taken as unchangeable, or else need not be assigned the exclusive role of determining what kinds of programs should be shown. Moreover, the discussion so far has assumed that the benefits received by viewers *qua* viewers comprise all the social benefits television can provide. Clearly, however, this assumption is not justified where ETV provides benefits not only to its viewers but also to the public at large, with the result that even a perfectly competitive market would fail to register the sum total of the social benefits it would confer. In short, ETV is a public good which even a perfectly competitive market would not produce in adequate quantities.[58]

B. *The Relation of Costs to Benefits*

Thus, it seems safe to conclude that the subsidization of ETV would considerably improve the performance of the television industry, in both economic and non-economic terms. How then do these benefits compare with the costs of the tax, and what, if any, is the case for putting the two together in a single package?

The tax is a very attractive one, as taxes go. It has a positive justification on equitable, or distributional, grounds: the government would be merely refraining from adding to economic rents and monopoly profits that are already excessive and that result from its free dispensation of ex-

58. *See generally* F. BATOR, THE QUESTION OF GOVERNMENT SPENDING, ch. 6 (1960). These inadequacies in the purely economic performance of the industry—and, a fortiori, any possible inadequacies in its performances as judged by social, aesthetic or political considerations—are a reflection on neither the motives nor the intelligence of the broadcasters or their advertisers-customers. They are the inevitable consequence of the structure of the industry, the method by which the industry finances its operations, and the nature of the good it provides.

clusive franchises to use the limited spectrum.[59] Since the cost-savings in question are themselves the product of taxpayer-financed research and development, it would seem particularly appropriate for taxpayers and not television companies to benefit from this achievement. On these grounds the tax would seem to be unambiguously preferable to such obvious alternatives as the income tax or excises on television receivers.

It would seem to be preferable on economic grounds as well. The usual economic objections to above-marginal-cost pricing, we have seen, do not have any significant application in this instance. It appears that demand would not be very responsive to a rate reduction; so the proposal would not significantly discourage economically desirable uses of the communication service. This "tax," therefore, unlike most others, would distort only minimally the choices among various goods and services and between work and leisure, consumption and saving, risky and riskless investment.

What makes the use of this particular tax to finance this particular government subsidy an extremely attractive package is the very real economic connection between the two parts. Because of its peculiar structure, the television industry's performance is defective. The performance could be markedly better than it is. That it is not reflects an error of public policy, the error of making gifts of monopolistic franchises without imposing corresponding obligations with respect to program content or diversity. It is that very error that has conferred on the industry the great economic rents that make the proposed tax unusually attractive on distributional grounds. Merely reducing interconnection charges would not substantially improve the industry's structure or enrich the program alternatives it offers to viewers: this is what makes the tax relatively attractive (more precise, less unattractive than most) on economic grounds. Using the cost-savings instead to support ETV would do precisely what rate-reduction would not do, and do it openly, directly and in full measure, no need for the far more difficult undertaking of regulating the quality of commercial programming. It would increase the genuine diversity of programming, and in so doing come much closer than the industry does today to maximizing the benefits obtained from the limited spectrum. The benefits of the Ford proposal would far outweigh the costs.

59. Admittedly, if the government were to auction off these licenses, both for new stations and for renewals, this strong equity argument for the Ford proposal would be somewhat attenuated. *See, e.g.*, Coase, *The Federal Communications Commission*, 2 J. LAW & ECON. 1 (1959); Levin, *supra* note 14.

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