

CALIFORNIA INSTITUTE OF TECHNOLOGY

Division of the Humanities and Social Sciences
Pasadena, California 91125

COMMENTS REGARDING LIMITATIONS ON PROGRAMMING
AVAILABLE FOR BROADCAST ON PAY-TV CHANNELS

Roger G. Noll

Social Science Working Paper

Number 65

October 1974

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C.

In the Matter of

Amendment of Part 76, Subpart G,)	
of the Commission's Rules and Regulations)	
Pertaining to the Cablecasting of Programs)	Docket No. 19554
for Which a Per-program or Per-channel)	
Charge is Made.)	

Comments Regarding Limitations on Programming Available for Broadcast on Pay-TV Channels

Submitted by

Roger G. Noll*

September 20, 1974

*The author is a professional economist who has been engaged in research on the economics of broadcasting for the past four years. He is currently a Professor of Economics at the California Institute of Technology. Much of the material in this submission is derived from Economic Aspects of Television Regulation by Roger G. Noll, Merton J. Peck and John J. McGowan, published in 1973 by the Brookings Institution. The comments herein are the responsibility of Roger G. Noll, and do not necessarily reflect the opinions of any organization with which he is affiliated or of his co-authors.

These comments are directed towards the concern of the Federal Communications Commission over developing rules with respect to subscription television (STV or Pay-TV) that would permit the development of the industry if it offered a net increment to the number of options and the diversity of programming available to viewers, but that would prevent the diversion of programming that is currently available to viewers over the free, over-the-air system to a pay mode. The premise of these comments is that the Commission is obviously correct in its conclusion that viewers and, for that matter, American society would be unambiguously worse off if STV succeeded only in causing essentially the existing system of broadcasting simply to begin charging viewers for programs that they now receive free. A careful examination of the consequences of an all-STV system makes obvious the source of popular opposition to pay-TV and makes dubious the allure of such a system for some economists. The existing commercial broadcasting system generates consumer satisfaction of enormous value -- worth perhaps as much as \$20 billion annually -- in providing free of charge its current array of mass-audience programming. To pay for exactly the same programming now available without charge would mean a massive reduction in the welfare of most families. The realization of this has generated political support for bans or limitations on the development

of pay-TV, and has moved the Commission to try to develop a complicated web of antisiphoning rules intended to prevent the supplanting of the existing commercial system by subscription television.

The most recent Further Notice of Proposed Rule Making (FCC 74-878) invited another round of debate on the details of the antisiphoning rules. The underlying reason for the persistence of this issue before the Commission is that the current rules are, according to the cable television and subscription television industries, too stringent to permit full development of STV. These comments are intended to examine why this might be so, and whether further relaxation of the rules would lead to an STV system that merely substituted a pay system for a free one. Before examining the effects of the rules in detail, it is necessary to assess the economic potential of STV: how many customers it might reasonably be expected to have, what kind of programming it would offer, how much it could pay for first-class programming of the kind available over the existing commercial system, and how extensive the threat of program siphoning really is.

Much of the debate over the effects of STV boils down to a disagreement over the nature of the demand for television: is the effective demand for STV so great that, if given free reins, it would supplant the present commercial system, and is the composition of demand such that a switch to a pay mode would cause

present program types to be supplanted by significantly different programming? While the evidence relevant to these empirical questions is sparse, it is nonetheless sufficient to be interesting.

The most relevant information comes from the experiences of the few STV systems that have been launched during the past twenty years. In the early 1960s, three rather extensive, albeit temporary, STV systems were operated: one in Hartford, another in Etobicoke, Ontario, a suburb of Toronto, and a third in Los Angeles and San Francisco. In the late 1950s and early 1960s, less ambitious systems were also operated in Bartlesville, Chicago, Los Angeles, Palm Springs and San Francisco.¹ All but the Hartford system, which used a UHF television station, were operated on cable television systems. These early attempts to launch STV are often referred to as "experiments," but this is probably a misnomer. They were experiments only in that (1) government authorities in Canada and the United States regarded them as tests and, consequently, when governmental acquiescence was required, were willing to suspend at least temporarily the otherwise dim view that they normally took towards the idea of paying for television, and (2) businessmen gained some experience in dealing with the

¹ In the past few years, several cable television systems have also introduced STV channels; however, almost no information is publicly available on the financial details of their operation.

technical and marketing facets of STV. But these early systems were not designed to provide clear answers to the empirical questions most relevant to the development of public policy: would popular programs now on free TV switch to pay if given the opportunity, and would STV significantly affect program diversity? The early systems practiced neither the variation in prices nor the diversification in programming that would be necessary to provide conclusive evidence on these questions. Nevertheless, the results provide some support for the following conclusions: (1) STV probably would be economically viable in a few large cities if broadcast over present UHF independent stations, in a few more cities if offered on VHF stations, and relatively widely if STV channels in large cities and on cable combined to form an STV network; (2) STV poses only a minor threat to free, over-the-air television, since only a few, unique events, such as a world's championship sports contest or great movies, would be likely to generate more profits on STV than on free TV; (3) while there is support for the notion that some types of programs that are not now shown on free TV would be economically viable on STV, it is not likely that STV would concentrate primarily on such programming and thereby greatly increase television diversity; and (4) on the contrary, the staple fare of STV is likely to be quite similar to that of free TV (and of other mass communications media): light entertainment (recent popular movies, sports, variety programs) oriented towards a relatively large segment of the viewing public.

General Economic Viability of a Single Pay Station

Unfortunately, for only the Hartford system has relatively complete financial information been made public. Table 1 reproduces a summary financial report given by Teco, Inc., a subsidiary of Zenith Radio Corporation, to the FCC. According to the Teco calculations, the Hartford system, needed 20,000 subscribers to break even. In order to earn an 18 percent pretax rate of return to equity (the average for U.S. industry), the system would have required about 75,000 subscribers. By contrast, the Hartford system peaked at slightly under 5,000 subscribers while operating on a weak UHF station that, when operated in the normal commercial mode, had a net weekly circulation of about 100,000 homes. Assuming that the well-known reception difficulties in the UHF band halved the system's potential penetration,¹ so that on VHF the system would have achieved twice the number of subscribers, a Hartford-like system would capture normal profits only in broadcasting areas containing more than about 900,000 homes, of which there are only twelve. On UHF television, Hartford-style STV would be profitable only in areas with more than about 1.75 million television homes, of which there are only four.

These results should not be taken too seriously. First, they blithely ignore some important influences on the potential market

¹ Econometric analyses of the audience shares of stations have shown the "UHF handicap" to be very close to 50 percent.

Table 1: Restatement on a Per-subscriber Basis of Zenith-Telco's Breakeven Projection for Subscription Television System

(Variable income and expense items)	(Per subscriber)
<u>Income</u>	
Programs	65.00
Decoder rental	39.00
Installation	2.00 ^a
Total income	106.00 ^b
<u>Expenses</u>	
Program product	22.75
Sales and commissions	8.15
Franchise fee ^c	5.20
Technical	7.93
Taxes (other than federal)	2.22
Supplies, truck, bad debts, other	3.10
Depreciation ^d	27.09
Total variable expense	76.44
Gross margin before fixed expense	29.56
<u>(Fixed expense items^e)</u>	
Station time	300,000
Administrative salaries	94,000
Program staff	23,000
Lines and facilities	32,000
Fees to Broadcast Music, Inc., and American Society of Composers, Authors and Publishers	18,000
IBM equipment rental	88,000
Rent	15,000
Legal, audit, insurance, travel, telephone, utilities, dues, maintenance	20,000
Total fixed expenses	590,000

Breakeven point: \$590,000 ÷ \$29.56 = 20,000 subscribers

Source: Prepared by the Federal Communications Commission staff as part of Docket 11279 on subscription television service, from data supplied by Zenith Radio Corporation and Teco, Inc., on the basis of the Hartford subscription television experiment. Reproduced in Subscription Television, Hearings before the Subcommittee on Communications and Power of the House Committee on Interstate and Foreign Commerce, 90 Cong. 1 sess. (1967), p. 131.

a. Zenith-Teco assumes 20 percent turnover, or 4,000 per year. This gives a total of \$40,000 installation income, or 52 subscriber (of which there are 20,000 at the breakeven point).

b. The figure is somewhat lower than the 1962-64 average because it counts on lower installation revenues in the long run.

c. Five percent of program and rental income

d. Primarily for decoders.

e. Some fixed expenses increase slightly with increased income.

for STV. Because of the publicness of a television broadcast¹ there are enormous economies of scale captured by systems in large cities. This means, among other things, that the most profitable level of program quality is higher in a larger city. Presumably STV systems in larger cities would offer better programming, which might be insufficient even to attract as large a share of TV homes as did Hartford since larger cities have more broadcasting and other entertainment alternatives.

A second problem with the estimates is that the break-even number of subscribers is very sensitive to small changes in costs and revenues. If, for example, revenues per subscriber were five percent higher, the number of subscribers that would yield normal profits falls by more than 30 percent, to about 50,000. The fact that Hartford constitutes a single data point for making such an estimate is cause enough to generate some concern for the accuracy of the estimates of how many cities are potential viable sites for STV. But, in addition, some of the costs in the Teco financial summary are almost assuredly incorrect. For one, the "program product" is entered as \$22.75 per subscribers; however, as pointed out above, scale economies are sure to make this number lower -- for a better product -- in larger cities. The existing market for syndicated television programs reveals this pattern. The typical program rental fee is a fixed dollar amount plus an additional

¹ Even when a device is installed for "privatizing" broadcasts in the sense that nonpayors can be excluded, it is still true that the true marginal cost of adding a viewer is essentially zero.

fee per household in that station's market. In addition, the franchise fee is an internal transfer within the Teco corporate family, paid for the use of the Zenith-Teco signal-scrambling and billing system. It is at least in part profits of the STV system, and in a world in which the devices used to privatize television signals were produced competitively, the franchise fee would probably not be collected. Finally, the \$300,000 fee for station time would vary widely from market to market. The fee represents the net revenue the station could earn if it operated as a normal commercial independent, which reflects the size of its market and the scarcity of channel assignments in that area. Since most UHF independent stations lose money, including the Hartford station, in the long run the minimum franchise fee would probably have to be higher than \$300,000. Eventually these stations will either have to begin to show profits or leave the air.

On cable systems, the \$300,000 franchise fee would all but disappear. Transmission costs on cable are \$5 to \$10 per hour at most, so that the transmission cost of operating a Hartford-style STV channel is probably around \$10,000 annually. This cuts the breakeven number of subscribers by 10,000. These subscribers probably could be spread over several different cable systems within a few counties with little effect on costs or the magnitude of break-even operations.

While these results are hardly definitive, they do suggest a result that is almost squarely in the middle of the pro and con arguments presented at the outset. A single-station STV operation is probably viable in a few large cities, but it will not be so profitable that existing VHF stations (even most VHF independents) are likely to become pay outlets. A single STV operation spread over a few cable systems that are close enough together geographically to be managed from a single location is also probably viable, so long as cable systems with an adequate number of subscribers already exist so that STV can gain access to enough viewers at the incremental cost of activating one more cable channel. In either case, STV is neither much of a threat nor much of a promise, ranking roughly on a par with VHF independent stations as an economic factor in the industry. Of course, to those (including myself) who would like to have access to a Hartford-style STV system, offering recent movies at \$1.50 each without commercial interruptions, this conclusion is hardly unimportant. But it does not constitute a revolution in broadcasting, as many proponents and opponents have claimed it would.

General Economic Viability of Network STV

As is the case in conventional broadcasting, networking and national program syndication provide scale economies to an STV system,

and probably would make it economically viable in much of the nation if network STV were offered on existing independent stations and on all but the smallest cable systems.

For a national system, the first cost entry in Table 1 would be covered at the national level, since the additional programming costs for adding another station to the network are zero. This increases the gross margin per subscriber to \$52, and drops the minimum number of subscribers needed to achieve normal profits for a UHF station to under 20,000, or on a cable STV system to under 10,000. Assuming that five percent of the potential audience would subscribe to STV over-the-air, the minimum viable size market for a UHF STV station in an STV network would be 400,000 homes, which is roughly the size of the fiftieth largest television market. If STV were offered in the fifty largest markets and on large cable systems, about half the nation would have access to the service.

To calculate the viability of this kind of a system, costs and revenues must now be brought to current dollars since programming costs have, in the past ten years, risen more rapidly than have prices in general. Results of these calculations are shown in Table 2. The revenues per subscriber in Table 1, when converted to 1974 dollars, are about \$175. Assuming that half the TV homes were offered STV and that five percent subscribed and spent as did Hartford subscribers, this yields a total annual revenue for the system of about \$285 million. The costs that depend upon the number of subscribers are,

in current dollars, about \$11.50 for the 1.7 million subscribers projected for the system. Fixed costs per station (including opportunity costs) are assumed to be about \$1 million, which should be close to the amount required from STV for long-term survival of UHF independents, assuming an STV system, like Hartford's, that only absorbs four to five hours per day of a station's time. Cable system costs are based on the assumption that one STV office resembling that of an STV UHF station can operate STV channels on several nearby cable systems. The costs for such a cable operator are the same as for a UHF station except that no station fee is paid but about \$10,000 per cable system is paid for channel use. Microwave interconnection facilities are assumed to be leased by the STV system for distributing programs to stations and cable systems at roughly the cost now charged to networks.

TABLE 2: ANNUAL COSTS AND REVENUES OF NATIONAL STV (millions)	
REVENUES	\$285
EXPENSES	
Programs	\$175
Subscriber costs	20
Station costs	50
Cable costs (20 regional systems)	10
Interconnection	<u>20</u>
	\$275

Programming costs in Table 2 are, for want of a better benchmark, based upon the prices currently paid by networks for first-run movies. Generally, networks pay about \$750,000 for the right to show a two-hour movie three times in prime time during one programming year. This works out to be about \$125,000 per hour of broadcast time. It is assumed that this represents reasonable estimate of programming costs for STV, an heroic assumption since (1) other television programs are less expensive than movie rights including movies "made for television," which are about half as expensive as regular movies, and (2) movie rights fees are pure rents (the true costs of releasing a two-year-old movie for television use are zero, and for most movies even the opportunity costs are essentially zero since the gate potential of most movies has been close to exhausted within two years after its release). At any rate, this figure generates a total cost for STV programming for one year of about \$175 million.

As the calculations in Table 2 reveal, a national system along the lines described is right on the borderline of viability. The costs and revenues as calculated are sufficiently close that, given the unreliability of the basic data, the absolute difference of \$10 million is of far less meaning than that the numbers came out so close.

Obviously, the future of STV depends critically on two factors: the extent of growth of cable television and the sensitivity of system revenues to departures from the price structure charged in Hartford. STV on cables would avoid the station fees, as discussed above, and the signal handicaps associated with UHF stations.

The relationship between cable and STV may well be symbiotic: in the present regulatory environment with severe restrictions on which stations a cable system may retransmit, cable probably can not attain many more subscribers than ten to fifteen percent of television homes; at the same time, an extensive national STV system may not develop unless it gains access to the inexpensive, VHF-quality channels that could only be provided by an extensive national cable industry.

Pricing policies other than those practiced in Hartford might generate greater revenues and more profits. As noted above, the Hartford system engaged in very little price experimentation. Subscribers were charged a flat weekly rate (95 cents) plus an additional charge per program. Eighty-five percent of all programs were priced between \$1.00 and \$1.50 in the evening. Most other programs were priced between \$1.00 and \$1.50 except for the second Ali-Liston heavyweight championship fight (\$3.00), educational programs (50 cents to 75 cents) and a few college and high school basketball games (25 cents to \$1.00). Since different price structures were not tried, there is no reason to believe that the Hartford system found the profit maximizing set of prices. In fact, evidence from the other early systems suggests the contrary.

In the Etobicoke operations, movies of comparable quality were available at \$1.00 and \$1.25. It was reported that the "25% increase in price for motion pictures of high critical

merit. . . proved to be no deterrent."1/ The audience penetration was about 20 percent for the \$1.25 movies and 23 percent for the \$1.00 movies, a statistically insignificant difference that, in any event, led to higher revenues at the higher prices. Prices for hockey games were increased from \$1.00 to \$1.50 with no change in audience. These data suggest that, within the range of prices charged in the experiments, higher program charges might well increase revenues and profits.

The major price deterrent to the popularity of STV appears to be the annual charge. As Table 3 suggests, systems that have none appear to achieve the higher rates of penetration. In the Etobicoke experiment, the introduction of an annual charge -- lower than Hartford's -- was associated with a significant loss of subscribers. 2/ The annual charge is an especially strong disincentive to subscribing for the less frequent user and forces all viewers to place a value on a year's subscription in advance.

The fixed annual charge was designed to cover the high expense of the decoder, which precludes nonpayers from viewing and serves to record selections. In Hartford, over a third of total costs were attributable to the decoder. Another advantage of cable is

1/ Subscription Television, Hearings before the Subcommittee on Communications and Power, House Committee on Interstate and Foreign Commerce 90 Cong. 1st Session (1967), p.370.

2/ Prior to the annual charge, the system had as many as 5,500 subscribers; after its introduction, subscriptions dropped to 2,500, even though the area served by the cable had been expanded. Use of STV, however, was much greater by the smaller group.

that by using the two-way capability that is now required on new systems, the process of decoding and billing is much simpler and cheaper. It can easily be shown using Table 1 costs (with much reduced collection costs and with programming costs that are not dependent upon the number of subscribers) and Table 3 revenue and penetration results that the San Francisco and Los Angeles operations, with lower revenues per subscriber but a much higher proportion of the potential audience subscribing, would, on cable systems of any fixed size, be more profitable than would a system based upon the Hartford price structure.1/Over the air, however, both price structures generate about the same amount of net revenues.2/

Table 3. Penetration and Average Expenditure for Four Subscription Television Systems, Various Years, 1962-64

STV system & year	penetration ^a (percent)	Average annual expenditure (dollars)	Annual charge
Etobicoke, 1962	45	33	No
Etobicoke, 1964	12	65	Yes
Hartford, 1963	3.5	100	Yes
Los Angeles, 1964	31	60	No
San Francisco, 1964	20	61	No

Source: Oxtoby-Smith, "Consumer Response to Pay TV -- An Interim Report on the Conclusion of a Study in Los Angeles after STV Initiation" (New York: Oxtoby-Smith, Inc., 1965; processed), p. 29.

a. Penetration is the proportion of households in the service area that subscribe.

1/ Hartford generates about three times as much revenue net of variable costs per subscriber, but Los Angeles and San Francisco generate between six and nine times as many subscribers.

2/ Hartford produces revenues that fall between those of Los Angeles and San Francisco, assuming they all face the same cost structure and size of potential audience.

The Composition of Programming on STV

The major offerings of STV systems thus far have been recent movies and sports events. Of course, it is not surprising that this result transpired. STV has never had enough subscribers to enable it to afford to produce its own programming. Instead, it has had to rely on material produced for other media and available to STV at very minimal marginal costs. Whatever special possibilities might inhere in home television for providing innovative forms of entertainment or even instruction are not likely to emerge until the potential STV market is much larger than it was while the early systems were operating.

The Hartford system did attempt to provide occasional programs other than the standard fare of movies and sports. Most of these programs were videotapes of performances in theatres and nightclubs, or of programs offered in other cities on independent stations but not available in Hartford because the city lacked any independent stations other than the STV outlet. The principal exception was educational programming. The Hartford station produced several discussion programs featuring Yale professors, with, perhaps predictably, disastrous box office results (one program on the American economy attracted one viewer at 50¢, another on politics had an audience of zero).

Table 4 breaks down the Hartford programming into several categories. It shows the distribution of programs by type, the average audience rating and price in each type, and the average revenue per program

Table 4. Hartford STV Programs and Revenues, by Category, June 1962-June 1964

Program category	Distribution of separate features		Distribution of all broadcasts		Audience ratings		Revenue per program for all showings ^d (thousands of 1963 dollars)
	Number of programs	Percent of programs	Number of showings	Percent of showings	Percent of sub-subscribers viewing each showing	Percent of sub-subscribers viewing all showings	
Movies	432	72.1	1,537	86.5	5.6	20.1	559
Sports	79	13.2	79	4.4	9.8	9.8	363
Championship boxing	6	1.0	6	0.3	63.3	63.3	3,521
College basketball	2	0.3	2	0.1	13.6	13.6	297
High school basketball	1	0.2	1	0.1	10.7	10.7	72
Professional basketball	21	3.5	21	1.2	6.6	6.6	178
College football	5	0.8	5	0.3	6.2	6.2	176
Professional hockey	44	7.3	44	2.5	5.3	5.3	153
Entertainment productions	35	5.8	97 ^b	5.5	3.1	8.7	376
Concerts, opera, and ballet	6	1.0	13	0.7	10.6	12.4	502
Popular music and variety	15	2.5	48	2.7	4.1	13.1	523
Broadway plays and other drama	11	1.8	34	1.9	2.4	7.5	328
Miscellaneous	3	0.5	3	0.2	1.7	1.7	110
Educational features	50	8.3	57	3.2	0.7	0.8	15
Medical presentations (limited to 100 subscribing doctors)	3	0.5	6	0.3	9.3 ^c	18.7 ^c	...
All	599	100.0	1,776	100.0	5.5	16.4	480

Source: From, or derived from, data in "Joint Comments of Zenith Radio Corporation and Teco, Inc., in Subscription Television (1967), pp. 235 ff. Figures may not add to totals due to rounding.
a. Average charge during the second year of operation.
b. In cited source, total number of entertainment showings adds to 98, but summary table lists 97.
c. Percentage of the 100 doctor-subscribers; the 100 doctors were about 2 percent of all subscribers.
d. Based on subscriptions equal to 4.5 percent of 60 million television homes.

that would have been generated had the Hartford system been offered to everyone -- 60 million television homes in 1963 -- and had subscriptions nationally been 4.5 percent of all homes offered service, as was the case at the end of the Hartford experiment. Again, the exact figures in the last column have little meaning except for their rough magnitudes, for they are extremely sensitive to the assumptions about the number of subscribers. These numbers are also in 1963 dollars; 1974 equivalents are about two-thirds higher.

No attempt has been made to provide categorizations of movies. The movies that were offered were relatively new, and representative of those that had been shown in local theatres in the few years before and during the experiment. Foreign language films and avant garde productions were not presented. Since others have shown that typologies of movies are essentially useless as measures of quality or attractiveness,^{1/} no attempt was made to analyze STV revenues according to such breakdowns.

Among the remaining program types, further analysis is severely limited by the relatively small number of programs offered in most groups. For example, the proponents of STV cite serious

^{1/} Edward Greenberg and Harold J. Barnett, "TV Program Diversity -- New Evidence and Old Theories," AER V. LXI (May 1971). The authors found that the seven-way classification of movies practiced by the industry made no contribution to explaining the audience ratings of movies on network television. They concluded that if distinct groups of viewers according to program tastes exist, the dimensions of quality on which their tastes differ are other than those measured by movie type.

music and drama as categories of programs that STV is likely to present, but in Hartford only six programs were offered in the very general class of opera, concerts and ballet, and only eleven in the class of Broadway plays and other dramatic productions. In the sports category, one use of STV that is frequently mentioned is as a device for presenting local college and high school sports events. Again, Hartford offered only one high school basketball game, and that at the low price of 25¢, and seven collegiate events. In sum, the confidence that can be placed in the extent to which the Hartford results can be generalized would have been much greater if many more programs other than movies would have been offered, making the average results within categories more reliable and allowing for much more detailed categorization.

With this caveat in mind, the Hartford data do indicate that consumer tastes, with a few exceptions, produce results on STV that are similar to those on free television. Movies and popular entertainment generated the most revenue per program. The most popular sporting event was championship boxing, which is consistent with the fact that only boxing regularly offers the video version of its best events in theatres rather than over free television. At the other extreme, professional hockey did poorly on Hartford STV, just as it does poorly on free TV (hockey has the lowest audience rating of all sports on television, ranking just below televised fishing). The results for high school basketball are really not of any value -- a high rating at a very low cost for one game.

The few programs of a more serious nature also did reasonably

well. The serious music category was just below popular entertainment in revenues, while dramatic productions generated 50 to 60 percent of the revenue of the popular items -- which, incidentally, corresponds roughly to the difference in audience ratings on free television between serious dramatic productions (such as Hallmark Hall of Fame) and movies.

Since most of the programs on the Hartford system were of about 90 to 120 minutes duration, a rough approximation of their costs would be about \$350,000 to \$400,000 for each program in 1974 dollars, which is roughly the prorated current cost of regular series and made-for-TV movies on the networks. For purposes of comparison with Table 4, this is a cost of \$180,000 to \$250,000 in 1963 dollars. For movies, the 1963 equivalent price is less than \$500,000.

Compared with this benchmark, the Hartford data suggest that movies, boxing, serious music and popular variety programs are most likely to generate revenues adequate to cover costs on national STV. The next category, comprising program types that are on the borderline of viability, includes most other sports events (except, of course, for the major professional sports other than hockey, which were not tested in Hartford and probably would do better) and dramatic productions. These results emphasize a dual role for STV which has not generally been recognized, and indeed once again places it squarely in the middle of the expectations of most proponents and opponents.

First, serious music did well in Hartford. Drama, however, had only mixed success: The average program, shown three times, generated about \$325,000 in revenues on a national scale, about equal to the cost of made-for-TV movies. A few programs did very well, such as lighter Broadway productions ("Wake Up Darling" and "Tchin-Tchin"), while most of the more serious plays (such as "Hedda Gabbler" and "Androcles and the Lion") drew very small audiences.

The viability of this heavier programming probably depends very greatly on cost estimates -- and the extent to which program costs contain rents that producers would not demand from STV unless the medium were a great financial success. To film and broadcast properly a single performance of the Metropolitan Opera or a Broadway play, neglecting payments to the performers, would cost on the order of \$50,000 to \$100,000, while the producers could earn revenues several times these figures on a national STV system. A series of symphony concerts, featuring three broadcasts each of ten separate concerts of the leading orchestras, might generate revenues in excess of production costs of at least \$1.5 million. How much of this would actually go to the STV system and how much to producers and performers is, of course, inestimable.

The second aspect of STV, generally neglected, is the overwhelming support for several categories of lighter entertainment. The Hartford station, with its low budget, could not experiment with the staple of free TV, the regular series, but all other categories found in the usual TV fare did very well, earning revenues that easily would cover production costs.

The Experiments and the Antisiphoning Rules

The overriding implication of the preceding analysis is that the concern over substantial diversion of popular, conventional programming to STV is probably unwarranted. Past experience supplies two guides on this issue: the existing network systems are highly profitable and, according to the Hartford results, only a small fraction of viewers are willing to pay the steep prices -- about \$12 monthly -- that experiment charged. Even if half the nation were wired to cable or living in cities with over-the-air STV, and if 20 percent, rather than 4 percent, of these homes subscribed to STV at \$10 monthly, and viewed it half of the time, network audiences (and advertising revenues) would decline only by 5 percent. While such a loss would reduce profits in the network system by about one-fourth, it would still leave the industry a 45 percent after-tax rate of return on investment, significantly above average. Meanwhile, the STV systems would raise revenues of \$720 million from subscribers. Since no technical limit would restrict the number of cable STV systems that could be formed, or received by a viewer, competition would cause them to multiply until profits per system dwindled to average for business generally. With costs \$250 million annually at most, two or three STV systems, in addition to the three existing networks, would be viable, all producing programming of roughly the current quality of network fare. Of course, the STV penetration and viewing figures assumed are very high -- five times as high as Hartford. A final result much closer to the

Hartford projection is a more reasonable expectation.

Substantial program erosion is unlikely even in the most favorable STV environment. If 30 million homes become cable subscribers or are offered over-the-air STV, if 10 percent of these subscribe to STV, and if 12 percent of these are willing to pay \$1 to watch, say, a single showing of an hour-long episode of the most popular network shows, the STV revenues would be about \$360,000 per showing. These revenues are substantially less than the shows now generate from advertising on free network TV. Yet they are large enough that each STV subscriber would have to pay nearly \$200 a year for pay programs in order for revenues to be that high.

The preceding analysis goes much further than is necessary to justify a permissive attitude toward STV. As long as channel capacity on cable is reasonably large, and as long as a large fraction of the nation remains unwired, the alleged dangers of STV to the existing broadcasting system are illusory.

The principal exceptions to this generalization are a few highly popular, special events such as major athletic championships. The reception of the STV audience to championship boxing bears out the possibility that these especially attractive events might draw more revenues from STV. Such events are sufficiently infrequent that large numbers of households could afford to pay a substantial charge for viewing them without experiencing disastrous consequences with respect to the family entertainment budget -- which is not the case with the regular fare of television, the regularly

scheduled movie, sports event or series. Given the political climate with respect to STV, it is unlikely that the industry would attempt to divert these events from commercial television, but even so the Commission is undoubtedly correct in ruling that such events can not switch to STV.

The point of the rules relating to motion pictures is less obvious. The current rule is costly to STV not because it prevents competition between STV and broadcasters, but because it denies STV access to programming resources that are not used by broadcasters. First run theatre exhibition of motion pictures is simply too valuable to make either commercial television or STV competitors for movie rights immediately after a picture is released. For the more interesting pictures, lucrative theatre exhibition is likely to be possible for well over a year, especially if the film is nominated for major awards. Obviously, the motion picture companies would prefer to keep the picture earning the high revenues from theatre exhibition as long as that is possible, so that negotiations for release to STV much in advance of the end of the major theatre runs are not feasible. Thus, the two-year limitation, given the lead time required by STV systems for negotiating the rights and scheduling showings, prevents them from having access to many of the best films.

All of the alternatives mentioned in the Further Notice will give STV systems more flexibility in scheduling movies,

particularly the most popular movies that have long theatre runs. It is highly doubtful that any relaxation of the 2-10 year rule will have an appreciable impact upon the availability of programming for commercial television. Most importantly, the program production industry -- firms that produce series, specials, made-for-TV movies and movies exhibited first in theatres -- is highly competitive and able to respond quite rapidly to changes in the demand for its product. Mortality of firms in the industry is very high, with about forty percent of the firms selling their first program in one year going out of business by the next, and with several times as many programs for sale each spring as are eventually purchased by networks or independent stations. If STV significantly increases the profitability of the movie and program production industries, the response will be a substantial increase in the production of both movies and programs made directly for television, rather than a decline in the programming available to commercial television.

Another important feature of the current television industry is that owners of the rights to motion pictures apparently do much better at bargaining with networks over exhibition fees than do series producers: the maximum share of advertising income from movie showings on television that could be paid to owners of movie rights without causing networks to lose money on movies has been estimated as 45 percent; the actual

payments for movies average over 40 percent of advertising income.^{1/} This means that holders of movie rights release movies to television roughly at the point when networks can finally outbid the income from theatre exhibition -- that is to say, largely on the terms of the movie producers. Since the typical movie is not released to television for several years after it is made, it is apparent that motion pictures are being withheld from television now well past the first run of pictures. In this environment, it is conceivable that STV would actually reduce the average wait between release in theatres and showing on commercial television. If the release to STV is towards the end of the first theatre run and serves primarily as a replacement for showings at neighborhood theatres several years after release, then the principal effect of STV would be to provide a quicker, more effective way for motion picture companies to capture the relatively low-priced second and third run exhibitions. The main attractions of the second and third run, neighborhood theatre exhibition are economy (ticket prices are lower than for first run showings) and convenience (theatres are closer to home and seldom have long waiting lines). STV is well suited to satisfy this market, since it can be at least as inexpensive and convenient as the

local second run theatre. At any rate, the STV industry sees its primary market for movies as being in the first few years after release, in competition with the neighborhood run. If STV is successful, it will reduce the duration of the neighborhood run by substituting for some of the latter's business, and thereby lead to an earlier release for commercial television. If STV does not succeed in reducing the second and third run, then it will have no effect on the release date to commercial television, which with a minor STV industry will continue to be determined by the duration of lucrative theatre exhibitions.

Finally, it bears repeating that the most optimistic projections of the size of the STV market still leave the vast majority of Americans not subscribing to the service. This means that an STV business that is extremely successful will still leave an enormously attractive market for movies on commercial television. If half the nation is offered STV, if twenty-five percent of those offered the service actually buy it, and if, as was the case in Hartford, less than twenty-five percent of subscribers watch any given movie, then about 3 percent of the TV households will view the typical movie on STV. Considering that some households are likely to view a movie a second time when it is offered free on commercial television, an STV industry of even this magnitude can have no appreciable affect on movie audiences on free television.

^{1/} See Noll, Peck and McGowan, Economic Aspects of Television Regulation, p. 67.

Consequently, it is difficult to find any good reason to deny STV access to movies. There is adequate programming for all modes of exhibiting films, and the impact of even a fantastically successful STV industry on commercial television is likely to be so small as to be imperceptible, and may, for the reasons given above, actually bring movies to commercial television sooner after release than is now the case.

Finally, the rules with respect to sports events are perhaps the most difficult to deal with, in part because of the fanatical attitude of most people towards sports. If STV offers a threat to commercial television in any program category, it is in sports. In fact, several sports events have already switched in that they are exhibited through closed-circuit television in theatres. For instance, the last World Cup soccer matches, which would not rank high on most Americans' lists of sports events, were shown only in theatres, whereas four years ago the matches were carried by a commercial network. Similarly, championship boxing events long ago abandoned free television for the theatre.

Nevertheless, STV has an important potential benefit with respect to sports. If STV can be an important source of revenue to sports enterprises, it will make possible the emergence of new leagues in the professional team sports. Thusfar, the emergence of new leagues has been the only successful mechanism for introducing competition into professional sports, to the benefit of players (teams now compete for player

services in every major team sport but baseball), of fans (competition among leagues increases the availability of games on television and in person) and of broadcasters (the World Football League and the Hughes Television Network have given independent stations the opportunity to participate in the presentation of major league professional football and, thereby, capture very handsome prime time ratings in competition with the networks). Thus, if STV can be used as a vehicle for promoting competition in sports without actually causing sports broadcasts on commercial television to disappear, it will constitute a major advance to all concerned except those sports enterprises that would lose a monopolistic position in selling tickets and broadcasting rights.

The difficulty in devising a rule for sports is the disparity of practices among sports enterprises in broadcast policies. Even within the same sport, some teams televise many times as many games as others. Only in football, where all regular season games are sold as parts of national broadcasting contracts, is the practice relatively uniform, but even there teams vary considerably in their policies with respect to preseason games. It does not seem to make much sense to deny teams access to the STV market if they have broadcast a large number of games, while teams that have steered clear of television are given essentially

unlimited access to STV.

One way out is a rule along the following lines. Let every team sell some proportion of its games to STV, such as one-third or one-half. The normal practice of teams is to televise few, if any, home games, on the theory that free telecasts destroy home game attendance, but to televise a substantial number of road games. Thus, a sensible rule would be to allow all or nearly all of home games to be sold to STV, but to reserve all or nearly all road games for commercial television, unless, for a fairly long period, even road games were not televised.

Individual sports require a different type of rule. Most telecasts of individual sports focus only on the closing stages of a tournament: the last few holes of a golf tournament on each of the last two days of the tournament, the finals of a tennis tournament or a track meet. The true sports enthusiast, who might be a potential STV customer, would potentially be interested in the whole affair, from the very beginning. Thus, a revised antisiphoning ruling might appear as follows: that STV can bargain for the rights to any part of any event that is already appearing in part on commercial television if it so chooses. Thus, if commercial television elects to televise only the finals of the U.S. Open Tennis Tournament at Forest Hills, STV would still be able to pick up the earlier matches. Or, if commercial television decides to televise the NCAA track meet on a delayed basis, showing it a week after the event takes

place, STV would be permitted to produce a live broadcast of the same event. The key to the rule would be to prohibit STV to interfere with broadcasters in obtaining rights to an event, but to supplement the broadcast service should there be a market for more complete coverage. In addition, of course, the normal antisiphoning rule would apply in that a particular tournament could not switch from commercial to pay television without waiting for two years.

The last category of programs, regular series, are not discussed in the Further Notice, but here, more than for any other type of programming, the necessity of restrictive rules is highly dubious. Each year literally scores of ideas for series are made into pilots, and many promising ideas are not picked up by the networks simply because the amount of national network time is so limited. Given the resources available to the programming industry and the extraordinarily high unemployment rates among actors, there is simply no good reason to prevent STV from having access to these types of offerings. A minimal step in the right direction would be to permit STV exhibition of new episodes of any series or sequence of movies with a continuing cast of characters that is rejected as a pilot or cancelled by the commercial networks. As argued above, there is simply no threat at all that popular series will massively shift to STV. The program production industry can always supply good series for free exhibition, undercutting the demand for STV series, and, in any event, consumers simply are not going to be willing in sufficient numbers to devote a large portion of their viewing

time to pay television. But in some specific cases, relatively small but very loyal audiences may be willing to pay enough for a series that is not designed to maximize the size of the audience to make it commercially viable. Every year the commercial networks cancel one or two series that have low ratings but that nonetheless have very devoted audiences who loudly express disapproval at the cancellation. If STV can create a regular series format that can attract a small, paying audience, it might thereby make a significant contribution to television diversity. Right now, this does not appear likely, since STV is too small a factor in the market for programming to be able to support productions as costly as a regular series. But in the future, as it grows, STV might be able to display considerable originality in its offerings in ways that really offer no direct competition with commercial television but nevertheless fall within the "regular series" rubric. Certainly it is a mistake to foreclose the possibility of such innovative behavior.