The Economics of Subscription Television
An Anthology

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THE ECONOMICS OF SUBSCRIPTION TELEVISION (STV): AN ANTHOLOGY

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Addresses of Sources

B. Communications Research Center (Herbert Howard & Sidney Carroll), SUBSCRIPTION TELEVISION: HISTORY, CURRENT STATUS, AND ECONOMIC PROJECTIONS (prepared for the Nat'l Ass'n of Broadcasters (NAB)) (Apr. 1980) (180 pages).
National Association of Broadcasters
1771 N St., NW
Washington, DC 20036

C. FCC (Staff), STUDY OF THE EFFECT ON CONVENTIONAL TELEVISION OF RELAXING THE "COMPLEMENT OF FOUR" RULE (Appendix A of FCC Further Notice of Proposal Rule Making 88 F.C.C.2d 213) (Nov. 1981) (45 pages).
FCC Reports are available from the FCC or at any law school.

D. Kalba Bowen Assoc. (Michel Guite, Weston Vivian & Carroll Bowen), HIGH DEFINITION TELEVISION TO THE YEAR 2000 (prepared for CBS Television Network) (Jan. 1982) (32 pages).
Kalba Bowen Assoc.
12 Arrow St.
Cambridge, MA 02138

E. Donaldson, Lufkin & Jenrette, INDUSTRY VIEWPOINT: CABLE '82 (Oct. 1982)
Donaldson, Lufkin & Jenrette
140 Broadway
New York, NY 10005

F. FCC (Jonathan Levy & Florence Setzer), MEASUREMENT OF CONCENTRATION IN HOME VIDEO MARKETS (Dec. 1982) (117 pages).
FCC
1919 M St, N.W.
Washington, DC 20554

G. Browne, Bortz & Coddington (Paul Bortz, Jack Pottle, & Mark Wyche) AN ANALYSIS OF THE TELEVISION PROGRAMMING MARKET (included as part of ABC comments filed at the FCC) (Jan. 1983) (92 pages).
Browne, Bortz & Coddington
155 South Madison St., Suite 230
Denver, CO 80209

H. COMMENTS OF CBS INC. ON THE FINANCIAL INTEREST AND SYNDICATION RULES (filed with the FCC) (Jan. 1983) (2 volumes)
CBS Inc.
51 West 52nd St.
N.Y., N.Y. 10019

I. COMMENTS OF NBC, INC. ON FINANCIAL INTEREST AND SYNDICATION RULES (filed with the FCC) (Jan. 1983) (218 pages)
NBC, Inc.
30 Rockefeller Plaza
N.Y., N.Y. 10020

J. International Resource Development, NON-CABLE PAY TV SERVICE (March 1983) (305 pages)
International Resource Development, Inc.
30 High St.
Norwalk, CT 06851

K. Broadcasting Magazine, Recent Developments (Sept. 1983)
Broadcasting Magazine
1735 DeSales St., N.W.
Washington, DC 20036

L. Yankee Group, Projection (1983)
The Yankee Group
Harvard Square, Box 43
Cambridge, MA 02138

Subscription Television

by Mark Nadel

Subscription Television (STV) is a pay TV broadcast service. Scrambled programming is transmitted over conventional VHF and UHF or the new LPTV television channels and viewed by those subscribers with a decoder device to unscramble the signal. Although the STV industry experienced consistent growth from 1977 till mid-1982, the tide quickly turned in mid-1982 and with the recent exit of some of the larger operators the future of the industry is in doubt.

I. HISTORY 1/

The first formal proposal for a subscription television service was made in 1949 when the Zenith Radio Corp. sought authorization for a new service called Phonevision. 2/ The service operated by broadcasting scrambled programming over the air and then sending the signal for unscrambling the picture to paid subscribers over phone lines. 3/ In 1952, after some experimentation, 4/ Zenith sought FCC approval for commercial development and when additional petitions from manufacturers and other potential participants in the industry followed, 5/ the Commission initiated a rulemaking to determine whether the service was in the public interest. 6/

After two years of study the agency asserted statutory power to authorize STV, and after receiving the additional information it requested 7/ it announced preliminary conditions for trials. 8/ When Congress expressed interest in dealing with STV itself, however, the FCC deferred further action to permit Congress to act. 9/ When legislation was not forthcoming 10/

the Commission proceeded by issuing a modified final set of conditions. 11/

On June 22, 1960 RKO General's WHCT-TV of Hartford filed the first application for the service and after a 5-day en banc hearing it was granted on Feb. 23, 1961. 12/ Despite a lengthy court challenge, 13/ broadcasting began in June 1962 14/ and by 1965, Zenith was back at the Commission, armed with the results of this "Hartford Experiment," seeking the establishment of permanent nationwide service. The FCC began reviewing the issue, 15/ and based on a preliminary staff report 16/ decided to act positively. After some jockeying with Congress, 17/ it issued its 1968 rules for nationwide STV service. 18/

The regulations, however, were structured to protect the viability and availability of conventional programming and were therefore quite restrictive. 19/ They included rules restricting entry to one station per community, 20/ and then only in communities served by 4 other broadcasters. 21/ Regulations also limited the content of programming, 22/ to prevent the siphoning of films and sports from free TV. 23/

The first commercial STV operator began broadcasting in March 1977 24/ and by 1979 Oak Industries' annual report boasted that its ON TV joint venture with Jerry Perenchio's Chartwell Communications was providing 225,000 Los Angeles subscribers with a specially tailored combination of exclusive local sporting events, movies, specials and theatrical productions. The results were "so successful " that Oak predicted that STV was "an ideal medium for bringing quality programming into cities not yet cabled or where cable is not viable." 25/

Nevertheless, a 1979 STV Report to the FCC's Network Inquiry Project, pointed out that "The best conclusion to be drawn from all the material which purports to describe the future of STV is that no one really knows what will happen."26/ STV was only one of a number of pay TV distributors. It was generally assumed that STV would have great difficulty entering a market that was already served by cable, but its big competitive advantage over cable was the speed with which it could enter and blanket a market, and its lower capital cost.

Many investors believed that it could maintain a viable presence in a market if it entered first, and their confidence was substantially bolstered by the results in Los Angeles. As a 1982 National Cable Television Ass'n commissioned study of the L.A. market showed, when cable entered after STV was already entrenched, the latter maintained a 17.3 percent penetration level. 27/

A March 1980 National Ass'n of Broadcasters (NAB) commissioned study thus concluded that "in all likelihood, STV will be available in all of the top-50 markets, except those with excessively high CATV penetration, within the next ten years." 28/ By mid-1981 several companies even began exploring the possibility of multiple tier STV 29/ and Oak pointed with pride to its Chicago station which was already earning a profit after 8 months; 52% of its subscribers paid $15 to see the Sugar Ray Leonard-Tommy Hearns boxing match. 30/

There was also good news on the regulatory front. After the 1977 D.C. Court of Appeals decision in FCC v. HBO repealed the content rules which applied to pay-cable, the FCC repealed the comparable rules which applied to STV 31/ and by 1982 all of the other restrictive STV rules had also been deleted. 32/ The only remaining restrictions are technical standards.

Yet there was some cause for caution. Chartwell dropped plans to launch STV in New Jersey that year and Golden West began easing its way out of the industry. 33/ Browne, Bortz & Coddington refused to recommend STV to any of their clients. Paul Bortz believed that it just wasn't a solid business, priced too high for what it could deliver. 34/

The boom ended in 1982.

The industry's subscriber gains slowed to a crawl and even began declining in the 4th quarter. By 1983 stations were being closed down throughout the nation. United Cable exited from from Chicago, Cincinnati-Dayton and Minneapolis, Oak exited from Phoenix and Dallas Fort-Worth; Time, Inc. from Cleveland and others from Detroit, St. Louis, and Boston. 35/

Between January and September 1983, the number of STV subscribers declined by 325% to 918,000. 35A/ Meanwhile two of the major STV operators are repositioning themselves as multimedia programming networks. Having moved to satellite delivery, SelecTV and ONTV seem eager to distribute to SMATV, MDS, and LPTV operators as well as STV stations.

As for STV itself, one commentator has noted that once fixed costs have been amortized operators will be in a position to cut prices down to approach variable cost levels 36/, but so far this has not occurred.

STATISTICAL HISTORY

Year :	1977	1978	1979	1980	1981	1982	Sept. 1983
Subscribers (thousands)	5	59	260	520	1,082	1,747	918
Penetration of TV Households (%)		0.1	0.5	1.0	1.4	1.6	1.1
Penetration of Homes Passed (%)	3.7	3.9	3.9	4.3	4.7	5.7	
Estimated revenues (millions)		32	86	160	288	306	

The MDS Databook 13 (Paul Kagan Associates Oct. 1982); Non-cable Pay TV Service 61, 62 (Int'l Resource Development, Inc., March 1983); Howard & Carroll, Subscription Television 83 (1980).

II. The Industry Structure and Regulations

The STV industry consists of two main groups. First there are the broadcast licensees who transmit the signals. They must have broadcast licenses from the FCC for VHF, UHF, or LPTV service and are subject to the Commission's broadcast rules on multiple station ownership 37/, media cross-ownership, 38/ and foreign ownership. 39/ It is unlikely that any VHF licenses will operate as STV stations but many of the new LPTV licensees are likely to join the present traditional UHF broadcasters. The only thing a broadcaster requires to commence STV operations is FCC approval and encoding equipment.

The second part of the industry is comprised of the franchisee/marketers. They secure the rights to programming, lease time from stations, and market the service to households in the station's service area. Oak's ON TV and AST's SelecTV dominate this segment of the industry and now that both have switched to satellite distribution of portions of their programming they are exploring the opportunities for distributing to SMATV and MDS operators. 40/

Along these lines, United Cable's Home Entertainment Network designed a two-channel service in Minneapolis. It hopes to contract for exclusive sports programming which it can distribute over its own STV station as well as area cable systems. 41/

III. Relevant issues

A. Marketing

1. Churn

The 1980 NAB STV study assumed a 15% annual churn (turnover of subscribers), based on the rate experienced by local telephone companies and a predicted $50 installation charge. 42/ In fact, the actual churn rate is running at 5-6% per month 43/ and as high as 10%. 44/ Installation charges are only $20-40. 45/

Some pay-TV experts believe that churn could be decreased significantly by making even minor improvements in the quality of the programming. IRD reports that "One executive reasoned that spending $600,000 more per year on programming in a 100,000-subscriber system could reduce a seven percent churn by two percent, perhaps saving as much as $4 million annually." 46/ Still, STV program buyers ON TV and SelecTV have cut back on the price they are paying for programming. 47/

2. Break Even

The higher churn rate and the resulting lower yield on marketing expenses appears to have significantly increased the break even subscriber level. The 1980 NAB study estimated the break even levels in the 33-37,000 range for markets with less than 2 million households 48/ but by 1983 Paul Kagan's Pay TV Newsletter, observed that fixed costs for STV had risen 50 percent from 1981 and the breakeven level was pegged at 65,502.

3. Marketing Expenditures

The NAB study based its advertising marketing expenditure projections on those at an equilibrium level although recognized that "high expenditures are incurred in the initial stages of operation to introduce a new service." 49/ Noting that in 1978, 16% of gross expenditures for UHF were for sales while cable companies devoted an average of 12.87% of operating expenses to selling, general and administrative expenses, it assumed that STV operators' would spend 7% of revenues on marketing. These projections might have been reasonable for the long run, but the model was not appropriate for the early years when much larger marketing expenditures were required. When STV operators proved reluctant to make the larger initial expenditures 50/, they may have lost the chance of ever reaching the equilibrium levels of the model.

4. Bad debt

Bad debt losses for STV have also added to the problem. For two East Coast STV systems, bad debt represented 8 and 12 percent of total 1982 revenues, 51/ and IRD expects them "to continue for the foreseeable future due to the fact that many of the STV customers were alienated during STV's period of high growth." 52/ In fact the significant purging of non-paying customers by STV operators 53/ is one reason for the decline in reported STV subscriber figures.

The eagerness of operators to sign up large numbers of subscribers also led to laxity of proper credit checks and this is blamed for the high incidence of late or non-payment.

B. Equipment/Cost of Servicing

The author of the 1979 FCC Report reported that "Discussion [sic] with Commission engineers and other personnel, and with industry sources have failed to disclose significant problems in the design of any of the approved systems ... the 'bugs' in production and installation are clearly disappearing as the industry gains experience." 54/ Yet the equipment has proved more difficult to deal with than expected.

The equipment design of the STV system in Cleveland made it impossible for its addressable computer system to be used by its staff to identify paying customers. 55/ In addition, the cost of repeated service calls for repairs has been higher than expected 56/ and some operators feel that operation costs in general, including staff training have been underestimated. 57/ According to David Wicks of A.G. Becker, "The costs of getting to the consumer were absolutely misprojected." 58/

C. Piracy

STV signals are protected by federal law against unauthorized interception, but the cost of policing the industry is very high. Equipment manufacturers have estimated that there were "tens of thousands" of pirate decoders in use 59/ and the STV Association estimated the piracy rate at 15% in 1982. 60/ And now that the FCC has legalized the sale of decoders by repealing the requirement that all decoders be leased, it is feared that piracy will increase.

The current technology utilizes digital codes to keep out unauthorized users, but pirates are still able to circumvent the codes. It seems that the problem will not be solved until a new technology is introduced. 61/

D. Marketing Potential

The efforts of STV operators to attract new subscribers with low priced installation charges have generally been abandoned in favor of a strategy aimed at the program product itself. 62/ The high cost of installation ($40+) and the low profitability potential of price oriented subscribers have pushed operators to emphasize the high value of their product with the use of, for example, classy program guides. 63/

Marketing experts have advised operators to stress their uniqueness by establishing programs with a product especially suited to local taste. 64/

1. Pay Per View (PPV)

One advantage that STV has had over cable is that the great majority of STV systems are addressable. When the Sugar Ray Leonard - Thomas Hearns Sept. 16, 1981 fight was offered to pay-TV, 75% of the existing STV Systems could charge customers $19 to see the match without having to make service calls while non-addressable systems like most cable operators required the use of special signal traps. 65/ This was particularly important since some systems reportedly received 15 percent of their orders in the 3 hours immediately preceding the broadcast. 66/ Although the 10 STV systems that carried the fight reported approximately 50-60 percent penetration figures, PPV also caused a problem by preempting regular STV service to non-PPV buyers. This has created some reluctance towards future commitments to PPV by STV. 67/ Thus subsequent pay-per-view experiences have been mixed. The June 1982 Cooney-Holmes fight attracted an estimated 40% of STV homes where it was heavily promoted; Star Wars achieved a 30% rate in Sept. 1982 (as opposed to 5% on cable). 68/ In November 1982 "Sophisticated Ladies" reached barely 10% and the December 1982 "Who" concert achieved only 11% STV penetration.

2. Multichannel STV

After the repeal of the STV "one to a community rule" multichannel STV became a possibility, yet the FCC's failure to require decoder compatibility and the industry's failure to come to some consensus has resulted in only single channel STV. In 1978 Blonder-Tongue predicted that it could make a decoder which would receive and decode two separate B-T encoded signals for only "a few dollars more" than the current price, 69/ and the 1982 BBC study revealed that "more than 60 percent of STV respondents are at least somewhat in favor of three channel STV, even at a price about double the existing level." 70/ Many companies even installed decoders with multichannel capacity in subscriber homes and located transmission facilities to facilitate multichannel broadcasting, but to no avail. 71/ STV operators have chosen to fight against each other rather than coordinate marketing. In Dallas, for example, 3 STV operators battled to the death. As Paul Bortz notes, "There was a real missed opportunity in Dallas. Joint ownership was the only viable alternative." 72/

Efforts to establish multichannel STV service may now be too late. STV's traditional lenders do not appear eager to invest in an apparently losing technology. According to David Wicks, bankers are now "worried." 73/

3. Adult Programming

STV operators have enjoyed very high profits for adult movie programming. Programming which costs them 40 to 50 cents is being marketed as an adult tier at $4.95 to $5.95 retail. 74/ Systems adding adult tiers have seen their penetration rates rise from 40 to 90 percent. It appears that consumers have strong appetite for "medium-R", "hard-R" and even more explicit programs of this type. 75/ Whether cable, or other competitors will desire and be permitted to offer such programming also remains to be seen.

VI. Assessments of Other Studies (Excerpts Follow)

A. NAB

In April 1980, Professors Herbert Howard and Sidney Carroll of the University of Tennesse published Subscription Television: History, Current Status, and Economic Projections, a research study for the National Association of Broadcasters. After presenting a detailed history of the industry and its current status, the study developed an economic model to explore possible industry scenarios.

Although STV stations were required to offer 28 hours of free programming at the time of the study, the model did not consider the non-STV of a station's business. It was also designed only to examine the STV operations of the franchisee in an equilibrium state. As the authors pointed out: "The question to be answered is: Under what conditions will an STV operation break even in the long run." 76/

The model, it should be noted, treated the subscriber penetration rate as an independent (exogenous) variable, although an adjustment factor allowed cable television effect on penetration to be accounted for.

The study concluded on an optimistic note, observing that Paul Kagan's <u>Pay TV Newsletter</u> predicted 45 STV stations would be broadcasting to 3.2 million subscribers nationally by 1985 and that industry executives supported the "rosy" outlook. <u>77</u>/ It cautioned STV advodates that "It is virtually certain that, all things being equal, cable will emerge as the strongest vehicle for pay television because of its multiplicity of channels..." <u>78</u>/ but went on to predict that "In the long-run, it would appear that both pay cable and over-the-air STV have a promising future..." <u>79</u>/, noting that "Timing appears to be the single most important factor in the development of pay television at this point." <u>80</u>/ "In all likelihood," they expected "STV [would] be available in all of the top-50 markets, except those with excessively high CATV penetration, within the next ten years." <u>81</u>/

B. NCTA

The March 1982 Browne, Bortz & Coddington report was commissioned by the National Cable Television Association to support the argument that cable television faced competition from other technologies. The NCTA sought to avoid regulation by refuting the suggestion that cable enjoyed a monopoly position. The L.A. market was apparently chosen because it was STV's strongest in the country. <u>82</u>/ In fact, Oak's ON-TV gained such a large audience (it is the industry's most popular station) that it was able to purchase exclusive sports programming from the L.A. Dodgers, and both ON-TV and SelecTV earned enough revenues to support very strong media advertising companies. In 1982 more than 93% of L.A. audience had heard of STV through the mass media, as opposed to less than 89% in even the mature cable TV market. 83/ It is not surprising that the retention rates for STV operators in L.A. have not been equaled in any other city.

C. IRD

A March 1983 International Resource Development, Inc. study of Non-Cable Technologies by CSP International came out very strongly against STV, finding that "STV is not a real competitor to cable." 84/ It claimed that "The business was understood to be one that would mature very rapidly -- one designed to fill the window before cable systems were built." 85/ Observing that the rapid growth of subscribers created unexpected back office paperwork in 1980-81, it found that "most systems alienated subscribers during this period..." 86/

The study pointed out that the BBC/NCTA study of STV was not representative of STV stations in general, but rather a very special case. 87/ With high churn (customer turnover) rates of 5-6%/month IRD found that many STV subscribers leave well before the 18-22 months that are required for them to break even. 88/ The study reports that "The dominant financial picture for the vast majority of STV systems is substantial cash loss -- averaging $5 million a year in 1982 for several sizable stations." 89/ "STV is an industry that was overpromoted and undermanaged. It will mature and decline without even being close to profitability on a nationwide scale." 90/

The study singled out the problems with high churn, and the resulting higher marketing costs, piracy, the recession and technical difficulties, discussed above, as the causes of STV's disappointing performance. 91/

1/ For a detailed history of STV, see H. Howard and S. Carroll, Subscription Television: History, Current Status, and Economic Projections 6-51 (1980) (prepared for the Nat'l Ass'n of Broadcasters) [hereinafter NAB study].

2/ Proposals for subscription broadcast systems are said to date from as early as 1931 when Eugene F. MacDonald, founder of the Zenith Radio Corporation, proposed such a system for radio. He subsequently pioneered the development of STV at Zenith in the 1940s. V. MOSCO, BROADCASTING IN THE UNITED STATES 105, 107 (1979).

3/ See Notice of Rule Making, 20 Fed. Reg. 988 (Feb. 16, 1955).

4/ Experimentation was limited to the showing of movies that had been released for more than 2 years. V. MOSCO, supra note 2, at 107.

5/ Experimental authorizations for STV were granted to Zenith, as well as Skiatron TV, Inc. for "Subscriber-Vision" (which utilized punch cards for billing purposes) and International Telemeter Corp's "Telemeter" (which utilized a coinbox for billing). 20 Fed.Reg. 988.

6/ Ibid.

7/ Ibid. See Further Notice of Inquiry, 22 Fed. Reg. 3758 (May 29, 1957).

8/ First Report and Order, 23 F.C.C. 532 (1957).

9/ See Second Report and Order, 16 RAD. REG. (P&F) 1539 (1958). This came in response to a House Commerce Committee resolution opposing STV. V. MOSCO, supra note 2, at 109.

10/ See Third Report and Order, 26 F.C.C. 265, 265-66 (1959).

11/ Ibid. Congressional pressure did, however, lead the agency to severely curtail the initial test conditions. V.MOSCO, supra note 2, at 109.

12/ See Hartford Phonevision, Co., 30 F.C.C. 301 (1961), aff'd, Connecticut Citizens Against Pay TV v. FCC, 301 F.2d 835 (D.C.Cir. 1958), cert. den. 371 U.S. 816 (1962), discussed in Further Notice of Proposed Rulemaking and Notice of Inquiry, 3 F.C.C.2d 1, 2 (1966).

13/ Id. In another attempt to block STV development, a campaign was waged in California to prohibit the service. Although a referendum was actually passed against it, it was invalidated in the courts. See Weaver v. Jordan. 64 Cal.2d 235 (1965). See V. MOSCO, supra note 2, at 110.

14/ The initial 3-year trial application was later extended and did not end until six-and-a-half years later in 1969.

15/ Further Notice of Proposed Rule Making and Notice of Inquiry, 3 F.C.C.2d 1 (1966). The analysis also covered data from an experimental cable operator at Etobicoke, Canada. See Proposed Fourth Report, 10 RAD. REG. 2d (P&F) 1617, 1633 (1967). A prior petition to expand the Hartford test, however, was rejected. V. MOSCO, supra note 2, at 110.

16/ Proposed Fourth Report, 10 RAD. REG. 2d (P&F) 1617 (1967).

17/ See Fourth Report and Order, 15 F.C.C.2d 466, 466, 470-71 (1968); V. MOSCO, supra note 2, at 110-11. Although Congress accepted the rules, the House Commerce Committee did subsequently receive 20 bills to ban STV. Id., at 116.

18/ Fourth Report and Order, 15 F.C.C.2d 466 (1968), aff'd National Ass'n of Theatre Owners v. FCC, 420 F.2d 194 (D.C.Cir. 1969), cert. den. 397 U.S. 922 (1970).

19/ Some even suggested that they were written to strangle STV. V. MOSCO, supra note 2, at 111.

20/ The "one to a community" rule limited operators to one single channel operation per community, 47 C.F.R. §73.643(a)(3), before it was repealed in First Report and Order, 46 RAD. REG. 2d (P&F) 460 (1979).

21/ The "complement of four" rule limited STV operation to communities within the grade A contour of at least four other commercial television stations. 47 C.F.R. §73.643(a)(3), until it was repealed in Third Report and Order, 90 F.C.C.2d 341 (1982).

22/ STV stations were required to broadcast at least 28 hours of conventional (free) programming per week, 47 C.F.R. §73.643(a)(3) until it was repealed in Third Report and Order, 90 F.C.C.2d 341 (1982).

23/ When the D.C. Circuit Court repealed pay-cable's anti-siphoning rules in HBO v. FCC, 567 F.2d 9 (D.C. Cir.), cert. denied, 434 U.S. 829 (1977) it left the STV rules in effect. The FCC, however, took a hint from the decision and began a reevaluation of the rules, Memorandum Opinion and Order and Notice of Inquiry and Notice of Proposed Rule Making, 67 F.C.C.2d 202 (1977). This resulted in Report and Order in Docket 21311, 41 RAD. REG. 2d (P&F) 1491 (1977) and Report and Order in Docket 21489, 42 RAD. REG. (P&F) 1207 (1978) which articulated a desire to equalize the treatment of the 2 pay-TV media.

24/ The first STV operator to be granted a license and broadcast was WWHT (formerly WBTV and WTVG) Newark, N.J. and it was soon followed by KBSC Corona, Cal. which began service in April, 1977, a week after the HBO case, supra, was decided.

25/ See Gordon, "Nobody Loves You When You're Down and Out," VIEW, July 1983, at 43.

26/ See K. Glen, Subscription Television, prepared for the Federal Communications Commission, Network Inquiry Special Staff, January 1980, at 79 [hereinafter FCC Report]. The Report reviews a number of early studies, including: The 1962-65 Hartford Experiment; the Standford Research Institute's 1975 Analysis of Consumer Demand for Pay Television; Shearson Hayden Stone, Inc.'s Broadcasting -- The Significance of Emerging Competition; Blyth Eastman Dillion's Report on Oak Industries; and Paul Kagan's seminars on Economies in Pay TV, see Ibid. at 80-101.

27/ See Browne, Bortz and Coddington, The Impact of Competitive Distribution Technologies on Cable Television, March 1982, (prepared for the Nat'l Cable Television Ass'n), at 5. [hereinafter BBC Study].

28/ See NAB Study, supra note 1, at 162.

29/ Non-cable Pay TV Service (March 1983) (prepared by Communications Studies and Planning International, published by International Resource Development, Inc.) at 65. [hereinafter IRD study].

30/ See Gordon, supra note 25, at 43.

31/ See note 23, supra.

32/ See notes 20-23, supra. The agency also rejected a suggestion that comparative hearings for STV licenses be based on anything other than the criteria used for normal comparative broadcast hearings. Second Report and Order, 85 F.C.C. 2d 631 (1981).

33/ See Gordon, at 44.

34/ Ibid.

35/ See "Bloom is off STV rose," BROADCASTING, Sept. 5, 1983, at 35.

35A/ The Home Video & Cable Report, Oct. 3, 1983, at 3 (Knowledge Industries Publications, Inc.).

36/ See Gordon, at 44-45.

37/ 47 CFR §76.501 (a)(2).

38/ See Second Report and Order on Multiple Ownership of Standard, FM and Television Broadcast Stations, 50 FCC2d 1046 (1975).

39/ 47 U.S.C. §310 (a)(1)(4) and (5).

40/ See Gordon, at 46.

41/ See IRD Study, supra note 29, at 80.

42/ See NAB Study, supra note 1, at 117.

43/ See IRD Study, supra note 29, at 52. This contrasts with 3-4% per month for pay cable. Ibid.

44/ See Gordon, supra note 25, at 44.

45/ See IRD Study, at 63.

46/ See IRD Study at 70, Gordon, at 46.

47/ See Gordon, at 46.

48/ See NAB Study, at 127-28.

49/ Ibid., at 120-21.

50/ See IRD Study, at 67.

51/ Ibid., at 62.

52/ Ibid., at 63.

53/ Ibid., at 67.

54/ See FCC Report, supra note 26, at 47.

55/ See IRD Study, at 71.

56/ Ibid., at 73.

57/ Ibid., at 73-74.

58/ See Gordon, at 58.

59/ See IRD Study, at 59.

60/ See Gordon, at 45.

61/ See IRD Study at 72-73.

62/ Ibid., at 76.

63/ Ibid.

64/ Ibid., at 76-77.

65/ Ibid., at 81-83.

66/ Ibid., at 83.

67/ See Gordon, supra note 25, at 45.

68/ See IRD Study, supra note 29, at 84.

69/ (Comments of Blonder-Tongue Laboratories in Docket No. 21502, April 28, 1978, pp. 12-14; cited in FCC Report at 48-49.)

70/ See BBC Study, supra note 27, at 20.

71/ See IRD Study, at 65.

72/ See Gordon, at 45.

73/ Ibid.

74/ Ibid.; IRD Study, at 77.

75/ IRD Study at 78.

76/ See NAB Study, supra note 1, at 107.

77/ Ibid., at 146.

78/ Ibid., at 157.

79/ Ibid., at 158.

80/ Ibid, at 159.

81/ Ibid, at 162.

82/ See BBC Study, at 1.

83/ Ibid., at 2, 4.

84/ IRD Study, at 49.

85/ Ibid., at 50.

86/ Ibid.

87/ Ibid., at 50-51.

88/ Ibid., at 52-53.

89/ Ibid, at 53.

90/ Ibid., at 54.

91/ Ibid., at 53-54.