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THE GROWTH OF TELEVISION BROADCASTING AND STRUCTURAL ALTERATION THROUGH SUBSCRIPTION TELEVISION

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

MICHAEL THOMAS SALIBA, II

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THE GROWTH OF TELEVISION BROADCASTING

AND STRUCTURAL ALTERATION THROUGH

SUBSCRIPTION TELEVISION

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CHAPTER I

INTRODUCTION

Modern communication was born over 125 years ago--May 26, 1844, to be exact. On that date, the first successful test of electronic communication was made by sending a telegraphic message from Washington to Baltimore. Samuel Morse transmitted the famous message, "What God hath wrought," over a wire. Later came experiments and improvements that brought the telephone, wireless telegraphy, radio, and television.

More than ninety years have passed since Bell and Watson made the discovery in Boston that electricity could be used to transmit not merely coded messages but also the human voice. Over seventy years ago Marconi thrilled the world by sending radio signals across the Atlantic Ocean.

Much of the human progress that has been made over the past century may be attributed to the discoveries of these men and many others like them who gave mass communication to the world. It is now apparent that modern civilization would have been impossible without such communication.

Mass communication implies at least five things: (1) large audiences, (2) relatively undifferentiated audience composition, (3) some form of mechanical reproduction, (4) rapid distribution, and (5) low unit cost to the consumer.[1]

Broadcasting is a major component of mass communications. The Federal Communications Commission (hereafter referred to as the Commission or the FCC) has defined broadcasting as "the dissemination of radio signals intended to be received by the general public."[2] Of the several bands on the frequency spectrum, only standard amplitude modulation (AM) radio (540-1600 kilocycles), frequency modulation (FM) radio (88-108 megacycles), and television (Very High Frequency or VHF and Ultra High Frequency or UHF occupying channels 2-13 and 14-83, respectively) qualify as

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[1] Sydney W. Head, Broadcasting in America (Boston: Houghton Mifflin Company, 1956), p. 77.

[2] U.S. Congress, Communications Act of 1934, Section 3.

broadcasting. Of course, any radio signal can be received with the proper equipment, but only signals from the above mentioned channels are "intended" for public reception.

When (radio) broadcasting arrived, the communications field was already big business. The newspaper had developed the techniques of advertising for financial support, syndicating materials, and large-scale organization. The motion picture industry had just gone through its early stages of development. And the telephone and telegraph, not themselves mass media, had contributed their share to the concept of communications. The rapid growth of broadcasting may be attributed in large part to the prior experience of the other media.[3]

The Communications Act of 1934

Radio broadcasting began to soar in the early 1900's. As a result of wave piracy,[4] offensive advertising, alleged monopolistic practices, and other conditions which had developed in the unregulated radio industry, the House and Senate finally agreed upon a bill which came out of the

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[3]Head, Broadcasting in America, p. 79.

[4]This refers to new transmitters being operated on frequencies of existing transmitters resulting in interference.

1926 Congressional hearings. The Federal Radio Act became law on February 23, 1927. Due to its inadequacies, Congress enacted the Federal Communications Act (hereafter referred to as the Act) on June 19, 1934, which created the FCC and gave it the authority to regulate all interstate and foreign communication by means of wire or radio.

An outgrowth of a long evolutionary process, the Act, amended from time to time, has been in effect for nearly four decades. As stated in Section 1, the broad purpose of the Act is ". . . to make available, so far as possible, to all the people of the United States a rapid, efficient, nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges. . . ."[5]

The Act clearly provides for private ownership and management of broadcasting facilities with government regulation for the protection of "the public interest." Although the physical apparatus used by broadcasting stations is privately owned and managed, this is not true with respect to the channels which they employ. Section 301 of the Act states that one of the purposes of the Act is "to maintain the control of the United States over all the channels of

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[5]U.S. Congress, Communications Act of 1934.

interstate and foreign radio transmission." It is provided that such channels may be used for limited periods of time under licenses granted by Federal authority, and that no such license is to be construed as creating "any right, beyond the terms, conditions, and periods of the license."[6]

Radio and television stations broadcasting programs to be received by the general public are not considered to be "common carriers for hire" as are the telephone and telegraph industries. Two characteristics distinguish a common carrier from broadcasting: it is a service for which a charge is made and a subscriber has the prerogative of using the service in the manner he chooses. Broadcasting, however, is a free medium, and aside from station selection, the listener or viewer has no direct control over what is broadcast.

Congress recognized the field of broadcasting as one of free competition, and to guard against the tendencies toward monopoly which had caused Federal regulation, it declared in Section 313 of the Act that all the laws of the United States relating to unlawful restraints of trade are applicable to the manufacture and sale of radio apparatus

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[6] Ibid.

and to broadcasting in general. A violation of any such law may be grounds for revocation of a station license.[7]

That television broadcasting would be regulated by the Act is provided for in Section 3. "Radio communication . . . means the transmission by radio of writing, signs, signals, pictures, and sounds of all kinds. . . ."[8]

The Coming of Television

Although the development of television technology has taken place over a long period of time, the development of television broadcasting has occurred within the past fifty years.

Television had its beginnings as far back as 1817, when a new substance called selenium was discovered by Jöns Berzelius, a Swedish chemist. In 1873, Joseph May found that selenium could convert light energy into electrical energy, making possible the transmission of pictures by means of an electric signal. The principle of scanning was suggested by Maurice Le Blanc in 1880; and four years later, Paul Nipkow invented the scanning disk by which moving pictures could be

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[7] Ibid.

[8] Ibid.

converted into electric signals by the use of a selenium photo cell.

Ferdinand Braun, using electricity in conjunction with television for the first time, introduced the cathode ray oscilloscope in 1897. It was perfected in 1907 by Boris Rosing, creater of the first electronic picture viewer. In 1923, Vladimir Zworykin patented the iconoscope, the first television camera. Three years later, C. F. Jenkins, an American, and John L. Baird, a Scotchman, demonstrated electrical transmission of crude black and white silhouettes in motion employing mechanical scansion, and thus introduced the first practical mechanical television system.

In 1927, the Bell Telephone Company demonstrated the practicality of Jenkins' and Baird's system by transmitting pictures by wire from Washington, D.C., to New York. By 1928, there were a few stations experimenting with television. Jenkins attempted to exploit the commercial possibilities of television in 1930, but was unsuccessful because the mechanical system produced poor images and frequently broke down.

A major technological breakthrough came in 1933 when Zworykin and Philo Farnsworth, working independently, developed a method for an all-electronic television system using

the iconoscope tube. Research ensued to produce a completely electronic system which could deliver good images over long distances to receivers of a size and price sufficiently small to interest consumers.

Leaders were ready for commercial television by 1939 and Du Mont marketed the first home receivers that year. In April, 1939, NBC demonstrated their RCA system by broadcasting a speech of President Franklin D. Roosevelt at the opening of the New York World's Fair. A dynamic industry which was to have a significant impact on the world was born and Fortune Magazine declared, "A long time after the World's Fair has become one of grandfather's stories, April 30 will still be remembered as the day when they formally started television in the United States."[9]

In May, 1941, seven months before the United States entered World War II, the FCC authorized commercial telecasting, adopting the standards of the National Television Systems Committee. The first license was granted to WNBT (New York), an RCA-owned station. By mid-1942, there were ten stations on the air, but only six continued to provide limited service during the War. On April 22, 1942, all

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[9] Fortune, April-May, 1939, p. 53.

production of television sets came to a halt and during the war years less than 10,000 receivers were in use.[10]

There were twelve commercial stations on the air at the end of 1946. Sensing potential profits, individuals began scrambling for licenses. By 1948, generally regarded as the year in which television emerged as a mass medium, there were sixteen stations on the air and many more either under construction or awaiting FCC action. Four networks--NBC, CBS, ABC, and Du Mont--were providing regular service. With such a background, and the limited space in the VHF spectrum, the FCC ceased licensing new stations on September 30, 1948, and the "freeze" continued for four years, until April 14, 1952.[11]

After the freeze, differences of opinion existed in the United States concerning the future of television. Many were confident that television was a child of radio and that eventually it would pay its own way because of its appeal to both ear and eye. Others argued that it was a "scientific

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[10]Head, Broadcasting in America, p. 157.

[11]Bryce W. Rucker, The First Freedom (Carbondale, Illinois: Southern Illinois University Press, 1968), p. 92.

novelty," a "millionaire's toy," which could not survive since masses were the lifeblood of radio.[12]

There has never been a doubt regarding the future of television in the minds of broadcasting's leaders. It has extended man's range of vision and has led him out of the dark ages of radio and into the light. Some have hailed it as the single most significant force in our society.

Identification and Significance of the Economic Problem

Since 1952, the television broadcasting industry, aided and regulated by the FCC, has become one of the fastest growing industries in America. At times, this growth has been complemented by government regulatory efforts. For example, television certainly would not have been able to survive had the wave piracy that existed in the early days of radio not been contained by the Communications Act. But when regulation has sought to influence the qualitative aspect of program diversity, it has not been successful.

In television broadcasting, program diversity is one standard by which industry and regulatory performance are increasingly evaluated. Program diversity refers to a more

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[12]Orrin E. Dunlap, The Future of Television (New York: Harper & Brothers Publishers, 1942), p. 6.

varied choice within the framework of television programing rather than to a quantitative increase in viewer choice (i.e., program duplication).

The number of television stations on the air has increased rapidly during the past two decades, but the tendency has been toward program duplication as more than one station has commenced broadcasting in a given market. New entrants tend to duplicate the programing of rivals as long as the market share they can thereby command exceeds what they could otherwise preempt with a new program type. Spectrum scarcity prevents an increase in the number of stations to the extent necessary for significant program diversity.

Much of the public criticism of commercial television focuses on the relative neglect of programing for minority tastes. A substantial portion of the potential television audience feels that it is not being catered for and many current viewers feel that they are forced to accept a kind of second best. The absence of demand prices for particular program outputs has left this group relatively helpless in its efforts to attain the type of programing it desires.

Such a situation led former FCC chairman Newton F. Minow to make a stinging indictment of commercial television,

calling it a "vast wasteland." In part he said:

> I invite you to sit down in front of your television set when your station goes on the air and stay there without a book, magazine, newspaper, profit and loss sheet or rating book to distract you--and keep your eyes glued to that set until the station signs off. I can assure you that you will observe a vast wasteland.
>
> You will see a procession of game shows, violence, audience participation shows, formula comedies about totally unbelievable families, blood and thunder, mayhem, violence, sadism, murder, western bad men, western good men, private eyes, gangsters, more violence, and cartoons. And endlessly, commercials--many screaming, cajoling, and offending. And most of all, boredom. True, you will see a few things you will enjoy. But they will be very, very few. And if you think I exaggerate, try it.[13]

FCC regulatory efforts have not had the intended effect of program diversity since the profit-maximizing goal of broadcasting stations (like other firms) is over-riding and programing for minority tastes is not in the profit-maximizing interest of commercial television stations. That a substantial portion of the population is not adequately being served by television implies that the economic welfare of society could increase given an appropriate structural change.

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[13]Quoted in John H. Pennybacker and Waldo W. Braden, Broadcasting and the Public Interest (New York: Random House, 1969), p. 44.

The hypothesis of this study is that program diversity in the profit-maximizing television broadcasting industry cannot be achieved by government regulation, and that a significant improvement in the economic welfare of (actual and potential) viewers can be achieved only by complete government operation of the industry or by reliance on market forces as through subscription television as a supplement to commercial television.

Method of Study

Chapter One has presented a brief history of the pre-freeze era of television. In order to facilitate the discussion of industry structure (in Chapter Three), a description of the background and growth of the industry from 1952 to 1970, including an appraisal of the growth in number, revenues, expenses, and income of stations and networks (the primary components of the industrial structure), will be given in Chapter Two. The rapid increase in audience size has promoted this growth, and the rapid increase in advertising expenditures has financed it. The radio and motion picture industries have had to diversify in order to survive in a world of television, but the latter has not been forced to do the same. This is a problem that currently

exists in the industry from the standpoint of television's requirement to serve the public interest.

Chapter Three will analyze the current economic structure of the industry, including a discussion of barriers to station and network entry and a discussion of regulatory efforts to alter the structure in an attempt to promote diversified programing. The major regulatory efforts of the FCC to diversify programing were developing UHF television, limiting the multiple ownership of stations, issuing the Blue Book, and reducing the control of national networks over programing by outlawing option time and initiating the prime-time access rule. It will be argued that if future governmental regulation has the effect of past regulation, program diversity will not accrue and therefore the public will not be optimally served by television.

The hypothesis calls for an appeal to complete government operation of the industry or to market forces to solve the problem of program diversity. It will be argued from a theoretical standpoint (since empirical evidence is lacking) in Chapter Four that of the means available to alter the economic structure of the industry, subscription television (sometimes called pay-TV) existing along with

commercial television appears most desirable since it involves less governmental interference, allows the consumer to dictate demand (or choice) through market dollar votes, and will allow the television broadcasting industry to more closely approach an optimum in consumer welfare by promoting a more differentiated oligopoly.

In order to further support the hypothesis, an appeal will be made to four welfare criteria that have been developed: the Pareto criterion, the Kaldor criterion, the Scitovsky criterion, and the Bergson criterion. Marshall's consumer surplus theory also offers support for STV as a supplement to commercial television.

A summary follows in Chapter Five.

Limitations of the Study

It is necessary to limit the range of problems considered. Commercial television is accepted as the given and continuing institutional framework, subject to slight modification through subscription television. This by no means implies that subscription television will or should supersede commercial television. Rather, it will be considered as a supplement to the existing commercial framework.

There is no reason why continuing and increasing regulation cannot be accomplished if that is deemed necessary. But there is, both in precedent and in the prejudice of the writer, a strong presumption against the public utility concept if a reasonable alternative exists and can be found. The history and experience of public utility regulation in this country makes it very clear that such a system creates new problems while attempting to solve existing ones. Other things being equal, a free market is preferable to a regulated one.

It is also necessary to indicate what is included in the television broadcasting industry. This study limits itself to commercial television broadcasting, both VHF and UHF, and excludes educational television. The interest is in the problems of production, distribution, and transmission of programs. The problems of manufacture of equipment and construction of stations are excluded. It is the activities of stations and networks that form the core of the study, although their relationships with outside groups are considered.

A further limitation is the time period, 1952-1970. This period was chosen for two reasons. Although television broadcasting began before 1952, adequate statistical data

are not available prior to that year since the medium was no more than an infant and its structure was somewhat undefined. Due to the lag between the collection of statistics and their availability, 1970 was chosen as the terminal date, although in some cases data for that year were not available.

CHAPTER II

THE ECONOMIC GROWTH AND IMPACT OF THE COMMERCIAL TELEVISION BROADCASTING INDUSTRY

In his study of the television age, Leo Bogart noted some far-reaching changes that have taken place on the American scene to prepare the way for the growth of television.[1] The expansion of purchasing power and the creation of a vast demand for the amenities of life made it possible for people to acquire television sets rapidly and on an enormous scale. The vast growth of the American economy also made possible a huge advertising investment in the new medium and provided commercial backing for its high programing costs. The concentration of people into metropolitan areas made it possible to bring television quickly to great numbers of people.

The preceding chapter gave a brief history of the pre-freeze television era. The purpose of the present

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[1]Leo Bogart, The Age of Television (New York: Frederick Ungar Publishing Co., 1956), pp. 4-5.

chapter is to describe the rapid growth that has characterized the television broadcasting industry since 1952 and the impact of that growth. This will facilitate a discussion of the industrial structure in Chapter III.

As indicated in Table 1, median family income more than doubled between 1952 and 1970, increasing from $3890 to $9600. Accompanying this rapid increase in family income has been a near tripling of the gross national product between the same two years, as revealed in Table 2.

This increased fruitfulness of the American economy has made life more pleasant by bringing more of its comforts within the budgetary reach of the average family. It has also given people more time to spend at their own discretion. Until recent times, life for most people in America was a steady alternation of work and sleep, with little time for entertainment. Today, people are spending fewer and fewer hours at work. A century ago the average work week was over seventy hours; today it is less than forty. For every waking hour the average worker spends at his job each week, he has two to spend at his own discretion. Apart from work, life is more convenient today. Labor-saving devices have reduced the housewife's burdens and her chores are more quickly done.

TABLE 1

MEDIAN FAMILY INCOME IN THE UNITED STATES, 1947-1970

Year	Median Family Income	Index (1947 = 100)
1947	$3031	100
1948	3190	105
1949	3107	102
1950	3319	110
1951	3709	122
1952	3890	128
1953	4233	139
1954	4173	137
1955	4421	146
1956	4783	157
1957	4971	164
1958	5087	167
1959	5417	178
1960	5620	185
1961	5737	189
1962	5956	196
1963	6249	206
1964	6569	216
1965	6957	230
1966	7436	245
1967	7974	263
1968	8632	285
1969	9433	311
1970	9600	317

Source: U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States. Data for 1970 are estimated.

TABLE 2

GROSS NATIONAL PRODUCT OF THE UNITED STATES, 1947-1970

(Billions of Dollars)

Year	Gross National Product
1947	231.3
1948	259.4
1949	258.0
1950	284.6
1951	328.9
1952	347.0
1953	365.4
1954	363.1
1955	397.4
1956	419.2
1957	442.8
1958	444.2
1959	482.1
1960	504.4
1961	518.7
1962	556.2
1963	583.9
1964	632.4
1965	683.9
1966	749.9
1967	793.5
1968	865.7
1969	929.1
1970	974.1

Source: U.S. Department of Commerce, Survey of Current Business.

With more people, more money to spend, and more free time, television has had a phenomenal growth.[2]

Growth of Stations and Networks

The commercial television broadcasting industry has been one of the fastest growing industries in the history of the United States. On January 1, 1971, there were 682 commercial television stations on the air, including 503 VHF and 179 UHF stations. There were over 100 other stations either under construction or not on the air. In less than twenty years, the number of stations increased by 531 per cent.[3] The growth of stations as a function of time is shown in Figure 1.

Assuming a direct relationship between general economic health and industrial growth, it is interesting to note that television's physical growth was over twice that of the gross national product between 1952 and 1970. An increase in the number of households also provided a stimulus for such growth, but only partially accounts for it. From 1952 to 1970, the number of households increased by 39.7 per

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[2] Ibid., pp. 5-7.

[3] See Table 3.

TABLE 3

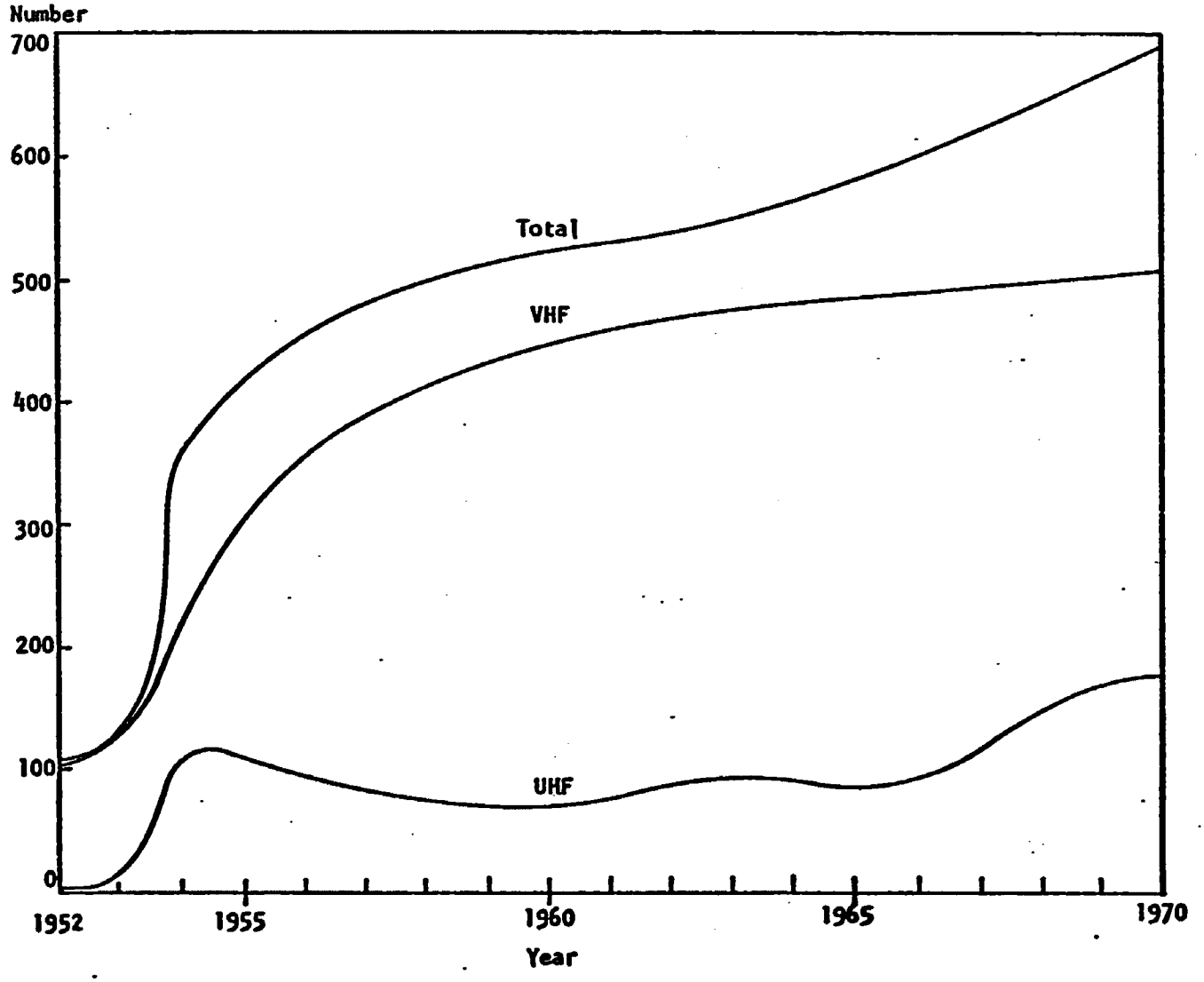
COMMERCIAL BROADCASTING STATIONS ON THE AIR
January 1, 1952-1971

Year	Television			Radio		
	VHF	UHF	Total	AM	FM	Total
1952	108	0	108	2306	640	2946
1953	120	6	126	2377	612	2989
1954	233	121	354	2451	550	3001
1955	297	114	411	2662	549	3211
1956	344	97	441	2814	536	3350
1957	381	90	471	3024	528	3552
1958	411	84	495	3180	537	3717
1959	433	77	510	3318	571	3889
1960	440	75	515	3456	677	4133
1961	451	76	527	3547	821	4368
1962	458	83	541	3618	894	4512
1963	466	91	557	3760	1050	4810
1964	476	88	564	3854	1126	4980
1965	481	88	569	4044	1205	5249
1966	486	99	585	4065	1730	5795
1967	492	118	610	4121	1904	6025
1968	499	136	635	4190	2124	6314
1969	499	163	662	4265	2330	6595
1970	501	176	677	4292	2468	6760
1971	503	179	682	4343	2624	7967

Source: Television Digest, Inc., Television Factbook, 1971-1972, p. 75-a.

FIGURE 1

COMMERCIAL BROADCASTING STATIONS
ON THE AIR,
JANUARY 1, 1952-1970



Source: Data from Table 3.

cent, but the number of television households increased by 289 per cent.[4]

It is axiomatic in economics that growth follows demand for service, but in television prime physical growth actually preceded demand as measured by homes with sets in use. It was 1954 before more than half of the homes in the United States had television sets in use. In 1970, that proportion had reached 95 per cent. The growth of television households as a function of time is shown in Figure 2.

In October, 1970, the average television household used television 42 hours and 29 minutes per week, or a little over 6 hours per day. During prime time (6:30 p.m. to 10:30 p.m.) usage was 14 hours and 26 minutes per week.[5] This is in contrast to the 1952 weekly figure of 33 hours and 44 minutes or less than 5 hours per day.

Total industry revenues in 1970 amounted to $2808.2 million, total expenses $2354.4 million, leaving $453.8 million income before federal income taxes. From 1952 to 1970, the television industry increased its revenues ninefold.

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[4]Computed from data in Television Digest, Inc., Television Factbook, Services Volume, 1971-1972, pp. 76-77-a. See Table 4.

[5]Broadcasting, December 6, 1971, pp. 32-33.

TABLE 4

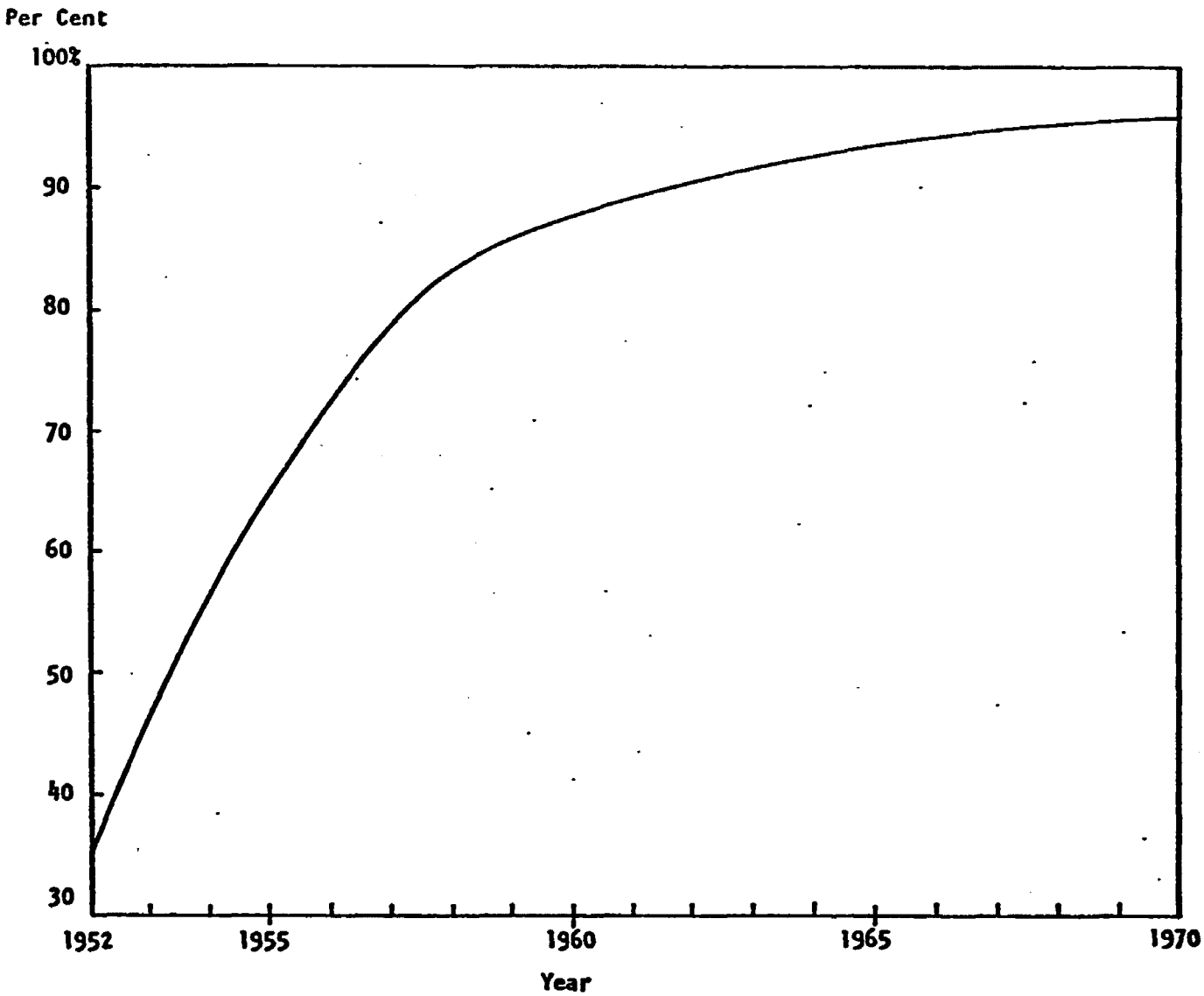
PER CENT OF U.S. HOUSEHOLDS WITH TELEVISION SETS, 1952-1970

Year	Per Cent
1952	34.2
1953	44.7
1954	55.7
1955	64.5
1956	71.8
1957	78.6
1958	83.2
1959	85.9
1960	87.1
1961	88.8
1962	90.0
1963	91.3
1964	92.3
1965	92.6
1966	93.0
1967	93.6
1968	94.6
1969	95.0
1970	95.2

Source: Television Digest, Inc., Television Fact-book, 1971-1972, pp. 76-77-a.

FIGURE 2

PERCENTAGE OF U.S. HOUSEHOLDS
WITH TELEVISION SETS,
1952-1970



Source: Data from Table 4.

Although profits in 1970 were somewhat down from the peak level in 1969 ($553.6 million), between 1952 and 1970 profits increased over eightfold.[6] The 1970 profit level provided a rather healthy profit-to-tangible-property rate of almost 62 per cent. This rate for 1969 was approximately 75 per cent.

The (arithmetic) average profit among the 677 stations (which reported financial data to the FCC) appears to give each a sizeable gain. But the arithmetic mean does not provide an accurate measure because of skewness in the distribution of earnings. The three network corporations along with their 15 owned-and-operated stations earned $167.5 million, leaving $286.4 million to be divided among the other 662 stations.[7] The explanation for such high profit rates accruing to the network corporations stems in large part from their control over television programing and significant barriers to entry into networking. Such control and FCC action to limit this will be discussed in the following chapter.

Measuring the significance of stations versus networks by the percentage of total industry revenues that each

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[6]See Table 5 and Figure 3.

[7]See Tables 6 and 7 and Figures 4 and 5.

TABLE 5

TELEVISION STATION AND NETWORK REVENUES, EXPENSES, AND INCOMES,* 1952-1970

(Millions of Dollars)

Year	Revenues	Expenses	**Incomes
1952	324.2	268.7	55.5
1953	432.7	364.7	68.0
1954	593.0	502.7	90.3
1955	744.7	594.5	150.2
1956	896.9	707.3	189.6
1957	943.2	783.2	160.0
1958	1030.0	858.1	171.9
1959	1163.9	941.6	222.3
1960	1268.6	1024.5	244.1
1961	1318.3	1081.3	237.0
1962	1486.2	1174.6	311.6
1963	1597.2	1254.0	343.2
1964	1793.3	1377.7	415.6
1965	1964.8	1516.9	447.9
1966	2203.0	1710.1	492.9
1967	2275.4	1860.8	414.6
1968	2520.9	2026.1	494.8
1969	2796.2	2242.6	553.6
1970	2808.2	2354.4	453.8

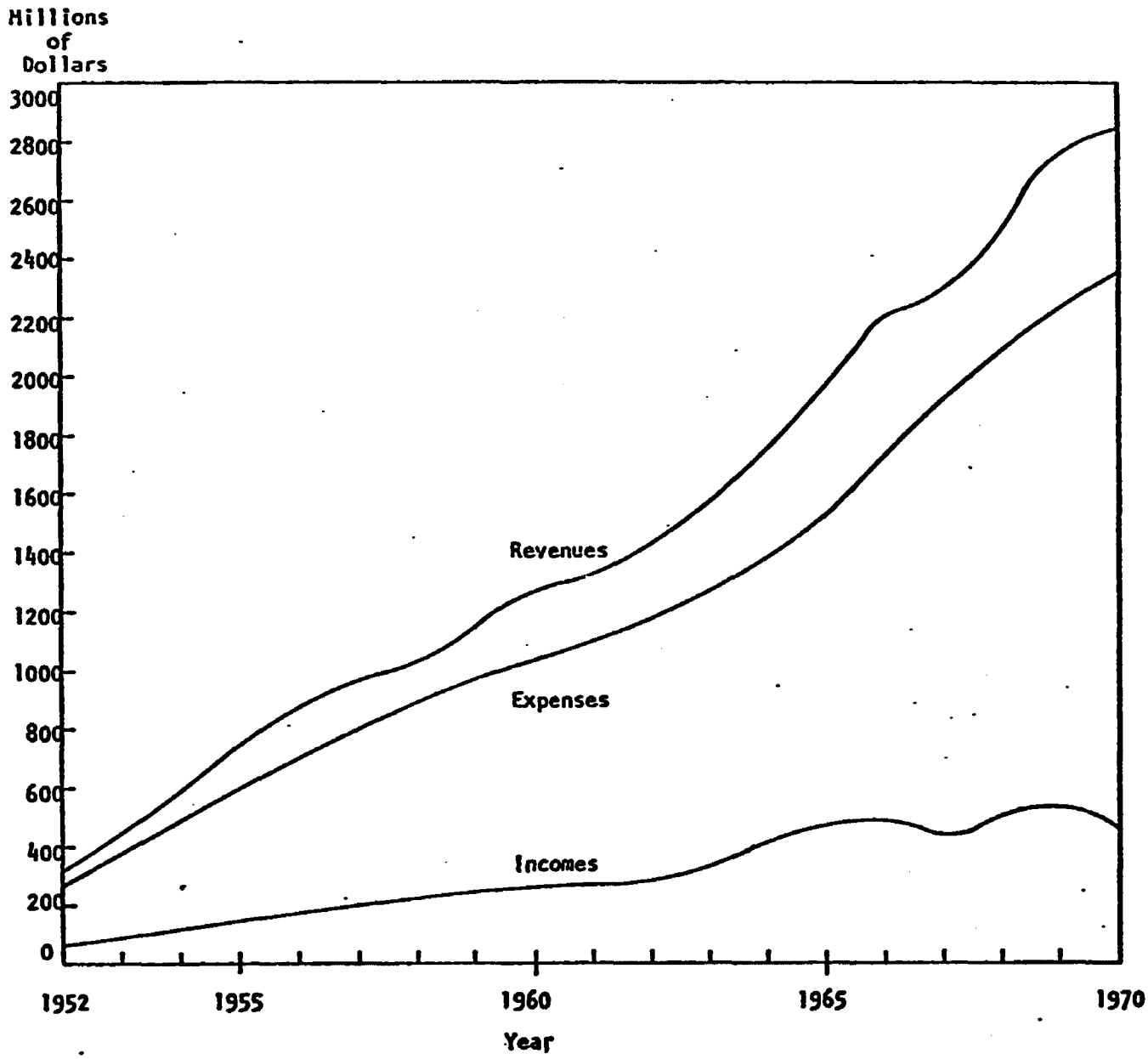
*Revenues are amounts received by stations and networks from all broadcast sources, including time, talent, and programs.

**Before Federal income tax.

Source: Summaries of financial data compiled annually by the FCC, 1952-1970; Television Digest, Inc., Television Factbook, 1970-1971, p. 48-a.

FIGURE 3

TELEVISION STATION AND NETWORK
REVENUES, EXPENSES, AND INCOMES,
1952-1970



Source: Data from Table 5.

TABLE 6

TELEVISION STATION REVENUES, EXPENSES, AND INCOMES,* 1952-1970

(Millions of Dollars)

Year	Revenues	Expenses	Incomes**
1952	144.0	98.4	45.6
1953	201.0	151.0	50.0
1954	286.3	232.5	53.8
1955	370.0	288.5	81.5
1956	454.6	350.4	104.2
1957	475.3	386.0	89.3
1958	513.3	418.4	94.8
1959	587.8	453.4	134.4
1960	627.9	479.0	148.9
1961	643.0	493.0	150.0
1962	732.0	531.8	200.2
1963	776.9	569.9	207.0
1964	864.6	605.5	259.1
1965	941.0	654.7	286.3
1966	1036.7	730.6	306.1
1967	1058.8	804.3	254.5
1968	1212.9	897.0	316.0
1969	1328.9	1001.3	327.6
1970	1351.1	1064.7	286.4

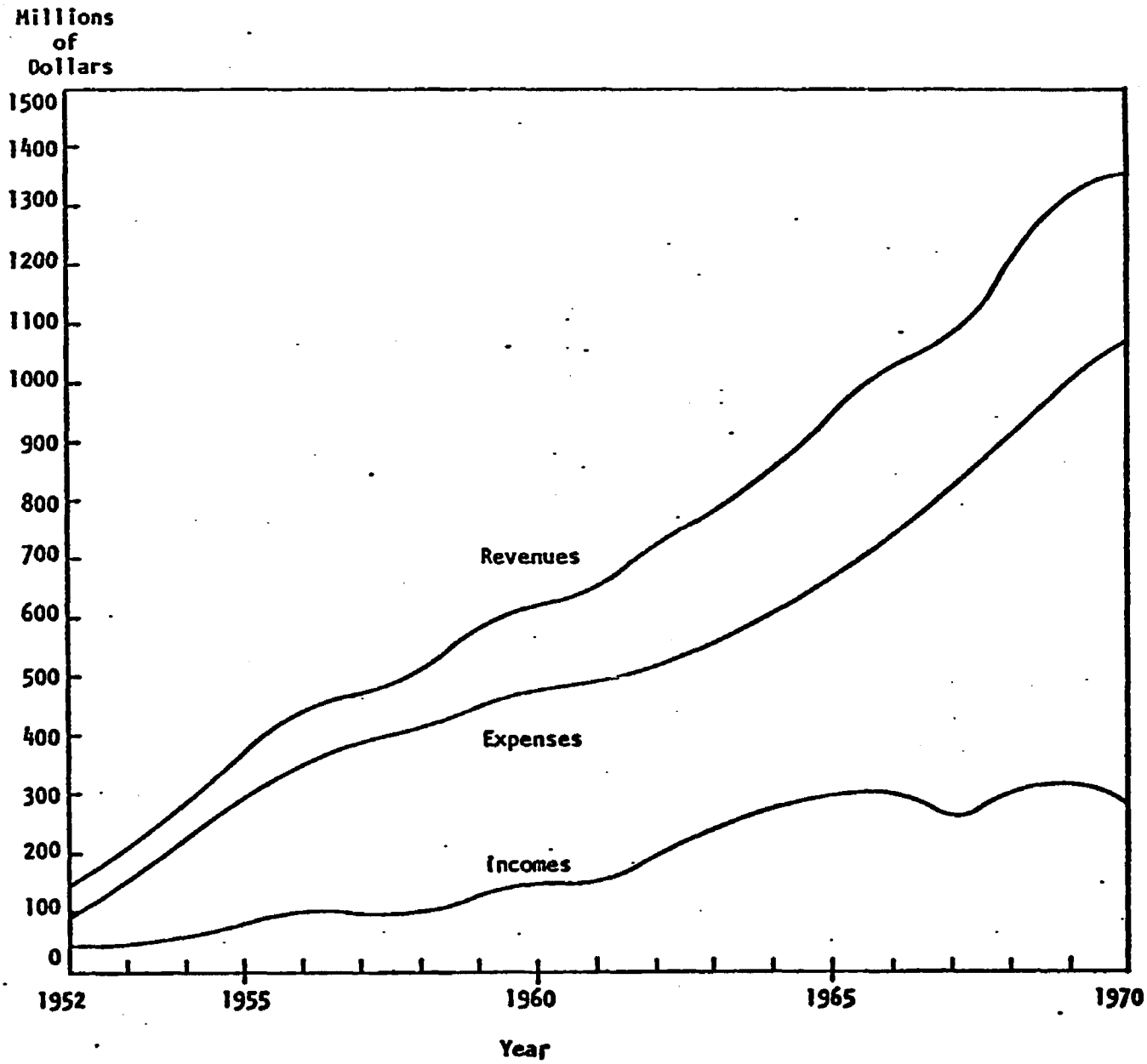
*Revenues are amounts received by stations from all broadcast sources, including time, talent, and programs.

**Before Federal income tax.

Source: Summaries of financial data compiled annually by the FCC, 1952-1970; Television Digest, Inc., Television Factbook, 1970-1971, p. 48-a.

FIGURE 4

TELEVISION STATION
REVENUES, EXPENSES, AND INCOMES,
1952-1970



Source: Data from Table 6.

TABLE 7

TELEVISION NETWORK REVENUES, EXPENSES, AND INCOMES,* 1952-1970

(Millions of Dollars)

Year	Revenues	Expenses	Incomes**
1952	180.2	170.3	9.9
1953	231.7	213.7	18.0
1954	306.7	270.2	36.5
1955	374.0	306.0	68.0
1956	442.3	356.9	85.4
1957	467.9	397.2	70.7
1958	516.7	439.7	77.0
1959	576.1	488.2	87.9
1960	640.7	545.5	95.2
1961	675.3	588.3	87.0
1962	754.2	642.8	111.4
1963	820.3	684.1	136.2
1964	928.7	772.2	156.5
1965	1023.8	862.2	161.6
1966	1166.3	979.5	186.8
1967	1216.6	1056.5	160.1
1968	1307.9	1129.2	178.8
1969	1467.3	1241.3	226.1
1970	1457.1	1289.6	167.5

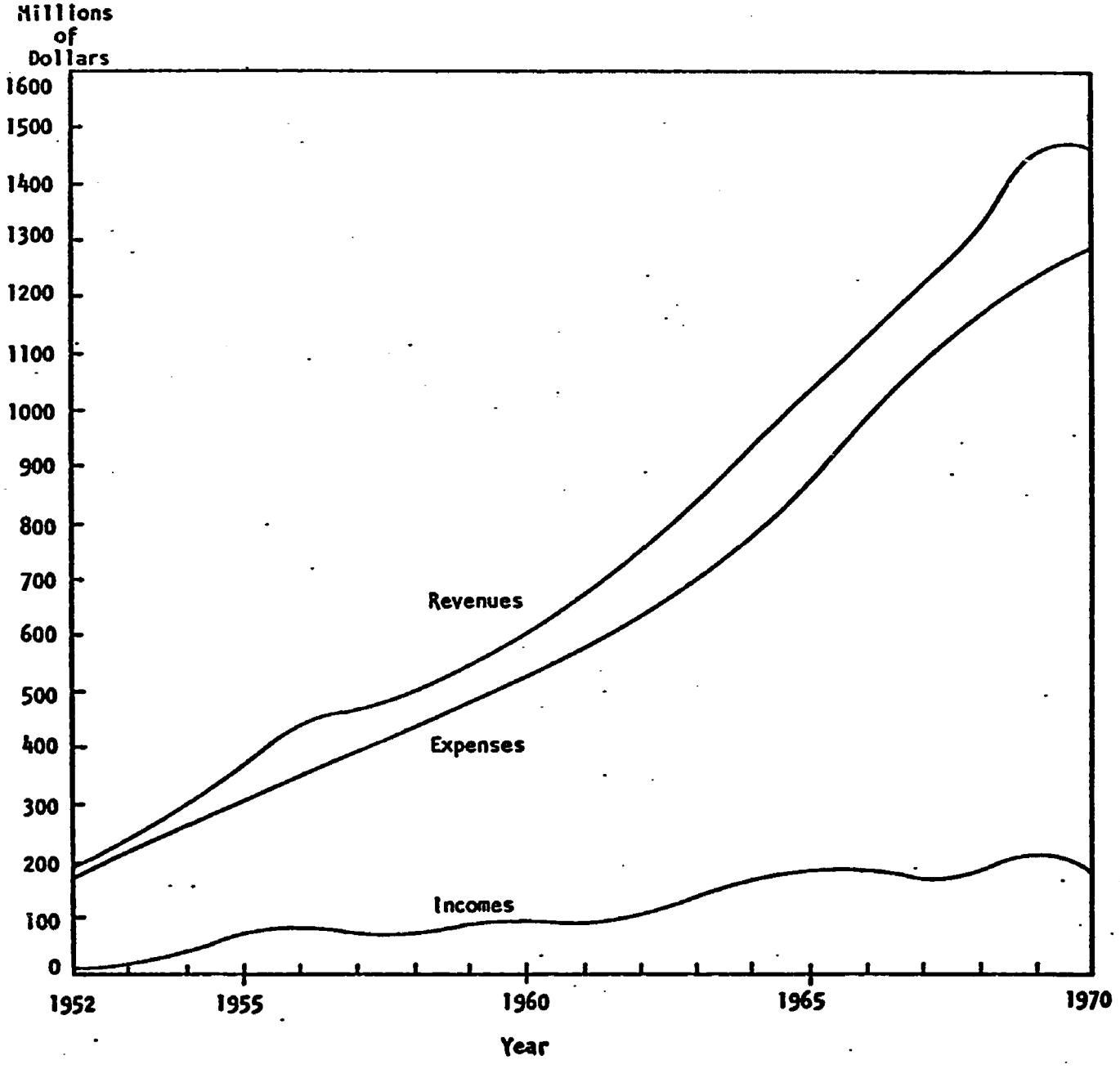
*Revenues are amounts received by networks from all broadcast sources, including time, talent, and programs.

**Before Federal income tax.

Source: Summaries of financial data compiled annually by the FCC, 1952-1970; Television Digest, Inc., Television Factbook, 1970-1971, p. 48-a.

FIGURE 5

TELEVISION NETWORK
REVENUES, EXPENSES, AND INCOMES,
1952-1970



Source: Data from Table 7.

receives, it appears that the two groups have been almost equally significant since the beginning of television, dividing total revenues approximately in half.

Excluding networks and their owned-and-operated stations, average station revenues climbed from $1.55 million in 1952 to $2.01 million in 1970, but average station profits during that period remained about the same at approximately $.5 million. The rapid entry into the industry since 1952 partially accounts for its constant average profitability. Even so, there is dispersion in profits. Established stations in major markets have become more profitable over the years, but newer UHF stations have experienced losses. According to Table 21, while 82.9 per cent of the VHF stations reported profits in 1969, only 35.2 per cent of the UHF stations reported profits that year.[8]

In general, revenues, expenses, and profits of the industry have had a phenomenal growth rate. Expenses exceeded revenues, making the industry unprofitable, between 1948 and 1950. Since 1950, the industry has not had an unprofitable year, although in 1957, 1961, 1967, and 1970 profits fell from the level of the preceding year. Like

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[8]This so-called "UHF problem" will be discussed in more detail in the following chapter. Table 21 is on p. 94.

other service industries, the television broadcasting industry is vulnerable to slumps in the economy.[9]

As of December 31, 1970, the industry had invested approximately $1.5 billion in tangible broadcast property. Of this amount, only $.3 billion had been invested by the networks and their owned-and-operated stations. The remaining $1.2 billion was invested by the other 671 television stations.[10]

The industry employed 51,452 full-time and 6,973 part-time persons at the end of 1970. Approximately 23 per cent of these were employed by the three networks, and 77 per cent were employed by the 682 television stations.[11]

Growth of Advertising

The ultimate products of a commercial television station are the jointly supplied entertainment (or information) program and advertising message. These are jointly

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[9]Economic theory suggests that the percentage of a country's total output comprised of services increases with the level of development. In the United States, the service component accounts for almost 43 per cent of personal consumption expenditures, according to the U.S. Department of Commerce.

[10]See Table 8.

[11]See Table 9.

TABLE 8

INVESTMENT IN TANGIBLE BROADCAST PROPERTY OF TELEVISION NETWORKS AND 686 TELEVISION STATIONS AS OF DECEMBER 31, 1970

Category		Number of Stations	Original Cost	Original Cost Minus Depreciation
3 National Networks		--	$ 217,554,000	$118,895,000
Network Owned and Operated Stations		15	78,693,000	34,434,000
Other Television Stations				
	VHF	491	1,000,614,000	458,811,000
	UHF	180	200,450,000	123,257,000
Total		686	$1,497,311,000	$739,397,000

Source: FCC, Television Broadcast Financial Data, 1970, September 7, 1971.

TABLE 9

NUMBER OF EMPLOYEES OF NETWORKS AND 682* TELEVISION STATIONS, AS OF DECEMBER 31, 1970

Category	Full-time	Part-time	Total
3 National Networks	10,873	2,324	13,197
15 Network Owned and Operated Stations	4,436	254	4,690
Other Television Stations			
VHF (491)	30,686	3,589	34,275
UHF (176)	5,457	806	6,263
Total	51,452	6,973	58,425

*Does not include 4 UHF stations that ceased operations prior to December 31, 1970.

Source: FCC, Television Broadcast Financial Data, 1970, September 7, 1971.

exchanged in a barter market for viewer time. In a separate dollar market, the advertiser then pays the station for the viewer time, approximately in proportion to its volume and with relation to the number and duration of advertising messages.

Time is a heterogeneous product of the industry. Its value varies from station to station, day to day, and hour to hour, and is dependent upon the use to which it is put in conjunction with competing programs on other stations.

The station thus views the program as a means to attract an audience and therefore the advertising dollar. The advertiser considers the program as merely a vehicle to place his good or service in the mind of the viewer, hopefully with the effect of increasing the demand and/or decreasing the elasticity of demand for the advertised product. To the viewer, the advertising message may be informational, or it may be a negative economic good which he must "consume" in order to obtain the entertainment program.

When the latter is true, advertising is criticized as being wasteful. The amount of advertising supplied is excessive relative to the demand because it is provided at a zero price to potential buyers while the cost of (the negative

economic good) advertising is positive to society. Since the amount of advertising that would be demanded at a positive price (or at a zero price, if provided as a single good) is less than the amount that advertisers should provide to maximize their profits, advertising is jointly supplied with television programing. Ultimately, the advertising and program expense is borne by the consumer, who must pay a higher price for advertised goods. The result is that consumers have more advertising foisted off on them than they would be willing to purchase in a separate market for advertixing services.

A major fault with such jointly supplied services is that one may enjoy the entertainment which the advertiser supports without necessarily buying the product being advertised. On the other hand, he may purchase a produce advertised on a program that he does not watch, and thus pay more than his fair share for the good. The result is that a subsidy accrues to those who derive satisfaction from television service. The subsidy comes from the higher prices on advertised products paid by minority groups who are not catered for on commercial television.

Radio's successful use of advertising as the major source of revenue set the precedent for television. The

television commercial was born and broadcast before most Americans knew that television itself existed. On July 1, 1941, NBC's New York channel, WNBT, displayed the time on a Bulova clock at 2:30 p.m. Then it telecast a baseball game from Ebbets Field. At 6:45 that evening, Sunoco gasoline sponsored a newscast with Lowell Thomas, and later that evening Lever Brothers Company (today's eighth largest television advertiser) presented "Uncle Jim's Question Bee," with a commercial for Spry. Proctor and Gamble (today's number one advertiser) retaliated with Ralph Edward's "Truth or Consequences," and before signing off, WNBT showed the correct time from Bulova again. There were an estimated 4500 viewers at that time. The station collected three hundred and twenty-two dollars in commercial fees--a heavy loss for the day, but no cause for great concern since the "pot of gold" was clearly visible on the horizon.[12]

Today, advertising provides the financial support and many of the stimuli of the industry. The financial support of advertising goes beyond the purchase of time; it provides either the programs or the cost, and pays the cost of the

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[12]Harold Mehling, The Great Time-Killer (Cleveland: The World Publishing Company, 1962), pp. 188-189.

talent necessary to produce, direct and enact all commercial programs.

Three kinds of advertising may be distinguished: network, national non-network, and local. The first is defined as advertising done through the network organizations. It is usually nationwide in character and is used solely by producers of products or services having a widespread market. National non-network advertising (often called spot advertising) is generally done by the same class of advertisers, but is placed directly with stations, generally through advertising agencies. Local advertising is defined in terms of the advertiser's product, which for local advertising must be restricted to a single metropolitan area.

In 1970, advertisers spend a total of $3,660 million dollars on television advertising alone. Approximately half of this amount ($1,715 million) was for network advertising and the other half for spot and local advertising ($1,945 million). Of the total amount of advertising expenditures in the United States in 1970 ($19,715 million), approximately 18.6 per cent went to television. The only medium receiving larger expenditures than television was the newspaper, accounting for 29.7 per cent of total advertising expenditures in 1970. (See Table 10.)

TABLE 10

ADVERTISING EXPENDITURES IN THE UNITED STATES BY MEDIUM AND TYPE OF COVERAGE, 1970

(Millions of Dollars)

Medium	Expenditures*
Television	$3660.0
Network	1715.0
Spot	1255.0
Local	690.0
Radio	1278.0
Network	58.0
Spot	355.0
Local	865.0
Newspapers	5850.0
National	1040.0
Local	4810.0
Magazines	1321.0
All Other	7606.0

*These are total expenditures by advertisers, not merely receipts by media.

Source: Television Digest, Inc., Television Factbook, 1971-1972, p. 73-1.

If one examines Table 11, it becomes apparent that of the top four media (television, radio, newspapers, and magazines), television received the smallest per cent of advertising in 1952. That year, newspapers led with 34.6 per cent of all advertising expenditures, followed by radio with 9.5 per cent, followed by magazines with 8.6 per cent, and then television with 7.1 per cent. By 1970, the percentages of all but television had declined: newspapers down to 29.2 per cent, radio down to 6.5 per cent, magazines down to 6.7 per cent, and television up to 18.6 per cent. In fact, the percentage for television more than doubled between 1952 and 1970.

All ten of television's top-10 advertisers for 1970 increased their television budgets over 1969, according to the Television Bureau of Advertising. This represents a strong confidence in the selling power of television, says Norman E. Cash, president of the Bureau.

> At a time when top management scrutinizes every dollar spent in advertising, it is highly significant that many corporations chose to increase their commitment to television. That's the finest evidence we have of television's continuing ability to market goods and services with maximum efficiency.[13]

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[13]Quoted in Television/Radio Age, May 17, 1971, p. 39.

TABLE 11

ADVERTISING EXPENDITURES BY MEDIUM, SELECTED YEARS, 1952-1970

(Millions of Dollars)

Year	Amount & Per Cent	Television	Radio	Newspapers	Magazines
1952					
	Amount	$ 509	$ 679	$2743	$ 616
	Per Cent	7.1	9.5	34.6	8.6
1954					
	Amount	804	565	2695	668
	Per Cent	9.8	7.0	33.0	8.2
1958					
	Amount	1360	616	3120	770
	Per Cent	13.3	6.0	30.6	7.6
1962					
	Amount	1754	709	3794	973
	Per Cent	14.2	5.8	31.0	7.9
1966					
	Amount	2784	1001	4895	1291
	Per Cent	16.7	6.0	29.5	7.8
1970					
	Amount	3660	1278	5850	1321
	Per Cent	18.6	6.5	29.7	6.7

Source: McCann-Erickson, Inc., Printer's Ink, Marketing/ Communications.

TABLE 12

TELEVISION TIME SALES
1952-1970

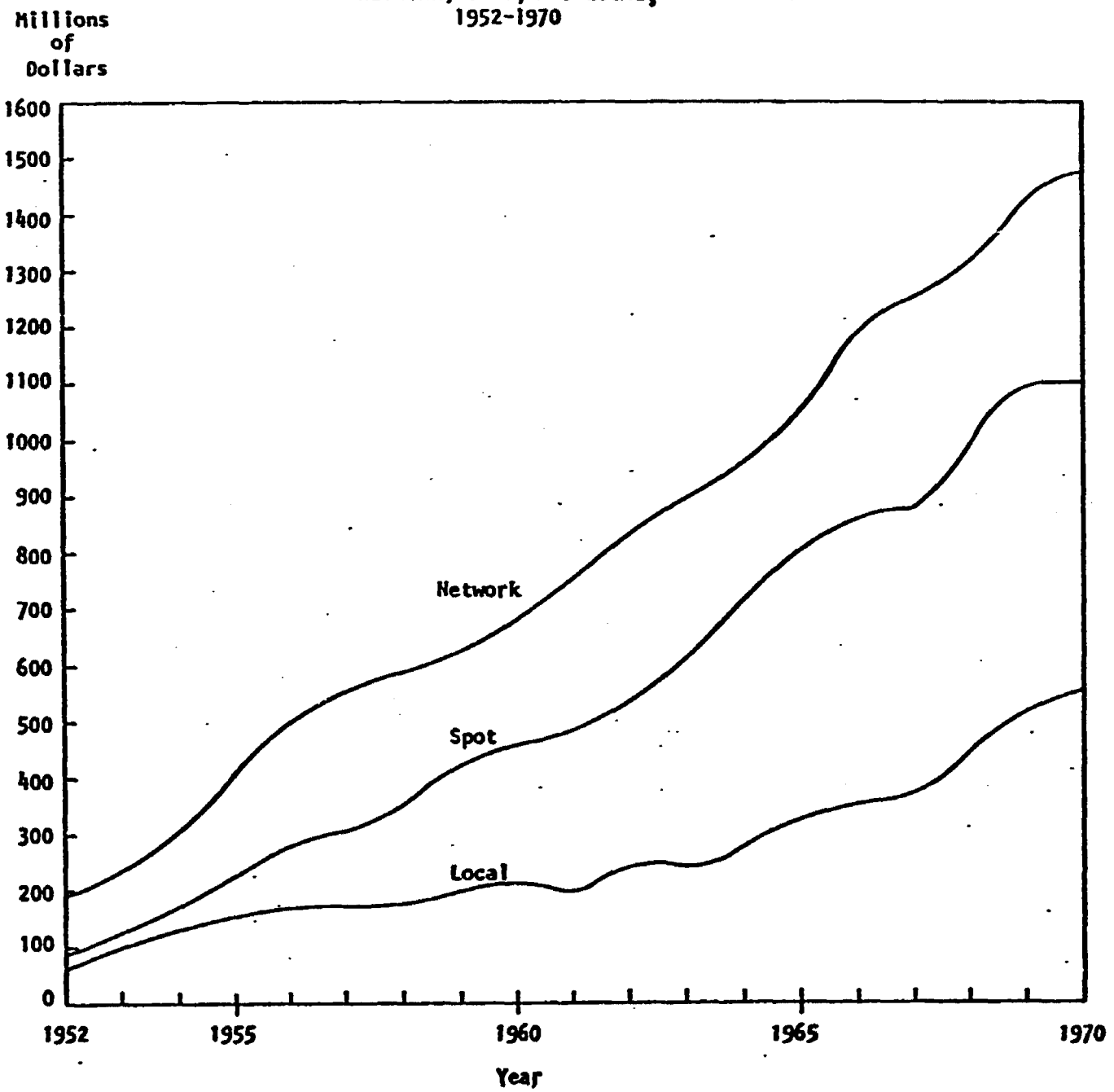
(Millions of Dollars)

Year	Network	Spot	Local	Total
1952	185.5	80.2	65.2	330.9
1953	232.8	124.3	88.5	445.6
1954	317.1	176.8	120.1	614.0
1955	411.0	222.4	149.8	783.2
1956	502.8	281.2	174.2	958.2
1957	538.7	300.5	174.0	1013.2
1958	586.3	345.2	181.3	1112.8
1959	625.0	424.2	200.6	1249.8
1960	688.9	459.2	215.8	1363.9
1961	749.8	480.1	199.6	1429.5
1962	830.6	554.1	227.9	1612.6
1963	882.8	616.0	240.8	1739.6
1964	972.0	710.8	275.7	1958.5
1965	1054.4	785.7	302.9	2143.0
1966	1196.9	871.7	346.4	2415.0
1967	1243.9	871.7	365.3	2480.9
1968	1302.8	998.0	452.5	2753.3
1969	1435.7	1108.1	519.0	3062.8
1970	1465.0	1100.0	550.0	3115.0

Source: Television Digest, Inc., Television Factbook, 1971-1972, p. 71-a.

FIGURE 6

TELEVISION TIME SALES
NETWORK, SPOT, AND LOCAL,
1952-1970



Source: Data from Table 12.

TABLE 13

TOP-TWENTY TELEVISION ADVERTISERS, 1970

Advertiser	Amount	Per Cent of Total	Cumulative Percentage
1. Proctor & Gamble Co.	$179,276,100	4.89	4.89
2. General Foods Corp.	93,897,800	2.56	7.45
3. Colgate-Palmolive Co.	83,381,700	2.28	9.73
4. Bristol-Myers Co.	80,407,700	2.20	11.93
5. Am Home Prod. Corp.	67,202,400	1.84	13.77
6. R.J. Reynolds Ind.,Inc.	66,821,400	1.83	15.60
7. Warn.-Lamb't.Phar.Co.	64,066,800	1.82	17.42
8. Lever Bros. Co.	59,450,500	1.62	19.04
9. Sterling Drug, Inc.	54,263,100	1.48	20.50
10. Phillip Morris, Inc.	48,177,600	1.32	21.84
11. Gillette Co.	43,800,100	1.20	23.04
12. General Mills, Inc.	42,090,800	1.15	24.19
13. General Motors Corp.	41,935,500	1.14	25.33
14. Ford Motor Co.	38,922,400	1.06	26.39
15. Miles Labs., Inc.	38,545,100	1.05	27.44
16. Sears,Roebuck & Co.	34,226,200	.94	28.38
17. Kellogg Co.	33,506,000	.91	29.29
18. Coca-Cola Co.	32,473,200	.89	30.18
19. Kraftco Corp.	31,523,900	.86	31.04
20. Loews Theaters, Inc.	31,468,000	.86	31.90

Source: Television/Radio Age, May 17, 1971, p. 39.

Twenty-four per cent of daytime television is commercial, and thirteen per cent of prime time is commercial. This compares favorably with other media. The figure is twenty-five per cent in radio, sixty per cent in newspapers, and forty-five to fifty per cent in consumer magazines. Such commercial densities would probably be very unattractive in television because it is more demanding from the point of view of the audience.[14]

The Economic Impact of Television

From the data on advertising expenditures in the United States found in Table 11, it is obvious that television has had a financial impact on all media. In the words of Noran E. Kersta, former manager of the television department of NBC,

> Television has sound. It adds sight and motion to sound, and herein departs from all other communication and advertising media. It adds spontaneity or immediacy; it takes its audience right to the actual scene of action. It adds life itself to a broadcast program.[15]

Ten people, five men and five women, were asked which they would surrender first, hearing or sight, if it became

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[14]Stanley T. Donner, The Meaning of Commercial Television (Austin: University of Texas Press, 1967), p. 37.

[15]Quoted in Orrin E. Dunlap, The Future of Television (New York: Harper and Brothers Publishers, 1942), p. 12.

necessary to choose. All replied that they would first surrender hearing. Psychologists state that the ratio of effectiveness between sight and hearing is about 9 to 1. This perhaps explains why the ten people chose to keep their sight.

Many travelers who twenty years ago had never seen a television set today will not stay in a hotel room overnight unless they are provided with one. As indicated in Table 4, less than 5 per cent of the households in the United States do not have a television set.

In 1969, Roper Research Associates reported its findings on public attitudes toward television and other mass media based on a 1959-1968 study. The study revealed that most people surveyed stated that they depended on television as their source of most news and information.[16] In his 1963 study, Gary Steiner found that the majority of people surveyed considered television and newspapers as the most important source of news.[17]

One FCC Commissioner recently estimated that by the time a five year old enters kindergarten, he has spent more

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[16]Newspapers were second as a primary news source and radio was third.

[17]Gary Steiner, The People Look at Television (New York, Alfred A. Knopf, 1963).

time in front of a television set than the average college student spends in class during his entire four years of college.[18] A recent issue of Newsweek says that by the time the average American reaches 65 years of age, he will have spent nine of those years watching television.[19]

In these statements are found the power and importance of television. It extends man's range of vision--a sense he cherishes beyond reproach--and brings him closer to the world around him. It emerges in the 1970's as the number one communications medium.

Few economic sectors have not been affected in some way by television. In many cases, the effect has been positive; in others, it has been adverse. Since it would be impossible to study the impact of television on every economic sector, two sectors which have been most affected, the radio and motion picture industries, were chosen. Television has had a different impact on radio than on motion pictures. The latter actually experienced declining receipts; radio has suffered only from a decreased rate of growth. Radio revenues have actually increased during the past 20 years

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[18] Broadcasting, December 23, 1968, p. 41.

[19] Newsweek, March 17, 1969, p. 80.

(except for 1953-1954 during the general recession). Personal consumption expenditures on motion picture admissions declined about 25 per cent between 1952 and 1970,[20] but expenditures of advertisers on radio increased by more than 50 per cent during the same period.[21] In the next two sections, television's impact on each of these industries will be discussed in more detail.

The Impact on the Radio Industry

A look at Table 3 reveals that the total number of radio stations (AM and FM) has increased from 2946 in 1952 to 7967 in 1970. However, the rate of growth has decreased during this time period. The competition of television is principally but not solely the cause, since currently AM licenses are frozen due to a lack of spectrum space.

Every year more radio receivers than television sets are sold. In 1970, 16,406,000 radio receivers were produced in the United States.[22] This includes table models, clock radios, portable sets, and auto radios. In the same year,

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[20] Time., November 8, 1971, p. 79.

[21] Television Digest, Inc., Television Factbook, Services Volume, 1971-1972, p. 72-a.

[22] Ibid., p. 74-a.

only 9,482,938 television sets were produced, including monochrome and color.[23] However, the total value of the television sets produced far exceeded that of the radios.

What basically has happened is that radio has received a smaller and smaller percentage of the advertising dollar as television has grown, in part an effect of shorter listening hours and thus an increasing cost per thousand to the advertiser, and in part due to the lower effectiveness of the radio commercial. Based on the data in Table 11, radio's percentage of the advertising dollar fell from 9.5 per cent in 1952 to 6.5 per cent in 1970.

Rolf B. Meyersohn summarizes four differences in attitudes towards radio and television.[24] The first is the change in apparent *interest* and *information*. A large number of Americans know what is televised--they read about it in newspapers and TV Guide and talk about it with friends. This inclusion of television programing as part of current events was once true for radio. Today, however, people know relatively little about radio programing. For example, Meyersohn

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[23] *Ibid.*, p. 76-a.

[24] Rolf B. Meyersohn, "What We Know About Audiences," Journal of Broadcasting, I (Summer, 1957), pp. 220-225.

notes that six months after NBC's inception of one of the more spectacular and successful radio ventures of recent years, "Monitor," a study found that more than 50 per cent of the radio-owning population had never heard of it. And "Monitor" is not on for an hour or so, but two full days every weekend.

A second difference in attitudes towards radio and television is called audience loyalty. As television began to reach more and more people, they deserted radio, especially in the evening hours.

A third difference is in attentiveness. While television receives the undivided attention of its audience, radios are located in places where people are likely to be doing other things--driving, on their way to bed, preparing supper, visiting, etc. Radio is completely dependent on what people are doing and on whether it happens to be convenient to listen. On the other hand, time is made for viewing television. In general, radio has become a "companion medium," a background for other things.

A fourth difference gives a clue to the reasons for the other three. In the past, radio was regarded as a major source of entertainment. Television has taken over this

role, and radio is used in its companion role or as a source of a specific program such as news or sports.

Thus, in terms of interest, loyalty, attentiveness, and what might be called a media "enthusiasm," television certainly wins out over radio.

Radio networks have been more adversely affected than individual stations. Radio network time sales fell from $102,528 thousand in 1952 to $50,999 thousand in 1969. However, spot and local radio time sales increased from $370,623 thousand to $1,149,500 thousand between these two years.[25] The gap left by national advertisers converting to television has been partially filled by local and regional advertisers. There are two major reasons that radio networks have remained in business in spite of continuing losses.

Three of the four radio networks are co-owned by television networks.[26] Profits from the television networks, their owned-and-operated radio and television stations, and other interests have offset the losses of the radio networks. Secondly, a radio network which relinquished its service would risk the displeasure of the FCC, which has considered radio networking "in the public interest."

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[25]See Table 14 and Figure 7.

[26]Mutual Broadcasting System is the exception.

TABLE 14

RADIO TIME SALES, 1952-1969
(Thousands of Dollars)

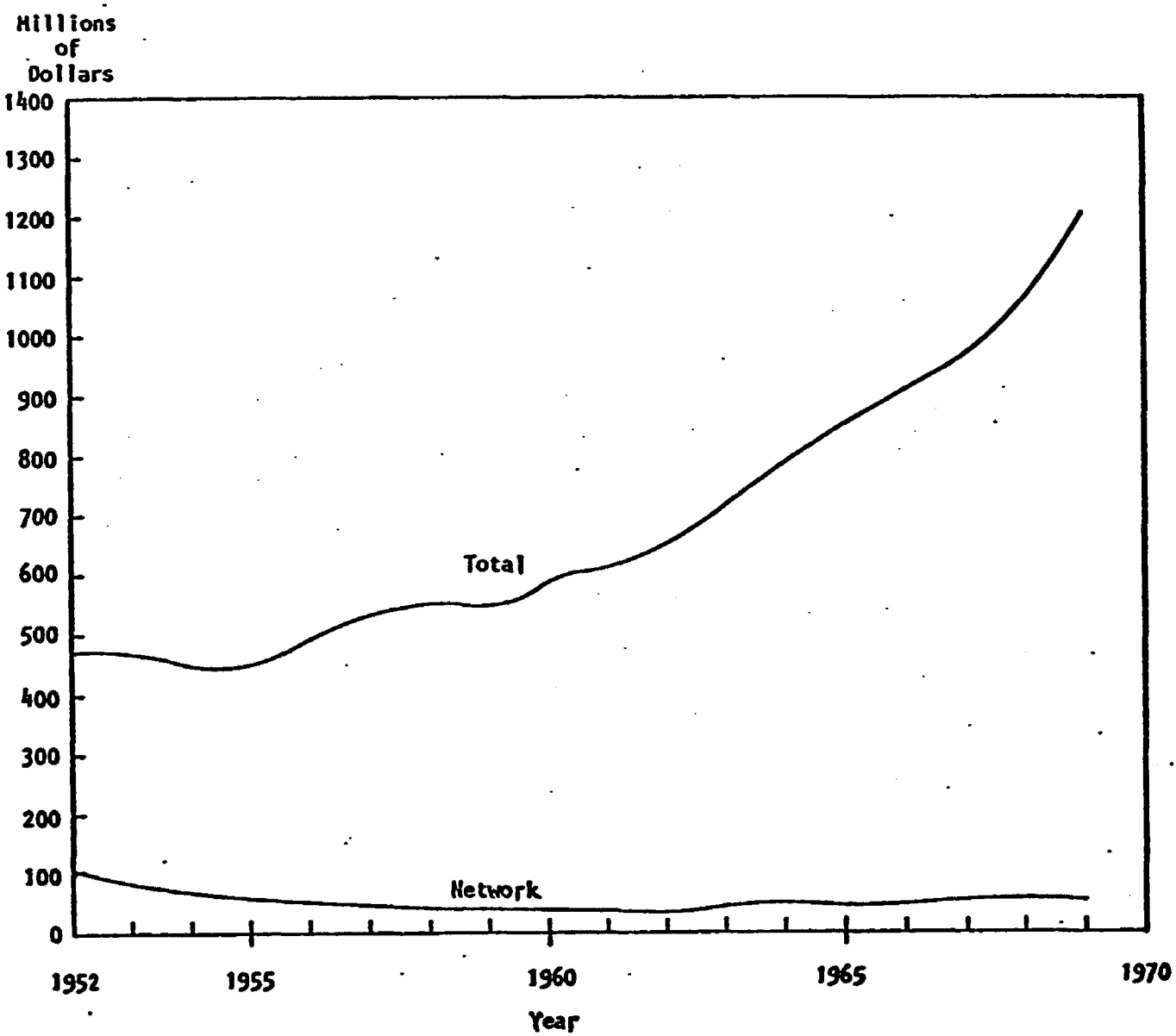
Year	National Network		Total	
	Amount	Per Cent Change From Preceding Year	Amount*	Per Cent Change From Preceding Year
1952	$102,528	-10.0	$ 473,151	3.6
1953	92,865	- 9.4	477,206	0.9
1954	78,917	-15.0	451,330	-5.4
1955	60,268	-23.6	456,481	0.7
1956	44,839	-25.6	491,707	7.7
1957	47,951	6.9	537,664	9.3
1958	42,786	- 8.7	541,665	0.9
1959	35,663	-23.4	555,732	6.7
1960	35,026	- 1.7	591,863	6.5
1961	35,837	2.3	617,242	-0.8
1962	37,326	4.2	665,249	7.8
1963	41,797	12.0	711,741	7.0
1964	43,783	4.8	763,768	7.3
1965	44,602	1.9	827,782	8.4
1966	47,200	5.8	911,979	10.2
1967	47,600	0.8	966,000	5.9
1968	46,800	- 1.7	1,076,300	11.4
1969	50,900	8.8	1,200,400	11.5

*This includes network, spot, and local.

Source: Television Digest, Inc., Television Factbook, 1971-1972, p. 71-a.

FIGURE 7

RADIO TIME SALES
NETWORK AND TOTAL,
1952-1969



Source: Data from Table 14.

Radio networks suffered because their major programs were concentrated in prime evening hours and the content of these programs made them more vulnerable to television competition than the typical non-network program. Television may enjoy an absolute advantage over radio in the presentation of all types of programing, but its comparative advantage lies in the programing area that was formerly the province of network radio.[27] Radio programing has thus shifted to the area of radio's least comparative disadvantage relative to television: recorded music and news. Formats of radio stations today typically feature one type of music, with one or two interruptions per hour for news.

This music-and-news format exploits radio's major advantage over television--the listener need not devote his full attention to the set. Radio has been moved out of the living room and into the bedroom, kitchen, bathroom, outdoors, and automobile, where the listener is typically doing more than just listening. Radio has survived in spite of television because it has exploited its comparative advantage,

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[27]Fredric Stuart, "The Effects of Television on the Motion Picture and Radio Industries," (unpublished Ph.D. dissertation, Columbia University, 1960), p. 148.

and its financial comeback in recent years can be noted in Table 14.

The Impact on the Motion Picture Industry

During television's infancy, the motion picture industry considered it only a fad whose novelty would soon disappear. The small image, inferior programing, and abundance of commercial announcements were viewed as substantial inferiorities which would result in the family returning to the theater. However, with revenues steadily declining and the closing down of hundreds of theaters,[28] the need for action by the motion picture industry became obvious.

Several methods were tried in an attempt to rescue the industry. Studios began to rid themselves of the heavy fixed costs of physical plant, stars, producers, writers, directors, etc., and began to "rent" such resources. This, however, led to a rise of many independent producers since capital costs had been substantially reduced.

Product improvement was tried. Spectacular pictures--too big for television--were filmed, color was more widely used, the screen was made larger, three-dimension filming was added, and stereophonic sound was used.

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[28]See Table 15.

TABLE 15

MOTION PICTURE THEATERS AND RECEIPTS, SELECTED YEARS, 1948-1967

Year	Number of Theaters	Receipts (Thousands)
1948	18,509	$1,613,728
1954	18,491	1,407,151
1958	16,354	1,171,783
1963	12,652	1,062,732
1967	12,187	1,293,035

Source: U.S. Department of Commerce, Bureau of the Census, Census of Business, 1948, 1954, 1958, 1963, and 1967.

Although they held back for several years, producers found the ultimate solution in selling backlogs of old films to networks and stations. Networks found the films to be very acceptable to the public, and independent stations found them to be an effective substitute for affiliation.

But theater owners violently disapproved. Providing films to television was improving the product that kept audiences away from the theater. Some of the losses have been recovered by higher box office prices, which have more than tripled in the past 25 years,[29] and by projecting commercial advertising between films.

The theater does have some advantages over television. The audience is subjected to less distraction (from commercials and household activites). The screen is bigger, and special effects, such as fires and monsters, are possible on a larger scale. The production effort can be greater since potential gross revenue is larger. This last feature will be discussed in more detail in Chapter Four as it pertains to subscription television.

It is evident from Table 15 that theater owners have experienced losses due to television. The number of theaters

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[29] Time., November 8, 1971, p. 79.

in the United States fell from 18,509 in 1948 to 12,187 in 1967. This is in spite of the fact that the population of the country increased from 146,730,000 to 197,864,000 during those years,[30] a fact which makes the decline even more significant. That motion picture production and distribution services fared somewhat better is evident in Table 16, and much of this success can be attributed to the sale of films to television networks and stations.

In the motion picture industry, the individual theater owners have been more adversely affected than the central producers, while in radio, the networks have experienced more substantial losses than the individual stations. In both cases, the impact of television has been less adverse where the particular sector has been able to exploit its comparative advantage in the face of increased competition.

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[30]U.S. Department of Commerce, Statistical Abstract of the U.S., 1970.

TABLE 16

MOTION PICTURE PRODUCTION AND DISTRIBUTION ORGANIZATIONS AND RECEIPTS SELECTED YEARS, 1954-1967

Year	Number	Receipts (Thousands)
1954	2,352	$ 944,638
1958	3,191	1,249,017
1963	3,729	1,520,079
1967	4,565	2,183,086

Source: U.S. Department of Commerce, Bureau of the Census, Census of Business, 1954, 1958, 1963, and 1967.

CHAPTER III

THE ECONOMIC STRUCTURE OF THE COMMERCIAL TELEVISION BROADCASTING INDUSTRY

The commercial television broadcasting industry in the United States is composed of two internal sectors, stations and networks, and two external sectors, advertisers and audiences. Although the government is not a major component of the industry, it is a significant part of the environment of the industry, and its power is apparent from the volumes of publications, decisions, and orders that have been issued by the FCC.

The preceding chapter discussed the rapid growth of the major sectors of the industry in the post-freeze era and the impact of this growth. An intricate economic structure has evolved out of such rapid growth and problems in altering that structure for improved television service have resulted. The purpose of the present chapter is to discuss the current economic structure of the industry and to show that altering

that structure through regulatory efforts will not have the desired effect of promoting diversified programing.

The Structure of Stations and Networks

Certain characteristics concerning the nature of the economic structure need to be mentioned at this point. First, the industry is one of private enterprise, conducted for profit. This profit-making aspect overrides all other aspects, and all services which television provides must be considered in this light. Broadcasting is not a common carrier and it is not a public utility. Such industries, although profit-making, are subject to rigorous governmental restrictions as to capital investment, rates of return, and public responsibility for service to all who desire it. These restrictions have not been applied to broadcasting.

Second, television is primarily an entertainment medium and secondarily a medium for news and information. Finally, television in the United States is not used as an instrument to implement government policy. It has been subject to relatively mild control from the government, much of which has been prompted by broadcasters themselves.

Television Stations

The basic units of the industry are the individual television stations, for they alone control the use of time. Stations operate under licenses granted by the FCC for three-year periods to applicants whose legal, technical, and financial qualifications, program plans, past experience and involvement in the community, appear to qualify them to serve "the public interest."

One major aspect of the public interest with which the FCC is concerned is that of "program diversity" in terms of cultural, social, political, and economic viewpoints expressed. In implementing program diversity, the Commission has sought to:

(1) Diversify station ownership through ceilings on multiple station ownership and rules on cross-channel mergers;

(2) Fortify licensee independence by rules governing affiliation contracts and criteria to be employed in renewing broadcast licenses;

(3) Encourage the entry of local residents as opposed to outsiders unacquainted with community needs in order to promote programing of local interest;

(4) Maintain competition among different components of the industry.

There are sometomes conflicts between policies to strengthen the structural conditions (ownership diversification, competition) that facilitate program diversity, and those that promote the efficiency, stability, and growth of the station and network resources needed for the desired programing.[1] Much of this chapter will deal with that conflict.

At the end of 1970, there were 503 VHF stations and 179 UHF stations for a total of 682 commercial television stations in the United States. Of these, 595 were affiliated with a national network and 87 were independent. Of the 595 affiliated stations, 15 were owned by the networks themselves. Average station revenues in 1970 amounted to $2.01 million, and average station profits were $ .5 million. Such profits represent a techno-regulatory shortage of spectrum space that has forced the price of commercial time upward, rather than the restraint of competition by oligopolistic or monopolistic behavior on the part of television stations.

Although almost all Americans lie within the range of at least one television signal, less than half of the cities

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[1]Harvey J. Levine, "Economic Structure and the Regulation of Television," Quarterly Journal of Economics, LXXII (August, 1958), p. 429.

where channels are allocated actually have a local station. In Oklahoma, for example, commercial channels are allocated to Ada, Ardmore, Bartlesville, Enid, Hugo, Lawton, Muskogee, Oklahoma City, and Tulsa. Only Ada, Ardmore, Lawton, Oklahoma City, and Tulsa have stations in operation.[2] The state of Delaware has no television station; New Hampshire, New Jersey, and Vermont each have only one station. All other states have at least three stations; but in Rhode Island and Utah, all three are located in Providence and Salt Lake City, respectively.[3] With respect to stations, the industry operates in an oligopolistic market.

Stations may be classified according to market size, network affiliation, and channel. Stations may also be classified according to the degree of autonomy which they possess: (1) stations that are owned and operated by the networks; (2) stations that are affiliated with the networks; and (3) stations that remain fully independent.

The power (wattage) of a television station does not give a reliable index of its range. Range depends in part on geographical factors and channel and in part on population

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[2]See Table 17.

[3]Television Digest, Inc., Television Factbook. Services Volume, 1971-1972, pp. 43-52-a.

TABLE 17

OKLAHOMA COMMERCIAL TELEVISION ALLOCATIONS
AS OF DECEMBER 31, 1970

City	Channels Allocated	
	In Use	Not in Use
Ada	10	
Ardmore	12	
Bartlesville		17
Enid		20
Hugo		42
Lawton	7	16
Muskogee		19
Oklahoma City	4, 5, 9	14, 25, 34 43
Tulsa	2, 6, 8	23, 29, 41

Source: Television Digest, Inc., Television Factbook, 1971-1972, pp. 50-a and 227-a.

density. A mountain range may lessen the coverage area of a station of a given power over an otherwise similar station located elsewhere. Stations on lower (numbered) channels have, ceteris paribus, a greater coverage area than those on higher channels. Furthermore, a station of given power will have a larger potential audience in a densely populated area than in a sparsely populated one.

Besides station location, whether or not a station is affiliated with a network and whether or not it operates on a VHF channel are the three major determinants of the value of the station in terms of revenues, profits, and resale value. In order to indicate the significance of network affiliation and channel number, data were gathered for the top-ten markets (see Table 18) and a correlation analysis was made. According to FCC studies used in part to determine the fees charged broadcasters for services of the Commission, the most feasible standard which would reflect a station's relative position in a market is its rate card (i.e., price schedule) for the broadcast of commercials.[4]

In the first test, a value of 1 was assigned to a station if it was affiliated with a national network, and a

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[4]FCC, Reports, Vol. 21, January 30, 1970-March 20, 1970, p. 507.

TABLE 18

HIGHEST PRIME-TIME RATES FOR ONE 30-SECOND SPOT, TOP-TEN MARKETS, EFFECTIVE NOVEMBER 15-DECEMBER 15, 1970

Location and Market Rank	Channel	Station	Affiliation	Rate
New York (#1 market)	2	WCBS	CBS	$7000
	4	WNBC	NBC	6000
	5	WNEW	---	1700
	7	WABC	ABC	5700
	9	WOR	---	600
	11	WPIX	---	900
	41	WXTV	---	130
	47	WNJU	---	114
Los Angeles (#2)	2	KXNT	CBS	4750
	4	KNBC	NBC	4300
	5	KTLA	---	750
	7	KABC	ABC	3600
	9	KHJ	---	750
	11	KTTV	---	850
	13	KCOP	---	840
	22	KWHY	---	40
	34	KMEX	---	165
	40	KLXA	---	81
	52	KBSC	---	65
Chicago (#3)	2	WBBM	CBS	3400
	5	WMAQ	NBC	3200
	7	WLS	ABC	3400
	9	WGN	---	960
	26	WCIU	---	90
	32	WFLD	---	375
	44	WSNS	---	30
Philadelphia (#4)	3	KYW	NBC	2000
	6	WFIL	ABC	1800
	10	WCAU	CBS	2100
	17	WPHL	---	320

TABLE 18--(Continued)

Location and Market Range	Channel	Station	Affiliation	Rate
Philadelphia (#4)--Cont.	29	WTAF	---	130
	48	WKBS	---	300
Detroit (#5)	2	WJBK	CBS	1900
	4	WWJ	NBC	2000
	7	WXYZ	ABC	1400
	9	CKLW	---	320
	50	WKBD	---	300
	62	WXON	---	75
San Francisco (#6)	2	KTVU	---	840
	4	KRON	NBC	1400
	5	KPIX	CBS	1300
	7	KGO	ABC	1700
	20	KEMO	---	60
	38	KUDO	---	18
	44	KBHK	---	35
Washington, D.C. (#7)	4	WRC	NBC	1500
	5	WTTG	---	225
	7	WMAL	ABC	950
	9	WTOP	CBS	1300
	14	WFAN	---	67
	20	WDCA	---	70
St. Louis (#8)	2	KTVI	ABC	825
	4	KMOX	CBS	1300
	5	KSD	NBC	775
	11	KPLR	---	260
	30	KDNL	---	45
Pittsburgh (#9)	2	KDKA	CBS	900
	4	WTAE	ABC	900
	11	WIIC	NBC	1200
	53	WPGH	---	300
Boston (#10)	4	WBZ	NBC	1500
	5	WHDH	CBS	1400
	7	WNAC	ABC	1700
	38	WSBK	---	400
	56	WKBG	---	300

Source: Standard Rate and Data Service, Inc., Spot Television Rates and Data, November 15, 1970.

value of 0 was assigned if it was unaffiliated. The value of 0 or 1 for each station was paired with its highest prime-time rate for the broadcast of one 30-second spot. The coefficient of correlation r was computed, and a t-test made to determine if the value of r differed significantly from zero, where

$$t = r\sqrt{\frac{n - r}{1 - r^2}}$$

For the top-ten markets (n = 65), r = 0.66 and t = 6.92. Since t = 6.92 has a probability (P) less than 0.001, the value of r is significant.

In the second test, a value of 1 was assigned to a station if it operated on a VHF channel (2-13) and a value of 0 was assigned if it operated on a UHF channel (14-83). The value of 0 or 1 for each station was paired with its highest prime-time rate for the broadcast of one 30-second spot. For the top-ten markets, r = 0.55 and t = 5.22. This value of t = 5.22 has P less than 0.001, and r is significant.

Therefore, for the top-ten markets, if a station is affiliated with a network, its commercial rates differ significantly from unaffiliated stations in the same area. If a station is not affiliated with a network, but operates on

a VHF channel, its rates are lower than those of affiliated stations in the same area, but significantly higher than the rates of unaffiliated stations operating on UHF channels. In general, station location (implying audience size), network affiliation, and channel number (2-13 or 14-83) are the three major determinants (in that order) of a station's value in terms of revenues, profits, and resale value.

Television Networks

The functions of a national network are those of a broker or middleman. Steiner has defined a network organization as "any person, organized for profit, that undertakes to distribute, to stations, programs for simultaneous broadcast, and is capable of providing nationwide service."[5] The network contracts with a number of stations to provide programs and commercial messages with unduplicated coverage, thus bringing buyers (the advertisers) of time and sellers (the stations) of time together. It acts as a sales agent for its affiliates and compensates them for carrying programs at a percentage--often 30 per cent--of the station's rate card. Networks may not require a station to carry any

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[5]Peter O. Steiner, "Workable Competition in the Radio Broadcasting Industry" (unpublished Ph.D. dissertation, Harvard, 1949), p. 29.

program, but an affiliate gets first refusal in his market of programs offered by his network. Programs and commercial messages are fed to affiliated stations via microwave and cable leased from the American Telephone and Telegraph Company (AT&T).

Actually, the three national television networks in existence today deviate from the simple model of a broker of station time. Each is composed of five television stations, all fifteen of which are in the top-fifteen markets. The American Broadcasting Company (ABC), the Columbia Broadcasting System (CBS), and the National Broadcasting Company (NBC) are affiliated with 168, 203, and 224 stations, respectively, for a total of 595 of the 682 commercial television stations on-the-air.[6] The vertical integration of networks has not only been forward, but also backward into the area of program production and brokerage. These latter functions are under attack by the FCC for a variety of reasons to be discussed later in this chapter.

The Communications Act gives the FCC control over broadcasting, and thus networks were not subjected to direct control from the Commission. However, since each network

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[6]See Table 19.

TABLE 19

NETWORK AFFILIATION WITH TELEVISION STATIONS
AS OF JUNE 1, 1970

Network	Owned and Operated	Affiliated	Total
ABC	5	163	168
CBS	5	198	203
NBC	5	219	224
Total	15	580	595

Network Owned and Operated Stations,
Location and Market Rank, 1970

Network	Station	Location	Market Rank
ABC	WABC	New York	1
	KABC	Los Angeles	2
	WLS	Chicago	3
	WXYZ	Detroit	5
	KGO	San Francisco	6
CBS	WCBS	New York	1
	KNXT	Los Angeles	2
	WBBM	Chicago	3
	WCAU	Philadelphia	4
	KMOX	St. Louis	8
NBC	WNBC	New York	1
	KNBC	Los Angeles	2
	WMAQ	Chicago	3
	WRC	Washington	7
	WKYC	Cleveland	11

Source: Television Digest, Inc., Television Factbook, 1971-1972, pp. 104-117-a and 56-a.

operates its own stations and since station relationships with networks affect their ability to operate in the public interest, the Commission has assumed control over the network organizations.

History of Networks

The three current television networks were formed by three of the four current radio networks. On October 27, 1945, NBC linked WNBT (New York) with WRGB (Schenectady) and WPTZ (Philadelphia) for its first network telecast, the appearance of President Harry S. Truman at a Navy Day celebration in New York City. On March 22, 1948, ABC linked WFIL (Philadelphia) to its Schenectady station, WRGB. On March 25, 1948, CBS added WCAB (Philadelphia) to its New York station, WCBS, and later it added WMAR (Baltimore).[7]

The Du Mont Television Network, without the benefit of radio experience, launched a television network in 1949 by linking the three stations owned by Allen B. Du Mont, WABD (now WNEW, New York), WTTG (Washington), and WDTV (now KDKA, Pittsburgh). The Du Mont Television Network was discontinued in September, 1955, leaving only ABC, CBS, and NBC for eleven years.[8]

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[7]Bryce W. Rucker, The First Freedom, p. 143.

[8]Ibid., p. 151.

In July, 1966, the Overmyer-United Television Network was launched. On May 1, 1967, it was on-the-air with a limited but daily night-time program, but thirty-one days later it ceased operations.

The Unisphere Broadcasting System was proposed in May, 1965, to provide two and one-half hours of evening programing. In 1966 plans were still incomplete, apparently since the firm was unable to secure contracts with a respectable number of affiliates in major markets.

Also in 1966, the Mutual Broadcasting System (operator of the fourth radio network) indicated it would begin a fourth competitive television network, but no action has been taken. Apparently also dead or floundering are Trans-World Broadcasting, Unisphere Broadcasting, and the Kaiser Broadcasting Company.[9]

The story of the "fourth network" continues to loom in the minds of those interested in program diversity. The recent growth in the number of UHF stations has also led to the hope that a fourth network might begin. The number of television markets with four or more commercial stations

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[9]See C. A. Kellner, "The Rise and Fall of the Overmyer Network," Journal of Broadcasting, XIII (Spring, 1969), pp. 125-126.

more than doubled, from 18 to 40, between broadcast year 1965-1966 and broadcast year 1968-1969, and more than tripled, from 18 to 57, between 1965-1966 and 1970-1971. These markets include over 60 per cent of all television homes. But barriers to entry into networking (to be discussed in detail later in this chapter) are so significant that prospects for a fourth network seem doubtful.

Economic Advantages of Affiliation

Networks offer real benefits to stations and advertisers. The popularity of network programs is due to their relatively high quality compared to locally produced programs, which is explained by the relatively small per viewer total cost of producing such programs. This mass popularity secures a large audience for the affiliated stations, and the national advertiser thus pays a relatively small cost per thousand viewers. Since he deals with one, or at most three firms, the national advertiser enjoys an even lower cost since only one filmed message need be delivered to only one firm to receive national coverage. And the station is relieved of the necessity of producing programs and running commercial messages. Its staff can be smaller and its costs lowered, although it receives continuous

programing. Some of this programing may be sustaining (lacking commercial sponsorship), and the station may substitute local sponsors for national ones. Such programs may offer real advantages in terms of listener appeal that could not be achieved by a locally produced program at a comparable cost.

Some intangible benefits of networking also accrue to stations and advertisers. The benefits of name, reputation, and prestige of the networks and their programs (especially news-type programs) accrue to the station in the local community. Valuable adjacencies are created by the network programs. There is thus an increase in non-network demand for station time because of the audience built-up by the network programs. And the station gets extra sales because it is part of a network which tends to force advertisers to take stations they would otherwise omit.

To be sure, there is a cost of networking to an affiliate. It must accept a division of the proceeds from the sale of time to network advertisers. But the financial advantages of affiliation have proven to outweigh the costs, and this is readily apparent from Table 21.[10]

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[10]See page 94.

Barriers to Entry: Television Stations

Program diversity has been lacking in the television broadcasting industry and this is due in large part to barriers to entry, both with respect to stations and to networks. This section will discuss the barriers to station entry. The following section will discuss the barriers to network entry.

Since television operates on a limited spectrum under a public franchise, and since it is a major source of entertainment and information for the great bulk of the population, it has been subjected to governmental control. Without such control, chaos would result in the industry as new stations would cause interference to existing ones in an effort to occupy a space on the spectrum. This so-called "wave piracy" characteristic of the early days of radio would reappear as entry would be no more difficult than applying power to a transmitter.

"Spectrum" refers to a defined range of radio waves utilized in communication, with the dimensions of frequency, time, and physical space. Its principle economic value lies in its use for conveying information of varying sorts over

wide distances. Like other natural resources, spectrum has developed in relation to demand and supply.[11]

The demand for spectrum is based on growth in population and per capita income and changes in taste. The supply of spectrum is the result of technical advances, improving the quality of existing space and making possible its use at higher frequencies.

The excess demand for broadcasting spectrum, not its depletion in use, makes it a scarce resource. The formal economic problem--the allocation of scarce resources among alternative uses to maximize graded ends--requires that all productive factors be distributed so as to equate their marginal value productivity in terms of all competing ends. In the television broadcasting industry, this problem is not solved by a perfectly competitive market for spectrum, utilizing a pricing system. The supply of and demand for spectrum is regulated by the federal government, since the supply is scarce relative to the demand and a free market to ration the available supply does not exist. At any given time, the supply of spectrum is perfectly inelastic, and

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[11]Harvey J. Levine, The Invisible Resource (Baltimore: Johns Hopkins Press, 1971), pp. 15-16.

demand is limited by financial, technical, legal, and character constraints imposed on individuals by the FCC.

Huge capital investments (fixed costs) are thus not the major barrier to the entry of more television stations. The lack of spectrum space is a much more significant barrier. This is not to say that there is no space available. Most of the idle channels, however, are in the UHF spectrum or in relatively undesirable markets. As a result, station growth in numbers is occurring at an ever decreasing rate. Between 1968 and 1969, the number of stations increased by four per cent; between 1969 and 1970, by two per cent; and between 1970 and 1971, by less than one per cent.[12]

Due to the limitation of facilities resulting from physical and artificial (licensing policy) factors, every station is in competition with existing or potential stations in the matter of getting and keeping its license. The Commission has asserted and exercised its power to review the performance of existing stations by threatening non-renewal of their licenses.

To obtain a license, a potential broadcaster must prove to the Commission that such a grant would be in the

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[12]See Table 3, p. 23.

public interest and would not interfere with the signal of another station. To keep a license, the broadcaster must render the useful service promised and fulfill technical requirements. An existing station thus faces potential competition from two sources: (1) a new competitor may obtain a license to operate in the same area, or (2) its license may not be renewed and be given to another licensee.

In licensing new stations, the Commission has refused to consider economic injury to existing stations,[13] but it has been reluctant to replace on licensee with another. The former condition makes the situation theoretically more competitive, while the latter makes it less competitive. In practice, the situation is biased on the side of less competition. New stations are virtually eliminated from the top markets. Coupled with the fact that license renewal is virtually automatic except in cases of widespread abuse, the short-term license is a valuable franchise and entry at some levels is practically impossible.

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[13]This policy was supported by the Supreme Court in 1940, when it declared that protection of an existing licensee against competition was not the basis for the Commission's power over entry into broadcasting. FCC v. Sanders Bros. Radio Station, 309 U.S. 470 (1940).

Spectrum limitations thus present a formidable barrier to the entry of stations. However, were there not barriers to network entry so that a fourth and perhaps a fifth network could exist, there would be a smaller number of idle channels and a larger number of profitable stations. That this would probably be the case is supported by the fact that 84.6 per cent of the network affiliated VHF stations and 51.1 per cent of the network affiliated UHF stations were profitable in 1969, while only 61.8 per cent of the independent VHF stations and 4.2 per cent of the independent UHF stations were profitable in that year.[14] The result of less formidable station (and network) barriers to entry would be a tendency toward greater program diversity. But these barriers will apparently not be relaxed in the near future.

Barriers to Entry: Television Networks

Network operation, unlike station operation, is not protected by a license, and there are no artificial (i.e., regulatory) prohibitions placed upon new competition. Table 8 indicates that investment requirements present no formidable barrier to entry. The high profits indicated in Table 7 would lead one to expect entry of new capital and

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[14]See Table 21, p. 94.

competition into the networking sector of the television broadcasting industry. There are six explanations for the lack of entry into networking.

(1) A limitation on network entry is set by the shortage of competing facilities in major markets due to the limited VHF spectrum. As of March, 1970, thirteen of the top-25 markets, thirty-six of the top-50 markets, and eighty-two of the top-100 markets, had 3 VHF stations or less. Only eighteen of the top-100 markets had over three competing VHF outlets.[15] Thus, unless UHF television becomes more competitive with VHF, the technical limitations to the number of possible VHF stations preclude the entry of a fourth network having primary affiliation with stations in most of the top-100 markets so as to reach a substantial portion of the national market.

(2) The existing arrangement whereby affiliated stations simply "ride" one network (i.e., carry most of the programs offered by the network), in conjunction with the shortage of facilities outlined above, further limits the access a potential network may have to stations in significant markets where less than four competitive outlets exist.

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[15]See Table 20.

TABLE 20

NUMBER OF VHF CHANNELS IN MAJOR MARKETS

	Over 3 VHF Channels	3 VHF	2 VHF	1 VHF	0 VHF
Top-25 Markets	12	12	1	0	0
Top-50 Markets	14	25	10	1	0
Top-100 Markets	18	48	19	8	7

Source: Data gathered from Television Digest, Inc., Television Factbook, 1971-1972, pp. 56-58-a.

As long as concentration among the existing three networks in terms of prime-time occupancy and night-time audience shares remains at present levels, potential networks are precluded from entry.

(3) The nature of the service that a network sells makes it difficult for a firm to enter the industry by slowly and incrementally gaining access to a national audience, even if that were possible. Advertisers of nationally distributed products prefer advertising media which reach a national market, and do not consider a growing network with half the desired coverage as a good buy--even at half the total cost. Perhaps this is attributable to the fact that the cross elasticity of demand by advertisers for different media is small, and they are considered by advertisers to be poor substitutes because of their different basic appeals and their tendency to reinforce rather than duplicate each other in a balanced advertising budget.[16] Accordingly, a potential network must attain the status of existing networks before it can compete with them, and yet, ironically, the lack of means to such status (e.g., advertising revenues and major station affiliations) is the nature of the problem.

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[16]Harvey J. Levine, "Workable Competition," p. 103.

(4) A potential network, like existing ones, encounters substantial economies of scale with respect to program cost per viewer. The cost of producing a given program is independent of the size of the audience it reaches. But a potential network with a relatively small audience must produce shows of the same quality as existing networks in order to compete effectively. Since advertisers prefer to patronize networks which offer the lowest cost per thousand, economies of scale in program production present an economic barrier to the entry of new networks.

(5) Furthermore, with respect to costs, the use of cable and microwave relays in networking result in a heavy fixed cost, and a sufficient volume of use is necessary to reduce the average fixed cost of these facilities. AT&T rates discriminate against use of these facilities for less than eight hours per day. This is largely attributable to the high costs to the telephone company of installing and maintaining them. Obviously a new network must start with less than a full program schedule and thus must face relatively high average fixed costs.

(6) When competition has developed in networking, the existing firms have risen to suppress it. For example, the

Overmyer-United Network began on May 1, 1967, with a two-hour late-evening variety show filmed in Las Vegas. The only network competitor then was NBC's "Tonight Show." However, ABC quickly announced it has signed Joey Bishop to star in a late-night show, and CBS announced that it would begin a similar late-night program during the next year. Planning to expand to a fifty-six hour per week program schedule in the fall of 1967, the Overmyer-United Network was not allowed to get on its feet.

Network television since 1948 has been a profitable oligopoly, but no new firm is likely to enter in the foreseeable future primarily because of technical and economic factors at work against such entry.

Regulatory Efforts to Diversify Programing

The policy efforts of the FCC in recent years have been directed toward program diversity so that television will serve a larger fraction of the population, and serve better. Its most outstanding means to this end were increasing the number of stations through the development of UHF television, limiting the multiple ownership of stations, issuing the Blue Book, and reducing the control of the national networks over programing by outlawing option time

and initiating the prime-time access rule. The remainder of this chapter will consider each of these attempts at altering the structure of the industry in the interest of program diversity.

Efforts to Increase Competition

The two major efforts of the FCC to increase the level of competition in the interest of program diversity were through (1) expanding the spectrum (and therefore the number of stations) by encouraging the development of UHF television and (2) increasing the number of independently owned stations by controlling multiple ownership. The assumption of the FCC is that program diversity is a function of the number of stations and the number of different owners of these stations.

Increasing the Number of Stations via UHF Development

In order to analyze the UHF problem in detail, some technical and statistical facts need to be spelled out. Then the history of the problem and some possible solutions that have been offered will be discussed.

Unlike AM radio, television operates on a line-of-sight basis. Signals will not traverse the horizon and may be obstructed by large structures, either man-made or natural.

Furthermore, an AM station requires a channel only 10 kilocycles wide while a television station requires a 600-kilocycle-wide channel. Thus, compared to standard radio, fewer television stations can be accommodated. Only some 1200 commercial television assignments can be made on the 82 channels allocated for television broadcasting, while over 4300 commercial AM stations already operate within that portion of the spectrum allocated to standard broadcasting.

The per market maximum imposed by the FCC on broadcast stations is about 10 to 15 in television and 30 to 34 in AM broadcasting. In 1968, a per market average of only 4.2 television stations was actually authorized in the top-50 markets, less than one-half of the technical maximum. Even more dramatic is the contrast between VHF and UHF television--a per market average of 3.1 VHF as compared with 1.0 UHF in the top-50 markets, and 2.6 VHF as compared with 0.9 UHF in the top-100 markets.[17]

At the end of 1970, there were only 682 commercial television stations on the air. Of these, only 179 or 26 per cent were UHF, even though over 70 per cent of all channels are allocated in that band. But these figures alone are

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[17]Harvey J. Levine, The Invisible Resource, p. 6.

not sufficient to indicate the real nature of the UHF problem. A glance at Table 21 reveals some interesting observations.

Of the 142 UHF stations reporting in 1969, only 35.2 per cent were profitable, while 82.9 per cent of the 456 reporting VHF stations showed positive profits. Furthermore, most of the profitable UHF stations were affiliated with a national network. Only 4.2 per cent of the unaffiliated UHF stations showed a positive profit in 1969.

History of the UHF Problem. The advent of television immediately following World War II posed far-reaching economic and physical problems. The roots of the UHF problem date back to 1945 when the Commission, unmindful of the tremendous growth potential of television, allocated 13 VHF channels (subsequently cut to 12) to serve the immediate needs of television.

The plight of UHF was charted mainly by RCA. To reduce competition and enhance its profits, RCA convinced the FCC that television should be assigned to the (extremely limited) VHF spectrum. Frequencies in this spectrum were already limited by heavy demands from noncommercial broadcasters, primarily the military. The FCC told licensees that all telecasting would be moved to the more spacious

TABLE 21

PROFIT AND LOSS OF TELEVISION STATIONS
(Before Federal Income Tax),
1969

	Total		Network Affiliated		Independent	
	VHF	UHF	VHF	UHF	VHF	UHF
Number of Stations Reporting	456	142	422	94	34	48
Stations Reporting Profits	378	50	357	48	21	2
Per Cent Profitable Stations	82.9	35.2	84.6	51.1	61.8	4.2
Stations Reporting Losses	78	92	65	46	13	46
Per Cent Unprofitable Stations	17.1	64.8	15.4	48.9	38.2	95.8

Source: FCC, Annual Report, 1970, p. 159.

higher frequencies if the medium proved successful. This was easier said than done. This victory (for RCA and other existing broadcasters) drastically limited the number of stations that could exist in any given geographical area and caused a problem that has not yet been solved.

By 1948, the FCC was aware that a problem was rising. Sixteen stations were on the air and 108 others had been authorized on the 12 VHF channels allocated to television.[18] On September 30 the Commission declared a "freeze" on licenses for new television stations. When the freeze was lifted on April 14, 1952, the FCC announced a new Television Allocation Plan in its Sixth Report and Order. The Plan included an allocation table providing over 2000 assignments in almost 1300 communities across the nation, and it provided for 12 VHF and 70 UHF channels. Subsequent rule changes have left fewer assignments today (about 1850 in 850 communities), but about one-third of these are earmarked for educational purposes.

The FCC committed two mistakes in one. First, the freeze gave those occupying the VHF channels an opportunity

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[18] Broadcasting Yearbook, (Washington, D.C.: Broadcasting Publications, Inc., 1969), p. A-131.

to (1) build viewer loyalty at a time when receiver sales were growing very rapidly,[19] (2) enrich themselves under near-monopoly conditions during a period when practically all receivers had only VHF tuners, and (3) improve their equipment, programing techniques, and relations with advertisers. UHF newcomers were placed at a distinct disadvantage.

Second, by intermixing channel assignments (VHF and UHF in the same market), UHF broadcasters were to lose millions of dollars and the use of the UHF band was to be stymied and placed in a strait jacket from which it has never been able to free itself.[20]

Since the limited number of VHF channels was recognized to be inadequate for a nationwide competitive television service, the FCC expected that the UHF band would be fully utilized and eventually UHF stations would be able to compete on a favorable basis with VHF stations. It became apparent by 1956, however, that UHF was not developing as had been anticipated, and that UHF stations in both large and

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[19]Over 600 per cent between 1948 and 1952. See Television Digest, Inc., Television Factbook, 1971-1972, p. 79-a.

[20]See Bryce W. Rucker, The First Freedom (Carbondale, Illinois: Southern Illinois University Press, 1968), p. 159.

small markets were having difficulty in operating successfully. Consider some of the reasons for this difficulty.

Obstacles to the Growth of UHF Television. Except in areas where only UHF stations existed, few television receivers prior to 1965 had UHF tuners. Production of all-channel television sets declined consistently from 1953 to 1961. For example, 20.2 per cent of the 7,126,000 television sets manufactured in 1953 contained UHF tuners. By 1957 only 12.2 per cent were equipped with UHF tuners, and by 1961 this percentage had fallen to 6.[21]

Networks have generally not affiliated with UHF stations if a competing VHF station is available. Thus UHF stations have been forced to telecast reruns of old network shows, programs that networks have rejected, old movies, documentaries, and extremely expensive station-produced local live programs.

Scarcity of UHF receivers (and the habitual reluctance to tune to UHF stations by those whose sets are so equipped) as well as lack of network affiliation (resulting in an even

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[21] Ibid., p. 160.

smaller audience) has convinced most advertisers that UHF is a poor advertising buy, even though its rates are much lower than those of VHF stations in the same markets. UHF affiliated stations generally charge one-third or less for time than do VHF affiliated stations in the same area. Rate differences are even greater for nonaffiliated UHF stations.[22]

Furthermore, the signal strength and clarity of UHF make it inferior to VHF. A UHF station of one million (visual) watts may actually have a shorter range than a VHF station with one-tenth that power.

Thus, the vicious circle of UHF broadcasting (small audience, few sponsors, lack of revenue, few good programs, little reason for people to watch or even purchase receivers with UHF tuners, small audience) continues. Wishing to break this vicious circle and promote the development of the UHF spectrum, the FCC, broadcasters, and other interested groups have offered suggestions. Some of these have been tried. Others have been forgotten. None have fully solved this pressing problem of the television industry.

Proposals to Expand UHF Television. As early as 1956 the Commission considered the deintermixture of VHF and UHF

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[22]See Table 19.

assignments in communities where it appeared that such action might be expected to improve the opportunities for the growth of effective outlets. Disagreements resulted over whether or not a minimal effort here would really suffice and whether a full-scale effort that separated the two types of markets widely might not seriously reduce service in fringe areas and also result in an enormous expenditure by the public for new sets (or UHF receiving devices on old sets) and antennas. CBS estimated the cost of achieving the community station and multiple service goals, by giving each of the 1200 television communities either all VHF or all UHF outlets, with no overshadowing, at one billion dollars for set, equipment, and antenna conversion, plus the loss of service to several million viewers.[23]

Another proposal offered was to move all television to the UHF band. This would not only fully activate the entire UHF band, but also release twelve scarce VHF channels for other uses. The fear that as many as 8 million people in fringe areas would lose service and the estimated transitional

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[23]Reported to U.S. Congress, Senate, Committee on Interstate and Foreign Commerce, Television Inquiry, II, Sen. Res. 13 and 163, 84th Cong., 2d Sess. (Washington: Government Printing Office, 1956), pp. 797-808.

costs of from $1.5 to $2.5 billion were the successful objections.[24]

The military VHF spectrum could theoretically have accommodated all television had the military been willing to accept in return the UHF spectrum. Such an exchange was proposed by the FCC, but the military rejected the proposal on August 15, 1960, because of the estimated $5 billion cost of conversion, the loss of defense capability during the conversion process, and uncertainty as to whether military capabilities acquired would be comparable to those lost. Furthermore, there was no way of comparing the net economic benefits that would accrue to the television industry with the cost of developing a new military system in the UHF band. The military could not be expected to willingly move elsewhere at a considerable cost to do the same thing no better.

No appeal was filed after the decision was made by the military. Existing licensees wanted no more VHF competition and the public was not pressing for more channels. This made it clear that fulfillment of the objectives of the nation's television system could be achieved only through a much fuller utilization of the UHF channels.

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[24]Harvey J. Levine, "Economic Structure," p. 437.

Concurrent with the deintermixture proposal, the Commission considered a drop-in of third VHF channels at less than the minimum mileage separation requirements to eight communities. The absence of a third comparable facility was of concern to the Commission because of the effect upon nationwide network competition. However, this interest was tempered by consideration of the need to encourage UHF broadcasting. It was the Commission's subsequent decision that new VHF assignments would inevitably affect UHF development by removing choice opportunities for UHF stations. The idea was dropped with the exception of Oklahoma City, to which channel 5 was assigned from Enid because there were already three VHF channels in the Oklahoma City market.[25]

Because of its location and identity with Enid, KOCO-TV was not able to achieve competitive acceptance and status in the Oklahoma City market, from which it derived its principal support. No substantial adverse effect on UHF was expected by moving KOCO-TV since there were three VHF signals in the Oklahoma City market to begin with. It did, however, improve

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[25]The seven cities denied a third VHF assignment were Charlotte, Dayton, Jacksonville, Birmingham, Knoxville, Baton Rouge, and Johnstown. See FCC, Annual Report, 1963, pp. 68-69.

the local competitive situation and aid the nationwide competitive structure.

Ordinarily the Commission is reluctant to withdraw from a community its only local service in order to assign the channel to a larger community which has operating stations. The station was reminded, however, of its obligations to serve the needs and interests of its entire service area.[26]

The FCC also considered providing a "pool" of UHF frequencies for existing VHF licenses and permitting dual VHF-UHF operation by commercial television licensees. The proposal for dual operation was intended to stimulate inauguration of UHF services in predominantly VHF markets, and the pool of UHF channels was designed to provide VHF stations with a UHF channel for dual operation.

The FCC invited comments on the proposal. The majority of those received opposed the so-called pool plan as wasteful of spectrum space and contrary to the goal of promoting competition, without any real likelihood of stimulation for UHF or of providing additional service for the public. Since all-channel receivers were to promote the fuller use of UHF channels, the proposal was dropped.

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[26]FCC, Television Matters, Reports, Vol. 41 (Washington, D.C.: Government Printing Office, 1970), p. 1125.

Perhaps the proposal should not have been dropped. Such operations would not only have fostered an interest in UHF channels, but also would have provided a useful television service. Where no adverse impact would accrue to existing UHF stations, the multiple ownership rules could be waived to the extent necessary.

For example, to permit VHF stations to be licensees of UHF stations in order to carry the third major network (in a one or two network community) may be in the public interest. Furthermore, the UHF channel could be used for repeat performances so that viewers who missed a show of their choice or desired another viewing of it could be served.

Effective July 5, 1960, the Commission permitted UHF broadcast stations to use boosters to fill in "shadows" within their normal service areas but not to extend their coverage. Such a booster merely amplifies and retransmits the programs of the parent station on the latter's channel. It does not have an individual call signal and its maximum effective radiated power is limited to 5 kilowatts. The purpose of such a booster operation is to enable a UHF station to provide reasonably uniform coverage, particularly where

there is rugged terrain, without resorting to extremely high power.[27]

Other proposals were endorsed by the Commission to promote the development of UHF. Certain technical requirements were relaxed in order to reduce the installation and operating costs of UHF stations, and the use of directive transmitting antennas was allowed to permit better signals.

The Commission also considered adopting a first-come first-served policy so that a qualified application for a UHF channel might be granted without comparative hearing against possible competition for the channel.

Another proposal was to offer a tax-relief on all-channel receivers as a means to reducing the cost differential between VHF-UHF and VHF-only sets. Existing VHF stations were much in favor of this proposal since it did not involve elaborate, disruptive solutions that might involve substantial cost outlays and detailed governmental regulation. But nothing ever came of it.

Perhaps the most significant attempt to rescue UHF television came in 1962. The production of all-channel sets had fallen to a record low of 6 per cent of all new sets.

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[27]FCC, Annual Report, 1960, pp. 49-50.

On September 13, the FCC acted on its newly conferred authority from Congress (Public Law 87-529) to institute rule-making requiring that all television sets shipped in interstate commerce or imported into the United States for sale or resale be all-channel television receivers. The rule was made final on November 23, 1962, to go into effect April 30, 1964.

Following the adoption of the all-channel law, the percentage of television homes with VHF-UHF receivers tripled, from 22.8 per cent in 1965 to 68 per cent in 1970.[28] The boom in portable receivers and the widespread desire for color receivers has stimulated the purchase of new sets, making the plan work better than anticipated.

According to Lawrence D. Longley, opposition to deintermixture was the reason that the all-channel receiver law was passed.

> This controversy shows an interesting converging of the interests of the industry in avoiding a certain type of policy, with the renewed interest of the Commission in providing for diversity and additional competition in television broadcasting. The result was a pattern of pressures favoring the all-channel

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[28]FCC, Annual Report, 1969, pp. 41-42, and 1970, p. 3.

receiver bill sufficient to insure its adoption as a definitive public policy.[29]

In February, 1970, the Commission adopted rules requiring the manufacture of television sets with comparable VHF and UHF tuning facilities. The schedule provides that 10 per cent of a manufacturer's sets must have "comparable systems for tuning the VHF . . . and UHF channels" by July 1, 1971, 40 per cent by July 1, 1972, 70 per cent the following year, and all sets by July 1, 1974.[30]

UHF Development and Program Diversity. As early as 1948, the FCC recognized that the limited VHF spectrum would be insufficient to provide for a complete television service in the United States, so it imposed a freeze on television licenses; and four years later the Commission presented a plan for intermixed channel assignments. This was perhaps one of the biggest mistakes the Commission has ever made, notwithstanding the fact that hindsight is better than foresight. VHF television had been firmly ingrained into the viewing patterns of the public, and intermixing UHF with VHF

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[29]Lawrence D. Longley, "The FCC and the All-Channel Receiver Bill of 1962," Journal of Broadcasting, XIII (Summer, 1969), p. 299.

[30]Broadcasting, June 29, 1970, p. 73.

was to present problems lasting even to the present day as far as promoting program diversity via larger and larger numbers of stations throughout the nation as well as within each market.

Many solutions for the UHF problem have been offered, and several of these have been tried, but UHF television has had limited prosperity. In 1954 there were 121 UHF stations on the air. By 1960 this number had fallen to 75 and had increased to only 88 at the time of the enactment of the all-channel receiver law. At the end of 1970, there were 179 UHF stations on the air.[31]

The doubling of the number of UHF stations on the air between 1964 and 1970 is largely attributable to the success of the all-channel receiver law. But there is also another factor of great importance. The maximum number of VHF stations that can operate on the twelve channels in that spectrum is approximately 560.[32] That number has almost been reached, and those VHF allocations that are available are in relatively undesirable locations. Thus any real physical growth in the number of stations on the air has had to occur in the UHF

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[31] See Table 3.

[32] Harvey J. Levine, "Economic Structure," p. 425.

spectrum. Had the FCC not intermixed the two bands in any given area, or better still, had television been completely moved to the larger UHF spectrum, there would probably be more than 682 stations on the air. The degree of competition in the industry would be greater and programing would be more diverse.

The real cost of the wrong decision is the opportunities that probably are permanently lost. Development of the UHF spectrum appears to be a fruitless means of increased program diversity as long as the current economic structure of only commercial television continues. Such a situation is obviously less than optimal, and the current structure seems frozen with respect to a solution.

Controlling Multiple Ownership

The FCC has played an important role in maintaining and fostering competition in the television broadcasting industry. Its jurisdiction has not been limited to striking down monopolies after they have risen, but to policing the industry, searching for indications of approaching monopolies, and instituting policies that will halt such developments. The Commission feels that promoting competition is

one means to promoting diversified programing, which is in the public interest.

In past years, the Commission encouraged AM station licensees to become television station licensees in their own area as well as in other areas, and again, later, to acquire FM stations. The objective of encouraging the larger and more effective use of the broadcasting band was overriding, since television and FM channels were lying unused. But conditions have changed, and the shortage of frequencies has prompted the FCC in recent years to promote diversification of control of the means of communication. The Commission holds the view that 40 different licensees are more desirable than 30, and even that 41 are more desirable than 40.[33] This is true so long as this does not result in a significant deterioration in the quality of service.

Commission attempts at preventing concentration of control of television and broadcasting in general have been numerous. The first formal proceeding in this matter occurred in 1938 when the Commission instituted the Chain Broadcasting Investigation. In 1941, the FCC reported that the NBC and

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[33]See FCC, Reports, Vol. 22, March 27, 1970-May 22, 1970, p. 312.

CBS radio networks impeded competition and would be granted no additional licenses. Furthermore, they were required to divest stations in markets where they owned more than one AM station. No limit was placed on the number of stations a single owner could control.

On June 21, 1940, the FCC ruled that no person could own more than one FM station in an area or a total of six throughout the country. On April 30, 1941, the FCC limited television station ownership to three stations for a single licensee, but this was increased to five on May 16, 1944. NBC fostered the increase by arguing that a larger number of stations was necessary to permit the development of television networks. On November 23, 1943, the FCC prohibited the common ownership of AM stations in an area, but placed no limit on the total number an individual might own.

Ten years later, on November 7, 1953, the FCC ruled that one person could own a maximum of seven AM, seven FM, and five television licenses. This rule was amended on September 7, 1954, to permit ownership by a single licensee of seven television stations, no more than five of which could be VHF stations. The 1954 ruling remained in effect for ten years.

On December 18, 1964, the FCC stated that it would designate for hearing any application for the acquisition of a VHF station in one of the top-50 television markets if the applicant owned one or more stations at the time of application. On June 21, 1965, the Commission proposed a ruling that would prohibit acquisition of more than three television stations, no more than two of which could be VHF, in the top-50 markets. A maximum of seven television stations, no more than five of which can be VHF, in any markets still remains in effect. No divestiture of existing licenses was proposed.[34]

In March, 1970, the Commission adopted rules prohibiting ownership of stations in different services (AM, FM, or television) in the same city or town, but the rules do not apply to existing holdings. There are some exceptions provided for in this ruling.

The licensee of a class IV AM station (local with power limited to 1000 watts) in a community of less than 10,000 people may obtain a license for an FM station serving the same area. The licensee of a daytime-only AM station may secure a license for an FM station in the same market.

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[34] Ibid., pp. 701-702.

However, an FM licensee cannot obtain a daytime-only AM license in the same market. An existing AM-FM combination in the same market can be secured by another party not owning a service in the area if a proper showing is made that for economic or technical reasons the stations cannot be sold and operated separately.[35]

In summary, commonly-owned stations in the same broadcast service are prohibited from operating in the same area (the so-called "duopoly" rule). A single owner may control a maximum of seven AM, seven FM, and seven television stations, no more than five of which may be VHF stations (the so-called "concentration of control" rule). Furthermore, the Commission designates for hearing any application for the acquisition of a VHF station in one of the top-50 television markets if the applicant currently owns or has interests in one or more VHF stations in those markets.[36] With certain exceptions, licenses are forbidden from acquiring a second service in the same area.

The multiple ownership rules are designed to prevent undue concentration of control and monopoly in the

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[35]See Ibid., p. 339 and FCC, Annual Report, 1970, p. 3.

[36]See Ibid., p. 697 and FCC, Annual Report, 1968, p. 26.

broadcasting industry, and at the same time to encourage the greatest possible diversity in programing. Besides increasing concentration and limited program diversity, another alleged effect of combined ownership of broadcast stations in the same market is to lessen the degree of competition for advertising among the alternative media. Another is that a combined owner may use practices which exploit his advantage over the single-station owner. Such practices include special discounts for advertisers using more than one medium, or cumulative volume discounts covering advertising placed on more than one medium. Furthermore, it is alleged that the use of identical call letters for commonly owned stations in the same area has anticompetitive effects.

Recently a study was made to determine if television stations owned by multiple licensees achieve significantly more revenue (network, spot, and local) per home delivered than do television stations owned by single licensees. Ninety-two per cent of the television stations on the air in 1965 were sampled. From the study, it was concluded that "in television, looking at the comparison between multiple licensees and single licensees over all markets and within the market rank categories of 1-50, 51-100, and 101 and above,

there is no ownership effect on total revenue per home delivered."[37]

Another recent study reconfirms these findings.[38] To test the supposition that group-owned stations have a greater bargaining power with advertisers, the cost per thousand homes reached based on prime 20-second spot rates for both group-owned and single-owner stations was compared. No significant difference was found in the overall averages for the group-owned stations versus the single-owner stations ($3.27 and $3.28, respectively).

An analysis of network affiliation refuted the hypothesis that group-owned stations were affiliated with the "better" and "stronger" networks, i.e., NBC and CBS. The weakest network, ABC, had the same proportion (33 per cent) of stations affiliated with it for both group and single owners.[39] Whether groups have undue economic power as compared with single owners was also examined by considering

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[37]James A. Anderson, Robert L. Coe, and James G. Saunders, "Economic Issues Relating to the FCC's Proposed 'One-to-a-Customer' Rule," Journal of Broadcasting, XIII (Summer, 1969), p. 252.

[38]Robert Brandwein, Paul W. Cherington, and Leon V. Hirsch, Television Station Ownership (New York: Hastings House, Publishers, 1971), pp. 46-64.

[39]Ibid., p. 46.

their relative profitability. If group-owned stations have an advantageous competitive position in the industry, they should be realizing greater profits than single owners as a result of their monopolistic power. The measure used was profits before taxes expressed as percentages of broadcast revenue. No substantial difference was found between the profits of groups and single owners except for the larger groups (those with four or more stations). The higher ratio recorded for these reflects the profitability of the network owned-and-operated stations, which is largely attributable to their location in the top-ten markets.[40]

Multiple ownership of television stations apparently does not result in monetary advantages to the group-owned stations by allowing them to secure a greater bargaining power with advertisers or to become affiliated with the so-called "stronger" networks. In fact, other things being the same, the type of ownership characteristic of a given station (e.g., single-owner versus group-owner) has little bearing on its revenue situation. While multiple ownership increases the total revenues and profits of the parent firm, it has no effect on the total revenue per home delivered of a given station (i.e., plant).

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[40] Ibid., pp. 61-64.

The multiple ownership rules might be economically justified, however, if they tended to encourage more diverse programing on the limited broadcast spectrum. In fact, such rules do not have this desired tendency. Consider the reason.

An obvious fact about television programing is that it is extremely expensive. An hour television network show costs about $200,000,[41] and these costs are increasing. At the same time, advertising revenue is increasing, but at a decreasing rate.[42] Thus programing is becoming relatively more expensive each year.

Traditional antitrust policy favors growth of enterprises through internal expansion, rather than through merger. The technical parameters of operation of a television station limit its range of reception, and the amount of advertising that any station can accept is limited by the amount of time available. The Television Code of the National Association of Broadcasters fixes limits on the amount of commercial time a station may carry, and the Commission favors compliance with the code. Thus television

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[41] Newsweek, January 22, 1968, p. 94.

[42] See figures in Chapter II.

stations do not have the possibility of growth through internal expansion that is open to other types of firms.

Horizontal integration is limited by the "duopoly" and "concentration of control" rules. However the simple numerical ceiling which is imposed equally on all groups irrespective of the markets in which they operate (7 television stations, no more than 5 of which may be VHF) has little real basis. The owner of a station in the top market could easily reach a larger audience than a 7-station owner in smaller markets. Such a rule results in a subsidy to those fortunate enough to secure a "good" channel. Such subsidies take the form of an economic rent when the station is sold.[43]

Vertical integration in the television market implies an expansion into program production. Almost all television stations engage in this activity to some extent, but the costs of program production constitute an economic barrier to this kind of activity on a large scale by any entity lacking very large amounts of capital. The multiple

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[43]In 1958, the Columbia Broadcasting System bought WCAU from the Philadelphia Evening Bulletin for $20,000,000. Of this, it paid $4,400,000 for the station's physical assets, $3,000,000 for its AM and FM licenses, and $12,600,000 for its television license.

ownership rules, which limit horizontal merger, thus limit vertical integration since program production is profitable only when supported by large amounts of capital resources.

The multiple ownership rules would appear to discourage program diversity by encouraging stations to use network programs in the interest of profit maximization rather than to seek a more diversified (and more costly) program fare of syndicated and local programing.

Furthermore, the multiple ownership rules of 1964, 1965, and 1970 which do not require divestitute of existing licenses impose no handicap on the present networks and other large multiple owners. But new enterprises are prevented from acquiring as many stations as these large groups currently own. The rules thus protect the present multiple owners against new or increased competition, while preventing or discouraging the growth and expansion of smaller enterprises in television broadcasting and the entry of strong new enterprises. The more recent multiple ownership rules thus do significant harm to the cause of program diversity and competition in the field of television broadcasting without countervailing benefits.

Direct Control over Product Differentiation

Besides its regulatory efforts to increase competition, the FCC has assumed direct control over product differentiation in the interest of program diversity. Its means were through the issuance of the Blue Book, and reducing the control of the national networks over programing by outlawing option time and initiating the prime-time access rule.

The Blue Book

The first major effort of the Commission in the area of programing occurred in 1946 when it issued the famous Blue Book.[44] A "balanced program fare" was prescribed and a quantitative evaluation of a station's overall performance was proposed. For a broadcast service to be "balanced," it should include sustaining (non-sponsored) programs, local live programs, and discussions of public issues.

According to the Blue Book, sustaining programs are essential for several reasons. Some types of programs are not appropriate for commercial sponsorship. Minority interests should be served and yet may not be attractive

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[44]The full title is Public Service Responsibility of Broadcast Licensees (Washington, D.C.: Government Printing Office, 1946).

advertising targets. Non-profit organizations should have some access to broadcast facilities. And there should be experimentation in programing, although advertisers may not be willing to risk untried formulas.

The Blue Book also maintained that local live programs are necessary for local self-expression in a community. The FCC emphasized the use of local facilities along with reception from such facilities. Discussions of public issues reveal the concern of the Commission that broadcasting be used as a medium for disseminating ideas and opinions as well as facts and entertainment.

By 1961 the Blue Book was forgotten. But that year the application form for a broadcasting license was modified to require a showing of the measures taken to determine the "needs" and interests of the community and the methods by which the applicant proposed to meet such needs.

But this has been no more effective in guaranteeing diversified programing than the Blue Book. Actually, the only way such a procedure can become effective is if the Commission itself determines the "needs" and interests of the communities involved. In the words of Fisher, "If the inquiry of the licensee is sketchy, if he talks to the wrong people, if he receives unreliable information, if his polling

skills are inadequate, if his evaluation is faulty, if he relies on unstated techniques to determine program needs, the programing may not be reasonably responsive to the needs of the community, but the Commission will never know."[45] Of course, the Commission does not have the time nor the resources to engage in such detailed studies of community "needs."

The Outlawing of Option Time

What the American public sees on television is largely determined by those who control the major television networks. A major effort to diversify programing came on September 10, 1963, when the Commission prohibited "option time," a contract between a network and an affiliate whereby the latter promises clearance for network programs during specified hours of specified segments of the broadcast day. The Commission concluded that option time "is not essential to successful television network operations, that it restrains the freedom of choice of licensees as to what programs to present and at what times to present them, and

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[45]Ben C. Fisher, "Program Control," p. 609.

restricts access by non-network groups to desirable evening time."[46]

Option time was thus prohibited in an effort to correct the competitive imbalance between networks and their affiliates and increase the diversity of program sources. Prohibiting option time, however, has had no noticeable effect on the amount of network time cleared by affiliates. Due to the high costs of local live programing, licensees have received larger amounts of income merely by riding the networks. Furthermore, although network affiliation contracts are for two-year periods, networks typically review a station's record of delayed (recorded and then run at a more convenient time) and non-cleared programs to determine whether it would be in the interest of the network to affiliate with another station in the area.

The elimination of option time has not made more time available for non-network programs and has not increased competitive program sources in the interest of program diversity, since the profit-maximizing television station finds that it is economically advantageous to clear most

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[46]FCC, Annual Report, 1963, p. 71.

network programs.[47] Thus the "prime-time access rule" was initiated.

The Prime-Time Access Rule

This rule provides that after September 1, 1971, no television station, assigned to any of the top-fifty markets in which there are three or more operating commercial television stations, shall broadcast network programs offered by any television network or networks for a total of more than three hours per day between the hours of 6 p.m. and 10 p.m. (central standard time). The rule exempts special news programs dealing with fast-breaking news events, on-the-spot coverage of news events, and political broadcasts by legally qualified candidates for public office. But stations are forbidden from scheduling syndicated programs which are merely reruns of old networks shows, and they are prohibited from scheduling motion pictures previously shown on television.

The objective of the FCC is to provide the opportunity "for competitive development of alternative sources of television programs" so that affiliates will have more than a

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[47]FCC, Reports, Vol. 23, May 29, 1970-July 17, 1970, p. 396.

"nominal choice" in selecting programs and independent stations will have new sources of syndicated programing.[48]

The action of the Commission was based on the following facts. At the beginning of 1970, almost seventy per cent of the television stations in the top-50 markets were network affiliates, and the figure was eighty-seven per cent for the country as a whole. Out of a total of twenty-eight hours between 6 p.m. and 10 p.m., network affiliates only carried an average of between 3.3 and 4.7 hours of non-network programing a week. Out of the twenty-one hours between 6:30 p.m. and 9:30 p.m., the figure was between 1.2 and 1.6 hours. And non-network programing increasingly consisted of off-network programs.

Between 6 p.m. and 10 p.m. during sample weeks in 1958 and 1968, all stations in the top-50 markets decreased first-run syndicated entertainment series from 1065 to 833 half-hours, despite an increase in the number of stations. In contrast, off-network entertainment series increased from 136 to 916 half-hours. The statistics for affiliated stations show the same decrease. Between 5 p.m. and 10 p.m., the average weekly station hours of first-run syndicated programs

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[48]FCC, Annual Report, 1970, p. 38.

decreased from 4.15 in 1958 to 1.55 in 1968, while off-network programs increased from 0.52 to 1.79. The picture was the same for independent stations, which should be the backbone of the syndication market. Between 5 p.m. and 10 p.m., the average weekly station hours of first-run syndicated programs decreased from 10.95 in 1958 to 8.54 in 1968, while off-network programs increased from 0.87 to 11.02.[49]

The three national television networks vritually control the entire network program production process from idea through exhibition. The share of all network evening program hours either produced or directly controlled by networks increased from 67.2 to 96.7 per cent between 1957 and 1968. Programs produced by independent producers dropped from 32.8 to 3.3 per cent between the same two years.[50]

This increase in network control over programing has both fostered and been fostered by a change in the type of advertising and the length of programs, as well as by the desire to increase profits. There has been a decrease in program sponsorship and an increase in spot announcements of

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[49] See Table 22.

[50] See Table 23.

TABLE 22

AVERAGE WEEKLY STATION HOURS FOR SYNDICATED AND OFF-NETWORK PROGRAMS IN THE TOP-FIFTY MARKETS FROM 5 to 10 p.m., 1958 and 1968

	Independent		Affiliated	
	1958	1968	1958	1968
Syndicated	10.95	8.54	4.15	1.55
Off-Network	0.87	11.02	0.52	1.79

Source: FCC, Reports, Vol. 23, May 29, 1970-July 17, 1970, pp. 385-386.

TABLE 23

SOURCES OF PRIME-TIME PROGRAMS CARRIED ON NETWORKS, 1957 AND 1968

	Three Networks Combined (Per Cent)	
	1957	1968
(1) Network Produced	28.7	16.3
(2) Network Participation*	38.5	80.4
(1) and (2) Combined	67.2	96.7
(3) Independently Produced	32.8	3.3

*Produced by others and licensed to networks.

Source: FCC, Reports, Vol. 23, May 29, 1970-July 17, 1970, p. 389.

several advertisers within a single program. This is said to spread the financial risks in the use of television and improve cost effectiveness. Furthermore, the high and increasing costs of a program venture exclude most advertisers from sponsoring it alone.

Almost 90 per cent of evening network time is sold in the form of spots. Evening program segments of one hour or more increased from 30.1 per cent in 1957 to 76.7 per cent in 1968. Half-hour programs decreased from 66.7 per cent in 1957 to 23.3 per cent in 1968.[51]

The loss of a syndication sub-industry over the years is best explained by the growth in the use of network time by major stations throughout the country, and the resulting lack of prime-time on affiliated stations. A thriving syndication industry producing prime-time quality programs must have an adequate base of stations to use its service. Since stations in the top-50 markets reach over seventy-five per cent of the television audience, access to these markets is essential to form such a base. A result of the decreasing market for syndicated shows is that independent stations,

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[51]ADL Report, Table 4, p. 10. Reported in FCC, Reports, Vol. 23, May 29, 1970-July 17, 1970, p. 390.

many of which are UHF, have had difficulty in locating prime-time quality sources of programs at reasonable costs. Their inferior status has thus been multiplied by an inability to present entertainment comparable to affiliated stations, and something less than a competitive national television service has resulted. A further result is that programing has been less diverse than may be expected from a more independent position of producers of programs.

The principle concern of the Commission in passing the prime-time access rule involved the shift from a situation in which almost thirty-three per cent of all regularly scheduled prime-time programs were provided to the networks by advertisers via independent producers, to the condition prevailing in 1968 when only three per cent of network programs were supplied by independent producers. However, such a rule is not an effective means to the end of program diversity.

The lack of diversity in programing which results from a three-network market is attributable to the Commission's allocation of the spectrum. A large percentage of television homes are unable to receive four competing commercial signals, and a fourth network cannot hope to compete under these

conditions. Since program costs dominate total network costs, a fourth network would have to incur costs per home significantly in excess of the existing firms and significantly above average revenues per home.

Networks compete somewhat rigorously for viewers. The popularity and following of particular programs is of prime concern, and raiding by one network of another's programs has been done. Since competition focuses on maximization of audience share, a network cannot be expected to air many programs which would not attract at least one-third of the audience.[52] Thus network programing does not produce a great deal of variety.

Is the prime-time access rule the answer to creating greater diversity of programing? Certainly not. The effect of limiting network offerings to stations to three prime-time hours is that more time will be available to the syndication market. The total quantitative effect is not a small one in terms of hours opened up to alternative program sources. The qualitative effect probably will be.

There is no reason to expect a significant number of stations to incur the high costs of local programing. These

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[52]This fact will be developed more fully in the next chapter since it is at the crux of the problem at hand.

hours will be filled by programing similar to that offered by the networks, but it will involve lower production costs per program. This can be expected since the national sale of programs through networks allows significant economies in selling commercial time to sponsors, and in distributing programs and commercial announcements. Since regional and local brokers will now come into play, transaction costs will rise. Such increasing costs will have to be offset by a lowering of program quality. The Commission will thus have diverted resources from the production of programs to the distribution of them.

Networks became more involved in programing in order to serve as brokers for small as well as large advertisers who wished national coverage, and in doing so, increased the demand for network services. Such free market alterations appear to overshadow any means the Commission might use to increase program diversity, since independent syndicators operating through regional and local brokers will become, in effect, a fourth network. The only effect of the new policy, however, will be more expensive program distribution, more

cumbersome advertising sales, and a reduction in program production expenditures.[53]

The major problem with the prime-time access rule, assuming it will foster increased sources of syndicated programing, is that it, like the Blue Book, the development of UHF television, the multiple ownership rules, and the outlawing of option time, will not necessarily promote real diversity in programing. If this is the real purpose of the Commission, a different economic base for program presentation must be encouraged. The recent decision of the Commission to encourage the origination of programing by subscription television stations may be the most important step along the road to increased program diversity in the television broadcasting industry. The economics of subscription television as a supplement to commercial television and a means to program diversity is the topic of the next chapter.

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[53]See Robert W. Crandall, "The Economic Effect of Television-Network Program Ownership," Journal of Law and Economics, XIV (October, 1971), pp. 393 and 406-408.

CHAPTER IV

SUBSCRIPTION TELEVISION

Broadcast regulation has from the beginning sought to promote a balanced and diversified program service through licensing-allocation policies geared to alter industry structure and conduct. Balance refers to the industry's product mix as among national, regional, and local programming and time sales, and as among entertainment, advertising, news, public affairs, and other program types. Diversity refers to the range of viewer choice within each of these categories.[1] A distinction is made between increasingly diversity (adding more serious drama, serious music, ballet, art, etc., to the light entertainment programing which currently predominates) and increasing quantity (further choice within the restricted entertainment universe of commercial television). The concept of diversity is not to be confused

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[1]Harvey J. Levine, "Broadcast Structure, Technology, and the ABC-ITT Merger Decision," Law and Contemporary Problems, XXXIV (Summer, 1969), p. 452.

with an attempt to measure or influence program quality, a difficult job and one bordering on limiting freedom of speech.

Television broadcasting has been called "a vast wasteland," primarily because of its lack of program diversity. Duplication is a result of competition for viewers, and there is a great deal of duplication in types of programs on commercial television. This duplication "tends to inject a sense of economic inflation into the medium, for which the advertiser and, ultimately, the consumer pays."[2]

One recent study defined twenty different categories of programs such as feature films, variety, news, dramatic adventure, dramatic comedy, documentaries, fine arts, sports, etc. A cross-section study of fifty-nine television markets indicated that during the 6 p.m. to 11 p.m. period, as the number of stations in a market rose from one to five to ten, the average number of different kinds of programs available per half-hour only rose from 1 to 3.61 to 6.05. For all viewing hours, it was found that as the number of stations increased from one to five to ten, the average number of

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[2]Stanley T. Donner, The Meaning of Commercial Television (Austin: University of Texas Press, 1967), p. 29.

different kinds of programs available per half-hour only increased from 1 to 3.10 to 4.38. As the number of stations increases, the number of types of programs available increases at a decreasing rate.[3] Adding commercial stations results in more programs of the same type offered by existing stations, rather than a real increase in choice through diversified programing.

Although television viewing is at an all-time high, the problem remains that television is not appealing equally to all segments of the population. Three-fourths of the viewing is done by forty per cent of the viewers.[4] Moreover, an average of only 62.7 per cent of the television households turns on their set during prime-time hours.[5]

Since commercial television is supported by the advertising dollar, it is an economic fact that diversity in programing cannot be substantially greater than the diversity of commercial interest in reaching a limited audience.[6] The

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[3]Douglas W. Webbink, "The Impact of UHF Promotion: The All-Channel Television Receiver Law," Law and Contemporary Problems, XXXIV (Summer, 1969), pp. 549-550.

[4]Donner, Meaning of Commercial Television, p. 34.

[5]Television Magazine, May, 1965, p. 32.

[6]Roscoe L. Barrow, "The Attainment of Balanced Program Sercice in Television," Virginia Law Review, LII (January, 1966), p. 638.

influence of the advertising function has been to bring about a serious imbalance in television programing. Gresham's law operates in television broadcasting to drive out programs of interest to substantial minority audiences and to bring in those attracting the maximum number of viewers.[7] As a result, a subsidy accrues to those who derive satisfaction from television service. This subsidy comes from the higher prices that must be paid for advertised products by minority groups who are not catered for on commercial television.[8]

The preceding chapter showed that the structure of the television broadcasting industry is such that government regulation has failed to achieve the objective of increased diversity in programing, and further regulation is not likely to foster increased diversity in the future. The result is that the economic welfare accruing to society from television broadcasting is not optimum since a substantial portion of the population is not adequately being served. Two alternatives exist as solutions to this problem.

One is complete government operation of the industry, converting the product of the industry (the television

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[7] Ibid., p. 635.

[8] This argument was developed in Chapter Two.

program) from a private good to a public good. The second alternative, and the one advocated in this chapter, is the introduction of subscription television as a supplement to commercial television.

Alternative One: Government Operation of the Industry

Complete government operation of the industry as a solution to the problem of program diversity would imply that the government should diversify programing by its own standards of judgment and supply advertiser-supported and/or taxpayer-supported programing at a "zero" price to the viewer. Consider the rationality for such an alternative.

Let A be a public good privately supplied. Let B, C, D, and so on be private goods privately supplied. For many consumers, the marginal utility of a dollar's worth of good A may be so low that they will not purchase it at a competitively determined price. That is, even though the marginal utility of the good is not zero,

$$\frac{MU_A}{P_A} < \frac{MU_B}{P_B} = \frac{MU_C}{P_C} = \frac{MU_D}{P_D}, \text{ etc.}$$

The consumer will not purchase the public good at its competitive price, although he would at lower prices (to a limit

of a zero price). If a zero price were established, such individuals would consume the public good. They would be better off, and no one would be worse off since no more of society's resources are used when they consume it. Thus it is reasonable to argue that television broadcasting be publicly supplied.

In such a situation, the government, rather than profit-maximizing entrepreneurs, would dictate programing decisions. This would, perhaps, result in a more diversified program fare than currently exists in television since it could be assumed that the government would operate the industry with some goals other than profit maximization given first priority. This alternative is rejected for two reasons.

First, it is not in line with the philosophy of the economic system prevailing in the United States where the role of the government as a supplier is limited to markets in which the price system does not allocate resources efficiently.

Second, there is no economic criteria (only value judgments) that would allow one to decide whether or not the overall effect of such a structural change would benefit society. More specifically, it would be difficult to measure the cost to those who would lose programing which they currently enjoy with the benefits that would accrue to those

(minorities) not currently being served. Such an alternative places strong confidence in the government and its (value) judgments as to what would constitute an improved program fare.

Alternative Two: Subscription Television

The second alternative is to alter the current structure of the industry by allowing the private (but regulated) market to supply free (advertiser-supported) television programing and to permit a positive price to be set on some television broadcasting, thereby segmenting the market for television programs. It will be shown that such market segmenting will offer substantial benefits and will increase the economic welfare of society.

Much of what has been written during the past two decades has concentrated on the social and cultural implications of subscription television (sometimes referred to as STV). Little has been said about its economic possibilities. Before analyzing STV in its economic setting, some introductory comments concerning the history and nature of STV are in order.

Historical Development of STV

Disagreement over the proper source of revenue for broadcast stations is not a recent phenomenon. Prior to the passage of the Communications Act of 1934, individuals had urged that radio broadcasting be kept free of advertising. A subscription television system was even envisioned by the pioneers of television as well as the critics of radio advertising. But, as mentioned in Chapter I, television was destined to follow in the commercial footsteps of its predecessor.

Acting under Section 303 of the Communications Act which requires it to "study new uses of radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest,"[9] the FCC authorized preliminary over-the-air subscription television experimentation as early as 1950. In that year the Skiatron system was tested over WOR-TV, New York City. In 1951, the Telemeter system was tested over KTLA-TV, Los Angeles, and Zenith tested its system over

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[9]U.S. Congress, Communications Act of 1934, Section 303.

its own experimental station in Chicago.[10] These tests were made without general public participation.

On February 10, 1955, the Commission instituted a proceeding to determine whether television stations should be authorized to transmit programs to be paid for on a subscription basis (Docket 11279). On October 17, 1957, the Commission adopted its First Report in the subscription television proceeding in which it indicated that applications to conduct trial operations would be considered if prescribed conditions were met. In that respect, the Commission held that trial operations were necessary to: (1) enable the public to register its own judgment on such a service; (2) obtain information concerning the competitive impact of subscription television upon the "free" system; (3) obtain operating information concerning the need to standardize technical equipment and methods; and (4) determine whether such a service would require additional controls, including possible amendments to the Communications Act.

In a Second Report issued on February 27, 1958, the Commission deferred action on applications for trial

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[10]The various systems differ mainly in the way the transmissions are scrambled and unscrambled and whether coin boxes, punch cards, or tape are used to bill subscribers.

operations until after the close of the 85th Congress in order to afford Congress an opportunity to consider pending legislation on the matter. On July 23, 1958, the Commission continued the status quo so that the first session of the 86th Congress could resume consideration of the subject. No national laws affecting STV were then or have since been adopted.

After further consideration of the matter, the Commission issued a Third Report on March 24, 1959, indicating that it was prepared to consider any subscription television application by a commercial television station (or by an applicant for a commercial television station) which conformed with revised requirements set out in the report.

On June 22, 1960, Hartford Phonevision Company (later RKO General Phonevision Company), licensee of WHCT-TV, channel 18, Hartford, Connecticut, applied for authorization to conduct a trial subscription television operation. The station began such operations on June 29, 1962, and concluded them in January, 1969. In 1962, the Commission authorized a public test of subscription television by KTCO-TV, channel 2, Denver, but the project was never started.[11]

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[11]FCC, Subscription Television, Washington, D.C., December, 1970, pp. 4-7. (Mimeographed.)

A third application was filed in 1963 by KVUE-TV, channel 40, Sacramento. However, it was returned as unacceptable since it failed to comply with the conditions for trial operations.[12]

The most promising but disheartening trial came in Los Angeles. Just as the operation appeared to become a success, broadcasters and motion picture exhibitors forced a repeal referendum onto the 1964 California ballot and convinced the public to vote against subscription television. The Supreme Court declared the referendum illegal two years later, but the California company had already gone bankrupt.[13]

A Fourth Report, adopted on December 12, 1968, established over-the-air subscription television as a supplemental broadcast service. The new rules governing the service (other than technical standards) became effective on June 12, 1969. Technical standards were adopted on September 4, 1969, in a Fifth Report.

Nature of STV

STV and CATV

STV is a method of distributing television programs to those who have subscribed and levying a monetary charge

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[12]FCC, Annual Report, 1963, p. 69.

[13]Time., December 27, 1968, pp. 58-59.

upon the subscriber for the reception of each individual performance. Charges vary from program to program and are the sole source of station revenue from the program. In contrast, community antenna television (CATV) systems are not broadcast stations since they merely receive and amplify the transmissions of television broadcast stations and then redistribute the signals by cable to subscribers for a fixed (usually monthly) fee.

CATV is relatively more important in smaller markets than in larger ones, where all three networks can be received off-the-air. About eighty per cent of the CATV systems have fewer than 2000 subscribers.[14] STV, however, is feasible only in relatively large markets where the potential number of subscribers is significantly large.

Many viewers who can receive one or two television signals with grade A clarity from their own area stations pay the monthly CATV fee in order to expand their choice to more than one or two stations. The rapid expansion of CATV in recent years offers viable support for the proposition that consumers are willing to pay not only for improved

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[14]See Table 24.

TABLE 24

CATV SYSTEMS BY SUBSCRIBER SIZE,
AS OF MARCH 15, 1971

Subscriber Size	Systems
20,000 and over	12
10,000 - 19,999	60
5,000 - 9,999	176
3,500 - 4,999	120
2,000 - 3,499	338
1,000 - 1,999	462
500 - 999	476
50 - 499	731
49 and under	34
Not Available	169

Source: Television Digest, Inc., Television Factbook, 1971-1972, p. 81-a.

reception of television signals, but also for an expanded program fare.

The "freeze" on television licenses imposed by the Commission from 1948 to 1952 had the effect of limting the number of television stations to those already in operation as of September, 1948. CATV systems were born of a desire by people in small and isolated communities to obtain television service. The first systems were established largely by local enterprise in areas unable to support a local station and beyond the signal range of outside stations.

As early as 1949, a pioneer community antenna was tested at Astoria, Oregon, and the first commercial CATV system was started the following year in Lansford, Pennsylvania.[15] At the end of 1970, 2570 CATV systems were in operation. At that time, there were 60,929,000 television households in the United States, of which 5,300,000 or 9 per cent, were subscribers to a cable system.[16] Over the past decade, the number of subscribers has increased at an average annual rate of about 21 per cent, and the number of

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[15]FCC, Annual Report, 1965, p. 78.

[16]See Table 25.

TABLE 25

CATV SYSTEMS AND SUBSCRIBERS,
JANUARY 1, 1952-1971

Year	Operating Systems	Total Subscribers
1952	70	14,000
1953	150	30,000
1954	300	65,000
1955	400	150,000
1956	450	300,000
1957	500	350,000
1958	525	450,000
1959	560	550,000
1960	640	650,000
1961	700	725,000
1962	800	850,000
1963	1000	950,000
1964	1200	1,085,000
1965	1325	1,275,000
1966	1570	1,575,000
1967	1770	2,100,000
1968	2000	2,800,000
1969	2260	3,600,000
1970	2490	4,500,000
1971	2570	5,300,000

Source: Television Digest, Inc., Television Factbook, 1971-1972, p. 81-a.

systems has grown at an annual rate of approximately 14 per cent.

Whereas early systems offered programs over only two or three channels, today the majority of systems offer between six and twelve channel choices.[17] The average subscriber pays about $5 per month for the service in addition to an initial installation charge. Although such installation charges can be as high as $175, they typically are about $20.

Delivery of STV Programs

Two technically feasible methods of program delivery have been devised: the airwave system and the closed circuit or wire system. The airwave system transmits programs conventionally; however, the visual signal is scrambled to prevent reception by non-subscribers. Decoders, attachable to any standard television receiver, unscramble the distorted picture.. The wire system delivers the program through a coaxial cable connected to the subscriber's television receiver by means of "drop lines." The programs are fed into a program selector attached to the set.

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[17]See Table 26.

TABLE 26

CHANNEL CAPACITY OF EXISTING CATV SYSTEMS, MARCH 15, 1971

Channel Capacity	Number of Systems
Over 12	157
6 - 12	1882
Only 5	371
Less than 5	50
Not Available	118

Source: Television Digest, Inc., Television Factbook, 1971-1972, p. 66-a.

The most significant characteristic differentiating the two systems is that of cost, both initially and during operation. The airwave system requires a relatively small capital outlay, and a conventional television station can scramble its signal at a relatively small cost. The only major expense is the manufacture and installation of decoders, at a cost of less than one hundred dollars each. In contrast, the installation of a wire system entails a large initial capital investment, and rental rates for the use of telephone poles are almost prohibitive in themselves. Furthermore, there is the cost of manufacture and installation of program selectors. The airwave system has distinct economic advantages, and thus was adopted in 1969 by the FCC.

In addition to its economic advantages, the airwave system permits access to a substantially larger subscriber area. A decoder can be installed on any set capable of receiving the signal of the station. The market of the wire system, however, is limited to those areas where cable has been laid.

Existing CATV systems can readily receive the scrambled television signal; and since it will be received and retransmitted in scrambled form, CATV will serve its

function as a means of improved reception and will not interfere with (but complement) STV.

Feasibility of STV

A subscription television station is feasible only if its programing is such that a sufficient number of households choose to become subscribers in order to support the station (and allow it to earn an economic profit). Zenith has estimated that an STV station would break even with 20,000 subscribers spending an average of $65 per year for programs and $39 for decoder rental.[18] If the number of subscribers is more, or the average program expenditure is higher, the business will show profits as indicated in Table 27. With a fifty per cent penetration, STV could break even (at least) in the top-200 markets. With twenty per cent penetration, STV could break even in 170 markets. With ten per cent, STV could operate in 91 markets; with five per cent, it would operate in 46 markets; and with three per cent, STV could exist in 20 markets.[19]

The national average station rate for prime time is $3 per minute per 1000 homes. Thus, a program one hour in

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[18] FCC, Reports, Vol. 15, November 15, 1968-January 31, 1969, p. 591.

[19] Ibid., p. 592.

TABLE 27

SUMMARY OF STV PROJECTIONS BY ZENITH-TECO

Number of Subscribers and Average Program Expenditure Per Year	Sales (Thousands)	Cost (Thousands)	Profit (Thousands)
20,000 Subscribers			
$65 per year	$ 2,120	$ 2,711	$ 1
$75 per year	2,320	2,711	119
40,000 Subscribers			
$65 per year	4,240	5,393	619
$75 per year	4,640	5,393	855
75,000 Subscribers			
$65 per year	7,950	10,087	1,780
$75 per year	8,700	10,087	2,223
100,000 Subscribers			
$65 per year	10,600	13,441	2,591
$75 per year	11,600	13,441	3,181

Source: FCC, Reports, Vol. 15, November 15, 1968-January 31, 1969, p. 591.

length delivering 1000 homes and having 16 commercial minutes would produce, on an average, $48. At a rate of less than $ .05 per hour per set, STV could generate $48 per thousand homes per hour; at $ .50 per hour, STV could make an equal return with free television with only one-tenth the audience.

Many who watch television are not completely satisfied. But who are these 37.3 per cent that do not currently watch television, but perhaps would with improved programing, and thereby serve as a substantial prospective STV audience? Besides those who find current programing unworthy of the time spent viewing, there are others who would prefer for various reasons to remain at home for entertainment given improved programing. A trip to the movie theater (or other entertainment) involves indirect costs in addition to the tickets, such as transportation, parking charges, babysitting fees, adverse weather conditions, etc. The average motion picture is seen by only five per cent of the population; a major picture is viewed by only eight per cent or, in rare cases, ten per cent of the population.[20] The average family of four going to the

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[20] Ibid., p. 482.

movies twice a month at $1 a ticket spends $96 a year, not counting indirect costs and the price of popcorn. At a rate of $ .50 per hour, this family could watch 192 hours of programing on STV (for $96), equivalent in time to 96 two-hour movies. Such additions to the box office potential of a film would serve to increase the quality and quantity of movies.

STV will open up opportunities for new writers, producers, directors, and actors by co-sponsoring new productions. A typical Broadway show that runs a year in a theater of 1200 seats with every performance sold out is seen by 499,200 persons. Many of the ten million residents of New York or the millions of persons in the rest of the country would like to see the show but cannot because of distance or cost. STV may therefore stimulate an additional quantity of Broadway plays, operas, and so forth.[21]

It was mentioned in Chapter Two that 64.8 per cent of all UHF stations are unprofitable. While only 48.9 per cent of the network affiliated UHF stations are unprofitable, 95.8 per cent of the independent UHF stations are losing money.[22] This means that many currently operating UHF

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[21] Ibid.

[22] See Table 20.

stations are potential candidates for STV if and when they are convinced that such an operation would be profitable. The plight of UHF was methodically charted by the giants of the television industry in order to reduce competition and enhance profits. STV offers a means by which UHF stations can strike back, in the interest of the public, in the interest of competition, and in the interest of themselves.

It may be preferable at first for existing UHF stations to become subscription stations, since the only capital outlays necessary would be a scrambler for the station and a decoder for each subscribing home. Thus STV would not be stunted in its early growth by the expense of constructing new stations.

With respect to the programing, loss of money, and poor penetration rate of the Hartford STV trial,[23] the Commission has recognized that there were problems in the limited trial which would not necessarily result on a

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[23]The trial, which commenced in 1962 and ceased operations in 1969, did not provide the diversity of programing that STV had promised, never became profitable, losing over $3½ million in the first three years of operation, and never achieved over one per cent penetration. However, company executives expected to lose money on the trial, and made it clear that the objectives of the trial were to obtain operating experience. FCC, Reports, Vol. 15, p. 489.

nationwide basis. The FCC agreed with the proponents of STV that "nothing in the Act indicates that establishment of a new service must be preceded by absolute proof that it will be viable, and that authorizing a new service does not require evidence of a widespread public demand."[24] Such proof was not made when the Commission allocated space for UHF or when it reserved channels for educational television in 1952. And there was no great demand for FM or television services when they commenced. In fact, the National Association of Broadcasters prophesized doom for commercial television before it grew from 8500 television homes to 95 per cent of all homes in the nation.

The Hartford trial did underline the fact that STV has broad appeal, particularly to the middle- and lower-income families: 43 per cent of the subscribers had average annual incomes between $4000 and $7000; 85 per cent had average annual incomes of $10,000 or less.[25]

FCC Constraints

STV poses a fundamental competitive challenge to the present system of advertiser-supported networks and stations.

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[24] Ibid., p. 491.

[25] Broadcasting, June 16, 1969, p. 61.

To guard against allowing serious conflicts of interest to retard the further development of networks and stations and to allow speedy integration of STV into the ongoing structure, a number of limitations governing the operation of STV stations were written into the 1969 rules for the service.

In order that STV will be a supplement and not a replacement for commercial television, only one station will be allowed in any area and only in a community which is within the grade A service contours of at least four other commercial television stations.[26] Thus, the consumer will not be forced to pay directly for television programing unless he so desires. The typical consumer will not be willing to pay for what he is currently able to receive free, so competition will force subscription stations to diversify their programing if they are to survive.

Because STV is a more efficient mechanism with respect to requiring individuals to pay for what they watch, the FCC feared that STV would be able to outbid commercial television for the most popular programs. The resulting audience diversion from "free" television would reduce the

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[26]See Table 28.

TABLE 28

MARKETS RECEIVING AT LEAST FOUR CHANNELS

NEW ENGLAND: Boston, Hartford-New Haven, Providence-New Bedford.

MIDDLE ATLANTIC: Albany-Schenectady-Troy, Buffalo, Harrisburg-Lancaster, Johnstown-Altoona, New York City, Philadelphia, Pittsburgh, Rochester, Syracuse, Wilkes-Barre-Scranton.

SOUTH ATLANTIC: Atlanta, Baltimore, Charleston-Huntington, Greensboro-Winston-Salem, Greenville-Spartanburg, Jacksonville, Miami, Norfolk-Portsmouth, Orlando-Daytona Beach, Richmond, Roanoke-Lynchburg, Tampa, Washington.

NORTH CENTRAL: Cape Girardeau, Cedar Rapids-Waterloo, Champaign-Decatur, Chicago, Cincinnati, Cleveland, Davenport-Rock Island, Dayton, Des Moines, Detroit, Duluth-Superior, Flint-Saginaw-Fay City, Grand Rapids-Kalamazoo, Indianapolis, Kansas City, La Crosse-Eau Claire, Lincoln-Hastings-Kearney, Milwaukee, Minneapolis, Minot-Bismarck, Omaha, St. Louis, Toledo, Wichita.

SOUTH CENTRAL: Birmingham, Dallas-Fort Worth, El Paso, Houston, Louisville, Memphis, Mobile-Pensacola, Nashville, New Orleans, Odessa-Midland, Oklahoma City, San Antonio, Shreveport, Tulsa, Waco-Temple, Wichita Falls-Lawton.

FAR WEST: Albuquerque, Boise-Nampa, Colorado Springs-Pueblo, Denver, Idaho Falls-Pocatello, Los Angeles, Phoenix, Portland, Reno, Sacramento-Stockton, Salinas-Monterey, Salt Lake City, Ogden-Provo, San Francisco-Oakland, Seattle-Tacoma, Spokane, Tucson.

Source: U.S. News & World Report, March 16, 1970, p. 85.

advertising revenues of "free" television and thereby reduce its buying power. To prevent the so-called siphoning of programing from commercial television, STV stations are precluded from the use of feature films more than two years old except for those that are unavailable to conventional television, and a limited number (up to twelve per year) of films over ten years old. Furthermore, any sports event regularly broadcast over conventional television in a community within two years preceding the proposed STV broadcast may not be shown on STV,[27] and series types of programs with interconnected plots or substantially the same casts may not be broadcast on STV.

STV stations are required to broadcast at least the minimum number of hours of nonsubscription free programing required of all television stations, and commercials are prohibited on STV broadcasts. To assure some program diversity, no more than ninety per cent of STV broadcast time may be devoted to feature films and sports.

The Commission has chosen not to regulate subscriber rates, but charges, terms, and conditions of service must

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[27]Of prime interest in this connection, however, would be the possibility of broadcasting sporting events now "blacked out" in specific areas.

be applied uniformly. Decoders must be leased, not sold, to subscribers.[28] The large expenditures which the public has been forced to make by the 1962 all-channel receiver law in an effort to promote UHF television[29] fortunately will not be repeated in promoting subscription television. All necessary equipment conducive to such a system will be owned by the station itself, and a subscription to such a system is entirely voluntary.[30]

Economic Rationality of STV

In order to consider the rationality of directly charging consumers for viewing television on a per program basis, the unit of output needs to be defined more explicitly. The relevant unit of output for a subscription station is the service of a series of noncommercial television programs. The price charged for viewing each program varies and is based upon the cost of presenting the program. The

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[28]FCC, Annual Report, 1969, pp. 40-41.

[29]See Chapter Three.

[30]At some later stage, it may be in the public interest to permit the sale of decoders, since a continued leasing requirement could mean that subscribers would pay more in rental fees than it would cost to buy the decoding equipment. The Commission's intent for the present is to protect subscribers against obsolescence or cessation of service.

Samuelson-Minasian debate analyzed the rationality of charging a positive price for television programing.

Almost two decades ago, Professor Samuelson classified television broadcasting as a public good, since each individual's consumption of it leads to no subtraction from any other individual's consumption of that good.[31] Since the marginal cost of providing a television signal to an extra family (excepting decoder charges) is zero, a subscription television system charging a positive price for a program would appear to violate the Paretian optimality principle that goods should be priced at their marginal costs.

According to Professor Minasian, such a use of the optimality condition is unjustified since it uniformly defines all output combinations as optimal without any discrimination. A pricing rule that takes as given the kinds of output should not be identified with the optimum principle for resource allocation. The optimization principle dictates the use of costs; the dictum that price should equal zero is

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[31] Paul A. Samuelson, "The Pure Theory of Public Expenditures," Review of Economics and Statistics, XXXVI (November, 1954), pp. 387-389, and "Aspects of Public Expenditure Theories," Review of Economics and Statistics, XL (August, 1958), pp. 332-338.

independent of the value of television output. In general, the rule is applicable to the problem of rationing a given output, but it is not useful in selecting those uses which allow the value of television service to be maximized.[32] If, for example, STV increases the marginal utility derived from viewing a television program more than it increases the price, a condition closer to an optimum is fostered by STV. Furthermore, a comparison of "free" television with STV has economic meaning "only if both systems produce the same quality and quantity of programing."[33] The FCC has provided in its rules governing STV that this will not be the case.

Cost of STV Output

With regard to the output to be priced, the costs implicit in a subscription television service can be divided into three types.

There is the cost of station construction and operation. This includes the cost of the transmitter, antenna, cameras,

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[32]Jora R. Minasian, "Television Pricing and the Theory of Public Goods," Journal of Law and Economics, VII (October, 1964), pp. 72-73.

[33]Ibid., p. 73.

projectors, scrambler, etc. Also included are operational, maintenance, and administrative costs. If a microwave relay or coaxial cable are used to import signals, there will be payments to the common carrier. Such costs will be designated as type X and are independent of the number of subscribers.

There is the cost of producing or purchasing programs. It is assumed that higher costs of production or procurement imply higher quality programing which implies higher costs, but these costs are independent of the number of subscribers. Such programing costs will be denoted as type Y.

Regardless of whether the signal is transported over-the-air or by a CATV system or both, the third cost to the station is for decoders and their installation, maintenance, and administration. The subscriber may choose to import signals via CATV. Nevertheless, a decoder will be necessary since the signal fed to the CATV antenna will be scrambled. This group of costs, denoted as type Z, will be borne entirely by subscribers through a (monthly) rental fee on decoders.

Cost X is a purely fixed cost, and decreases with the number of viewers. Cost Y is a variable cost, and increases

with the quality of programing. The economic cost (price less profit) of a program can then be written as:

$$C(P) = \frac{f(A) + B}{V} + \frac{Z}{P}$$

where V denotes the estimated number of viewers of a given program and P denotes the number of programs viewed during any given month.

Benefits of STV

As a supplement to commercial television, STV is accepted for two reasons as a superior means of allowing television to more optimally serve the public than either continued regulation of the current structure or complete government operation of the industry.

First, STV will provide a more direct and persuasive index of the set owners' program preferences than the rating services. Second, STV will tend to promote a more differentiated oligopoly through its efficient marketing process.

Provision of a Direct Index of Program Preferences

There are some basic differences between the process of arriving at programing decisions under STV and under "free" television. Before discussing these, it should be

understood that conventional television is not free. The viewer must invest in a television receiver, and then must pay maintenance and operating costs.[34] Indirectly, the viewer and the public in general pay for television broadcasting through higher prices on advertised products.[35] There is also an opportunity cost involved to the viewer and to society--the increased satisfaction or output which might have resulted had the individual chosen not to spend a given amount of time as a viewer.

The decision of whether or not to broadcast a program on commercial television is based on the potential audience,

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[34]Since the beginning of television, the public has invested approximately $40 billion in television sets, as compared to approximately $300 million by the networks and their owned-and-operated stations and $1 billion by all other stations for physical facilities--about 1 per cent for networks and 4 per cent for stations of the public's investment. (See Table 8.) Furthermore, the public's daily operating cost amounts to 25 cents per television home. (See FCC, Reports, Vol. 23, May 29, 1970-July 17, 1970, p. 391.)

[35]Advertisers spent $3,660 million for television advertising in 1970. (See Table 10.) Dividing that figure by the estimated 62,500,000 television households indicates that each household paid an average of $58.50. In reply to arguments that advertising benefits society by reducing production costs (via economies of scale), Harry J. Skornia says that any such economies are not reflected in lower prices and cites evidence where the opposite has occurred. (See Harry J. Skornia, Television and Society (New York: McGraw-Hill, 1965), pp. 88-119 and 205-210.)

and the decision of whether or not to continue broadcasting a program is based on audience size as measured by the rating services.

There are several rating services, but as far as television is concerned, the A. C. Nielsen Company and the American Research Bureau (ARB) are the most significant. Nielsen measures the audience electronically using a device known as the "Audimeter." When wired to a television set, it continuously records the channels that are tuned. It indicates the time a station was tuned, how long it remained in view, and when and for how long each change was made. But the Audimeter does not record who or how many (if any) are viewing. It does not record the impression they get of the program. It does not indicate whether or not they like the program, or if they are on the telephone or reading while the set is on. Thus the Audimeter is merely a timekeeper, not a critic.

Nielsen Audimeters are attached to 1200 television sets in various parts of the country; there is approximately one Audimeter for every 52,000 television homes. If a set is tuned to a program for at least six minutes, the program is considered as "viewed." Thus it is possible for Nielsen

to deliver a total audience rating[36] of X for a program, wherein half of those sets belonged to people who watched six minutes, became disgusted, and tuned out. Nevertheless, they will become a part of the ratings, which will be delivered to networks, advertising agencies, and sponsors as validation of the premise that people are getting what they want.

The American Research Bureau places a viewer "diary" in 2200 homes. Unlike the Audimeter, the ARB diary allows the viewer to record who (age and sex) and how many (if any) view each program. However, the diary is not accurate unless the viewer records the information correctly. There is the possibility that the diary-keeper will forget to record all his viewing or that he will record his viewing in such a manner that it is appealing to ARB and its clients. That is, there is a chance that he will under-record or over-record.

There are other rating services (such as Trendex and Pulse) and procedures (such as telephone calls and personal

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[36]A total audience rating of X for a given program indicates that X per cent of the television homes in the rated area were tuned to at least six minutes of this program.

interviews), but all of these are accused of avoiding randomness in their sampling. As many as thirty per cent of the originally designated homes refuse to have Nielsen's Audimeter installed on their sets. ARB's diary-homes (and Trendex's telephone calls) are selected from telephone directories, thus omitting the possibility of selecting a non-telephone or non-directory-listed home. Because only 70 per cent of American homes can be reached through published telephone directories, and because only 85 to 90 per cent of those who answer will cooperate, the effective information figure is 60 to 63 per cent, further diminished by the raters' exclusion of toll-call areas. Well-known problems arise with the personal interview method of Pulse, including interviewer or respondent errors, poorly formulated questions, language difficulties, refusals to cooperate, and absences from the home.[37]

The major problem with the present rating process, other than its lack of randomness, is that the number of viewers, not the intensity of want, is relevant. What a viewer would be willing to pay for a program plays no part

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[37]Harold Mehling, The Great Time-Killer (Cleveland: World Publishing Co., 1962), pp. 233-234.

in determining what will be broadcast. Votes take a value of zero (a non-viewer) or one (a viewer) rather than a much wider range of values as measured by dollar votes. To what degree the viewer liked or disliked a particular program is unimportant--the ratings indicate only that he did or did not have his set tuned to it.

Thus, under the present system of television (1) there is no means which assures either that people who watch a program pay for it or that those who pay, pay according to what they feel it is worth and (2) the programing decisions of the industry reflect an effort to maximize the audience, but the viewer has no means of directly indicating his demand. He is forced to watch what others have chosen to broadcast (based on the rating services' reports) or turn off his set.

STV has a more efficient marketing process since: (1) only those who view a program will support it and (2) in order to maximize profits, STV will show programs which the public will pay most to see (with their dollar votes) rather than the programs which, if free, would be watched by the largest number of people. Since an STV station must rely directly on subscribers for its revenue, the market

test of programs will be a more direct indicator of consumer demands than is possible with the rating services.

Promotion of a Differentiated Oligopoly

When only a few firms provide a good or service to a market area, as in the case of television broadcasting, the market structure is defined as oligopoly. Such a market structure is the result of spectrum limitation (posing as a barrier to entry) and economies of scale so significant in the industry that a substantially larger number of firms (stations) could not supply the industry demand without incurring significantly higher average (per viewer) costs.[38] Each of the firms in such a market structure must take account of the effects of its policies on rivals. When there is a homogeneous good or service provided, such mutual interdependence is more significant than when the goods or services provided are close, but not perfect substitutes. Television broadcasting, in its current structure, is a

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[38]Two other explanations for the emergence of oligopoly, although not applicable to television broadcasting, have been offered. Firms may find it to their advantage to eliminate competition by merger. And firms may secure absolute advantages in cost which permit them to operate profitably at a price at which others cannot survive. See Joe S. Bain, Pricing, Distribution, and Employment (New York: Henry Holt and Co., 1953), p. 271.

differentiated oligopoly, but forces within the industrial structure tend toward the creation of a pure oligopoly as a result of the tendency toward program duplication.

Product differentiation, first emphasized as such by Chamberlin in the 1930's, refers in essence to preferences for one or some of a variety of similar goods or services. Although product differentiation is propagated by differences in the design or physical quality of competing products; by efforts of sellers to distinguish their products through packaging, branding, and the offering of auxiliary services to buyers; and by advertising and sales-promotional efforts designed to win the allegiance and custom of the potential buyer; the first of these is far more applicable to the television broadcasting industry (where differentiation occurs at all).

Chamberlin has argued that "differentiation is often conceived as describing the reprehensible creation by businessmen of purely factitious differences between products which are by nature fundamentally uniform."[39] For example, although two detergents have different colors and different

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[39] E. H. Chamberlin, "Product Heterogeneity and Public Policy," American Economic Review, XL (May, 1950), p. 87.

packaging, there may be no real cleaning-power difference between them. Since program differentiation in the television industry as it exists today is likely to be more real than this, Chamberlin would probably prefer to apply the term "heterogeneous oligopoly" (rather than differentiated oligopoly). Nevertheless, the tendency toward pure oligopoly still remains. Consider the explanation for such a tendency.

A mass audience is the most important element necessary for the continuation of a given program on commercial television. If a given program commands less than one-third of the audience in a three-station market, there is a tendency for the station (or network) to produce a program more similar to that being telecast by one of the other (more popular) stations (or networks), thereby moving toward program duplication, less diversity, and (in the limit) a pure oligopoly. At times, such tendencies have taken the form of program siphoning, and movement of popular programs from one network to another or one station to another is common.

With respect to the viewer, television time as a service has a zero (direct) price, and the principal

consequence of product differentiation--that the seller gains some independent jurisdiction over his price--is therefore not operative. It is when the advertiser, rather than the viewer, is considered the buyer (of time) that the tendencies toward a pure oligopoly are at work. Three national advertisers sponsoring a given segment of time on the three national networks would each, theoretically, obtain one-third of the audience if the identical program were shown on all three networks.

Consider a situation in which there are three (free) channels broadcasting to a population whose tastes vary in the following way: out of every 100 potential viewers, 80 want a program of type A, 18 want a program of type B, and the remaining 2 want a program of type C. Furthermore, assume that a viewer will turn on his set only if a program of the type he prefers is broadcast.

The three competing firms, each trying to maximize its audience, will probably all produce a program of type A since each one's share of the mass audience will be larger than the whole of the potential audience for programs of types B or C. Assuming that two or more stations producing the same program type will share the audience equally, it is obvious that a fourth channel will also produce a

program of type A. Only if there were five stations could one expect a program of type B to be aired, and at least 48 stations before type C would appear.[40]

Consider another situation. Assume that broadcasters have two programs of equal length available and have broadcast time for only one. Also assume that 1000 people would pay $1 to see program A, 500 would pay $2, and 2500 would watch the program if it were free. For program B, 1000 would pay $ .75, 800 would pay $1.50, and 2200 would watch the program if it were free.

The STV station, like any rational monopolist, would run program B for $1.50 to 800 people in order to maximize his revenue (given costs). The "free" television station would broadcast program A since revenue from advertising would be greater given a larger audience.

Program A		Program B	
Price	Number of Viewers	Price	Number of Viewers
$2	500	$1.50	800
1	1000	.75	1000
0	2500	0	2200

[40] P. O. Steiner, "Monopoly and Competition in Television," Manchester School of Economic and Social Studies, XXIX (May, 1961), pp. 114-115.

Thus, the majority vote (indirectly determined by the rating services) determines what programs will be run on commercial television. Programs with the highest audience rating are broadcast. STV, however, makes possible an efficient marketing system which determines a price, and dollar bidding replaces voting. Thus a minority may outbid a majority and real program diversity will accrue.

One significant by-product that may also accrue as a result of STV is actual and not merely nominal competition in programing. Past actions of the national networks give reason to believe that they will not be willing to sit idly by and watch STV capture their audiences. In an effort to avoid such audience diversion, the networks will be forced to improve the quality of their programing, which would be in the public interest. Interestingly, this will not change the type of programs offered by the networks since a mass audience will remain a necessity on commercial television; it will merely serve to improve the quality of existing program types. STV as a supplement to commercial television will not only increase program diversity and thus be conducive to the existence of a differentiated oligopoly, but it will also tend to improve program quality. That increased program diversity and quality will tend to accrue without

government regulation is a significant feature of STV as a supplement to commercial television.

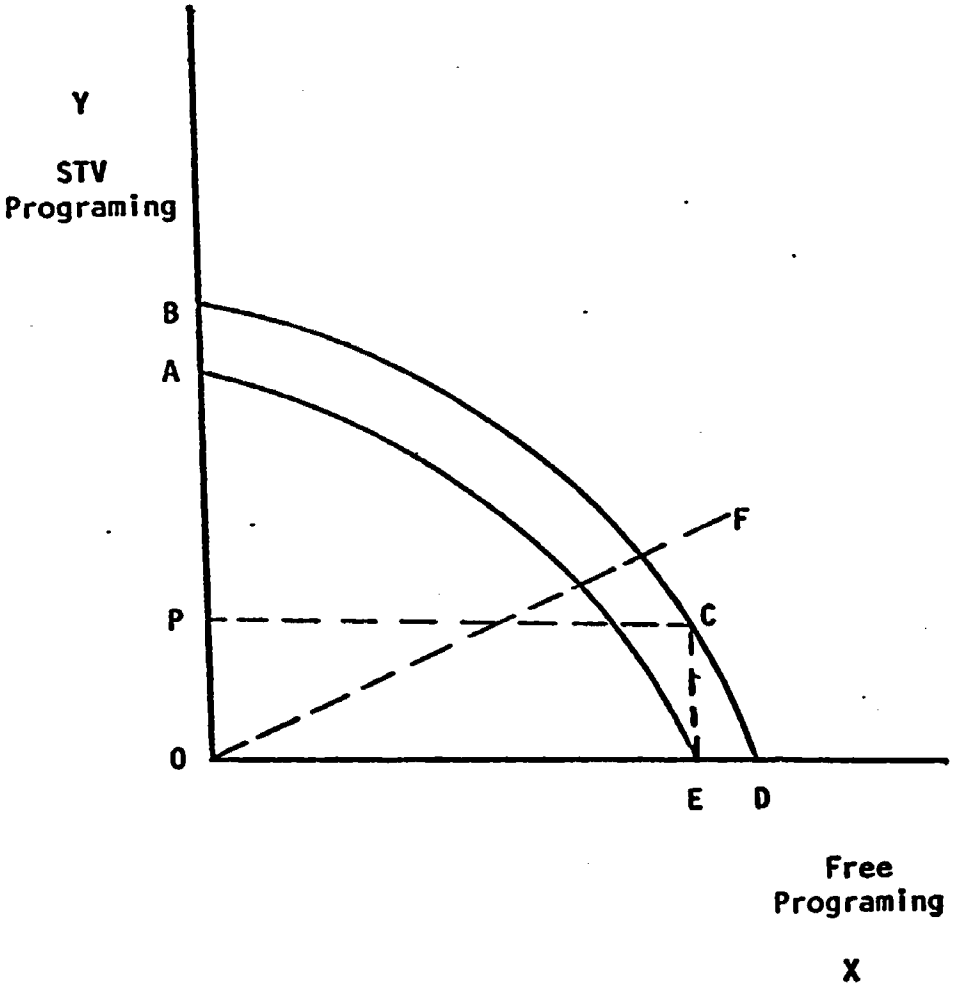
Welfare Economics of STV

Advocating STV is a policy change at the foundations of welfare economics since its promotion should imply that an increase in the welfare of the community as a whole will result. Some criteria must therefore be established to evaluate the welfare implications of such a structural alteration of the television broadcasting industry and to test whether or not the proposed policy change would be an improvement. Before discussing these criteria, it is necessary to consider the shape of the transformation curve which is assumed.

Let X and Y represent the two goods, free television programing and subscription television programing, respectively. The transformation curve for them is indicated in Figure 8.

The "full-employment" transformation curve is represented by BD. That is, BD shows the maximum amount of free programing (OD) or STV programing (OB) or any combination of the two (along BD) that would exist if the entire spectrum allocated to television were being utilized. AE represents the transformation curve that would exist if

FIGURE 8



no new stations commenced operation. That is, AE represents the various combinations of free programing and STV programing that could exist given the 682 stations currently on the air.

Presently, the amount of television programing available is represented by OE. If STV stations commence operations only on unused channels and no commercial station is forced off-the-air solely as a result of STV, the transformation curve will become BCE. That is, STV programing could reach the level of OP and there would be no quantitative effect on free programing. Society is better off at any point between E and C than at E since it gets as much free programing (measured by OE) in addition to subscription programing (measured by any point between O and P).

If, however, all STV stations commence operations on channels previously occupied by commercial stations, the transformation curve will take its usual shape as indicated by AE. That is, the amount of free programing will decrease as the amount of STV programing increases.

The actual situation is likely to be between these two extremes. That is, some STV stations will commence operations on unused channels while others will commence

operations on channels previously occupied by commercial stations. As movement along the actual transformation curve occurs in a northwest direction (implying an increase in STV programing), the slope of the curve will tend to decrease. This implies that the rate of increase in the quantity of STV programing will be greater than the rate of decrease in the quantity of "free" programing, up to some limit.

This limit exists because of the FCC ruling which allows only one STV station in any area and only in a market which is within the grade A service contours of at least four other commercial television stations. As indicated in Table 28, only 83 markets meet these requirements. Movement to a point on the transformation curve to the left of a line such as OF seems unlikely in view of FCC constraints on the number of STV stations that will be approved, so that the area to the right of line OF contains the relevant segment of the curve for purposes of this analysis of welfare.

Given such a transformation curve, four criteria--the Pareto criterion, the Kaldor criterion, the Scitovsky criterion, and the Bergson criterion--and the theory of the consumer surplus can be applied in order to evaluate the

overall effect on economic welfare of the proposed alternative to the current structure of television broadcasting. It will be shown that a reallocation of resources from commercial television to subscription television will increase the welfare of society.

The Pareto Criterion[41]

The Pareto criterion states that a change may be regarded as necessarily desirable in terms of economic welfare only if the change benefits someone without injuring anyone else. So that it can be compared with the other criteria, the Pareto criterion is translated into graphic terms.

Assume that in a given market area there are only two consumers, A and B, and A derives more utility from free television than B. In Figure 9, the utility of A is represented along the horizontal axis and that of B along the vertical axis. The utility scales of the two individuals need not be comparable and it does not matter how this

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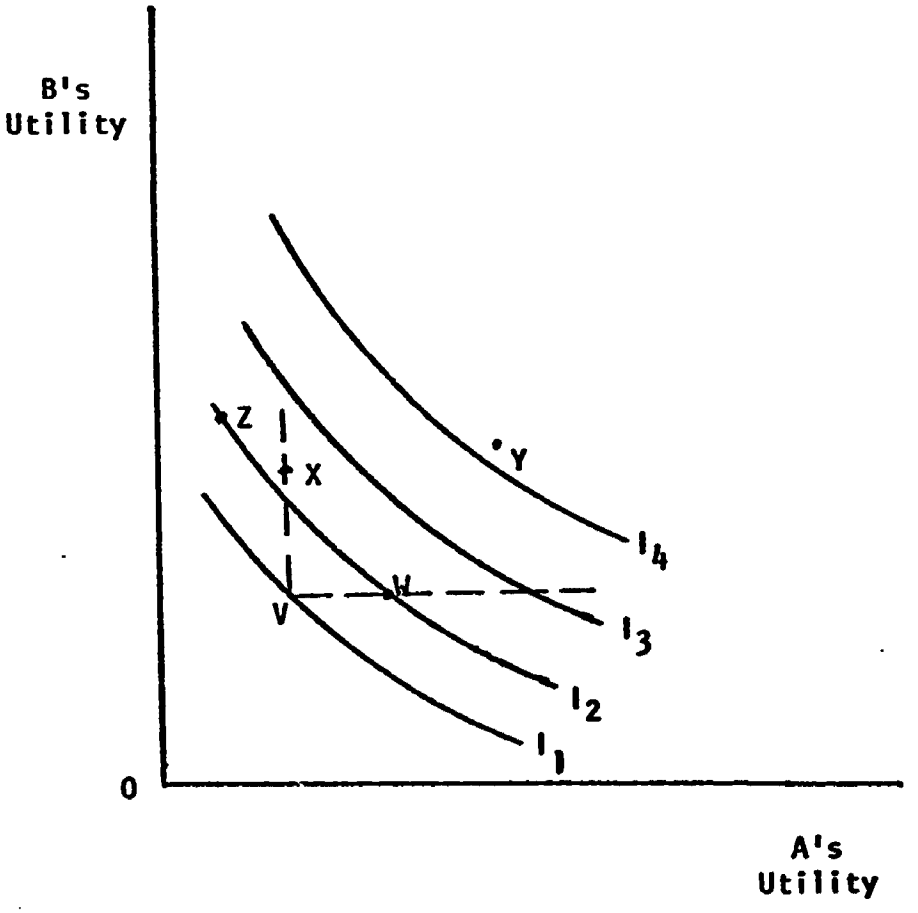
[41]Vilfredo Pareto, Manuel D'Economie Politique, 1909. Reprinted in Alfred N. Page, Utility Theory: A Book of Readings (New York: John Wiley & Sons, Inc., 1968), pp. 168-181.

FIGURE 9



utility is measured. The Pareto criterion states that starting from a situation represented by, say, point V, a change is an improvement if it results in a move to any point to the north, northeast, or east of V. At W, A is better off than at V and B is as well off as before. A move to X benefits B without harming A, and a move to Y benefits both persons.

Since scarce resources in the television broadcasting industry imply a concave transformation curve, the movement of resources into STV may promote movement of resources out of free television. The Pareto criterion does not apply to a change that will benefit some and harm others. For example, a move from V to Z in Figure 9 cannot be evaluated on the basis of the Pareto criterion, for this change increases the welfare of B, but it does so at the expense of A.

The Kaldor Criterion[42]

In order to evaluate a move such as that from V to Z, Kaldor proposed the following criterion. Suppose one asks B how much he would pay rather than forego the move from V to Z. Call this amount M_B. Then ask A how much he

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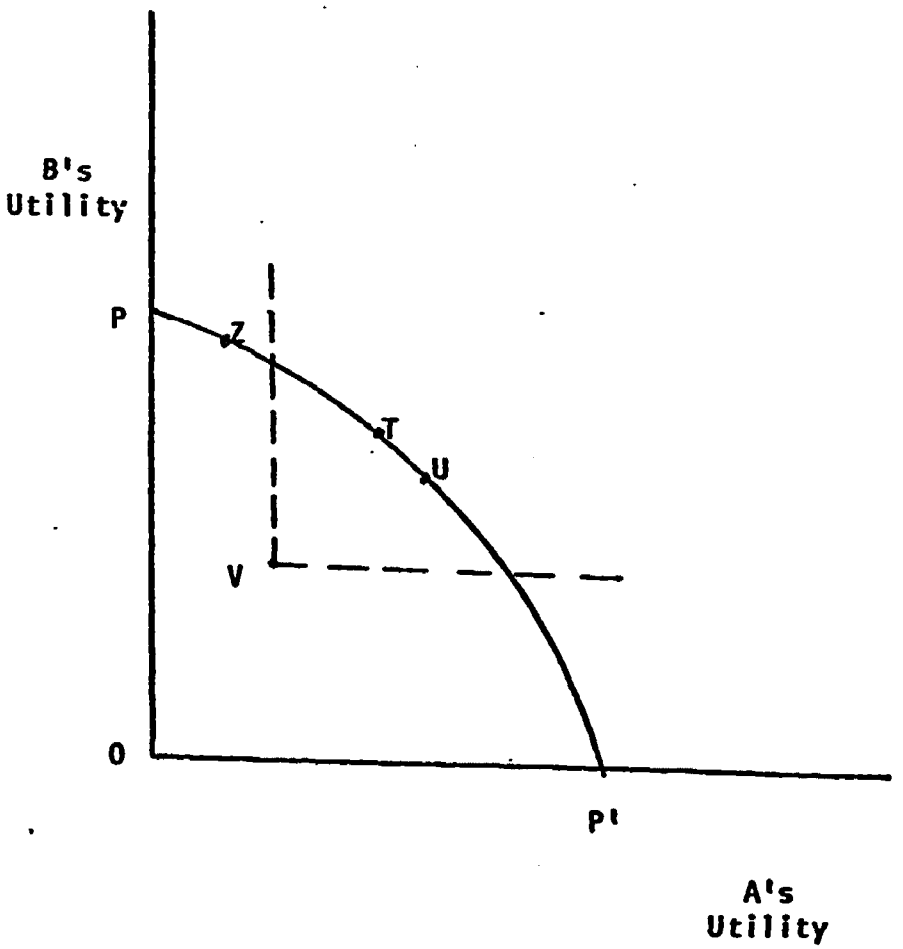
[42]Nicholas Kaldor, "Welfare Propositions in Economics and Interpersonal Comparisons of Utility," Economic Journal, XLIX (September, 1939), pp. 549-552.

would pay to prevent this change. Call this amount M_A. According to Kaldor, if M_B exceeds M_A, B could compensate A for his loss in welfare and keep some of the gain ($M_B - M_A$) for himself. Kaldor does not require that A actually be compensated, but that B be able to potentially make the compensation out of his gains. Such a change with compensation would be an improvement even under the Pareto criterion.

Such a criterion can be graphically demonstrated using a utility possibility curve (which assumes a point, say E, on the transformation curve). In Figure 10, PP' is such a curve indicating the locus of all combinations of A's and B's utility levels which can be achieved by a redistribution of wealth between A and B (where this redistribution is accompanied by no other change). As mentioned above, the move from V to Z cannot be evaluated solely by the Pareto criterion. But there are points such as T and U which can be attained from Z by a redistribution of wealth. These points lie north, northeast, and east of V. By the Kaldor criterion, the move from V to Z is an improvement since wealth can be redistributed at Z so that no one loses as a result of the change. At points such as T and U, A has been compensated for his loss. Any move from point V to point Z is an improvement by the Kaldor criterion if and

FIGURE 10



only if V lies underneath the utility possibility curve through Z. Scitovsky pointed out a weakness in the Kaldor criterion.

The Scitovsky Criterion[43]

A move to point C would imply a different utility possibility curve such as QQ' in Figure 11. According to the criteria so far established, a move from V to any point between Z and W could be an improvement.[44] According to Scitovsky, a move to a point to the left of Z on the utility possibility curve could not be an improvement for A. However, such a move does not seem likely in view of the rules limiting the number of STV stations that could exist to 83 and only one per market where at least four commercial stations are in operation. That is, it is assumed that A's utility could not decrease enough so that a point to the left of Z would become a reality. To avoid such a decline in utility is apparently the purpose of the FCC ruling. Even if the rule did not exist, there is no reason to expect

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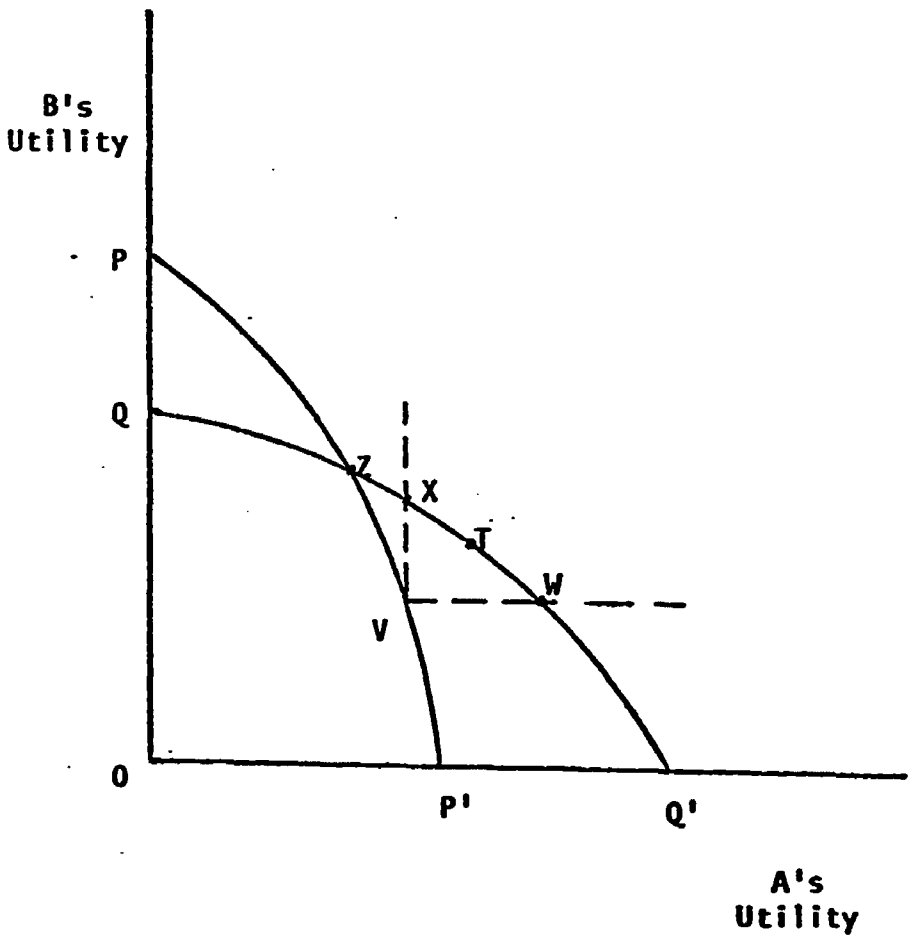
[43]Tibor Scitovsky, "A Note on Welfare Propositions In Economics," Review of Economic Studies, IX (November, 1941), pp. 77-88.

[44]Movement to a point between W and Q' is not assumed to occur since this would imply that the introduction of STV had caused a decrease in B's utility.

FIGURE 11



conversion from commercial television to STV to an extent necessary for the existence of any point to the left of Z due to the profitability of network affiliates in each market area. This is to say that some point on the transformation curve other than E would result in an improvement in the economic welfare of society, and such an improvement is given support by rules limiting the number of STV stations in any market area. C can be regarded as preferred to E because it involves a movement to a point such as T, which improves the original position of both consumers. According to Scitovsky, the change is an improvement if the move from E to C is an improvement (according to the Kaldor criterion) and if the move from C to E is not an improvement (according to the Kaldor criterion).

The Bergson Criterion[45]

Using the three criteria previously established along with the Bergson criterion of formulating a set of explicit value judgments which enable one to evaluate the situation, some conclusions can be made regarding the welfare economics of STV. This amounts to the construction of an indifference

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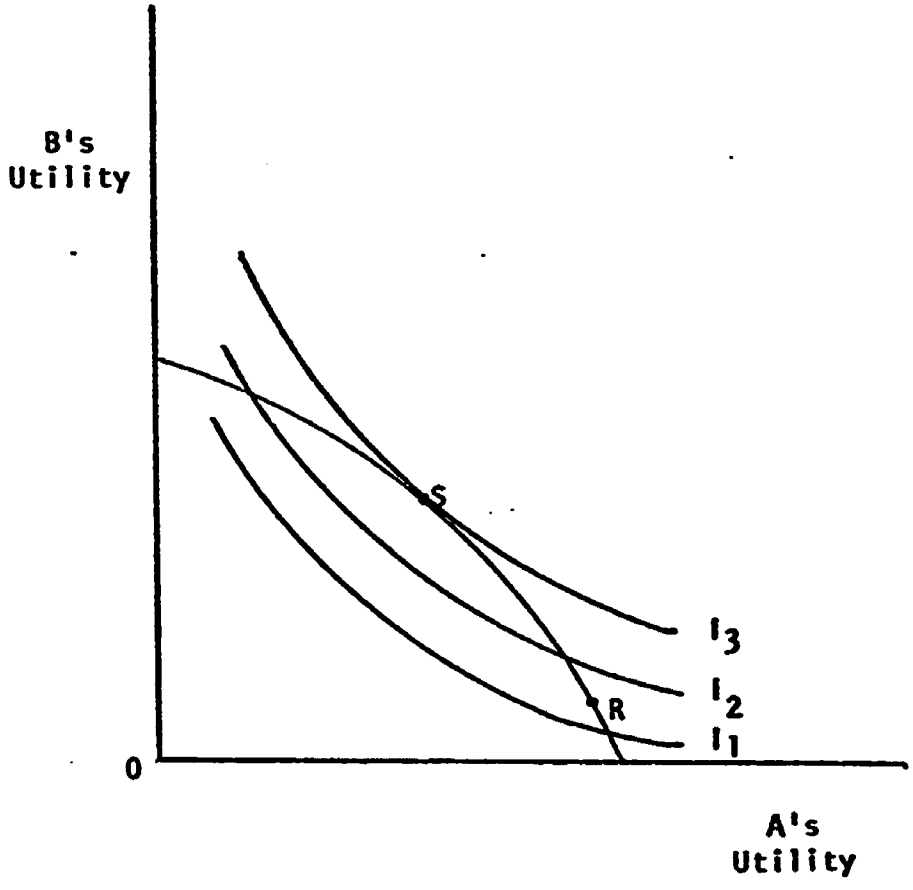
[45] Abram Bergson, "A Reformulation of Certain Aspects of Welfare Economics," Quarterly Journal of Economics, LII (February, 1938), pp. 310-334.

map for society as a whole, or a so-called social welfare function, which permits one to judge whether or not a policy change is an improvement. This social welfare function may represent the value judgments of the legislature, the economist, the general populace, or (in another economic setting) a dictator. For example, a change that moves society from point R to point S in Figure 12 is an improvement, since S is on a higher social indifference curve than R.

As previously mentioned, there would be a tendency for improved quality in programing to accrue as a by-product of the more differentiated oligopoly since commercial stations may otherwise find a significant portion of their audience diverting to STV. Such a tendency would tent to improve the economic welfare of those who are nonsubscribers to STV.

One further point needs to be made. Social welfare functions based on democratic decision-making do not always exist. A choice was made to apply economic welfare theory to the question of whether STV as a supplement to commercial television would be an improvement. There are many difficulties in the analysis of decision-making by groups wherein the social welfare function depends on the utility

FIGURE 12



levels of consumers. Another approach might be to assume that the government (or some individual) can assert that society is better off in one situation than in another. The limitations of such a straightforward approach, however, are obvious.

The Consumer Surplus

Marshall's consumer surplus--the excess over price that a consumer would pay for the right to continue to buy something that he is now buying--appears to further the support for STV. How is one to say that a reorganization of production, which makes B better off, but A worse off, marks an improvement? If B is made so much better off by the change that he could compensate B for the loss, and still have something left over, then the reorganization is an unequivocal improvement.

Assuming that each household viewing a commercial program paid the three or four cents that is currently paid by advertisers (so that a true demand curve might be constructed), the demand curve for a given program on commercial television would likely be more elastic than the demand curve for a program on STV, since closer substitutes exist for the former in the form of other commercial stations.

Given the supply curve, the more inelastic demand curve for an STV program (relative to a commercial program) implies that the consumer surplus per viewer for the commercial program is less than that for the STV program due to the existence of close substitutes for the former. This additional surplus implies that the social cost (the opportunity cost) of employing factors in commercial television is greater than in STV.

Assuming that factors of production were switched from commercial television to STV, the loss of consumer surplus in free television would be less than the gain in consumer surplus from STV. One could conclude that STV would yield more benefit to those not adequately being served by free television than the loss of free time that might occur were some limited number of resources to be converted to STV. It is doubtful whether viewers would pay a positive price for what they could receive free on another channel,[46] while those who are not being catered for on free television would be willing (and required) to pay a positive price for STV programing. This price is likely to exceed

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[46]The consumer surplus on those channels that choose to convert would be less than the consumer surplus on those that do not, since the latter are likely to be the most popular stations.

what viewers would be willing to pay in order to avoid conversion to STV by a commercial station.

CHAPTER V

SUMMARY

In television broadcasting, program diversity is one standard by which industry and regulatory performance are increasingly evaluated. Program diversity refers to a more varied choice within the framework of television programing rather than to a quantitative increase in viewer choice (i.e., program duplication). Much of the criticism of commercial television focuses on the fact that programing for minority tastes has not accompanied the rapid growth of the industry.

Since 1952, the television broadcasting industry, aided and regulated by the FCC, has become one of the fastest growing industries in America. This growth is in part a product of the increased fruitfulness of the American economy. During this period, the number of stations increased by more than five hundred per cent, and households with television sets nearly tripled. At the end of

1970, the average television household watched television over six hours per day.

Between 1952 and 1970, industry revenues increased nine-fold, and profits increased over eight-fold. The three national networks and 682 individual stations divided these increases approximately equally. The industry, which employs almost 60,000 persons, has not had an unprofitable year in the post-freeze era.

The precedent that advertising would be the chief source of revenue for the industry was set by the radio broadcasting industry, although many had considered some possible undesirable results of commercialized television. In 1970, advertisers spent a total of $3660 million, or 18.6 per cent of all advertising expenditures, on television alone. Of all media, only newspapers received a larger percentage (29.7 per cent) of the advertising dollar, but only television has had an increase in this percentage since 1952. All other media have taken a smaller and smaller fraction of the advertising dollar in the post-freeze era.

Since it combines sight and sound, television departs from all other means of communication. Herein lies the explanation for television's adverse effect, especially on the radio industry, which has experienced a declining rate

of growth during the two decades of television. Radio has received a smaller and smaller percentage of the advertising dollar, in part an effect of shorter listening hours and thus an increasing cost per thousand to the advertiser, and in part due to the lower relative effectiveness of the radio commercial. Radio has been placed in a companion role, and less attention is therefore given to it.

Radio networks have been more affected by television than have radio stations. This is because television's comparative advantage lies in the programing area that was formerly the province of network radio. Individual stations have been able to overcome some of the adverse effects by shifting to the area of radio's least comparative disadvantage relative to television: recorded music and news.

Attendance, revenues, and therefore the number of motion picture theaters have declined since 1952. The fact that the population has increased by more than fifty million during this period makes the decline even more significant. Resource organization, product improvement, and sales to television have helped to some extent, but much of the aid has gone to motion picture distributors and not to theaters.

The radio and motion picture industries have thus had to diversify in order to survive in a world of television,

but the latter has not been forced to do the same. This is a problem that currently exists in the industry from the standpoint of television's requirement to serve the public interest as dictated in the Communications Act of 1934.

The rapid growth of the television broadcasting industry should not be construed to imply that increased diversity in programing has also accrued. This fact is supported by a recent study which concluded that as the number of stations increases, the number of types of programs available increases at a decreasing rate. Furthermore, three-fourths of the viewing is done by 40 per cent of the viewers, and an average of 37.3 per cent of the television homes do not use television during the prime-time hours. Finally, many current viewers feel that they are forced to accept a kind of second best. The absence of demand prices for particular program outputs has left a large portion of the population relatively helpless in its efforts to attain the type of programing it desires.

Policy efforts of the FCC in recent years have been directed toward increasing the level of choice of the public. Its means to this end were through increasing the number of stations by encouraging the development of UHF television, limiting the multiple ownership of stations,

issuing the Blue Book, and reducing the control of national networks over programing by outlawing option time and initiating the prime-time access rule. Such attempts have done little to increase the level of choice of the viewer.

The ultra high frequencies (channels 14-83) are both technically and structurally inferior to the very high frequencies (channels 2-13). Higher frequencies in the broadcasting spectrum require more power for a given signal strength. The typical UHF station thus has a smaller coverage area than the typical VHF station, and UHF has an inferior signal clarity. The vicious circle of UHF broadcasting (small audience, few sponsors, lack of revenue, few good programs, little reason for people to watch or even purchase receivers with UHF tuners, small audience) conditions UHF television as a structurally inferior service.

Early proposals to expand UHF television and remove its inferior status were either rejected or deemed unworkable, impractical, or inconvenient. The all-channel receiver law, requiring that all television sets shipped in interstate commerce or imported into the United States for sale or resale be all-channel receivers, became effective April 30, 1964. UHF television has received some aid from this law, but UHF expansion appears to be a fruitless means

of increased program diversity, given audience inertia and only three national networks.

The idea that multiple ownership rules will promote program diversity is unfounded. Programing is an expensive good, and only multiple owners with large amounts of capital can engage in such activities to any great extent. The relatively superior programing of the national networks (as compared to local programing) is a product of their ability to effect vertical and horizontal integration, conditions prohibited stations to a large extent by the multiple ownership rules.

The Blue Book, proposing in 1948 that stations present a "balanced program fare," was forgotten by 1961 since indirect station efforts at defining a balanced program fare cannot be measured because such a term is vague, and the Commission does not have the time nor the resources to engage in such detailed studies of community "needs."

Option time, a contract between a network and an affiliate whereby the latter promises clearance for network programs during specified hours of specified segments of the broadcast day, was prohibited in 1963; but there has been no noticeable effect on the amount of network time cleared by affiliates. Riding the network is more

profitable than engaging in local programing, since the station must foot at least part of the bill for the latter, and network programs are of better quality for a given average (per viewer) cost.

The prime-time access rule, providing that no television station in the top-fifty markets in which there are three or more operating commercial television stations may broadcast network programs for a total of more than three hours per day between the hours of 6 p.m. and 10 p.m., is the most recent effort to reduce the control of networks over television programing so that diversity will ensue through increased local programing and the rise of a syndication industry. Since a large percentage of television homes are unable (or unwilling) to receive four competing commercial signals, a fourth network cannot hope to compete with existing networks and the high cost of programing prohibits independent stations (as well as affiliated stations) from supporting a large syndication industry producing quality programs of a diverse nature. In most of the markets affected by this rule, the result has been thirty minutes of inferior programing.

The hypothesis of the study is that program diversity in the profit-maximizing television broadcasting industry

cannot be achieved by government regulation, and that a significant improvement in the economic welfare of (actual and potential) viewers can be achieved only by complete government operation of the industry or by reliance on market forces as through subscription television as a supplement to commercial television.

Complete government operation of the industry implies that the government will be allowed to diversify programing by its own standards of judgment and to supply advertiser-supported programing and/or taxpayer supported programing at a "zero" price to the viewer. Although such government operation may result in a more diversified program fare, it is rejected for two reasons. First, it is not in line with the philosophy of the economic system prevailing in the United States where the role of the government as a supplier is limited to markets in which the price system does not allocate resources efficiently. Second, there is no economic criteria (only value judgments) that would allow one to decide whether or not the overall effect of such a structural change would benefit society. More specifically, it would be difficult to measure the cost to those who would lose programing which they currently enjoy with the benefits that would accrue to those (minorities) not currently being

served. Such an alternative places strong confidence in the government and its (value) judgments as to what would constitute an improved program fare.

The second alternative, allowing the private (but regulated) market to supply free (advertiser-supported) television programing and permitting a positive price to be set on some television broadcasting, thereby segmenting the market for television programs, is accepted as superior to the current structure as well as to the first alternative of complete government operation for two reasons.

First, STV will provide a more direct and persuasive index of the set owner's program preferences than the rating services. Second, STV will tend to promote a more differentiated oligopoly through its efficient marketing process.

The fallacies of the television rating services prevent them from truly reflecting the demands of viewers. The samples used by all the rating services lack randomness. Well-known problems arise with telephone calls or personal interviews, including interviewer or respondent errors, poorly formulated questions, language difficulties, refusals to cooperate, and absences from the home. But the most significant problem with the present rating process is that the number of viewers, not the intensity of want, is relevant.

What a viewer would be willing to pay (with his dollar votes) plays no part in determining what will be broadcast. Votes take a value of zero (a non-viewer) or one (a viewer).

STV has a more efficient marketing process since: (1) only those who view a program will support it and (2) in order to maximize profits, STV will show programs which the public will pay most to see (with their dollar votes) rather than programing which, if free, would be watched by the largest number of people.

New commercial stations tend to duplicate the programing of rivals as long as the market share they can thereby command exceeds what they could otherwise preempt with a new program type. The majority vote (indirectly determined by the rating services) thus determines what programs will be shown on commercial television. STV, however, makes possible an efficient marketing system which determines a price, and dollar bidding replaces voting. Thus a minority may outbid a majority. If STV exists along with commercial television, programs that are not currently popular would emerge on the menu with popular ones, thus increasing the level of consumer choice by sustaining a differentiated oligopoly.

One significant by-product of STV as a supplement to commercial television is that actual (and not merely nominal) competition in programing will result in an improvement in program quality. STV will be forced to provide diverse programs of a high quality since consumers cannot be expected to pay for what they currently receive "free." However, in an effort to avoid audience diversion, commercial stations and networks will be forced to improve the quality of their programing. This will not change the type of programs offered by commercial television since a mass audience will remain a necessity; it will merely serve to improve the quality of existing program types.

STV as a supplement to commercial television will thus increase the economic welfare of society by allowing television to serve a larger audience. One group (those not currently being catered for on commercial television) would benefit while injury would not occur to society in general. That increased program diversity and quality will tend to accrue without direct government regulation is a significant feature of subscription television.

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